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Running Head: CLINICIANS' PERCEPTIONS OF TELEMENTAL HEALTH

## To Use or not to Use: Clinicians' Perceptions of Telemental Health

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### **Abstract**

Equal access to mental health services is necessary for healthy individuals and communities. However, due to geographical distances and other barriers, some clients cannot easily access mental health professionals. Technologies such as videoconferencing for clinical purposes (i.e., telemental health) may help to bridge these gaps to connect clients and clinicians at geographically diverse locations. However, despite its potential utility, telemental health has not been widely adopted in Canada. This study is an exploratory investigation into mental health professionals' attitudes toward telemental health, factors that affect the frequency with which they use this technology, and their perceptions of individual characteristics which make clients more or less suitable candidates for telemental health. This study has a particular focus on remote and rural and Operational Stress Injury (OSI) contexts. One hundred and sixty mental health workers across Canada participated in an online survey, and twenty-five mental health workers from Operational Stress Injury clinics across Canada participated in in-person interviews. The data were examined using qualitative and quantitative analysis methods. Findings suggest that mental health workers have overall positive attitudes toward the use of telemental health – particularly for clients in remote and rural locations. Additionally, receiving training in telemental health, being in the mental health field for longer, and perceiving the technology as easy to use are associated with more frequent use of telemental health. Finally, clinicians reported specific client characteristics which they perceive to make some clients unsuitable candidates for telemental health. Implications of these findings and directions for future research are discussed.

*Keywords:* Telemental health, Technology, Attitudes, Client Characteristics, Videoconferencing

## Perceptions of Client Suitability for Telemental Health

There is a high demand for mental health services across Canada – particularly for those living in remote and rural locations (Barbopolous & Clark, 2002). The 2006 Canadian census (Statistics Canada, 2006) classified more than six million people as living in rural locations. Literature suggests that rural residents demonstrate a need for mental health services equal to, or greater than their urban counterparts. Indeed, some authors suggest that rural settings are comparatively more stressful than urban ones as a result of unique factors such as higher levels of unemployment, poverty, accidents, and natural disasters (Barbopolous & Clark, 2002).

Despite these needs, there are fewer services available to those in rural settings. For example, in remote and rural communities mental health workers may only make in-person visits a limited number of times annually. Further, these communities may have access to few resources for mental health treatment due to limited funding, community remoteness, and lack of infrastructure. These challenges may be particularly acute for remote First Nations communities (KO, 2006). Alternatively, individuals seeking treatment may have to travel to urban locations to receive treatment which may result in additional costs associated with travelling, lost work hours, and time away from family (Simpson, 2009). In addition, when individuals from rural and remote locations leave their communities for treatment, the new environment can pose many threats in terms of lack of familial support, exposure to substance use, and other difficulties (Gibson, Kakepetum-Schultz, Coulson & O'Donnell, 2009). For many, travel is simply not an option, and so having very limited access to services, or no service, can sometimes be a reality.

In other cases, even when the community is not as isolated other factors may contribute to difficulties in acquiring mental health services. For example, certain psychological stressors – such as social anxiety, agoraphobia, or even physical challenges such as chronic pain or limited

mobility, may make accessing services in the traditional face-to-face environment nearly impossible (and at the least very uncomfortable) for some clients. Indeed, those suffering from Operational Stress Injuries (OSI) – psychological difficulties associated and resulting from duties performed while serving in the Canadian Forces or Royal Canadian Mounted Police – frequently experience these and other debilitating mental and physical ailments. Given these constraints, many times individuals may not receive treatment that they could benefit from.

Unfortunately, little research exists regarding clinicians' attitudes towards the use of information and communication technology (ICT) in clinical service provision – particularly for clients living in remote and rural First Nations communities and OSI clients. These clients may be particularly well served by technologies such as videoconferencing which allow clinicians to service clients living in remote and rural geographical locations. Encouragingly, in the recent past researchers, organizations, and mental health workers have been working to develop technologies for clinical use that could provide equitable access to care.

### **Clinical Technology Use**

Information and communication technologies (ICT) include a wide range of technologies used in mental health services and administration. These include but are not limited to videoconferencing, telephones, video, patient portals, virtual reality, camera phones, email and web pages, handheld devices, DVD players, and MP3 players. The use of ICT for mental health services is increasing, and various methods for service delivery and provision are being developed (Molyneaux, Gibson, Simms, O'Donnell, Oakley, Kondratova et al., 2008). For example, email (Robinson & Serfaty, 2001), online communications (Castelnuovo, Gaggioli, & Rivea, 2001; Lange, Schrieken, Vande Ven, Bredeweg, Emmelkamp, van der Kolk et al., 2000) and Virtual Reality (Simms, O'Donnell & Molyneaux, 2008) have been successfully used for

clinical communication. More recently, there has been growth in the use of videoconferencing for therapeutic purposes. This growth is largely attributable to increasing availability of low-cost digital telecommunication networks and advances in technology that have improved audio and video quality (Rees & Stone, 2005).

Videoconferencing involves the real-time transmission of audio and video content via videoconferencing systems (e.g., Polycom, Tandberg) which allow individuals and groups in geographically diverse locations to communicate. Telemental health – the use of videoconferencing to provide mental health services to clients at geographically diverse locations – may be used clinically to conduct assessments and interventions at a distance, and can be used alone, or in conjunction with in-person communication. Indeed, telemental health sessions may be implemented after a period of relationship building in-person sessions, or alternatively, practitioners may choose to conduct initial ‘intake’ assessment sessions via telemental health prior to seeing clients in person. The use of telemental health, at any point during clinical communication, is the focus of the current paper.

### **Research on videoconferencing for therapeutic purposes**

The first trial of videoconferencing for group psychotherapy was conducted in 1961 (Wittson, Affleck, & Johnson, 1961). However, since then few rigorous empirical studies have investigated the efficacy of telemental health. The majority of those conducted demonstrate that telemental health can be an effective means of treatment delivery for individuals experiencing anxiety and depression, (Bouchard, Payeur, Rivard, Allard, Paquin, Renaud et al., 2000; Cowain, 2001; Manchanda & McLaren, 1998), combat-related PTSD (Deitsch, Frueh, & Santos, 2000), dementia, schizophrenia, suicide prevention, substance abuse, and eating disorders (see Hailey, Roine, & Ohinmaa, 2009 for review). In fact, telemental health has been found to be successful

or potentially successful across the majority (83%) of 63 peer-reviewed studies (Hailey et al., 2009). Unfortunately, there have only been three randomized, controlled trials which compare the effectiveness of technology-mediated therapy with other modalities. In a study comparing in-person and video-mediated Cognitive Behavioral Therapy (CBT), Bouchard and colleagues (2004) found equivalent improvement in functioning and reduction in anxiety for both groups. Similarly, Day and Schneider (2002) compared brief CBT delivered via videoconferencing, in-person, and two-way audio therapy sessions and found no significant differences between treatment groups across outcome measures. Finally, Mitchell and colleagues (Mitchell, Myers, Swan-Kremeier, & Wonderlich, 2003; Mitchell, Crosby, Wonderlich, Myers, Swan-Kremeier, Norton, et al., 2004) found that both videoconferencing and in-person manual-based CBT interventions were effective for the treatment of bulimia nervosa. However, participants in the in-person group had lower scores on depression and problematic eating behaviors post-test than did those in the videoconferencing group.

**Therapeutic Alliance.** The therapeutic alliance, or working relationship between client and mental health worker, is an essential factor for therapeutic change and insight in psychotherapy (Simpson, 2009). Although mental health workers are often concerned about how videoconferencing may negatively affect the development of the therapeutic alliance (Wray & Rees, 2003; Rees & Stone, 2005), research suggests the alliance is not compromised when videoconferencing is used (Day, 1999; Glueckauf, Fritz, Eckland, Erick, Liss & Dages, 2002). Despite this, Reese and Stone (2005) suggest that psychologists are comparatively more reserved in their acceptance of telemental health than other mental health practitioners and generally prefer in-person contact to develop and maintain a therapeutic relationship.

**Client satisfaction and comfort.** Overall, clients seem to be satisfied with treatment provided via videoconference. For example, evidence suggests that clients are satisfied with the level of presence (awareness of and sense of connection to another through non-verbal cues) they experience during telemental health sessions (Capner, 2000; Simpson, Doze, Urness, Hailey & Jacobs, 2001). Unfortunately, only a small proportion of studies have compared satisfaction between either in-person or videoconferencing modes of delivery. Some research suggests that patients may prefer video-mediated interactions. Allen and colleagues (Allen, Roman, Cox & Cardwell, 1996) found clients felt less intimidated and perceived having more control during videoconference therapy sessions, and Bakkee and colleagues (2001) found that clients valued the privacy and anonymity of telemental health – this medium made some clients feel less embarrassed and more able to express difficult feelings than during face-to-face therapy. Conversely, some researchers have found that clients who have less experience with technology may feel increased anxiety and confusion when engaging in telemental health (Omodei & McLennan, 1998).

**Mental health worker satisfaction.** Some research underscores that, particularly after education or experience with using technology, most mental health workers find telemental health is not dramatically different than in-person therapy (Omodei & McLennan, 1998). However, Ruskin and colleagues (2004) found that, although psychiatrists were satisfied with both video mediated and face-to-face therapy sessions, the majority preferred in-person sessions.

### **Technology Adoption**

Surprisingly, adoption of telemental health for client service delivery does not match adoption rates of the technology for other, non-professional purposes (e.g., communication with friends and relatives at a distance, etc. see Zamaria, 2008). A report prepared by the National



Research Council Institute for Information Technology (NRC-IIT) (Molyneaux et al., 2009) documents in detail the types of ICT that are used in the assessment and treatment of OSI. This report noted that videoconferencing and many other forms of ICT are currently, and increasingly, being used for mental health work across Canada. For instance, telemental health technology is currently installed and being used at the nine national OSI clinics across Canada to service clients from geographically remote locations (Carewest, 2008). In particular, the clinic in Fredericton, New Brunswick currently provides assessment and some intervention services for clients with OSI throughout the four Atlantic provinces. This clinic relies on telemental health to make it possible to provide assessment services over such a large geographical area (Gibson, O'Donnell, & Simms, 2009). Despite these advances, the adoption rates of telemental health do not match that of expectations given the potential utility of these technologies.

**Barriers to use.** Despite the positive research findings regarding the use and satisfaction with telemental health, its use in Canada is minimal compared to in-person services, and is underused for servicing clients in under-served rural and remote areas. Reasons for this may include barriers to use such as economic concerns about the costs of installation and maintenance of videoconferencing equipment, ongoing technical support, and staff training (Mielonen, Ohinmaa, Moring & Isohanni, 2000), legal and ethical issues and concerns (Capner, 2000) and negative expectations towards the use of technology for clinical applications (Reese & Stone, 2005). Another potential barrier to clinical technology use may be lack of training. Indeed, Mitchell and colleagues (2003) found that lack of 'hands-on' training in the use of videoconferencing equipment and lack of opportunities to use it regularly thereafter predicted low mental health worker confidence in the use of videoconferencing. Thus, it may be that clinicians with no telemental health training use telemental health less frequently than those with

training in the use of this technology. Additionally, length of time in the mental health field may also be a barrier to using telemental health. That is, it may be that those who are newer to the field would be more likely to experiment with new technologies than those who have been in the field longer who may be more accustomed to traditional service delivery methods (i.e., in-person communication). Unfortunately, no research has specifically explored the relationship between length of time in the mental health field and frequency of use of telemental health. Thus, it was proposed that:

H1: Clinicians who have no telemental health training and who have been in the mental health field longer will use telemental health less frequently than those who have had training and who have spent less time in the field.

**Clinicians' attitudes toward telemental health.** Adoption of technologies including telemental health depends on mental health workers' willingness to use them, which is influenced by their attitudes toward them (Davis, 1989). Some previous research suggests that mental health workers may have concerns with using technologies in clinical practice (Simpson, 2009). Unfortunately, clinicians' attitudes towards the use of telemental health, and ideas on how to overcome concerns have not been thoroughly evaluated in the past. This is an important oversight as knowing about the factors that influence mental health workers' willingness to adopt these technologies can help inform the development of strategies to increase provision of mental health services for those in need. In fact, much research demonstrates that attitudes towards technologies predict engagement with and use of technologies. For example, the Technology Acceptance Model (TAM) (Davis, 1989) is well validated and demonstrates that the perceived usefulness (PU) (how useful and helpful a technology will be for the task at hand) and perceived ease of use (PEU) (how easy it is to use and manipulate the technology) form intentions toward

using new technologies. The TAM model is considered a robust theory for understanding technology use and acceptance by individuals (Lee, 2003). Indeed, a recent review presented at the 2008 Canadian Society of Telehealth conference demonstrated that the TAM model is still one of the most popular theories on technology adoption and attitudes towards technology use (Mezni, Gagnon, Desmertis & Duplantie, 2008). Further, the model was found to be the most widely used model for studying telemedicine use by health care professionals. Although some previous research has utilized TAM-like questions to explore the use of multisite videoconferencing by administrators in a health setting (Meyer, 2008), and to explore group dynamics by health care workers using videoconferencing (Gibson & O'Donnell, 2009), a review of the literature found no studies which used the model to explore mental health practitioners' attitudes towards the clinical use of telemental health. Indeed, the majority of studies which utilize the TAM are focused within larger organizational and social contexts for example, examining the influence of gender and culture on PU and PEU (Lee, Kozar, & Larsen, 2003). Thus, the current paper draws on the TAM model to understand mental health practitioners' attitudes towards telemental health. Specifically, it was predicted that:

H2: Clinicians who perceived greater usefulness (PU) and greater ease of use (PEU) of telemental health would use this technology more frequently than would those who reported lower perceived usefulness and perceived ease of use of the technology.

**Clinicians' perceptions of client suitability.** Another oversight within extant literature is the lack of research regarding mental health workers' perceptions of individual characteristics of a client which make them more or less suitable candidates for telemental health. Examination of mental health workers' perceptions of client suitability or 'fit' with this treatment modality may help to explain the disparity between potential utility and low adoption rates. The

importance of assessing the suitability of patients for treatment modality prior to commencement of therapy has been well established for quite some time (e.g., Davanloo, 1980; Malan, 1976; Mann, 1973 etc. in Safran, Segal, Vallis, Shaw, & Samstag, 1993). Indeed, there have even been measures constructed to aid clinicians in determining client suitability for various treatment modalities (e.g., Safran et al., 1993). However, research on telemental health has not advanced to the point where empirical evidence can identify client characteristics indicative of telemental health suitability. Thus, we wonder whether mental health workers' willingness to use telemental health with specific clients may be dependent on their own perceptions of client suitability for technology-mediated interventions. If this is the case, it is important then to better understand mental health workers' perceptions of what characteristics may make individual clients more or less suitable for technology-mediated interventions. Therefore, an exploratory research question of the current study was:

RQ1: What individual characteristics do mental health workers perceive to make clients suitable or unsuitable candidates for telemental health?

The current study was exploratory in nature. Overall, we aimed to conduct an initial examination into the current status of the use telemental health by Canadian mental health practitioners, factors that are associated with telemental health use, as well as their attitudes towards and potential barriers to using this technology to provide services to clients.

## **Method**

### **Participants**

The current study used two groups: participants in the online survey and participants from in-person interviews.

The participant profile for the online survey was as follows: the majority was female (74%); 33% were between 45 and 54 years of age; 22 % were between the ages of 25 and 34 and 35 to 44 respectively. Participants resided in different provinces and territories including Nova Scotia (4.9%), New Brunswick (11.6%), Quebec (8.5%), Ontario (14.6%), Manitoba (13.4%), Alberta (12.2%), British Columbia (22%) and the Yukon (1.2%). Respondents' professional designations included social workers (38%), nurses (12%), psychologists (11%), administrators/program managers (9%), students (8%), community health workers (5%), and psychiatrists (4%).

The participants profile for the in-person interviews was as follows: gender: 9 men, 16 women; location: 9 people from Calgary, 4 from Winnipeg, 5 from Fredericton, 6 from Quebec, 1 from Ottawa; profession: 4 psychiatrists, 8 psychologists, 2 nurse mental health workers, 3 clinic managers, 1 program evaluator, 4 social workers, 2 psychiatric nurses, 1 administrative assistant.

### **Assessments and Measures**

Data collection occurred from March to December 2009 via two different means: in-person interviews and an online survey.

**Interviews.** Twenty-five participants who worked at Veterans Affairs OSI clinics across Canada took part in individual interviews with researchers. After the research protocols were reviewed and approved by the research ethics board of the researchers' home institution, the Veterans Affairs Canada OSI Research Committee allowed the interviews to proceed. Before commencing the interviews, participants were advised of the nature and content of the study through an informed consent form. The interviews lasted 45 minutes to an hour on average, and explored the participant's use and views of videoconferencing and other information and

communication technologies (ICT) for mental health service delivery. The researchers followed a semi-structured interview guide which was comprised eight sections, totalling 39 items with a mixture of both open and closed-ended questions. Questions included participants' occupational activities, their attitudes towards and use of ICT such as telemental health, videos, patient portals, and others in the clinical context and in their personal lives. With participants' consent, interviews were audio recorded to allow for transcription and subsequent analysis. All transcripts and audio files were stored in a secure server location accessible only to members of the research team.

**Online survey.** One hundred and sixty participants completed the online survey which consisted of thirty-eight questions pertaining to mental health service delivery and the use of various ICT. The survey included both closed (e.g., rating scale) and open field response formats. The survey included demographic questions pertaining to age, geographical location, and professional designation. For example, to assess length of time in the field, participants were asked to report how long they had been working in the mental health field on a rating scale with points, *less than 1 year, 1-5 years, 5-10 years, 10-20 years, to More than 20 years*. The survey also included questions pertaining to participants' current and potential future use of ICT in mental health service delivery, their attitudes towards this use, and challenges and benefits to technology use in clinical areas. One item was used to assess the frequency with which participants used telemental health. Participants were asked to indicate how often they had used videoconferencing to provide clinical services. Responses were rated on a 10-point rating scale with end points *Never (0)*, and *Everyday (9)*. One item was used to assess the extent to which participants had acquired training in telemental health. Participants were asked to indicate whether or not they had received any training using videoconferencing for mental health services

(*No* (0), *Yes* (1)). The online study also utilized items from the TAM model of technology use (Davis, 1989) to assess participant's perceptions of usefulness and ease of use of videoconferencing. One item was used to assess perceived usefulness (PU). Participants were asked to indicate the extent to which they thought videoconferencing was useful on a 5-point scale ranging from *not very useful at all* (1) to *very useful* (5). Scores ranged from 1 to 5 with higher scores indicating greater perceived usefulness of videoconferencing with clients. One item was used to assess perceived ease of use (PEU) of videoconferencing. Participants were asked to indicate the extent to which they felt it would be easy to use videoconferencing with a client on a 5-point scale ranging from *very difficult* (1) to *very easy* (5). Scores ranged from 1 to 5 with higher scores indicating greater perceived ease of use of videoconferencing. Past research that has used similar items to measure PU and PEU have demonstrated excellent internal consistency and reliability (Lee et al., 2003). The internal consistency for this measure in the current study was good, ( $\alpha = .77$ ).

### **Procedure**

Recruitment strategies for the online survey included word of mouth (the snowball approach), email notices inviting participation, and recruitment advertisements on list-serves. For recruitment for the online survey, email invitations were sent to professionals working in the field of mental health services and administration. Emails containing information about the purpose of the study, as well as a link to the online survey site, were sent to national mental health associations across the following disciplines: psychology, psychiatry, social work, and nursing. Both clinical and non-clinical mental health workers were invited to participate. Emails encouraged dissemination of survey information to list-serves and discussion boards within mental health organizations.

For recruitment for the interviews, mental health professionals working at Operational Stress Injury (OSI) clinics were invited to participate in in-person interviews through emails circulated to the clinic managers at the nine national OSI clinics in Canada. After receiving the endorsement from the National Center for Operational Stress Injury Clinics, the clinic managers at the nine national OSI clinics disseminated the email invitations to colleagues at their clinics and to other related mental health organizations.

The researchers traveled to the OSI clinics in Calgary, Winnipeg, Quebec, Ottawa, and Fredericton to conduct the in-person interviews. No confidential patient information was discussed during the interviews – the main topic of discussion was the use of videoconferencing and other ICT for providing mental health services. Following the interviews, participants were debriefed, thanked for their participation and were encouraged to forward information on to others who may be interested in participating.

### **Data Analysis**

**Qualitative analysis.** Interviews were audio recorded, transcribed, and analyzed using NVivo qualitative software. The Social Analysis team of which the authors are a part of, conducts research through a framework for analysing social interaction. This framework includes analysis of both technical and social variables that have previously been identified as helping or hindering how people use technologies for social interaction (O'Donnell, Molyneaux & Gibson, 2010). From within this framework, group discussions and application of previous research and theory (i.e., Social Presence Theory, Short, Williams & Christie, 1976; Public Sphere Theory, Gerard, 1998) led to the development of a coding frame of 15 themes (“nodes” in NVivo terminology). The transcripts were coded using these nodes in NVivo software. For example, sections of the transcripts which pertained to the discussion of individual characteristics which



made clients more or less suitable candidates for telemental health were coded under the node 'Individual Characteristics'. This node's content was then reviewed and coded thematically to identify client characteristics associated with suitability to telemental health. The resulting comprehensive list of identified characteristics was thus supported by multiple participant reports.

**Quantitative analysis.** Responses to the online survey were exported and converted to an SPSS database. Data were cleaned and conditioned for analysis including removing outliers and substituting missing data points where appropriate using the procedures recommended by Tabachnik and Fidel (2001). Univariate and multivariate statistical analyses were performed using SPSS.

## **Results**

### **Technology use for Clinical Purposes**

Mental health workers reported the types of technologies they currently use to provide mental health services. The majority of participants reported that they had referred a client to information on a website (77%). The next most popular clinical use of technology was using email (72%) followed by websurfing together with a client to look for information on the internet (64%), having a client watch a professional video (51%), talking to a client on a mobile phone (43%), and helping a client fill out an online form (41%), using an MP3 player (24%) and using a telephone-administered questionnaire (24%).

Qualitative responses to the online survey were examined to better understand participants' attitudes towards telemental health. In response to a question of which particular technology that they liked to use with clients and why, some participants reported they like to use telemental health in a clinical setting. For example, a male psychologist reported

*“Videoconferencing is time efficient and allows for observation of physical cues during distance counselling”* and a female social worker responded, *“I work in a clinic with a province-wide mandate. Videoconference technology allows me to better meet that mandate making it easier for clients who live at a distance from the clinic to receive ongoing specialized care.”* Further, another female social worker noted that, *“Videoconferencing is excellent for rural remote work. I look forward to desktop videoconferencing which will open up the opportunities for clients”*.

Some mental health workers noted potential challenges to the use of telemental health. For instance, in the online survey some participants commented on the concern for a safety plan or the need for structures to be in place should a critical situation arise at the client’s location. One male psychologist reported that he had *“concerns regarding emergency services to ensure client safety”*, another female psychologist was concerned with *“...monitoring severe mental health issues and suicidal clients”*, while another mental health worker wondered *“where [does] the client get help if the technology doesn't work as expected?”* Interestingly, some participants had already found ways to institute plans to ensure the safety of clients. One male psychologist reported, *“We've found it beneficial to have a professional support person with the client in the remote site - nurse, social worker, etc.”*

Qualitative analyses were performed to investigate what factors are associated with the frequency of use of telemental health. Descriptive information for each of the variables and correlations between these variables are reported in Table 1. Twenty-six percent of participants reported working in the mental health field for between 10 to 20 years, and another 25 % reported being in the field for more than 20 years. Three-quarters of the sample (75%) reported they had not received any training on using videoconferencing for mental health services. Responses to a follow-up question which asked respondents to elaborate on the type of training

they had received indicated a wide variety of training experiences. For instance, participants reported training experiences ranging from, “*no formal training, just...watching others or calling the coordinator if there is a problem*” to “*one hour orientation*”, to “*1 day per week... for six months*” and “*attended seminars on video counselling techniques*”.

On average, participants reported they engaged in telemental health with clients *once per year*. Interestingly, although cumulatively 14% of participants reported using the technology *once a month or more* and 13% reported doing so *once every few months*, the majority of participants (60%) reported never having used videoconferencing to provide mental health services. In regards to perceived usefulness (PU), 49% of participants rated telemental health to be *very useful* or *somewhat useful* ( $N = 60$ ). However, 25% of participants rated telemental health as being *neither useful nor unuseful*. In regards to perceived ease of use (PEU), 41% of participants rated telemental health to be *somewhat difficult* or *very difficult* to use. However, 34% rated using this technology to be *somewhat easy* to *very easy*.

Examination of the zero-order correlations among variables suggests that those who use telemental health more frequently are more likely to have spent more time working in the mental health field, have had telemental health training, and perceive the technology to be useful and easy to use. Interestingly, professional designation was not significantly associated with time spent working in the mental health field, having had telemental health training, or perceptions of the technology being useful or easy to use. Those who have spent longer in the mental health field are more likely to perceive the technology to be useful than those who have been in the field for a shorter period of time. Participants who had received telemental health training were more likely to perceive the technology as being useful and easy to use than those who had no

training. Finally, in keeping with past research (Davis, 1989), those who perceived telemental health as being useful for their clinical work also perceived it as being easy to use.

### **Factors that Predict Frequency of Telemental Health**

A regression analysis was conducted to explore whether telemental health training and length of time in the mental health field are associated with frequency of telemental health use (H1). Telemental health training and Length of time in field were used to predict Frequency of telemental health use. These variables accounted for 28% of the variance in Frequency of telemental health use,  $F(2, 157) = 24.23, p < .001$ . Examination of the semipartial correlations revealed both of these variables contributed uniquely to the frequency with which participants use telemental health with clients. This suggests that participants who had received training in telemental health utilize the technology more frequently within their work with clients than those who do not receive training. Further, counter to prediction, those who have been in the mental health field for a longer period of time used this technology more frequently than those newer to the field.

Another regression analysis was conducted to explore whether mental health workers' perceptions of the usefulness (PU) and ease of use (PEU) of telemental health predicted their use of the technology with clients (H2). PU and PEU were used to predict Frequency of telemental health use. PU and PEU accounted for 20% of the variance in Frequency of telemental health use,  $F(2, 157) = 13.88, p < .001$ . However, examination of the semipartial correlations revealed only PEU contributed uniquely to Frequency of telemental health use. This suggests that the easier mental health workers perceive using telemental health to be, the more frequently they use the technology within their work with clients.

### **Perceptions of Client Suitability for Telemental Health**

A thematic analysis was conducted to explore participants' perceptions of individual characteristics which may make individuals more or less suitable for telemental health interventions (RQ1). Analysis of the sections of transcripts which had been coded under the 'Individual Characteristics' node revealed that there were a number of characteristics which clinicians considered when assessing clients' suitability for telemental health. Mental health workers reported that they considered factors such as emotional lability and specific mental illness when determining the suitability of a client for telemental health. Numerous respondents felt that clients who are emotionally unstable, impulsive, or who have poor coping skills would be less suited to telemental health. However stable clients who are able to manage their emotions were deemed more suited for telemental health. For example, during an in-person interview, a female social worker reported,

*If they're the type of person that tears up a little bit but you can get them focused, get them to use a grounding technique or use their breathing skills and they bounce back pretty quick, then sure. Those would be the clients that we'd use it with.*

Mental health workers also reported that clients with cognitive impairments such as dementia are not suitable for telemental health. However, many agreed that anxious and avoidant people may benefit from technology-mediated interventions because it could actually allow for more patient comfort during the session. For example, a psychologist commented that,

*I think the interpersonal distance is a little greater. And I think, for some people, they might actually be more comfortable with a little bit more distance...Particularly when you're working with anxiety disorders. So it might help them to connect with the therapist faster, for some people.*

Health considerations, experience with technology, cultural considerations, age, and level of trust were other themes that emerged in determining client suitability for telemental health; they will be discussed below.

**Individual mental and physical health status.** Analysis of the qualitative data from interview and survey respondents suggests that mental health workers believe certain client characteristics such as challenges with mental or physical health functioning might make the use of telemental health difficult. For example, numerous mental health workers were hesitant to use this modality if their clients were actively psychotic or experiencing paranoia. On the online survey one psychologist claimed, *“If someone was acutely psychotic, it’s just that their paranoia of already feeling that they’re being monitored, that just seemed to not work for them. They wouldn’t be a suitable client”*. During an interview a social worker commented:

*It comes down to the client’s skill-set, like, what is our perception on their ability to use that skill-set when things get bad, how quickly can they ground themselves, you know, have they attempted suicide in the past, have they ever had an anxiety attack or they’ve required immediate medical attention. Those would be people that – you know, [are] not good choices for telehealth.*

Further, mental health workers suggested that, in particular, telemental health may not be a suitable option for clients particular mental illnesses. One mental health worker responded, *“Many of those with OSI already feel disembodied and distant. Many of those with OSI need help learning to handle and demonstrate emotion. This is challenging using technology because of the lack of non-verbal cues.”*(online survey). Another psychologist reported, *“If the OSI is associated with symptoms such as social isolation, technology may be used in way to further their isolation.”* (online survey).

Additionally, some mental health workers felt that clients' particular mental disorder or illness (e.g., depression) may impair their ability to focus and concentrate over extended periods of time. For example, in both the online survey and interview, mental health workers reported that clients with depression may have limited motivation to participate in video-mediated therapy which could compromise their ability to engage in and benefit from treatment.

Mental health workers also spoke of considering physical health status of clients when determining suitability. Some noted potential complications of interacting with technology for clients with impaired visual, auditory, or physical abilities. For example, a psychologist in Fredericton noted during an interview;

*People with different disabilities who are less able because of pain limitations, and so on and so forth, they are less able to use the technology. Are we set up with software to allow them to respond using auditory aids or whatever? I think we could spend a lot more time and energy with the design and the application about how we use computers with people.*

Taken together, it seems that mental health workers are hesitant to use technology-mediated interventions with clients who have considerable mental and physical health limitations and that these hesitations may stem from their perceptions that these clients' will have difficulty engaging in and therefore benefitting from these interventions.

**Client experience with technology.** Mental health workers considered a client's experience with technology as a large factor in whether or not they would engage in a telemental health session with them. Many mental health workers reported that clients with greater comfort and experience with various technologies would make more suitable telemental health candidates. However, they also acknowledged that, in the case of those with less comfort and experience, guided education and exposure to the technologies could improve the likelihood of

success of technology-mediated communications. One psychologist reported that it was important to do psychoeducation with clients regarding the technologies they would be exposed to. “*Doing education on the phone with a client [is important], because initially they’re like: What are you talking about, video?*” During an interview, a psychologist from Fredericton claimed:

*I think it’s just really more about practice and experience, and if you do some education and give them an opportunity to play with it a bit, and for them to be comfortable, then . . . it’s just like with all of us, whenever we have new technology or have never used something, we’re shy and not feeling very confident and comfortable. And so, I think if we take the time, then it’s going to be much more of a benefit to the client and they’re going to be much more on line. And that’s not to say there’s not going to be people that don’t or refuse or whatever, I mean, but, like I said, there are no “bad clients.”*

Overall, it was clear that mental health workers believed the more experience a client had with technology, the more comfortable they would be with telemental health services and the greater would be the therapeutic outcomes. Thus, many underscored the importance of familiarizing clients with the technologies in order to raise their comfort level and engagement in the therapeutic process.

**Clients’ age.** Many participants reported that age of client was related to their suitability for engaging in telemental health interventions. Overall, mental health workers seemed to agree that the younger a client was, the more likely they were to have experience interacting with various forms of technology and, therefore the more comfortable they would be with partaking in telemental health sessions. For instance, during an interview one psychologist reported;



*Some elderly people are less comfortable with [technology] as they find it harder to hear the person and relate. Like you know, my dad, who's nearing retirement, and only just started to learn how to use email, you know, he probably would be less likely to use videoconferencing.*

Another mental health worker from Fredericton stated:

*[Clients] 35 and under, will take to it probably much better than 35 and older, just in terms of familiarity with the technology. Sometimes the cool factor too, like it's sort of interesting to learn how to use some of these technologies.*

A psychologist from an OSI clinic reported,

*Our elderly veterans who have hearing issues and that, that can be a challenge. I would think that a lot of our younger veterans are like 30s, 40s, and I think they would use the computer. I mean it's just in their home. They're right isolated anyway, so it's kind of this open window for them. I guess just comfort. Some are very resistant to even any type of change.*

Additionally, a social worker reported that, *“Older clients are less willing to engage in computers. They start touching keys, and they say . . . it makes a beep or something, and they say: Oh, what have I done now? They feel less comfortable with it”*.

However, some mental health workers did not agree that age was a factor in judging suitability for telemental health; *“We had one, I think, was done with an 80-year-old veteran, you know. I mean, imagine. They never used Telehealth in their life. And it went very well. So, I mean, it's hard to say.”* Another mental health worker in Fredericton stated, *“Yeah, yeah. Haven't had any problems . . . Or I haven't noticed a difference whether they're younger or older. Like, surprisingly, the older people have been really open to it.”*

Overall it seems as though client age is a consideration when deciding to use telemental health. Although many mental health workers may have perceptions of older clients being more resistant to using these technologies, others report positive therapeutic experiences with older clients.

**Level of trust.** A final theme that was prominent in both the online survey and interview data was trust (trust in technologies and trust in general). Mental health workers reported that clients with low levels of trust were not suitable candidates in that their mistrust of the technology would limit their engagement and benefit from the intervention. One psychologist from Winnipeg commented in the online survey: *“Many clients struggle with trust issues and may not feel that they can develop a trusting relationship if they are not in the physical presence of the mental health worker - at least in the initial stages of engagement.”* Similarly, a psychologist at an OSI clinic reported,

*It’s their own level of suspicion. Where’s this information going? And individuals that are somewhat paranoid already, they walk into a testing room and some of them will say things to me like: Oh, an interrogation. Well, not actually. But when you think about it, that becomes an interrogation room, and now there’s this computer. And they’re saying: Are we being recorded? I see there’s this mirror there. Are there people behind that watching me, and so on.”*

Some mental health workers did not see this as an insurmountable obstacle. For instance, a social worker from Calgary reported how simply moving the camera around to allow the client to see the remote site more fully can be a solution,

*“Even people that are sort of, oh, I don’t know, resistant and that, you know, and they’ll tell you: Oh, I don’t know about this, you know, I don’t know if this and this . . . You know,*

*so that's why you have to be able to pan around the room so that they can see the physical stuff and nobody else is there and all that kind of thing. But they all come round."*

Taken together, it seems as though mental health workers perceive the clients' level of trust of the use of technology within a therapeutic capacity to be important to treatment outcomes: those who are lacking trust or are suspicious of the use of technologies are not well suited. However, it also seems as though some mental health workers understand the importance and utility of building the clients' trust through exposure and education to the technology.

### **Discussion**

The results of our study suggest that mental health workers who responded to this survey are currently using a wide range of technologies in their clinical activities with clients and that, overall, mental health workers have somewhat positive attitudes towards the use of telemental health for providing services to clients – particularly those in remote and rural locations. The majority of mental health workers perceived telemental health to be *somewhat* or *very useful*. However, we found that mental health workers were more divided in their perceptions of the ease of use of this technology: almost as many mental health workers' thought telemental health was *very* to *somewhat easy to use* (25%) as thought it was *very* to *somewhat difficult* (30%) to use. This suggests that, despite the noted potential usefulness of this technology, mental health workers are split in their perceptions of how easy it is to actually use telemental health with clients.

#### **Factors that Affect the Frequency of Telemental Health Use**

An important factor in attitudes towards telemental health is training. Only a minority of mental health workers in our sample (28%) reported receiving telemental health training and of those who did, quantitative responses indicated a great amount of variation in the quality and

quantity of this training. Past research suggests mental health workers' confidence in the use of videoconferencing is related to 'hands-on' training in the use of the equipment and opportunities to use it afterwards (Mitchell et al., 2003). It is likely that for telemental health to be more widely used, mental health workers will need to receive more training in the use of these technologies for example, within academic training programs. However, we found a consistent lack of this training across all of the professional designations we surveyed. This suggests that telemental health training would be an important addition to training across mental health disciplines in order to augment the widespread use of this technology. Indeed, our study suggested that perceptions of difficulty of using telemental health predicted using the technology less frequently with clients. Thus, despite perceptions of its potential utility with clients, mental health workers' lack of training may lead to perceptions of difficulty of use which then hinder their use of telemental health. Although further research is needed to elucidate this relationship, it is likely that increased training will improve mental health workers' attitudes towards telemental health, increase their ability to engage with the technology successfully, and subsequently, increase their use of the technology when providing services to clients.

In addition, our results suggest other factors such as concerns regarding the need for support structures in place at a clients' location were potential barriers to the use of telemental health. It is likely that, as continued research fuels interest in and use of this technology that procedures surrounding the use and safety of telemental health will become more formalized than they currently are. Further, some OSI clinics (e.g., Fredericton clinic) have well established procedures in place for ensuring the safety of the client at their location during telemental health sessions. We are hopeful that other, newer centers and mental health workers using the

technology can draw from the experiences and practices of those which are better established in order to ensure the safety of clients during telemental health sessions.

### **Perceptions of Client Suitability for Telemental Health**

Our findings also indicate that there are a number of client characteristics that mental health workers perceive to be related to client suitability for telemental health interventions. Namely, clients' mental and physical health status, experience with technology, age, and level of trust. Unfortunately, there is little extant research to support or refute these perceptions – particularly those regarding mental and physical health status and clients' trust level. However, in regards to technology experience, Carey, Wade and Wolfe (2008) found that clients with technology experience reported greater improvements in depression after an on-line family problem-solving intervention than those with less prior experience. The authors suggest that individuals with limited technology experience may benefit less from technology-mediated interventions. Additionally, Werner (2004) found that anxiety towards technology predicted more negative attitudes towards telemedicine, and these attitudes predicted less willingness for clients to participate in telepsychiatry sessions. Congruent with findings from the current study, the authors conceptualized technology anxiety to be a barrier that could be overcome if appropriate information and training is provided to clients.

Overall, there seems to be limited support from previous research that specific personality characteristics predict engagement with telemental health. For instance, Werner (2004) found very little support for relationships between client characteristics (e.g., place of birth, marital status, religiosity) and willingness to use telepsychiatry. Indeed, the author suggested that, rather than specific client characteristics, structural and organizational aspects are of more importance to therapeutic outcomes.

The inconsistent findings of past research and the unclear relationship between specific personality characteristics and therapeutic outcomes make it clear that much future research is needed. Indeed, if mental health workers' perceptions of client suitability are barriers to the use of telemental health with certain populations, empirical evidence is needed to clearly establish what, if any, individual characteristics are indicative of therapeutic outcomes to confirm the validity of these perceptions. Thus, future research should include large, controlled, randomized trials with specific client populations (i.e., people living in rural areas). This will help to identify which treatment methods are beneficial for specific clinical populations in order to provide optimal care for all clients serviced.

### **Other Potential Barriers**

It is important to note that besides from the barriers examined within the current study there may also be real-world challenges that hinder the adoption of the use of technologies for clinical purposes. For example, many remote and rural communities struggle with development of infrastructure to support the use of these technologies. Indeed, in their explorative study of telemental health within First Nation communities, Gibson, O'Donnell, and Simms (2009) found that a barrier to telemental health within these communities was lack of infrastructure, lack of funding for programs and technology, and accessibility problems. However, there is significant interest in developing infrastructure to support the use of these technologies within these communities and some remote and rural First Nation communities are very engaged with telemental health and ICT for health and wellness purposes (O'Donnell et al., 2010).

Commercial providers of broadband networks have been slow or have refused to develop broadband infrastructure in rural and remote areas without significant government investment (O'Donnell et al., 2010). Extending broadband services is more expensive in rural and remote

communities because the costs include the lower volume of services and the high cost of construction and maintenance in rural and remote areas (O'Donnell et al., 2010). Ensuring secure and reliable videoconferencing requires significant bandwidth (Molyneaux, et al., 2009). As such, communities need equitable access to broadband technology and, more precisely, a comprehensive solution that is cost-effective, sustainable and viable to meet future and evolving technologies (FNEC, 2009). Encouragingly, since 1996, a variety of funding initiatives, strategies, and projects, have been implemented that have supported to development of broadband infrastructure and has increased the use of ICT in many remote and rural communities, particularly First Nations communities. Currently, more than half of First Nations communities have access to videoconferencing capacity that can support telemental health (O'Donnell et al., 2010).

### **Limitations**

Findings from the present study and future studies are important to support the development of telemental health interventions which are cost-effective ways to improve access to care for underserved clinical populations such as people living in remote and rural locations. It must be noted that this study was exploratory and aimed to provide an initial analysis into the current status of telemental health among mental health workers in Canada. Indeed, future research which replicates and extends the current findings will help to further elucidate the current and future role of telemental health within mental health service provision.

The strengths of this study include establishing a relationship between mental health workers' training experience, length of time in the mental health field and attitudes towards telemental health and their actual use of the technology with clients, as well as clearly outlining client characteristics which clinicians consider when determining client suitability for telemental

health. However, several limitations should also be noted. First, the data used were cross-sectional in nature and, as such, cannot clearly determine causality. Future longitudinal research may more clearly establish relationships between attitudes and actual behaviours. Second, despite considerable efforts to recruit a large number of mental health workers across Canada, our sample size is limited and thus limits the generalizability of our findings. Third, our in-person interviews were only conducted with participants who work at OSI clinics across Canada. Thus, their views and experiences may not reflect those of clinicians working with other client populations and thus further limits the generalizability of the qualitative information we gleaned from these interviews. A strength of the study was that the qualitative data drawn from the online survey was collected from a range of clinicians from across Canada who work with a variety of client populations. However, as the number of clinicians sampled within each professional designation was small it is unclear how representative these opinions are of the profession as a whole. Fourth, as the online survey was constructed for the current study, we are unable to speak to the reliability or validity of this measure. However, the questions utilized were formed based on previous research and literature (e.g., Davis, 1989) and were constructed to be implemented for the purpose of our exploratory research. It is our hope that as interest in telemental health continues to grow that we can work collectively with other researchers and practitioners within the mental health to create, refine, and validate measures specifically designed to assess telemental health use. Finally, our survey included mental health workers who work directly and indirectly with clients (e.g., clinicians, administrators etc.) and so our findings may under-represent the frequency with which mental health workers' use technology across Canada.



## **Implications**

Despite these limitations, the study has important implications. The adoption of telemental health requires intensive effort and investment. Understanding the factors associated with mental health workers' use of this technology within mental health services will help to support efforts made to increase the use of telemental health and, subsequently, to improve service delivery to those in need – particularly those at geographically remote or rural locations. Indeed, further delineation of barriers to utilization of telemental health (e.g., lack of training or exposure to telemental health) may help to develop educational programs and other strategies aimed at changing perceptions of usability of these technologies and increasing clinical use of telemental health. For example, promotion of the usefulness of telemental health and frequent training and 'refresher' sessions on how to use the technology may be delivered occasionally to clinicians so that they are familiar with the technology and up to speed with any improvements or changes to the tech use. Based on the findings of the present study, initiatives aimed at expanding the use of telemental health should be directed towards increasing mental health workers' exposure to as well as education and training in the use of the technology with the intention of increasing their positive attitudes towards and actual use of the technology.

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Table 1

*Data for Study Variables*

<i>Variables</i>	<i>Zero-order Correlations among Variables</i>					<i>Descriptive Data</i>	
	1	2	3	4	5	<i>M</i>	<i>SD</i>
1. Frequency of telemental health use		-	-	-	-	2.87	2.49
2. Professional designation	-.45		-	-	-	-	-
3. Length of time in field	.20**	.03		-	-	3.37	1.25
4. Telemental health training	.48***	.10	.05		-	1.74	0.44
5. Perceived Usefulness (PU)	.29***	-.02	.21**	.25**		3.36	1.21
6. Perceived Ease of Use (PEU)	.45***	-.04	.10	.41***	.63***	2.95	1.34

*Note:*  $N = 160$ . \* $p < .01$ . \*\*  $p < .05$ . \*\*\* $p < .001$ .