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# Evidence Brief: Safety and Effectiveness of Telehealth-delivered Mental Health Care

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**VA**



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The findings and conclusions in this document are those of the author(s) who are responsible for its contents and do not necessarily represent the views of the Department of Veterans Affairs or the United States government. Therefore, no statement in this article should be construed as an official position of the Department of Veterans Affairs. No investigators have any affiliations or financial involvement (eg, employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties) that conflict with material presented in the report.

## PREFACE

The VA Evidence Synthesis Program (ESP) was established in 2007 to provide timely and accurate syntheses of targeted health care topics of importance to clinicians, managers, and policymakers as they work to improve the health and health care of Veterans. These reports help:

- Develop clinical policies informed by evidence;
- Implement effective services to improve patient outcomes and to support VA clinical practice guidelines and performance measures; and
- Set the direction for future research to address gaps in clinical knowledge.

The program comprises four ESP Centers across the US and a Coordinating Center located in Portland, Oregon. Center Directors are VA clinicians and recognized leaders in the field of evidence synthesis with close ties to the AHRQ Evidence-based Practice Center Program. The Coordinating Center was created to manage program operations, ensure methodological consistency and quality of products, interface with stakeholders, and address urgent evidence needs. To ensure responsiveness to the needs of decision-makers, the program is governed by a Steering Committee composed of health system leadership and researchers. The program solicits nominations for review topics several times a year via the [program website](#).

The present report was developed in response to a request from the Office of Mental Health and Suicide Prevention (OMHSP). The scope was further developed with input from Operational Partners (below) and the ESP Coordinating Center review team.

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### Operational Partners

Operational partners are system-level stakeholders who help ensure relevance of the review topic to the VA, contribute to the development of and approve final project scope and timeframe for completion, provide feedback on the draft report, and provide consultation on strategies for dissemination of the report to the field and relevant groups.

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The Coordinating Center sought input from external peer reviewers to review the draft report and provide feedback on the objectives, scope, methods used, perception of bias, and omitted evidence (see Appendix E in Supplemental Materials for disposition of comments). Peer reviewers must disclose any relevant financial or non-financial conflicts of interest. Because of their unique clinical or content expertise, individuals with potential conflicts may be retained. The Coordinating Center works to balance, manage, or mitigate any potential nonfinancial conflicts of interest identified.

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## EXECUTIVE SUMMARY

### Key Findings

- Available evidence on the safety and effectiveness of telehealth-delivered mental health treatment compared with in-person delivery of the same treatment is limited mainly by inconsistency in study populations, interventions, comparisons, and outcomes.
- Most identified studies focus on posttraumatic stress disorder (PTSD). PTSD symptom severity appears similar after in-home video teleconference and clinic-based in-person delivery of individual psychotherapy, based on low-strength evidence.
- Fewer studies were identified for other mental health conditions, including depression, anxiety-related disorders, and substance use disorders. Evidence was insufficient to draw conclusions about the comparative safety and effectiveness of in-person and telehealth-delivered treatment for substance use disorders or multiple mental health conditions.
- Serious harms associated with telehealth delivery appear to be rare, but adverse events were not consistently reported across studies. Only 2 studies examined the effects of clinical characteristics on effectiveness outcomes.
- Rigorously conducted research is needed to clarify whether the effectiveness and safety of telehealth-delivered mental health care, particularly for conditions other than PTSD, differs based on treatment modality, format, or presenting condition.

Telehealth refers to the use of information communication technology to deliver a healthcare service synchronously (*ie*, involving live interactions between a provider and patient) or asynchronously using computers, tablets, smartphones, or other communication modalities. The US Department of Veterans Affairs (VA) is a national leader in the use of telehealth and an early adopter of telehealth technology (including video conferencing, or VTC). Over the last decade, the VA has expanded telehealth programs to improve Veterans' access to healthcare.

Telemental health, or telehealth-delivered mental health services, has been a critical application of telehealth technologies because of the lack of specialized mental health care providers and high need for these services in rural areas. Telemental health may address barriers that prevent Veterans from seeking mental health care, such as lack of access to mental health services and negative stigma associated with utilization of mental health services. To inform VA clinical practice, in the present report we evaluate whether existing evidence shows that synchronous in-person or telehealth-based mental health care are similarly safe and effective in the treatment of mental health conditions common among Veterans (depression, posttraumatic stress disorder

### Background

The Evidence Synthesis Program Coordinating Center is responding to a request from the Office of Mental Health and Suicide Prevention for an Evidence Brief on the safety and effectiveness of evidence-based mental health care delivered via telehealth modalities. Findings from this Evidence Brief will be used to inform delivery of mental health care across the VA system.

### Methods

To identify studies, we searched MEDLINE, Cochrane Database of Systematic Reviews, PsycINFO, and other sources up to May 2022. We used prespecified criteria for study selection, data abstraction, and rating internal validity and strength of the evidence. See the Methods section and our PROSPERO protocol for full details of our methodology.

[PTSD], anxiety, bipolar disorder, substance use disorders [SUD], suicidality, and serious mental illness [SMI]).

From 5,326 potentially relevant articles, 27 randomized controlled trials (RCTs), 3 secondary analyses of data from multiple RCTs, and 20 observational studies met eligibility criteria. Study participants were adults with PTSD, depression, anxiety-related disorders, SUD, or multiple mental health concerns. Most studies were conducted in the US, and many were conducted among Veterans ( $N = 28$ ). Study populations, interventions, comparisons, and outcomes varied considerably, but most studies found telehealth delivery of mental health care comparable to in-person delivery. Strength of evidence (SOE) was low or insufficient for all safety and effectiveness outcomes due to inconsistent findings and methodological limitations of the studies.

Most research investigating telehealth-delivered mental health care has focused on PTSD. Individual psychotherapy for PTSD delivered by VTC in the home (VTC-H) compared to in person at the clinic (IP-C) may result in similar improvements in PTSD symptom severity, based on low-strength evidence from 7 studies. Only 1 study reported a significant difference between delivery modalities. It is unclear whether change in PTSD symptom severity is similar after individual psychotherapy for PTSD delivered via clinic-based VTC (VTC-C) and IP-C, based on low-strength evidence from 9 studies. Evidence was inconsistent; some studies found effects favoring in-person treatment at post-treatment, but the magnitude of the effect was small and did not persist at follow-up. Only 3 PTSD studies reported on adverse events; these studies did not find evidence of a difference in adverse events between telehealth-delivered and in-person mental health care.

Fewer studies were identified for other mental health conditions, including depression, anxiety-related disorders, and SUDs. No studies were identified investigating telehealth-delivered mental health care for bipolar disorder, SMI, or suicidality. For depression, it is unclear whether depression symptom severity is similar after individual psychotherapy delivered by VTC-H and IP-C, based on low-strength evidence from 2 RCTs reporting inconsistent and imprecise results. One of these RCTs was rated as having low risk of bias and found that depression symptom severity decreased less for the VTC-H group than the IP-C group, while the other RCT had some methodological limitations and found no significant difference in treatment response between the 2 modalities.

Low-strength evidence suggests that there may be comparable change in depression symptom severity after individual psychotherapy delivered via telephone and IP-C immediately post-treatment, based on 2 RCTs, but it is unclear whether change in depression symptom severity remains similar across modalities over time. Evidence is insufficient to make conclusions about the effectiveness of mental health care for depression delivered by VTC-C compared to IP-C; this comparison was examined in a single non-randomized study of group psychotherapy and a single RCT of psychiatry. Only 3 depression studies reported on adverse events; these studies did not find evidence of a difference in adverse events between telehealth-delivered and in-person mental health care.

Studies on anxiety looked at a variety of anxiety-related diagnoses, including generalized anxiety disorder (GAD), obsessive compulsive disorder (OCD), phobia, and panic disorder with agoraphobia. Due to methodological inconsistency between studies, evidence for most outcomes



was insufficient to make conclusions about telehealth delivery of mental health care for anxiety-related disorders. For OCD, low-strength evidence from 1 RCT suggests there may be no difference in OCD symptom severity or depression symptom severity between individual psychotherapy for OCD delivered by telephone or IP-C. No adverse events were reported for either group in the single study reporting on adverse events.

Only 2 cohort studies examined the effect of telehealth-delivered mental health care on substance use-related outcomes in adults with SUD; evidence is insufficient to make conclusions about the effectiveness of telehealth-delivered mental health care for SUD. No studies on SUD reported outcomes related to safety.

Eight studies included participants with multiple types of mental health concerns. Due to differences in study methods and serious study methodological limitations, evidence is insufficient to make conclusions about the effectiveness of telehealth-delivered mental health care for populations of adults with mixed mental health concerns. Only 1 of these studies reported on adverse events, reporting no adverse events for either modality.

Only 3 studies directly compared 2 telehealth modalities, all investigating telehealth-delivered mental health care for PTSD. Individual psychotherapy for PTSD delivered by VTC-H may result in a similar decrease in PTSD symptom severity compared to VTC-C, based on low-strength evidence from 3 studies. No studies examined whether the safety or effectiveness of telehealth-delivered mental health care varied according to treatment format (*ie*, group vs individual).

Only 2 RCTs on depression examined the effect of clinical characteristics on effectiveness of telehealth versus in-person delivery of mental health care. One study found that, for a subset of participants with higher hopelessness scores at baseline, participants assigned to VTC-H had less symptom improvement than those assigned to IP-C. For a subset of participants with lower hopelessness scores at baseline, there was no meaningful difference in treatment response between VTC-H and IP-C groups. Another study found that participants with a comorbid anxiety disorder randomized to telephone delivery had significantly higher depression symptom severity over time compared to participants in the telephone group without anxiety and participants in the IP-C group with anxiety. This study found no significant differences in depression outcomes between telephone and IP-C delivery in a subgroup of participants with problematic alcohol use.

Included studies assessed a wide variety of additional outcomes, including outcomes related to functioning, quality of life, treatment engagement, access to treatment, treatment acceptability, patient satisfaction, therapeutic alliance, and cost. We did not formally grade strength of evidence for these secondary outcomes; these outcomes were not reported consistently across studies, and variability between studies makes it difficult to come to overall conclusions about these outcomes. Functioning and quality of life appear to be similar between telehealth and in-person groups for PTSD, depression, anxiety-related disorders, and studies among adults with mixed diagnoses. Most studies found no difference between telehealth and in-person treatment regarding session attendance or homework completion. A single high risk of bias RCT investigating telehealth-delivered psychiatry for PTSD examined access to treatment, finding no significant differences between groups.

Results for patient satisfaction among studies examining telehealth-delivered treatment for PTSD and depression appear to be inconsistent, with some studies reporting significant differences between groups but not others. Most studies did not report significant differences between treatment modalities on ratings of therapeutic alliance. One study on PTSD and 4 studies on depression examined treatment cost for telehealth delivery compared to in-person delivery of mental health care. Evidence was inconsistent, with costs dependent on factors such as patients' possession of VTC technology and the distance traveled to receive in-person treatment.

Thirty-seven studies examined differences in dropout between telehealth and in-person delivery of mental health care. Definitions of dropout varied across studies, and dropout ranged from 5.6% to 76.8% overall, with the highest dropout rates reported for PTSD studies (15.0% to 76.8%). Among studies reporting dropout, there was no consistent evidence that one modality had greater dropout than another. Of 19 studies on PTSD reporting on dropout by treatment group, 2 found significant differences in dropout between telehealth and in-person delivery of mental health care, with 1 study finding greater dropout for the telehealth group and the other finding greater dropout for the in-person group. Of 5 studies on depression reporting on dropout by treatment group, 2 found significantly greater dropout for the in-person group compared to the telehealth group. Studies evaluating telehealth-delivered mental health care for anxiety-related disorders, SUDs, or in samples with mixed mental health diagnoses did not report significant differences in dropout between telehealth and in-person groups.

Although many studies have been conducted on telehealth delivery of mental health care, important gaps in the evidence remain. Rigorous studies are needed that compare evidence-based mental health care delivered by VTC-H and IP-C for mental health conditions commonly seen in the VA setting, including PTSD, depression, and anxiety-related disorders. Future studies should also consistently assess and report on harms, and additional studies are needed that examine whether telehealth-delivered mental health care is more appropriate (*ie*, more effective or safe) for certain patients based on demographic or clinical characteristics.

**ES Table. Summary of Evidence on Telehealth versus In-person Delivery for Posttraumatic Stress Disorder and Depression**

Outcome	Modality Comparison	Intervention Type	Evidence	Findings
<i>Posttraumatic stress disorder</i>				
PTSD symptoms	VTC-H vs IP-C	Individual psychotherapy	4 RCTs, <sup>1-4</sup> 2 cohort studies, <sup>5,6</sup> 1 secondary analysis <sup>7</sup>	<i>Low SOE:</i> PTSD symptom severity appears similar after VTC-H and IP-C delivery of individual psychotherapy.
		Couples psychotherapy	1 RCT <sup>8</sup>	<i>Low SOE:</i> PTSD symptom severity may be similar after VTC-H and IP-C delivery of couples' psychotherapy.
	VTC-C vs IP-C	Individual psychotherapy	4 RCTs, <sup>9-12</sup> 1 NRS, <sup>13</sup> 4 cohort studies <sup>5,14-16</sup>	<i>Low SOE:</i> It is unclear whether PTSD symptom severity differs between VTC-C and IP-C delivery of individual psychotherapy.
		Group psychotherapy	2 RCTs <sup>17</sup>	<i>Low SOE:</i> It is unclear whether PTSD symptom severity differs between

				VTC-C and IP-C delivery of group psychotherapy at post-treatment. There may be no difference in PTSD symptom severity at 3-month follow-up.
PTSD diagnosis	VTC-H vs IP-C	Individual psychotherapy	1 RCT <sup>3</sup>	<i>Insufficient SOE:</i> It is unclear whether the rate of PTSD remission differs between VTC-H and IP-C delivery of individual psychotherapy.
	VTC-C vs IP-C	Individual psychotherapy	1 NRS <sup>13</sup>	<i>Insufficient SOE:</i> It is unclear whether the rate of PTSD remission differs between VTC-C and IP-C delivery of individual psychotherapy.
Depression symptoms	VTC-H vs IP-C	Individual psychotherapy	4 RCTs, <sup>1-4</sup> 1 cohort study <sup>5</sup>	<i>Low SOE:</i> It is unclear whether depression symptom severity differs between VTC-H and IP-C delivery of individual psychotherapy immediately post-treatment and at 3-month follow-up. Depression symptom severity may be similar 6–12 months after treatment.
	VTC-C vs IP-C	Individual psychotherapy	3 RCTs, <sup>9,10,12</sup> 1 NRS, <sup>13</sup> 4 cohort studies <sup>5,14-16</sup>	<i>Low SOE:</i> It is unclear whether depression symptom severity differs between VTC-C and IP-C delivery of individual psychotherapy.
		Group psychotherapy	1 RCT <sup>17</sup>	<i>Insufficient SOE:</i> It is unclear whether depression symptom severity differs between VTC-C and IP-C delivery of group psychotherapy.
Anxiety symptoms	VTC-H vs IP-C	Individual psychotherapy	2 RCTs <sup>1,3</sup>	<i>Low SOE:</i> Anxiety symptom severity may be similar after VTC-H and IP-C delivery of individual psychotherapy based on preliminary findings.
	VTC-C vs IP-C	Individual psychotherapy	1 RCT, <sup>12</sup> 1 NRS <sup>13</sup>	<i>Low SOE:</i> Anxiety symptom severity may be similar after VTC-C and IP-C delivery of individual psychotherapy.
Adverse events	VTC-H vs IP-C	Individual psychotherapy	1 RCT <sup>4</sup>	<i>Insufficient SOE:</i> It is unclear whether the occurrence of adverse events differs between VTC-H and IP-C delivery of individual psychotherapy.
		Individual psychotherapy	1 cohort study <sup>15</sup>	<i>Insufficient SOE:</i> It is unclear whether the occurrence of adverse events differs between VTC-C and IP-C delivery of individual psychotherapy.
	VTC-C vs IP-C	Group psychotherapy	1 RCT <sup>18</sup>	<i>Insufficient SOE:</i> It is unclear whether the occurrence of adverse events differs between VTC-C and IP-C delivery of group psychotherapy.
<b>Depression</b>				
Depression symptoms	VTC-H vs IP-C	Individual psychotherapy	2 RCTs <sup>19,20</sup>	<i>Low SOE:</i> It is unclear whether depression symptom severity differs between VTC-H and IP-C delivery of individual psychotherapy. One study <sup>20</sup>

				with low risk of bias found that depression symptom severity decreased less for the VTC-H group than the IP-C group.
		Psychiatry	1 RCT <sup>21</sup>	<i>Insufficient SOE:</i> It is unclear whether depression symptom severity differs between VTC-H and IP-C delivery of psychiatry.
	Telephone vs IP-C	Individual psychotherapy	2 RCTs <sup>22,23</sup>	<i>Low SOE:</i> Depression symptom severity may be similar after telephone and IP-C delivery of individual psychotherapy immediately post-treatment, but it is unclear whether depression symptom severity differs between telephone and IP-C over time.
		Group psychotherapy	1 NRS <sup>24</sup>	<i>Insufficient SOE:</i> It is unclear whether depression symptom severity differs between VTC-C and IP-C delivery of group psychotherapy.
	VTC-C vs IP-C	Psychiatry	1 RCT <sup>25</sup>	<i>Insufficient SOE:</i> It is unclear whether depression symptom severity differs between VTC-C and IP-C delivery of psychiatry.
	VTC-H vs IP-C	Individual psychotherapy	1 RCT <sup>20</sup>	<i>Insufficient SOE:</i> It is unclear whether anxiety symptom severity differs between VTC-H and IP-C delivery of individual psychotherapy.
Anxiety symptoms	VTC-C vs IP-C	Psychiatry	1 RCT <sup>25</sup>	<i>Insufficient SOE:</i> It is unclear whether anxiety symptom severity differs between VTC-C and IP-C delivery of psychiatry.
PTSD symptoms	VTC-H vs IP-C	Individual psychotherapy	1 RCT <sup>20</sup>	<i>Insufficient SOE:</i> It is unclear whether PTSD symptom severity differs between VTC-H and IP-C delivery of individual psychotherapy.
	VTC-H vs IP-C	Individual psychotherapy	2 RCTs <sup>19,20</sup>	<i>Low SOE:</i> It is unclear whether the occurrence of adverse events differs between VTC-H and IP-C delivery of individual psychotherapy.
Adverse events	Telephone vs IP-C	Individual psychotherapy	1 RCT <sup>23</sup>	<i>Insufficient SOE:</i> It is unclear whether the occurrence of adverse events differs between telephone and IP-C delivery of individual psychotherapy.

*Abbreviations.* CBCT=cognitive-behavioral conjoint therapy; CBT=cognitive behavioral therapy; IP-C=clinic-based in-person; NRS=non-randomized study; PTSD=posttraumatic stress disorder; RCT=randomized controlled trial; SOE=strength of evidence; VTC-C=in-clinic videoteleconference; VTC-H=in-home videoteleconference.

# EVIDENCE BRIEF

## INTRODUCTION

### PURPOSE

The Evidence Synthesis Program (ESP) Coordinating Center is responding to a request from the US Department of Veterans Affairs (VA) Office of Mental Health and Suicide Prevention (OMHSP) for an Evidence Brief on the safety and effectiveness of evidence-based mental health care delivered via telehealth modalities. Findings from this Evidence Brief will be used to inform delivery of mental health care across the VA system.

### BACKGROUND

Telehealth refers to the use of information communication technology to deliver a healthcare service<sup>26</sup> synchronously (*ie*, involving live interactions between a provider and patient) or asynchronously using computers, tablets, smartphones, or other communication modalities. Advances in technology have allowed for the proliferation of telehealth services across the United States, and the US Department of Veterans Affairs (VA) is a national leader in the use of telehealth<sup>27</sup> and an early adopter of telehealth technology (including video teleconferencing, or VTC).<sup>28</sup> Over the last decade, the VA has expanded telehealth programs to improve Veterans' access to healthcare,<sup>29</sup> and in 2016, established the Office of Connected Care (OCC) to administer Veterans Health Administration (VHA) telehealth programs.

Until recently, technological limitations and regulatory and safety considerations have meant that most VA telehealth services were accessible only at community-based outpatient clinics (CBOCs). Because CBOC-based telehealth still requires Veterans to travel from their homes to receive care, in 2016 the OCC and the VHA Office of Rural Health began a nationwide effort to expand VTC into the home.<sup>28</sup> The VA Maintaining Systems and Strengthening Integrated Outside Networks (MISSION) Act of 2018 further reduced barriers to accessing VA telehealth services by allowing VA providers to deliver care via telehealth regardless of where the Veteran or provider is located.

As a result of these efforts, availability of telehealth services and use of telehealth in the VHA have grown, with the number of clinical video telehealth encounters increasing steadily from 150,000 in fiscal year (FY) 2009 to 1,074,000 in FY 2018.<sup>26</sup> The number of VA-provided video visits to Veterans' homes increased more than 1,200% from FY 2019 to FY 2020<sup>27</sup> (a period including the initial months of the COVID-19 pandemic), reflecting a demand for telehealth services that is likely to persist beyond the pandemic.

Telemental health, or telehealth-delivered mental health services, has been a critical application of telehealth technologies because of the lack of specialized mental health care providers and high need for these services in rural areas.<sup>30</sup> Many Veterans have complex mental health needs but do not receive adequate mental health treatment.<sup>31</sup> Telemental health may address barriers that prevent Veterans from seeking mental health care, such as lack of access to mental health services and negative stigma associated with utilization of mental health services.<sup>32</sup> Telemental health is the most frequently accessed clinical video telehealth service in the VA.<sup>26</sup>

Existing systematic reviews and meta-analyses of telemental health<sup>32-35</sup> have generally found that psychological interventions are similarly effective for depression and posttraumatic stress disorder (PTSD) when delivered remotely via VTC/telephone or in person.<sup>36</sup> Importantly, these reviews have not focused on telehealth services comparable to those delivered in the VA (*ie*, synchronous, provider-delivered evidence-based psychological or psychiatric interventions) or on studies that compared the same intervention delivered via different modalities (*ie*, not compared to waitlist or treatment as usual). To inform VA clinical practice, in the present report we evaluate whether existing evidence shows that synchronous in-person or telehealth-based mental health care are similarly safe and effective in the treatment of mental health conditions common among Veterans (depression, PTSD, anxiety, bipolar disorder, substance use disorders [SUD], suicidality, and serious mental illness [SMI]).

## METHODS

### PROTOCOL

A preregistered protocol for this review can be found on the PROSPERO international prospective register of systematic reviews (<http://www.crd.york.ac.uk/PROSPERO/>; registration number CRD42022335327).

### KEY QUESTIONS

The following key questions (KQs) were the focus of this review:

*KQ1:* What is the safety and effectiveness of evidence-based mental health care when delivered via telehealth modalities to adults with PTSD, depression, anxiety, bipolar disorder, SUD, suicidality, and/or SMI?

*KQ2:* Does the safety and/or effectiveness of evidence-based mental health care delivered via telehealth modalities vary according to the modality, format (*ie*, group vs individual), or presenting mental health condition (including patient risk/severity level)?

### ELIGIBILITY CRITERIA

The ESP included studies that met the following criteria:

<i>Population</i>	Adults with symptoms or diagnosis of PTSD, depression, anxiety, bipolar disorder, SUD, suicidality, and/or SMI
<i>Intervention</i>	Evidence-based ( <i>ie</i> , recommended by applicable VA/DoD Clinical Practice Guidelines, or when unavailable, similar widely adopted guidelines) mental health care delivered by a provider to a patient in a home or clinical setting with some aspect of care delivered by a telehealth modality (VTC, telephone, online portals, secure messaging, or integration of multiple modalities)
<i>Comparator</i>	Intervention delivered in person or via alternative telehealth modality
<i>Outcomes</i>	<ul style="list-style-type: none"> <li>• Mental health condition symptomatology (<i>eg</i>, symptom reduction, functional improvement, quality of life)</li> <li>• Access and continuity of care (<i>eg</i>, wait times, patient retention/attrition, missed appointments, involvement of family/partner)</li> <li>• Quality and implementation-related outcomes (<i>eg</i>, patient satisfaction, provider satisfaction, therapeutic alliance, cost-effectiveness)</li> <li>• Harms (any)</li> </ul>
<i>Timing</i>	Any
<i>Setting</i>	Patient home or clinical setting remotely located from mental health care provider
<i>Study Design</i>	Any, but we may prioritize articles using a best-evidence approach to accommodate Evidence Brief timeline

## DATA SOURCES AND SEARCHES

To identify articles relevant to the key questions, a research librarian searched Ovid MEDLINE, PsycINFO, and the Cochrane Database of Systematic Reviews, as well as the AHRQ and HSR&D databases from 2000 through May 2022 using terms for *mental health conditions, telehealth, and evidence-based mental health care* (see Appendix A in Supplemental Materials for complete search strategies). We limited our search to studies published after 2000 to identify studies that reflect the current landscape of telehealth (eg, widespread access to the internet and cellular phones). Additional citations were identified from hand-searching reference lists of relevant systematic reviews (see Appendix B in Supplemental Materials for a reference list of hand-searched systematic reviews). We limited the search to published and indexed articles involving human subjects available in the English language. Study selection was based on the eligibility criteria described above. Titles, abstracts, and full-text articles were independently screened by 2 investigators. All disagreements were resolved by consensus or discussion with a third reviewer.

## DATA ABSTRACTION AND ASSESSMENT

Effect information and population, intervention, and comparator characteristics were abstracted from all included studies. When needed effect information was reported only in plots or other graphics, we abstracted data using the WebPlotDigitizer tool (<https://apps.automeris.io/wpd/>). We used the Cochrane Risk of Bias 2.0 tool<sup>37</sup> to rate the internal validity of randomized controlled trials, and the ROBINS-I tool<sup>38</sup> to rate non-randomized studies. All data abstraction and internal validity ratings were first completed by 1 reviewer and then checked by another; disagreements were resolved by consensus or discussion with a third reviewer.

We graded the strength of the evidence based on the AHRQ Methods Guide for Comparative Effectiveness Reviews.<sup>39</sup> This approach provides a rating of confidence in reported findings based on trial methodology (design, quality, and risk of bias), consistency (whether effects are in the same direction and have a consistent magnitude), and directness (whether assessed outcomes are clinically important to patients and providers). When information on precision of findings (eg, confidence intervals) is available, certainty of evidence is also evaluated. For this review, we applied the following general algorithm: *high strength* evidence consisted of multiple, large trials with low risk of bias, consistent and precise findings, and clinically relevant outcomes; *moderate strength* evidence consisted of multiple trials with low to unclear risk of bias, consistent and precise findings, and clinically relevant outcomes; *low strength* evidence consisted of a single trial, or multiple small trials, with unclear to high risk of bias, inconsistent or imprecise findings, and/or outcomes with limited clinical relevance; and *insufficient* evidence consisted of a single trial with unclear or high risk of bias, or no available trials. Given the wide range of outcomes of interest for this review, as well as the high degree of variation between studies in terms of the mental health conditions, interventions, and telehealth modalities/settings examined, we only assessed the strength of evidence for mental health condition symptomatology and safety outcomes.

## SYNTHESIS

Quantitative synthesis was not conducted because interventions, telehealth modalities, settings, and outcomes differed considerably across studies. Disorder-specific outcomes were organized and described by disorder type, treatment type (individual psychotherapy, couples'



psychotherapy, group psychotherapy, or psychiatry), telehealth modality (VTC or telephone), and telehealth setting (*ie*, in the home or at the clinic).

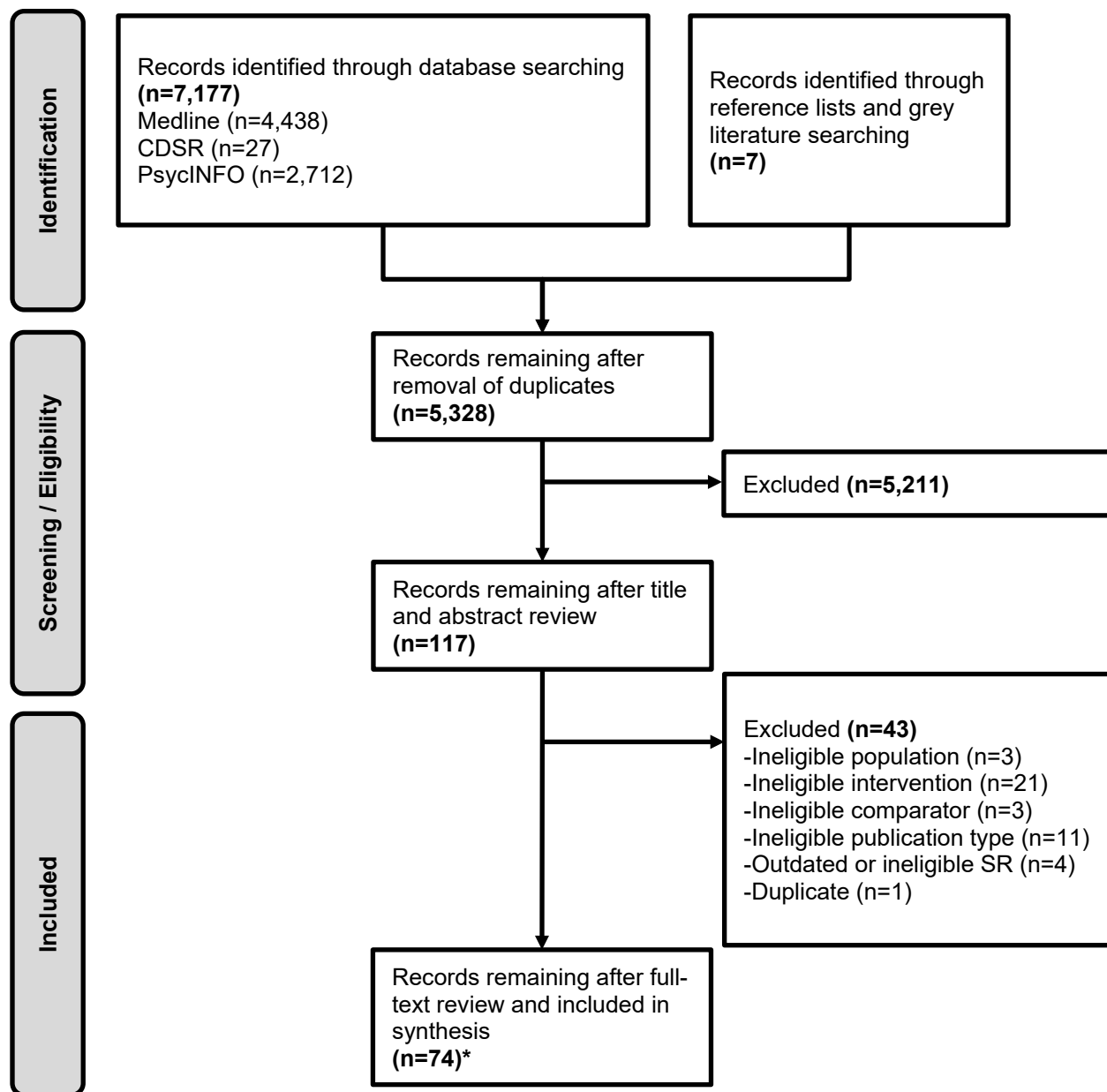
Based on prior systematic reviews, we anticipated that PTSD and depression symptom severity would be the most reported symptomatology outcomes. Although we ultimately did not carry out meta-analysis, to aid interpretation of available evidence we converted reported outcomes to bias-adjusted standardized mean differences (SMDs; Hedges'  $g$ ) and presented these estimates in forest plots organized by comparison condition and assessment point. When baseline-adjusted model-based means were reported, SMDs were calculated using baseline standard deviations; when only raw, follow-up group means were reported, standard deviations from the same follow-up assessment point were used. One study<sup>12</sup> did not provide sufficient information to calculate standard deviations, and we imputed these values with the median of standard deviations reported by other studies for the same outcome measure, assessment point, and group. Reported observed sample sizes at each follow-up assessment point were used unless studies explicitly reported imputation of missing data using a modern technique (*ie*, multiple imputation or maximum-likelihood methods), and because the aim of most studies was noninferiority testing, we used per-protocol samples when available. SMDs are accompanied by 90% confidence intervals for consistency with noninferiority testing conventions (note that because meta-analysis was not conducted, SMDs presented in forest plots are unweighted).

# RESULTS

## LITERATURE FLOW

The literature flow diagram (Figure 1) summarizes the results of the study selection process (full list of excluded studies available in Appendix C in Supplemental Materials).

**Figure 1. Literature Flowchart**



Notes. 50 studies in 74 publications.  
Abbreviations. CDSR=Cochrane Database of Systematic Reviews.

## LITERATURE OVERVIEW

Our search identified 5,326 potentially relevant articles. We included 50 studies (in 74 publications), including 27 randomized controlled trials (RCTs;  $N = 18-495$ ), 3 secondary analyses of data from multiple RCTs, and 20 observational studies ( $N = 14-28,791$ ), which are summarized in Table 1 (see Appendix D in Supplemental Materials for full study details). Most studies evaluated treatments for PTSD ( $N = 24$ ). Other conditions investigated included depression ( $N = 8$ ), anxiety-related disorders ( $N = 7$ ), and SUDs ( $N = 3$ ). Eight studies investigated telehealth delivery of mental health interventions aimed to address multiple types of mental health concerns. No studies were identified that focused exclusively on telehealth-delivered mental health care for bipolar disorder, SMI, or suicidality. Adults who were actively psychotic or suicidal were generally excluded from study participation, as were those who met criteria for current substance dependence (except for the 3 studies evaluating telehealth-delivered treatment for SUDs). Most studies required that participants taking psychotropic medications be on a stable regimen for a certain period prior to the study, and that participants not start or stop taking psychotropic medications during the study. Studies were conducted in the US with the exception of 7 studies conducted in Canada,<sup>13,40-45</sup> 2 in the UK,<sup>46,47</sup> and 1 study each conducted in Iran,<sup>48</sup> Brazil,<sup>21</sup> Australia,<sup>49</sup> and Spain.<sup>50</sup> Twenty-eight studies were conducted among Veterans.

Most interventions were categorized as individual psychotherapy, followed by group psychotherapy and psychiatry. A single study investigated couples' psychotherapy.<sup>8</sup> Interventions evaluated for the treatment of PTSD included prolonged exposure (PE),<sup>2,3,5,7,14-16,51-54</sup> behavioral activation and therapeutic exposure (BA-TE),<sup>1</sup> written exposure therapy (WET),<sup>6</sup> cognitive behavioral therapy (CBT) for PTSD,<sup>12,13,17</sup> cognitive processing therapy (CPT; individual,<sup>4,5,9-11,16,54</sup> group,<sup>18</sup> or both<sup>55</sup>), brief cognitive-behavioral conjoint therapy (CBCT),<sup>8</sup> and psychiatry.<sup>48</sup> Treatments for depression included individual CBT (alone<sup>23</sup> or along with care management<sup>22</sup>), group CBT,<sup>24</sup> problem-solving therapy (primary care version),<sup>56</sup> behavioral activation,<sup>19,20</sup> and psychiatry.<sup>21,25</sup> Treatments for anxiety-related disorders included virtual reality exposure therapy (VRET) for specific phobia,<sup>57</sup> exposure and response prevention (ERP) for obsessive compulsive disorder (OCD),<sup>46,58</sup> CBT for anxiety,<sup>41</sup> panic disorder with agoraphobia,<sup>43,44</sup> or OCD,<sup>58</sup> and group CBT for anxiety disorder or panic disorder with agoraphobia.<sup>45</sup> Two studies evaluated medication-assisted treatment for opioid use disorder.<sup>59,60</sup> Treatments investigated in studies including participants with various mental health concerns were CBT,<sup>47,49</sup> group CBT,<sup>42</sup> CBT plus eye movement desensitization and reprocessing (EMDR),<sup>61</sup> and psychiatry.<sup>40,50</sup> Additionally, 3 studies evaluated treatment within an intensive outpatient program (IOP) or partial hospital program (PHP), including a dialectical behavior therapy-based IOP for adults with a co-occurring substance use disorder and mental health disorder,<sup>62</sup> a transdiagnostic psychiatric IOP, and a PHP based on acceptance and commitment therapy (ACT) and related evidence-based psychotherapy techniques.<sup>63</sup>

Most studies ( $N = 42$ ) compared clinic-based in-person delivery (IP-C) of mental health care to VTC. Of these, 23 studies conducted VTC in the setting of the home (VTC-H), and 23 in the clinic (VTC-C). Only 5 studies compared IP-C to telephone delivery.<sup>22,23,46,47,57</sup> In 1 study<sup>57</sup> of virtual reality exposure therapy, participants were provided with computers for the virtual reality component but were guided by the therapist over the telephone. Evidence on KQ2 was only available for PTSD and depression. Only 2 RCTs<sup>51,64</sup> and 1 cohort study<sup>5</sup> compared delivery of mental health care via 2 different telehealth modalities, comparing VTC-H to VTC-C for the

treatment of PTSD. No studies directly compared treatment format (*ie*, group vs individual) or treatment of different mental health conditions. Telehealth setting was not specified in 2 studies and was assumed to take place in the home.<sup>48,65</sup>

Common methodological limitations of RCTs were unclear co-interventions, high attrition, and exclusion of a portion of randomized participants from analyses. Observational studies were limited by lack of control for potential confounders and unclear handling and/or extent of missing data.

**Table 1. Characteristics of Included Studies**

<b>Study Design</b>	<b>Sample Size Follow-up</b>	<b>Population</b>	<b>Intervention Characteristics</b>	<b>Comparator Modality</b>	<b>Outcomes Assessed</b>
<i>Posttraumatic stress disorder</i>					
Acierno, 2016 <sup>1,66</sup> <i>RCT</i>	N=265 12 months	Veterans with PTSD	Behavioral Activation and Therapeutic Exposure (BA-TE) delivered by VTC-C	IP-C	PCL-M, BDI-II, BAI
Acierno, 2017 <sup>3,67-70</sup> <i>RCT</i>	N=150 6 months	Veterans with PTSD	PE delivered by VTC-H	IP-C	PCL-M, CAPS, BDI-II, BAI, IPF, session attendance, predictors of dropout, SDPQ, CPOSS
Acierno, 2021 <sup>2,71,72</sup> <i>RCT</i>	N=136 6 months	Women Veterans with MST-related PTSD	PE delivered by VTC-H	IP-C	PCL-5, BDI-II, session attendance, predictors of dropout
Franklin, 2017 <sup>51</sup> <i>RCT</i>	N=27 1 month	Veterans with PTSD	PE delivered by VTC-H (iPhone)	VTC-C	CAPS, PDS, BDI-II, BAI, acceptability, documentation of issues with teleconferencing equipment
Frueh, 2007 <sup>17,73</sup> <i>RCT</i>	N=38 3 months	Veterans with PTSD	CBT delivered by VTC-C	IP-C	PCL-M, BDI, SCL-90-R GSI, session attendance, homework completion, CPOSS-VA, TCS
Germain, 2009 <sup>13,74</sup> <i>NRS</i>	N=48 Post-treatment	Adults with PTSD	CBT delivered by VTC-C	IP-C	SCID, m-PSS, BDI, BAI, ACF, session attendance, WAI, SEQ, DCCS, VTS, VT-Q, VTSessions-Q
Glassman, 2019 <sup>a,55</sup> <i>RCT</i>	N=251 6 months	Veterans with PTSD	Individual or group CPT delivered by VTC-C	IP-C	QOLI
Gros, 2011 <sup>14</sup> <i>Cohort</i>	N=89 Post-treatment	Veterans with PTSD	Exposure therapy delivered by VTC-C	IP-C	PCL-M, BDI-II, predictors of dropout, session attendance
Haghnia, 2019 <sup>48</sup> <i>RCT</i>	N=71 Post-treatment	Veterans with PTSD	Psychiatry delivered over any/multiple modalities in the home	IP-C	Session attendance, access to a psychiatrist, wait times, patient satisfaction, cost

<b>Study Design</b>	<b>Sample Size Follow-up</b>	<b>Population</b>	<b>Intervention Characteristics</b>	<b>Comparator Modality</b>	<b>Outcomes Assessed</b>
Hernandez-Tejada, 2014 <sup>b75</sup> <i>RCT</i>	N=258 <i>NR</i>	Veterans with PTSD	PE delivered by VTC-H	IP-C	Barriers to Exposure Therapy Participation Scale (BTPS), TAQ
Knowlton, 2021 <sup>5</sup> <i>Cohort</i>	N=581 <i>Post-treatment</i>	Veterans with PTSD	PE or CPT delivered by VTC-H  PE or CPT delivered by VTC-C	IP-C	PCL-5, BDI-II, session attendance, homework completion
Liu, 2020 <sup>9</sup> <i>RCT</i>	N=207 <i>6 months</i>	Veterans with PTSD	CPT delivered by VTC-C	IP-C	CAPS, PCL-S, PHQ-9, session attendance, homework completion
LoSavio, 2021 <sup>6</sup> <i>Cohort</i>	N=277 <i>Post-treatment</i>	Veterans with PTSD	Written exposure therapy (WET) delivered by VTC (location not reported)	IP-C	PCL-5
Maieritsch, 2016 <sup>10</sup> <i>RCT</i>	N=90 <i>3 months</i>	Veterans with PTSD	CPT delivered by VTC-C	IP-C	PCL, CAPS, BDI-II, WAI
Morland, 2014 <sup>18,76</sup> <i>RCT</i>	N=125 <i>6 months</i>	Veterans with PTSD	Group CPT delivered by VTC-C	IP-C	CAPS, session attendance, homework completion, CPOSS-VA, Group Therapy Alliance Scale, adverse events
Morland, 2015 <sup>11</sup> <i>RCT</i>	N=126 <i>6 months</i>	Adults recruited at Veteran sites with PTSD	CPT delivered by VTC-C	IP-C	CAPS, session attendance, WAI, CPOSS-VA, Telemedicine Satisfaction and Acceptance Scale
Morland, 2020 <sup>64</sup> <i>RCT</i>	N=175 <i>6 months</i>	Veterans with PTSD	PE delivered by VTC-H  PE delivered by VTC-C	IP-H	CAPS-5, PCL-5, BDI-II, predictors of dropout, session attendance
Morland, 2022 <sup>8</sup> <i>RCT</i>	N=137 <i>6 months</i>	Veteran couples with PTSD	Brief cognitive-behavioral conjoint therapy delivered by VTC-H	IP-C	CAPS-5, Brief Inventory of Psychosocial Functioning, Couples Satisfaction Index, WAI-short form, CSQ

<b>Study Design</b>	<b>Sample Size Follow-up</b>	<b>Population</b>	<b>Intervention Characteristics</b>	<b>Comparator Modality</b>	<b>Outcomes Assessed</b>
Peterson, 2022 <sup>4</sup> <i>RCT</i>	N=120 6 months	Active-duty military or Veterans with PTSD	CPT delivered by VTC-H	IP-C IP-H	PCL-5, CAPS-5, BDI-II, acceptability, adverse events
Tuerk, 2010 <sup>15</sup> <i>Cohort</i>	N=47 Post-treatment	Veterans with PTSD	PE delivered by VTC-C	IP-C	PCL, BDI-II, session attendance, adverse events
Valentine, 2020 <sup>54</sup> <i>Cohort</i>	N=171 Post-treatment	Veterans with MST-related PTSD	CPT or PE delivered by VTC-H	IP-C	Attrition only
White, 2021 <sup>b7</sup> <i>RCT</i>	N=140 6 months	Veterans with PTSD	PE delivered by VTC-H	IP-C	PCL-M, CPOSS, SDPQ
Wierwille, 2016 <sup>16</sup> <i>Cohort</i>	N=221 Post-treatment	Veterans with PTSD	CPT or PE delivered by VTC-C	IP-C	PCL-S, BDI-II
Ziemba, 2014 <sup>12</sup> <i>RCT</i>	N=18 Post-treatment	Veterans with PTSD	CBT delivered by VTC-C	IP-C	CAPS, MADRS, HAM-A, SF-36, patient satisfaction
<b>Depression</b>					
Alegria, 2014 <sup>22,77-79</sup> <i>RCT</i>	N=257 4 months	Low-income Latinos with depression	Engagement and Counseling for Latinos (ECLA; CBT plus care management) delivered by telephone	IP-C	PHQ-9, HSCL-20, WHODAS 2, PSWQ, initiation of care, engagement, clinician review of homework, homework completion, treatment satisfaction, cost-effectiveness
Choi, 2014 <sup>56</sup> <i>RCT</i>	N=121 36 weeks	Low-income homebound older adults with depression symptoms	Problem-solving therapy (primary care version) delivered by VTC-H	IP-H	HAM-D, Treatment Evaluation Inventory
Egede, 2015 <sup>19,80-82</sup> <i>RCT</i>	N=241 12 months	Older Veterans with MDD	Behavioral activation for depression delivered by VTC-H	IP-C	Geriatric Depression Scale, BDI, SCID, SF-36, CPOSS, treatment credibility, SDPQ, healthcare cost trajectories, cost-effectiveness, adverse events

<b>Study Design</b>	<b>Sample Size Follow-up</b>	<b>Population</b>	<b>Intervention Characteristics</b>	<b>Comparator Modality</b>	<b>Outcomes Assessed</b>
Hungerbuehler, 2016 <sup>21</sup> <i>RCT</i>	N=107 12 months	Adults with mild depression	Psychiatry delivered by VTC-H	IP-C	HAM-D, MHI-38, medication course, relapse, treatment adherence, medication adherence, CSQ, WAI-short form
Luxton, 2016 <sup>20,83-85</sup> <i>RCT</i>	N=121 3 months	Military service members and Veterans with depression	Behavioral activation delivered by VTC-H	IP-C	BHS, BDI-II, BAI, PCL-M, CSQ, cost, treatment session checklist
Mohr, 2012 <sup>23,86-89</sup> <i>RCT</i>	N=325 6 months	Primary care patients with depression	CBT delivered by telephone	IP-C	HAM-D, PHQ-9, AUDIT, treatment adherence, WAI, adverse events
Ritchie, 2007 <sup>24</sup> <i>NRS</i>	N=14 Post-treatment	Retired or active-duty military service members with depression (and their families)	Group CBT delivered by VTC-C	IP-C	BDI-II, session attendance, Group Climate Questionnaire
Ruskin, 2004 <sup>25,90</sup> <i>RCT</i>	N=131 Post-treatment	Veterans with depression	Psychiatry delivered by VTC-C	IP-C	HAM-D, BDI, Spielberger State Anxiety Scale, GAF, CGI, session attendance, medication adherence, patient & psychiatrist satisfaction, resource consumption & costs
<b>Anxiety</b>					
Bouchard, 2004 <sup>43</sup> <i>NRS</i>	N=21 6 months	Adults diagnosed with panic disorder with agoraphobia	CBT delivered by VTC-C	IP-C	Panic attacks, panic apprehension (daily diary), ACQ, BSQ, Mobility Inventory, Self-Efficacy to Control a Panic Attack Scale, STAI, BDI, SDS, WAI, treatment credibility
Bouchard, 2020 <sup>44</sup> <i>NRS</i>	N=71 12 months	Adults diagnosed with panic disorder with agoraphobia	CBT delivered by VTC-C	IP-C	Panic and Agoraphobia Scale, Mobility Inventory, ACQ, BSQ, BDI, WAI, CALPAS, CMOTS
Cherestal, 2019 <sup>57</sup> <i>RCT</i>	N=22 Post-treatment	Adults with specific phobia (aviophobia)	Virtual reality exposure therapy delivered by telephone	IP-C	Flight related anxiety, behavioral avoidance (graduation flight at end of treatment), presence in the virtual environment, WAI



<b>Study Design</b>	<b>Sample Size Follow-up</b>	<b>Population</b>	<b>Intervention Characteristics</b>	<b>Comparator Modality</b>	<b>Outcomes Assessed</b>
Lovell, 2006 <sup>46</sup> <i>RCT</i>	N=72 6 months	Adults with OCD	Exposure and response prevention delivered by telephone	IP-C	Y-BOCS, BDI, CSQ
Milosevic, 2022 <sup>45</sup> <i>Cohort</i>	N=413 3 months	Adults with anxiety or related disorder	Group CBT delivered by VTC-H	IP-C	DASS, SPIN, PDSS-SR, PSWQ, OCI-R, session attendance
Pinciotti, 2022 <sup>58</sup> <i>Cohort</i>	N=468 Post-treatment	Adults with OCD	CBT and exposure and response prevention within a PHP and IOP delivered by VTC-H	IP-C	Length of stay, QLESQ, QIDS, Y-BOCS-SR
Watts, 2020 <sup>41</sup> <i>RCT</i>	N=115	Adults with anxiety	CBT delivered by VTC-C	IP-C	ADIS-IV, SCID-II, WAI, adverse events
<i>Substance use</i>					
Bean, 2022 <sup>62</sup> <i>Cohort</i>	N=69 Post-treatment	Adults with co-occurring SUD and at least one mental health disorder (most commonly depression, anxiety, or PTSD)	DBT-based IOP delivered by VTC-H	IP-C	DASS, session attendance
Vakkalanka, 2022 <sup>59</sup> <i>Cohort</i>	N=28,791 Post-treatment	Veterans with OUD	Counseling to accompany buprenorphine prescription delivered by VTC in any/multiple settings	IP-C	Treatment discontinuation only
Zheng, 2017 <sup>60</sup> <i>Cohort</i>	N=100 Variable	Adults with OUD	Medication-assisted treatment delivered by VTC-C	IP-C	Abstinence, time to 30- and 90-days abstinence, treatment retention
<i>Multiple mental health conditions</i>					
De Las Cuevas, 2006 <sup>50</sup> <i>RCT</i>	N=140 Post-treatment	Adults with ICD-10 diagnosis of F1, F2, F3, F4, and F6	Psychiatry delivered by VTC-C	IP-C	SCL-90R, CGI

<b>Study Design</b>	<b>Sample Size Follow-up</b>	<b>Population</b>	<b>Intervention Characteristics</b>	<b>Comparator Modality</b>	<b>Outcomes Assessed</b>
Gannon, 2021 <sup>65</sup> <i>Cohort</i>	N=391 <i>Post-treatment</i>	Adults with depressive disorders, bipolar disorders, anxiety disorders, borderline personality disorder, PTSD, hallucinogen use, and other psychotic, eating, and adjustment disorders	Transdiagnostic psychiatric IOP delivered via any/multiple telehealth modalities in the home	IP-C	PHQ-9, GAD-7, patient participation
Hammond, 2012 <sup>47</sup> <i>Cohort</i>	N=4,106 <i>Post-treatment</i>	Adults in mental health treatment	Low-intensity CBT delivered by telephone	IP-C	PHQ-9, GAD-7, WSAS, cost
Khatri, 2014 <sup>42</sup> <i>Cohort</i>	N=18 <i>3 months</i>	Adults with mood, anxiety, or adjustment disorder diagnosis	Group CBT delivered by VTC-H	IP-C	BDI-II, group session themes, technical glitches
Liou, 2022 <sup>61</sup> <i>Cohort</i>	N=288 <i>Post-treatment</i>	Adults with a psychiatric diagnosis	EMDR + CBT delivered by VTC-H	IP-C	PHQ-9, GAD-7
O'Reilly, 2007 <sup>40</sup> <i>RCT</i>	N=495 <i>1 year</i>	Adults with any condition eligible for referral to the psychiatric clinic	Psychiatry delivered by VTC-H	IP-C	BSI, SF-36, CSQ, cost, hospitalization
Stubbings, 2013 <sup>49</sup> <i>RCT</i>	N=26 <i>1.5 months</i>	Adults living in Perth, Australia with mood or anxiety disorder (DSM-IV_TR Axis I disorder)	CBT delivered by VTC-C	IP-C	DASS, QLES, BDI-II, Obsessive-Compulsive Inventory, Health Anxiety Questionnaire, PSWQ, Anxiety Sensitivity Index, WAI-short form, CSQ
Zimmerman, 2021 <sup>63</sup> <i>Cohort</i>	N=414 <i>Post-treatment</i>	Adults with a variety of presenting mental health concerns	PHP based on ACT and related evidence-based psychotherapy techniques delivered by VTC-H	IP-C	RDQ-M, treatment attendance, CUPSS, adverse events

Notes. <sup>a</sup> Secondary analysis of data from Morland 2014 and Morland 2015. <sup>b</sup> Secondary analysis of data from Acierno 2017 and Acierno 2021.

Abbreviations. ACF=Assessment of Current Functioning; ACQ=Agoraphobic Cognition Questionnaire; ACT=acceptance and commitment therapy; ADIS-IV=Anxiety Disorders Interview Schedule for DSM-IV; AUDIT=Alcohol Use Disorders Identification Test; BAI=Beck Anxiety Inventory; BDI=Beck Depression Inventory; BHS=Beck Hopelessness Scale; BSI=Brief Symptom Inventory; BSQ=Body Sensation Questionnaire; CALPAS=California Psychotherapy Alliance Scale; CAPS=Clinician Administered PTSD Scale; CBT=cognitive behavioral therapy; CGI=Clinical Global Impressions scale; CMOTS=Client Motivation for

Therapy Scale; CPOSS=Charleston Psychiatric Outpatient Satisfaction Scale; CPT=cognitive processing therapy; CSQ=Client Satisfaction Questionnaire; CUPSS=Clinically Useful Patient Satisfaction Scale; DASS=Depression Anxiety Stress Scales; DBT=dialectical behavior therapy; DCCS=Distance Communication Comfort Scale; EMDR=eye movement desensitization and reprocessing; GAD-7=Generalized Anxiety Disorder scale; GAF=Global Assessment of Functioning; GSI=Global Severity Index; HAM-A=Hamilton Anxiety Rating Scale; HAM-D=Hamilton Depression Rating Scale; HSCL-20=20-item Hopkins Symptom Checklist; ICD-10=International Classification of Diseases, Tenth Revision; IOP=intensive outpatient program; IP-C=clinic-based in-person delivery; IP-H=home-based in-person delivery; IPF=Inventory of Psychosocial Functioning; MADRS=Montgomery-Asberg Depression Rating Scale; MHI-38=Mental Health Inventory; MDD=major depressive disorder; m-PSS=modified PTSD Symptom Scale; MST=military sexual trauma; NR=not reported; OCD=obsessive-compulsive disorder; OCI-R=Obsessive Compulsive Inventory – Revised; OUD=opioid use disorder; PCL-5=PTSD Checklist for DSM-5; PCL-M=PTSD Checklist-Military Version; PCL-S=PTSD Checklist-Specific Version; PDS=Posttraumatic Stress Diagnostic Scale; PDSS-SR=Panic Disorder Severity Scale, Self-Report; PE=prolonged exposure; PSWQ=Penn State Worry Questionnaire; PTSD=posttraumatic stress disorder; PE=prolonged exposure; PHP=partial hospital program; PHQ-9=Patient Health Questionnaire; QIDS=Quick Inventory of Depressive Symptoms; QLES=Quality of Life Enjoyment and Satisfaction Questionnaire; QOLI=Quality of Life Inventory; RDQ-M=Modified Remission from Depression Questionnaire; SCID=Structured Clinical Interview for DSM-IV; SCL-90-R=Symptom Checklist 90 Revised; SDPQ=Service Delivery Perception Questionnaire; SEQ=Session Evaluation Questionnaire; SF-36=Short Form Health Survey; SPIN=Social Phobia Inventory; STAI=State-Trait Anxiety Inventory; TAQ=Telehealth Attitudes Questionnaire; TCS=Treatment Credibility Scale; VT-Q=Videoconference Therapy Questionnaire; VTC-C=clinic-based videoteleconference; VTC-H=home-based videoteleconference; VTS=Videoconferencing Telepresence Scale; WAI=Working Alliance Inventory; WHODAS-2=WHO Disability Assessment Schedule; WSAS=Work and Social Adjustment Scale; Y-BOCS=Yale-Brown Obsessive Compulsive Scale.

## TREATMENT OF POSTTRAUMATIC STRESS DISORDER

We identified 24 relevant studies (14 RCTs,<sup>1-4,8-12,17,18,48,51,64</sup> 3 secondary analyses of data from multiple RCTs,<sup>7,55,75</sup> and 7 observational studies<sup>5,6,13-16,54</sup>) comparing telehealth and in-person delivery of treatment for PTSD. Three studies<sup>5,53,91</sup> compared 2 telehealth modalities. We did not find any studies that investigated the effect of treatment format or presenting mental health condition on the effectiveness or safety of telehealth-delivered mental health care for PTSD.

### VTC-H versus IP-C

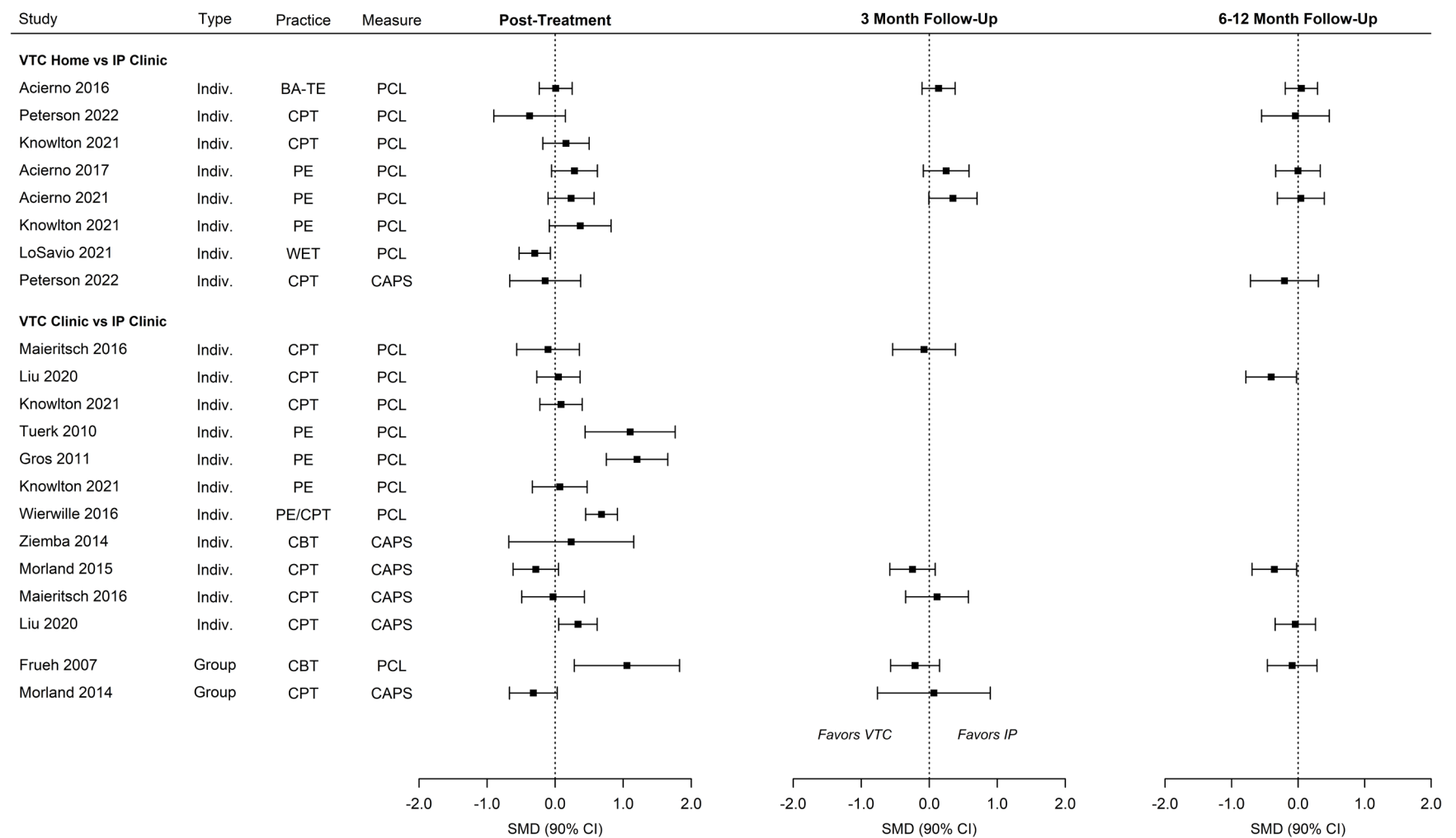
#### *PTSD symptom severity*

Post-treatment PTSD symptom severity appears to be similar for patients receiving individual psychotherapy via VTC-H or IP-C, based on low-strength evidence from 7 studies.

Four RCTs,<sup>1-4</sup> 2 cohort studies,<sup>5,6</sup> and 1 secondary analysis of data from multiple RCTs<sup>7</sup> investigating individual psychotherapy for PTSD delivered by VTC-H or IP-C reported on PTSD symptom severity. All studies were conducted among US Veterans, with 1 study<sup>4</sup> also including active-duty military members. Treatments investigated included BA-TE,<sup>1</sup> PE,<sup>2,3,5,7</sup> CPT,<sup>4,5</sup> and WET.<sup>6</sup> PTSD symptom severity, assessed using either the PTSD Checklist (PCL) or Clinician-Administered PTSD Scale (CAPS), did not significantly differ between modalities in most studies, although several studies reported fairly imprecise results (Figure 2). The 1 study<sup>6</sup> of WET reported a small difference in PCL scores favoring telehealth treatment, which was statistically significant with a 90% CI. Two of the available RCTs<sup>1,3</sup> had high attrition and did not include all randomized participants in their analyses. One retrospective cohort study<sup>5</sup> excluded patients who completed fewer than 8 treatment sessions from analyses. A secondary analysis<sup>7</sup> of data from 2 RCTs<sup>2,3</sup> only included participants with full outcome data, which was only 49% of participants randomized in both RCTs.

A single additional study<sup>8</sup> evaluated telehealth-delivered couples' psychotherapy. In this RCT among 137 US Veterans and their intimate partners treated with brief CBCT, PTSD symptom severity (assessed using the CAPS-5) did not significantly differ between groups. No studies comparing VTC-H and IP-C delivery of group psychotherapy or psychiatry for PTSD reporting on PTSD symptom severity were identified.

**Figure 2. Reported Standardized Between-group Differences in PTSD Symptom Severity (PCL and CAPS) for PTSD Studies**



Note. SMDs presented in forest plots are unweighted.

Abbreviations. BA-TE=Behavioral Activation and Therapeutic Exposure; CAPS=Clinician Administered PTSD Scale; CI=confidence interval; CPT=cognitive processing therapy; IP=in person; PCL=PTSD Checklist; PE=prolonged exposure; PTSD=posttraumatic stress disorder; SMD=standardized mean difference; VTC=videoteleconference; WET=written exposure therapy.



### *PTSD diagnosis*

There were too few studies available to determine whether the rate of PTSD remission is comparable between VTC-H and IP-C delivery of individual psychotherapy. Evidence is limited to 1 RCT<sup>3</sup> at high risk of bias. In this RCT<sup>3</sup> among 150 US Veterans receiving PE, PTSD diagnosis was assessed using the CAPS, but CAPS follow-up data are only provided in preliminary findings ( $N = 52$ ). At post-treatment, the rate of PTSD diagnosis did not significantly differ between groups ( $\chi^2 = 0.62$ ;  $p = 0.73$ ).

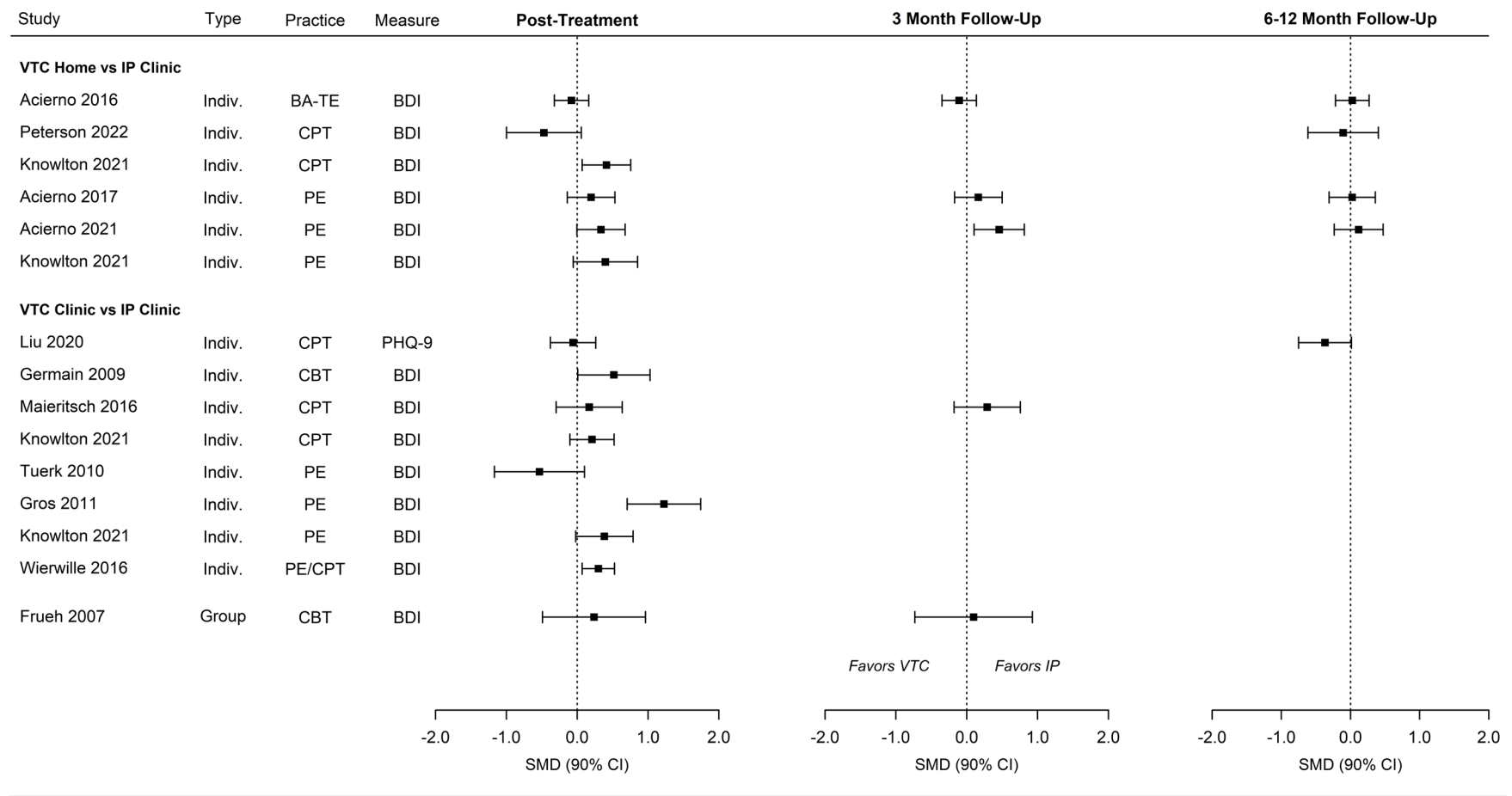
### *Depression symptom severity*

Due to inconsistent findings across studies, it is unclear whether post-treatment depression symptom severity differs between VTC-H and IP-C delivery of individual psychotherapy. However, depression symptom severity 6–12 months after treatment may be comparable, based on low-strength evidence from 4 RCTs.<sup>1-3</sup>

Four RCTs<sup>1-5</sup> and 1 cohort study<sup>5</sup> comparing VTC-H and IP-C delivery of individual psychotherapy for PTSD reported on depression symptom severity. Treatments included BA-TE,<sup>1</sup> PE,<sup>2,3,5</sup> and CPT.<sup>4,5</sup> Studies were conducted in the US among Veterans (1 study<sup>4</sup> also included active-duty military members). Depression symptom severity was assessed using the Beck Depression Inventory (BDI-II) and was inconsistent across studies and follow-up time points. Two RCTs conducted noninferiority analyses to determine whether telehealth delivery was not inferior to in-person delivery on improvement in depression symptom severity. In an RCT<sup>1</sup> among 265 Veterans receiving BA-TE, depression symptom severity was similar in VTC-H and IP-C groups post-treatment and at 3 and 12 months. In another RCT on PE in 150 Veterans,<sup>3</sup> differences in post-treatment depression scores between modality groups violated the study's prespecified inferiority limit (a 90% CI encompassing a difference of 5 or more points on the BDI). Nonetheless, mean scores did not significantly differ between groups and by 6 months were nearly identical. Both trials were at high risk of bias due to exclusion of some randomized participants from analyses.

In a trial<sup>2</sup> among 136 women Veterans who experienced military sexual trauma treated with PE, IP-C delivery was associated with significantly fewer depressive symptoms than telehealth delivery at post-treatment among the intent to treat (ITT) sample. However, the change in depressive symptoms from baseline to post-treatment and from post-treatment to 6-month follow-up did not significantly differ between groups. Two other studies also reported on group differences in change in depression symptom severity over time. In a trial<sup>4</sup> among 120 Veterans and active-duty military members treated with CPT, differences between groups were nonsignificant at post-treatment and 6 months. However, change from baseline score differed by delivery modality, with greater improvement in depression in the VTC-H group. Finally, a retrospective cohort study<sup>5</sup> conducted among 581 Veterans treated with either PE or CPT found that the magnitude of change in depression symptoms was not significantly different across treatment modalities when pooling PE and CPT. This study was at high risk of bias due to high attrition and exclusion of participants who did not complete a minimum of 8 treatment sessions from analyses.

**Figure 3. Reported Standardized Between-group Differences in Depression Symptom Severity (BDI and PHQ-9) for PTSD Studies**



Note. SMDs presented in forest plots are unweighted.

Abbreviations. BA-TE=Behavioral Activation and Therapeutic Exposure; BDI=Beck Depression Inventory; CBT=cognitive behavioral therapy; CI=confidence interval; CPT=cognitive processing therapy; IP=in person; PE=prolonged exposure; PHQ-9=Patient Health Questionnaire; SMD=standardized mean difference; VTC=videoteleconference.



No studies comparing VTC-H and IP-C delivery of group psychotherapy or psychiatry for PTSD reporting on depression symptom severity were identified.

### *Anxiety symptom severity*

Anxiety symptom severity after VTC-H and IP-C delivery of individual psychotherapy appears to be similar, based on preliminary findings of 2 RCTs.<sup>1,3</sup> Despite consistent and direct information from these 2 trials, evidence from these studies was rated as low strength due to serious study methodological limitations.

Two RCTs<sup>1,3</sup> investigating individual psychotherapy for PTSD delivered by VTC-H compared to IP-C reported on anxiety symptom severity, assessed using the Beck Anxiety Inventory (BAI), in preliminary findings only. Both trials were conducted in the US among Veterans. In an RCT<sup>1</sup> among 254 Veterans receiving BA-TE, groups did not significantly differ on anxiety symptom severity at post-treatment for a subset of 31 participants. In an RCT<sup>3</sup> among 150 Veterans receiving PE, VTC-H delivery of PE was noninferior in terms of anxiety symptom severity compared to IP-C delivery at post-treatment, for a subset of 52 participants. Both trials were at high risk of bias; attrition was high, and analyses did not include all randomized participants.

No studies comparing VTC-H and IP-C delivery of group psychotherapy or psychiatry for PTSD reporting on anxiety symptom severity were identified.

### *Safety*

Evidence is insufficient to make conclusions about the safety of mental health care for PTSD delivered by VTC-H compared to IP-C. Evidence on safety is limited to a single RCT<sup>4</sup> comparing VTC-H, IP-C, and IP-H reporting on the occurrence of adverse events during the study. Adverse events did not differ significantly by group after adjustment for the numbers of participants in each group. However, based on the strength of evidence, it is unclear whether the occurrence of adverse events differs between individual psychotherapy delivered via VTC-H and IP-C.

### *Attrition*

Nine studies (5 RCTs,<sup>1-3,8,48</sup> 1 secondary analysis of data from multiple RCTs,<sup>75</sup> and 3 observational studies<sup>5,6,54</sup>) assessed attrition by comparing dropout outcomes between VTC-H and IP-C treatment groups. Dropout was typically defined as termination of treatment before completing the study-specific number of prescribed sessions or as termination before reaching some proportion of prescribed sessions. Overall dropout among studies was high, ranging from 15.5%<sup>48</sup> to 53.0%.<sup>5</sup> One RCT and 1 cohort study found that patients in VTC-H treatment were more likely to drop out than patients treated IP-C, and the difference approached statistical significance. A single cohort study<sup>6</sup> found that IP-C patients were significantly more likely than VTC-H patients to drop out of treatment.

### *Other outcomes*

Included studies assessed a wide variety of additional outcomes. We did not formally grade strength of evidence for these secondary outcomes. One study<sup>3</sup> evaluating individual psychotherapy and 1 study<sup>8</sup> evaluating couples' psychotherapy assessed functioning using the



Inventory of Psychosocial Functioning (IPF). One of these studies<sup>3</sup> was at high risk of bias. Groups did not significantly differ on functioning in either study.

Four studies<sup>2,3,5,48</sup> examined engagement by investigating whether there were differences between groups on session attendance or treatment dose. Only 1 study<sup>48</sup> found significant differences between VTC-H and IP-C groups. In this RCT ( $N = 71$ ) conducted in Iran evaluating telehealth delivery of psychiatry, the VTC-H group completed a significantly greater number of treatment sessions compared to the IP-C group. This RCT also was the only PTSD study to examine wait times or access to a provider, as well as cost. Groups did not significantly differ on wait times or access to a psychiatrist. Remote psychiatry had lower treatment costs compared with in-person delivery ( $p = 0.001$ ). This RCT was at high risk of bias due to exclusion of dropouts or participants lost to follow-up from analyses. A single study<sup>5</sup> assessed homework completion. In this retrospective cohort study among 581 US Veterans receiving either PE or CPT, groups did not significantly differ on homework completion. This study was at high risk of bias due to high attrition and exclusion of participants who did not complete a minimum of 8 treatment sessions from analyses.

A secondary analysis<sup>75</sup> of dropouts from 2 RCTs<sup>2,3</sup> comparing individual psychotherapy delivered by VTC-H to IP-C assessed treatment barriers with the Barriers to Exposure Therapy Participation Scale (BTPS). This secondary analysis was at high risk of bias, with only 68% of study dropouts providing data. Groups significantly differed on the Stressors and Obstacles factor of the BTPS, with IP-C participants reporting more problems with bad weather, parking, transportation, and work/family obligations compared to VTC-H participants ( $p = 0.027$ ). Groups did not significantly differ on other factors.

Three studies<sup>3,4,75</sup> assessed factors related to treatment acceptability. In a high risk of bias RCT<sup>3</sup> conducted among 150 Veterans receiving PE, there was a significant effect of treatment modality on the telehealth travel item of the Service Delivery Perception Questionnaire (SDPQ), with participants in the VTC-H group endorsing willingness to travel slightly further for telehealth services than those in the IP-C group ( $p = 0.029$ ). A secondary analysis<sup>75</sup> including dropouts from this study as well as a second RCT<sup>2</sup> found that groups significantly differed on the Telehealth Attitudes Questionnaire; specifically, a greater proportion of IP-C participants reported that they would feel comfortable using telemedicine at a local clinic or church compared to VTC-H participants. In 1 trial<sup>4</sup> that included 3 treatment groups (VTC-H, IP-H, IP-C), participants were permitted to opt out of a single treatment modality prior to randomization. The acceptability of the 3 treatment options differed significantly ( $p = 0.0008$ ); among those opting out, most refused IP-H (54%), followed by IP-C (29%) and VTC-H (17%).

Four studies<sup>3,7,8,48</sup> assessed factors related to patient satisfaction. In a high risk of bias RCT<sup>3</sup> among 150 Veterans receiving PE, groups did not significantly differ on either perception of the quality of service delivery (SDPQ) or satisfaction with services (CPOSS). However, a secondary analysis<sup>7</sup> of data from this study combined with data from a similar RCT conducted by the same group found that assignment to IP-C was a significant predictor of higher CPOSS scores, but not SDPQ scores. The secondary analysis was also at high risk of bias. In an RCT<sup>8</sup> evaluating couples' psychotherapy, groups did not significantly differ on client satisfaction, as measured by the Client Satisfaction Questionnaire. A high risk of bias study<sup>48</sup> on remote delivery of psychiatry found that VTC-H delivery was associated with elevated patient satisfaction ( $p = 0.002$ ) compared to IP-C, using a study questionnaire. A single RCT<sup>8</sup> on couples' psychotherapy

assessed therapeutic alliance. Groups did not differ significantly on the Working Alliance Inventory (WAI).

## **VTC-C versus IP-C**

### *PTSD symptom severity*

It is unclear whether PTSD symptom severity differs between VTC-C and IP-C delivery of individual psychotherapy, based on low-strength evidence from 4 RCTs,<sup>9-12</sup> 1 non-randomized trial,<sup>13</sup> and 4 cohort studies.<sup>5,14-16</sup> Treatments investigated included PE,<sup>5,14-16</sup> CPT,<sup>5,9-11,16</sup> and CBT.<sup>12</sup> Studies were conducted in the US among Veterans with the exception of 1 study<sup>13</sup> conducted in Canada with adult civilians. One study<sup>9,2</sup> conducted among Veteran women with PTSD also included civilians. All but 2 studies<sup>9,16</sup> were at high risk of bias.

Evidence on PTSD symptom severity, assessed using the PCL, modified PTSD Symptom Scale (m-PSS), and CAPS, was inconsistent across studies and time points. Several studies found that PTSD symptom severity did not significantly differ between VTC-C and IP-C,<sup>5,10,13,93</sup> and 1 study concluded that VTC-C delivery was noninferior to IP-C.<sup>11</sup> Due to higher than expected dropout, 1 RCT<sup>10</sup> did not achieve the sample size required to declare equivalence, but a trend was observed of equivalence between treatment groups.

Three studies<sup>9,14,16</sup> reported significant effects favoring IP-C. In an RCT<sup>9</sup> among 207 Veterans treated with CPT, improvement in CAPS scores from baseline to post-treatment was statistically significantly smaller for the VTC-C group compared to IP-C, and VTC-C treatment was inferior to IP-C at post-treatment. However, VTC-C was noninferior to IP-C at 6-month follow-up using the CAPS and at both post-treatment and 6-month follow-up when PTSD symptom severity was assessed using the PCL. Two cohort studies<sup>14,16</sup> found greater decreases in PTSD symptom severity, assessed using the PCL, for the IP-C group compared to the VTC-C group. Two small studies<sup>12,15</sup> reported change in PTSD symptom scores for VTC-C and IP-C groups at post-treatment, but did not estimate group differences. When we converted mean differences to SMDs (Figure 2), 1 of these studies<sup>15</sup> appeared to favor IP-C.

It is unclear whether PTSD symptom severity differs between VTC-C and IP-C delivery of group psychotherapy at post-treatment, but symptom severity may be similar at 3-month follow-up based on low-strength evidence from 2 RCTs<sup>17,18</sup> with methodological limitations. Both trials were conducted in the US among Veterans. One small trial<sup>17</sup> among 38 Veterans receiving group CBT reported that VTC-C was noninferior to IP-C at post-treatment and 3-month follow-up. Using a standard superiority hypothesis testing approach, no significant differences were found for change scores on the PCL-M from pre- to post-treatment or 3-month follow-up. However, when we converted reported mean differences to SMDs with a 90% CI, there appeared to be a small effect favoring in-person treatment. This trial was at high risk of bias due to missing data. In a trial<sup>18</sup> among 125 Veterans receiving group CPT, groups did not significantly differ on PTSD symptom severity, assessed using the CAPS, at post-treatment or 3-month follow-up.

No studies comparing VTC-C and IP-C delivery of psychiatry for PTSD reporting on PTSD symptom severity were identified.

### *PTSD diagnosis*

There were too few studies available to determine whether the rate of PTSD remission is comparable between VTC-C and IP-C delivery of individual psychotherapy. Evidence on PTSD diagnosis is limited to 1 non-randomized trial.<sup>13</sup> This trial<sup>13</sup> conducted in Canada recruited 48 adults with PTSD who lived in a city (in-person treatment) or a remote region (telehealth treatment). PTSD diagnosis was assessed using the SCID, and 81% of the participants in the VTC-C and 75% of participants in the IP-C group no longer met criteria for PTSD at post-treatment. This trial was at high risk of bias; attrition was high and dropouts were not included in analyses.

### *Depression symptom severity*

Among patients treated for PTSD, it is unclear whether depression symptom severity differs between VTC-C and IP-C delivery of individual psychotherapy, based on low-strength evidence from 3 RCTs,<sup>9,10,12</sup> 1 non-randomized trial,<sup>13,14</sup> and 4 cohort studies.<sup>35,5,15,16</sup>

Treatments investigated in these studies included PE,<sup>5,14-16</sup> CPT,<sup>5,9,10,16</sup> and CBT.<sup>13</sup> Studies were conducted in the US among Veterans, with the exception of 1 study<sup>13</sup> conducted in Canada with adult civilians. One study<sup>9,2</sup> conducted among Veteran women with PTSD also included civilians. All but 2 studies<sup>9,16</sup> were at high risk of bias. Evidence on depression symptom severity, assessed using the BDI, Patient Health Questionnaire (PHQ-9), and Montgomery-Åsberg Depression Rating Scale (MADRS), was inconsistent across studies and time points.

Three studies<sup>5,9,13</sup> found no significant differences between treatment modalities in change in depression symptom severity over time. Two cohort studies<sup>14,16</sup> found effects favoring IP-C delivery at post-treatment. Three small studies<sup>10,12,15</sup> reported pre- and post-treatment depression symptom scores but did not report group differences. Based on calculated SMDs for 2 of these studies<sup>10,15</sup> (Figure 3), BDI-based symptom severity did not significantly differ by modality. Insufficient information was available to calculate the SMD for 1 study,<sup>12</sup> which reported pre-treatment MADRS scores of 32 and 31 for the VTC-C and IP-C groups, with respective post-treatment scores of 26 and 23.

Evidence on group psychotherapy is limited to a single RCT<sup>17</sup> at high risk of bias, which is insufficient to make conclusions about the effect of telehealth-delivered group psychotherapy on depression symptom severity among individuals with PTSD. One small RCT<sup>17</sup> among 38 Veterans receiving group CBT reported that VTC-C was noninferior to IP-C at post-treatment and 3-month follow-up for depression symptom severity, assessed using the BDI. Using a standard superiority hypothesis testing approach, no significant differences were found for change scores on the BDI from pre- to post-treatment or 3-month follow-up. This trial was at high risk of bias due to missing data.

No studies comparing VTC-C and IP-C delivery of psychiatry for PTSD reporting on depression symptom severity were identified.

### *Anxiety symptom severity*

Among patients treated for PTSD, anxiety symptom severity may be similar after VTC-C and IP-C delivery of individual psychotherapy, based on low-strength evidence from 1 small RCT<sup>12</sup> and 1 non-randomized trial.<sup>13</sup> Both studies investigated telehealth delivery of individual CBT. A

small US RCT<sup>12</sup> conducted among 18 Veterans with PTSD assessed anxiety symptom severity at post-treatment using the Hamilton Anxiety Rating Scale (HAM-A). This study did not estimate group differences but reported pre-treatment scores of 34 and 35 for the VTC-C and IP-C groups, with post-treatment scores of 27 for both groups. This study was at high risk of bias, with study dropouts (28%) not included in analyses. A non-randomized trial<sup>13</sup> conducted in Canada among 48 adults with PTSD reported no significant differences in anxiety symptom severity, assessed using the BAI, between groups over time. This study was at high risk of bias, with 25% of the initial sample excluded from analyses due to dropout.

No studies comparing VTC-C and IP-C delivery of group psychotherapy or psychiatry for PTSD reporting on anxiety symptom severity were identified.

### *Safety*

Evidence is insufficient to make conclusions about the safety of mental health care for PTSD delivered by VTC-C compared to IP-C. Evidence on safety is limited to 1 RCT<sup>18</sup> evaluating group psychotherapy and 1 cohort study<sup>15</sup> evaluating individual psychotherapy that report on the occurrence of adverse events during the study. These studies did not find evidence of a difference in adverse events between telehealth-delivered and in-person mental health care. However, based on the strength of evidence, it is unclear whether the occurrence of adverse events differs between VTC-C and IP-C.

### *Attrition*

Nine studies (5 RCTs,<sup>9-11,17,18</sup> 1 secondary analysis of data from multiple RCTs,<sup>55</sup> and 3 observational studies<sup>6,13,15</sup>) assessed attrition by comparing dropout outcomes between VTC-C and IP-C groups. Overall dropout among studies was high, ranging from 15.0%<sup>55</sup> to 76.8%.<sup>18</sup> No studies reported significant differences in attrition between treatment groups.

### *Other Outcomes*

Included studies assessed a wide variety of additional outcomes. We did not formally grade strength of evidence for these secondary outcomes. One non-randomized trial<sup>13</sup> evaluating individual psychotherapy and 1 RCT<sup>17</sup> evaluating group psychotherapy assessed functioning using 2 different self-report measures (Assessment of Current Functioning [ACF], Symptom Checklist 90 Revised [SCL-90-R]). Both studies were at high risk of bias. Groups did not significantly differ on functioning in either study. Two studies<sup>12,55</sup> assessed quality of life. One small RCT<sup>12</sup> ( $N = 18$ ) at high risk of bias evaluating individual CBT assessed quality of life using the Short Form Health Survey (SF-36) and found a 45.8% improvement in SF-36 mental health score for the VTC-C group and a 37.9% improvement for the IP-C group. A secondary analysis<sup>55</sup> of data from 2 RCTs evaluating individual<sup>11</sup> and group<sup>18</sup> CPT found no effect of treatment modality on changes in quality of life scores over time, as measured by the Quality of Life Inventory.

Eight studies<sup>5,9,11,13-15,17,18</sup> examined engagement by investigating whether there were differences between groups on session attendance or treatment dose. Only 1 study<sup>14</sup> found significant differences between VTC-C and IP-C groups. This high risk of bias cohort study<sup>14</sup> was conducted in the US among 89 Veterans treated with exposure therapy. The VTC-C group completed a greater number of sessions on average than the IP-C group. Three RCTs<sup>9,17,18</sup> and 1

cohort study<sup>5</sup> (including 2 studies<sup>17,18</sup> evaluating group psychotherapy and 2 studies<sup>32,40</sup> evaluating individual psychotherapy) assessed homework completion. Only 1 of these studies,<sup>17</sup> a small RCT ( $N = 38$ ) at high risk of bias evaluating group CBT, found a significant difference in homework completion between groups. In this study, the IP-C group was more likely to have completed homework assignments than the VTC-C group ( $p = 0.04$ ).

Four studies<sup>11,12,17,18</sup> (2 group psychotherapy<sup>17,18</sup> and 2 individual<sup>11,12</sup>) assessed factors related to patient satisfaction. Only 1<sup>11</sup> found a significant difference between groups. This high risk of bias study<sup>11</sup> on group psychotherapy conducted with women found that women assigned to IP-C reported higher levels of satisfaction with services on the CPOSS-VA compared to women assigned to VTC-C delivery ( $p = 0.03$ ). Three studies<sup>10,11,13</sup> assessed therapeutic alliance with the Working Alliance Inventory (WAI). Only 1 of these studies, a high risk of bias RCT<sup>11</sup> evaluating individual psychotherapy, found significant differences between groups, with the IP-C group reporting higher therapeutic alliance compared to the VTC-C group at session 2 only.

## VTC-H versus VTC-C

### *Mental health-related outcomes*

Individual psychotherapy delivered by VTC-H may result in a similar decrease in PTSD symptom severity and depression symptom severity compared to individual psychotherapy delivered by VTC-C based on low-strength evidence from 2 RCTs<sup>27,29</sup> and a single cohort study.<sup>5</sup>

In a small pilot trial<sup>91</sup> among 27 US Veterans treated with PE, groups did not significantly differ on PTSD symptom severity (assessed using the CAPS and Posttraumatic Stress Diagnostic Scale) at 1-month follow-up. This study was at high risk of bias due to high attrition, which was significantly different between groups. In another trial<sup>64</sup> among 175 US Veterans treated with PE, groups did not significantly differ on PTSD severity (assessed using the CAPS-5 and PCL-5) over time. A retrospective cohort study<sup>5</sup> among 581 US Veterans who received PE or CPT found that the magnitude of changes in PTSD symptoms was consistent across treatment delivery modalities when pooling PE and CPT. This study was rated high risk of bias; 53% of participants who initiated treatment did not complete a minimum of 8 sessions and were not included in analyses. All 3 studies found that post-treatment depression symptom severity (assessed using the BDI-II) did not significantly differ by modality.

Evidence is insufficient to draw conclusions on PTSD diagnosis and anxiety symptom severity. A single, small pilot RCT<sup>91</sup> at high risk of bias assessed PTSD diagnosis (CAPS) and anxiety symptom severity (BAI). Groups did not significantly differ on either outcome.

### *Safety*

These studies did not report on safety, but 1<sup>51</sup> reported that 2 participants experienced technical issues with equipment that caused them to drop out and 2 participants did not have quiet, undisturbed rooms in which to participate in therapy.

### *Attrition*

We did not identify any studies comparing attrition between VTC-H and VTC-C groups.

### Other outcomes

Very limited evidence was available on secondary outcomes for studies comparing VTC-H and VTC-C. In a RCT<sup>64</sup> evaluating individual psychotherapy delivered by VTC-H, VTC-C, or IP-H, groups differed on the number of sessions completed, with participants in the IP-H group attending more sessions than participants in the VTC-C group (9.78 vs 7.0 sessions;  $p < 0.001$ ). A cohort study<sup>5</sup> comparing individual psychotherapy delivered by VTC-H, VTC-C, or IP-C found that homework completion did not differ by treatment modality/setting. This study was at high risk of bias. Evidence on treatment acceptability was provided for 1 high risk of bias study;<sup>51</sup> Franklin et al. asked patients prior to randomization which mode of treatment they would prefer to receive. Treatment preference did not significantly differ between groups ( $p = 0.49$ ).

## TREATMENT OF DEPRESSION

We identified 8 relevant studies (7 RCTs<sup>19-23,25,56</sup> and 1 non-randomized trial<sup>24</sup>) comparing telehealth and in-person delivery of treatment for depression. No studies were identified that directly compared telehealth modalities. Two studies examined the effect of clinical characteristics (*ie*, baseline symptom severity and mental health comorbidity) on treatment response for telehealth-delivered versus in-person treatment.

### VTC-H versus IP-C

#### Depression symptom severity

It is unclear whether depression symptom severity differs between VTC-H and IP-C delivery of individual psychotherapy, based on low-strength evidence from 2 studies reporting inconsistent findings.

Two RCTs<sup>19,20</sup> have been conducted comparing VTC-H and IP-C delivery of individual psychotherapy for depression. The treatment in both studies consisted of 8 sessions of behavioral activation. In 1 US trial<sup>19</sup> among 254 older Veterans with major depressive disorder (MDD), treatment response did not significantly differ between groups according to the Geriatric Depression Scale, Beck Depression Inventory (BDI), and Structured Clinical Interview for DSM-IV (SCID) at 12-month follow-up. Delivery of behavioral activation by VTC-H was found to be noninferior to IP-C treatment at 12-month follow-up, but not at post-treatment. A US trial<sup>20</sup> of 121 military service members and Veterans meeting diagnostic criteria for major or minor depression reported that both groups experienced similar reductions in BDI-II scores over time but VTC-H delivery was not found to be noninferior to IP-C delivery.

Evidence comparing VTC-H and IP-C delivery of psychiatry services is limited to a single study<sup>21</sup> at high risk of bias, which is insufficient to make conclusions about the effect of telehealth-delivered psychiatry services on depression symptom severity in individuals with depression. In this Brazilian RCT,<sup>21</sup> 107 adults with mild depression received psychiatric consultations. At baseline, participants receiving psychiatric consultations via VTC-H had significantly higher levels of depression on the Hamilton Depression Rating Scale (HAM-D), but this initial group difference was no longer significant at 6- and 12-month follow-ups. This study was rated at high risk of bias due to high attrition and analyses that did not include treatment dropouts.

No studies comparing VTC-H and IP-C delivery of group psychotherapy for depression reporting on depression symptom severity were identified.

### *PTSD symptom severity*

There were too few studies available to determine whether PTSD symptom severity differs between VTC-C and IP-C delivery of individual psychotherapy for depression. Evidence is limited to imprecise information from a single RCT,<sup>20</sup> which is insufficient to make conclusions about effectiveness. In this US trial<sup>20</sup> among 121 military service members and Veterans with depression treated with behavioral activation, groups did not significantly differ on PTSD symptom severity, assessed using the PTSD Checklist – Military Version (PCL-M).

### *Safety*

It is unclear whether the occurrence of adverse events differs between VTC-H and IP-C delivery of individual psychotherapy, based on low-strength evidence from 2 RCTs.<sup>19,20</sup> Few adverse events occurred, and group differences were not examined. Two US trials<sup>19,20</sup> on behavioral activation tracked and reported adverse events. In 1 trial<sup>19</sup> among 254 older Veterans with MDD, no adverse events were reported for either group. In a trial<sup>20</sup> among 121 military service members and Veterans meeting diagnostic criteria for major or minor depression, there were 7 reportable adverse events in the VTC-H group and 4 in the IP-C group. None were determined to be related to study procedures. The study's safety protocol was initiated 1 time, for a participant in the VTC-H group.

### *Attrition*

Three RCTs<sup>19-21</sup> among patients with depression assessed attrition by comparing dropout outcomes between VTC-H and IP-C treatment groups. Overall dropout among studies was high, ranging from 20.0%<sup>19</sup> to 32.2%.<sup>20</sup> Only 2 of these studies reported statistically significant group differences, and they found that patients treated via IP-C were more likely to drop out than patients treated by VTC-H.<sup>21</sup>

### *Other outcomes*

Other outcomes related to mental health were assessed by few studies and were not graded on strength of evidence. These included mental health status,<sup>21</sup> hopelessness,<sup>20</sup> worry,<sup>22</sup> medication course,<sup>21</sup> and relapse.<sup>21</sup> Significant differences between VTC-H and IP-C groups were not found for these outcomes, with 1 exception. A US RCT<sup>20</sup> among 121 military service members and Veterans treated with behavioral activation assessed hopelessness with the Beck Hopelessness Scale (BHS) and found that the magnitude of decrease over time was less pronounced for the VTC-H group compared to the IP-C group. Secondary analysis of data<sup>85</sup> from this study identified 2 subgroups of participants based on baseline symptom severity on the BHS. Individuals in the subgroup with higher symptom severity on the BHS at baseline assigned to VTC-H had less symptom improvement than individuals in this subgroup assigned to IP-C, while there was no meaningful difference in treatment response between VTC-H and IP-C groups for individuals in the subgroup with lower symptom severity on the BHS. Older participants with higher loneliness and anxiety scores at baseline were more likely to be in the subgroup with higher baseline BHS scores.

A single RCT<sup>19</sup> conducted among 241 older Veterans with MDD assessed quality of life using the SF-36 and found no significant differences between groups. A single Brazilian RCT<sup>21</sup> evaluating remote delivery of psychiatry conducted among 107 adults with mild depression assessed treatment adherence, finding that participants in the IP-C tended to miss more appointments than participants in the VTC-H group, but this difference was not significant ( $p = 0.06$ ). There were no differences detected between groups on medication adherence. This trial was at high risk of bias due to exclusion of participants lost to follow-up from analyses.

Four RCTs<sup>19-21,56</sup> assessed factors related to patient satisfaction or treatment acceptance. Only 1 study<sup>56</sup> found significant differences between VTC-H and IP-C delivery. This RCT was conducted with 121 depressed low-income homebound older adults and evaluated individual psychotherapy (problem-solving therapy, primary care version), finding that treatment acceptance, as measured by the Treatment Evaluation Inventory (TEI), was slightly higher for the VTC-H group than the IP-C group ( $72.14 \pm 6.64$  for VTC-H and  $68.08 \pm 8.27$  for IP-C;  $p = 0.024$ ).

Two RCTs<sup>19,20</sup> conducted among US Veterans reported on differences in cost between VTC-H and IP-C delivery of mental health care. In 1 study,<sup>19</sup> healthcare costs before, during, and after treatment did not differ between groups in an analysis limited to treatment completers. Although treatment costs were higher for the VTC-H group, Veterans in this group had lower health utilization costs 1 year after the intervention than those in the IP-C, while quality-adjusted life years (QALYs) were approximately the same. In the other study,<sup>20</sup> the cost of VTC-H treatment was also higher than IP-C, but, assuming that Veterans possessed government-approved VTC technology, VTC-H treatment was less costly than IP-C (\$19,777 vs \$20,322).

## Telephone versus IP-C

### *Depression symptom severity*

Depression symptom severity may be similar immediately after telephone and IP-C delivery of individual psychotherapy, but it is unclear whether change in depression symptom severity differs between telephone and IP-C modalities over time. These conclusions are based on low-strength evidence with inconsistent findings.

Two RCTs<sup>22,23</sup> were identified comparing telephone and IP-C delivery of individual psychotherapy for depression. In a US trial<sup>22</sup> of 257 low-income Latinos with moderate or severe depression symptoms treated with CBT plus care management, groups did not significantly differ on the PHQ-9 or Hopkins Symptom Checklist (HSCL). In a US trial<sup>23</sup> of 325 adult primary care patients with MDD treated with CBT, groups did not significantly differ on the HAM-D or PHQ-9 at post-treatment. However, participants assigned to IP-C had significantly lower HAM-D and PHQ-9 scores than the telephone group at 6-month follow-up.

In secondary analyses of data<sup>86</sup> from this study examining participants with comorbid problematic alcohol use, groups did not significantly differ on depression outcomes at all time points. Secondary analyses<sup>89</sup> examining the effect of comorbid anxiety on depression outcomes found that participants with a comorbid anxiety disorder randomized to telephone delivery had significantly higher depression symptom severity over time compared to participants in the telephone group without anxiety and participants in the IP-C group with comorbid anxiety. Secondary analyses<sup>88</sup> were also conducted to determine whether baseline participant



demographics and psychological characteristics predicted depression outcomes at the end of treatment. Predictors of treatment response were found to be similar across treatment groups; treatment delivery method (*ie*, telephone or IP-C) did not impact the prediction of outcome by baseline demographics and symptom severity.

No studies comparing telephone and IP-C delivery of group psychotherapy or psychiatry for depression reporting on depression symptom severity were identified.

### *Anxiety symptom severity*

Evidence regarding psychiatry delivered by VTC-C compared to IP-C is limited to 1 RCT<sup>25</sup> with some study limitations, which is insufficient to make conclusions about effectiveness. A single RCT<sup>25</sup> comparing VTC-C and IP-C delivery of psychiatry services for depression reported on anxiety symptom severity. In this trial among 131 US Veterans with a depressive disorder receiving psychiatric care, anxiety symptoms, assessed using the Spielberger State Anxiety Scale, did not significantly differ between groups.

### *Safety*

There were too few studies available to determine whether the occurrence of adverse events differs between telephone and IP-C delivery of individual psychotherapy. Evidence is limited to a single RCT that tracked and reported on adverse events, which is insufficient to make conclusions about safety. In a US trial<sup>23</sup> conducted among 325 adult primary care patients with MDD treated with CBT, no adverse events were reported for either group.

### *Attrition*

Only 1 RCT<sup>23</sup> among patients with depression compared attrition outcomes between telephone and IP-C treatment groups. Overall dropout for this study was 26.8%. Participants treated by telephone were significantly less likely to drop out than patients treated by IP-C.

### *Other outcomes*

Included studies assessed a wide variety of additional outcomes. We did not formally grade strength of evidence for these secondary outcomes. One RCT<sup>23</sup> evaluating individual psychotherapy examined alcohol use in a subset of 103 participants with comorbid problematic alcohol use. Participants in both telephone and IP-C groups experienced significant reductions in scores on the Alcohol Use Disorders Identification Test (AUDIT), but improvement did not significantly differ between groups. Functioning was assessed using the World Health Organization Disability Assessment Schedule (WHODAS) in 1 RCT<sup>22</sup> of individual psychotherapy; groups did not differ significantly on functioning at post-treatment.

Evidence from 2 RCTs<sup>22,23</sup> indicates that telephone delivery of individual psychotherapy may be associated with greater engagement than IP-C. One RCT<sup>22</sup> examined several factors related to treatment engagement (*ie*, initiation of care, total sessions, sessions missed, additional sessions received, receipt of a prescription for a mental health condition, other mental health appointment). This study found participants in the IP-C group were twice as likely to not initiate care (21.4%) as those in the telephone group (10.3%). Another RCT<sup>23</sup> found that participants in the telephone group attended significantly more treatment sessions than those receiving IP-C treatment ( $p = 0.003$ ).

Patient satisfaction was assessed by a single RCT,<sup>22,78</sup> which found that level of satisfaction did not differ between telephone and IP-C delivery. Likewise, therapeutic alliance was assessed by a single RCT,<sup>23</sup> which did not significantly differ between groups. One RCT<sup>22,79</sup> reported on differences in cost between telephone and IP-C delivery of mental health care for depression. Telephone delivery was significantly less costly (by \$501) and more cost effective than IP-C, with 1 score reduction on the PHQ-9 costing \$634 less for the telephone group than the IP-C group.

## **VTC-C versus IP-C**

### *Depression symptom severity*

There were too few studies available to determine whether depression symptom severity differs between VTC-C and IP-C delivery of either group psychotherapy or psychiatry. Evidence regarding group psychotherapy is limited to 1 small non-randomized study<sup>24</sup> with significant methodological limitations, which is insufficient to make conclusions about effectiveness. In this trial,<sup>24</sup> which was conducted among 14 active-duty or retired US military service members or family members with a depressive disorder treated with group CBT, BDI-II scores did not significantly differ between groups at post-treatment. This trial was at high risk of bias due to important differences between groups that were not considered. Specifically, the VTC-C group consisted entirely of active-duty soldiers, and the IP-C group consisted entirely of spouses of military members.

Evidence comparing VTC-C and IP-C delivery of psychiatry for depression is limited to 1 RCT with some study limitations, which is insufficient to make conclusions about effectiveness. In this trial,<sup>25</sup> 131 US Veterans with a depressive disorder received 8 sessions of psychiatric care over a 6-month period. Improvement in depression symptoms, assessed using the HAM-D and BDI, did not significantly differ between groups.

No studies comparing VTC-C and IP-C delivery of individual psychotherapy for depression reporting on depression symptom severity were identified.

### *Anxiety symptom severity*

Evidence regarding psychiatry delivered by VTC-C compared to IP-C is limited to 1 RCT<sup>25</sup> with some study limitations, which is insufficient to make conclusions about effectiveness. In this trial, 131 US Veterans with a depressive disorder received 8 sessions of psychiatric care over a 6-month period. Improvement in anxiety symptoms, assessed using the Spielberger State Anxiety Scale, did not significantly differ between groups.

### *Safety*

No studies comparing VTC-C and IP-C delivery of treatment for depression reported on outcomes related to safety.

### *Attrition*

One RCT<sup>25</sup> and 1 cohort study<sup>16</sup> among patients with depression compared attrition outcomes between VTC-C and IP-C treatment groups. Neither study found any statistically significant group differences in dropout. Overall dropout was 29.8%<sup>25</sup> – 52.0%<sup>16</sup>.

### *Other outcomes*

Included studies assessed a variety of additional outcomes. We did not formally grade strength of evidence for these secondary outcomes. A single trial<sup>25</sup> assessed functioning, mental health status, and medication adherence; groups did not significantly differ on these outcomes.

Two trials<sup>24,25</sup> examined engagement, reporting on session attendance. In a small non-randomized trial<sup>24</sup> ( $N = 14$ ) evaluating group psychotherapy, participants in the VTC-C group had a 98.21% attendance rate, while participants in the IP-C group had a 71.42% compliance rate. However, investigators noted that there were important differences between the groups regarding ease of attending IP-C sessions, and this study was the only observational study to receive a risk of bias rating of “critical.” The other RCT evaluated VTC-C delivery of psychiatry and found that participants in both VTC-C and IP-C groups kept appointments for an average of 6.5 visits during the study period. Groups did not significantly differ on patient satisfaction; however, psychiatrist satisfaction was higher for in-person psychiatry than remote delivery.

In the single trial<sup>25</sup> examining cost of VTC-C versus IP-C delivery of depression treatment, the cost of a VTC-C session was significantly greater than an IP-C session, but when the cost of psychiatrist travel time was factored in, the cost of VTC-C was equal to IP-C if the psychiatrist had to travel 22 miles to the clinic. Also, telehealth delivery was not associated with greater consumption of VHA healthcare.

## **TREATMENT OF ANXIETY**

We identified 3 RCTs<sup>41,46,57</sup> and 4 observational studies<sup>43-45,58</sup> on telehealth-delivered treatment of anxiety-related disorders. No evidence was identified on KQ2.

### **VTC-H versus IP-C**

#### *Anxiety symptom severity*

It is unclear whether anxiety symptom severity differs between VTC-H and IP-C delivery of group psychotherapy for anxiety disorders; evidence is insufficient to draw conclusions. Likewise, evidence is insufficient to determine whether change in OCD symptom severity does not differ between partial hospital program (PHP) or intensive outpatient program (IOP) treatment for OCD delivered by VTC-H or IP-C. No studies were identified comparing VTC-H and IP-C delivery of individual psychotherapy or psychiatry for anxiety reporting on anxiety symptom severity.

Two cohort studies<sup>45,58</sup> compared VTC-H and IP-C delivery of mental health care for anxiety disorders. Both were retrospective cohort studies comparing in-person care delivered prior to the COVID-19 pandemic to telehealth-delivered care after the onset of the pandemic. In a retrospective cohort study<sup>45</sup> among 413 Canadian adults with an anxiety or related disorder who attended 1 of 4 CBT treatment groups (for panic disorder/agoraphobia, social anxiety disorder [SAD], generalized anxiety disorder [GAD], and OCD), there was a small but significantly greater improvement in anxiety symptoms (assessed using multiple instruments) for the IP-C group compared to the VTC-H group across the full sample. However, when examining treatment groups individually, this effect was only significant for the GAD group. This study was at high risk of bias due to significant differences between groups on some demographic and clinical variables. In a US cohort study<sup>58</sup> evaluating treatment within a PHP or IOP among 468

adults with OCD, groups did not significantly differ on treatment response, assessed with the Yale-Brown Obsessive Compulsive Scale (Y-BOCS), in analyses that matched patient groups on admission scores.

### *Depression symptom severity*

It is unclear whether depression symptom severity differs between VTC-H and IP-C delivery of PHP/IOP treatment. This judgment is based on a single cohort study<sup>58</sup> and evidence is insufficient to draw conclusions. In this US cohort study<sup>58</sup> evaluating treatment within a PHP or IOP before (IP-C) and during (VTC-H) the COVID-19 pandemic in 468 adults with OCD, groups did not significantly differ on depression symptom severity, assessed with the Quick Inventory of Depressive Symptoms (QIDS), in analyses that matched patient groups on admission scores. We identified no other studies comparing VTC-H and IP-C delivery of treatment for anxiety reporting on depression outcomes.

### *Safety*

No studies comparing VTC-H and IP-C delivery of treatment for anxiety delivered reported on outcomes related to safety.

### *Attrition*

Only 1 cohort study<sup>45</sup> among patients with anxiety compared attrition between VTC-H and IP-C treatment groups. Overall dropout was not reported. The study reported higher dropout among IP-C patients compared to VTC-H patients, and this finding approached statistical significance.

### *Other outcomes*

Included studies assessed a variety of additional outcomes. Evidence identified for each of these outcomes was sparse, and we did not formally grade strength of evidence for these secondary outcomes. A single retrospective cohort study<sup>58</sup> examined length of stay, comparing IP-C treatment at a PHP/IOP for OCD delivered prior to the COVID-19 pandemic to VTC-H after the onset of the pandemic. There was a significant difference between groups at discharge, with participants in the IP-C group having shorter stays (23.22 days) compared to the VTC-H group (25.79 days). This study was also the only study to examine quality of life; groups did not significantly differ on the Quality of Life Enjoyment and Satisfaction Questionnaire (QLESQ) at discharge.

One cohort study<sup>45</sup> evaluating group CBT for anxiety and related disorders reported on session attendance, finding that significantly more sessions were attended by participants in the VTC-H group than the IP-C group for the GAD treatment groups only. This difference was not significant for the full sample. In an RCT<sup>46</sup> on individual psychotherapy for OCD, groups did not significantly differ on patient satisfaction, assessed using the Client Satisfaction Questionnaire (CSQ).

## **Telephone versus IP-C**

### *Anxiety symptom severity*

OCD symptom severity may be comparable after telephone and IP-C delivery of individual psychotherapy for OCD, based on low-strength evidence from a single RCT<sup>46</sup> with low risk of

bias. In this RCT<sup>46</sup> conducted in the UK among 72 adults with OCD receiving exposure and response prevention, groups did not differ significantly on OCD symptom severity (Y-BOCS) at all time points.

It is unclear whether anxiety symptom severity differs between telephone and IP-C delivery of individual psychotherapy for phobia; evidence is insufficient to draw conclusions. In a small US RCT<sup>57</sup> of virtual reality exposure therapy, 22 adults with aviophobia (fear of flying) communicated with the mental health provider either over the telephone or IP-C. Participants assigned to both conditions used computers for the virtual reality exposure scenarios. Groups did not significantly differ on post-treatment assessments of flight related anxiety (assessed with the Flight Anxiety Situations and Flight Anxiety Modality instruments) or behavioral avoidance (whether participants took a graduation flight at the end of treatment). This study was at high risk of bias due to the exclusion of 4 withdrawals from analyses and unclear handling of missing data.

No additional studies were identified comparing telephone and IP-C delivery of treatments for anxiety reporting on anxiety symptom severity.

### *Depression symptom severity*

Depression symptom severity may be similar after telephone and IP-C delivery of individual psychotherapy for OCD, based on a single RCT<sup>46</sup> with low risk of bias. In this RCT<sup>46</sup> conducted in the UK among 72 adults with OCD receiving exposure and response prevention, groups did not significantly differ on depression symptom severity (BDI) at all time points. We identified no other studies comparing telephone and IP-C delivery of treatment for anxiety reporting on depression outcomes.

### *Safety*

No studies comparing telephone and IP-C delivery of treatment for depression reported on outcomes related to safety.

### *Attrition*

Two RCTs<sup>46,57</sup> among patients with anxiety compared attrition between telephone and IP-C treatment groups. Overall dropout was low to moderate (5.6%<sup>46</sup> to 18.2%<sup>57</sup>). Neither RCT reported a statistically significant difference in dropout between treatment groups.

### *Other outcomes*

A small trial<sup>57</sup> evaluating individual psychotherapy for phobia examined therapeutic alliance, assessed via the WAI. Groups significantly differed on the task and goal subscales, with participants in the IP-C group rating agreement with their clinician regarding the goals of treatment and the tasks conducted in order to attain treatment goals higher than the telephone group, but not on the total score after controlling for baseline flight anxiety scores.

## VTC-C versus IP-C

### *Anxiety symptom severity*

Due to inconsistent findings across studies, it is unclear whether anxiety-related outcomes differ between VTC-C and IP-C delivery of individual psychotherapy for panic disorder with agoraphobia. We have low confidence in this finding, which is based on direct, but inconsistent information of unknown precision from 2 non-randomized trials<sup>43,44</sup> with some substantial methodological limitations.

In 2 non-randomized trials<sup>43,44</sup> conducted by the same group in Canada, adults with panic disorder with agoraphobia received 12 weekly sessions of CBT. In both studies, patients were assigned based on the region (remote vs local site) they were referred from. The first of these studies<sup>43</sup> assessed anxiety in several ways (*ie*, panic attacks and panic apprehension recorded with a daily diary; self-report measures). Differences in treatment response between groups were not significant at post-treatment, except for panic frequency. The VTC-C group had a greater reduction in panic frequency than the IP-C group. This study included only 21 participants and was at high risk of bias due to lack of adjustment for potential confounding factors. The second study<sup>44</sup> assessed anxiety using similar self-report measures (*ie*, Panic and Agoraphobia Scale, Mobility Inventory, Agoraphobic Cognition Questionnaire, Body Sensation Questionnaire) and found no significant differences between groups at post-treatment and 12-month follow-up.

There were too few studies available to determine whether anxiety symptom severity differs between VTC-C and IP-C delivery of individual psychotherapy for anxiety. In another Canadian RCT<sup>41</sup> among 115 adults with GAD treated with CBT, clinical improvement over the study did not significantly differ between groups, as measured using the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV) and the Structured Clinical Interview for DSM-IV (SCID). This trial was at high risk of bias due to high levels of attrition and missing data.

No additional studies were identified comparing VTC-C and IP-C delivery of treatment for anxiety reporting on anxiety symptom severity.

### *Depression symptom severity*

Depression symptom severity may be similar after VTC-C and IP-C delivery of individual psychotherapy for panic disorder with agoraphobia, based on low-strength evidence from 2 non-randomized trials<sup>43,44</sup> with some methodological limitations. These trials<sup>43,44</sup> were conducted by the same group in Canada and enrolled adults with panic disorder with agoraphobia to receive 12 weekly sessions of CBT. One of these studies<sup>43</sup> included only 21 participants and was rated high risk of bias due to lack of adjustment for potential confounding factors. Both studies assessed depression symptom severity with the BDI and neither found significant differences between groups.

We identified no other studies comparing VTC-C and IP-C delivery of treatment for anxiety reporting on depression outcomes.

### *Safety*

A single study on telehealth delivery of treatment for anxiety was identified that reported on adverse events. It is unclear whether the occurrence of adverse events differs between VTC-C

and IP-C delivery of individual psychotherapy for anxiety based on a single RCT; evidence is insufficient to draw conclusions about the safety of telehealth-delivered anxiety treatment. In this Canadian RCT,<sup>41</sup> no adverse events were reported. This trial was at high risk of bias due to high levels of attrition and missing data.

### *Attrition*

No studies among patients with anxiety compared attrition between VTC-C and IP-C treatment groups.

### *Other outcomes*

Included studies assessed a variety of additional outcomes. Evidence identified for each of these outcomes was sparse, and we did not formally grade strength of evidence for these secondary outcomes. A single, small ( $N = 21$ ) non-randomized trial<sup>43</sup> on individual psychotherapy for panic disorder with agoraphobia examined functioning using the Sheehan Disability Scale. Groups did not significantly differ on functioning.

A single non-randomized trial<sup>44</sup> evaluating individual psychotherapy for panic disorder with agoraphobia assessed patient motivation toward therapy pre-treatment with the Client Motivation for Therapy Scale (CMOTS) to determine if motivation differed between groups. Groups did not significantly differ on motivation at baseline.

Three studies<sup>41,43,44</sup> examined therapeutic alliance using the WAI. One of these studies<sup>43</sup> only reported alliance scores for the VTC group. One RCT<sup>41</sup> at high risk of bias evaluating individual psychotherapy for GAD found that patients reported significantly higher working alliance in the VTC-C group compared to the IP-C group. One cohort study<sup>44</sup> also used the California Psychotherapy Alliance Scale (CALPAS) and found no significant differences between groups on either measure of therapeutic alliance.

## **TREATMENT OF SUBSTANCE USE**

We identified 3 observational studies<sup>59,60,62</sup> on telehealth-delivered treatment of substance use disorders. No evidence was identified on KQ2.

### **VTC-H versus IP-C**

#### *Substance use-related outcomes*

No studies were identified comparing VTC-H and IP-C delivery of mental health care for SUD reporting on substance use-related outcomes.

#### *Mental health-related outcomes*

There were too few studies available to determine whether mental health symptom scores differ between VTC-H and IP-C delivery of IOP treatment for co-occurring SUD and mental health diagnosis. Evidence is limited to a single cohort study<sup>62</sup> with serious methodological limitations, which is insufficient to make conclusions about the effect of telehealth-delivered mental health care for SUD on mental health symptoms. One US cohort study<sup>62</sup> included 69 adults with a co-occurring SUD and at least 1 mental health disorder (most commonly depression, anxiety, or PTSD) who received treatment at a dialectical behavior therapy (DBT)-based IOP either in

person prior to the COVID-19 pandemic or by VTC-H following the onset of the pandemic and the practice's transition to remote care. Mental health symptoms were assessed using the DASS, and groups did not significantly differ on depression, anxiety, or stress scores at the end of treatment. This study was at high risk of bias due to lack of adjustment for potential confounders and selection of only patients with complete assessment data.

### *Safety*

No studies were identified comparing VTC-H and IP-C delivery of mental health care for SUD reporting on safety-related outcomes.

### *Attrition*

No studies were identified comparing VTC-H and IP-C delivery of mental health care for SUD reporting on dropout between treatment groups.

### *Other outcomes*

One cohort study evaluating telehealth-delivery of DBT-based IOP treatment examined session attendance; groups did not significantly differ in the number of sessions attended or number of sessions missed for any reason.

## **VTC-C versus IP-C**

### *Substance use-related outcomes*

There were too few studies available to determine whether abstinence outcomes differ between VTC-C and IP-C delivery of medication-assisted treatment (MAT) for opioid use disorder (OUD). Evidence is limited to a single cohort study with serious methodological limitations, which is insufficient to make conclusions about the effect of telehealth-delivered mental health care for SUD on SUD-related outcomes. In a US cohort study<sup>60</sup> among 100 adults with a diagnosis of OUD receiving MAT, groups did not significantly differ on % attaining 90 consecutive days of abstinence or mean/median time to 30 or 90 days abstinent. This study was at high risk of bias due to lack of adjustment for all potential important confounding factors and lack of information on the extent or handling of missing data.

### *Mental health-related outcomes*

No studies were identified comparing VTC-C and IP-C delivery of mental health care for SUD reporting on mental health-related outcomes.

### *Safety*

No studies were identified comparing VTC-C and IP-C delivery of mental health care for SUD reporting on safety-related outcomes.

### *Attrition*

Only 1 study<sup>60</sup> on telehealth-delivered treatment of SUD compared dropout between treatment groups. Overall dropout was 10.0% in this cohort study investigating MAT for OUD, and there were no statistically significant differences between groups.



### *Other outcomes*

No studies were identified comparing VTC-C and IP-C delivery of mental health care for SUD reporting on secondary outcomes of interest.

### **VTC-H/VTC-C versus IP-C**

A retrospective cohort study<sup>59</sup> of 28,791 US Veterans with OUD comparing telehealth and IP-C delivery of MAT reported only on time to discontinuation of buprenorphine. Telehealth encounters included both VTC-H and VTC-C. Risk of discontinuation among patients with a documented telehealth SUD-related encounter was 0.69 times that of patients with only an in-person encounter. Discontinuation appeared to be lower among patients with only telehealth encounters compared to patients with only in-person encounters.

## **TREATMENT OF MULTIPLE MENTAL HEALTH CONDITIONS**

Telehealth-delivered mental health care has been investigated as a treatment in 3 RCTs<sup>40,50 49</sup> and 5 observational studies<sup>42,47,61,63,65</sup> that include individuals with a range of mental health conditions. All studies were rated high or unclear for risk of bias. No evidence was identified on KQ2. Studies identified varied in the population, intervention, telehealth modality and setting, and outcomes investigated. No 2 studies shared these variables in common, and evidence is insufficient to draw any conclusions about the safety and effectiveness of telehealth-delivered mental health care in samples of patients with mixed diagnoses.

### **VTC-H versus IP-C**

#### *Mental health-related outcomes*

Four cohort studies<sup>42,61,65,63</sup> compared VTC-H and IP-C delivery of mental health care in samples of adults with mixed mental health diagnoses. Two of these studies<sup>63,65</sup> were retrospective cohort studies comparing in-person care delivered prior to the COVID-19 pandemic to telehealth-delivered care after the onset of the pandemic. In a US cohort study<sup>65</sup> of 391 adults with a variety of mental health diagnoses and substance use concerns treated within a transdiagnostic psychiatric IOP, comparisons of score change on the PHQ-9 and GAD-7 did not significantly differ between groups. However, when examining improvement based on categorical change scores, significantly more patients receiving in-person treatment had PHQ-9 improvement than those receiving telehealth treatment. Other studies did not find significant differences between VTC-H and IP-C delivery of mental health care in depression symptom severity<sup>42,61,63</sup> or anxiety symptom severity.<sup>61</sup>

#### *Safety*

A single US cohort study<sup>63</sup> tracked and reported adverse events. No patient in either group attempted or committed suicide. One small cohort study<sup>42</sup> conducted in Canada reported that technical glitches occurred with the VTC software that were frustrating for both the study participants and therapists.

### *Attrition*

Two cohort studies<sup>42,63</sup> among patients with multiple mental health conditions reported dropout outcomes by treatment group, but neither found statistically significant group differences. Overall dropout ranged from 25.0%<sup>42</sup> to 32.4%<sup>63</sup>.

### *Other outcomes*

Other outcomes assessed in studies comparing VTC-H and IP-C delivery in samples of patients with mixed mental health diagnoses included quality of life,<sup>40</sup> hospitalization,<sup>40</sup> patient satisfaction,<sup>40,63</sup> and cost.<sup>40</sup> Groups did not significantly differ on quality of life, hospitalization, or patient satisfaction. One study<sup>40</sup> found that VTC-H treatment is associated with lower cost than IP-C. In this large Canadian RCT<sup>40</sup> evaluating remote delivery of psychiatry in 495 adults who were referred to a psychiatric clinic, the average cost of telepsychiatry was 10% less per patient than the cost of in-person care.

Two studies<sup>63,65</sup> examined factors related to engagement. In a US cohort study<sup>65</sup> of 391 adults with a variety of mental health diagnoses and substance use concerns treated within a transdiagnostic psychiatric IOP, average number of weeks of patient enrollment and mean number of assessments completed were statistically equivalent between groups. In a US cohort study<sup>63</sup> of 414 adults with a variety of presenting mental health concerns treated in a PHP, mean number of days attending the program was higher for the VTC group (13.5 days) than the in-person group (8.5 days;  $p < 0.001$ ).

## **Telephone versus IP-C**

### *Mental health-related outcomes*

In one cohort study<sup>47</sup> conducted in the UK among 106 adults receiving low-intensity CBT, an unadjusted comparison indicated that the telephone group experienced significantly greater depression symptom reduction on the PHQ-9 compared to the IP-C group. Significant differences persisted after controlling for number of assessments, provider sites, and baseline symptom severity. However, in analyses utilizing one-to-one propensity score matching, adjusted mean differences in treatment outcomes indicated non-inferiority between groups for this measure. Similar results were found for anxiety symptom severity (GAD-7).

### *Safety*

No studies were identified comparing telephone and IP-C delivery of mental health care for mixed mental health diagnoses reporting on safety-related outcomes.

### *Attrition*

No studies were identified comparing telephone and IP-C delivery of mental health care for mixed mental health diagnoses reporting on dropout between treatment groups.

### *Other outcomes*

A single study<sup>47</sup> comparing telephone delivery to IP-C in samples of patients with mixed mental health diagnoses reported on secondary outcomes of interest. This study<sup>47</sup> was conducted in the UK and evaluated telephone delivery of low-intensity CBT in 4,106 adults in mental health

treatment. Reductions in score on the Work and Social Adjustment Scale were significantly greater for the telephone group, with a small effect size ( $d = 0.03$ ). This study also found that the per-session cost of telephone therapy was 36.2% lower than IP-C therapy.

## **VTC-C versus IP-C**

### *Mental health-related outcomes*

Two RCTs<sup>49,50</sup> compared VTC-C and IP-C delivery of mental health care in samples of adults with mixed mental health diagnoses. In a small Australian RCT<sup>49</sup> among 26 individuals with a mood or anxiety disorder treated with CBT, groups did not significantly differ on mental health symptoms, assessed using the DASS. Likewise, in a Spanish RCT<sup>50</sup> conducted among 140 individuals with a variety of mental health diagnoses receiving psychiatry services, groups did not significantly differ in treatment response, assessed using the Symptom Checklist-90 Revised (SCL-90R) global distress index and Clinical Global Impression (CGI).

### *Safety*

No studies were identified comparing VTC-C and IP-C delivery of mental health care for mixed mental health diagnoses reporting on safety-related outcomes.

### *Attrition*

Two RCTs<sup>49,50</sup> among patients with multiple mental health conditions reported dropout outcomes by treatment group, but neither found statistically significant group differences. Overall dropout ranged from 7.1%<sup>50</sup> to 19.2%<sup>49</sup>.

### *Other outcomes*

A single study<sup>49</sup> comparing VTC-C to IP-C in samples of patients with mixed mental health diagnoses reported on secondary outcomes of interest, including quality of life, patient satisfaction, and therapeutic alliance. This small Australian trial at high risk of bias found no significant differences between the VTC-C and IP-C groups on these outcomes.

## DISCUSSION

The aim of this review was to synthesize evidence from studies examining the safety and effectiveness of evidence-based mental health care delivered via telehealth modalities. This review builds on previous evidence synthesis work<sup>32-36</sup> on telemental health in 3 ways. First, we examined evidence on telehealth-delivered mental health care for several mental health conditions. Second, we focused specifically on the effectiveness of evidence-based mental health care delivered via a telehealth modality compared to in-person delivery of the same intervention. We did not include studies comparing telehealth-delivered treatment to waitlist or treatment as usual. Third, in addition to effectiveness outcomes (*ie*, mental health condition symptomatology), we examined outcomes related to safety, access and continuity of care, and quality of care and implementation.

Fifty studies were identified comparing telehealth and in-person delivery of the same mental health intervention, consisting of RCTs, non-randomized trials, and cohort studies of varying size and rigor. Most published studies report comparable effectiveness of telehealth-delivered mental health treatments compared with in-person delivery of the same treatment. Evidence from these studies on the safety and effectiveness of telehealth-delivered mental health care is either low or insufficient strength due to inconsistent findings and methodological limitations of many of the studies. Study populations, interventions, comparisons, and outcomes varied considerably, making it difficult to draw strong conclusions about the comparative effectiveness of telehealth-delivered and in-person mental health care. In terms of safety, only 8 studies reported on adverse events; none of these studies found evidence of a difference in adverse events between telehealth-delivered and in-person mental health care.

PTSD is the most extensively studied condition in research investigating telehealth-delivered mental health care. Low-strength evidence from 7 studies suggests that individual psychotherapy for PTSD delivered via VTC-H may result in similar improvements in PTSD symptom severity as IP-C treatment. Only 1 study reported a significant difference between delivery modalities. It is unclear whether change in PTSD symptom severity is similar after individual psychotherapy for PTSD delivered via VTC-C and IP-C, based on low-strength evidence from 9 studies. Evidence was inconsistent; some studies found effects favoring IP-C treatment at post-treatment, but the magnitude of the effect was small and did not persist at follow-up.

Fewer studies were identified for other mental health conditions, including depression, anxiety-related disorders, and SUDs. No studies were identified investigating telehealth-delivered mental health care for bipolar disorder, SMI, or suicidality. For depression, it is unclear whether change in depression symptom severity is similar after individual psychotherapy delivered via VTC-H and IP-C. We have low confidence in this finding, which is based on inconsistent and imprecise information from 2 RCTs with some study methodological limitations noted in 1 of the studies. Low-strength evidence suggests that there may be comparable change in depression symptom severity after individual psychotherapy delivered via telephone and IP-C immediately post-treatment, but it is unclear whether change in depression symptom severity remains similar across modalities over time. Evidence is insufficient to make conclusions about the effectiveness of mental health care for depression delivered via VTC-C versus IP-C.

Studies on anxiety looked at a variety of anxiety-related diagnoses, including GAD, OCD, phobia, and panic disorder with agoraphobia. Due to variability between studies, evidence for

most outcomes was insufficient to make conclusions about telehealth delivery of mental health care for anxiety-related disorders. Only 2 cohort studies examined the effect of telehealth-delivered mental health care on substance use-related outcomes in adults with SUD; evidence is insufficient to make conclusions about the effectiveness of telehealth-delivered mental health care for substance use disorder. Due to variation between studies and serious methodological study limitations, evidence is also insufficient to make conclusions about the effectiveness of telehealth-delivered mental health care for populations of adults with mixed mental health concerns.

Only 3 studies directly compared 2 telehealth modalities, all investigating telehealth-delivered mental health care for PTSD. These studies did not find significant differences in PTSD treatment response between VTC-H and VTC-C groups, but 2 of these studies were high risk of bias and our confidence in this finding is low. No studies examined whether the safety or effectiveness of telehealth-delivered mental health care varied according to treatment format (*ie*, group versus individual). Only 2 RCTs on depression examined the effect of clinical characteristics on effectiveness of telehealth versus in-person delivery of mental health care. These studies provided some evidence that a more severe clinical presentation (*ie*, higher hopelessness scores, presence of comorbid anxiety disorder) was associated with worse depression outcomes for telehealth delivery compared to in-person delivery. However, one of these studies found no differences in depression outcomes between telehealth and in-person delivery among a subgroup of participants with problematic alcohol use.

We did not formally grade strength of evidence on secondary outcomes related to access and continuity of care and quality and implementation-related outcomes; these outcomes were not reported consistently across studies, and variability between studies makes it difficult to come to overall conclusions about these outcomes. Nevertheless, most studies appear to have found comparable effects of telehealth and in-person care on outcomes related to functioning, quality of life, access to treatment, engagement, and therapeutic alliance. Results were mixed regarding patient satisfaction and cost outcomes. Overall, rates of dropout were high but comparable across telehealth and in-person treatment modalities.

Studies comparing delivery of mental health care via VTC-H versus IP-C are most relevant given the current state of telehealth-delivered care within the VA. A VA Memorandum<sup>94</sup> published in April of 2022 communicates continued support for telehealth within VA Mental Health Services and instructs mental health providers to offer Veterans the option for telehealth treatment during and beyond the COVID-19 pandemic. VTC technology is now widely available, and Veterans are provided access via Veteran Video Connect, potentially rendering in-clinic VTC hubs largely obsolete.

Although many of the studies included in this review were conducted among Veterans, particularly studies evaluating telehealth delivery of treatment for PTSD, nearly all these studies depended on Veterans using the VA healthcare system. Utilization of VA healthcare services has increased in recent years, but about half of all Veterans did not use at least 1 VA benefit or service in fiscal year 2016.<sup>95</sup> Studies have identified important differences regarding sociodemographic factors and health burden between Veterans who do and do not utilize VA healthcare services.<sup>96-98</sup> One study<sup>96</sup> found that VA users were more likely to screen positive for lifetime psychopathology and endorse current suicidality. Given these differences, findings of

studies conducted among Veterans using the VA healthcare system may not fully generalize to Veterans not engaged in VA care.

Notably, one major advantage of telehealth services is the extended reach it offers in treating a larger population of patients who may not have access to mental health resources for care and that can access these services from home or during their lunch break. Measuring the impact of this extended reach of care was outside the scope of this review but it is an important factor when considering the overall impact of telehealth interventions.

## LIMITATIONS

Limitations of our review methods include our use of sequential review (rather than dual, independent review) for data abstraction and risk of bias assessment. Additionally, we did not formally grade strength of evidence for secondary outcomes related to access and continuity of care and quality and implementation-related outcomes. We did not search for in-progress research on telehealth-delivered mental health care.

The available evidence on telehealth-delivered mental health care has several limitations. Inconsistency in the conditions treated, interventions used, telehealth modality/setting compared, and outcomes reported make comparisons of safety and effectiveness across studies difficult. Many studies did not report on group differences in dropout rates, and definitions of dropout varied across studies. Few studies explicitly reported whether adverse events occurred during treatment. Many of the included studies had serious methodological limitations. Common methodological limitations of RCTs were unclear co-interventions, high attrition, and exclusion of a portion of randomized participants from analyses. Observational studies were limited by lack of control for potential confounders and unclear handling and/or extent of missing data.

For the most part, little to no information was provided on co-interventions. Although most studies required participants taking psychotropic medications to be on a stable regimen prior to the study and to not start or stop taking psychotropic medications during the study, only 2 studies<sup>22,23</sup> reported on medication use by treatment group. Lastly, few studies followed patients for longer than 6 months, and no studies followed patients for longer than 12 months; the durability of treatment effects beyond this limited follow-up period is unknown.

## FUTURE RESEARCH

Rigorous studies are needed comparing evidence-based mental health care delivered via VTC-H versus IP-C for mental health conditions commonly seen in the VA setting, including PTSD, depression, and anxiety-related disorders. Although most of the studies included in this review focused on PTSD, many had serious methodological limitations that limit our confidence in the findings. Fewer studies were identified on depression, anxiety-related disorders, and SUDs, and no studies exclusively focused on bipolar disorder, SMI, or suicidality. Additional research is needed to clarify the effectiveness and safety of telehealth-delivered mental health care for these conditions. Studies investigating VTC-H delivery of group psychotherapy and psychiatry are also needed.

No studies were identified that compared telephone delivery to VTC delivery; studies investigating this comparison may be informative given that audio-only treatment is used as a backup option when video is not possible.<sup>94</sup> Studies are needed that examine whether telehealth-

delivered mental health care is more appropriate (*ie*, more effective or safe) for certain patients based on demographic or clinical characteristics. Although reducing barriers to treatment is one of the main drivers for telehealth,<sup>99</sup> only 1 study examined access to care.

Future studies should consistently assess and report on harms. Although few adverse events were reported in the studies included in this review, and none were attributed to telehealth delivery, telehealth delivery of mental health care has unique patient safety challenges that require planning and communication to enable providers to respond to emergencies remotely.<sup>100</sup> As noted in a recent companion ESP report<sup>101</sup> on emergency planning and risk management for telehealth-delivered mental health care, there is limited research evaluating real-world implementation of suicide risk assessment and management protocols for telehealth-based services, and research evaluating the effectiveness, feasibility, and acceptability of different practices is warranted.

It is unknown whether the dramatic shift to telehealth that rapidly took place in response to the COVID-19 pandemic has altered patient and provider beliefs and attitudes about telehealth-delivered mental health care in ways that reduce the informativeness of research conducted prior to the pandemic. Future research is needed investigating whether such changes have occurred and whether they impact utilization and outcomes of telemental health services.

## CONCLUSIONS

Limitations of available evidence make it difficult to draw strong conclusions about the comparative effectiveness of telehealth-delivered and in-person mental health care. Although the strength of evidence was low or insufficient for all safety and effectiveness outcomes included in the present review, results of most studies found telehealth delivery of mental health care comparable to in-person delivery. PTSD is the most extensively studied condition, and low-strength evidence from 7 studies suggests that individual psychotherapy for PTSD delivered via VTC-H may result in similar improvements in PTSD symptom severity compared to IP-C treatment. Less evidence was available for other mental health conditions, including depression, anxiety-related disorders, and SUDs. Studies on anxiety looked at a variety of anxiety-related diagnoses. Evidence was insufficient for all outcomes of studies on SUD or multiple mental health conditions. Evidence on safety, limited to 8 studies, indicated that adverse events were rare and did not appear to be associated with delivery modality. Few trials directly compared 1 telehealth modality to another, and little evidence was available examining the effects of clinical characteristics on effectiveness or safety outcomes. Future research is needed to determine whether the effectiveness and safety of telehealth-delivered mental health care differs based on treatment modality, format, or presenting mental health condition.

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