L’empathie et la vidéoconférence en séances simulées de téléthérapie

Thèse

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Résumé

La téléthérapie, soit l'offre de soins en psychothérapie à l'aide de moyens de communication comme la vidéoconférence (VC), est une modalité de traitement de plus en plus utilisée. Bien que la recherche montre que cette modalité soit aussi efficace que les suivis en présentiel et qu'elle permette la création de l'alliance thérapeutique avec les clients, des préoccupations subsistent quant à la possibilité que l'empathie soit impactée dans les suivis de téléthérapie par VC. Les quelques données disponibles indiquent que l'empathie ressentie par les thérapeutes et perçue par les clients pourrait être moindre en VC qu'en présentiel, ce qui n'a pas encore été testé expérimentalement. Cet écart d'empathie proviendrait de la perte relative de certains indices non verbaux en VC, notamment du contact visuel. Considérant que l'empathie constitue un prédicteur de l'issue thérapeutique, il importe 1) d'élucider les mécanismes propres au contexte de VC qui influencent l'empathie, 2) de tester quantitativement la présence d'une différence d'empathie entre les séances en VC et celles en présentiel et 3) de développer des méthodes par lesquelles optimiser l'empathie en téléthérapie. Ces objectifs sont abordés par l'entremise des quatre chapitres de la thèse. Le premier chapitre aborde le développement d'un cadre conceptuel rendant compte de l'effet de filtre présent dans un contexte de communication virtuelle et du probable impact délétère de cet effet de filtre sur l'empathie en téléthérapie. Le chapitre 2, au moyen de deux études, montre que les niveaux d'empathie ressentie et perçue lors de séances simulées de thérapie sont moins élevés en VC qu'en présentiel. Le chapitre 2 identifie également que certains éléments de la téléprésence, soit l'impression pour les thérapeutes et les clients d'être ensemble durant l'appel en VC, corrèlent avec l'empathie rapportée par les thérapeutes et les clients. Les chapitres 3 et 4 investiguent l'effet du contact visuel sur l'empathie perçue en téléthérapie. Le chapitre 3 décrit d'abord le développement d'une méthodologie simple permettant de préserver la perception de contact visuel en diminuant l'angle de regard situé entre la caméra web et les yeux de l'interlocuteur sur l'écran d'ordinateur. Le chapitre 4 reprend cette méthodologie pour créer deux conditions expérimentales, avec ou sans contact visuel en VC. Les résultats montrent que, contrairement aux hypothèses initiales, le fait de pouvoir établir un contact visuel n'augmente pas les niveaux d'empathie et de téléprésence rapportés par les clients en séances simulées de téléthérapie. Des données d'oculométrie prélevées durant les séances montrent que les clients ne regardent pas davantage les yeux et le visage du thérapeute dans la condition avec contact visuel. Une association est toutefois observée entre le temps passé à regarder les yeux du thérapeute et l'empathie rapportée par les clients, mais seulement dans la condition avec contact visuel. Ces données indiquent ainsi que les clients sont en mesure de percevoir l'empathie en VC, que le contact visuel soit possible ou non. La thèse démontre que l'empathie peut être affectée en contexte de VC, mais également que les clients peuvent s'ajuster à l'altération de certains indices non verbaux lorsqu'ils jaugent l'empathie du thérapeute. Ces résultats sont encourageants vu l'usage grandissant de cette modalité de traitement en contexte de pandémie mondiale de COVID-19.

Abstract

Teletherapy, defined as the use of a communication medium such as videoconference (VC) to conduct psychotherapy sessions at a distance, is increasingly used by therapists and clients. The use of teletherapy has seen a surge during the COVID-19 pandemic as a means to comply with the recommended social distancing measures. Though teletherapy has produced comparable outcomes to traditional, in-person therapy and is deemed a suitable modality for the establishment of therapeutic alliance, concerns remain over the possibility that empathy could be altered in teletherapy through VC. The available data, although limited, support the hypothesis that empathy could be lower in VC than in in-person sessions, but this has yet to be empirically tested. The relative loss of nonverbal cues in VC, such as the alteration of eye contact, could account for this potential discrepancy in empathy. There is therefore a need 1) to describe the influence of the VC medium on the mechanisms underlying empathy, 2) to quantitatively compare the levels of empathy in VC sessions to those in in-person sessions, and 3) to design a procedure to enhance empathy in VC sessions. These objectives are addressed in the four chapters of this thesis. The first chapter consists in the elaboration of a conceptual framework of online empathy. The conceptual framework describes the filter effect induced by online environments on nonverbal signals and its potential adverse influence on empathy in VC. Chapter 2 describes a study showing a decrease in empathy reported by therapists and clients taking part in simulated clinical sessions in VC and in-person settings. The results also reveal a significant correlation between empathy and telepresence, a term that relates to the impression for clients and therapists of being *there*, together in a VC interaction. The studies described in Chapters 3 and 4 aim at identifying the impact of eye contact on perceived empathy in teletherapy. Chapter 3 first describes the development of a simple methodology that facilitates eye contact in VC by decreasing the gaze angle between the webcam and the eyes of the other interactant on the screen. This methodology is employed in the experiment described in Chapter 4 to either allow or prevent eye contact from the clients' perspective during simulations of clinical sessions. The results show that, contrary to the hypothesis, facilitating eye contact in VC does not lead to higher levels of empathy and telepresence. Eye-tracking data collected during the sessions showed that clients did not look more at the eyes and the face of therapists when eye contact was facilitated. However, a significant, positive correlation was observed between the time spent looking into the eyes of the therapist and the levels of empathy reported, but only in the sessions where eye contact was facilitated. These results show that clients can perceive empathy in VC, whether eye contact is altered or not. Overall, the findings of the thesis demonstrate that empathy can be altered in VC sessions but also highlight the capacity of clients to adapt to the alteration of nonverbal signals when assessing therapist empathy.

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Liste des abréviations, sigles, acronymes

APA	*American Psychological Association*
c-à-d	C'est-à-dire
CMC	*Computer-mediated communication* (en français, *communication virtuelle*)
e.g.	*For example*
ES	*Effect size*
EUS	*Empathic Understanding Subscale*
F2F	*Face-to-face*
FCAS	*Face-to-face Counseling Attitudes Scale*
i.e.	*That is* (du latin *id est*, en français *c'est-à-dire*)
ISI	*Insomnia Severity Index*
OCAS	*Online Counseling Attitudes Scale*
p. ex.	Par exemple
PANAS	*Positive Affectivity and Negative Affectivity Scale*
PCL	*Posttraumatic CheckList*
PHQ	*Patient Health Questionnaire*
PiP	*Picture-in-Picture*
PTSD	*Post-Traumatic Stress Disorder*
SD	*Standard Deviation*
SEQ	*Session Evaluation Questionnaire*
TPI	*Therapeutic Presence Inventory*
TVS	*Telepresence in Videoconferencing Scale*
VC	Vidéoconference
WAI	*Working Alliance Inventory*

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Avant-propos

Cet ouvrage présente une thèse par articles constituée de quatre articles auxquels s'ajoutent une introduction et une conclusion. Les quatre chapitres de la thèse ont fait l'objet de plusieurs communications orales ou par affiche et en sont respectivement à différentes étapes du processus de publication dans une revue savante. L'article présenté au premier chapitre de thèse, *Empathy in computer-mediated interactions: A conceptual framework for research and clinical practice*, a été publié dans le journal *Clinical Psychology : Science and Practice*. L'article présenté dans le deuxième chapitre, *Therapist and client perceptions of empathy in simulated teletherapy sessions*, est présentement en considération pour publication dans le journal *Behaviour & Information Technology* (demande de révisions majeures). L'article présenté au chapitre 3, *A methodology to improve eye contact in telepsychotherapy via videoconferencing with considerations for psychological distance*, a été publié dans le journal *Counselling Psychology Quarterly*. Le chapitre 4 présente une étude empirique intitulée *More eye contact does not translate into more empathy during simulated teletherapy sessions* qui sera prochainement soumise à une revue savante. Le contenu des articles insérés dans la thèse est identique en contenu aux versions soumises et publiées.

Les articles inclus dans la thèse ont été rédigés sous la supervision du Pr Philip L. Jackson, directeur de la thèse, et de la Dr Anna M. Lomanowska, co-directrice de la thèse. Le Pr Jackson et la Dr Lomanowska ont encadré chacune des étapes de la thèse depuis l'élaboration du devis expérimental jusqu'à la publication des articles. Je, Frédéric Grondin, suis l'auteur principal de chacun des articles insérés dans la thèse et j'ai effectué les étapes de recension des écrits, de recrutement, d'analyse et d'interprétation des données ainsi que de rédaction des manuscrits. Pour le cadre conceptuel présenté au chapitre 1, j'ai également analysé le corpus scientifique et élaboré le cadre conceptuel. Pour l'article empirique présenté au chapitre 2, j'aimerais souligner l'apport d'Andréanne Simard, d'Alexane Baribeau-Lambert, d'Andrée-Anne Beaudoin-Julien, de Julie Carrier, d'Alain Savoie, de Dorian Laverdière, de Marie-Pier B. Tremblay, de Camille Rouleau, de Claude Giguère, d'Elliott Gagner et du Pr Maya A. Yampolsky pour la collecte de données et la traduction de questionnaires. La Pr Geneviève Belleville et Jessica Lebel ont également procédé au recrutement des participants dont les données figurent dans l'étude 2 du chapitre 2. Pour l'article méthodologique présenté au chapitre 3, j'aimerais souligner l'apport de Marc-Antoine Linteau et de Laetitia Reduron au développement de la procédure expérimentale ainsi qu'à la collecte des données. La Pr Véra Békés a également contribué à la rédaction de certaines sections de l'article. Pour l'article empirique figurant au chapitre 4, Vincent Poiré a contribué au protocole expérimental, aux analyses entourant les données d'oculométrie, ainsi qu'à la rédaction de l'article. Marc-Antoine Linteau et Laetitia Reduron ont participé à la cueillette de données.

Introduction

La téléthérapie (autrement appelée télépsychothérapie, télépsychologie, e-thérapie ou thérapie en ligne) consiste en la pratique de la psychothérapie par l'entremise des technologies de la communication, permettant ainsi aux psychothérapeutes d'offrir leurs services professionnels à des clients éloignés physiquement (American Psychological Association, 2013). Bien qu'une pluralité de moyens de communication puissent être utilisés, tels que le téléphone, les applications mobiles ou les plateformes de clavardage, la vidéoconférence (VC) est souvent le moyen de communication privilégié en raison de la possibilité de voir et d'entendre l'interlocuteur en temps réel sur une diversité d'appareils (Fernandez et al., 2021). La téléthérapie par VC (ci-après appelée simplement *téléthérapie*) est une modalité de traitement psychologique en émergence au cours des dernières décennies, mais la survenue de la pandémie mondiale de COVID-19, de pair avec les mesures de distanciation sociale préconisées par les organismes de santé publique, a accentué son niveau d'utilisation par les thérapeutes et leurs clients. Selon un sondage de l'*American Psychological Association* (APA) réalisé en juin 2020, soit quelques mois après le début des mesures de confinement, 76% des cliniciens avaient complètement transitionné à la téléthérapie au moment de remplir le sondage (APA, 2020). Des thérapeutes et des clients qui n'auraient auparavant peut-être pas considéré prendre part à des séances de psychothérapie en ligne ont dû tenter l'expérience, puisque la téléthérapie est devenue le moyen le plus simple de poursuivre les suivis psychologiques. Cet afflux de nouveaux utilisateurs et de dispensateurs de soins en téléthérapie a contribué à remettre à l'avant-plan de nombreux questionnements présents dans les écrits scientifiques quant à l'efficacité et l'acceptabilité de la téléthérapie par VC. Selon une récente revue systématique des écrits, les thérapeutes rapportent le plus souvent des inquiétudes au niveau de l'efficacité des traitements offerts en téléthérapie, de la survenue de problèmes techniques, des enjeux éthiques et déontologiques, ainsi que de la capacité à maintenir une alliance thérapeutique forte avec les clients (Connolly et al., 2020). Ces interrogations en lien avec la téléthérapie, en plus d'influencer la décision des thérapeutes d'offrir des séances en ligne, représentent des axes d'intérêt pour les chercheurs et les thérapeutes souhaitant améliorer l'expérience que font les clients et les thérapeutes des suivis en téléthérapie.

La téléthérapie en tant que sous-domaine de la communication virtuelle

Il convient d'abord de situer la téléthérapie dans les écrits scientifiques auxquels elle se rattache. La téléthérapie constitue ainsi un domaine d'intervention transposant les traitements en psychothérapie dans un contexte de communication virtuelle (traduction du terme anglais *computer-mediated communication*), un champ de recherche s'intéressant à rendre compte des mécanismes par lesquels les moyens de communication affectent les interactions sociales entre êtres humains (Walther, 2011). L'étude de la communication virtuelle permet entre autres de décrire les effets d'un certain moyen de communication comme la vidéoconférence sur

la capacité des utilisateurs à développer une affinité avec leur interlocuteur. Les théories de la communication virtuelle accordent une place importante aux effets de la présence ou de l'absence de certains indices non verbaux sur un phénomène relationnel particulier (Walther, 2011). La téléthérapie, en employant un moyen de communication comme la vidéoconférence afin de soutenir les interactions à distance entre thérapeutes et clients, présente une dynamique relationnelle différente des suivis en présentiel qui peut avoir une influence étendue sur l'expérience qu'en font les thérapeutes et clients (Cataldo et al., 2021). La téléthérapie constitue ainsi une modalité de traitement différente de la psychothérapie en présentiel puisqu'elle est sujette à l'influence des outils technologiques qui soutiennent la communication virtuelle entre thérapeute et client. Ces outils technologiques sont partie prenante de l'efficacité de la téléthérapie et de la relation thérapeutique entre le thérapeute et le client (Comer & Timmons, 2019; Janssen, 2012).

L'efficacité de la téléthérapie

La téléthérapie a été utilisée auprès d'une grande diversité de clientèles en santé mentale. Les méta-analyses disponibles montrent une efficacité similaire entre les suivis psychothérapeutiques en présentiel en comparaison à ceux en vidéoconférence (Fernandez et al., 2021; Norwood et al., 2018). La méta-analyse de Fernandez et collaborateurs est particulièrement éclairante en ce qui a trait à l'efficacité de la thérapie car elle décortique les gains observés en fonction de la population clinique étudiée et le type de traitement psychologique utilisé. Il s'avère ainsi que les troubles de l'humeur, les troubles anxieux et le trouble de stress posttraumatique sont les problématiques qui répondent le mieux à la téléthérapie. En général, les clients présentent les gains les plus élevés pour les traitements d'approche cognitivo-comportementale. Ces résultats suggèrent, selon les auteurs, que l'approche cognitivo-comportementale est plus facilement transposable au contexte de téléthérapie parce qu'elle est souvent manualisée et basée sur l'implémentation de stratégies de restructuration cognitive qui peuvent être répétées avec le thérapeute. En comparaison, les approches reposant en grande partie sur les interprétations de phénomènes relationnels, comme c'est le cas pour l'approche psychodynamique, seraient plus facilement affectées par la difficulté à percevoir certains signaux non verbaux. Il est intéressant de noter également que certaines populations cliniques, telles que les troubles de la personnalité, sont très peu représentées dans les essais cliniques sur la téléthérapie (Thomas et al., 2021). Les quelques données disponibles indiquent toutefois qu'il est possible d'offrir un traitement efficace pour ce type de problématique en suivant une approche basée sur la thérapie d'acceptation et d'engagement (Zimmerman et al., 2021). En somme, les données probantes disponibles actuellement indiquent que la téléthérapie est une approche efficace en général, bien qu'il soit important que de nouvelles études soient dirigées auprès de portraits cliniques complexes. Similairement, les études prenant avantage des possibilités uniques qu'offre la téléthérapie sont rares. Par exemple, il est possible d'utiliser des appareils Bluetooth afin de procéder, en temps réel et à distance,

à l'entraînement aux habiletés parentales auprès de parents d'enfants présentant un trouble du comportement (Comer et al., 2017).

La relation thérapeutique

Outre les questionnements entourant l'efficacité de la téléthérapie, les processus relationnels liés à l'établissement et le maintien d'une forte alliance thérapeutique entre le client et le thérapeute sont souvent au cœur des préoccupations des thérapeutes envers la téléthérapie (Witte et al., 2021). Le concept d'alliance thérapeutique revêt parfois des significations différentes en fonction des approches thérapeutiques utilisées, mais il est néanmoins établi que l'alliance thérapeutique réfère aux aspects holistiques de la relation de collaboration entre le thérapeute et le client (Flückiger et al., 2018). Cette relation de collaboration peut être appréciée selon trois dimensions : la qualité du lien affectif entre le thérapeute et le client, le niveau d'accord envers les objectifs du suivi thérapeutique et le niveau d'accord envers les tâches qui permettront d'atteindre les objectifs visés par le suivi (Bordin, 1979; Horvath & Greenberg, 1989). En ce qui concerne la téléthérapie, les revues systématiques disponibles relèvent des niveaux similaires d'alliance thérapeutique entre la thérapie en présentiel et celle en VC (Simpson & Reid, 2014; Watts et al., 2016). Certains essais cliniques, particulièrement auprès de clientèles souffrant de troubles anxieux, observent même une alliance thérapeutique plus forte en téléthérapie qu'en présentiel (Watts et al., 2020). Une méta-analyse récente, laquelle inclut 12 études cliniques portant sur la comparaison entre un traitement d'approche cognitivo-comportementale en présentiel et un traitement analogue en téléthérapie, arrive tout de même à la conclusion que l'alliance est cotée plus faiblement en téléthérapie qu'en présentiel (Norwood et al., 2018). Il est nécessaire de noter que cette méta-analyse incorporait les niveaux d'alliance rapportés selon plusieurs perspectives (thérapeutes, clients, observateurs) en un seul niveau moyen d'alliance par modalité de traitement, de telle sorte qu'il n'est pas possible de statuer sur la possibilité qu'un groupe de participants (p. ex., les thérapeutes) soit responsable de cette différence d'alliance thérapeutique. Par exemple, une revue narrative récente arrive à la conclusion que les thérapeutes tendent à être davantage préoccupés par la préservation de l'alliance thérapeutique que leurs clients (Lopez et al., 2019). Les auteurs proposent que ce constat puisse être dû au fait que les thérapeutes disposent d'une expertise vis-à-vis la création et le maintien d'une alliance thérapeutique de qualité avec leurs clients et sont donc plus sensibles envers les variations, même subtiles, d'alliance thérapeutique. De plus, les thérapeutes peuvent être perplexes devant la nouveauté du contexte de téléthérapie et être incertains des ajustements à apporter afin de favoriser l'alliance. Pour les thérapeutes, la préoccupation envers la possibilité que la relation thérapeutique soit compromise par certains aspects de la téléthérapie est souvent attribuée à la possibilité que l'empathie, une composante intégrale d'une alliance thérapeutique de qualité (Elliott et al., 2018), soit affectée par l'usage de la vidéoconférence (Connolly et al., 2020).

L'empathie et la téléthérapie

L'empathie consiste en la capacité à s'imaginer ou à ressentir en partie les émotions d'autrui sans perdre de vue l'origine de l'émotion partagée (Decety & Jackson, 2004). Cette définition de l'empathie tirée du domaine des neurosciences cognitives et sociales met en évidence trois dimensions qui caractérisent le phénomène de l'empathie. La première, la résonance affective, consiste en un processus rapide et automatique basé sur les afférences sensorielles (p. ex., les stimuli visuels, auditoires, etc.) qui engendre le partage de l'état affectif vécu par autrui (de Waal & Preston, 2017). Par exemple, une étude en imagerie par résonance magnétique fonctionnelle montre que les régions cérébrales associées à la production d'expressions faciales indiquant un état émotionnel (soit la joie, la colère, le dégoût, la peur ou la tristesse) sont également activées chez l'individu qui observe ces expressions faciales (Anders et al., 2011). La résonance affective est notamment observable par le phénomène d'imitation des comportements non verbaux, où deux individus en interaction présentent une tendance à accorder leurs expressions faciales, leurs mouvements corporels et le ton de leur voix (Hess & Fischer, 2013; Prochazkova & Kret, 2017). La deuxième dimension de l'empathie, soit la prise de perspective cognitive, représente un type d'opérations plus délibérées par lesquelles l'être humain empathique prend en considération les éléments contextuels et les informations connues sur l'individu envers lequel l'empathie est dirigée afin d'inférer l'état émotionnel ressenti par cet individu. Le caractère délibéré de la prise de perspective est illustré par la possibilité de moduler l'empathie à l'aide d'instructions. Par exemple, dans une série d'études où les participants avaient la tâche d'identifier le niveau de soins envisagés envers des patients sur la base d'enregistrements de leurs expressions faciales de douleur, il est retrouvé que le fait de demander aux participants d'imaginer les effets causés par la douleur exprimée permet de réduire la disparité entre les soins offerts aux patients afro-américains (*Black patients*) comparativement aux patients d'origine européenne (*White patients)* (Drwecki et al., 2011). La troisième dimension de l'empathie réside en la capacité de régulation émotionnelle, servant à éviter d'être submergé par l'état émotionnel partagé avec autrui. Une difficulté à réguler l'état affectif partagé peut engendrer une détresse et ainsi diminuer la capacité à réagir de façon empathique (Eisenberg & Eggum, 2009).

L'empathie peut être étudiée sous deux déclinaisons, soit *l'aptitude à l'empathie* d'un individu ou son *empathie situationnelle* (Keysers & Gazzola, 2014). L'aptitude à l'empathie fait référence au niveau optimal dont peut faire preuve un individu sous des conditions favorables. Par exemple, certains questionnaires cherchent à caractériser la capacité d'un individu à être empathique (p. ex., Davis, 1980; Segal et al., 2017). Les différences observées sur de tels questionnaires sont alors le reflet de différences interindividuelles. L'empathie situationnelle représente plutôt le niveau d'empathie rapportée par un individu dans un contexte particulier, par exemple l'empathie ressentie par un thérapeute à la suite d'une séance. Les fluctuations d'empathie du thérapeute observées entre différentes séances avec différents clients relèvent ainsi de l'aptitude à l'empathie

du thérapeute en fonction des circonstances spécifiques de la séance visée et du client rencontré. L'empathie situationnelle est entre autres mesurable à l'aide de questionnaires remplis tout de suite après l'événement d'intérêt (p. ex., Barrett-Lennard, 1962).

En contexte de psychothérapie, l'empathie contribue à l'impression pour le client d'être entendu tout en renforçant les techniques d'intervention mises en place par le thérapeute (Davis, 2009; MacFarlane et al., 2015). L'empathie joue un rôle crucial dans le maintien d'une alliance thérapeutique de qualité et ce, peu importe l'approche théorique préconisée (Burns & Auerbach, 1996; Meissner, 1996; Rogers, 1975; Watson & Kalogerakos, 2010). L'empathie contribue notamment à la réparation des ruptures d'alliance pouvant survenir en cours de traitement. Lors de ces moments où le travail thérapeutique devient tendu ou laborieux, la capacité du thérapeute à démontrer son empathie envers ce que ressent le client représente l'une des façons les plus efficaces pour amorcer une réparation de la rupture d'alliance (Safran et al., 2011). L'effet bénéfique de l'empathie sur le déroulement de la psychothérapie est illustré par une méta-analyse récente montrant qu'un fort niveau d'empathie ressentie par les thérapeutes ou perçue par les clients est ainsi généralement associé à une issue positive du traitement psychothérapeutique (Elliott et al., 2018). À l'inverse, il est observé que l'une des variables les plus souvent associées à un échec consiste en un manque d'empathie du thérapeute (Mohr, 1995). En considérant ainsi le rôle bénéfique de l'empathie en psychothérapie et le niveau de préoccupation des thérapeutes vis-à-vis la possibilité que l'empathie soit altérée en téléthérapie, il est étonnant de constater que l'empathie demeure peu étudiée en contexte de téléthérapie.

Les données actuellement disponibles sur la possibilité que l'empathie soit altérée en téléthérapie n'offrent pas de conclusions claires. Du côté des thérapeutes, une étude qualitative s'est penchée sur la perception d'empathie de 12 thérapeutes ayant de 3 à 40 ans d'expérience clinique et offrant à leurs clients de réaliser des séances en VC depuis 1 à 4 ans (Horowitz, 2014). Les résultats de l'étude révèlent que tous les thérapeutes indiquent que leur capacité à ressentir de l'empathie est différente en VC. La moitié d'entre eux précise que leur empathie est diminuée en vidéoconférence comparativement à en présentiel. Ces résultats contrastent avec ceux d'une autre étude qualitative auprès de sept doctorantes en psychologie clinique (Békés et al., 2020). Ces doctorantes rapportent pour la plupart ne pas voir de différences dans l'empathie qu'elles ressentent lors de rencontres à distance. Pour certaines de ces doctorantes, le fait que les séances aient lieu à distance est moins anxiogène, de telle sorte qu'elles se sentent plus concentrées sur ce que communiquent les clients rencontrés.

Certaines études en télémédecine, ou l'offre de soins médicaux à l'aide des technologies de la communication, se sont penchées sur l'empathie ressentie par les cliniciens en VC. Par exemple, une étude auprès de cinq internistes observe une diminution significative du nombre d'interactions empathiques en VC

comparativement aux séances ayant eu lieu en présentiel (Liu et al., 2007). Les auteurs de cette étude observent que la durée des séances en VC était moindre qu'en présentiel et que les internistes ont mentionné avoir de la difficulté à connecter émotionnellement à leurs patients. Ces résultats tendent à supporter la possibilité que l'empathie soit affectée par le contexte de VC.

Du côté des clients, deux études auprès de 7 et 16 femmes recevant un traitement pour des symptômes anxieux et dépressifs respectivement montrent des niveaux d'empathie élevés au terme de suivis en téléthérapie (Farmer, 2009; Openshaw et al., 2012). Ces échantillons constituent des données encourageantes sur la perception de l'empathie en VC, mais il convient de souligner que la population étudiée par ces études (les femmes vivant en milieu rural en Utah) peut avoir contribué à l'obtention de ces résultats. Puisque les soins en psychothérapie sont plus difficiles à obtenir dans les milieux ruraux, il est possible que le seul fait d'avoir pu rencontrer un thérapeute soit responsable de ces moyennes élevées d'empathie perçue. D'une façon similaire aux études sur l'empathie ressentie par les thérapeutes, les petits échantillons rendent difficiles la généralisation de ces résultats sur l'empathie à d'autres suivis en téléthérapie. En somme, il n'est pas possible de statuer sur la présence d'une différence quantifiable quant à l'empathie rapportée par les clients en téléthérapie.

D'un point de vue théorique, l'une des principales raisons de croire que l'empathie puisse être affectée en téléthérapie réside dans la possibilité que les indices socioémotionnels servant à soutenir l'interaction empathique soient altérés en VC. En effet, l'un des véhicules importants de l'empathie en psychothérapie en présentiel consiste en la communication non verbale entre le thérapeute et le client (Davis, 2009; Hall et al., 1995). Par exemple, les comportements non verbaux tels que le contact visuel ou la posture du corps sont souvent associés à des perceptions plus élevées d'empathie en contexte de psychothérapie (Deladisma et al., 2007; Dowell & Berman, 2013; Hall et al., 1995). Incidemment, ces indices non verbaux sont souvent altérés en VC, ce qui risque d'affecter l'empathie autant pour les clients que pour les thérapeutes. Le contact visuel en particulier est souvent entravé par l'angle du regard (traduction du terme *gaze angle*) présent entre la caméra web au-dessus de l'écran d'ordinateur et les yeux de l'interlocuteur situés sur l'écran (Regenbrecht & Langlotz, 2015). Bien que les thérapeutes et les clients puissent faire l'effort conscient de fixer directement la caméra web lors de la prise de parole pour recréer la perception de contact visuel, cette action demande un effort conscient et empêche l'individu de porter attention aux réactions non verbales de l'interlocuteur pendant la prise de parole. Malgré que les écrits fassent souvent allusion à l'altération des indices non verbaux, les ouvrages théoriques disponibles ne permettent pas, à ce jour, d'élucider les mécanismes propres à l'empathie en téléthérapie en décrivant notamment l'effet de l'altération des indices non verbaux sur l'empathie ressentie par les thérapeutes et perçue par les clients. Une telle organisation théorique permettrait de rendre compte des différences d'empathie pouvant être observées entre la psychothérapie en présentiel et la téléthérapie et faciliter l'identification des méthodes servant à optimiser l'empathie dans les séances de téléthérapie.

Les facteurs associés à l'empathie en téléthérapie

Différents facteurs peuvent influencer l'expérience des thérapeutes et des clients en téléthérapie et, par ricochet, avoir une influence sur l'empathie dans ce contexte. Par exemple, la téléthérapie peut être sujette à des problèmes techniques, particulièrement en lien avec la fiabilité et la rapidité de la connexion internet utilisée par les thérapeutes et les clients. Une image pixellisée, une interruption du son ou de l'image, la désynchronisation du son et de l'image et des retours de son font partie des difficultés pouvant survenir en téléthérapie (Connolly et al., 2020; Richardson et al., 2015). Ces problèmes techniques, en fonction de leur fréquence ou de leur durée, peuvent affecter le déroulement de la séance en devenant la cible d'attention des thérapeutes et des clients au détriment du contenu de la séance (Cipolletta et al., 2018). Une image pixellisée ou saccadée rend également difficile la perception visuelle d'indices facilitant le lien thérapeutique. La qualité de l'équipement informatique utilisé et de la connexion internet reliant le thérapeute au client figure donc parmi les facteurs influençant l'empathie en téléthérapie.

Les attitudes positives ou négatives envers la téléthérapie peuvent potentiellement avoir un lien avec l'empathie en téléthérapie. Une étude fréquemment citée afin d'illustrer cette potentielle association montre que des psychologues assignent un niveau d'alliance plus faible lorsqu'ils visionnent une séance ayant eu lieu en VC plutôt qu'en présentiel, alors que le contenu de la séance visionnée est le même entre les deux conditions (Rees & Stone, 2005). Bien que cette étude ait examiné les niveaux d'alliance plutôt que d'empathie, il est possible qu'un phénomène similaire survienne avec les niveaux d'empathie auprès des thérapeutes et des clients présentant des attitudes négatives envers la téléthérapie et ce, avant même de prendre part soi-même à des séances de téléthérapie. En ayant la préconception que la téléthérapie constitue une alternative moins efficace et moins satisfaisante que la psychothérapie en présentiel, ces thérapeutes et ces clients risquent de ressentir et de percevoir plus faiblement l'empathie en VC en étant plus attentif aux altérations possibles de l'image ou du son.

La téléprésence est un autre construit psychologique associé à l'empathie en VC. La téléprésence désigne l'impression pour le client et le thérapeute d'être ensemble durant l'appel en VC, en opposition à l'impression nette de se trouver à deux endroits physiques distincts reliés par la technologie (Berthiaume et al., 2018). Une impression élevée de téléprésence en VC se traduit souvent par l'impression des clients et des thérapeutes de se trouver dans la même endroit physique (*présence physique*), l'impression d'être connectés à l'intérieur d'une interaction sociale soutenue avec leur interlocuteur (*présence sociale*) et l'impression d'être absorbés dans l'interaction en VC au point de perdre le temps de vue (*absorption*). Un fort sentiment de téléprésence est associé à une perception plus élevée d'alliance de la part des clients prenant part à un suivi en téléthérapie (Bouchard et al., 2007). Il est suggéré que la téléprésence présente une association similaire avec l'empathie en téléthérapie (Johnson, 2014). De plus, comme pour l'empathie, des données en contexte

non clinique montrent que de faciliter le contact visuel en VC augmente les niveaux de téléprésence rapportés par les participants (Neureiter et al., 2014).

La présence thérapeutique, qui réfère à une posture relationnelle du thérapeute tournée vers l'expérience émotionnelle vécue par le client dans l'instant présent (Alvandi, 2019; Geller et al., 2010), est un construit associé à l'empathie dans les suivis en présentiel (Geller et al., 2010). En étant attentif à l'expérience émotionnelle dont a conscience le client au fur et à mesure de la séance, le thérapeute tente de s'immerger dans ce qu'exprime le client de façon verbale et non verbale (Geller, 2020). Comme l'empathie, la présence thérapeutique peut être examinée du point de vue des thérapeutes et des clients. Au moment de débuter la thèse, un article émettait l'hypothèse que la présence thérapeutique soit affectée par le contexte de VC mais cet effet n'avait pas encore été testé (Alvandi, 2019). Sachant le rôle joué par la présence thérapeutique dans les suivis en présentiel (Geller et al., 2010), il est possible que cette association demeure significative en contexte de téléthérapie.

Objectifs et hypothèses de la thèse

En résumé, quatre constats ressortent ainsi des écrits sur l'empathie en téléthérapie. Premièrement, il n'existe pas d'organisation théorique permettant de rendre compte de l'influence du contexte de communication virtuelle sur l'empathie en téléthérapie. Deuxièmement, il n'est pas clair si l'empathie est quantitativement diminuée en téléthérapie par VC comparativement au contexte en présentiel. Troisièmement, les construits psychologiques associés à l'empathie en contexte de téléthérapie sont méconnus. Quatrièmement, les moyens par lesquels l'empathie peut être optimisée dans un contexte de téléthérapie, notamment par la modulation de la perception des indices non verbaux en vidéoconférence, n'ont pas été testés en contexte de téléthérapie. Il n'existe ainsi que peu de moyens par lesquels les thérapeutes et les clients peuvent améliorer la perception des indices non verbaux supportant l'expérience de l'empathie en téléthérapie.

La présente thèse vise à répondre à ces quatre constats au moyen de quatre chapitres. Le premier chapitre présente une revue narrative des écrits portant sur l'empathie en contexte de communication virtuelle et propose un cadre conceptuel permettant d'analyser le phénomène de l'empathie en téléthérapie. Ce cadre conceptuel a pour but d'analyser si l'empathie peut être ressentie et perçue en téléthérapie et de cerner l'effet de la perte relative de certains indices non verbaux sur l'empathie. Le second chapitre compare les niveaux d'empathie ressentie par les thérapeutes et perçue par les clients dans le cadre de simulations de séances de téléthérapie avec l'hypothèse que la vidéoconférence produira des niveaux d'empathie ressentie et perçue plus faibles qu'en présentiel. Ce deuxième chapitre vise aussi à identifier les corrélats propres à l'empathie en vidéoconférence, avec l'hypothèse que les attitudes, la téléprésence et la présence thérapeutique seraient associés à l'empathie en VC. Les troisième et quatrième chapitres s'appuient sur le cadre conceptuel du chapitre

1 et les résultats du chapitre 2 afin d'explorer une méthode permettant d'optimiser l'empathie perçue en téléthérapie. Le chapitre 3 décrit le développement d'une méthodologie simple permettant de préserver la perception de contact visuel en vidéoconférence. Le chapitre 4 examine l'effet de cette méthodologie sur les niveaux d'empathie et de téléprésence des clients ainsi que leur tendance à regarder certaines régions corporelles du thérapeute à l'aide de deux conditions de contact visuel en VC. Il est attendu que l'empathie et la téléprésence soient plus élevées dans la condition favorisant le contact visuel et que les clients rapportent davantage d'empathie et de téléprésence dans les séances où ils fixent davantage les yeux du thérapeute. Pris ensemble, ces quatre chapitres ont pour but de cerner l'influence de l'usage de la VC sur l'empathie en téléthérapie.

Chapitre 1 : Empathy in Computer-Mediated Interactions: A Conceptual Framework for Research and Clinical Practice

1.1 Avant-propos

Ce chapitre a fait l'objet d'un article paru dans le journal *Clinical Psychology : Science and Practice* dont voici la référence : Grondin, F., Lomanowska, A. M., & Jackson, P. L. (2019). Empathy in computer-mediated interactions: A conceptual framework for research and clinical practice. *Clinical Psychology: Science and Practice, 26*(4), 17. https://doi.org/10.1111/cpsp.12298

1.2 Résumé

L'empathie est cruciale au maintien d'interactions sociales bénéfiques et elle est alimentée par les indices verbaux et non verbaux qui soutiennent l'interaction. La communication virtuelle permet aux individus d'échanger instantanément à l'aide de moyens de communication basés sur des outils technologiques, mais ce type d'échanges peut contribuer à filtrer ou à altérer la perception de certains indices non verbaux. Cet article décrit l'élaboration d'un cadre conceptuel de l'empathie en ligne qui se base sur les écrits scientifiques portant sur la télésanté et la communication émotionnelle. Les spécificités de la communication virtuelle et leurs effets sur l'empathie en ligne sont analysés. Cet article détaille également les stratégies que peuvent employer les individus afin de faciliter le sentiment, l'expression et la perception de l'empathie en ligne.

1.3 Abstract

Empathy plays a crucial role in fostering positive social interactions and is elicited through verbal and nonverbal socioemotional cues. Computer-mediated communication (CMC) rapidly connects individuals at a distance but can partly filter out nonverbal cues. We draw from available telehealth and emotion communication literature to elaborate a cohesive conceptual framework of online empathy, a tool the field is currently lacking. The distinctive features of online communication and their impacts on the empathic interaction are described. We also detail strategies that users can employ to facilitate feeling, conveying, and being perceived as empathic in CMC.

Keywords: Empathy, Teletherapy, Computer-Mediated Communication, Emotion Communication, Verbal and Nonverbal Cues

1.4 Introduction

Computers and other digital communication devices are increasingly being used in interactions between health professionals and clients. With the widespread availability of various digital communication applications over the Internet, from videoconferencing to text-based chat, both professionals and clients can benefit from the accessibility and convenience of computer-mediated communication (CMC) in health care (Barak, Klein, & Proudfoot, 2009). However, this rise in digital interactions has also been met with scepticism regarding effectiveness in comparison to face-to-face interactions, especially in contexts such as psychotherapy and counselling (Rees & Stone, 2005; Sucala, Schnur, Brackman, Constantino, & Montgomery, 2013), where the quality of the alliance with the professional contributes to the therapeutic outcome (Horvath, Del Re, Flückiger, & Symonds, 2011). In particular, there has been much debate regarding the impact of CMC on the ability and motivation to empathize. Although the literature on empathy in the context of online healthcare and clinical interventions is still sparse, researchers have expressed their concerns regarding whether individuals can effectively empathize in these contexts (Demiris et al., 2010; Terry & Cain, 2016). The available data point to a potential decrease in the ability to express empathy as reported by clinicians in online interventions (Bambling, King, Reid, & Wegner, 2008) and fewer empathic interactions per online session than in comparable face-to-face encounters (Liu et al., 2007). There is also evidence indicating that empathic skills are lower online than in face-to-face interactions (Carrier, Spradlin, Bunce, & Rosen, 2015). Empathy plays a crucial role in fostering positive clinical interactions between health professionals and their clients, therefore a greater understanding of how it is expressed and perceived in digital interactions is crucial in order to support further advancement in the use of digital communication technologies in health care. And while there are a great number of empathy models from different frameworks, including clinical (Barrett-Lennard, 1981), sociocognitive (Silvester, Patterson, Koczwara, & Ferguson, 2007), and neuroscience perspectives (Decety & Jackson, 2004; Rameson & Lieberman, 2009), none have yet fully addressed the impact of CMC on the different dimensions of empathy. In this paper we propose a conceptual framework of online empathy that takes into consideration existing models of empathy in face-to-face interactions alongside the features of CMC to explain potential obstacles to empathy in online contexts. The framework organizes previous findings along four distinct steps of a prototypical empathic online interaction and outlines pertinent avenues for future research.

1.4.1 Communicating Empathy

Empathy has been defined as an umbrella term for the phenomenon of experiencing the feelings of another individual, which includes the processes of affective resonance, perspective-taking and emotion regulation (Decety & Jackson, 2004). Affective resonance refers to the rapid sharing of another's emotional state from multimodal afferences such as visual or auditory inputs. Perspective-taking pertains to the cognitive ability to 'slip into someone else's shoes' and imagine the impact of their situation on their emotional state (akin to

'Theory of Mind' and 'mentalizing' in other fields of research). Emotion regulation refers to the ability of the observer to modulate one's own emotional reaction that stems from the sharing of another's emotional experience; this ability also contributes to maintaining a boundary between self and other. Empathy can also be the stepping stone to the adoption of a motivated prosocial behavior, which is considered a behavioral component of the expression of empathy by several authors (Goubert et al., 2005; Zaki, 2014). Empathy is central to the practice of medicine and psychosocial interventions and constitutes a predictor of positive therapeutic outcomes (Derksen, Bensing, & Lagro-Janssen, 2013; Elliott, Bohart, Watson, & Greenberg, 2011).

A helpful consideration when studying empathy in social interactions comes from distinguishing individual ability and propensity to empathize (Keysers & Gazzola, 2014). While every individual has a peak potential – or ability – for empathy under optimal circumstances, his or her own tendency – or propensity – to empathize at a given moment is a function of the contextual factors of the situation. Trait and dispositional empathy refer to the ability to empathize, while situational or contextual empathy is a reflection of the propensity to empathize. Investigating the influence of distinct features of CMC thus seeks to uncover how online contexts could help or hinder empathic interactions.

Current models of empathy communication emphasize that the perception of socioemotional cues and the appropriate expression of empathy are central to empathic interactions (Silvester et al., 2007). For example, pain communication models which highlight the crucial role of empathy in understanding and helping an individual in pain, recognize that the evaluation of pain is based upon available verbal and nonverbal signals that can be misperceived by the observer and lead to a misinterpretation of the painful state of the person suffering (Goubert et al., 2005; Hadjistavropoulos et al., 2011). This evaluation process is not limited to empathy for pain. Other emotional states can also generate behavioral cues that must be perceived and interpreted in order for an observer to express empathy (Barrett-Lennard, 1981). The empathic interaction is thus initiated when an individual (a 'target' of empathy) is experiencing an affective state, be it positive (e.g., happiness, excitation, and such) or negative (e.g., anger, sadness, pain). The target individual encodes this experience and associated behaviors are displayed through verbal and nonverbal signals. Another individual (a 'provider' of empathy) perceives the affective state of the target based on the combination of statements from the target ('I feel sad today') and the displayed nonverbal cues (facial expressions, tone of voice, etc.). In order to respond appropriately, a provider of empathy must accurately decode these signals, then communicate his or her sense of empathy through behaviors that are perceived by the target (again, through verbal and nonverbal signals).

1.4.2 The Efficacy of CMC in Psychotherapy and the Role of Empathy

Numerous meta-analyses provide robust empirical support for the use of CMC through videoconferencing in psychotherapy as a feasible and effective treatment approach for a wide range of psychopathologies (Backhaus

et al., 2012; Barak, Hen, Boniel-Nissim, & Shapira, 2008; Bee et al., 2008; Hilty et al., 2013). For example, this modality of teletherapy (i.e., therapy at a distance), has led to comparable efficacy as face-to-face treatments in the context of depressive, posttraumatic, or anxiety symptomatology (Backhaus et al., 2012; Bee et al., 2008). It is also noteworthy that videoconferencing has benefited some interventions by producing better outcomes than its face-to-face counterpart. For example, one study found that the rate of posttreatment 'excellent responders' to a behavioral training program for parents in a videoconferencing setting was significantly higher than in the analog, clinic-based program (Comer et al., 2017). The parents enrolled in the aforementioned study also reported fewer barriers to treatment, such as the need to physically attend the sessions, in the videoconferencing modality. The empirical literature to date thus supports the efficacy of psychotherapy mediated through videoconferencing for several mental-health conditions.

Numerous studies have also addressed the strength of the therapeutic alliance, defined as the collaborative relationship between a client and a therapist (Hatcher & Barends, 2006), in comparing online and face-to-face treatments. Meta-analytic syntheses of the literature on this topic indicate that levels of therapeutic alliance found in teletherapy through videoconferencing are similar to those found in face-to-face treatments (Simpson & Reid, 2014; Sucala et al., 2013; Watts, Marchand, Bouchard, & Bombardier, 2016). The available evidence therefore lends considerable support for this modality of teletherapy as an effective means of establishing a strong therapeutic alliance between therapists and clients.

The encouraging results regarding therapeutic alliance are sometimes interpreted as a demonstration of the lack of detrimental effects of CMC on other relevant factors in psychotherapy, such as empathy. While therapeutic alliance and empathy are related but distinct concepts (Wampold, 2015), there is a case to be made for the separate value of empathy in therapeutic care. Experiencing and effectively communicating empathy is considered as an effective way to enhance therapeutic alliance (Castonguay, Constantino, Goldfried, & Hill, 2010). For example, doctoral students who followed a structured clinical training that aimed at establishing an empathic connection with their clients produced higher posttraining alliance levels than doctoral students who conducted treatment as usual (Hilsenroth et al., 2002). Furthermore, it is known that therapeutic alliance failures happen in psychotherapy and that, in such cases, being empathic towards the clients' feelings can help repair these ruptures in alliance (Safran, Muran, & Eubanks-Carter, 2011). The importance of empathy in therapeutic care is further supported by the substantial evidence that reduced empathy can negatively impact therapeutic outcomes (Mohr, 1995) and that high empathy predicts favorable outcomes in psychotherapy (Elliott, Bohart, Watson, & Greenberg, 2011). Uncovering how empathy can be impacted but also optimized in CMC could prove to be a key tool to improving the acceptability and efficacy of online interventions. To achieve this goal, it is important to investigate the effects of CMC on the different components of the therapeutic process while

recognizing the advantages and limitations inherent to the communication medium used (Castelnuovo, Gaggioli, Mantovani, & Riva, 2003).

1.4.3 Features of Computer-Mediated Communication (CMC)

CMC is characterized by the use of a digital communication medium, including text-based messaging (instant messaging, forums, social networking, SMS, etc.), audio communication, and videoconferencing to rapidly reach individuals at a distance (Barak et al., 2009). These communication media, while constantly evolving, are unable to transmit all the sensory information that is typically available in face-to-face interactions. CMC can therefore lead to some degree of filtering (deliberately or not) of the socioemotional cues exchanged in interpersonal interactions. A digital communication medium can thus be conceptualized as a filter that allows for certain (but not all) verbal and nonverbal signals to be transmitted from one interactant to another. While verbal content is usually preserved even in text-based communication, nonverbal cues are partially filtered out in CMC, leading to a reduction in the amount of information that can be exchanged. The impact of filtering nonverbal cues is significant in the context of understanding online empathy, as the presence of these cues has been associated with stronger perceptions of empathy (Hall, Harrigan, & Rosenthal, 1995). At least four main features of CMC can influence the degree of filtering that occurs: the medium richness, the immediacy of feedback, the transmission quality, and the content of the communication.

1.4.3.1 Richness of communication medium

A recurring concept in the literature on CMC is that existing communication media can be categorized on a continuum according to their degree of *verbal and nonverbal information richness* (for a review of the concept, see D'Urso & Rains, 2008). Medium richness encompasses 1) the capacity for language variety by using a large pool of symbols to communicate, 2) personalness, derived from the perceived warmth, sociability, and sensitiveness when using a given medium, and 3) the transmission of a variety of verbal and nonverbal cues. Each type of media can be represented on a scale from 'low' to 'high' medium richness, which refers to the general capacity of the medium to transmit varying degrees of verbal and nonverbal signals (Figure 1). From the standpoint of empathy arising in an online context, this continuum presupposes that richer media (e.g., videoconferencing applications) will provide more information from which empathy can be elicited than a medium classified on a lower end of the richness spectrum (e.g., text-based messaging applications).

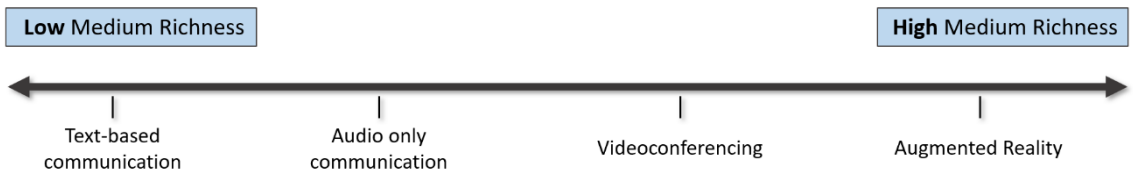

Figure 1. A communication medium richness continuum based on bandwidth (i.e., the capacity to relay verbal

and nonverbal information). The inclusion of augmented reality reflects the potential for technological advances to provide social information (e.g., facial microexpressions) that is mostly imperceptible in real-time face-to-face encounters.

1.4.3.2 Immediacy of feedback and synchronicity of communication

Although past conceptualizations of medium richness have encompassed 'immediacy of feedback' (D'Urso & Rains, 2008), its importance in relation to empathy in CMC justifies considering it separately from medium richness altogether. Immediacy of feedback pertains to the ability of an interactant to be able to readily perceive others' verbal and nonverbal reactions towards their own actions. This particular capacity does not imply the filtering of emotional cues per se, but immediacy of feedback plays an important role in the timely unfolding of interpersonal phenomena linked to empathy. For instance, mimicry (i.e., matching a behavior observed in another individual) is an automatic and rapid phenomenon in face-to-face interactions that benefits affiliation, likeability, and empathy (Chartrand & Lakin, 2013). However, for the client and the therapist to notice and match each other's behaviors over the course of a teletherapy session, the interaction needs to take place in real-time, that is, synchronously. In CMC, a given communication medium can entail both synchronous and asynchronous usage, leading to potentially large discrepancies in the users' experience even in the context of the same medium. The synchronicity of the communication can thus play an important role in exchanging and understanding the emotional content of clinical interactions.

1.4.3.3 Transmission quality

Filtering can also be the result of poor signal quality and stability of the Internet connection linking interactants. A subpar connection is likely to affect verbal and nonverbal cues and the flow of the interaction due to poor sound and image rendering or the introduction of lag time (Suler, 2000). Some media require specific hardware to properly function: for example, recording and displaying a high-quality videoconference feed requires that both parties have access to high resolution webcams, monitors, microphones, and headphones. However, these technical requirements are now considered to be easily manageable with the arrival of fast and affordable Internet connections and equipment (Kegel, Cesar, Ursu, Kaiser, & Jansen, 2013; Richardson, Reid, & Dziurawiec, 2015).

1.4.3.4 Communication content

Even after accounting for medium richness and transmission quality, computer-mediated interactions can be altered by specific adaptations from users. For instance, text-based interactions can include emotes in order to convey more information about emotionality (Derks, Fischer, & Bos, 2008). Users can also communicate in virtual environments via personalized avatars that can be used to visually represent physical aspects of interpersonal interactions (e.g., gestures, proximity, touch), therefore adding an element of embodiment to CMC (Bente, Kramer, & Eschenburg, 2008; Lomanowska & Guitton, 2012; Sadowski & Lomanowska, 2018). Similarly,

adjusting the position of the webcam in a videoconferencing interaction can allow for a face-only framing or a more enlarged view of one's body (e.g., Nguyen & Canny, 2009). The communication content can thus be manipulated by users according to their personal preferences and the social norms attributed to the medium.

1.5 Communicating Empathy Online – A Conceptual Framework

Translating how empathy is communicated from a face-to-face to a computer-mediated context must take into consideration the features of CMC and the steps in the process of an empathic interaction. The type of digital medium selected, its capacity for immediate feedback, its distinctive technological features, and its pertinent communication norms may influence how the computer-mediated therapeutic exchange is experienced by the provider and the target of empathy. Research in this area is only beginning to shed light on the different facets of this process. In the following sections, we draw on existing clinical models of empathy (Barrett-Lennard, 1981) and pain communication models (Goubert et al., 2005; Hadjistavropoulos et al., 2011) to describe empathic interactions in the realm of CMC. We employ a step-by-step conceptualization that is in line with current propositions regarding online emotional expression research (e.g., Boonthanom, 2004; Pirzadeh & Pfaff, 2012) and social information processing theories (e.g., Runions et al., 2013; Walther, 2011) that emphasize the role of adequate production and perception of cues to interpret the emotional state of another individual online. For each step of the empathic interaction, relevant literature from online and offline emotion communication as well as research in the medical and psychosocial domains of intervention are reviewed and synthetized. While the fields of medicine and clinical psychology can define and operationalize empathic interventions differently, we argue that insights from each field can enrich the comprehension and adaptation of digital healthcare going forward. We propose that the resulting conceptual framework of online empathy provides an efficient tool for articulating future empirical endeavors concerning empathy in online clinical contexts and, to some extent, in broader social contexts as well. The framework also lays the groundwork for promoting empathic exchanges in CMC as these modes of communication are increasingly prevalent.

1.5.1 Establishing the framework: The interaction cycle of online empathy

The proposed framework revolves around the representation of an online interpersonal interaction in the context of a clinical dyad, where each interactant is involved in behavioral and perceptual steps that lead to feeling, conveying and perceiving empathy (Figure 2). This cycle is repeated over time, and the target's cumulative experience of being heard and understood provides socioemotional benefits (Rimé, 2009) as well as strengthens the therapeutic alliance (Feller & Cottone, 2003). The interaction cycle is comprised of four separate steps: *emitting socioemotional cues*, *feeling empathy*, *conveying empathy*, and *perceiving empathy*. This reflects the consideration of empathy from both ends of the clinical dyad, since both interactants' respective evaluations of therapeutic empathy significantly predict favorable outcomes of therapy (Elliott et al., 2011). Additionally, a final section addresses the *contextual factors* that can impact the empathic interaction.

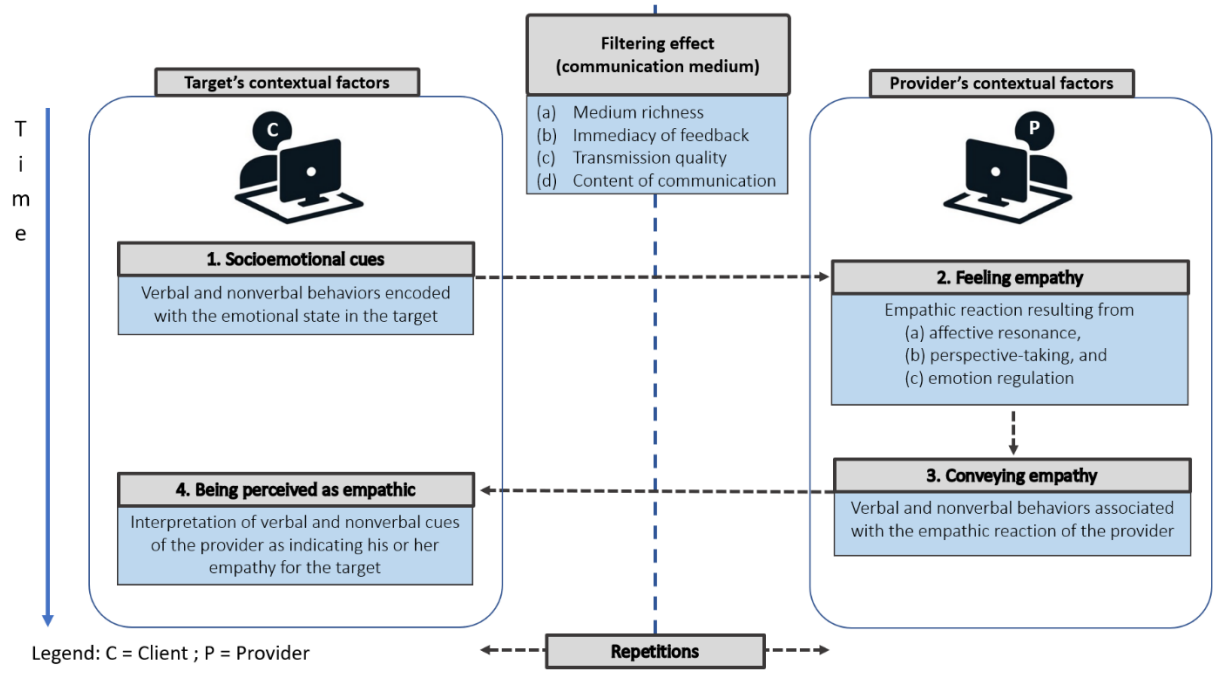

Figure 2. The proposed conceptual framework of empathy in CMC. The emission of socioemotional cues by the client (upper left) provokes an empathic reaction in the provider (upper right). The provider can then choose to convey his or her empathy (bottom right) to the client. The final step (bottom left) relates to the perceived empathy that the client interprets from the provider's response. Each relay of information is filtered by the communication medium according to its richness, the availability of immediate feedback, the transmission quality, and the content of the exchange.

1.5.2 Socioemotional cues

The emotional state of the target constitutes the starting point of the empathic interaction. Whether in clinical settings or not, experiencing an emotional state is often followed by sharing the affect and the circumstances that gave rise to it with another individual (Rimé, 2009). This process can trigger interpersonal emotion regulation, which facilitates emotional coping (Zaki & Williams, 2013), as well as fosters empathy between individuals (Duprez, Christophe, Rimé, Congard, & Antoine, 2015). Emotional states can be shared through verbal content (either written and spoken) and concurrent nonverbal signals such as vocal and facial expressions (Russell, Bachorowski, & Fernández-Dols, 2003) as well as body posture (Leijssen, 2006).

In the context of CMC, users must make some adaptations to convey the desired emotional message to others via the selected communication medium. For example, in the context of instant messaging, which lacks the auditory and visual cues that are inherent to face-to-face interactions, users can employ textual paralinguistic cues to express nonverbal audible, tactile, or visual elements into written language, such as words, onomatopoeias, symbols, images, punctuations or their combinations (Luangrath, Peck, & Barger, 2017; Rodríguez-Hidalgo, Tan, & Verlegh, 2017). Emoticons can also be used to illustrate emotions (Derks et al.,

2008). Conveying one's emotional state through text-based communication can also be accomplished through explicit verbal statements describing emotional states, but this approach necessitates that clinicians and clients pre-emptively agree to consciously translate their feelings into words (Barak et al., 2009). The lack of auditory and visual cues in text-based interventions can also facilitate a disinhibition effect among clients using chat and email to reach therapists (Cook & Doyle, 2002; Joinson, 2001). Clients have reported feeling freed of embarrassment and fear of judgment from therapists in this context, enabling them to honestly share their emotional states with them (Cook & Doyle, 2002). These accounts suggest that text-based interactions hold special value for some clients in facilitating emotional sharing while retaining a sense of psychological safety.

Audio- and videoconferencing are other media employed to carry out online clinical treatments with clients. The increased richness in nonverbal signals provided by these media compared to text-based interactions allow for more information to be considered by the clinicians when empathizing with their clients. Namely, specific vocal tone variations have been associated with discrete emotions (Johnstone & Scherer, 2000). Facial expressions (Krumhuber, Kappas, & Manstead, 2013) and eye contact (Adams & Kleck, 2005) can both contribute to accurate emotion recognition, making them efficient vehicles of socioemotional communication enabled by videoconferencing systems. These additional cues could help disambiguate the emotional meaning of the target's message in CMC (Derks et al., 2008), making it likelier for the clinician to be 'in tune' with the clients' emotional experience.

1.5.3 Feeling empathy

Following an interactant's socioemotional expression, an observing individual may feel empathy for the target. As discussed earlier, this empathic phenomenon experienced by the observer encompasses affective resonance, perspective-taking and emotion regulation (Decety & Jackson, 2004). These components of empathy have been thoroughly studied using pain stimuli and facial expressions (for reviews, see De Waal & Preston, 2017; Fan, Duncan, de Greck, & Northoff, 2011; Lamm, Decety, & Singer, 2011). However, little is known about how these processes occur online. Prior research highlighting lower empathic ability when engaging in CMC interactions suggests that the lack of nonverbal cues online could contribute to one's lack of empathy in CMC (Carrier et al., 2015). In the following sections, we explore how each of the main components of empathy may be affected by the provision or filtering of certain verbal and nonverbal cues and the implications for online interactions.

1.5.3.1 Affective resonance.

Affective resonance, sometimes referred to as 'emotional coupling' or 'state matching', is considered to primarily draw from bottom-up sensory input (i.e., visual, auditory, and other perceived cues) to trigger an automatic emotional sharing reaction in the observer (De Waal & Preston, 2017). This reaction can be detected in response to a broad range of stimuli indicating someone else's pain or distress (Fan et al., 2011), particularly

visual stimuli such as videos of facial expressions or social interactions (e.g., Anders, Heinzle, Weiskopf, Ethofer, & Haynes, 2011). Neuroscientific studies on affective sharing show that rapid physiological reactions of emotional arousal in the observer occur when viewing bodily and facial emotional expressions, even when such stimuli are not consciously perceived (Tamietto et al., 2009). Affective resonance can be observed in the mimicry of nonverbal behaviors, where interactants reflect each other's voice tone, facial expressions and bodily movements (Hess & Fischer, 2013; Prochazkova & Kret, 2017). This mimicry is facilitated by affiliative intent towards the target, the latter being sustained by positive attitudes, cooperation, similarity and contextual saliency of nonverbal behaviors, such as the target's direction of eye gaze (Hess & Fischer, 2013). Thus, we argue that affective resonance is facilitated by readily available sensorial inputs of an emotional state in others, particularly nonverbal cues.

From this description, it is questionable whether affective resonance would be effectively enacted through text-based communication, as some authors have speculated when analyzing incidents of cyberbullying (Runions & Bak, 2015). A recent study examined whether paralinguistic cues of nonverbal behaviors are repeated (or mimicked) by interactants in text-based communication (Rodríguez-Hidalgo et al., 2017). The study examined blogpost discussions downloaded from Live Journal and analyzed whether paralinguistic cues of nonverbal behaviors were repeated by interactants. While empathy was observable in the blogpost discussions, from the six categories of paralinguistic cues, only tactile cues were repeated between interactants. The results of this single study therefore do not support the hypothesis that emotional mimicry readily occurs in online affective contexts. One explanation offered by the authors is that these results do not account for existing online relationships. In the context of clinical care, it thus remains possible that interactants (more so the clinicians) mirror or reflect the paralinguistic cues indicating an emotional state (in the client), thus fostering empathic interactions. Concomitantly, it should be noted that the action of reading or hearing certain words impacts one's motor representations in the brain. For example, reading words with disgusting content or observing facial expressions of disgust both elicit neural activity in the same region of the left anterior insula (Ziegler et al., 2018). Thus, while affective resonance through emotional mimicry was not observed in blogpost interactions, written words alone could be enough to sustain the phenomenon of state matching between the client and the therapist.

An alternate mechanism for online affective resonance resides in the sense of social presence experienced by both the provider and the target of empathy. Social presence is defined as sense of being connected to another individual in CMC (Tu, 2002), be it through text-based, audio, or video-based media. A high degree of social presence, alongside explicit inquiries regarding the emotional state of their client, could account for the significant feelings of empathy reported by online counsellors while using text-based platforms (Bambling et al., 2008). Conversely, prolonged latency between each message can diminish the feeling of being in a common social space and weaken the empathic connection between the counselor and the client (Bambling

et al., 2008). Nonverbal behaviors such as eye contact may play an important role in eliciting a sense of social presence between users. One study examined the impact of enabling eye contact on social presence in videoconferencing interactions where participants were randomly assigned to a condition supporting eye contact or a control condition without eye contact (Neureiter, Moser, & Tscheligi, 2014). Results indicate that only the participants who consciously perceived a difference in eye contact enablement between the two conditions reported higher ratings of social presence in the eye contact condition. These results suggest that nonverbal behaviors could enhance social presence when they are perceived. Hence, affective resonance and emotional mimicry might be elicited more effectively by nonverbally richer online content.

1.5.3.2 Perspective-taking.

While affective resonance fuels automatic empathic consideration for another's emotional state, perspective-taking entails a more deliberate, top-down process that incorporates the context of the target of empathy and known information regarding the target individual to imagine their emotional state (Decety & Jackson, 2004). For example, imagining a client's mental world relies on the cognitive capacity of the therapist for perspective-taking. Adopting a target's subjective point of view thus draws on the observer's inferences, prior personal experiences, and relationship affinity with the target individual. The cognitive modulation of empathy involved in perspective-taking is further exemplified by the effectiveness of instructions to imagine another's emotional state in experimental paradigms. When viewing pictures of sad events with a specified target of empathy, instructions to imagine a target's sadness resulted in higher ratings of empathy than under cognitive load (memorizing a sequence of numbers) or under no instructions (Rameson, Morelli, & Lieberman, 2011). Such strategies have also been shown to be sufficient to reduce racial biases in pain treatment decisions (Drwecki, Moore, Ward, & Prkachin, 2011).

Perspective-taking benefits from contextual information regarding the target to understand their emotional state. This feature has been extensively investigated in the domain of intergroup discrimination, where positive changes in attitudes toward a member of an outgroup have been shown to be mediated by perspective-taking (Husnu & Crisp, 2015). In two studies of intergroup conflicts based on ethnic identity, participants were instructed to either 'give perspective' by describing barriers encountered by their respective ethnic group or 'take perspective' by summarizing in their own words the barriers that members of the other ethnic group faced (Bruneau & Saxe, 2012). Interactants completed the task through text-based chat while their upper-body was broadcasted through a videoconferencing call devoid of audio output. In a control condition, participants read an essay on a related topic. Results show that perspective-taking improved attitudes of members of dominant groups while perspective-giving had positive effects on both sides of the dyads, with no changes in attitude found in the control condition. Furthermore, positive changes in attitudes after perspective-taking were correlated with higher ratings of perceived empathy. While these results must be interpreted in the realm of intergroup conflict,

perspective-taking seems effective in bridging differences and sustaining empathy in text-based interactions enriched with visual information. Although these results suggest that perspective-taking could be effective in eliciting empathy in online clinical sessions, knowing more about the target individual does not automatically entail increased feelings of empathy for them. The same study on intergroup conflicts found that members of non-dominant groups either showed no attitude changes or worsen attitudes after taking the perspective of the dominant group (Bruneau & Saxe, 2012). Taking someone else's perspective when presented with information confirming one's stereotype towards a social group can further reinforce this stereotype and negative bias instead of mitigating it (Skorinko & Sinclair, 2013).

Based on available evidence, we suggest two different interaction effects that could emerge between the lack of non-verbal cues in CMC and the impact of negative stereotype confirmation on empathy. On the one hand, text-based media could allow for increased disclosure of clients without triggering implicit biases of therapists by concealing visual and auditory cues about gender, age, and ethnicity. On the other hand, having minimal nonverbal information could encourage the therapist to rely on personal representations when empathically understanding the client's situation (Hatcher et al., 2005). Therefore, a text-based context could either enrich or misguide the therapists' interventions depending on the available verbal information.

An enlightening account of feeling empathy in an online setting comes from a study comparing the level of affective and cognitive aspects of empathy (Powell & Roberts, 2017). Using a digital interaction diary, participants rated their state empathy over three weekdays for up to 10 text- or image-based interactions with another individual (known or not) using CMC. The study also examined the level of 'compassionate empathy' as the desire to help an individual cope with their situation and emotions. Results indicate that mean levels of cognitive empathy were higher than affective empathy, while compassionate empathy was rated significantly lower than the other aspects of empathy. In line with the evidence of infrequent emotional mimicry in text-based interactions (Rodríguez-Hidalgo et al., 2017), it appears that perspective-taking is more effective in sustaining empathy online than affective resonance, at least for text-based interactions.

1.5.3.3 Emotion regulation.

Emotion regulation in the context of empathic interactions pertains to the monitoring of the empathy provider's own emotional state while interacting with the target of empathy as a means of sustaining empathy over time. This process thus maintains a separation between self and other (Decety, 2005; Jackson, Eugène, & Tremblay, 2015). Different emotion regulation strategies can fulfill diverse goals or needs congruent with contextual demands (for overviews, see Gross, 2015, and Koole & Aldao, 2016). A lack of capacity for emotion regulation in a given context often leads to personal distress, which impedes appropriate empathic responses (Eisenberg & Eggum, 2009; Powell, 2018). Therapists, in particular, have been found to be better than control

individuals in regulating their own distress when sharing another's emotional experience (Hassenstab, Dziobek, Rogers, Wolf, & Convit, 2007).

So far, little empirical research has examined if therapists' own emotion regulation is influenced by being online with their clients. This dearth of empirical results concerning emotion regulation likely reflects the use of empathy measures that do not systematically address the therapists' emotion regulation as an essential component of empathy (Gerdes, Segal, & Lietz, 2010). Drawing from results indicating that high social presence is experienced in emotionally charged context in clinical settings (Bouchard, Dumoulin, Michaud, & Gougeon, 2011), emotion regulation in online therapy would be just as important in managing intense emotional interactions and maintaining an empathic attitude towards the client as in face-to-face therapy. Further empirical endeavors on emotion regulation in the context of online therapy are needed.

1.5.4 Conveying empathy

Being empathic is not only a matter of *feeling* empathy. A necessary step towards empathic attunement is the communication of empathy, that is, *conveying* one's feeling of empathy to the target individual (Barrett-Lennard, 1981; Janssen, 2012). Distinguishing 'feeling' from 'conveying' empathy reconciles possible discrepancies between feeling a high level of empathy but failing to convey the same magnitude of empathy to the target, both in face-to-face and online settings. Classifications of clinician's empathic behaviors include verbal and nonverbal signals, and researchers have emphasized the need to rely on both in clinicals sessions (Riess & Kraft-Todd, 2014).

Verbal empathic statements are a direct, efficient way to communicate one's empathy. While different clinical approaches in the fields of medicine and psychology can prioritize specific formulations of empathic interventions, verbal interventions usually revolve around affirmations, conjectures, or symbolizations of the target's emotional experience that convey empathic understanding (Coulehan et al., 2001; Elliott et al., 2011). More than parroting, therapists tailor the verbal content of their interventions to the target's individual experience. Such accommodations include matching the language style of the client, which was found to predict empathic ratings of observers (Lord et al., 2015). Verbal communication of empathy is a crucial skill included in a trainee's cursus in medicine (e.g., Buckman, Tulsky, & Rodin, 2011; Platt & Keller, 1994) and clinical psychology (e.g., Elliott et al., 2011).

A substantial proportion of empathic communication arises from nonverbal behaviors (Hall et al., 1995). Strong support for this idea comes from recent empirical studies examining the vocal prosody of clinicians' empathic interventions. In a psychotherapeutic context, one study found that such interventions were characterized by prosodic matching, where the therapists' tone and rhythm harmonized with those of their clients (Weiste & Peräkylä, 2014). These results are consistent with observations of prosodic matching or upgrading (i.e., increasing the intensity of the rise in pitch from the target's original assertion) while empathically responding

to a target's anger in everyday complaints stories (Couper-Kuhlen, 2014). Clinicians' tone and rhythm, more than solely words, support the communication of empathy to their clients.

Alongside verbal utterances and vocal modulations, empathic behaviors also entail producing visually perceptible cues (facial expressions, eye contact, and bodily gestures and posture) that either mirror the target's own behaviors or are congruent with the emotional state perceived in the other (Prochazkova & Kret, 2017). Facial expressions constitute a salient communication vehicle that can both elicit empathic reactions in the observer and convey the observer's empathy towards the target individual. For example, studies found that individuals reporting a high level of dispositional empathy reacted more intensely to facial stimuli (Sonnby-Borgström, 2002) and displayed higher activation of facial (zygomatic and corrugator) muscles coherent with the valence of observed facial expressions (Dimberg et al., 2011) than individuals reporting low levels of dispositional empathy. Eye contact is often interpreted as an indication of one's attention to others and was found to be strongly associated with empathic behaviors by medical trainees (Deladisma et al., 2007). Bodily gestures (arm orientations, head nods) and active posture (forward trunk lean) have also been observed in empathic clinicians (Hall et al., 1995).

With regards to verbal communication of empathy online, one study using videoconferencing enrolled five physicians as well as twenty of their patients and evaluated numerous communication features, including the number of empathic utterances by the physicians (Liu et al., 2007). None of the participants (physicians and patients) had prior experience with teleconsultation. The results showed a decrease in the number of empathic interventions by physicians in teleconsultations in comparison to face-to-face sessions. Another study compared the frequency of different conversational aspects in teleconsultations taking place in videoconference or by telephone (Wakefield et al., 2008). The number of diverse types of utterances emitted by nurses (such as open-ended questions, compliments, and friendly jokes) was found to differ between these intervention modalities, but no differences were found when considering empathic statements. However, the rate of empathic statements was very low across both communication media (less than one empathic statement every two clinical sessions), suggesting a floor effect, and no comparison was made with face-to-face consultations. These results thus point to the possibility of a reduced number of empathic interventions from providers in CMC, which warrants the adoption of different strategies to promote verbal utterances of empathy in CMC.

The nonverbal behaviors of care providers have seldom been studied across different communication media. However, the filtering effect of specific communication media has been considered while investigating the conditions required to enable the perception of eye contact in videoconferencing settings. Typical videoconferencing systems are comprised of a web camera positioned on top of the monitor used to display the video transmission. Such layouts necessarily feature an angle between the webcam position and the visual target (the other interactant), referred to as the *gaze angle* (Figure 3). The relevance of the gaze angle on eye contact perception has been tested in telemedicine with voluntary patients viewing photographs of three different

patients taken under two recording conditions of 7° and 15° of vertical angle (Tam et al., 2007). Eye contact perception was favored for the 7° angle in 85-98% of participants, depending on the patient observed, and 92% of participants valued the difference in eye contact perception as significant for them as patients. These results support the importance of a reduced vertical angle on the preservation of eye contact in videoconferencing.

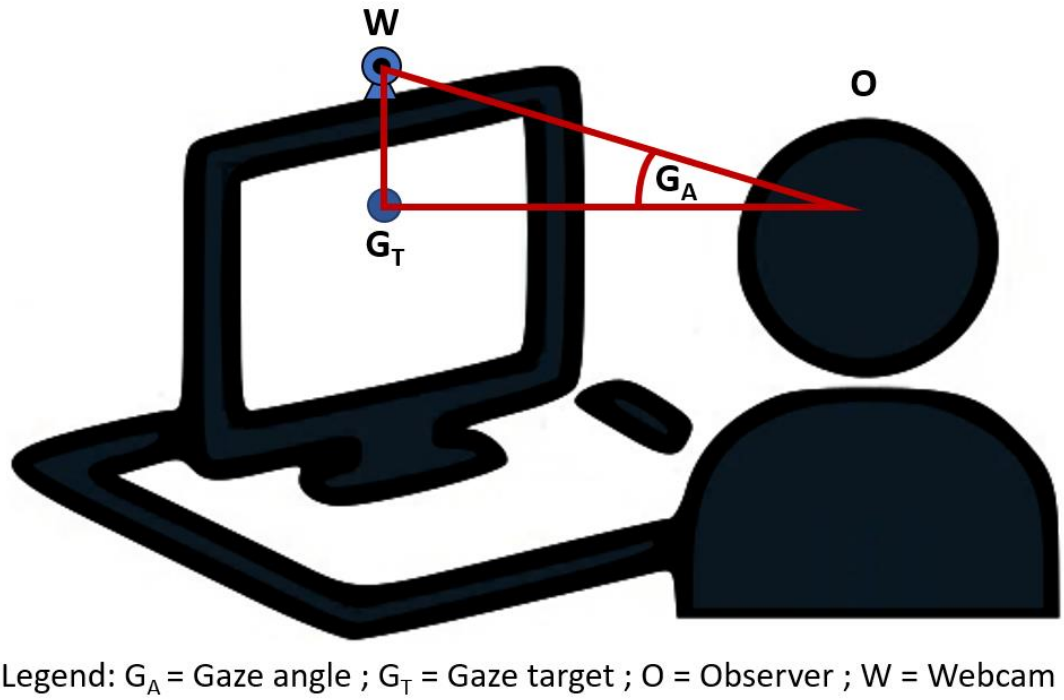

Figure 3. Illustration of the gaze angle between the gaze target and the webcam that often occurs in videoconferencing setups.

With respect to visual cues in videoconferencing settings (e.g., body posture and gestures), one qualitative study regarding therapists' perceptions of alliance in online versus face-to-face consultations found that professionals did not account for the positioning of the web camera when conducting teletherapy and generally favored a upper-body framing of the transmission, therefore cutting out postural and bodily aspects of the videoconference (Horowitz, 2014). Another study showed that over 60% of gestures and arm movements of clinicians were framed out during telemedicine sessions, lending additional support for the underrepresentation of body movements in online clinical encounters (Esser, 2011).

Videoconference framing can be modified to include the upper-body rather than focussing only on the head of interactants. One study examined the influence of framing on felt empathy in a nonclinical context (Nguyen & Canny, 2009). Sixty-two dyads of confederates were tasked with completing one of three experimental conditions, one in face-to-face, one through a videoconferencing system framed around the upper-body of participants and one through the same system but framed around the head only (without enlarging the picture, thus covering a smaller area of the display monitor). Empathic ratings were inferred on the basis of

prosocial behaviors following the task (i.e., rapidly retrieving a pen dropped by the confederate). Results showed that participants in the upper-body condition had comparable reaction times in the pen drop procedure to participants in the face-to-face condition, while the head-only condition produced significantly longer reaction times than the other two conditions. While lacking a measure of the participants' own feelings of empathy, this study supports the assumption that allowing for eye contact and gestures should increase ratings of empathy towards a confederate, a suggestion that has yet to be tested in a clinical setting. Overall, these empirical accounts stress the importance of the filtering effect of a specific communication medium on the nonverbal cues used by clinicians to convey their feeling of empathy. Importantly, conveying a desired level of empathy has implications for the target's resulting perceptions of empathy.

1.5.5 Being perceived as empathic.

The target's evaluation of a providing individual's empathy (or perceived empathy) is linked to favorable outcomes of psychotherapeutic treatments more than the provider's own evaluation of felt empathy (Elliott et al., 2011). One could consider that a high level of perceived empathy is, in itself, the goal of empathic interventions. The target's perception of the provider's empathy is thus tightly linked to the behaviors used to convey empathy and, as such, one could consider that the provider's manifestations of empathy could encompass both conveying empathy and being perceived as empathic. However, we argue in favor of separating these steps in order to consider the possible filtering of the behaviors used to communicate empathy (verbal utterances, eye contact, etc.). This conceptual distinction emphasizes taking into account the target's and the provider's perspectives separately.

Not surprisingly, verbal communication impacts perceived empathy. Open questions as well as reassuring and positive statements are associated with higher judgements of physicians' empathy as perceived by patients (Silvester et al., 2007). In psychotherapeutic sessions, clients reported higher perceived empathy following reformulation, questioning, and interpretation and other interventions used by the therapist to convey understanding of the clients' behaviours, feelings and thoughts (Bachelor, 1988; Wynn & Wynn, 2006).

Vocal cues, such as lower levels of vocally encoded arousal measured from psychotherapeutic sessions, have been linked to higher perceptions of providers' empathy by independent observers (Imel et al., 2014). Visual nonverbal cues also contribute to a heightened level of perceived empathy by clients. Eye contact (Brugel, Postma-Nilsenová, & Tates, 2015; Deladisma et al., 2007; Dowell & Berman, 2013; Hall et al., 1995), facial expressions (Sharpley et al., 2007), body orientation (Brugel et al., 2015; Dowell & Berman, 2013), and bodily gestures (Hall et al., 1995) have all been linked to higher perceptions of empathy.

Few studies have recorded clients' overall ratings of empathy following online clinical sessions. Two studies have examined perceived empathy of women living in a rural region while they received online treatment (through videoconference) for anxiety (n = 7, Farmer, 2009) or depressive (n = 16, Openshaw et al., 2012)

symptoms. Both studies reported high levels of perceived empathy at post-treatment and follow-up, indicating that this treatment modality can allow for favourable perceptions of empathy by clients. These results, while obtained from relatively small samples with no comparison points with other treatment modalities, offer encouraging evidence that high levels of empathy can indeed be elicited in online therapy. With respect to nonverbal cues in online contexts, aforementioned studies on eye contact perception (e.g., Tam et al., 2007) and body framing (e.g., Nguyen & Canny, 2009) should be replicated to assess perceived empathy of clients towards their clinicians. This would extend the current literature and aid in identifying the most salient nonverbal cues involved in the perception of online empathy.

1.5.6 Contextual factors

Aside from verbal and nonverbal cues of emotionality, contextual factors (time restraints, real-life events, and concurrent online and offline social interactions) may facilitate or hinder empathy in CMC. Discussions surrounding online clinical interventions typically presume that interactants are engaged in an ongoing interaction devoid of external distractions, while in reality, clients and professionals can be distracted by other electronic devices or extraneous sources of noise (Williams, Tuerk, & Acierno, 2015). These distractions could notably influence reciprocity and telepresence, which in turn could impact the empathic phenomenon (Bambling et al., 2008). In the same vein, therapists and clients are advised to dedicate a quiet space to conduct clinical sessions (Williams et al., 2015).

1.6 Discussion

1.6.1 Applying the framework in future research.

The present conceptual framework contributes to organizing past and new research data on online empathy with the aim of maximizing the benefits that can be gained from online therapy. Several clinically-relevant areas of consideration for future research emerge from this framework. These can be formulated according to the themes of medium adaptations, telepresence, and temporal parameters.

1.6.1.1 Medium adaptations.

Clinicians and clients can actively adapt to the medium they use to facilitate greater empathy, warmth, and understanding. Numerous adjustments have been proposed in the literature, primarily focusing on addressing the filtering of nonverbal signals in CMC.

For text-based interventions, recommendations for fostering empathy between interactants are twofold. A first option is to consciously clarify emotional states through either proactive disclosure of personal feelings (for clients) or frequent inquiries of the target's emotions (for clinicians) (Bambling et al., 2008). It is reported that counselors in text-based CMC use proportionally more clarifying statements than empathic utterances (Williams,

Bambling, King, & Abbott, 2009). Qualitative interviews of counselors indicate that these clarifying statements are motivated by the counselors' desire to reduce the risk of the clients' misunderstanding their intents and to compensate for the lack of nonverbal feedback (Bambling et al., 2008). A second strategy includes making use of textual paralinguistic cues and questioning techniques to establish immediacy and empathy while being mindful of the occasionally slower pace of textual interactions (Johnson, 2014). Text-based interactions can thus be an effective vehicle for the expression of empathy, provided that adaptations are introduced.

Richer mediated interventions, particularly videoconferencing, can be manipulated to convey empathic gestures using camera framing (Esser, 2011) and gaze angle (Tam et al., 2007). As indicated in the American Telemedicine Association guidelines, "[a]djusting to the medium may require flexibility and creativity in conferring empathetic gestures" (Grady et al., 2011, p. 136). One such adjustment is the deliberate exaggeration of motions such as nods and facial expressions (Gifford, Niles, Rivkin, Koverola, & Polaha, 2012; Liu et al., 2007; Rubin & Demaerschalk, 2014) as well as vocal intonations and inflexions (Bischoff, Hollist, Smith, & Flack, 2004). Clinicians can also rely more heavily on verbal support, questioning, and intentional statements of feelings and thoughts to compensate for the lack of physical presence with their clients (Bischoff et al., 2004; Cowain, 2001; Trepal, Haberstroh, Duffey, & Evans, 2007). In a similar vein, other authors emphasize the proficiency in attending to patients' nonverbal behaviors as a core competency of telehealth providers (Gifford et al., 2012). While recommendations have stressed the importance of appropriate tailoring of interventions by therapists to adapt to the medium, the effectiveness of such adaptation would be enhanced if the clients were also encouraged to exaggerate their behaviors in CMC to promote the communication of nonverbal signals (Henry, Block, Ciesla, McGowan, & Vozenilek, 2017).

1.6.1.2 Telepresence.

Telepresence typically encompasses physical presence (the sense of being in the same room), social presence (the sense of being connected in the same interaction), and absorption (being fully engaged in the interaction) (Bouchard et al., 2011). Telepresence is often linked to online empathy. However, the exact nature of the relationship between these concepts is a source of inconsistency, with high levels of empathy conceptualized as a predictor of elevated telepresence (Nicovich, Boller, & Bettina, 2005; Sas & O'Hare, 2003) or considered as a product of a high state of presence (Johnson, 2014). A helpful conceptualization to reconcile these results is the distinction between ability and propensity for empathy (Keysers & Gazzola, 2014). For instance, a mediation relationship between empathic ability, telepresence, and resulting empathic reactions in a computer-mediated interaction could be hypothesized. According to this hypothesis, empathic ability would predispose an individual to report a high level of telepresence, which would in turn facilitate the experience of feeling, conveying and being perceived as highly empathic. Interestingly, increasing the availability of nonverbal cues, such as eye contact, has been associated with higher perceptions of telepresence (Neureiter et al., 2014).

This finding suggests that telepresence could represent the link between medium richness and online empathy, highlighting the need for further investigation of the relationship between these concepts.

1.6.1.3 Temporal Parameters.

Much emphasis has been placed on integrating available telemedicine and teletherapy literature when elaborating the present conceptual framework. However, careful consideration has also been attributed to generating a framework that is compliant with current cyberpsychology theories of impression formations and socioemotional exchanges in naturalistic digital interactions. A salient feature of these theories and of the present conceptual framework is the incorporation of nonverbal richness as a determinant of discrepancies and adaptations between CMC and face-to-face social interactions. As Bente et al. assert: "It has to be pointed out […] that despite pronounced differences all CMC theories share the view that nonverbal channels account for socioemotional variance in human interaction and that reduced bandwidth in this respect can principally cause an increase in interpersonal uncertainty." (Bente et al., 2008, p. 131). The social information processing theory in particular (reviewed in Walther, 2011) warrants additional consideration. This theory states that, in the absence of certain nonverbal cues, individuals adapt their interpersonal communication to whichever cues the communication medium can support. In particular, it also recognizes that CMC requires longer social exchanges than face-to-face interactions to achieve the same amount of interpersonal information sharing. This temporal dimension has important implications in the realm of online interventions, where the oft-predetermined duration of clinical sessions imposes a time constraint on interactions. Such constraints imply that fewer interactions may take place between a therapist and a patient in online interventions (e.g., Liu et al., 2007), particularly in the case of text-based platforms (e.g., Bambling et al., 2008). It could thus be hypothesized that, over a single clinical encounter, shorter sessions result in decreased socioemotional saliency and, consequently, lower levels of empathy. In teletherapy, it is possible that the repeated intervention over weeks, months, or even years offset this potential decrease in empathy. This proposition would explain the high levels of perceived empathy reported over the course of a completed therapy program using the videoconference medium (e.g., Openshaw et al., 2012).

1.6.1.4 Applying the framework to non-clinical interactions.

While the present framework draws heavily on teletherapy and telemedicine interventions, it also carries significant implications for nonclinical digital interactions. For instance, the cyberbullying literature identifies nonverbal signals such as eye contact as potential barriers to cyberbullying behaviors and the bystander effect (Runions & Bak, 2015). Using the framework, it would be possible to test the effects of (mis)perceptions of socioemotional cues in CMC on cyberbullying occurrences as products of empathic failures, thereby extending previous literature.

Efforts to generalize the current framework to naturalistic digital interactions could also put greater emphasis on the influence of context and affordances of a specific medium on online empathy. For example, unexpectedly engaging in an online social interaction with an individual in need of psychological assistance could possibly deter one from empathically attending to another's distress. Similarly, concurrent 'real-life' events and multi-tasking could interrupt an ongoing online interaction (Zhang & Zhang, 2012) and consequently hinder the empathic process in CMC.

On a final note, implications from other theories of social interactions in CMC such as the channel expansion theory (reviewed in Walther, 2011) could broaden the present framework by incorporating factors relating to prior experience with the medium, with the interactional partner, and with the conversational topic as determinants of perceived medium richness. Thus, prior experience would facilitate encoding and decoding of affective contents using a specific medium, which could in turn enable more optimal transmission of empathy in CMC.

1.7 Conclusion and Future Perspectives

The filtering effect of CMC can lead to the loss of nonverbal cues, reducing the degree to which empathy can be felt, conveyed, and perceived in CMC. Strategies, such as the exaggeration of nonverbal behaviors and the conscious clarification of the client's affective state, can facilitate the empathic phenomenon by compensating the filtering effect. A refined understanding of the factors influencing empathy in CMC could provide researchers and clinicians with means to optimize the transmission of empathy in such contexts.

While much of the present article has focussed on ways to narrow potential gaps in empathy between face-to-face and CMC clinical contexts, an emerging area of research has developed around new opportunities granted by affective computing and augmented reality (Janssen, 2012). For instance, CMC could help foster empathy beyond what is possible in face-to-face clinical contexts by uncovering implicit emotional reactions using physiological measures (Janssen, 2012) and by enhancing clinical training programs using interactional agents capable of simulating relevant emotional expressions and providing feedback for trainees (Jackson, Michon, Geslin, Carignan, & Beaudoin, 2015). The many promises of these new applications revolve around increasing the saliency of nonverbal behaviors in CMC, which would help promulgate computer-mediated therapy as a therapeutic modality of its own.

1.8 References

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Chapitre 2 : Therapist and Client Perceptions of Empathy in Simulated Teletherapy Sessions

2.1 Avant-propos

Ce chapitre est présentement en processus de révision au journal *Behaviour & Information Technology*.

2.2 Résumé

Les écrits scientifiques soulignent la possibilité que l'empathie en thérapie par vidéoconférence (VC) soit moins élevée qu'en présentiel. Afin de tester empiriquement ce possible écart d'empathie, des thérapeutes et des clients ont rapporté leur empathie au terme de séances en VC et en présentiel. Quarante-huit étudiants de programmes de formation universitaire en intervention clinique ont été assignés au rôle de « thérapeute » ou « client » et pairés en 24 dyades. Chaque dyade complétait une séance simulée de relation d'aide en VC et en présentiel. Après chaque séance, les thérapeutes et clients rapportaient les niveaux d'empathie, de téléprésence, d'attitudes envers la modalité thérapeutique et présence thérapeutique ressentis durant la séance. Les résultats montrent que les thérapeutes et les clients rapportent des niveaux plus faibles d'empathie en VC comparativement à en présentiel. L'empathie rapportée par les thérapeutes est corrélée à leur impression de téléprésence, plus particulièrement sa sous-composante physique, ainsi qu'à l'impression de présence thérapeutique. En revanche, ces associations ne sont pas observées pour les clients. Ces associations ont été examinées de nouveau à l'aide d'une seconde étude en contexte écologique. Douze clients ont rencontré quatre étudiants au doctorat en psychologie clinique en VC et ont rapporté le niveau d'empathie et de téléprésence ressentie durant les séances. Le patron de corrélations observé entre l'empathie et la téléprésence dans la première étude est reproduit dans la seconde étude. Ces résultats sont les premiers à montrer une diminution de l'empathie pendant des séances en VC comparativement à des séances en présentiel et à décrire la relation entre l'impression d'empathie et le degré de téléprésence ressenti en VC.

2.3 Abstract

Empathy is thought to be reduced in videoconference (VC) compared to face-to-face (F2F) therapy. To empirically test this possibility, therapist and client ratings of empathy and its correlates were examined in VC and F2F sessions. Forty-eight students in clinical training programs were randomly assigned to the role of 'therapist' or 'client', forming 24 dyads. Each dyad completed a simulated clinical session in F2F and in VC and reported on empathy, telepresence, attitudes, and therapeutic presence. Both therapist and client ratings of empathy were significantly lower in VC compared to F2F. Therapist empathy correlated with telepresence, particularly its physical subcomponent, and therapeutic presence, but these associations were not found for

clients. The relationship between empathy and telepresence was investigated further in a real-world study. Twelve clients met with four clinical psychology trainees over VC and reported on empathy and telepresence. The associations between therapist empathy, total telepresence, and the physical component of telepresence were replicated. Again, client ratings of empathy and telepresence did not correlate. These results provide the first empirical evidence that empathy is reduced in VC teletherapy compared to F2F and highlight the connection between the degree of empathy felt by therapists and their sense of telepresence during teletherapy.

Keywords: Empathy; Teletherapy; Telepresence; Attitudes; Videoconferencing; Computer-Mediated Communication

2.4 Introduction

Teletherapy, or the act of conducting psychotherapy using information technologies such as videoconferencing (VC), is increasingly being used in everyday mental healthcare. In particular contexts, such as the one brought out by the COVID-19 global pandemic, teletherapy represents one of the only means of carrying out psychological treatment. Several meta-analytic reviews support the efficacy of teletherapy for a wide range of psychopathologies (Backhaus et al., 2012; Barak et al., 2008; Bee et al., 2008; Hilty et al., 2013). For instance, teletherapy in VC has resulted in outcomes comparable to face-to-face (F2F) interventions for depression, posttraumatic stress, and anxiety (Backhaus et al., 2012; Bee et al., 2008). Other systematic reviews of the collaborative relationship between therapists and clients show that both modalities produce comparable, strong levels of therapeutic alliance (Simpson & Reid, 2014; Sucala et al., 2012; Watts et al., 2016). These results are encouraging to therapists who want to adopt teletherapy in their practice and to clients who want to save travel costs or are living in areas with fewer therapists. However, one of the outstanding challenges is optimizing how teletherapy is delivered by practitioners. Differences in the types of devices used and the users' experience and familiarity with technology may lead to variability in the success of this therapeutic medium. It is therefore important to examine the factors that influence the experience of therapists and clients in online sessions in order to maximize therapeutic gains.

Empathy, while being largely considered a crucial ingredient of effective therapy (Elliott et al., 2018), has seldom been studied in online clinical contexts (Demiris et al., 2010; Terry & Cain, 2016). For therapists, empathy entails the cognitive capacity for perspective-taking as well as the recognition and partial sharing of the client's affect, all the while working to regulate their own personal emotional reaction to avoid personal distress or burden (Decety & Jackson, 2004; Elliott et al., 2018). The results of a meta-analysis on F2F psychotherapy outcomes concludes that higher levels of empathy are a moderately strong predictor of positive outcomes at the end of treatment (Elliott et al., 2018). Empathy is also considered to play an essential role in establishing and maintaining a strong therapeutic alliance over time (Feller & Cottone, 2003). One study found that doctoral

students in a clinical training program aimed at developing an empathic connection with their clients formed higher levels of therapeutic alliance than students who conducted treatment as usual (Hilsenroth et al., 2002). Being empathic towards the client's emotional experience can also prove an effective tool at resolving ruptures in therapeutic alliance (Safran et al., 2011), further highlighting the beneficial role of empathy in successful treatment.

Empathy is conveyed by the therapist and perceived by the client through a combination of verbal and nonverbal cues. Verbal cues entail the content of communication that is conveyed through spoken or written sentences and the use of specific words. For instance, empathic verbal interventions can be used effectively to bring up, discuss, and symbolize the client's affect and convey empathic understanding (Coulehan et al., 2001; Elliott et al., 2018). Nonverbal cues encompass a broad range of paralinguistic signals that enrich the verbal content of the communication. For example, prosodic matching (i.e., when a therapist's tone and rhythm of verbal utterances harmonize with those of the client) can be observed during empathic interventions (Weiste & Peräkylä, 2014). Other empathic behaviors can include mimicking the client's own nonverbal behaviors or producing nonverbal signals that are congruent with the client's affect (Prochazkova & Kret, 2017).

In the realm of computer-mediated communication (CMC), empathy can be conceptualized as a dyadic phenomenon that depends on the successful transmission and reception of socioemotional cues through a communication medium (Grondin et al., 2019). A distinctive feature of CMC interactions entails the use of a communication medium (e.g., a videoconferencing application) that inherently filters out some of these cues. Since a communication medium cannot typically transmit all of the verbal and nonverbal cues at a high quality in real time, some level of filtering or alteration of the signals is often found in CMC, particularly in the case of nonverbal signals (Grondin et al., 2019). The filtering effect in CMC can thereby impact the empathic phenomenon.

This conceptualization of the empathic interaction in CMC also echoes the importance of considering empathy as a dyadic phenomenon. The therapist's empathy regarding the client's affect can be referred to as felt empathy, while the amount of empathy that a client attributes to their therapist can be referred to as perceived empathy. Both perspectives should be considered when examining empathy in clinical sessions, especially since perceptions of empathy reported by clients and therapist have been found in an earlier meta-analysis to differently predict therapeutic outcomes (Elliott et al., 2011).

2.4.1 Empathy in Teletherapy

Very few studies have examined felt empathy in teletherapy. To the authors' knowledge, two studies investigated therapists' perceptions of their own feelings of empathy during teletherapy. In a qualitative study, twelve licensed therapists were interviewed regarding their experience of therapeutic alliance and its

components, including felt empathy for their clients, in F2F or VC clinical sessions (Horowitz, 2014). While aspects of alliance relating to collaboration were not compromised, all therapists reported that their subjective experience of empathy were indeed different between clinical modalities. Half the sample (n=6) further indicated that their empathy was inferior in VC sessions and that these differences in empathy were linked to a decreased feeling of presence and connectedness with their clients. These results are different from those found in another qualitative study where seven doctoral students in clinical psychology were interviewed regarding their perception of alliance and empathy after meeting clients over VC or telephone (Békés et al., 2020). These seven therapists were enrolled as part of a therapist-assisted self-treatment for posttraumatic, depressive, and insomnia symptoms of refugees from the 2016 Fort McMurray wildfires in Canada. Therapists met weekly with clients to discuss progress with the web-delivered intervention and discuss potential pitfalls, but did not deliver therapy online themselves. Four out of the seven therapists felt no difference in empathy when discussing in VC with their clients compared to their prior clinical experience in in-person sessions. Taken together with the work from Horowitz (2014), these results show that therapists' felt empathy may or may not be impacted when carrying out VC sessions. This previous work suggests that teletherapy may offer advantages such as feeling less nervous during VC sessions, but also present limitations such as the relative loss of nonverbal cues (Békés et al., 2020).

Studies in the area of telemedicine (i.e., the provision of healthcare using information technologies) provide additional insights on online empathy. For example, one study examined the number of empathic utterances per session made by physicians in internal medicine (Liu et al., 2007). Five physicians met with a total of 20 patients in both VC and F2F sessions. None of the participants (physicians and patients) had prior experience of VC consultations. The results indicate that fewer empathic utterances per session took place in telemedicine compared to F2F consultations. Although outside the realm of teletherapy, these findings can be interpreted as further indication that empathy can be impacted in online clinical sessions.

Similarly to felt empathy, perceived empathy in teletherapy has only been examined in a handful of studies. Two studies of women living in a rural community have recorded clients' perceived empathy at the end of psychological interventions and at follow-up. Participants receiving treatment for anxiety (n=7; Farmer, 2009) or depression (n=16; Openshaw et al., 2012) were included in the studies. Perceived empathy was deemed 'high' at post-treatment and follow-up for both studies, which offers encouraging evidence that empathy can be effectively perceived in teletherapy. These studies, however, were based on low sample sizes and lacked a point of comparison with F2F treatment, thereby limiting the extent of generalization of the findings. Considering the important role of nonverbal behaviors and the filtering effect that can occur in CMC, it is possible that clients would report perceiving less empathy in teletherapy if they also experienced F2F sessions. The present survey of literature did not find studies that directly compared clients' perceived empathy between F2F and VC sessions.

2.4.2 Correlates of Empathy in Teletherapy

Different factors pertaining to teletherapy may be related to the effective communication of empathy. First, the attitudes of therapists and clients towards teletherapy can influence their intention to engage in teletherapy (Lazuras & Dokou, 2016; Simms et al., 2011). Inexperienced clients and therapists would be expected to report more negative attitudes towards teletherapy in comparison to F2F therapy. Attitudes would be expected to improve following firsthand experience of teletherapy. Indeed, negative attitudes towards online treatment can be changed by receiving training, experience, and information regarding the efficacy of teletherapy (Lazuras & Dokou, 2016; Simms et al., 2011).

Second, telepresence, or the feeling of being there with an interlocutor in CMC (Berthiaume et al., 2018), may be associated with empathy. Telepresence encompasses feelings of being in the same room as the interlocutor (physical presence), of being connected in an ongoing social interaction with another individual (social presence), and of feeling immersed in the interaction (absorption). Telepresence has been linked to empathy in digital interactions (Grondin et al., 2019). In the context of teletherapy, a high sense of telepresence may be associated with a high level of empathy through feeling connected to the interlocutor and engaged in the computer-mediated interaction.

Third, therapeutic presence may be an important correlate of empathy in VC. Therapeutic presence refers to the intent of the therapist to connect and be immersed in what is poignant for the client in the present moment without judgment or expectation (Alvandi, 2019; Geller et al., 2010). Therapeutic presence involves the establishment of a relational stance that facilitates empathic attunement during the session and this process can be considered as an important step to establishing an empathic connection in therapy (Geller, 2019). Like empathy, therapeutic presence can be investigated from the perspective of the client or the therapist (Geller et al., 2010). Therapeutic presence could be impacted in CMC, although no study has yet compared therapeutic presence across VC and F2F sessions (Alvandi, 2019).

Though their nomenclature are similar, therapeutic presence and telepresence differ in their definition of being present. Telepresence focusses on the impression of being drawn in a virtual interaction in general, while therapeutic presence is applicable to a clinical context where the therapist purposefully establishes and maintains an awareness of the client's moment-to-moment reaction (Geller et al., 2010).

2.4.3 Objectives

The present article reports the findings of two studies of empathy in VC sessions. The first study aimed at comparing levels of empathy reported by the same clients and therapists across F2F and VC simulated clinical sessions and at examining the relationship between empathy and attitudes, telepresence, and therapeutic

presence. Drawing from available evidence, it was expected that empathy would be lower in teletherapy in comparison to F2F therapy for both clients and therapists. Positive attitudes, heightened telepresence, and high levels of therapeutic presence were posited to be associated with favorable perceptions of empathy for both clients and therapists. Participants' attitudes regarding teletherapy at follow-up were expected to improve from pre-experimental levels. Finally, it was expected that therapeutic presence would be lower in VC compared to F2F.

The second study aimed at replicating the associations between empathy and telepresence found in the first study in a 12-week therapist-assisted self-help online cognitive-behavioral therapy for trauma-, insomnia-, and mood-related symptoms among evacuees of a large wildfire in Canada, the 2016 Fort McMurray wildfire. It was expected that the patterns of association between empathy and telepresence would be similar to those of Study 1 for clients and therapists.

2.5 Study 1 – Methods

2.5.1 Participants

Forty-eight participants were recruited through a university email list and direct solicitation in university courses. The recruitment phase took place between October 2017 and April 2019. To be eligible for this study, participants had to have completed at least one year (30 credits) of a bachelor's, master's or doctoral degree in psychology, psychoeducation, career counseling, social work, or medicine. This broad selection of academic programs was adopted to address early recruitment difficulties. The final sample included 48 students (40 women). Forty-two participants originated from the department of Psychology, four from Career Counseling, one from Social Work and one from Medicine. Participants were also required to have had a meaningful clinical experience in the form of an applied course, traineeship or internship in counseling, or by volunteering in a mental health organization. Because participants were randomly assigned to either being a 'client' or a 'therapist' after enrollment, these inclusion criteria ensured that all participants had a sufficient level of prior clinical experience to be 'therapists' for the purpose of the study. Individuals reporting acute personal distress or suicidal thoughts were provided with a list of resources and were offered to be accompanied through the process of contacting mental health services. They were subsequently excluded from the study. Individuals presenting unattended visual or auditory impairments were also excluded from the study. The study protocol was approved by the Research Ethics Board at Université Laval.

Table 1 presents the demographic data for both clients and therapists. Depending on the type of data, independent t-tests or chi square analyses were performed between the groups with a .05 α level to test for differences across the two populations. These tests revealed that therapists were significantly older ($p = .041$)

and had completed more years at university (p = .022) than clients, although therapists and clients remained part of the same demographic group (i.e., young adults concluding an undergraduate program or initiating graduate studies in the Province of Quebec's school system). Neither 'age' or 'years of education' were associated with measures of empathy and were therefore not included in the subsequent analyses.

2.5.2 Material

2.5.2.1 List of Discussion Themes

A list of potential themes of discussion was provided to the clients. Themes were categorized into "ideal' (e.g., academic issues), 'relatively safe' (minor family issues) or 'proscribed topics' (e.g., traumas) for the context of the study. These distinctions were made to encourage clients to choose a relevant theme of discussion while also delineating topics that could be too sensitive for the study. The list was originally designed for trainees in helping skills courses (Hill, 2014, p.19).

2.5.2.2 Videoconferencing (VC) Sessions

Computer stations used by participants featured a 22" 720p computer monitor on top of which sat a 720p LifeCam™ web camera (Microsoft Corp.). Noise-cancelling headsets featuring a microphone were provided to participants. VC calls were made using Skype™ version 7.29.0.102 (Microsoft Corp.), a computer program often used to carry out teletherapy (Gamble et al., 2015).

2.5.3 Measures

2.5.3.1 Translation of the scales

Empathy, attitudes, session impact, and therapeutic presence were measured using French translations of questionnaires obtained through a backtranslation process. First, four bilingual individuals independently translated the scales from English to French and resolved disagreements consensually. The scales were then translated back to English and compared with their original version. Discrepancies with the original versions were examined and the French scales were further modified to better reflect the original meaning of each item.

2.5.3.2 Cronbach Alpha Levels

Cronbach alpha levels were computed to assess scale reliability whenever a questionnaire was completed by either therapists or clients. In an effort to concisely but also accurately report the reliability of each scale, the range of Cronbach alpha levels is reported in each section.

2.5.3.3 Affectivity Changes

The Positive Affectivity and Negative Affectivity Scale (PANAS; Gaudreau et al., 2006) was used to assess pre-post variations of affectivity in clients. The PANAS is comprised of 20 adjectives describing positive or negative affects that an individual can feel at a given moment (Watson et al., 1988). Participants rate their level of agreement to each item on a scale of 1 ("Very slightly or not at all") to 5 ("Extremely"). These scores are then aggregated on two separate subscales, Positivity and Negativity. The Cronbach alpha levels range from .62 to .90 for positivity scores and .78 to .87 for negativity scores.

2.5.3.4 Session Impact

The Session Evaluation Questionnaire (SEQ; Stiles et al., 2002) was used to assess clients' perception of session impact in both VC and F2F. The SEQ consists of 21 bipolar adjective seven-point items that make up for one global item and four subscales, those being Depth, Smoothness, Positivity, and Arousal. The total score of each subscale consists of the mean of its items ranging from 1 to 7. The Cronbach alpha levels consist of .77 to .79 for the Depth subscale, .83 to .86 for the Smoothness subscale, .84 to .86 for the Positivity subscale, and .60 to .67 for the Arousal subscale.

2.5.3.5 Empathy

The Empathic Understanding Subscale (EUS) of the Relationship Inventory (Barrett-Lennard, 1962) was used to evaluate felt and perceived empathy. The original scale features two versions, one for therapists and one for clients. Each version comprises of 16 items rated on a scale from +3 ("I strongly feel that it is true.") to -3 ("I strongly feel that it is not true"). These 16 items are summed into a single total score of felt or perceived empathy depending on the version of the questionnaire. The EUS is frequently used in studies examining individuals' perceptions of empathy following a clinical session (Dowell & Berman, 2013; Marci et al., 2007). Upon examining Cronbach's alpha levels, one item (i.e., "I understand what my client says from a detached, objective point of view.") consistently decreased alpha levels across measurements and was therefore removed from the analysis. The Cronbach's alpha levels in this study range from .71 to .85.

2.5.3.6 Therapeutic Alliance

The Working Alliance Inventory (WAI) was used to measure clients' and therapists' perception of therapeutic alliance after each session (Corbière et al., 2006). The WAI includes 12 items relating to client-therapist bond, task-related agreement, and collaboration. Each item is represented on a scale of 1 ("Never") to 7 ("Always"). The total alliance score can be represented as the mean of all items, ranging from 1 to 7. The Cronbach's alpha levels range from .89 to .95.

2.5.3.7 Therapeutic Presence

The Therapeutic Presence Inventory (TPI) was used to measure therapeutic presence (Geller et al., 2010). The therapist version of TPI consists of 21 items rated from 1 ("Not at all") to 7 ("Completely"). The client version includes three items using the same scale. The mean score between items represents the final score of each version. The Cronbach alpha for the therapist version of the TPI was .89. Because the client version of the TPI only has three items, the inter-item correlation is computed in lieu of the Cronbach's alpha (Pallant, 2011). The inter-item correlation of the client version of the TPI is .190, which is slightly below the desirable inter-item correlation range of .2 to .4 (Briggs & Cheek, 1986).

2.5.3.8. Attitudes

The Online Counseling Attitudes Scale (OCAS) and Face-to-Face Counseling Attitudes Scales (FCAS) were used to evaluate client and therapist attitudes for both therapeutic modalities (Rochlen et al., 2004). Each scale includes 10 items designed to evaluate participants' value (five items) and discomfort (five items) associated with F2F and VC therapy. Each item is rated using a Likert scale ranging from 1 ("Strongly Disagree") to 6 ("Strongly Agree"). The Cronbach's alpha levels range from .62 to .82 for the value subscale and .72 to .84 for the discomfort subscale.

2.5.3.9 Telepresence

The Telepresence in Videoconferencing Scale (TVS; Berthiaume et al., 2018) was used to assess client and therapist sense of telepresence after the VC session. The TVS is comprised of seven items rated on a scale from 0 ("Entirely Agree") to 100 ("Entirely Disagree"). The mean score of these seven items can be used to create a total score (Total Telepresence) as well as three subscales scores: Physical Presence, Social Presence, and Absorption. The Cronbach's alpha levels for total telepresence scores range from .73 to .83.

2.5.4 Procedure

Upon enrollment in the study, participants completed the consent form, the sociodemographic questionnaire, the OCAS and the FCAS. These measures were obtained before participants knew their role in the study. Participants were then randomly assigned to an experimental role, either being a 'therapist' or a 'client'. Clients and therapists were paired in dyads and kept their respective roles for the remainder of the study. Each dyad completed two 20-minutes sessions, one in F2F and one in VC, taking place one week apart. The order of the sessions was counterbalanced between dyads. Clients were instructed to choose a relevant theme of discussion while also being comfortable to delve into that theme with someone else. Therapists were instructed to explore what the chosen theme of discussion meant for their clients using helping skills.

During F2F sessions, therapists and clients met in a university classroom and sat approximatively 1.5m from each other. Experimenters attended each session by sitting in the far end of the room. The university

classroom was large enough to accommodate having two separate dyads discuss in the same 20-minute segment without interference. Participants' chairs in a specific dyad were slightly deviated instead of being squarely aligned to each other to reduce participants' discomfort. Participants' views of one another were unobstructed (i.e., devoid of tables).

During VC sessions, therapists and clients arrived at separate computer labs and only saw each other during the Skype call. During the calls, participants sat at approximatively 50 cm away from their screen with their webcams oriented to transmit a mid-body framing of participants (Figure 4). Participants could see themselves in a miniature screen in the lower right corner of the monitor (the 'Picture-in-Picture' screen). The computer labs featured 24 to 48 computer systems and the rooms were large enough to accommodate having two dyads discuss at the same time in each experimental session.

Figure 4. An example of a VC session from the perspective of a client. The viewing set-up was the same from the therapist's perspective.

After each session, therapists and clients completed their version of the EUS, TVS, WAI, and TPI. Clients also completed the PANAS before and after each session in order to track changes in affectivity resulting from each session. Upon concluding a session, each participant received a monetary compensation of CAD $10 (US $7.96). Participants were contacted six months after completing the study to complete the OCAS and the FCAS a second time in order to record potential changes in attitudes following the experiment.

2.5.5 Analyses

All analyses were performed using SPSS version 22.0 with the α level set at .05. Effect sizes of t-tests (ES) were computed using Cohen d (Cohen, 1988). Role-congruent paired t-tests were conducted to compare data across F2F and VC sessions. One-tailed paired t-tests were used for empathy, therapeutic presence, and attitudes improvement at follow-up to reflect the directional nature of the hypotheses. Two-tailed tests were used for control variables such as affectivity, session impact, alliance, and pre-experimental attitudes. All additional analyses are described in the corresponding sections. As several paired t-tests were performed on each sample, there is a possibility of inflating the experiment-wise Type 1 error (false positive result). However, as our primary hypotheses of interest focus on empathy and the analyses of the other variables of interest are exploratory in nature, we opted not to apply any correction to the alpha level (Feise, 2002).

2.6 Study 1 – Results

2.6.1 Manipulation Checks of Affectivity Changes and Session Impact

Two sets of analyses aimed at verifying 1) that the experimental task benefitted clients in terms of affectivity, and 2) that different themes of discussion between sessions did not lead to different perceptions of session impact by clients. The first check was done by comparing post-session ratings of Positivity and Negativity on the PANAS to pre-session ratings across conditions (Table 2). These analyses revealed significant improvements of affectivity, where Positivity and Negativity respectively increased and decreased following F2F sessions. VC sessions yielded significant improvements of Negativity, but not Positivity.

The second check was done by comparing clients SEQ ratings across therapeutic modalities using paired t tests. The results indicate no statistically significant differences for all subscales of the SEQ (Table 3), demonstrating that session impact did not differ between modalities.

2.6.2 Empathy

One-tailed paired t-tests were performed on measures of therapist and client perceptions of empathy between F2F and VC sessions. Results of these analyses can be found in Table 4 while Figure 5 features the magnitude of change in empathy of each participant from VC to F2F sessions. Therapists and clients provided significantly higher empathy ratings for F2F sessions than for VC sessions.

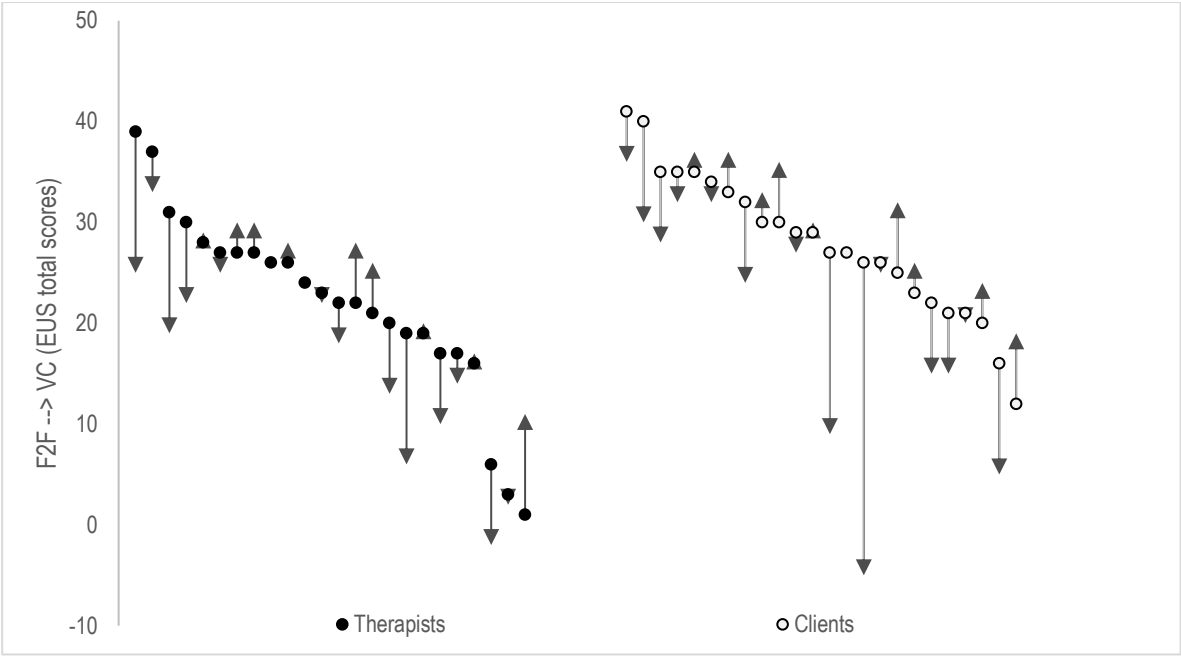

Figure 5. Individual change in empathy ratings between VC and F2F sessions. Each circle represents a participant's empathy rating in the F2F session, while the arrow points to the empathy rating of the same participant in the VC session. Results were ordered from smallest to highest empathy score in the VC session for clarity. An absence of arrow indicates that the participant provided the same assessment of empathy for the VC and the F2F sessions.

2.6.3 Alliance

Two-tailed paired t-tests were performed on measures of therapist and client perceptions of empathy and alliance between F2F and VC sessions (Table 4). Neither therapist nor client ratings differed significantly between VC and F2F.

2.6.4 Therapeutic Presence

To test for differences in therapeutic presence across modalities, client and therapist ratings were compared between F2F and VC sessions using one-tailed paired t-tests (Table 4). The results show that clients provided higher TPI ratings F2F than in VC sessions, while therapist ratings did not differ across modalities.

2.6.5 Attitudes Pre-Experiment and 6-Month Post-Experiment

To assess whether participants reported differential attitudes for teletherapy in comparison to F2F therapy, pre-experiment value and discomfort regarding teletherapy (OCAS) and face-to-face therapy (FCAS) were compared (Table 4). The analyses show that therapists and clients attribute significantly more value and

less discomfort to F2F therapy than teletherapy. Thus, participants attitudes were worse with respect to teletherapy than F2F therapy regardless of their role in the study.

To test for attitude improvements after the completion of the study, client and therapist attitudes regarding teletherapy were compared between pre-experiment and follow-up (6-months) ratings using paired t-tests (Table 5). Therapists' ratings of value, and discomfort did not change significantly between time points. Clients' ratings of value significantly increased at 6-months while changes in discomfort were not significant. Clients' attitudes thus showed some measure of improvement in the form of increased value attributed to teletherapy compared to its pre-experimental level.

2.6.6 Correlational Analyses Between Empathy, Alliance, Telepresence, and Attitudes

To identify relevant correlates of the perception of empathy in VC, Pearson's correlation coefficients were computed between ratings of empathy, alliance, telepresence, attitudes, and therapeutic presence of clients and therapists. Tables 6 and 7 present the resulting correlation matrices for therapists and clients respectively. Therapists' felt empathy was positively associated with total ratings of telepresence and physical presence. Conversely, no significant correlations were found between clients' perceived empathy and all components of telepresence. Alliance was strongly correlated with empathy in both therapist and client ratings. No significant associations were found between therapist and client perceptions of empathy and prior attitudes regarding teletherapy. Therapeutic presence was found to correlate significantly with empathy for therapists but not for clients.

2.7 Study 1 – Discussion

The aim of this study was to compare therapist and client perceptions of empathy between F2F and VC sessions and identify relevant correlates of empathy in VC. The results show that empathic ratings decreased in VC sessions in comparison to F2F encounters for both therapists and clients, supporting the main hypothesis and providing empirical ground to an earlier conceptual analysis of empathy in CMC (Grondin et al., 2019). Regarding the correlates of empathy, correlational analyses partially support the hypotheses, showing moderately strong correlations of therapist ratings of empathy with telepresence and therapeutic presence. Contrary to the hypothesis, no correlations were found between empathy and attitudes, suggesting that attitudes might not be directly associated with perceptions of empathy for clients and therapists.

These results demonstrate that empathy can indeed be impacted when conducting teletherapy. It is possible that this decrease in empathy is a reflection of the loss or alteration of several nonverbal cues, such as eye contact and gestures (Grondin et al., 2019). This study addresses several limitations found in the literature

thus far, namely the lack of a comparison point between teletherapy and F2F therapy when measuring empathy. Additionally, the study examined both therapist and client ratings, providing a more comprehensive analysis of empathy in CMC. These results can be confidently attributed to the effect of the experimental condition (conducting sessions in VC or in F2F) for several reasons. First, participants were randomly assigned to the role of therapist or client, mitigating the influence of participant role preferences on their subjective experience of the sessions. Second, the intra-individual design of the study mitigates the risks of individual factors explaining the differences in empathy found between the experimental conditions since therapists and clients completed both conditions. Third, the experimental task (discussing for 20 minutes in either VC or F2F) provided benefits to clients in terms of affectivity changes, although improvements of positivity were not statistically significant in VC. Fourth, client perceptions of session impact did not differ between modalities, alleviating concerns that uncontrolled factors – such as the theme of discussion during the sessions – could have facilitated or hindered empathy differently between experimental conditions. Fifth, alliance ratings did not differ between therapeutic modalities, which is in line with existing meta-analytic reports (Simpson & Reid, 2014; Sucala et al., 2012; Watts et al., 2016), and were strongly associated with empathy, which was also expected based on the literature (Feller & Cottone, 2003).

In relation to empathy, a few participants proactively reached out to experimenters to share their experience regarding VC sessions. One therapist noted that she felt less empathy toward her client in VC as she normally does in her traineeship and wished she could make eye contact with her client in the same way that she does in face-to-face. This comment was reciprocated by another client who felt nonverbal cues such as gestures and eye contact were hard to interpret or missing from VC. Conversely, one therapist said she felt less pressure in the VC sessions and was thus more comfortable than in F2F. Another therapist pointed out that Skype muted his client when he unconsciously uttered 'hm-hms'. Once aware of this feature, the therapist tried to suppress this habit, which interrupted the 'flow' of the session from his perspective. These comments echo earlier findings derived from interviews of doctoral students in clinical psychology on the advantages and limitations of teletherapy (Békés et al., 2020).

One possible variable of interest regarding the results on empathy relates to the experimental setting of the study, particularly the fact that participants were observed by experimenters but also that self-observation was enabled only in the VC condition through the Picture-in-Picture (PiP) screen. For example, it has been found that being observed during sessions (including self-observation) can be associated with heightened therapist anxiety and a diminution in facilitative therapist responses (Schauer et al., 1985). Self-observation could therefore have played a role in the diminution of empathy observed in the study. It must however be noted that self-observation through the PiP screen is a setting enabled by default on most VC platforms to date, making self-observation a common occurrence of present teletherapy sessions. There is also the possibility that self-

observation through the PiP screen could help foster empathy by providing feedback to the therapist regarding their posture and facial expressions. Further research is therefore needed to ascertain the role played by self-observation on empathy in VC sessions.

The correlational analyses provided support for an association between empathy and telepresence, but only for therapists. Closer examinations of telepresence components indicate that therapists' felt empathy was mainly associated with ratings of physical presence. This result is interesting because previous work points to an association between presence in virtual reality interactions and perceptions of empathy (e.g., Bouchard et al., 2013). This observation could mean that adaptations for therapists aimed at fostering a sense of sharing a common physical space with their clients could also facilitate feeling greater empathy for the clients.

Contrary to our hypothesis, attitudes were not associated with empathy for both clients and therapists. It seems that attitudes might not be directly associated with empathy per se, although they play a major role in the intention of engaging in teletherapy (Lazuras & Dokou, 2016; Simms et al., 2011). Of note, telepresence was strongly associated with attitudes for both therapists and clients. Because attitudes were assessed prior to the completion of the VC session, this suggests that favorable attitudes towards teletherapy could be a predictor of enhanced telepresence in VC sessions.

A secondary objective of the present study was to investigate changes in attitudes following participation in the study. It was expected that concretely engaging in a simulation of teletherapy would improve participant attitudes, providing them with an opportunity to alleviate some of their concerns towards this therapeutic modality. This hypothesis was partially supported by clients attributing significantly more value and marginally but not significantly less discomfort ($p=.06$) to teletherapy at 6-month follow-up compared to the pre-experiment ratings. No other significant improvement was found for client discomfort and for therapist attitudes as a whole. It is possible that completing a single session in teletherapy might not have been enough for participants, particularly therapists, to adjust to this new modality and revise some of their beliefs towards teletherapy. Providing participants with additional information regarding the efficacy of teletherapy could be more beneficial to improving their attitudes.

Therapeutic presence results show differential profiles between therapists and clients. For therapists, the results do not support the hypothesis that therapeutic presence, like empathy, would be lower in VC. Therapist reports of therapeutic presence did, however, correlate with empathy in VC. It thus seems that therapeutic presence and empathy are correlated in VC while therapeutic presence is not being felt differently between F2F and VC. Conversely, clients perceived significantly higher therapeutic presence in F2F compared to VC, yet the correlation between empathy and therapeutic presence was not significant. These results regarding client perceived therapeutic presence could be related to the fact that the client version of the TPI only

includes three items, whereas the therapist version comprises 21 items (Geller et al., 2010). This lower number of items ostensibly hinders the sensitivity of the client version of the TPI, since all total scores must range from three to 21. A likely concomitant consequence of this number of items is the ceiling effect that can be observed regarding client reported therapeutic presence. Considering these factors, it appears that client perceived therapeutic presence could be lower in VC, but these results should be replicated using a measurement scale adapted to this modality. Of note, there are also significant correlations between therapeutic presence, telepresence, and alliance scores for both therapists and clients. Therapeutic presence could therefore be a clinically relevant aspect of VC interactions as it would be expected to also provide a good indication of the strength of the therapeutic alliance and the sense of telepresence in teletherapy.

The study also has limitations that restrict the extent to which the results can be generalized. First, using simulations of therapy sessions ensured greater experimental control at the cost of ecological validity, meaning that actual therapy sessions could potentially unfold differently than the sessions observed in this study. It must however be noted that all participants had prior clinical training, which adds to the validity of the results. Another limitation pertains to the participants reporting data from a single session in each modality. Over the course of an actual online treatment, the possibility remains that therapists and clients implement adjustments to facilitate the perceptions of empathy. For example, individuals can consciously disclose or inquire about emotional states during teletherapy to compensate for the relative loss of nonverbal cues in CMC (e.g. Bischoff et al., 2004; Trepal et al., 2007). On the other hand, knowing that empathy can be impaired during the first session of teletherapy also emphasizes the importance of addressing potential reductions of empathy at the very beginning of treatment to facilitate greater treatment adherence. A final limitation of the sample at hand pertains to the participants' lack of prior experience of teletherapy or VC in general (Table 1). Most participants used VC for less than 30 minutes per week for their personal use and therefore had very little exposure to teletherapy itself. For those reasons, it would be pertinent to replicate the present study using actual clients and therapists with different levels of experience in teletherapy and over the course of several clinical sessions.

Since the results of this first study provide an interesting insight into the association between empathy and telepresence, a second study was conducted to examine whether this association would be observed in a more ecological sample of clients.

2.8 Study 2 – Objectives

In order to examine the association between empathy and telepresence in an ecological context, the second study involved participants from a therapist-assisted self-help treatment program for PTSD-related symptomatologies called RESILIENT (Belleville et al., 2018, 2019). The RESILIENT web platform was designed to promote resilience among the evacuees of the 2016 Fort McMurray wildfires in Canada, during which 88,000

residents were subject to an emergency evacuation. These wildfires caused a sharp increase in health services referrals: Alberta Health Services received around 20,000 referrals over the span of the three months following the wildfires, compared to the usual 1,200 referrals received each year. The RESILIENT program was found to significantly lower post-traumatic, depressive, and insomnia symptoms among participants in a randomized-control trial involving a waiting list (Belleville et al., NCT04808713; Belleville et al., under review). Study 2 presents the results regarding empathy and telepresence derived from the clients on the waiting list and their therapists after completing the RESILIENT program.

Based on the findings of the first study, it was expected that therapists' empathy would significantly correlate with ratings of total and physical telepresence, whereas no such association was expected for client reports.

2.9 Study 2 – Methods

2.9.1 Participants

2.9.1.1 Clients

To enter the RESILIENT program, the symptom profile of clients had to meet one of the following criteria: 1) Reporting Post-Traumatic Stress Disorder (PTSD) symptoms as measured by a score over 23 on the Posttraumatic Checklist (PCL, Blevins et al., 2015), or 2) reporting some PTSD symptoms (PCL ≥ 10) as well as mild depressive symptoms, measured by a score over five on the Patient Health Questionnaire (PHQ, Kroenke et al., 2001), and/or subclinical insomnia symptoms measured by a score over eight on the Insomnia Severity Index (ISI, Bastien et al., 2001). Of the 49 clients who accepted to take part in the study, 26 (53.06%) completed the 12 modules of the program with a usual pace of one session per two weeks. Fourteen of the 26 clients met their therapist over the phone and were therefore excluded from the analyses. The remaining participants (n=12) met their therapist via videoconference and comprised the final sample of Study 2. All sessions took place between November 2018 and May 2019. Participants were mostly middle-aged adults (mean 48.55, SD 11.29; range 31-62), married (one was single, two were divorced), female (three males), and native Canadian (three immigrants). Seven participants had a bachelor or master level diploma. All participants reported moderate to extreme stress levels following exposure to the 2016 Fort McMurray (Alberta, Canada) wildfire two years before entering RESILIENT. Six of these 12 participants met the symptom severity threshold for PTSD on the PCL (sample mean 19.39, SD 11.02), seven for major depression (sample mean 9.35, SD 5.61), and six for insomnia (sample mean 14.73, SD 5.55).

2.9.1.2 Therapists

Four students (all women) enrolled in a clinical psychology graduate program were paired to specific clients for 12 sessions. Therapists were 24-30 years old and had at least two years of clinical experience at the beginning of the study. Therapists respectively met with one, two, four, and five clients each.

2.9.2 Material

2.9.2.2 RESILIENT Online Self-Help Platform

The RESILIENT program is an evidence-based therapist-assisted self-help treatment comprising 12 modules aimed at reducing PTSD, major depression, and insomnia symptoms following exposure to a natural disaster. These modules gradually introduce psychoeducation on posttraumatic reactions, depression, and insomnia in addition to cognitive-behavioral techniques, such as cognitive restructuring, gradual and prolonged exposure to trauma-related stimuli and memories, cognitive behavioral therapy for insomnia, behavioural activation, relaxation, and problem-solving.

2.9.2.3 Sessions Material

Therapists and clients carried out videoconference-based sessions using their personal computer (often a laptop) and Skype™ (Microsoft Corp.). Participants also had the choice to meet over the phone if desired, but the data associated with phone interviews was not considered for the analyses.

2.9.3 Measures

In addition to the EUS, the TVS, and the sociodemographic reports, additional questionnaires, including the PCL, PHQ, and ISI, were completed by participants throughout the self-help program to quantify their levels of pre- and post-RESILIENT symptoms. The results regarding symptom improvements will be the subject of another publication (Belleville et al., NCT04808713; Belleville et al., under review).

2.9.4 Procedure

Once enrolled in the study, clients were instructed to progressively complete each of the twelve modules. Upon completing a module, clients met with their assigned therapist for approximatively 30 minutes to discuss symptom improvements, potential pitfalls, coping strategies, and to receive emotional support when needed. Therapists monitored clients' overall progress with each module and discussed concrete ways to implement each module content into the clients' daily lives. At the end of RESILIENT, therapists and clients were invited to complete the empathy (EUS) and telepresence (TVS) scales when considering the 12 sessions as a whole.

2.10 Study 2 – Results

2.10.1 Correlational Analyses of Empathy and Telepresence

Table 8 describes the mean levels of empathy and telepresence reported by therapists and clients. To confirm the association between empathy and telepresence, Pearson's correlation coefficients were computed between empathy and telepresence (total and subcomponents) ratings. The results (Table 9) show that therapist empathy ratings were correlated with total telepresence ratings as well as the physical subcomponent. Conversely, client perceived empathy ratings were not significantly correlated with total telepresence or any of its subcomponents.

2.11 Study 2 – Discussion

The aim of this second study was to test whether the associations found between empathy, telepresence, and the different subcomponents of telepresence in Study 1 were also found in the context of a therapist-assisted self-help program for PTSD-related symptomatology. The results support the hypotheses that therapist, but not client, reports of empathy are significantly correlated with total and physical ratings of telepresence. These results provide further evidence that a significant relationship exists between therapists' felt empathy and the feeling of telepresence, particularly its physical component. Conversely, analyses of client ratings do not reveal a significant association. Together with results of Study 1, these results suggest that clients' feeling of telepresence, previously found to correlate with favorable alliance ratings (Bouchard et al., 2007), do not correlate with their perceptions of therapist's empathy. It appears that a strong impression of being there with the therapist, albeit a positive indicator of strong alliance, does not necessarily imply higher client perceived empathy. This conclusion suggests that other variables are at play when clients are asked to assess the level of empathy conveyed by therapists in a VC session. For example, it is possible that clients rely more on certain verbal and nonverbal cues than on their feeling of being there with the therapist when asked to report perceived empathy after the session.

This study provides additional insight into the association between empathy and telepresence using an actual clinical sample of clients and therapists who met 12 times over VC, extending the generalization of some of the conclusions of Study 1. These results can therefore be considered as a stepping stone towards a future larger scale investigation of empathy and telepresence in teletherapy. More specifically, these results suggest that efforts to increase therapists' feeling of telepresence, particularly its physical subcomponent, are associated with increased feelings of empathy especially on the therapist side of the intervention. Enhanced therapist empathy in teletherapy sessions could, in turn, help foster favorable conditions for positive client outcomes, such as contributing to high perceived empathy and alliance.

Study 2 presents some limitations. The small sample size limits the generalization of the results. Additionally, using a single measurement of empathy and telepresence at the end of RESILIENT prevents the exploration of possible variations in empathy and telepresence across time points and may be affected by recall bias at the time when participants completed the questionnaires. Similarly, the possibility remains that participants who rated telepresence and empathy favorably were more likely to complete treatment. While the results of this second study present good ecological validity, the limitations outlined above could have impacted the internal validity of the results.

2.12 General Discussion and Future Directions

The findings of Study 1 show a significant decrease in empathy in simulated therapy sessions in VC compared to F2F, as well as significant correlations between therapist empathy and their total and physical sense of telepresence. The correlational results were replicated in Study 2 using an ecological sample of therapists and clients who completed 12 therapy sessions over VC. Taken together, these results offer strong evidence that therapists' felt empathy and sense of telepresence are associated in VC sessions since similar associations were found using two very different methodologies. Study 1, through the use of simulations of teletherapy sessions, employed a controlled, experimental setting that strengthened internal validity at the expense of external validity. Conversely, Study 2 featured a more ecological setting of clinical interactions but did not control external factors of influence on the experience of VC sessions. These two different methodologies however produced similar patterns of associations between empathy and total and physical telepresence. These results therefore provide empirical support for the importance of considering telepresence when investigating felt empathy in teletherapy sessions. It is important to note, however, that the correlational nature of the analyses in both studies does not allow for causal inferences, nor does it resolve the current uncertainty about the temporal relationship between empathy and telepresence (Grondin et al., 2019). The exploration of the temporal ramifications between empathy and telepresence could therefore be of great importance for the future of teletherapy, as this could provide clinicians with new means of enhancing empathy in this context.

These results also highlight the importance of attending to both the therapist and client perspectives of empathy early in teletherapy. The available scientific literature relating to telemental health features several suggestions to optimize empathy in teletherapy, such as exaggerating nonverbal behaviors or relying more heavily on verbal clarification to identify client affect (e.g., Bischoff et al., 2004; Cowain, 2001; Trepal et al., 2007), but these suggestions have yet to be extensively tested in experimental studies. Another relevant avenue of research relates to the amelioration of the perception of nonverbal cues in VC sessions (Grondin et al., 2019). For example, camera framing (Nguyen & Canny, 2009) and camera angle (Grondin et al., 2020; Tam et al., 2007) can preserve (or limit) the perception of gestures and eye contact, respectively. Therefore, purposeful adjustments of VC parameters could directly benefit the experience of empathy and telepresence in teletherapy.

While the results presented in this paper could be interpreted as a validation of clinicians' fear that teletherapy is too impersonal, there is a case to be made that digital environments offer new opportunities to enhance empathy in telemental health. For example, while CMC can lead to the relative loss of nonverbal cues (Grondin et al., 2019), emerging technologies could also increase the saliency of key socioemotional signals that are not readily available in face-to-face interactions (Comer & Timmons, 2019). A likely application resides in the use of affective computing in teletherapy, where physiological measures could assist therapists in rapidly identifying implicit emotional reactions of clients (Janssen, 2012; Marci et al., 2007). The present results provide empirical support to the contention that empathy can be impacted in teletherapy and highlight the importance of ensuring that present and future technologies facilitate the enactment of empathy in computer-mediated interactions.

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2.13 Tables

Table 1. Sociodemographic data of therapists and clients.

Variables	**Therapists (n=24)** Mean (SD)	**Clients (n=24)** Mean (SD)	***P* value**
Age (years)	26.08 (5.70)	23.46 (2.25)	.04
Sex (female)	20	20	.99
Years of education	18.98 (2.05)	17.65 (1.83)	.02
Medication use (Yes)[a]	6	10	.22
History of mental health disorders (Yes)[b]	5	5	.99
History of clinical consultation as a client (Yes)[c]	11	10	.77
Counseling experience (months)	23.85 (23.04)	14.70 (21.54)	.19
Computer Use			
Days / week	6.81 (0.44)	6.54 (.072)	.12
Hours / day	5.25 (2.37)	4.96 (1.92)	.64
Videoconferencing use			
Days / week	0.89 (1.22)	0.83 (1.43)	.89
Hours / week	0.56 (0.75)	0.58 (1.04)	.94

[a] Medication use included the use of psychotropic medication only, such as antidepressants and painkillers.

[b] History of mental health disorders excluded attention deficit disorder with or without hyperactivity and comprised mood disorders, anxiety disorders, or eating disorders.

[c] History of clinical consultation in psychotherapy as a client.

Table 2. Affectivity changes of clients pre- and post-session.

	n	**Pre-session** Mean (SD)	**Post-session** Mean (SD)	***t* test**	***P* value**	**Cohen *d***
F2F[a]						
PANAS[b] - Positivity	24	28.17 (4.53)	30.50 (5.63)	2.837	.009	0.578
PANAS - Negativity	24	17.63 (5.11)	14.38 (4.27)	-3.400	.002	0.694
VC[c]						
PANAS - Positivity	24	26.71 (6.36)	28.04 (7.45)	1.737	.10	0.354
PANAS - Negativity	24	17.75 (6.18)	14.21 (4.68)	-4.236	<.001	0.864

[a] F2F: Face-to-Face.

[b] PANAS: Positive Affectivity and Negative Affectivity Scale.

[c] VC: Videoconferencing.

Table 3. Clients session impact ratings across therapeutic modalities.

		F2F[a]	VC[b]	*t* test	*P* value	Cohen *d*
	n	Mean (SD)	Mean (SD)			
SEQ[c] subscales						
Depth	24	4.65 (1.08)	4.40 (1.06)	-1.064	.30	0.22
Smoothness	24	5.48 (1.14)	5.14 (1.19)	-1.597	.12	0.33
Positivity	24	5.22 (1.11)	5.27 (0.98)	0.193	.85	0.04
Arousal	24	4.16 (0.88)	3.85 (0.87)	-1.517	.14	0.31

[a] F2F: Face-to-Face.

[b] VC: Videoconferencing.

[c] SEQ: Session Evaluation Questionnaire.

Table 4. Comparisons of client and therapist ratings across therapeutic modalities.

		F2F[a]	VC[b]	*t* test	*P* value	Cohen *d*
	n	Mean (SD)	Mean (SD)			
Clients						
EUS[c]	24	27.88 (7.19)	24.75 (10.69)	-1.779	.04	0.36
WAI[d]	22	5.17 (0.81)	5.19 (0.84)	0.128	. 90	0.04
Attitudes[e]						
Value	24	27.25 (3.37)	21.46 (4.68)	5.856	<.001	1.20
Discomfort	24	8.29 (3.10)	12.92 (4.58)	-4.643	<.001	0.95
TPI[f]	24	6.57 (0.53)	6.15 (0.63)	-3.195	.002	0.71
Therapists						
EUS	24	22.00 (9.26)	19.83 (9.34)	-1.741	.048	0.36
WAI	22	5.09 (0.93)	4.91 (1.04)	-1.301	.21	0.29
Attitudes						
Value	24	28.46 (2.00)	22.54 (4.98)	6.132	<.001	1.25
Discomfort	24	8.88 (3.97)	12.75 (5.40)	-4.387	<.001	0.89
TPI	22	5.48 (0.72)	5.47 (0.84)	-0.045	.48	0.01

[a] F2F: Face-to-Face.

[b] VC: Videoconferencing.

[c] EUS: Empathic Understanding Subscale.

[d] WAI: Working Alliance Inventory.

[e] Attitudes: Online Counseling Attitudes Scale and Face-to-Face Counseling Attitudes Scale.

[f] TPI: Therapeutic Presence Inventory.

Table 5. Participants' attitudes towards teletherapy[a] across time points

		Pre-experiment	6-months follow-up	*t* test	*P* value	Cohen *d*
	n	Mean (SD)	Mean (SD)			
Clients						
Value	22	21.46 (4.68)	23.36 (3.47)	2.793	.006	0.52
Discomfort	22	13.05 (4.56)	11.50 (3.91)	-1.701	.06	0.36
Therapists						
Value	24	22.54 (4.98)	22.63 (4.09)	0.097	.46	0.02
Discomfort	24	12.75 (5.40)	12.04 (4.80)	-1.000	.16	0.21

[e] Attitudes: Online Counseling Attitudes Scale.

Table 6. Correlation matrices[a] of ratings of empathy, alliance, telepresence, and attitudes in VC among therapists.

		EUS[b]	TVS[c] – total	TVS – physical	TVS – social	TVS – absorption	WAI[d]	OCAS[e] – value	OCAS – Discomfort
TVS– total	*r* *P* value	0.48 .02	–						
TVS – physical	*r* *P* value	0.48 .02	0.80 <.001	–					
TVS – social	*r* *P* value	0.35 .10	0.85 <.001	0.76 <.001	–				
TVS – absorption	*r* *P* value	0.19 .38	0.52 .009	-0.04 .87	0.16 .46	–			
WAI	*r* *P* value	0.61 .002	0.69 <.001	0.61 .002	0.55 .006	0.35 .10	–		
OCAS – value	*r* *P* value	0.27 .21	0.48 .019	0.28 .18	0.45 .03	0.33 .11	0.14 .51	–	
OCAS – Discomfort	*r* *P* value	-0.28 .18	-0.49 .02	-0.54 .007	-0.46 .02	-0.06 .79	-0.21 .35	-0.69 <.001	–
TPI[f]	*r* *P* value	0.57 .006	0.45 .03	0.42 .051	0.31 .16	0.16 .48	0.76 <.001	-0.02 .92	-0.20 .38

*p<.05.

[a] All correlations were established using 24 observations except for alliance (n=23) and therapeutic presence (n=22).

[b] EUS: Empathic Understanding Subscale.

[c] TVS: Telepresence in Videoconference Scale.

[d] WAI: Working Alliance Inventory.

[e] OCAS: Online Counseling Attitudes Scale.

[f] TPI: Therapeutic Presence Inventory.

Table 7: Correlation matrices[a] of ratings of empathy, alliance, telepresence, and attitudes in VC among clients.

		EUS[b]	TVS[c] – total	TVS – physical	TVS – social	TVS – absorption	WAI[d]	OCAS[e] – value	OCAS – Discomfort
TVS– total	*r* *P* value	0.16 .44	–						
TVS – physical	*r* *P* value	0.25 .24	0.91 <.001	–					
TVS – social	*r* *P* value	0.07 .74	0.70 <.001	0.60 .002	–				
TVS – absorption	*r* *P* value	<0.01 .99	0.73 <.001	0.43 .04	0.28 .18	–			
WAI	*r* *P* value	0.72 <.001	0.37 .08	0.42 .05	0.37 .08	0.11 .61	–		
OCAS – value	*r* *P* value	0.08 .72	0.59 .002	0.59 .003	0.72 <.001	0.19 .38	0.07 .75	–	
OCAS – Discomfort	*r* *P* value	-0.14 .51	-0.31 .16	-0.24 .26	-0.43 .04	-0.18 .41	-0.19 .39	-0.47 0.02	–
TPI[f]	*r* *P* value	0.21 .32	0.45 .03	0.47 .020	0.56 .004	0.09 .69	0.42 .048	0.53 .008	-0.17 .44

*p<.05.

[a] All correlations were established using 24 observations except for alliance (n=23).

[b] EUS: Empathic Understanding Subscale.

[c] TVS: Telepresence in Videoconference Scale.

[d] WAI: Working Alliance Inventory.

[e] OCAS: Online Counseling Attitudes Scale.

[f] TPI: Therapeutic Presence Inventory.

Table 8. Means of reported empathy and telepresence for therapists and clients.

	Therapists (n=12) Mean (SD)	**Clients (n=12)** Mean (SD)
EUS[a]	26.17 (9.50)	28.75 (6.18)
TVS[b] – total	72.56 (13.25)	80.65 (10.79)
TVS – physical	72.50 (17.11)	83.33 (10.64)
TVS – social	81.88 (9.18)	88.33 (11.93)
TVS – absorption	63.33 (28.33)	68.96 (16.08)

[a] EUS: Empathic Understanding Subscale.

[b] TVS: Telepresence in Videoconference Scale.

Table 9. Correlations between empathy and telepresence for therapists and clients in VC[a].

	***r* with EUS[b]** (n=12)	***p* value**
Therapists		
TVS[c] – total	.695	.01*
TVS – physical	.710	.01*
TVS – social	.369	.24
TVS – absorption	.375	.23
Clients		
TVS – total	.401	.20
TVS – physical	.424	.17
TVS – social	.499	.10
TVS – absorption	.150	.64

*$p<.05$.

[a] VC: Videoconferencing.

[b] EUS: Empathic Understanding Subscale.

[c] TVS: Telepresence in Videoconference Scale.

Chapitre 3 : A methodology to improve eye contact in telepsychotherapy via videoconferencing with considerations for psychological distance

3.1 Avant-propos

Ce chapitre a fait l'objet d'un article paru dans le journal *Counselling Psychology Quarterly* dont voici la référence : Grondin, F., Lomanowska, A. M., Békés, V., & Jackson, P. L. (2020). A methodology to improve eye contact in telepsychotherapy via videoconferencing with considerations for psychological distance. *Counselling Psychology Quarterly*, 1-14. https://doi.org/10.1080/09515070.2020.1781596

3.2 Résumé

La télépsychothérapie par vidéoconférence (VC) est une modalité de traitement à distance qui est efficace, pourtant les thérapeutes rapportent fréquemment des inquiétudes face à la possibilité que la relation thérapeutique soit entravée par la perte de certains indices non verbaux comme le contact visuel. À ce jour, il n'existe pas de procédure simple permettant de compenser pour l'angle altérant le regard en VC, lequel est situé entre les yeux des interlocuteurs en VC et la caméra web positionnée au-dessus de leur écran. Cet article décrit une méthode facilitant le contact visuel en VC qui est simple et peu coûteuse. Cette méthode permet également de réaliser les séances en VC selon deux niveaux de zoom, soit un zoom de la taille à la tête ou un zoom du buste à la tête. Ces deux niveaux de zoom ont été testés par quatre dyades thérapeute-client lors de séances simulées de télépsychothérapie. Les résultats montrent que les préférences des participants quant au niveau de zoom utilisé est liée à leur désir de se « rapprocher » ou de « s'éloigner » de leur partenaire, soulignant ainsi l'influence du zoom sur la perception de distance psychologique lors des séances en VC. Cet article formule finalement des recommandations quant aux paramètres idéaux des séances de VC afin d'en optimiser l'expérience par les clients et les thérapeutes.

3.3 Abstract

Telepsychotherapy by videoconference (VC) is an effective way to treat clients over the Internet, yet therapists often report concerns that VC could affect the therapeutic relationship by hindering the perception of nonverbal behaviors such as eye contact. To date, no simple procedure describes the technical adjustments needed to compensate for the unnatural angle between the eye gaze of the participants and the webcam that is pervasive to most commercial VC systems. This article describes the steps towards a practical and inexpensive VC setup that enables eye contact between therapists and clients. Moreover, this setup allows users to choose between two camera framing conditions: a zoomed-out, head-to-waist framing or a zoomed-in, head-to-chest framing. These two setups were tested by four therapist-client dyads in simulated telepsychotherapy sessions.

Participants indicated that they preferred the framing condition congruent with their desire to be “closer” or “farther” from their partner, highlighting how their perception of psychological distance was related to the degree of camera zooming in VC. The article provides recommendations for different adaptations that therapists and clients can implement to maximize their experience of telepsychotherapy by VC.

Keywords: Telepsychotherapy, Eye Contact, Gaze Angle, Camera Framing, Zoom, Psychological Distance

3.4 Introduction

Telepsychotherapy, also referred to as telepsychology, teletherapy, e-therapy, cybertherapy, online therapy, or e-mental health, is rapidly gaining in popularity. Using information technologies such as videoconferencing (VC), practitioners can meet clients over the Internet and provide mental health services to those in remote areas, or in areas with fewer mental health practitioners, as well as to those with reduced mobility or other physical constraints. Additionally, therapy provided through VC saves time, travel and other costs for clients, such as childcare or taking time off work, and it also permits individuals to seek help without the potential stigma of visiting a mental health facility. Providing remote therapy also lowers associated time and costs for practitioners.

Under exceptional circumstances such as the global COVID-19 pandemic, telepsychotherapy can also represent the only means of continuing therapy while complying with the public health recommendation of social distancing. Accordingly, therapists quickly recognized the necessity of using VC to provide mental health services during the pandemic and switched to using this medium with clients.

Although the benefits of continued access to therapy during a pandemic are self-evident, psychotherapists have previously expressed concerns about the efficacy of VC as a therapeutic medium (e.g., Topooco et al., 2017) and about its impersonal quality. In a recent systematic review, Connolly et al. (2020) found that therapists often reported concerns that VC could interfere with the therapeutic relationship due to difficulties in detecting nonverbal cues, such as crying or fidgeting, signs of intoxication, as well as maintaining eye contact.

Addressing these concerns, systematic reviews and meta-analyses of telepsychotherapy by VC have shown that this modality produces similar therapeutic outcomes as comparable in-person treatment for depression, anxiety, and posttraumatic stress disorder (Backhaus et al., 2012; Hilty et al., 2013). Other systematic reviews have found that therapeutic alliance is generally as strong in VC as it is in-person (e.g., Simpson & Reid, 2014). These empirical accounts emphasize that telepsychotherapy by VC offers the possibility of effectively providing services online, while also acknowledging that many aspects of telepsychotherapy can

still be optimized or enhanced to maximize therapeutic gains. These aspects include the expression and perception of emotionality in VC sessions, particularly the communication of nonverbal cues.

Nonverbal cues are a very important source of information for therapists and clients across therapeutic orientations (e.g., Foley & Gentile, 2010). Videoconferencing systems typically transmit auditory (vocal inflexions and intonations) and visual nonverbal cues (gestures, body posture, facial expressions, and eye contact) with high fidelity; however, visual cues can be altered or filtered out of VC sessions. This filtering effect can occur due to limitations in transmission quality that prevents the instantaneous communication of relevant cues as well as the framing of the video that limits how much of the body is visible (Grondin et al., 2019). The filtering effect is important to consider because numerous studies show an association between these visual cues and empathy (Hall et al., 1995), the latter being a crucial factor in therapeutic success (Elliott et al., 2018). In a study on nonverbal behaviors, eye contact has been linked to increased levels of perceived empathy, alliance and treatment credibility (Dowell & Berman, 2013). However, eye contact is especially difficult to establish in VC as most VC systems include a deviation in the angle between the gaze target (i.e., the other person's eyes on the screen) and the webcam used to transmit one's own image (see Figure 6). The resulting "gaze angle" often creates the mutual impression of looking at each other's chin instead of each other's eyes. Users can rapidly learn to interpret this altered gaze as intended eye contact (Grayson & Monk, 2003), yet the possibility of experiencing mutual gaze is lost. This alteration in eye contact could have an impact on the unfolding of VC sessions, since eye contact can be interpreted as an indicator of the therapist's attention towards the client which is important in facilitating rapport (Leach, 2005) and client's self-awareness (Baltazar et al., 2014). Therapists and clients can elect to look directly at the webcam when they speak, but in so doing can fail to catch the momentarily reactions of their partner during their intervention. These challenges highlight the importance of developing technical solutions to automatically enable eye contact in VC sessions as opposed to relying on conscious behaviors such as looking directly into the webcam.

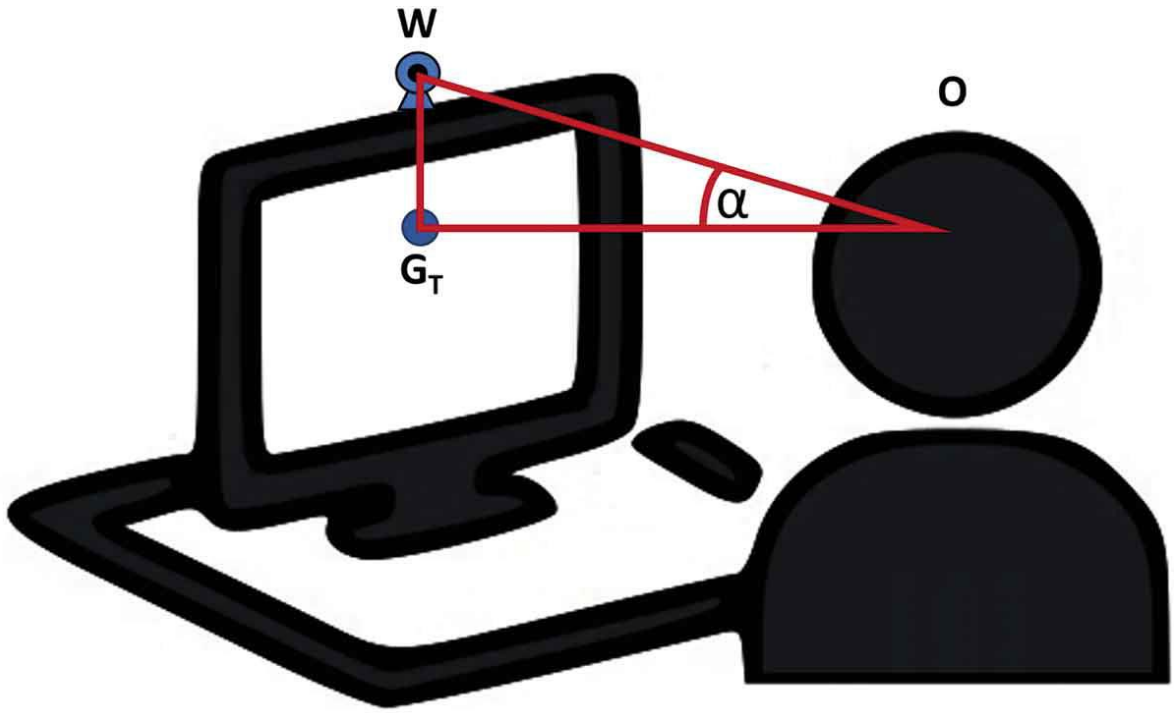


Figure 6. Schematic representation of the gaze angle, adapted from Grondin et al. (2019).

Numerous technological adaptations have been proposed to address the effect of the gaze angle on eye contact perception, particularly in the field of life-sized videoconferencing (i.e., VC systems that respect the actual physical dimensions of body parts as a function of their distance from the observer; for a review, see Regenbrecht & Langlotz, 2015). However, most of the solutions designed to this day require the use of specialized equipment (like a half-silvered glass) or advanced computational skills and software. In order to be practical and accessible for clinical practice, the solution should be simple to implement and inexpensive for both therapists and clients. It should also preserve the flow of the interaction, since using algorithms or video interpolation could increase the delay in video or sound transmission between interactants and potentially hamper the experience of therapists and clients.

To address the need for a practical and accessible solution, we devised a method that satisfies these criteria and can be quickly and effectively implemented in clinical practice. The method involves minimizing the gaze angle using commonly available webcam mounting equipment. This approach is derived from previous experimental reports that estimate that the illusion of eye contact is preserved when the gaze angle (the angle featured in Figure 6) is smaller than 7° (Chen, 2002). Deviations larger than this angle in any direction (e.g., over or beside the area of the eyes) are quickly detected. Sensitivity to a few degrees difference in the gaze angle is also supported by an experiment in telemedicine showing that 87% of participant responses attributed better eye contact to pictures taken at a 7° gaze angle compared to pictures taken at a 15° gaze angle (Tam et

al., 2007). In that study, 49 of the 53 participants (92.5%) also indicated that the difference in eye contact between the two pictures "mattered to them" as patients, with the four remaining participants indicating that they were more interested in what the clinician had to say than in achieving eye contact. In summary, despite the central importance of eye-contact to empathy (Dowell & Berman, 2013) and alliance (Duff & Bedi, 2010), no study to date has tested whether specific manipulations of eye contact had a significant impact on telepsychotherapy sessions. Moreover, although guidelines have been published by professional associations to meet with certain ethical standards associated with telepsychotherapy (American Psychological Association, 2013), the scientific literature about telepsychotherapy has yet to produce general, clinically-sound procedures for practitioners to adopt when aiming at optimizing VC sessions.

In the following sections, we elaborate on our methodology aimed at preserving eye contact in VC sessions in the context of an experimental investigation of perceptions of empathy and telepresence in simulated telepsychotherapy sessions. The methodological section describes the numerous adjustments required to sufficiently lower the gaze angle to enable eye contact. These adjustments produced two variations of setups: a zoomed-in, head-to-chest framing and a zoomed-out, head-to-waist framing. In a second phase, four therapist-client dyads completed 10-min segments under each condition of framing as part of the piloting phase of the research project. Brief interviews were conducted with both therapists and clients to determine their preferred eye contact setup. We report on their experience of these two setups and detail specific adjustments that therapists and clients can take to minimize the gaze angle beneath the documented 7° threshold while also facilitating the perception of other visual nonverbal behaviors such as posture and gestures. We end with suggestions of therapeutic practices to optimize the experience of VC sessions with clients.

3.5 Methodology

3.5.1 Participants

Therapists were four graduate students (one male; aged 24, 25, 26, and 29 years old) who had completed at least two years of and had invested 600 hours and above into clinical practica as part of their doctoral degree in clinical psychology. Therapists adhered to either cognitive-behavioral, psychodynamic, or an integrative approach to treatment. Because the larger research project involved meeting clients in simulated clinical interactions, therapists were instructed to explore the theme of discussion chosen by clients with attention, warmth, and openness, but refrain from doing an actual clinical intake or psychotherapy session. Therapists were compensated for their time with a research assistant contract.

Clients were four university students (one male; aged 21, 24, 25, and 25 years old) who discussed a personal theme chosen from a list (Hill, 2014, p.19) for 20 min. For ethical purposes, clients who reported acute

personal distress such as suicidal ideations were redirected towards professional mental health resources. Clients received $15 Canadian dollars to compensate for the travel costs associated with the study.

Therapists and clients did not have extensive prior experience using videoconferencing, which they all reported using casually (one call or less per week). However, they all reported frequent usage of a computer (nearly everyday, 3-5 hours a day). Ethics approval was granted by the Université Laval Board of Ethics (project number: 2017-007).

3.5.2 Materials

VC sessions were conducted using the software Zoom v.4.6.0 (Zoom Video Communications, Inc.) and commercial high-definition webcams (Logitech C920S model, Logitech). The video feeds were displayed on 24" high-definition LCD monitors. The webcams were mounted on commercial 25" goosenecks mounts (Acetaken brand) to allow for flexibility in the adjustment of webcam positioning. Two pairs of noise-cancelling headsets were employed to limit extraneous distractions. Both rooms used for testing were well lit by fluorescent tubes and devoid of windows.

3.5.3 Initial Setup

Based on the available literature on gaze angle and eye contact tolerance (i.e., the extent of incremental variations in gaze angle before the perception of an alteration of eye contact, which is 7° in videoconferencing interactions; Chen, 2002; Tam et al., 2007), a first setup featuring a gaze angle of around 6° was produced and tested by experimenters (Figure 7). This testing was done with the purpose of confirming firsthand the extent of eye contact tolerance in VC. Experimenters on each side of the videoconferencing call sat 1 meter away from the computer monitor on top of which the webcam was mounted and centered. The distance between the webcam lens and the gaze target (the other individual's eyes on the screen) was approximatively 10 cm. Contrary to the available literature, this initial setup did not enable eye contact between individuals. The alteration of eye contact could be clearly observed when one individual was asked to gaze directly at the webcam and then back at the other individual's eyes on the monitor.

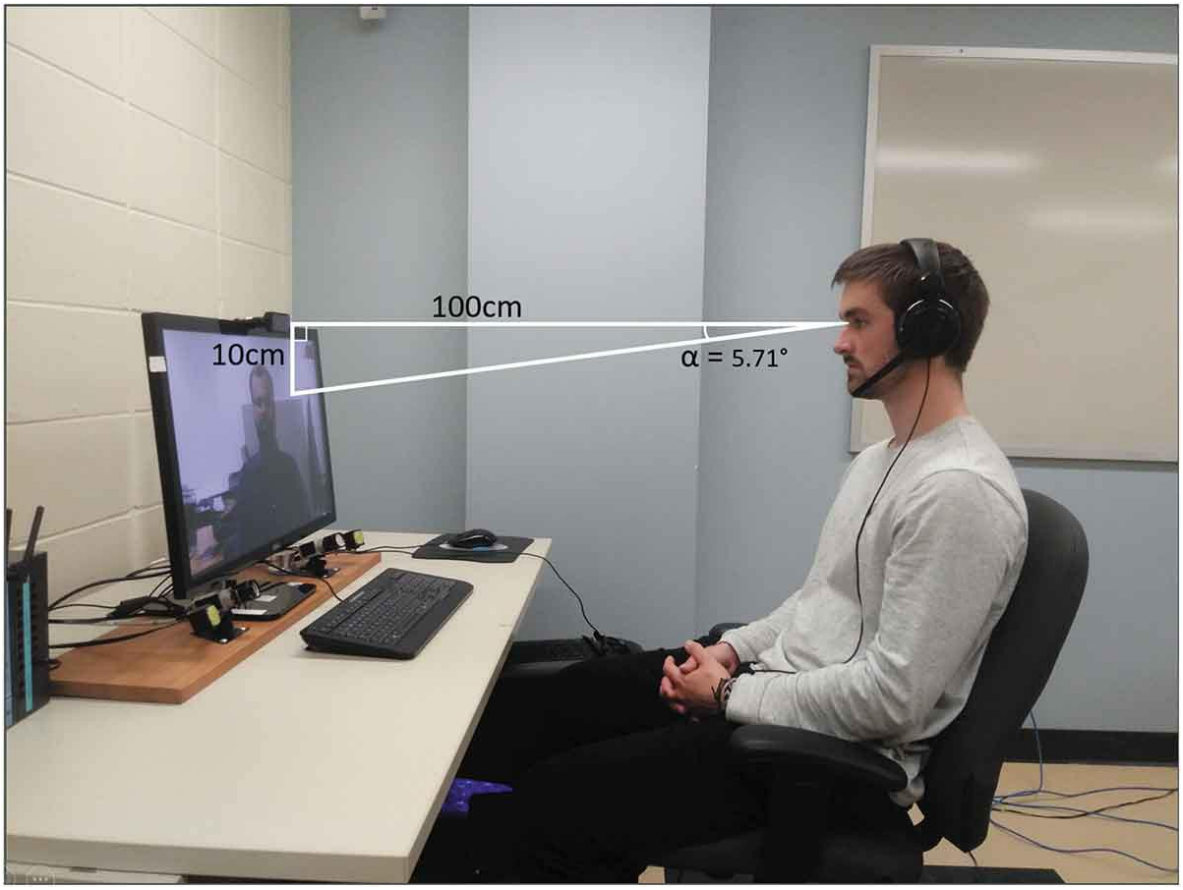


Figure 7. Initial setup to enable eye contact. Although the gaze angle (approximatively 5.71°) is within the tolerance of 7°, this setup was found to alter eye contact perception.

3.5.4 Final Setup

To minimize the gaze angle, multiple steps were taken on both sides of the videoconferencing call to narrow the distance between the webcam lens and the gaze target. First, a gooseneck webcam mount was used to position the webcam upside down (Figure 8). The reason for this operation was to allow the webcam hinges to extend and lower the webcam over the monitor frame, thereby reducing the distance between the lens and the gaze target and providing better control over camera orientation. The upside-down view was then corrected using the Zoom software settings. Second, the height of the desk chair was adjusted in order to elevate the individuals' eyes to at least the level of the webcam and closer to the top of the video feed. According to our testing, individuals can also look slightly over the webcam to further reduce the gaze angle. Finally, individuals moved 30 cm farther from the monitor and webcams were oriented slightly downwards, cropping the view of their heads at the hairline. This final setup featured a gaze angle of approximatively 2.3° (uncertainty in the measurements notwithstanding; see Figure 9). Experimenters who gazed back and forth between the webcam

and the other individual's eyes did not observe a change in eye contact perception. The setup was thus considered to preserve eye contact in VC calls.

Figure 8**.** The gooseneck webcam mount used to lower the webcam over the edge of the monitor screen. The mount is inexpensive, easy to use, and can be locked onto the edge of a desk behind the monitor. This allows increased control over the webcam orientation and circumvents the typical limitation on downward tilting observed when the webcam is mounted directly onto the monitor.

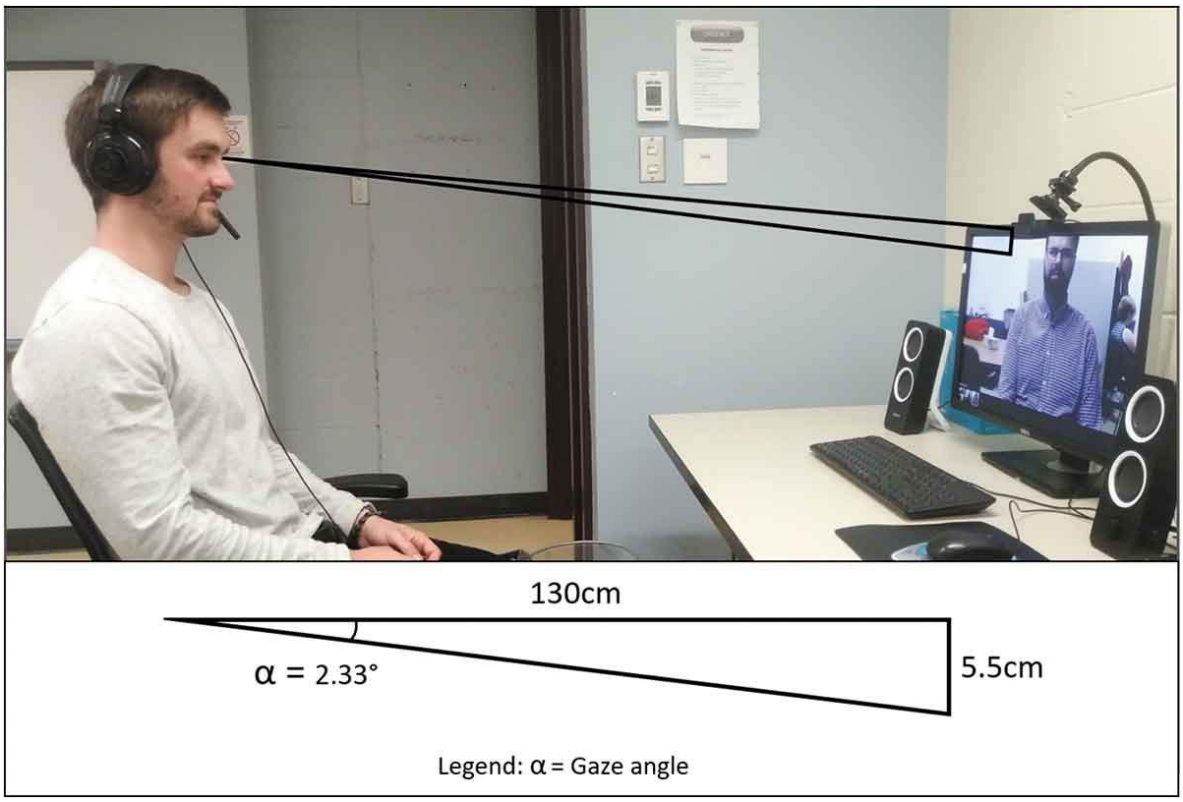


Figure 9**.** Final setup enabling eye contact and its measurements. Individuals are farther from the screen, sit higher in their chair, and a gooseneck webcam mount offers more flexibility in the positioning of the webcam. As shown in the figure, the individual's eyes can be positioned slightly higher than the webcam to further reduce the gaze angle. Alternatively, the individual's eyes can be lowered to the level of the webcam if the webcam is oriented slightly downwards.

This final setup can accommodate two variations of camera framing obtained by using the zoom feature accessible on most webcams without interfering with eye contact. By zooming out, the framing encompasses a large portion of the individuals' body (a "head-to-waist" framing), allowing body posture and gestures to be transmitted in VC. By zooming in, a "head-to-chest" framing can be obtained, which increases the saliency of facial expressions and gaze orientation while hindering the perception of body posture and gestures. To explore how each type of camera framing is experienced by clients and therapists, a pilot study was conducted using four therapist-client dyads.

3.5.5 Procedure

Upon their enrollment in the study, therapists and clients were paired in dyads with gender-matched therapists. Therapists and clients were greeted in separate rooms and filled their version of the consent form and the sociodemographic questionnaire. Clients were asked to choose a theme of discussion that they wanted to explore with the therapists for 20 min. Therapists and clients were informed that the session would be briefly

interrupted at the 10-min mark to introduce a change in the VC session but were not informed that this change consisted of a variation in the camera framing and zoom. The order of the 10-min camera framing conditions (a head-to-waist vs a head-to-chest framing) was counterbalanced between the four dyads. In each room, experimenters logged the participants into the Zoom session and adjusted the desk chairs and the webcam orientation to enable eye contact. They also adjusted the camera zoom on each side so that participants experienced the same condition of framing at the same time. The Picture-in-Picture screen, or the miniature screen by which individuals can see themselves, was closed to avoid distracting the participants. Upon completion of the two 10-min camera framing conditions, participants briefly met with the experimenter to discuss their experience of each camera framing condition. Specifically, the experimenter asked the following questions: "How did the session go?", "How did the session compare to usual, in-person sessions?", "What did you prefer between the 'zoomed-in' and the 'zoomed-out' condition?", and "Knowing how both conditions feel to you, would you want to make the switch from the less preferred framing to your preferred framing setting if you had the chance?". After this brief interview, participants completed other questionnaires as part of the larger research project. A debriefing concluded the experiment.

3.6 Participants Feedback

3.6.1 Therapists

All therapists indicated having an overall positive feeling from the session and mentioned that this was their first meaningful experience of telepsychotherapy by VC. Opinions on the session ranged from having a similar feeling to in-person therapy sessions to being particularly aware that they did not share the same room as the clients. On the subject of the preferred condition, all therapists described that it impacted the perceived psychological distance with the clients, with half the therapists preferring a zoomed-in view because they felt closer to the clients. The other half indicated that they would choose the zoomed-out view because it was more reminiscent of an in-person session.

3.6.2 Clients

All clients mentioned that they quickly forgot about the use of the technology once engaged in the VC interaction but had different perceptions regarding their experience of the change of zoom in the session. The two clients who began with the zoomed-in framing reported that seeing the enlarged view of themselves on the monitor while the experimenters adjusted the desk chair and the webcam increased their level of self-consciousness, making them initially uncomfortable. These clients noted that this feeling diminished when the experimenters zoomed-out the cameras in the second half of the session. Like the therapists, they also noted that gestures and body posture were easier to see when the camera was zoomed-out, making the latter framing

condition their preferred one. The two clients who began with the zoomed-out framing, on the contrary, preferred when the view was zoomed-in because they felt closer to the therapist, as if they were in the same room. They also mentioned feeling less distracted by the background in the zoomed-in condition.

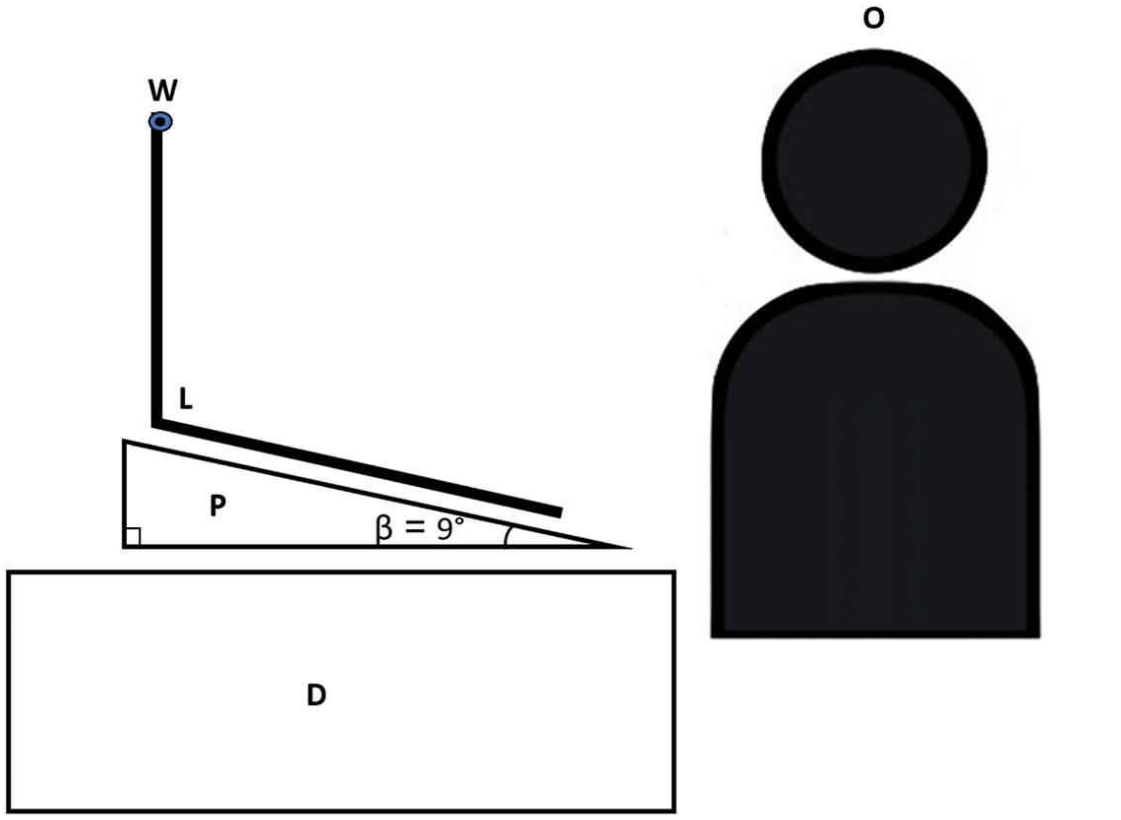
3.7 Discussion

This article describes a simple procedure to enable eye contact in VC by decreasing the gaze angle down to approximatively 2.5°. This was done by asking participants to sit at 1.30m from the computer monitor, by having the webcam positioned at eye level by adjusting the height of the desk chairs, and by angling the webcam slightly downwards, cropping the view of the participants' heads at the hairline. Although these parameters contrast somewhat with the typical VC setup, these adjustments allow users to make eye contact in VC sessions without needing expensive and complex technological systems. The described setup can be easily reproduced in telepsychotherapy sessions by therapists and clients, although it requires therapists to pre-emptively test their setup at least once before its use in actual sessions. Clients who attend to telepsychotherapy sessions in their home will also need to be guided through the steps to recreate this setup. For therapists and clients who plan on meeting multiple times over VC, setting up the equipment to enable eye contact is worth the effort since it would alleviate concerns regarding the perception of nonverbal behaviors (Connolly et al., 2020).

This article contributes directly to clinical practice by bridging the gap between experimental research surrounding eye contact in VC and clinical needs. However, the contribution of eye contact in telepsychotherapy sessions needs to be investigated further before recommending this setup for all clients in all situations. For example, eye contact can influence emotion attribution and perception of approachability, dominance, and pleasantness depending on cultural norms (Akechi et al., 2013). In comparison, VC systems which do not enable eye contact could allow users to look at the face on the monitor for a prolonged period of time without contravening social norms. Therapists are therefore encouraged to take these aspects into account when considering the possibility of enabling eye contact in VC sessions.

The procedure described in this study assumes therapists and clients have access to a desktop computer, a webcam, and a large enough monitor (22" or more) to be able to stand farther from the screen and still easily see the other person's face and body on the monitor. Laptop users are likely to face some challenges when attempting to enable eye contact since their monitor is smaller but also because the webcam is merged into the laptop screen. This characteristic of laptops makes it awkward to elevate and then crop the video feed by tilting the screen since the laptop keyboard partly obstructs the view of the screen. Ideally, laptop computers should be placed on an inclined plane such as a cooler stand or a binder (Figure 10). The laptop screen could then be tilted to crop the view of the head above the hairline, therefore emulating the procedure for desktop

computers. However, this setup has yet to be thoroughly tested across laptop dimensions and types of inclined planes to properly ascertain the desired configuration.



Legend: D = Desk ; L = Laptop ; P = Inclined Plane ; O = Observer ; W = Webcam ; β = Plane angle

Figure 10. Schematic representation of the setup enabling eye contact when a laptop computer is used. An inclined plane of approximatively 9° is employed to bring the laptop camera closer to eye level. The screen is tilted back slightly until the head of the observer is seen on the screen. This adjustment results in the laptop being close to 90° in relation to the desk surface.

3.7.1 Participants Feedback

Participant feedback regarding their VC session experience demonstrates that the choice of a certain camera framing (and zoom) was related to the desired psychological distance for both clients and therapists, with some therapists and clients feeling uncomfortable when the view was zoomed-in. Zooming-in when also enabling eye contact could have induced an uncomfortable level of self-awareness in therapists and clients (Baltazar et al., 2014), highlighting the importance of inquiring about a client's preference regarding zoom and framing in order to reach a satisfying setup for both parties.

When asked about their perception of the session, all therapists and clients indicated having a positive feeling of the session. While these results provide encouraging indications that VC sessions are overall appreciated by therapists and clients, there exists the possibility that participants, and more specifically therapists, could have answered more positively due to a social desirability bias. Such a bias could have arisen from the context of the interview, where therapists could have refrained from offering negative feedback during the piloting phase knowing that they are expected to conduct more sessions once the research project enters the actual recruitment phase.

Another interesting observation derived from the interviews was that every therapist and client preferred the second framing condition (used in the second 10-min segment of the 20-min session), regardless of the actual framing condition. Although these findings could be due to chance or to the progress of the conversation bringing participants closer in the second 10-min segment, these results could also derive from the fact that each framing condition facilitates the perception of some nonverbal cues at the expense of others: a zoomed-in view of the face increases the saliency of facial expressions and eye gaze but limits the perception of gestures and posture, and vice-versa. From the perspective of therapists and clients, changing the framing mid-session would provide the "missing" piece to the interaction and would therefore be perceived as preferable over the first framing condition.

Future studies should build upon the methodology described here to test the effect of eye contact on the perception of clinically relevant factors such as empathy and alliance. Eye contact has been associated with higher perceptions of empathy (Deladisma et al., 2007; Dowell & Berman, 2013) and thus enabling eye contact in VC sessions could contribute to optimizing the experience of empathy in teletreatments (Grondin et al., 2019). A replication of this study in actual telepsychotherapy sessions instead of simulations would enhance the generalization of the present results to broad clinical practice.

As an ending note, we present a set of recommendations on materials, VC setup, and room preparation that can benefit any teletreament conducted via VC (Table 10). These recommendations should be heeded by both therapists and clients for optimal efficacy.

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3.9 Tables

Table 10. List of recommendations on materials, VC setup, and preparation for both therapists and clients to optimize telepsychotherapy sessions.

Materials (for each individual):

- A desktop computer able to easily run VC calls
- A large, high-definition computer monitor (22" and more)
- A high-definition webcam with good zooming capabilities
- An adjustable webcam mount
- An adjustable desk chair
- A noise-cancelling headset with microphone, with at least 6 feet of wire
- A desktop lamp to adjust lighting, if desired
- A stable high-speed Internet connexion
- Access to a free or paid secured subscription to a videoconferencing software for confidentiality and data security purposes
- An up-to-date antivirus software

VC Setup

Instructions to initially configure the setup:

1) Affix the webcam to the adjustable mount and ensure the webcam can be lowered over the edge of the computer monitor. In some cases, this can require buying a gooseneck webcam mount and reversing the webcam as pictured in Figure 8 and 9. Use the VC software settings to reverse the image back to the appropriate orientation.
2) Place yourself at approximatively 130cm away from the computer monitor. You can draw marks on the floor using tape to easily realign yourself in-session.
3) Adjust the height of your desk chair until your eyes are level with the webcam.
4) By going into the VC software, enable self-view and expand the picture to easily see yourself when you're sitting away from the monitor.
5) Adjust the orientation of the webcam in order to crop out the view at your hairline.
6) When zooming in and out in the VC software, you should be able to produce any camera framing from a zoomed-out, head-to-waist framing when sitting away from the monitor to a zoomed-in, head-to-chest framing.
7) The Picture-in-Picture screen can be turned off to avoid being distracted during the session.
8) Maximize the viewing window so it fills the entire monitor.

Preparations going into a VC session:

- Make sure the room is well lit. However, avoid overexposing the webcam by sitting in front of a window during the day.
- Physical environments on both sides of the VC call should be secluded and devoid of noise. Likewise, precautions should be taken to avoid other individuals coming into the room during the session.
- Sources of off-screen distractions (such as cellphones) should be limited as would be expected in an in-person therapy setting.
- Sources of on-screen distractions should also be limited (e.g., auto notifications shut off, browser tabs closed, etc.)

Chapitre 4 : Clients compensate for the alteration of eye contact in VC when reporting empathy during simulated teletherapy sessions

4.1 Avant-propos

Ce chapitre a fait l'objet d'un article paru dans la revue *Journal of Clinical Medicine* dont voici la référence : Grondin, F., Lomanowska, A. M., Poiré, V., & Jackson, P. L. Clients in Simulated Teletherapy via Videoconference Compensate for Altered Eye Contact When Evaluating Therapist Empathy. *Journal of Clinical Medicine*, *11*(12). https://doi.org/10.3390/jcm11123461

4.2 Résumé

Le contact visuel est un indice non verbal important pour l'impression d'empathie et de téléprésence qui est pourtant typiquement altéré en vidéoconférence (VC). Faciliter le contact visuel en téléthérapie pourrait être bénéfique à la perception d'empathie et de téléprésence des clients et pourrait influencer le temps passé par les clients à regarder certains indices corporels du thérapeute tels ses yeux, son visage ou son corps. Cette étude examine la perception d'empathie et de téléprésence des clients ainsi que leurs patrons visuels lors de séances simulées de téléthérapie sous deux conditions de contact visuel. Quarante-deux clients rencontraient l'un des quatre thérapeutes de l'étude lors de simulations de séances de téléthérapie par VC. La perception de contact visuel des clients était manipulée à l'aide de la position de caméra web et de la hauteur des participants sur leur chaise. Les données d'oculométrie ont été obtenues auprès de 25 des 42 clients pour trois régions d'intérêt, soit les yeux, le visage et le corps des thérapeutes à l'écran. Les résultats montrent que la manipulation visant à favoriser le contact visuel en VC n'augmente pas les perceptions d'empathie ou de téléprésence des clients, malgré que l'empathie soit associée au temps passé à regarder les yeux et le visage du thérapeute dans la condition favorisant le contact visuel. La comparaison des temps de fixation montre que les clients ont passé plus de temps à fixer le corps des thérapeutes dans la condition favorisant le contact visuel. Ces résultats montrent que le contact visuel, lorsqu'il est disponible, est un indice utilisé par les clients afin de jauger l'empathie des thérapeutes. Cependant, le fait de favoriser le contact visuel n'augmente pas les niveaux d'empathie perçue ni n'augmente le temps passé par les clients à regarder les yeux et le visage des thérapeutes. Il est suggéré que les clients sont en mesure de compenser pour l'altération du contact visuel en utilisant d'autres indices lorsqu'ils évaluent le niveau d'empathie des thérapeutes.

4.3 Abstract

Eye contact is frequently associated with increased perceptions of empathy and telepresence but is typically altered in teletherapy by videoconference (VC). Making eye contact available in teletherapy could be

beneficial to clients' perception of empathy and telepresence and could also impact the amount of time they spend looking at different visual cues on the therapist, such as the eyes, face or general body of the therapist. This study investigates clients' perception of empathy and telepresence as well as their eye gaze patterns in simulated teletherapy sessions depending on the possibility of making eye contact or not during sessions. Forty-two clients met with one of four available therapists for one 20-minute simulated teletherapy session taking place in VC. The sessions either allowed or prevented eye contact by manipulating the positioning of the webcams and of the participants on their chair. Eye-tracking data regarding the eyes, face, and general body regions of interest were obtained for 25 clients. The results show that making eye contact possible in VC does not elevate clients' perceptions of empathy and telepresence, yet empathy was associated with time spent looking at the eyes and face of the therapists, but only in the sessions allowing for eye contact. Clients did not differ in time spent looking at the eyes and face of the therapist across conditions, but they did spend more time looking at the body of therapists in sessions where eye contact was possible. These results suggest that eye contact, when available, is used by clients to assess the level of empathy displayed by therapists, but the possibility for eye contact does not increase their perception of empathy nor does it lead to more time spent looking at the eyes and face of the therapist. We suggest that clients successfully rely on other verbal and nonverbal cues to detect therapist empathy when they are unable to make eye contact with their therapist in teletherapy sessions.

Keywords: Eye contact, Empathy, Teletherapy, Videoconferencing, Eye tracking

4.4 Introduction

Teletherapy refers to the use of technological means, such as videoconferencing (VC), to allow therapists and clients to meet for psychotherapy when they do not share the same physical space. Under the circumstances brought about by the COVID-19 global pandemic, teletherapy has become a widely-used alternative to in-person psychological treatments. A survey of American Psychological Association (APA) members performed in June 2020 shows that 76% of clinicians who took part in the survey had completely transitioned to teletherapy at that time (APA, 2020). While it is currently uncertain how much of the recent uptake in teletherapy will persist beyond the global pandemic (Aafjes-van Doorn et al., 2020), there is a need to establish the effectiveness of teletherapy treatments and to identify areas where this clinical practice can be enhanced. A number of meta-analyses and systematic reviews support the claim that treatments delivered through VC are as effective as analog in-person interventions (Berryhill et al., 2019; Fernandez et al., 2021; Norwood et al., 2018; Turgoose et al., 2018). Establishing strong therapeutic alliance is also possible in teletherapy compared to in-person treatments according to numerous systematic reviews (Simpson & Reid, 2014; Watts et al., 2016). However, a recent meta-analysis found alliance to be weaker in teletherapy when integrating the results of 12 comparative studies between teletherapy and in-person therapy (Norwood et al., 2018). This last finding echoes the frequent concerns of therapists and clients that VC could impact the therapeutic relationship due to difficulties

in perceiving and attending to nonverbal cues during VC sessions (Connolly et al., 2020). Technical limitations, such as internet connection instability, transmission delays or equipment layout, can lead to a relative loss of socioemotional cues called the 'filtering effect' (Grondin et al., 2019). Nonverbal cues, more so than verbal content, thus run the risk of being altered or lost during VC-based interactions.

One such nonverbal behavior frequently compromised when interacting in VC is eye contact. Under typical circumstances, VC systems employed on home computers and laptops do not properly convey eye contact between interactants due to the angle between the visual target on the screen (the other person's eyes) and the webcam usually mounted atop the computer monitor. This 'gaze angle' produces the impression for interlocutors that their counterpart is looking at their chin when intending to make eye contact. Although several adaptations have been proposed to facilitate eye contact in VC (for a review, see Regenbrecht & Langlotz, 2015), these adaptations are seldom used in clinical practice due to the need for advanced computational algorithms or specialized equipment. One possible solution that has the advantages of being simple and inexpensive for clinicians and clients is the thoughtful positioning of webcams and interlocutors to decrease the gaze angle to roughly 2° (Grondin et al., 2020). This solution, however, has not yet been implemented systematically and studied in teletherapy sessions.

The importance of making eye contact possible in teletherapy sessions stems from its positive contribution to the subjective experience of clients during sessions, notably regarding empathy and telepresence. Empathy, by which therapists convey the emotional understanding and attunement integral to successful therapy (Elliott et al., 2018), is rated higher in face-to-face counseling sessions where eye contact is encouraged. One study investigated the perceived empathy of observers within simulated sessions where the therapist either intended or avoided making eye contact (Dowell & Berman, 2013). Therapists were also instructed to modify their body posture to be either leaning forward or staying upright. The results show that the "high eye contact" condition (intending to make eye contact most of the time) was associated with higher ratings of perceived empathy, regardless of body posture. These findings highlight the significance of eye contact for an observer when assessing the level of empathy of a therapist. Eye contact is also thought to play an important role in facilitating telepresence, or the impression of being there with the other person during a VC session (Berthiaume et al., 2018). One study found that participants who took part in a quiz with a confederate in a VC interaction reported higher telepresence in the quiz round where eye contact was enabled compared to the quiz round with altered eye contact (Neureiter et al., 2014). Telepresence, incidentally, has also been suggested as a potential correlate of empathy (Grondin et al., 2019). Making eye contact possible in teletherapy could therefore lead to the perception of both higher empathy and telepresence in VC.

Multiple methods can be employed to measure and quantify eye contact in human interactions (Jongerius 2020). The use of an eye-tracking apparatus offers the advantages of accurately and objectively

measuring where and for how long a person is fixating their gaze. Examining gaze fixations towards specific regions of interests can provide valuable information for clinicians since gaze fixation can be indicative of prolonged attention towards specific visual information (Gwizdka & Dillon, 2020). For example, the time a client spends fixating on different body parts (e.g., eyes, face, or body) of the therapist can be used as a marker of increased attention to visual cues expressed in these areas of the body (e.g., eye contact, facial expressions, or body movements). It is yet unclear if making eye contact available in VC therapy could result in different eye gaze patterns in clients for these regions of interests, for example by increasing the time spent looking into the therapist's eyes. A final advantage of precise eye tracking data is in the possibility of running correlations with self-reported measures, such as the clients' perception of empathy and telepresence.

4.5 Objectives

This article presents the first empirical study to investigate the impact of facilitating eye contact in VC teletherapy on empathy, telepresence, and eye-tracking patterns using simulated clinical sessions. The relationship between empathy, telepresence, and fixation times of the eyes, face, and general body is also investigated.

Hypotheses:

H1: Empathy and telepresence reported by clients will be higher in VC teletherapy sessions where eye contact is facilitated.

H2: Clients will spend more time looking into the eyes and the face of the therapist in VC teletherapy sessions where eye contact is facilitated compared to sessions where it is not.

H3: Empathy and telepresence reported by clients will be correlated with the time spent looking into the face and the eyes of the therapists.

H4: Empathy will be significantly correlated to telepresence in VC teletherapy.

4.6 Methods

4.6.1 Participants

4.6.1.1 Clients

Forty-four students were recruited through posters and university mailing lists between October 2019 and March 2020, thus before the introduction of social distancing measures required by the advent of the COVID-19 pandemic. Participants were enrolled as clients if they were attending university courses at the time of the study and did not report uncorrected visual or auditory impairments. Clients reporting acute distress or suicidal

thoughts received a list of resources and were offered to be accompanied through the process of contacting mental health services. They were excluded from the study. Clients were informed that they would be required to talk about a subject of personal nature of their choice with a therapist under training prior to completing the study questionnaires. The clients were randomly assigned to one of two experimental groups, EYE (facilitated eye contact; n = 20) and No-Eye (altered eye contact, n = 23). One participant who completed the EYE condition was removed from the analyses because they misunderstood the experimental task, leaving a final total 19 participants in the EYE group and a total of 42 participants. Table 11 presents the sociodemographic data of clients by experimental condition. Groups did not significantly differ based on their sociodemographic profile. Clients received $15 CAD for their participation in the study.

4.6.2 Materials and Measures

4.6.2.1 Therapists

The therapists were four confederates enrolled in a doctoral degree in clinical psychology (aged 21, 24, 25, and 28 years old, three women). Each therapist had completed at least one year of supervised clinical practice. Therapists were informed that they would meet university students acting as clients in simulations of teletherapy sessions prior to the study but were blind regarding the objectives and hypotheses of the study. They each met 5, 9, 14 and 14 clients counterbalanced across the two groups.

4.6.2.2 List of Discussion Themes

To encourage clients to choose a relevant topic of discussion while also ensuring that sensitive topics would not be discussed during the sessions, a list of potential themes of discussion used in helping skills training was provided to the clients (Hill, 2014, p.19). Themes were classified as *ideal* (e.g., academic issues), *relatively safe* (e.g., minor family issues) or *proscribed topics* (e.g., traumas) for the context of the study. Frequently chosen topics included *Careers and future plans* and *Academic issues*.

4.6.2.3 Videoconferencing (VC) sessions

The VC sessions were initiated using Zoom version 4.6.0 (Zoom Video Communications, Inc.) on cabled internet and were displayed on 24-inch high-definition LCD computer monitors. Therapists and clients wore noise-cancelling headsets and sat in comfortable, adjustable chairs located in two separate lab rooms. This setup ensured that the quality of the video feed was as high as possible, with no noticeable video blurring or audio lag during sessions. The VC sessions were recorded using OBS Studio, an open-source software for video recording. The two lab rooms were in the same building and close by, but the therapists and clients did not meet physically during the experimental task.

4.6.2.4 Eye-Tracking Data

The Smart Eye Pro 8 (Smart Eye Inc.) eye-tracking system was employed to extract gaze coordinates, fixation time, and fixation duration at a frequency of 120hz. This system uses two infrared cameras with 6 mm lenses to register eye positioning and gaze direction. These cameras were placed 70 cm away from the clients, on each side of the desk on top of which laid the computer monitor. First, eye-tracking data quality was analyzed. In line with the Smart Eye Pro 8 documentation, data associated with a signal quality inferior to 10% were removed from the analysis (Smart Eye Inc. tech support, personal communication, January 15, 2019). The remaining signal was classified as being directed *on-screen* or *off-screen* (Figure 11). The *on-screen* portion of the signal was then classified into increasingly smaller and more specific areas of interest, beginning with a *general body* area, then a *face* area, and finally an *eyes* area (Figure 12). To extract the changing coordinates of the eyes and face across time, recordings of each session were first analyzed using a facial behavior analysis toolkit, OpenFace (Schroff et al., 2015). Body coordinates were manually entered for each recording to encompass the trunk of participants and added to the *face* and *eyes* coordinates to form the *general body* area. These parameters were then used to classify the data over time from the Smart Eye Pro system to extract fixation times relating to the three regions of interest. The resulting gaze duration for each area of interest was then compiled as a percentage ratio of the duration of *on-screen* gaze duration. Of the 42 total participants, 28 clients took part in the eye-tracking procedure and three of these 28 sessions were excluded from analysis following calibration failure or poor signal quality. The final eye-tracking analyses comprised 13 clients for the EYE group and 12 clients for the No-Eye group.

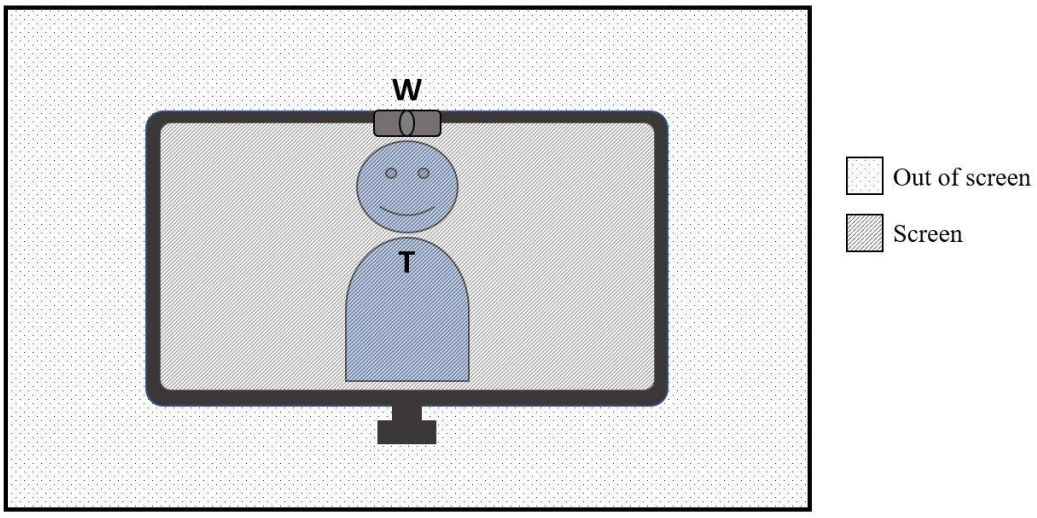

Figure 11. Depiction of *off-screen* versus *on-screen* portions of the visual scene from the client perspective. Legend: T : Therapist. W : Webcam.

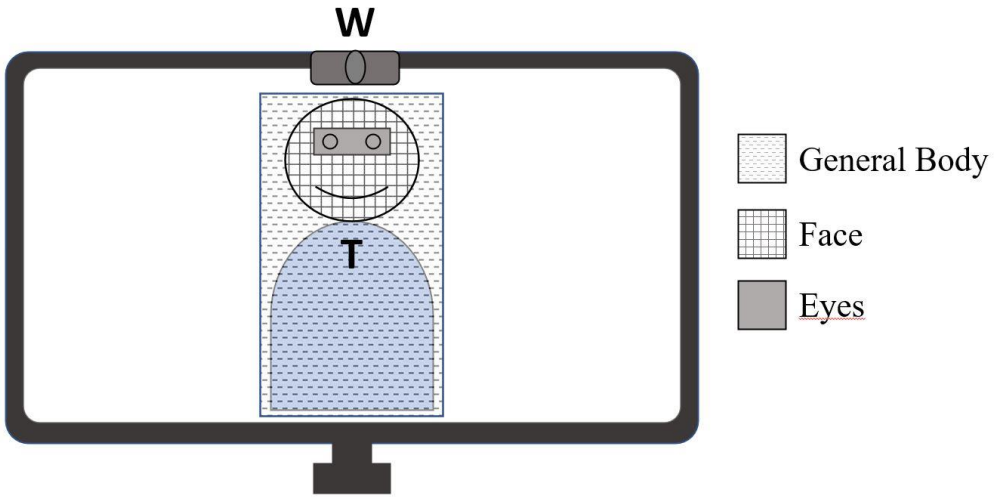

Figure 12. Delineation of the *eyes*, *face*, and *general body* regions of interest included in the *on-screen* portion of the visual scene from the client perspective. Legend: T : Therapist. W : Webcam.

4.6.2.5 Empathy

A French translation of the Empathic Understanding Subscale (EUS) of the Relationship Inventory was used (Barrett-Lennard, 1962). The EUS is comprised of 16 items scored on a scale ranging between 3 to +3, with a positive score indicating higher perceived empathy. Upon inspecting the Cronbach alpha of the EUS scores, one item was consistently scored positively by clients when its intended scoring key indicate that the item should be reverse scored. This item ('The therapist understands what I say from an objective, detached point of view') was therefore removed from the analyses. The total scores thus range from -45 to +45.

4.6.2.6 Telepresence

The French version of the Telepresence in Videoconference Scale (TVS) was used (Berthiaume et al., 2018). The scale includes seven items scored from 0 to 100 that are averaged into a total score. Three different subscales are also derived from the TVS: *Physical Presence,* defined as the impression of being in the same room as the therapist; *Social Presence,* defined as the impression of being in an ongoing social interaction with the therapist; and *Absorption,* defined as the impression of feeling immersed in the interaction.

4.6.2.7 Affectivity Changes

The French translation of the Positive Affectivity and Negative Affectivity Scale (PANAS) was used to assess affectivity changes in clients following the session (Gaudreau et al., 2006). The PANAS includes 20 adjectives relating to positive or negative affects that participants rate according to their level of agreement with each adjective on a 5-point Likert scale. The scores are aggregated on two subscales, *Positivity* and *Negativity*.

4.6.3 Procedure

At the start of the study, therapists took part in an hour-long training course aimed at clarifying their role in the study. Therapists were instructed to explore the discussion theme chosen by the clients with warmth, interest, and openness as they normally would in their clinical practice. They were, however, instructed to refrain from conducting actual therapeutic interventions as the sessions were aimed at simulating teletherapy only. They concluded the training course by completing one 20-minute session in VC that served to validate the methodology used for making eye contact possible in VC (see Grondin et al., 2020).

Clients who took part in the study were greeted in a lab room and were reminded that their participation consisted of speaking with a therapist in training about a subject of personal nature of their choice. Clients, like therapists, were not informed that the study examined eye contact, empathy, and telepresence in VC sessions prior to their completion of the task. Prior to the session, participants completed the consent form, the sociodemographic questionnaire, and the pre-session PANAS. Next, the eye-tracking calibration procedure of the Smart Eye Pro 8 was performed in the 28 sessions where eye-tracking data was registered. Clients then met with the therapists in VC under one of two experimental conditions, the EYE and the No-EYE condition. The EYE condition facilitated eye contact perception by diminishing the gaze angle down to approximatively 2°. The EYE condition was set up by following a procedure that was developed to minimize the gaze angle by adjusting the positioning of the webcam and of the interactants (Grondin et al., 2020). This layout ensures that participants look almost directly into the webcams, which enables the perception of eye contact in VC. The No-EYE condition introduced a 10° horizontal gaze angle to ensure that eye contact perception was altered during the sessions (see Figure 13). Therapists, unlike clients, were always under the EYE condition, which was thought to be the 'ideal' experimental condition.

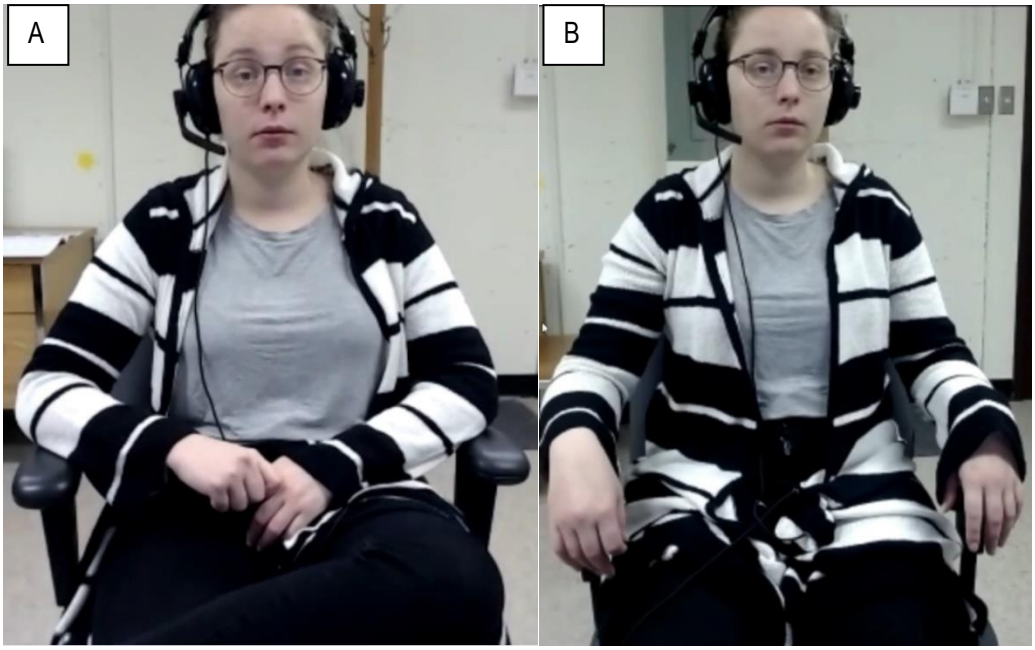

Figure 13. Clients' view of the therapist under the two experimental conditions, (A) the EYE condition and (B) the No-EYE condition.

Each VC session lasted 20 minutes. The experimenters were invited into the Zoom call as an invisible guest to allow the recording of the session as it unfolded using OBS Studio. Participants received a signal at the 19-minute mark to leave some time for the termination of the session. After the session, clients completed the EUS, the TVS, and the post-session PANAS. Participants were then debriefed and received the monetary compensation.

4.6.4 Analyses

The programming language Python was used to compute the gaze ratios for each region of interest. SPSS 22.0.0.0 was used to perform the statistical tests and the alpha level was set at .05. Effect sizes of t-tests were generated using Cohen's *d* formula (Cohen, 1988).

4.7 Results

To test whether perceived empathy and total telepresence respectively increased when eye contact was facilitated in VC sessions (H1), two one-tailed t-tests for independent samples were performed on the EUS and TVS mean scores (Table 12). Perceived empathy and telepresence did not differ significantly between the EYE and No-EYE conditions. The level of empathy (e.g., Marci et al., 2007) and telepresence (e.g., Germain et al., 2009) reported by clients was high for both conditions by comparison to earlier studies using the same questionnaires. Exploratory two-tailed t-tests were also performed to compare each of the TVS's three subscales

across conditions and no significant differences were found (Table 12). These results indicate that clients did not report more empathy or telepresence in the sessions where eye contact was possible.

To test whether clients' gaze distribution differed between the EYE and No-EYE conditions (H2), a Mann-Whitney *U* test was used to compare the *on-screen* time ratios between the EYE and the No-EYE condition (Table 13). The Mann-Whitney *U* test was selected to account for the non-normal distribution of the eye-tracking data. This first test showed no significant differences in time ratios across conditions, indicating that participants spent a similar amount of time looking at the computer screen across conditions. Three Mann-Whitney *U* tests were then performed to compare mean fixation times for the e*ye*, *face*, and *general body* regions (Table 13). The mean fixation durations for the *eye* and the *face* regions were not significantly different across conditions. The mean *general body* fixation duration was significantly higher in the EYE condition, indicating that participants tended to look more at the therapists in the EYE condition than in the No-EYE condition.

To test whether perceived empathy and telepresence were associated with time spent looking at the e*yes*, *face*, or *general body* of therapists across conditions (H3), Spearman Rho correlations (r_s) were calculated for each of the two experimental conditions (Table 14). In the EYE condition, empathy marginally correlated (p = .06) with the time spent looking at the *eyes* of the therapist and significantly correlated with the time spent looking at the *face*. In the No-EYE condition, these correlations were not statistically significant. These results indicate that the time clients spent looking at the eyes of the therapist was associated with their perceived level of therapist empathy. In both experimental conditions, telepresence did not significantly correlate with mean gaze duration in any of the three regions of interest.

To test whether empathy ratings were correlated to telepresence *total scores* as well the *physical presence*, *social presence*, and *absorption* subscales (H4), Pearson correlations were computed in the EYE and No-EYE conditions (Table 15). The results indicate that empathy correlated significantly with the s*ocial presence* subscale in the No-EYE condition only.

Manipulations checks were performed using the affectivity changes reported on the PANAS. This was done to verify whether clients benefitted from the session in the way that they presumably would in an actual teletherapy session. Four two-tailed t-tests for paired samples were performed using pre- and post-session levels of positivity and negativity for each of the two conditions. The results show a significant decrease in negativity in the EYE condition and a marginally significant (p = .052) increase in positivity in the No-EYE condition (Table 16). These results indicate that clients benefitted from the sessions but in different ways between the experimental conditions.

4.8 Discussion

This study aimed at determining if facilitating eye contact in VC sessions would lead to heightened impressions of perceived empathy and telepresence compared to sessions where eye contact was not facilitated. The results show that both experimental conditions produced high ratings of empathy and telepresence compared to previous studies (e.g., Germain et al., 2009; Marci et al., 2007), with no significant influence of being able to make eye contact on reports of empathy and telepresence. This finding does not support the initial hypotheses. It appears that solely manipulating the perception of eye contact in VC does not greatly impact the perception of empathy and telepresence. There are multiple possible explanations for the lack of significant differences between the groups. First, although participants could not naturally establish eye contact in the No-EYE condition, earlier research shows that VC users rapidly learn to interpret the deviated gaze of their interlocutor as intended eye contact (Grayson & Monk, 2003). It is therefore possible that this knowledge was sufficient for clients to assess that their therapist was attentive to their subjective experience, a perception that would be conducive to a high rating of empathy regardless of the possibility to actually establish eye contact or not. Another explanation for the lack of significant differences relates to the overall favorable parameters of the sessions. Participants had a reliable, high-quality video feed to support their interaction in both conditions, potentially allowing clients to perceive empathy even in the absence of eye contact. These explanations would need to be tested in contexts where video and audio feeds fluctuate in quality and where the view of the therapist is restricted to assess the impact of these factors on perceived empathy. In terms of telepresence, the results obtained from the *Absorption* subscale showed a high level of variance in both conditions. This suggests that clients' impression of being absorbed in the interaction varied according to factors outside of the availability of eye contact during sessions, thus affecting the statistical analysis of this variable across experimental conditions.

The study also investigated whether facilitating eye contact influenced the time spent looking at the eyes, face, and general body of therapists compared to sessions where eye contact was not facilitated. The results show that clients spent more time looking at the body of therapists in the EYE condition but, contrary to the hypotheses, they did not significantly look more at the eyes or face of therapists than participants in the No-EYE condition. On the contrary, the data points to a nonsignificant increase (p = .16) in time spent looking at the eyes of therapist in the *No-EYE condition* rather than in the EYE condition. One way to reconcile these conflicting results is by considering the assumption that facilitating eye contact would lead clients to look *more* in the eyes of the therapists rather than *less*. In an in-person interaction, prolonged eye contact can cause discomfort, and this effect could be compounded by the experimental task where clients had to open up on a subject of a personal nature to a stranger (Sharpley & Sagris, 1995). However, when eye contact is altered as it was in the No-EYE condition, it is possible for clients to fixate more on the eyes of the therapists without feeling discomfort.

Therefore, it would seem possible that clients in the EYE condition tried to avoid eye contact once they had the indication that the therapist was paying attention to them and instead focussed on looking elsewhere on the screen, thus leading to the significant increase of time spent looking at the general body of the therapists.

The study aimed at identifying if empathy and telepresence were associated with time spent looking at the eyes, face, and general body of therapists, with the hypothesis that more time would be spent looking at the eyes and face in the EYE condition. The results show a marginally significant and a significant correlation between time spent respectively looking at the eyes and face of the therapists in the EYE condition. These correlations are not observed in the No-EYE condition. These results lend support to the contention that eye contact is an important indicator of empathy from the perspective of clients, as the clients who could make eye contact in VC tended to rate empathy higher as they spent more time making eye contact. However, when considering that no significant difference in empathy was found between the conditions, it seems plausible that clients do not necessarily need proper eye contact to perceive high therapist empathy and that, in the absence of eye contact, they adapt by basing their assessment of therapist empathy on other available cues. For example, body posture (Dowell & Berman, 2013), facial expressions (Sharpley et al., 2007), vocal cues (Imel et al., 2014), and verbal interventions (Wynn & Wynn, 2006) can also influence perceived empathy. These cues were all preserved in the sessions regardless of the experimental condition and thus could have helped clients make a favorable judgement of therapist empathy when eye contact was not facilitated.

The results show that empathy was not significantly correlated with total telepresence scores in either experimental condition. The investigation of telepresence subscales reveals that empathy correlated with the social presence subscale in the No-EYE condition only. Broadly speaking, these results do not support the contention that empathy and telepresence are strongly correlated in VC sessions. However, there seems to be a specific aspect of telepresence related to the impression of being actively participating in an ongoing online interaction with someone (i.e., the ratings on the *social presence* subscale) that is more highly rated in sessions where the clients also report high empathy. The fact that this correlation was found only in the No-EYE condition also lends more credence to the hypothesis outlined above regarding the possibility that clients rely on factors other than eye contact to rate therapist empathy when eye contact is not facilitated. In other words, when eye contact is altered, clients who feel like they are part of an ongoing interaction with the therapist are likely to report high empathy as well. This result however needs to be expanded upon with further research to properly identify the aspects of a VC clinical session that are conducive to feeling more *present* in an online interaction.

Some limitations need to be considered along with the findings of this study. The use of a simulated clinical session is useful to bridge the gap between the state of research surrounding empathy in teletherapy and clinical practice, but it is possible that clients undergoing actual teletherapy would experience the sessions differently than the clients in the experimental sessions. Still, the participants in this study did discuss a personal

theme with a therapist in training and they reported benefits in terms of affectivity, lending support to the assumption that the experimental task was a faithful simulation of actual teletherapy. One other limitation that pertains to the eye-tracking measurements comes from the compromises that were made to manipulate the gaze angle while also making it possible to record eye-tracking data during the sessions. For instance, participants sat 70cm away from the eye-tracker, which is in the upper limit of the tolerated distance between the eye-tracker cameras and the participant according to the lenses employed. The computer monitor itself stood 50cm behind the eye-tracker, thus 1.2m away from the participants. The uncertainty of measurement of the eye-tracker typically being under 1°, this translates to having an uncertainty of approximatively 2 cm on any given eye-tracking measurement. This uncertainty of measurement could have had a systematic impact on the recorded eye-tracking data, particularly on the eyes' region of interest where the eye-tracking signal could have been miscategorized as being directed towards the face region rather than the eyes region. The authors still consider that the validity of the results was sufficient to provide meaningful insights regarding the eye-tracking patterns of participants since both experimental conditions were impacted in the same way by the uncertainty of measurement. This systematic error could potentially be circumvented with an even more precise eye-tracking setup in future studies.

In conclusion, though eye contact seems to be an important indicator of empathy, this study suggests that participants playing the role of clients were able to perceive a high degree of empathy in a typical VC session where eye contact is altered by the positional offset of the webcam compared to the eyes of the therapist on the screen. Future studies are needed to identify other factors that may contribute to increase perceived empathy in teletherapy as they could be a target of interventions to optimize clients' experience of teletherapy. These factors include camera framing (Nguyen & Canny, 2009) and quality of the video feed. Investigating the role of nonverbal behaviors in actual teletherapy sessions could also yield important information on the mechanisms underlying the perception of empathy in teletherapy.

4.9 References

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4.10 Tables

Table 11. Sociodemographic data of clients across experimental conditions.

Variables	**EYE condition (n=19)** Mean (SD)	**No-EYE condition (n=23)** Mean (SD)	***p* value**[a]
Age (years)	23.21 (3.84)	24.22 (5.38)	.50
Sex (female)	15	20	.49
Years of education	16.42 (2.09)	17.26 (3.41)	.36
Medication use (Yes)[b]	0	3	.10
History of mental health disorders (Yes)[c]	2	6	.20
History of clinical consultation as a client (Yes)[d]	11	9	.35
Computer Use			
Days / week	6.58 (0.84)	6.87 (.34)	.28
Hours / day	5.63 (2.63)	6.22 (2.21)	.43
Videoconferencing use			
Days / week	0.74 (.93)	1.44 (1.90)	.36
Hours / week	0.71 (0.99)	1.50 (1.81)	.19

[a] The reported *p* values were obtained from independent t-tests for the *Age* and *Years of education* variables. Mann-Whitney *U* tests were performed on the *Computer Use* and *Videoconferencing Use* variables because of their non normal data distribution. Chi-squared tests were performed for the *Sex*, *Chronic Medication*, *History of mental health disorders*, and *History of clinical consultation as client* variables. These tests used an alpha level of .05 for significance.

[b] Medication use included the use of psychotropic medication only, such as antidepressants and painkillers.

[c] History of mental health disorders comprised mood disorders, anxiety disorders, or eating disorders, but excluded attention deficit disorder with or without hyperactivity.

[d] History of clinical consultation in psychotherapy as a client.

Table 12. Comparisons of empathy and telepresence across experimental conditions

Variables	EYE		No-EYE		*t* value	*p*	*Cohen's d*
	n	Mean (SD)	n	Mean (SD)			
EUS[a]	19	28.11 (9.31)	23	24.91 (12.63)	.915	.18	.28
TVS[b] – total	19	71.28 (14.11)	23	69.13 (10.84)	.558	.29	.17
TVS – physical	19	77.63 (19.68)	23	76.30 (15.18)	.247	.81	.08
TVS – social	19	89.08 (8.79)	23	85.76 (14.39)	.878	.39	.20
TVS – Absorption	19	60.79 (21.73)	23	64.57 (26.13)	-.502	.62	.16

[a] EUS = Empathic Understanding Subscale.

[b] TVS = Telepresence in Videoconference Scale.

Table 13. Comparisons of fixation durations percentage values across conditions.

Fixation duration (%)	EYE		No-EYE		*U* value	*p*
	n	Mean (SD)	n	Mean (SD)		
On-Screen[a]	13	77.20 (14.80)	12	74.97 (8.68)	62.00	.41
Eye[b]	13	7.37 (11.20)	12	13.99 (19.37)	51.50	.16
Face[b]	13	69.91 (26.95)	12	66.63 (29.69)	67.00	.57
General body[b]	13	90.68 (6.49)	12	80.85 (19.90)	38.00	.03*

[a] Ratio out of total session duration.

[b] Ratio out of on-screen gaze duration.

* $p < .05$.

Table 14. Correlations between empathy, telepresence and time spent looking at the eyes, face, and general body of therapists in the EYE condition.

Fixation ratios[a]		EUS[b]	TVS[c]
EYE (n=13)			
Eyes	r_s	.53	-.37
	P value	.06	.21
Face	r_s	.57	-.29
	P value	.04*	.34
General body	r_s	-.19	-.11
	P value	.54	.71
No-EYE (n=12)			
Eyes	r_s	-.17	.33
	P value	.60	.29
Face	r_s	-.22	.40
	P value	.49	.20
General body	r_s	.10	.21
	P value	.77	.52

[a] Ratios out of on-screen gaze duration

[b] EUS: Empathic Understanding Subscale.

[c] TVS: Telepresence in Videoconference Scale.

* $p < .05$.

Table 15. Correlations between empathy and telepresence in the EYE and No-EYE conditions.

	***r* with EUS[a]**	***p* value**
EYE (n=19)		
TVS[b] – total	-.21	.39
TVS – physical	.09	.71
TVS – social	.24	.33
TVS – absorption	-.18	.46
No-EYE (n=23)		
TVS – total	.31	.15
TVS – physical	.35	.10
TVS – social	.81	<.001*
TVS – absorption	-.11	.62

[a] EUS: Empathic Understanding Subscale.

[b] TVS: Telepresence in Videoconference Scale.

* $p < .05$.

Table 16. Client affectivity scores pre- and post-session.

	n	Pre-session Mean (SD)	Post-session Mean (SD)	*t* test	*P* value	Cohen *d*
EYE						
PANAS[a] - Positivity	19	32.25 (4.24)	33.95 (3.87)	1.624	.12	.35
PANAS - Negativity	19	15.50 (4.29)	12.60 (2.98)	-3.368	.003*	.67
No-EYE						
PANAS - Positivity	20	30.20 (5.60)	32.90 (5.48)	2.077	.052	.46
PANAS - Negativity	20	14.15 (4.18)	13.10 (4.00)	-1.437	.167	.32

[a] PANAS: Positive Affectivity and Negative Affectivity Scale.

* $p < .05$.

Conclusion

La téléthérapie est une modalité jugée efficace dans le traitement d'une diversité de troubles psychologiques, mais les thérapeutes s'inquiètent de la possibilité que la relation thérapeutique soit affectée par l'usage de la vidéoconférence (VC), notamment en ce qui a trait à l'empathie. L'empathie est un ingrédient essentiel à une issue positive en psychothérapie et les données disponibles montrent qu'il est possible que l'empathie soit affectée en téléthérapie. À ce stade-ci, les écrits ne permettent cependant pas d'expliquer les mécanismes par lesquels l'empathie est modulée par le contexte de téléthérapie. Il importe également de pouvoir quantifier la différence d'empathie entre le contexte de thérapie en présentiel comparativement à la téléthérapie par VC. Il est aussi pertinent de cerner l'influence de facteurs propres à la vidéoconférence, comme l'angle de la caméra, sur les niveaux d'empathie rapportés en VC, puisque ces facteurs peuvent ensuite être manipulés dans un contexte de téléthérapie.

L'objectif général de la thèse consistait à décrire, à quantifier et à moduler l'influence de la VC sur l'empathie rapportée par les clients et les thérapeutes. Le chapitre 1 présente un cadre conceptuel élaboré à l'aide des écrits empiriques disponibles sur l'empathie en contexte de communication virtuelle. Ce cadre conceptuel situe l'importance des indices verbaux et non verbaux dans le phénomène empathique et décrit l'effet de filtre induit par l'usage de moyens de communication comme la VC. Cet effet de filtre aurait pour impact, entre autres, de diminuer l'empathie ressentie et perçue en téléthérapie. Le chapitre 2 teste cette prédiction du cadre conceptuel en comparant les niveaux d'empathie ressentie par les thérapeutes et perçue par les clients lors de séances simulées de thérapie en VC et en présentiel. Il ressort que l'empathie rapportée est moindre en VC qu'en présentiel pour les thérapeutes et les clients. Le chapitre 2 permet également d'identifier les construits psychologiques corrélés à l'empathie en téléthérapie, notamment la téléprésence. En suivant l'hypothèse que l'effet de filtre de la VC sur les indices non verbaux comme le contact visuel est l'une des causes menant à des niveaux moins élevés d'empathie en VC, le chapitre 3 se penche sur l'élaboration d'une méthodologie simple permettant de conserver la perception de contact visuel en VC par le positionnement précis de la caméra web et des participants de part et d'autre de l'appel en VC. Le chapitre 4 teste l'effet de la manipulation du contact visuel en téléthérapie sur les perceptions d'empathie et de téléprésence des clients et sur leurs comportements de fixation visuelle de parties du corps spécifiques du thérapeute (yeux, visage, corps). Ces parties du corps ont été choisies puisqu'elles sont associées à certains indices visuels (contact visuel, expressions faciales, mouvements corporels) jugés importants pour l'empathie en thérapie (Dowell & Berman, 2013; Hall et al., 1995). Le chapitre 4 permet ainsi de tester si l'empathie observée en téléthérapie peut être modulée par la perception d'un indice non verbal, soit le contact visuel. Les résultats indiquent que l'empathie et la téléprésence ne sont pas plus élevées dans la condition avec contact visuel. Les clients n'ont pas davantage regardé les yeux et le visage des thérapeutes lorsque le contact visuel était possible, mais ont davantage regardé le corps des

thérapeutes dans la condition avec contact visuel. Une corrélation significative est retrouvée entre l'empathie et le temps passé à regarder les yeux dans la condition avec contact visuel seulement, alors qu'une corrélation significative est retrouvée entre l'empathie et la sous-échelle sociale de la téléprésence dans la condition sans contact visuel seulement. Les retombées découlant des résultats de la thèse concernant l'empathie, la téléprésence, la présence thérapeutique, les attitudes envers la téléthérapie et l'importance du contact visuel en VC sont élaborées ci-bas.

L'influence de l'usage de la vidéoconférence sur l'empathie

Le fil conducteur principal de la thèse réside en l'intérêt porté envers l'empathie en contexte de téléthérapie par VC. Le cadre conceptuel élaboré au chapitre 1 offre d'abord un apport théorique considérable par l'analyse des écrits scientifiques portant sur l'empathie en ligne et l'identification des facteurs susceptibles d'optimiser la perception de l'empathie en ligne. Le cadre conceptuel décortique l'empathie en ligne en quatre étapes d'interaction (voir chapitre 1, figure 2), soit 1) l'émission d'indices verbaux et non verbaux témoignant de l'état affectif de l'émetteur, soit le client en téléthérapie; 2) le sentiment d'empathie chez le thérapeute sur la base des indices socioémotionnels perçus; 3) la démonstration de l'empathie du thérapeute à l'aide d'indices verbaux et non verbaux; et 4) la formation d'une perception du client quant à l'empathie vécue par le thérapeute sur la base des indices verbaux et non verbaux perçus. Chacune de ces étapes de l'interaction empathique est sujette à l'effet de filtre induit par l'usage d'un moyen de communication (comme la VC) en téléthérapie, entraînant une perturbation de la qualité des signaux socioémotionnels transmis et affectant ainsi leur perception par les membres de la séance de téléthérapie. En VC, cet effet de filtre est observable de plusieurs façons. La disposition de l'équipement informatique, particulièrement celle de la caméra web, permet d'inclure ou d'exclure les indices posturaux et les gestes des interlocuteurs (p. ex., Nguyen & Canny, 2009) ainsi que le contact visuel (Regenbrecht & Langlotz, 2015). La qualité de la connexion internet est un autre déterminant de la qualité de l'effet de filtre en VC, puisque la présence d'un délai de transmission, d'une pixellisation de l'image ou d'un décalage entre le son et l'image peuvent entraver l'immédiateté de la rétroaction entre les interlocuteurs et la qualité des indices visuels disponibles. L'analyse de la capacité de la VC à transmettre une certaine quantité et qualité d'indices socioémotionnels est donc un prérequis nécessaire à l'étude de l'empathie en téléthérapie.

La VC permet au thérapeute d'avoir accès avec un certain degré de fidélité aux indices sonores et à certains indices visuels associés à l'état émotionnel des clients, tels que les inflexions de la voix (Johnstone & Scherer, 2000) et les expressions faciales (Krumhuber et al., 2013). Sur la base de ces indices, le thérapeute peut parvenir à ressentir un degré d'empathie déterminé par trois dimensions, soit la résonance affective, la prise de perspective cognitive et la régulation émotionnelle (Decety & Jackson, 2004). Le relevé des écrits scientifiques produit au chapitre 1 tend à démontrer que chacune des dimensions de l'empathie est affectée différemment par le niveau de transmission des indices non verbaux en VC. La résonance affective, un

processus rapide et automatique basé sur l'afférence sensorielle (de Waal & Preston, 2017), serait facilitée par la disponibilité d'indices verbaux et non verbaux en VC. Cependant, des altérations quant à l'immédiateté de la rétroaction et la qualité de l'image pourraient faire obstacle à la résonance affective, et cette altération serait identifiable par la diminution des phénomènes de couplage et d'imitation comportementale associés à la résonance affective. La prise de perspective cognitive, un processus plus délibéré qui prend en considération les informations connues sur le client afin d'imaginer son état affectif (Decety & Jackson, 2004), est plus facilement alimentée par le contenu verbal des interventions, un contenu qui est souvent conservé malgré une détérioration de la qualité de la VC. La régulation émotionnelle, qui désigne un ensemble de stratégies permettant d'éviter d'être envahi par l'émotion partagé avec autrui (Decety & Jackson, 2004), est pour sa part peu étudiée en téléthérapie, de telle sorte qu'il n'est pas possible de tirer des conclusions claires sur la possibilité qu'elle soit modulée par le contexte de VC. Le relevé des écrits scientifiques montre que l'empathie ressentie par les thérapeutes en VC serait ainsi plus facilement alimentée par les processus liés à la prise de perspective cognitive que par ceux appartenant à la résonance affective. Cette conclusion du chapitre 1 permet d'émettre l'hypothèse que l'empathie ressentie par les thérapeutes puisse être moins élevée en VC qu'en présentiel particulièrement dans les contextes où la qualité de la VC est moindre.

En ce qui concerne la communication de l'empathie par les thérapeutes et la perception qu'en font les clients en VC, les écrits scientifiques identifiés indiquent que les thérapeutes communiquent leur empathie à l'aide du contenu verbal de leurs interventions, notamment par l'entremise d'affirmations et de conjectures permettant de symboliser l'expérience émotionnelle des clients (Coulehan et al., 2001). Le contenu verbal de ces interventions est en grande partie préservé en VC, mais une étude en télémédecine auprès de cinq internistes indique que la fréquence des remarques empathiques diminue en VC comparativement aux rencontres ayant lieu en présentiel (Liu et al., 2007). Les auteurs de cette étude, l'une des rares à s'être penchée sur cette question, évoquent que la communication entre les docteurs et les patients était perturbée en VC, de telle sorte que les échanges étaient courts et peu portés sur l'état émotionnel des patients dans cette modalité. En plus du contenu verbal des interventions, une diversité d'indices non verbaux sont également déployés par le thérapeute empathique. Au niveau prosodique, il est observé que les thérapeutes tendent à imiter le ton et le rythme employé par les clients au moment de formuler une intervention empathique (Weiste & Peräkylä, 2014). Des comportements visuellement perceptibles témoignent également de l'empathie des thérapeutes. Ces comportements incluent l'usage d'expressions faciales reflétant l'intensité de l'état émotionnel perçu chez le client (Voutilainen et al., 2018), une posture active (Hall et al., 1995) et un contact visuel indiquant une attention tournée vers le ressenti du client (Deladisma et al., 2007; Dowell & Berman, 2013). Un effet de filtre est observable en ce qui a trait à ces derniers indices visuels de l'empathie du thérapeute, notamment en raison du positionnement de la caméra web et du cadrage de l'image transmise qui entravent, respectivement, la perception du contact visuel (p. ex., Tam et al., 2007) et des indices posturaux (p. ex., Nguyen & Canny, 2009).

En conséquence, l'empathie que perçoivent les clients se base sur des informations qui sont tronquées en termes d'indices visuels accessibles. Le contact visuel et les indices posturaux normalement associés à de fortes perceptions d'empathie (Brugel et al., 2015; Dowell & Berman, 2013) sont ainsi altérés ou complètement retirés d'une interaction typique en VC. Cet effet de filtre est d'autant plus un enjeu à la lumière des résultats d'études s'étant attardées à investiguer l'effet de manipulation préservant ces indices en VC. En contexte non clinique, un cadrage élargi au haut du corps plutôt qu'à la tête seulement a mené à des niveaux d'empathie comparables à ceux observés pour une interaction en présentiel (Nguyen & Canny, 2009). Au sujet du contact visuel, une étude en télémédecine indique que des patients jugent que le contact visuel est de meilleure qualité pour des photos prises avec un angle du regard faible plutôt qu'avec un angle du regard prononcé (Tam et al., 2007). Néanmoins, les études disponibles sur l'empathie perçue par les clientes de téléthérapie pour des symptômes dépressifs (n = 12) et anxieux (n = 7) montrent des niveaux élevés d'empathie post-traitement (Farmer, 2009; Openshaw et al., 2012). En tenant compte des niveaux d'altération des indices non verbaux en VC et des petits échantillons jusqu'ici étudiés, il est avancé que des clients prenant part à la fois à des séances en VC et en présentiel rapporteraient des niveaux plus faibles d'empathie perçue en VC.

Le chapitre 1 propose plusieurs ajustements que peuvent intégrer les thérapeutes et les clients visant à diminuer l'effet de filtre. Puisque le contenu verbal est conservé en VC, la clarification consciente et systématique du contenu émotionnel des échanges représente l'une des solutions les plus prometteuses pour favoriser l'empathie en téléthérapie (Bischoff et al., 2004; Cowain, 2001; Trepal et al., 2007). Cette solution est d'ailleurs l'une des recommandations principales d'une récente revue des écrits portant sur les ajustements pouvant être apportés par les thérapeutes afin de favoriser l'empathie en téléthérapie (Haydon et al., 2021). Un positionnement judicieux de la caméra web afin de préserver le contact visuel et les indices posturaux représente également une solution prometteuse.

Les observations du chapitre 1 en ce qui concerne la possibilité que l'empathie soit moindre en VC comparativement à en présentiel rejoignent les conclusions d'un modèle récent visant à rendre compte de l'impact de l'usage de moyens technologiques sur la relation thérapeutique en téléthérapie (Cataldo et al., 2021). Sur la base des mêmes constats quant aux fluctuations de la qualité de la VC et de l'altération de certains indices non verbaux, les auteurs proposent un modèle où l'ordinateur est considéré en tant que troisième acteur de la relation thérapeutique, puisque ce sont les facteurs liés à l'ordinateur qui déterminent la qualité de l'interaction en VC lors d'une session donnée. L'ajout de ce troisième acteur implique une quantité d'efforts cognitifs et émotionnels plus élevée que pour les séances en présentiel puisque, dans ce dernier contexte, le thérapeute est plus en contrôle des paramètres sous lesquels se produisent la séance avec le client. Sans directement statuer sur la question de l'empathie en téléthérapie, ce modèle récent est en phase avec les

conclusions auxquelles le chapitre 1 arrive concernant l'altération de certains aspects relationnels en contexte de téléthérapie.

Le chapitre 2 s'appuie sur les conclusions du chapitre 1 et emploie un devis expérimental afin d'étudier simultanément l'empathie ressentie et perçue au sein de dyades thérapeute-client, ce qui constitue en soi un apport considérable aux écrits scientifiques sur l'empathie en téléthérapie par VC. La complétion de séances en VC et en présentiel pour chacune des dyades permet notamment de quantifier l'influence de l'effet de filtre proposé au chapitre 1. Les résultats ainsi obtenus montrent une diminution de l'empathie pour les clients et les thérapeutes et ce sont les premières données quantifiant l'écart d'empathie de nombreuses fois évoquées dans les écrits scientifiques antérieurs. Ces résultats rejoignent les conclusions de travaux précédents obtenus lors d'entrevues qualitatives de psychothérapeutes rapportant que leur empathie en VC était différente de celle ressentie en présentiel (Horowitz, 2014). Six des 12 psychothérapeutes de cette étude ont clairement indiqué que l'empathie qu'ils ressentaient était moindre en VC qu'en présentiel. À l'inverse, d'autres travaux suggèrent que l'empathie est somme toute préservée en VC (p. ex., Békés et al., 2020; Farmer, 2009; Openshaw et al., 2012). Une piste d'explication pour ces résultats divergents peut provenir de l'usage d'un devis répété dans notre étude, où chacune des dyades complétait une séance en VC et en présentiel dans un ordre contrebalancé entre les dyades. À l'inverse, les participants d'études opportunistes, ayant difficilement accès aux traitements en présentiel (p. ex., Farmer, 2009; Openshaw et al., 2012), ont pu présenter un biais favorable envers le traitement puisqu'il leur était difficile de faire la comparaison avec un traitement analogue en présentiel. Il convient également de considérer ces résultats à la lumière des paramètres utilisés pour les séances en VC dans le chapitre 2. L'équipement employé était de qualité moyenne, c'est-à-dire que la vidéo était produite à l'aide caméras web d'une résolution de 720p et transmises sur des écrans de 22 pouces. Un délai de transmission (*lag*) était observable par la plupart des participants et le contact visuel était altéré par le positionnement de la caméra web au-dessus de l'écran d'ordinateur. Ces paramètres, bien qu'ils n'offrent pas les conditions les plus optimales de VC, sont représentatifs du contexte dans lequel se déroulent les séances de téléthérapie pour les clients et les thérapeutes qui ne peuvent se permettre des appareils de qualité ou qui ne portent pas une attention minutieuse envers les paramètres de l'appel en VC. Finalement, comme ce chapitre a étudié des simulations de séances de psychothérapie en raison d'enjeux éthiques et techniques liés au recrutement de véritables dyades thérapeutes-clients, une généralisation des résultats aux suivis en téléthérapie doit être réalisée avec prudence. Alors que les participants de l'étude se rencontraient pour la première ou deuxième fois dans le cadre des séances simulées, les thérapeutes et clients prenant part à un véritable suivi en téléthérapie auront l'occasion d'échanger sur de nombreuses séances. L'accumulation des interactions cliniques en VC a le potentiel de pallier la diminution d'empathie observée en permettant aux thérapeutes et aux clients d'avoir recours à une grande quantité d'interactions passées sur lesquelles se fier lorsque la qualité de la VC est sous-optimale pour une session donnée. L'acquisition de cet historique relationnel permet au

thérapeute d'avoir davantage recours aux opérations liées à la prise de perspective cognitive afin d'alimenter l'empathie ressentie, tel que soulevé lors du chapitre 1. Pour les clients, il devient possible de s'imaginer que leur thérapeute demeure empathique malgré l'absence de certains signaux évocateurs à une séance donnée. Malgré tout, il convient de souligner que le chapitre 2 permet de statuer qu'il importe de mettre en place des stratégies permettant d'optimiser l'empathie ressentie et perçue et ce, dès les premières séances d'un suivi en téléthérapie.

L'hypothèse principale apportée par le cadre conceptuel élaboré au chapitre 1 est que les différences d'empathie observées au chapitre 2 proviennent d'un effet de filtre touchant les indices non verbaux particulièrement. Il importe ainsi de développer des méthodes permettant de réduire l'effet de filtre et d'en tester l'influence sur l'empathie. C'est ce à quoi parviennent les chapitre 3 et 4 respectivement. Le chapitre 3 décrit une méthodologie permettant de manipuler la perception de contact visuel en VC par l'entremise de la diminution de l'angle du regard. En ajustant le positionnement de la caméra et des participants à l'interaction en VC, l'angle du regard diminue jusqu'aux alentours de 2° et la perception de contact visuel est conservée. Cette méthodologie a l'avantage d'être implantable par les thérapeutes et les clients désireux de rendre possible le contact en VC sans avoir recours à un équipement spécialisé ou une procédure technique trop encombrante. Le chapitre 4 investigue l'influence de la perception de contact visuel sur l'empathie perçue par les clients, permettant ainsi de tester une prédiction du cadre conceptuel pouvant remédier à la diminution d'empathie observée au chapitre 2. La décision de ne prendre que la perspective des clients relève de considérations liées au recrutement de nombreux thérapeutes ainsi que de données indiquant que la perspective des clients constitue le meilleur prédicteur de l'efficacité thérapeutique (Elliott et al., 2011). L'usage d'un appareil d'oculométrie pour cette étude permet également de relever l'influence du contact visuel sur les patrons visuels des clients durant une simulation de téléthérapie et de corréler ces patrons visuels aux niveaux d'empathie rapportés par questionnaire. Les résultats du chapitre 4 montrent que, contrairement à ce qui était attendu, l'empathie n'est pas plus élevée dans les séances où le contact visuel est possible. Plus encore, les clients pouvant établir un contact visuel avec le thérapeute ne fixent pas plus longuement les yeux ou le visage des thérapeutes, mais ont en général regardé davantage le corps des thérapeutes que dans la condition empêchant le contact visuel. Ces premiers résultats montrent ainsi que de permettre le contact visuel en VC n'augmente pas automatiquement les niveaux d'empathie perçue. Malgré cela, les données des clients de la condition avec contact visuel présentent une corrélation entre le temps passé à regarder les yeux et le visage du thérapeute et l'empathie rapportée après la séance. Cette corrélation n'est pas observée pour les données issues des séances sans contact visuel. Pris ensemble, les résultats suggèrent que les clients pouvant établir un contact visuel avec leur thérapeute ont tendance à baser leur perception d'empathie sur cet indice, mais que les clients qui ne peuvent pas établir de contact visuel parviennent aussi à percevoir un haut niveau d'empathie sur la base des

autres informations disponibles. Cette conclusion a des ramifications intéressantes en ce qui concerne le rôle du contact visuel sur l'empathie perçue par les clients.

Les études antérieures suggèrent que le contact visuel est l'un des indices non verbaux les plus fortement associés à l'empathie (Brugel et al., 2015; Deladisma et al., 2007; Dowell & Bersman, 2013). Le chapitre 4 corrobore cette conclusion tout en y apportant un élément de nuance important en ce qui concerne les séances de téléthérapie par VC, où les clients sont en mesure de percevoir des niveaux d'empathie aussi forts avec ou sans contact visuel durant les séances. Chacune des deux conditions expérimentales a ainsi produit de forts niveaux d'empathie en comparaison à une étude antérieure utilisant le même questionnaire pour évaluer l'empathie (Marci et al., 2007). Plusieurs éléments permettent d'expliquer l'absence d'une différence d'empathie perçue entre les deux conditions. L'un de ces éléments relève de la capacité des participants à rapidement compenser pour l'angle du regard présent en VC, leur permettant ainsi d'identifier les moments où leur interlocuteur tente d'établir un contact visuel durant l'interaction (Grayson & Monk, 2003). Cette capacité fait probablement en sorte que les clients sont en mesure d'estimer le niveau d'attention que porte leur thérapeute envers ce qu'ils expriment en VC, même dans les moments où le contact visuel est indisponible. En plus de pouvoir compenser pour l'altération du contact visuel, les clients dans la condition sans contact visuel étaient en mesure de scruter le visage du thérapeute sans ressentir la gêne souvent associée à un tel comportement lors d'une interaction en présentiel. Pouvoir scruter le thérapeute autant que souhaité pourrait faciliter la perception d'autres indicateurs visuels de l'empathie du thérapeute, comme les expressions faciales, ce qui expliquerait à la fois l'absence de différences d'empathie et de temps passé à fixer les yeux et le visage du thérapeute entre les deux conditions de contact visuel étudiées au chapitre 4. Un dernier élément d'explication réside dans la haute qualité audiovisuelle des séances en VC, peu importe la condition expérimentale. Les clients bénéficiaient ainsi d'une vue claire du haut du corps des thérapeutes, d'une image présentée en haute définition et sans délai apparent ainsi que d'un flux audio de haute qualité transmis à l'intérieur de casques d'écoute qui éliminaient les sources de bruit ambiant. Ces paramètres ont probablement facilité la perception de l'empathie basée sur d'autres indices non verbaux que le contact visuel, comme la prosodie de la voix du thérapeute (Weiste & Peräkylä, 2014) ou les indices posturaux (Nguyen & Canny, 2009).

Au terme des quatre chapitres, plusieurs questions quant à l'empathie en téléthérapie demeurent en suspens. Alors que les résultats du chapitre 4 suggèrent que les clients puissent s'accommoder d'une altération du contact visuel en VC, l'effet de la possibilité pour les thérapeutes d'établir un contact visuel en ce qui concerne l'empathie ressentie en VC demeure incertain. Cette question est d'autant plus pertinente qu'elle permettrait de corroborer ou non l'impression de plusieurs thérapeutes quant à l'importance de cet indice non verbal sur la relation thérapeutique en téléthérapie (Connolly et al., 2020). Une autre question irrésolue concerne l'importance que revêtent d'autres indices non verbaux comme les gestes ou la posture en VC. Il serait ainsi pertinent de

reproduire le devis utilisé au chapitre 4 en manipulant cette fois-ci les conditions de cadrage de la VC afin d'observer l'influence de la disponibilité de cette manipulation sur l'empathie rapportée en VC. Une telle étude permettrait d'étendre les résultats retrouvés dans un contexte non clinique (Nguyen & Canny, 2009). En dernier point, la thèse arrive à des conclusions importantes concernant les variations d'empathie observées lors de simulations de séances de téléthérapie et il importe maintenant de reproduire ces études expérimentales auprès de véritables clients et thérapeutes afin de valider les conclusions obtenues.

Les construits associés à l'empathie

La téléprésence

L'un des facteurs psychologiques étudié en lien avec l'empathie dans le contexte de la thèse est la téléprésence, un concept désignant l'impression pour le client et le thérapeute d'être ensemble durant l'appel en VC, en opposition à l'impression nette de se trouver à deux endroits physiques distincts reliés par la technologie (Berthiaume et al., 2018). La téléprésence recoupe l'impression de se trouver dans un lieu physique commun (*présence physique*), l'impression de prendre part à une interaction sociale soutenue (*présence sociale*) et l'impression d'être absorbé par l'interaction en ligne (*absorption*). La recension des écrits réalisées au chapitre 1 indique que la téléprésence est peut-être un construit psychologique associé à l'empathie ressentie par les thérapeutes et perçue par les clients. Une telle relation indiquerait que les séances en VC où les clients et thérapeutes se sentent généralement engagés et investis dans l'interaction sont aussi des séances où l'empathie est jugée favorablement par les participants. L'intérêt du concept de téléprésence vient également des données indiquant que la perception de certains indices non verbaux, comme le contact visuel, contribue à augmenter le niveau de téléprésence ressenti (Neureiter et al., 2014). La téléprésence, comme l'empathie, pourrait donc être favorisée par une réduction de l'effet de filtre observable en VC. Finalement, comme le concept de téléprésence englobe trois dimensions distinctes, il est aussi pertinent d'explorer les dimensions les plus fortement associées à l'empathie.

Le chapitre 2 teste la relation hypothétisée entre l'empathie et la téléprésence au moyen de deux études. Les résultats de l'étude 1 impliquant des séances simulées de téléthérapie indiquent que l'empathie ressentie par les thérapeutes corrèle modérément et positivement au sentiment global de téléprésence ainsi qu'à la sous-échelle physique de la téléprésence. Les données des clients, pour leur part, n'indiquent pas de corrélations significatives entre l'empathie et les différents scores de téléprésence. Les résultats de l'étude 2, obtenus auprès d'un échantillon opportuniste prenant part à un traitement informatisé, présentent des corrélations similaires à celle de l'étude 1. L'empathie ressentie par les thérapeutes corrèle fortement et positivement avec l'impression globale de téléprésence et sa sous-échelle physique. Pour les clients, des corrélations positives, de force modérée mais statistiquement non significatives sont observées entre l'empathie et l'impression globale de téléprésence, la sous-échelle physique et la sous-échelle sociale. Les

résultats des deux études indiquent ainsi que l'empathie ressentie par les thérapeutes est associée à la téléprésence et à sa dimension physique, ce qui ne serait pas le cas pour les clients.

Le chapitre 4 examine si l'empathie est corrélée à la téléprésence en fonction de la possibilité ou non d'établir un contact visuel en VC. Les résultats montrent que l'empathie est corrélée fortement et positivement avec la sous-échelle sociale de l'impression de téléprésence exclusivement et ce, dans la condition sans contact visuel seulement. La comparaison des niveaux de téléprésence globale ainsi que des niveaux de chacune des trois sous-échelles entre les deux conditions de contact visuel ne révèle aucune différence significative. Ces résultats indiquent donc que la téléprésence, de façon similaire à l'empathie, n'est pas plus élevée lorsqu'il est possible d'établir un contact visuel en VC. Cependant, il semble que les clients ne pouvant pas établir de contact visuel avec le thérapeute aient tendance à rapporter des niveaux d'empathie perçue plus élevés lors des séances où ils ont aussi l'impression d'être engagés dans une interaction soutenue avec le thérapeute. Il est intéressant de considérer cette corrélation retrouvée dans la condition sans contact visuel conjointement à l'association retrouvée entre le temps passé à regarder les yeux et l'empathie perçue dans la condition avec contact visuel. Pris ensemble, ces résultats tendent à appuyer l'hypothèse avancée précédemment voulant que les clients s'adaptent aux indices non verbaux présents dans l'interaction lorsqu'ils se forment une impression de l'empathie, puisque l'empathie perçue corrèle successivement avec des variables distinctes en fonction de la possibilité ou non d'établir un contact visuel en VC.

En résumé, les résultats de la thèse montrent que les impressions d'empathie et de téléprésence sont corrélés pour les thérapeutes, bien qu'il ne soit pas clair si l'ajout du contact visuel puisse avoir une influence sur cette association. En ce qui a trait aux clients, il semblerait que l'empathie puisse être corrélée à la sous-échelle sociale de la téléprésence, mais ce résultat est retrouvé de façon irrégulière entre les études qui composent la thèse. En considérant que des associations modérées mais non significatives sont observées dans le cadre de l'étude 2 du chapitre 2 entre l'empathie, la téléprésence globale, sa dimension physique et sa dimension sociale, il apparait plausible que de favoriser l'impression de téléprésence, et plus particulièrement l'impression pour les clients d'être connectés à leur thérapeute dans l'interaction en VC, puisse également favoriser l'empathie perçue par les clients. À cet égard, l'un des items de l'échelle de téléprésence utilisée dans le cadre de la thèse relève de l'impression, pour le client, que le thérapeute réagit à sa présence durant l'appel en VC (Berthiaume et al., 2018). Il serait intéressant d'étudier si l'introduction de remarques verbales spécialement dirigées envers cet aspect permettrait de faciliter l'impression de présence sociale et, par ricochet, l'empathie perçue par les clients. Par exemple, un thérapeute pourrait faire référence à des éléments interactionnels comme les tours de parole (p. ex., « Vous alliez dire quelque chose mais je vous ai coupé la parole, allez-y. ») et ainsi renforcer l'impression pour le client de prendre part à une interaction soutenue en VC.

La présence thérapeutique

Les résultats du chapitre 2 amènent de nouvelles données sur la présence thérapeutique, qui réfère à l'adoption d'une posture relationnelle tournée vers l'expérience émotionnelle vécue par le client dans l'instant présent, sans entretenir d'attentes ou de jugements envers cette expérience émotionnelle (Alvandi, 2019; Geller et al., 2010). Comme l'empathie, la présence thérapeutique était considérée à la fois de la perspective des thérapeutes et des clients. Pour les thérapeutes, les résultats montrent que la présence thérapeutique ne diffère pas entre le contexte en présentiel et celui en VC, mais corrèle modérément et positivement avec l'empathie ressentie ainsi qu'avec l'impression de téléprésence globale et sa sous-échelle physique. Pour les clients, la présence thérapeutique perçue est plus élevée en présentiel qu'en VC et des associations modérées et positives sont observées entre la présence thérapeutique, la téléprésence et ses sous-échelles physique et sociale ainsi qu'avec des attitudes positives envers la téléthérapie. La corrélation entre la présence thérapeutique et l'empathie perçue n'est cependant pas significative. Pour les thérapeutes, les résultats semblent indiquer que la présence thérapeutique est tout aussi possible en présentiel qu'en VC, ce qui répond à des questionnements soulevés récemment dans les écrits quant à la capacité des thérapeutes de parvenir à cultiver leur présence thérapeutique en téléthérapie (Alvandi, 2019; Geller, 2020). À l'inverse, les clients rapportent une présence thérapeutique perçue plus faible en VC qu'en présentiel, ce qui tend à démontrer l'importance que des ajustements soient apportés afin de compenser pour le contexte en VC. À cet égard, l'une des stratégies avancées par un article récent portant sur les ajustements pouvant être amenés afin de favoriser la présence thérapeutique recoupe la suggestion du chapitre 1 quant à l'importance d'accorder une attention particulière à la perception des indices non verbaux et à la clarification de l'état émotionnel des clients en VC (Geller, 2020). Au sujet de l'association entre la présence thérapeutique et les attitudes envers la téléthérapie, le chapitre 2 arrive à des conclusions différentes d'une étude récente montrant une association positive entre la présence thérapeutique ressentie par des psychologues et les attitudes positives entretenues envers la téléthérapie (Rathenau et al., 2021). À l'inverse, nos résultats ne montrent pas d'association significative entre ces deux construits pour les thérapeutes, alors que les données des clients présentent pour leur part une telle corrélation entre la présence thérapeutique et les attitudes. Il est possible que les psychologues aient une posture plus critique vis-à-vis la possibilité que leur sentiment de présence thérapeutique soit affecté en raison de leur expérience plus fine et plus profonde de ce que constitue la présence thérapeutique en comparaison aux intervenants en formation recrutés dans le cadre du chapitre 2. Les résultats de la thèse permettent toutefois d'amener une donnée complémentaire à l'effet que, pour les clients, des attitudes positives sont également associées à une présence thérapeutique perçue plus élevée. Le chapitre 2 permet également d'ajouter que la téléprésence semble être un corrélat de la présence thérapeutique, ce qui est cohérent avec la ressemblance conceptuelle que partagent les deux construits quant à la sensation d'être *présent* dans l'interaction avec le client.

Les attitudes

Le chapitre 2 de la thèse investigue les attitudes des clients et des thérapeutes envers les séances en présentiel et en VC sur deux aspects, soit le niveau d'utilité attribué aux séances dans l'une ou l'autre des modalités et le niveau d'inconfort imaginé dans chacune des modalités. Les résultats montrent que les thérapeutes et les clients présentent des attitudes initiales (avant de prendre part aux séances) plus positives concernant leurs perceptions d'utilité et d'inconfort des séances en présentiel comparativement aux séances en VC. Lorsque ces mêmes participants sont questionnés de nouveau sur leurs attitudes six mois plus tard en utilisant les mêmes questionnaires, une amélioration des attitudes des clients est observée à la fois pour la perception d'utilité et l'inconfort envers les séances en VC. Les attitudes des thérapeutes, pour leur part, demeurent inchangées d'un point de vue statistique. Il est ainsi intéressant de noter que, bien que les clients aient rapporté moins d'empathie en moyenne en VC comparativement à en présentiel, ceux-ci ont vécu une expérience assez favorable des séances en VC pour que leurs attitudes s'en trouvent améliorées. À l'inverse, les thérapeutes ne présentent pas de telles améliorations de leurs attitudes, ce qui fait écho aux revues des écrits scientifiques montrant que les thérapeutes sont souvent plus critiques de leur expérience des séances en VC que les clients (p. ex., Cataldo et al., 2021; Simpson & Reid, 2014).

Les données du chapitre 2 indiquent également que les attitudes envers la téléthérapie sont associées au sentiment de téléprésence globale et à certaines de ses sous-échelles pour les clients et les thérapeutes. Pour les thérapeutes, les niveaux d'utilité (attitudes positives) de la téléthérapie sont modérément et positivement associés aux niveaux de téléprésence globale et de sa sous-échelle sociale, tandis que les niveaux d'inconfort (attitudes négatives) sont modérément et négativement associés aux niveaux de téléprésence globale et de ses sous-échelles physique et sociale. Pour les clients, les niveaux d'utilité de la téléthérapie sont fortement et positivement associés aux niveaux de téléprésence globale et de ses sous-échelles physique et sociale, tandis que les niveaux d'inconfort sont modérément et négativement associés aux niveaux de la sous-échelle sociale de téléprésence. Comme les attitudes ont été mesurées avant que les participants ne prennent part aux séances en VC, il est possible de croire que des attitudes plus négatives envers la VC prédisposent les thérapeutes et les clients à être plus critiques de leur impression de téléprésence en VC. Sachant ce rôle précurseur des attitudes envers l'expérience de la VC, ces résultats appuient la recommandation de plusieurs chercheurs que soient intégrés des modules de formation sur la téléthérapie dans le cursus clinique des thérapeutes afin de soutenir une perception juste des avantages et limites des suivis en téléthérapie (Aafjes-van Doorn et al., 2020; Békés et al., 2020; Geller, 2020). Pour les clients, la dissémination des données probantes quant à l'efficacité et le niveau de satisfaction habituellement élevé des clients envers cette modalité pourrait favoriser une expérience positive des suivis en téléthérapie.

Les avancées méthodologiques découlant de la thèse

En plus des retombées cliniques et théoriques associées aux résultats de chacun des chapitres de la thèse, les travaux du chapitre 3 aboutissent sur d'intéressantes avancées méthodologiques concernant la perception de contact visuel en VC. La méthodologie initiale s'inspirait des travaux indiquant que la perception de contact visuel est préservée lorsque l'angle du regard, soit l'angle compris entre la caméra web et la cible du regard sur l'écran d'ordinateur, est inférieur à 7° et ce, seulement lorsque l'interlocuteur regarde vers le bas (Chen, 2002; Tam et al., 2007). En comparaison, la tolérance sur l'angle du regard de chaque côté et vers le haut (c-à-d, avec une vue en plongée) est plus faible et l'impression de contact visuel se dégrade dès qu'un angle du regard de 1° est atteint dans ces trois directions (Chen, 2002). Selon ces données, un thérapeute désireux de conserver la perception de contact visuel pour son client pourrait s'asseoir à 1m de l'écran d'ordinateur, avec les yeux à la hauteur de sa caméra web, elle-même positionnée au plus 12 cm directement au-dessus des yeux du client. Cependant, de tels paramètres ne permettaient pas de conserver la perception de contact visuel lors de nos tests en laboratoire, de telle sorte que des ajustements graduels du positionnement de la caméra web et des interlocuteurs ont été apportés jusqu'à ce que l'angle du regard soit réduit à environ 2° vers le bas. En plus d'éloigner les participants de la caméra web, l'un des ajustements essentiels ayant dû être apporté consiste en un recadrage de la VC afin que la bordure supérieure de l'image se termine aux cheveux des participants. Cet ajustement constitue un changement notable de la tendance habituelle à faire du visage le point central de l'image sur le moniteur, ce qui a comme conséquence de permettre la transmission des indices posturaux et des gestes dans l'appel en VC en l'absence de zoom. L'effet que pouvait avoir l'application d'un zoom au haut du corps en comparaison à une vidéo sans zoom a été exploré au moyen de quatre dyades thérapeute-client, où chaque dyade complétait, dans un ordre contrebalancé, une première moitié de la séance dans l'une des conditions de zoom pour basculer ensuite à la condition restante de zoom pour la deuxième moitié de la séance. Les comptes-rendus des participants quant chacune des conditions de zoom révèlent que les participants ont eu tendance à préférer la deuxième moitié de la séance, montrant ainsi un effet d'ordre sans égard à la condition de zoom. Pour expliquer leurs préférences, les participants ont fait référence au désir d'ajuster la distance psychologique perçue avec leur interlocuteur, où l'introduction d'un zoom reflétait le désir de se sentir plus « proche » de l'interlocuteur. Selon les résultats, il apparait ainsi judicieux aux thérapeutes et clients d'ajuster le zoom présent lors de leurs séances en VC en fonction de leur désir de sentir plus près ou plus éloignés de leur interlocuteur. En somme, les travaux du chapitre 3 ont un intérêt particulier puisqu'ils offrent aux thérapeutes et aux clients une avenue simple pour préserver le contact visuel en VC comparativement aux autres solutions existantes (pour une revue, voir Regenbrecht & Langlotz, 2015).

Limites et perspectives futures

Au moment de débuter la thèse, l'usage de *simulations* de séances de téléthérapie apparaissaient comme le compromis naturel entre le désir d'investiguer de « vraies » interactions cliniques et les défis méthodologiques liés au recrutement de thérapeutes et de leurs clients ainsi qu'à l'absence de données empiriques disponibles. Les limites possibles associées à ce choix sont que les thérapeutes recrutés dans le cadre de la thèse n'étaient pas encore des professionnels qualifiés ni n'avaient une grande expérience de suivi en VC. Il est ainsi possible que les données issues de traitements dirigés par des psychologues se dédiant aux suivis en téléthérapie offriraient des conclusions différentes de celles auxquelles arrivent les travaux de la thèse. Cependant, les données des questionnaires sur l'expérience des séances indiquent que ces simulations semblent avoir procuré des bénéfices aux clients, ce qui aurait aussi été présumément le cas lors de véritables séances de psychothérapie.

Une autre limite liée au type de participants recrutés consiste en la formation de conclusions basées sur des données obtenues majoritairement auprès de jeunes adultes. Il est ainsi possible que des populations cliniques appartenant à d'autres groupes d'âge, notamment les personnes mineures ou les adultes plus âgés, aient une expérience différente des séances en téléthérapie. L'usage d'une seule séance en vidéoconférence pour les analyses, tel que mentionné précédemment, ouvre la porte à ce que des conclusions différentes puissent être tirées d'analyses portant sur plusieurs séances. Cependant, cela permet également de conclure sur les effets qui sont rapidement observables dans un suivi en téléthérapie et qui constituent donc l'une des priorités pour les thérapeutes et les clients. Finalement, les enjeux liés au recrutement de dyades de participants font en sorte que seule la perspective des clients a été étudiée quant à l'impact du contact visuel en vidéoconférence au chapitre 4. Cela laisse en plan les questions portant sur l'expérience que feraient les thérapeutes de séances où le contact visuel est possible. Il est envisageable que de pouvoir établir un contact visuel avec leur client permettent aux thérapeutes de se sentir moins préoccupés par la possibilité que le suivi en VC n'altère la relation thérapeutique, ce qui répondrait à l'une des principales inquiétudes rapportées par les thérapeutes dans les écrits empiriques (Connolly et al., 2020).

L'une des perspectives futures intéressantes pour les cliniciens et les chercheurs relève de l'étude des suivis en psychothérapie qui utilisent des modalités « mixtes », dont les séances se tiennent successivement en présentiel et en VC. Par exemple, il a été observé auprès d'une clientèle en dépendance que la possibilité de réaliser des séances en VC en alternance avec des séances en présentiel permettait de favoriser l'adhésion au traitement sans compromettre les gains en thérapie (Tarp et al., 2017). Avec le retrait progressif des mesures de distanciation sociale instaurées dans le contexte de la pandémie mondiale, l'ajout de cette flexibilité quant à la modalité dans laquelle se déroule les séances des suivis en psychothérapie pourrait permettre de répondre à la fois au désir des thérapeutes et des clients. Les thérapeutes seraient en mesure de maintenir une présence

physique avec les clients et de garder un degré de contrôle sur les paramètres des séances, tandis que les clients pourraient bénéficier des avantages associés à la VC comme de sauver sur le temps, l'énergie et les coûts associés aux déplacements vers le lieu des rencontres. L'alternance entre le présentiel et la VC pourrait également amoindrir certains désavantages de la VC, notamment la possibilité que l'empathie soit moins bien ressentie et perçue comme cela a été le cas dans le cadre de la thèse. De plus, la négociation des modalités des séances peut représenter l'opportunité pour les thérapeutes et les clients de conclure conjointement aux modalités qui semblent le mieux convenir aux désirs de chacun des partis, ce qui pourrait en retour faciliter la création et le maintien d'une alliance thérapeutique de qualité.

Conclusion générale.

L'empathie est un processus essentiel à une issue positive des suivis en psychothérapie. La présente thèse montre qu'il est possible que l'empathie ressentie par les thérapeutes et perçue par les clients soit affectée dans les séances de téléthérapie par VC comparativement à des séances analogues en présentiel. Cette diminution d'empathie trouve notamment son explication dans l'effet de filtre induit par le contexte de VC, où une partie des indices non verbaux tels que le contact visuel sont altérés ou perdus en VC. Cependant, le fait de permettre le contact visuel en VC ne permet pas d'augmenter le niveau d'empathie perçue par les clients. Les clients pouvant établir un contact visuel avec leur thérapeute tendent malgré tout à rapporter une perception d'empathie plus élevée lorsqu'ils regardent davantage les yeux du thérapeute. Les clients sont ainsi en mesure de s'adapter à la présence ou à l'absence de certains indices non verbaux, comme le contact visuel, lorsqu'ils forment leur perception de l'empathie du thérapeute. L'impression globale de téléprésence ainsi que sa sous-échelle physique sont associées à l'empathie ressentie par les thérapeutes en VC alors que, pour les clients, la sous-échelle sociale de la téléprésence spécifiquement présente une association avec l'empathie perçue en VC. Avec l'usage grandissant de la VC afin d'offrir des services de téléthérapie, une attention particulière envers la communication du contenu émotionnel en VC doit être apportée par les thérapeutes et les clients afin de faciliter l'expérience de l'empathie en téléthérapie.

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