INCREASING ADHERENCE TO PSYCHOTHERAPY TREATMENT IN ADULT MENTAL HEALTH PATIENTS THROUGH THE USE OF TELE-BEHAVIORAL SERVICES: AN INTEGRATIVE REVIEW

A Scholarly Project

Submitted to the

Faculty of Liberty University

In partial fulfillment of

The requirements for the degree

Of Doctor of Nursing Practice

By

Almaz Assefaw

Liberty University

Lynchburg, VA

April, 2022

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Scholarly Project Chair Approval:

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ABSTRACT

Telebehavioral therapy has been developing in recent years as a viable alternative to in-person provider treatment. This was due, in part, to the recent COVID-19 pandemic necessitating rapid and widespread adoption of remote care services in general. Before this event, and despite years of development in telemental and telebehavioral technology, the U.S. rate of adoption of such services had been low. As psychotherapy is an effective way to treat mental health issues with or without the use of psychotropic drugs, ways to increase patient adherence to psychotherapy must be studied to provide high-quality mental health outcomes. One measure that has been identified to increase adherence to psychotherapy is the use of telebehavioral services. This integrative review shows that the use of telebehavioral health services can increase the likelihood of psychotherapy treatment plan adherence in the adult populations.

Keywords: Psychotherapy, adherence, patient engagement, telebehavioral, telehealth, telemental, remote therapy, mental health, drop out, no-show

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Dedication

I would like to dedicate this paper to all those working to overcome mental health issues during this recent Coronavirus pandemic. My heart and faith also go out to those suffering in Ethiopia, Ukraine, and other regions afflicted by conflict.

Acknowledgements

To the DNP program at Liberty University for providing me with guidance and instruction through all my years of study. To Dr. Odedina for mentoring me throughout the actualization of my investigative review. My research would not be where it is without her mentorship and forethought. I would like to thank my wonderful children Isaaq, Filsan, and Libaan, as well as my husband Ismael, my mother Hidat, and my brothers Zelalem and Alula. Without them, this would not have been possible, and I will forever be grateful for their continued support, guidance and just for being here.

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List of Abbreviations

American Association of Colleges of Nursing (AACN)

Cumulative Index to Nursing & Allied Health Literature (CINAHL)

Doctor of Nursing Practice (DNP)

Evidence-Based Practice (EBP)

Institutional Review Board (IRB)

Levels of Evidence (LOE)

Liberty University (LU)

Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA)

World Health Organization (WHO)

SECTION ONE: FORMULATING THE REVIEW QUESTION

Introduction

Due to the 2019 Coronavirus disease (COVID-19) pandemic and subsequent lockdown orders, many practices across the nation have shifted to offering telehealth services to treat patients (Sasangohar et al., 2020). Disruption in daily life, isolation from close friends and families, loss of employment and leisure activities that require leaving the home, the looming threat of the pandemic, and more have affected the mental health of many Americans. Psychotherapy is a critical aspect in treating behavioral health issues. The benefits of psychotherapy are such that the positive effects of treatment continue even after therapy is concluded.

Adults living with mental illness often have difficulty in engaging with an ongoing treatment plan (Dixon et al., 2016). In mental health treatment, a lack of patient adherence to their treatment plan may result in relapse, lowered quality of life, and may increase the likelihood of developing ancillary health issues. However, there are many factors that can impact the rates at which patients adhere to treatment. Barriers such as transportation, distance, and other hurdles can make it difficult for patients to regularly meet with their providers. Therefore, to enhance positive patient outcomes, it is imperative to find interventions that can increase patient compliance to mental health treatment.

Telebehavioral health options have been shown to be an effective means of delivering psychotherapy treatment. Andrews (2018) conducted a meta-analysis of randomized and controlled trials of Cognitive Behavioral Therapy (CBT) delivered via the internet, and compared them versus control groups wherein standard, in-person CBT was conducted. Results showed that standards of care measured using certain patient outcomes including Hedge's g, numbers needed to treat, and adherence, were all consistent with or greater than those

associated with their equivalent in-person counterparts.

Defining Concepts and Variables

Telebehavioral health is a mode of service delivery of mental health services. It is not in itself an intervention, but a way of delivery for treatment interventions. It can be synchronous (i.e., real-time interactive meeting between patient and provider) or asynchronous (i.e., pre-prepared information and activities). Telebehavioral health refers to the remote delivery of behavioral health services. Psychotherapy, more specifically, is a term used to describe mental health treatments through dialogue with a mental health provider. It is used to provide a supportive environment that allows the patient to speak freely in a nonjudgmental environment with an objective and neutral party.

According to the World Health Organization, adherence is how much a patient's behavior aligns with the recommendations agreed upon with their healthcare provider (Sabaté, 2003). This may include attending visits with one's provider, taking medication, following a diet, and/or executing lifestyle modifications or more. With regards to psychotherapy, adherence refers to the patient's demonstrated tendency to follow therapy treatment directives, including therapy session attendance.

Rationale for Conducting the Review

Sasangohar (2020) and his team at Houston Methodist Hospital worked to determine whether a mandated telebehavioral solution would increase general patient attendance, as well as reported patient engagement with the providers during the COVID-19 pandemic. It was found that not only did patient attendance for scheduled visits rise dramatically with the implementation of a telehealth solution, but patients reported higher satisfaction with providers in exit surveys. Instances of patient satisfaction also rose compared to pre-COVID-19 levels.

Therefore, increasing patient access to treatment is a critical aspect to increasing patient adherence. The exponential explosion of new telebehavioral solutions, electronic medical records, and clinics in the past several years (Koblauch et al., 2018) speak to this.

Purpose and Review Questions

Problem Statement

There are numerous factors that can affect the rate of adherence in patients for behavioral health treatment, such as distance, transportation issues, and resource availability (Koblauch et al., 2018). Especially following the pandemic, availability of in-person treatment has plummeted. This is an issue, considering that non-adherence of psychotherapy can result in poorer patient outcomes (Lambert, 2017). Additionally, non-adherence can have a dramatic effect on the day-to-day operation of in-person clinics. Incidences where patients fail to attend sessions without significant enough forewarning results in losses for the clinic, which can in turn often impair workflow efficiency (Hawker, 2007). Therefore, a solution that addresses patient access and can be utilized to increase patient adherence is needed to maximize patient outcomes in psychotherapy treatment.

Project Purpose

The purpose of this study was to use existing literature to conduct an integrative review of telebehavioral psychotherapy implementations in order to determine whether remote psychotherapy services may increase treatment adherence in adult patients. According to McAkleavey et al. (2017), routine psychotherapy treatment is strongly associated with significant improvement in symptoms for mental health patients, especially those with severe distress. Ways to resolve this issue of psychotherapy being difficult to access for some populations is to create and sponsor outreach programs that are tailored to the needs of various populations; remote platforms, such as e-learning services, have been used to assist in

increasing access and use of psychotherapy treatments (Fonagy & Luyten, 2021). This investigation examined integration strategies of telebehavioral suites to replace in-person workflows, as well as educating/informing patients of the updated remote services that would be utilized, to better understand the context of how resulting clinical practices influence patient adherence. Fortunately, as instances of telemental practices have exploded after the COVID-19 pandemic, significant research precedence on this topic was available when designing project methodology.

Clinical Question

- Does the use of telebehavioral services increase adherence to psychotherapy in adult mental health patients?

Formulate Inclusion and Exclusion Criteria

The inclusion criteria are articles that report on the stated measurable outcomes, involve care delivery that incorporates telemental services, are written in the English language and were published no earlier than 2016. Articles that are excluded are ones that take place/have participants who are outside of the United States and involve patients below 18 years of age (See Table 1).

Conceptual Framework Model

The framework used for conducting the integrative review was deconstructed from the IR guidelines developed by Whitmore and Knafl (2005). Experimental, non-experimental, and other systematic research were collected and then analyzed descriptively, and qualitative research was used to provide rigorous data in accordance with Whittemore and Knafl's methodology regarding the integrative review.

Doctor of Nursing Practice Essentials

Essential I

This integrative review seeks to evaluate, critique and assess current research in order to "determine the nature and significance of" telebehavioral health delivery services and its effects on adult psychotherapy patients in accordance to Essential I (AACN, 2006). It is imperative to use a science-based approach when researching and discussing healthcare phenomena so that well-informed strategies and actions can be made when integrating new knowledge into evidence-based practice.

Essential II

According to the DNP handbook, graduates are expected to "develop and evaluate care delivery approaches that meet current and future needs of patient populations based on scientific findings in nursing and other clinical sciences" (AACN, 2006). The purpose of this integrative review is to analyze the current state of science regarding the delivery of telebehavioral health and its impact on adherence in adult psychotherapy patients. In regard to Essential II, graduates must be well prepared to identify organization issues and assess and implement system-wide changes while emphasizing the need for continuous "improvement of healthcare outcomes and ensuring patient safety." Adherence to psychotherapy treatment is essential to increase positive patient outcomes. Therefore, low-cost interventions that reduce barriers to accessing mental health and encourage adherence to mental health treatment must be thoroughly researched. This review will promote awareness and consideration for this topic so that nursing leaders can consider these strategies and see if they can make a beneficial change in their institution.

Essential III

The third essential notes the importance of being able to critically analyze existing literature to determine and implement high quality evidence-based practice (AACN, 2006). Throughout the research process in this integrative review, the Melnyk Levels of Evidence was used to appraise the quality of current literature surrounding the use of telebehavioral modalities in providing psychotherapy treatment for adult mental health patients. To ensure that only the highest quality evidence was identified, assessed, and synthesized for this project, data were only gathered from articles that were rigorous enough to be classified in Levels 1-5.

Essential IV

To perform an integrative review, one must be proficient in distinguishing the most relevant articles out of possibly hundreds or even thousands of search results and be able to extract critical and relevant information from each result to analyze how it applies within the defined area of healthcare delivery systems. Essential IV demonstrates the importance of utilizing information systems and technology in the delivery of high-quality patient care (AACN, 2006). To maintain these standards, one must be able to research in a fashion that minimizes bias and improves scientific rigor while navigating through multiple technology platforms.

Essential V

According to Whittemore and Knafl (2005), “Integrative reviews have the potential to build nursing science, informing research, practice, and policy initiatives” (p. 546). The research exploring a healthcare phenomenon can be used as a backbone to advocate for and influence policy around the subject. It can also be used to design policy in a way that maximizes benefits in patient outcomes, or as a foundation for further research (AACN, 2006). This integrative review seeks to call attention to the use of telebehavioral health in increasing

adherence to psychotherapy treatment, and hopefully educate policymakers who are considering ways to create policies regarding mental health care.

Essential VI

In order to develop and implement changes in an organization, skills in research, peer review, and collaboration are highly valuable. Research undertakings such as this one demonstrate the ability to employ "effective communication" in scholarly projects (AACN, 2006). Integrative reviews act as a means of achieving these values. Through the process of exchanging information and disseminating results, professionals can collaborate and use this knowledge in designing guidelines and improve the standards of care.

Essential VII

This integrative review identifies a modality in which mental health treatment may be expanded to benefit patient outcomes. Due to the importance of psychotherapy treatment, it is imperative that ways to improve adherence are thoroughly researched. "Synthesize[ing] concepts, including psychosocial dimensions" is essential in clinical prevention and population health in the process of addressing health promotion and identifying possible gaps in care (AACN, 2006). This integrative review acts as a means to educate other healthcare professionals who are working to improve their patients' health prospects.

Essential VIII

The purpose of this integrative review is not only to provide education about telebehavioral health services and adherence to psychotherapy treatment, but also to serve as a springboard for further research and consideration into this topic. Essential VIII notes the importance of educating and guiding others through a carefully designed systematic assessment of health and illness (AACN, 2006). It is the duty of the DNP graduate to demonstrate advanced levels of evaluation, clinical judgment, and related skills in their area of specialty.

This review will help guide the audience through carefully chosen research to further their knowledge on the topic and help provide a link between research and interventions that can be adapted into practice (Whittemore & Knafl, 2005).

SECTION TWO: COMPREHENSIVE AND SYSTEMIC SEARCH

Evidence was found for this integrative review by performing the search methodology discussed in Toronto and Remington's guide. Keywords and "natural language search terms" have been extrapolated from the clinical question and supplemental research questions and constructed into Boolean search phrases. The initial search phase was conducted under the guidance of a librarian to ensure the efficient and accurate organization of results using the clinical question "Does the use of telebehavioral services increase adherence to psychotherapy in adult mental health patients?" The initial search was performed on the database Cumulative Index of Nursing and Allied Health Literature Plus (CINAHL Plus). Related or synonymous concepts and terms found in relevant articles during the preliminary search stage have also been used to expand the search. Search terms have been tailored to the databases used, as some terms have yielded more or fewer results depending on where the search was conducted. The supplemental questions used to guide the retrieval of data include:

1. What effect do potential positive indicators for patients have on patient adherence to psychotherapy?
2. How are these indicators affected by telebehavioral health services?

Search Organization and Reporting Strategies

A systematic search of literature was conducted using the databases CINHAL (via EBSCO), Medline, and PubMed. The primary inclusion criteria for this search were articles on mental health patient adherence, and compliance to telebehavioral interventions. When conducting the initial search through the CINHAL database, a broad resource for a diverse

range of healthcare and nursing articles, the initial search terms *telebehavioral* AND *remote care* AND *compliance* were used. This returned no search results, and thus *telebehavioral* was changed to the more general *telehealth,* and *remote care* was removed for redundancy, and 648 articles were found. Exchanging out terms more indicative of our investigation topic, such as *compliance* for *adherence*, resulted in several duplicate articles, but also focused the results of the search down to 466. The search was further limited to articles that were published in the last five years, were peer-reviewed, contained the full-text, and investigated adult populations. This left 44 potential articles. Prominent article titles featuring keywords or concepts relevant to the investigation were indexed and separated as titles which featured exclusionary terms were filtered out. Thirty articles remained that matched the inclusion criteria, but only one article was deemed sufficiently relevant to the final investigation topic.

Therefore, a follow-up search through the CINHAL database was then conducted with a more generalized aim to obtain useful information that supports the investigation topic. The Boolean (*telehealth* OR *telemedicine* OR *telepsychiatry* OR *telemental* AND *psychotherapy*) was entered and produced 501 results. Additional exclusion criteria filters were applied, limiting papers to only those that were published in the last five years, were peer-reviewed, contained the full text, and investigated adult populations, with 11 articles remaining. In accordance with Toronto and Remington (2020), it is likely that more natural keywords would allow for more comprehensive searches, as many papers might avoid using more controlled or strict language in some cases; therefore, the general term *therapy* replaced *psychotherapy* and 596 articles were found. Adding *cognitive behavioral therapy* to the Boolean returned 33 articles as a result. Of those, two articles were found to be useful for discussion of the investigation topic.

At this stage, the strategy employed focused on manipulating Boolean logic to completely extract all potentially relevant research. In order to employ additional natural keywords, the search "*(telehealth* OR *telemedicine* OR *telepsychiatry* OR *telemental)* AND *mental health"* was entered, yielding 186 results following the previously discussed limiters. Following that, the phrase "AND *adherence*" was applied, resulting in 37 articles displayed. After further analysis, three articles were chosen for inclusion.

Eventually, key phrases such as *compliance* and *adherence* were substituted with *attendance* and *patient attendance* to determine whether additional articles could be found. This yielded 119 total articles, after the standard filtering for the previously discussed limiters. Many articles that remained still involved drug therapy treatment modalities. This was expected, as prescription drugs without regular and concurrent behavioral therapy sessions is common, and adherence to prescribed medications is a similarly important topic of discussion in modern healthcare. An additional keyword was added, *psychotherapy*, to eliminate articles that were not pertinent to the investigation topic. Twenty-nine articles remained, and after filtering for duplicates that appeared in previous searches, 18 articles remained. Ultimately none of these articles were deemed relevant following further analysis.

The Boolean phrase (*telehealth* OR *telemedicine* OR *telepsychiatry* OR *telemental)* AND *adherence* was enteredinto MEDLINE (EBSCO). This yielded 1,087 results. The search was then specified to include only articles within the last five years and excluded results that fell under the document type "Blog, Transcript, Letter To The Editor, Obituary, Credit/Acknowledgement, Table of Contents, Interview, Undefined" using the sidebar function so that only peer-reviewed research remained. The inclusion and exclusion criteria listed in Section I and in Table 1 were employed to further narrow the results, and 11 articles remained.

After more careful abstract analysis, three articles were considered useful to further explore the investigation topic.

Additional topics were added, and the Boolean logic was manipulated to more comprehensively explore the database. The phrase (*telepsychiatry* OR *telemental health)* AND *patient attendance* AND *patient engagement* was also used, generating 250 articles. The phrase was then broadened to expand the search scope, with the following entered: *psychotherapy* AND *telehealth* AND *adherence* OR (*patient attendance* OR *"patient follow-up").* Four hundred forty nine articles were indexed, and after filtering, 43 articles remained. After filtering out three duplicate studies, an abstract review was performed. Four articles met the inclusion criteria for the Melnyk Level of Evidence review.

In some databases, it was useful to search for articles using as many relevant terms as possible at once. In PsycInfo, the phrase "*telemental health*" OR *telepsychology* OR *telehealth* OR *telepsychiatry* AND *adherence* OR *compliance* OR *nonadherence* OR *noncompliance* was used, which yielded 574 results. To rule out more articles, the sidebar function was used to exclude articles that did not meet the inclusion criteria, and only 15 titles relating to the subject remained for abstract review selection. The phrase *(*"*telemental health*" *OR telepsychology* OR *telehealth* OR *telepsychotherapy)* AND *(patient attendance* OR *patient engagement)* was then used, and after applying the necessary filters and criteria, 58 articles were left, with 11 being duplicates of the previous search. The remaining articles were also duplicates from databases that were searched prior to using PsycInfo. After performing an abstract review, seven articles were found to be relevant for the integrative review, with four having met the inclusion criteria to be selected for the Melnyk Level of Evidence review.

The Nursing & Allied Health Database was also searched. The search terms were the same as those used in the previous data search; however, slightly different filters were used, as

the NAH database had different available limiters. The exclusion criteria that were applied limited articles to full text English articles, peer reviewed articles, and those published within the last five years. The subject population age and geographic location could not be applied as a filter.

The initial search terms applied were (*telehealth* OR *telemedicine* OR *telepsychiatry* OR *telemental*) AND *adherence*), which returned 7,243 results. After applying the previously defined exclusion criteria, 3,387 articles remained. Additional terms were applied, and adding AND *mental health* left 1,802 articles remaining. In order to further home in on relevant research, specific mental health conditions were indexed to find articles that were more granular in scope. *Depression* and *anxiety* were applied, and *telehealth, telepsychiatric*, and *telebehavioral* were removed from the search terms, which left 91 articles. A title analysis revealed one duplicate from a previous data search and 78 irrelevant articles. The remaining 12 articles were more closely examined through both abstract and full text analysis, and while only two satisfied the inclusion criteria for data analysis, the remaining three were found to be useful for further establishing background information on the investigation topic. An additional duplicate was also found among the remaining articles.

Terminology

Key terminology relating to the integrative review research process will be defined in this section: platform, database, and search engine. According to Toronto and Remington (2020), a platform refers to the chosen software used by a database provider and is often used interchangeably with the term search engine. A database is an "electronic, searchable collection of published materials," and the range of materials offered can vary from books, journal articles, reports, and more (Toronto & Remington, 2020). Databases also contain information on the publishers, date published, titles, authors, etc. The databases used in this

research were CINAHL Plus, Nursing & Allied Health Database, MEDLINE (EBSCO) PsycInfo, and SAGE. The platforms used to host these databases include EBSCO, ProQuest, and PubMed. “Search interface” refers to the search features and page in which the user navigates through the database and results (Toronto & Remington, 2020). Most of these interfaces contain basic and advanced search fields, and can include limiters as well. These limiters on the search interface allow one to search for articles using options such as age, language, publisher, etc., which help refine the literature search. The search interface also allows the user to save search results, aiding in the documentation of the integrative review process. “Controlled vocabulary” refers to the predefined terms within the database that categorize items with similar content (Toronto & Remington, 2020).

An ancillary search was conducted through gray literature using Toronto and Remington’s (2020) methodology. Using Google Scholar, the phrase *telemental health AND adherence* was searched to test where additional resources for the integrated review could be found. This provided 19,000 results. After changing the publish date range to suit the inclusion criteria, 17,400 results remained. Many of the results in the first page came from the National Center for Biotechnology Information (NCBI) with the U.S. National Library of Medicine (NLM) in the platform PubMed, so this database was used to further aid in the gathering of evidence-based research.

The phrase “*telemental health AND adherence”* was searched, and 16 results were retrieved. After filtering publication date and age, four results remained, and none of the results were applicable to the integrative review.

“Telebehavioral AND participation” was searched and produced 12 results, six of which remained after filters were applied. Of the final six, two of these articles were duplicates from the previous databases used; three of them did not meet the inclusion criteria for further

review; and one was applicable for the integrative review. The phrase *telepsychiatric modalities* was then searched to find articles that discussed the use of telebehavioral applications, with nine results found and two remaining after filters were applied, and one being selected for further analysis in the Melnyk Levels of Evidence Matrix.

SECTION THREE: MANAGING THE COLLECTED DATA

Literature regarding telebehavioral health was collected and identified through a systemic search of online databases. The articles were screened for relevancy, and eligibility was determined through an extensive and ordered filtering process, the flow of which was modeled in accordance with the PRISMA flowchart as outlined by Toronto and Remington (2020). A total of 1553 articles were screened, wherein titles were reviewed for topics discussing telebehavioral services, which must include behavioral therapy. Titles featuring inpatient services, prescription adherence, pediatrics, or locations outside the U.S. were discounted.

Article titles were further reviewed for relevancy to the investigation topic, as well as compared against the inclusion and exclusion criteria. Once the title review process was completed, article abstracts were reviewed and used to determine eligibility for inclusion. There were 122 articles that cumulatively underwent article analysis. When the content review process was completed, there were 64 articles left that satisfied the inclusion criteria and were sufficiently relevant to the clinical question. Of the articles left, there were 37 duplicates that could be further eliminated. As the results from several different searches (using the previously defined keywords) were able to yield many of the same results, this was an indication that the database search process was sufficiently comprehensive within the given criteria (Toronto & Remington, 2020).

The full text of the remaining 27 articles were then reviewed for relevancy and ultimate inclusion for data analysis. A full quality appraisal, a synthesis of collected data, and assessment for bias/internal validity was conducted for the remaining articles. The criteria used for article selection may be found in Table 1. The articles were then organized by how closely they supported the clinical question. These articles were appropriately synthesized using an abstracted literature matrix to organize the findings, further appraise research quality and eligibility, and to make it easier to highlight results through descriptive analysis.

SECTION FOUR: QUALITY APPRAISAL

Many articles, even lesser studies, were used to provide information that was relevant and substantive enough to support the investigation topic. The nature of the clinical question, as was made apparent by further exploration of the research, meant there were few articles that directly spoke to the topic of the research, or addressed any supplemental questions that needed to be answered. As such, any factors or inherent bias in either the articles and article selection needed to be mitigated and/or meticulously accounted for (Toronto & Remington, 2020). Upon applying the inclusion criteria, the supplemental questions served to add additional context, broaden the scope of the research, and inform appraisal of articles that supported the investigation. Every article was reviewed with the two factors influencing the decision to include the article in the integrative review: satisfaction of the inclusion criteria and the relevancy to the clinical question.

Sources of Bias

When searching for/assessing research, it is important to understand when and where potential bias may be introduced. As such, any factors or inherent bias in both the articles and article selection were mitigated or properly accounted for. When evaluating studies for bias,

transferability, credibility, dependability, and confirmability are assessed to determine the presence and magnitude of internal/external bias (Toronto & Remington, 2020). The Melnyk Levels of Evidence was used as a tool to appraise articles for bias in strength and the existence of limitations. It is important to restate, however, that there were a limited number of articles in the cumulative body of research explored for this review that were directly relevant to the clinical question. As such, many articles would demonstrate similar biases in the participant population (particularly with regards to the given variables), or in the amount of supporting literary research (credibility).

For example, Sasangohar's (2020) work, where he and his clinic utilized multiple platforms and modalities (e.g., phone, email, computer-WebEx, etc.) for their 100% telehealth implementation was critiqued. Their research accounted for a comprehensive set of stakeholder perspectives in theory and was also used to collect background information regarding how the many practices across the nation have shifted to offering telehealth services to treat patients. While Sasangohar's study was eventually included in the final analysis, it was determined during the literary critique that the sample size of unique patient interactions did not quite measure up to the wide set of variables they were testing for. This was certainly a limitation that needs to be accounted for in the final analysis, but Sasangohar's article was still deemed sufficient for inclusion in the literary matrix. This was due, in part, to its relevance in addressing the supplementary questions put forth to support the clinical question. Not only did they address patient adherence to telehealth therapy through patient attendance, but they tracked both historical and current patient satisfaction with treatment in tandem. This allowed for further analysis of how ancillary factors can positively indicate for patient adherence.

As previously stated, a significant amount of research ended up having similar biases, especially integrative reviews that sourced a myriad of articles of varying levels of rigor. When

Chan, Li, Torous, Gratzer, and Yellowlees (2018) analyzed research regarding the use of remote technology in psychotherapy treatment, they performed an integrative review of studies, ultimately using 82 peer-reviewed articles published over the past three years. While this appears to be a large number, they were again accounting for many variables in their research. Several studies analyzed had relatively few participants and were conducted over short periods of time; it was difficult for the researchers to compare the many different criteria each source used. Moreover, much of their research focused on asynchronous care, while the topic explored for this investigation focused on real-time psychotherapy treatment, further segmenting and limiting the applicability of their research to this integrative review. As such, there was a relatively high risk for bias due to the low number of articles in the literature review.

Internal Validity

An enhanced evidence table was used to collect and report on research articles. The columns broadly address qualitative and abstract details regarding the article research, in addition to the standard quantitative/objective analysis. This ensures a broader perspective is taken when addressing the clinical question, preventing a narrow, pigeonholed search, and restricting possible alternative interpretations of the research. However, the relatively small sample sizes of some studies that have been examined calls into question their external validity, which suggests that further research would be needed to decide on the applicability of their results.

Appraisal Tools

This project required a thorough critique of the articles reviewed, selecting those that would be utilized for further data analysis using the outcome measurements detailed previously. This appraisal was conducted using established guidelines and checklists as

detailed by Melnyk's Level of Evidence. Each article that satisfied the given inclusion and exclusion criteria was examined to ensure the information given was generally or specifically applicable according to the standards highlighted by Melnyk and Fineout-Overholt (2019). This involved ensuring data were academically rigorous, as well as relevant to the problem statement and clinical question. Articles were also appropriately synthesized using an abstracted literature matrix to organize the findings, appraise research quality and eligibility, and to make it easier to highlight results through descriptive analysis.

The articles were reviewed and appraised on the quality of their methodology and their informational value. The relevancy of the articles' data, and how well they addressed the clinical question and other supplemental questions explored for this investigation was also a critical factor in their selection.

For example, when examining Carlbring et al.'s (2019) work, it was found that they sought to compare and contrast internet-delivered cognitive behavioral therapy (CBT) with face-to-face CBT through a systematic review and meta-analysis of 20 peer-reviewed research articles. These studies included a cumulative population 1,418 participants. The research was determined to be highly authentic, as they comprehensively assessed multiple patient outcomes to determine quality of care for a very diverse patient population (in terms of patient conditions and prognosis). The patient conditions featured in their study population included social anxiety disorder, panic disorder, depressive symptoms, body dissatisfaction, insomnia, tinnitus, male sexual dysfunction, spider phobia, snake phobia, and fibromyalgia. Carlbring et al. (2019) analyzed the effects of the two CBT delivery options by comparing dropout rates and satisfaction rates, among other factors.

Chan et al. (2018) sought to review the various uses of asynchronous technology in mental health care and how clinicians can help ensure that this technology remains effective.

They performed a review of studies, ultimately using 82 peer-reviewed articles published from the past three years. This article was used to provide background information regarding the development of remote technology in recent years. However, the relevancy of the data was determined to be rather low; while the authors examined literature surrounding the use of remote technology in treating mental health patients, they greatly focused on the use of asynchronous technology. This integrative review focused predominantly on CBT.

A more authentic study reviewed during the literature search studied the effectiveness of telepsychiatry for offenders with psychiatric disorders compared to in-person treatment (Farabee et al., 2016).

McDowell et al. (2021) categorized the various patterns of mental health care prior to the implementation of telemental health services for patients who have a Serious Mental Illness (SMI). They utilized a technique referred to as “latent class analysis” to identify three classes of mental health care use in the six months prior to the index of telemental health visits. They then individually reviewed the characteristics of each class. The data relevancy was not very high, as McDowell’s research focused more on identifying trends within telehealth and common telehealth-related incidences. This did not speak directly to the clinical question nor the supporting question. However, their research helped inform later search and analysis, as it provided keen insight regarding which aspects of telehealth could be focused on. The classes were separated as such: the largest class (3,066) had minimal use of PCP mental health care, the 2nd largest class (1,537) had minimal specialty mental health care, and the remaining class (327) was categorized by recent hospitalization/emergency department use. The academic rigor appeared to be high, as the study had large class sizes and the authors further clarified additional parameters denoting each class, though patients were assigned to classes based on predictive possibility so the class assignment could have some variance.

Sasangohar et al. (2020) was also appraised, and their investigation into the effectiveness of a stay-home mandated telemental implementation in a large healthcare system was determined to be academically rigorous. As previously discussed, their research explored patient adherence to telehealth through patient attendance as well as through patient satisfaction metrics, and as such their research was relevant to the supporting questions for this integrative review.

Whealin et al. (2017) evaluated the effectiveness of telemental care delivery for PTSD U.S. veterans residing in the rural Pacific islands. Using an attitude assessment scale, patient satisfaction and usefulness were assessed from 47 veterans who self-reported as minority background with PTSD for treatment of telepsychiatry CPT. With a relatively low population, yet highly specific/varied study parameters and observed variables (CPT intervention for PTSD via home telepsychiatry/telehealth video conference), the research was tentatively determined to be sufficiently rigorous. The low level of authenticity is reflected in the level of evidence assigned. The results were particularly relevant, as the attitude assessment over time gave a good overview of the development of telehealth experiences over the relevant time frame.

Mohr et al. (2017) created and implemented a suite of IntelliCare applications, to determine whether the suite was able to effectively reduce symptoms of anxiety and depression in users. The participants, comprised of 99 adult volunteers with a history of anxiety and depression, were assessed before and after an eight-week trial period. The authors measured app usage, tracked how many apps each participant used, and most importantly, administeredthe PHQ-9 (depression) and GAD-7 (anxiety) exams before and after the trial period. The data provided and the method of collection suggest that this research is data rigorous and sufficiently authentic, although there is a possible conflict of interest since the authors are linked to the development of the IntelliCare suite. This research is also partially

relevant to the supporting question, as it speaks further to patient satisfaction as a factor influencing telemental care usage. Again though, much of the suite comprises asynchronous care, rather than direct behavioral therapy sessions.

In another study, 22 adult patients were randomly selected from a psychiatric clinic, wherein visit adherence was monitored and two-sample t-tests were performed comparing differences in levels of adherence between outpatient and telepsychiatric appointments (Shulman et al., 2017). The nature of the randomized controlled trials gives this study a high level of authenticity. While this research is directly relevant to the clinical question, it lacks significant rigor due to the small population sample and possible selection bias.

Oesterle et al. (2020) evaluated research regarding telepsychiatry and its use in treating substance abuse. The authors performed a systematic review of tele-psychiatric literature and research published between 2012 and 2020 in order to perform their data analysis, draw conclusions, and propose a treatment modality. This research is highly authentic as it examines a wealth of previous studies and RCTs. While the study was used to provide important background information in the development of this integrative review, the investigation mainly focused on whether synchronous and asynchronous methods of conducting therapy are safe, and as such was not highly relevant.

In Mochari-Greenberger et al.'s 2020 study, their team sought to assess clinical and work effects from an evidence-based telemental behavioral therapy implementation for patients with pain and behavioral health problems. The study was an authentic, well-implemented cohort study. A cohort of 1,086 participants between September 1, 2016, and August 31, 2017 was assessed; the given mean age for the population was 53 ± 11.5 years, with a 71% female and 29% male distribution. The data were delivered rigorously with a low p-value ($p < 0.0001$), showing that in practicality the given results are very replicable. While statistically significant

results give weight to the conclusions drawn in the article, its applicability is somewhat reduced, as it neglected to differentiate/specify between telephone and web-app/video telemental therapy. This is a very significant distinction that now needs to be further explored.

Lin et al. (2019) conducted a study to determine whether telebehavioral health implementation is an effective approach for increasing reach and access to treatments for mental health disorders and other chronic illnesses. Mehrotra et al. (2017) were able to evaluate the use of telebehavioral modalities for Medicare recipients using self-pay. This study was sufficiently authentic, which examined the billing information of rural Medicare beneficiaries.

Applicability of Results

Research into the efficacy of telebehavioral health has shown significant promise. As remote services have expanded throughout the past decade, they have evolved to support and even replace many in-person patient-provider interactions (Andrews, 2018). In the wake of the COVID-19 outbreak, there were many instances where behavioral services sought to explore and adopt remote services to meet the immediate needs of the patient. They were found to expand patient access to many behavioral care services, and positively affect patient engagement and adherence in several cases. However, while the summation of research supported the adoption of telemental services to increase patient access and outcomes, further research and data were collected to further and more comprehensively analyze links to patient adherence and compliance.

Reporting Guidelines

In accordance with the guidelines established by Whitmore and Knafl (2005) regarding integrative reviews of clinical research, a visual diagram was used to analyze the appraised articles and disseminate the relevant findings. Their guidelines particularly helped to structure

a process that would incorporate a wide range of disparate, non-standardized outcomes through an expanded and abstracted literature matrix. This serves to highlight results through descriptive analysis.

SECTION FIVE: DATA ANALYSIS AND SYNTHESIS

The data analysis for this integrated review was focused on analyzing modern literature to understand the current state of telebehavioral health and make a determination on the efficacy of telepsychotherapy for the clinical question. Several thematic elements were revealed when synthesizing the accumulated research. Relevant data and descriptive elements were taken from synthesized articles and reported on using the literature matrix. Furthermore, additional analysis and findings were periodically introduced throughout the paper, properly labeled in the relevant sections.

Data Analysis

The articles were sorted and grouped based on the patient outcomes that they measured. Moreover, there were articles that reported on more than one outcome, and as such the information was displayed using an abstracted literature review matrix.

The literature matrix was expanded to incorporate supplemental information pertinent to the clinical question, in accordance with guidance from Whittemore and Knafl's (2005) analysis of integrative research. Quantifiable results pertinent to the project's measurable outcomes were reported in their own columns. The results were further reduced as needed to apply to the clinical question, especially in the case of survey results. Survey results are usually reported on comprehensive exam scores, without giving breakdowns for individual questions. Thus, whenever possible, additional columns were added as needed to further reduce data and separate pertinent survey questions from inconsequential ones. In cases where this was not

possible, another column was created with additional descriptive analysis; this analysis contains information that contextualizes the survey outcomes and justifies the survey results as relevant to the clinical question. This was performed on an article-by-article basis.

Descriptive Results

According to Toronto and Remington (2020), there exists no set of guidelines for formatting the descriptive results portion of an integrative review. As there exists no standard for measuring adherence to mutually agreed psychotherapy treatment plans, many articles selected that reported on patient engagement were analyzed comprehensively and descriptively. Throughout the research portion of this integrative review, common themes have been noted that pertained to the main topic. Thus, to incorporate a wide range of disparate, non-standardized measurable outcomes, an expanded and abstracted literature matrix was developed to provide additional descriptive analysis (Whittemore & Knafl, 2005). This descriptive results section is a thematic analysis of the research that is guided by the clinical and supplemental questions.

Adherence

In this integrative review, nine of the 20 articles discussed on the Melnyk Literature Matrix (see Appendix A) pertain directly to the clinical question. Carlbring et al. (2018) compared face-to-face delivered cognitive behavioral therapy (CBT) to remote Internet-based CBT. They analyzed several facets relating to quality of care, such as patient satisfaction, dropout rates and other factors. The researchers found that overall, there is equivalent quality of care between Internet-delivered CBT and face-to-face delivered CBT. A similar study performed by Fletcher et al (2018) examined video telehealth (VTH) compared to in-person care. In a systematic review from studies published in 2012-2018 regarding the subject, they analyzed the following factors of VTH: impact on treatment adherence, patient/provider

satisfaction rates, cost-effectiveness, and clinical effectiveness compared to in-person treatment.

Shulman et al. (2017) performed a RCT to determine if adult mental health patients who are non-adherent with outpatient appointments would be more adherent if their psychiatric appointments were delivered via telehealth. The group that was given home-based telepsychiatric care was assessed for adherence by logging how many appointments they attended. They were also given a questionnaire that compared the experience to traditional in-person care. Likewise, Severe et al. (2022) analyzed a randomized trial of 24 primary care clinics, comparing Telepsychiatry Collaborative Care (TCC), which involved teamwork between the onsite team and telehealth specialists, and Telepsychology Enhanced Referral (TER), which was care directly delivered from the telehealth specialists to the patients. The authors found that patient engagement was higher in the TCC group.

Mohr et al. (2017) discussed remote treatment of anxiety and depression symptoms using IntelliCare suite apps. The purpose of this study was to create mental health designed to alleviate the symptoms of anxiety and depression among users by analyzing typical short mobile app interactions. In order to effectively measure changes in the patients, the researchers had the 99 volunteer participants take the PHQ-9 (depression) and GAD-7 (anxiety) tests before and after an eight-week trial of using IntelliCare apps. The authors measured usage frequency, how many apps each participant used, and participants' feelings regarding use of the apps and found that 95% or more participants downloaded several apps from the suites, and most of them logged on multiple times a day. Like Mohr et al., Chan et al. (2018) also discussed asynchronous remote interventions for mental health care patients. In their article, they listed the myriad of uses asynchronous technology has in mental health care, and they

encouraged clinicians to be invested in the future of such technologies to ensure they keep their therapeutic benefits.

Gandy et al. (2019) sought to improve adherence rates in adult mental health patients through extensive use of collaborative and community-based interventions. They retrospectively assessed patients and used interventions such as phone calls, emails, and phone reminders for appointments, and warm and friendly handoffs. However, since the interventions were all used as a bundle, it was difficult to tell whether the remote interventions or in-person interventions were most helpful in changing adherence rates. Mochari-Greenberger et al. (2020) worked to assess clinical and work effects from an evidence-based telemental behavioral therapy modality for patients with pain and behavioral health problems. They performed a retrospective de-identified data analysis for their standardized, evidence-based telebehavioral therapy program over a course of eight weeks with licensed therapists/behavioral coaches. The study involved multiple surveys and questionnaires regarding anxiety and depression, as well as work and personal life fulfillment. The researchers also assessed rates of absenteeism to see if patients were more likely to attend and be engaged in this style of behavioral therapy. They found that rates of absenteeism and presenteeism improved by over 25%. Sasangohar et al. (2020) performed a cohort study of psychiatric patients who received in-person treatment from Houston Methodist Hospital, an outpatient clinic that adopted a 100% telehealth platform due to the pandemic. The researchers sought to determine if rates of patient attendance and engagement had changed due to this shift in the delivery modality of their care. Patient attendance and engagement significantly improved, included in those with severe avoidance disorders.

Supplementary Indicators

The common themes that have been noted throughout the research that pertain to the main topic are discussed in this section. These indicators have been extrapolated from the clinical and supplemental questions and are related to the use of telebehavioral services in increasing access to psychotherapy because they act as positive predictors for adherence.

Access. Blalock et al. (2019) examined articles to analyze three types of telehealth interventions: telehealth Cognitive Behavioral Therapy (CBT), Mobile Contingency Management (MCM), and mHealth Texts & Apps in order to see if telemental health modalities can effectively reduce incidence of alcohol misuse in hypertensive adults. Although they found an increase of access to treatment with the use of remote CBT services, it is difficult to directly quantify the results, and further research is needed to determine the full effects these multiple telehealth services have on treatment adherence. Dent et al. (2018) performed a retrospective analysis examining 1,482 participants aged 18 and above. The purpose of this study was to evaluate whether telehealth was a suitable medium for the delivery of cognitive behavioral therapy. The participants were identified as having high risk for behavioral issues, high resource use, and high-risk medical comorbidities, as well as having access to a telephone for treatment. However, the study had neither a control group nor information about long term results, so it is difficult to gauge whether telehealth was successful long term. There are also questions as to what risks telehealth can pose for patients. Gentry et al. (2019) performed a systematic review of 76 articles, including 68 that pertained to psychiatric treatment of the elderly via telehealth services. The researchers analyzed a combination of RCTs, qualitative, and open-label studies to determine if telemental health increased access to high-quality mental health care in geriatric patients. They did note an increase in access, however more research on the topic is needed for a definite conclusion.

Additionally, Whealin et al. (2017) sought to evaluate the effectiveness of telemental care delivery for U.S. veterans with PTSD residing in rural Pacific islands. Due to the sparse, rural population, there is a lack of access to mental health care. The researchers reviewed the use of electronically based PTSD treatment and used a survey to ascertain the veterans' comfort levels. The veterans overall had a high amount of satisfaction with the electronic services, and concerns such as internet access and privacy were minimal.

Patient Satisfaction. Sasangohar et al. (2020) found in their preliminary research that high levels of patient satisfaction can lead to higher rates of attendance and engagement (Sasangohar et al., 2020). A common theme in the research regarding telebehavioral services was questioning whether patient satisfaction is comparable to in-person treatment. Several of the studies discussed in this review analyzed patient satisfaction in addition to adherence, such as Carlbring (2019), Chan (2018) and Fletcher (2018). In addition to determining whether access to telemental health care was possible and sustainable in the rural Pacific islands, Whealin et al. (2017) also analyzed patient satisfaction with remote care. Therefore, this integrative review sought to include research regarding patient satisfaction.

Farabee et al. (2016) performed a randomized experiment to compare the effectiveness of telepsychiatry with in-person treatment in offenders with psychiatric disorders. They analyzed 60 outpatient psychiatric treatments over a six-month period, 20 of whom received telepsychiatric care; 40 who received conventional psychiatric care. The researchers compared multiple factors between the two groups, including patient satisfaction with treatment, therapeutic alliance, psychological functioning, and more. However, they found no significant difference in the factors they chose to study. To determine whether telebehavioral health implementation is an effective approach for increasing reach and access to treatments for mental health disorders and other chronic illnesses, Lin et al. (2019) performed a systematic

review of 13 articles regarding the delivery of psychotherapy for patients with substance abuse disorders (SUDs). To measure the effectiveness of such treatments, they compared patient satisfaction rates of the tele and in-person modalities.

Overall State of Telebehavioral Healthcare Delivery. Several of the articles discussed in this integrative review spoke to the general state of telemental health care in the U.S. McDowell et al. (2021) assessed the patterns of mental health care for patients with serious mental illnesses (SMIs), including schizophrenia, bipolar disorder, etc. They found that overall, telemental health was mainly used to maintain care with existing providers. Huskamp et al. (2018) described how telehealth SUD technology and workflows are being utilized and developed. To do so, they investigated insurance claims data from 2010–2017 from clients using tele-SUD care and examined the characteristics of these users. They found that while there is an increase of use of tele-SUD, the rate of growth is slow compared to other telehealth modalities.

Oesterle et al. (2020) also discussed the use of telepsychiatry in treating substance abuse. In a systematic review of RCTs published between 2012 and 2020, they analyzed whether telehealth modalities, either synchronous or asynchronous, were a safe and effective means of delivering care to substance abuse patients. Mehrotra et al. (2017) sought to assess the expanding use of telebehavioral services in Medicare recipients. They studied rural beneficiaries with a mental disorder diagnosis who filed claims between 2004-2014 and found that telebehavioral services and their use cases expanded over 100% over the course of a decade. In addition, Koblauch et al. (2018) conducted a systematic literature review on whether the use of telepsychiatry had an effect on the rate of readmission in adult mental health patients; however, they were unable to draw a firm conclusion.

Synthesis

Studies have shown that there is an increased access to telebehavioral services. Both Mehrotra et al.'s (2017) and McDowell et al.'s (2021) study of fee-for-service Medicare studies have shown that telemental health services greatly increase access to mental health care for rural patients. Just as Mehrotra et al. found that telebehavioral health services have more than doubled over the past decade and identified a significant need in rural communities for psychiatric care, Gandy et al.'s (2019) study has shown that implementing interventions in these rural and low-income communities is imperative to increasing adherence to treatment. Dent et. al, 2018 found that mental health interventions delivered via telehealth have the ability to reach high-level patient satisfaction on a nationwide scale. Blalock et al. (2019) similarly found that telehealth interventions increased access to care for hypertensive patients struggling with alcohol addiction.

Remote behavioral therapy services are routinely being explored as premier options to both support and replace in-person care services. For example, Mohr et al.'s (2017) article illustrates that there are ways to ensure patients are engaging in treatment without the use of in-person interventions using their suite of apps. Chan et al. (2018) also discussed how asynchronous technology can be used to benefit mental health patients. Likewise, Fletcher et al. (2018) found that VTH is comparable in quality to in-person care in addition to decreasing costs for patients. Carlbring et al. (2018), like Fletcher et al., also sought to analyze if remote delivery of telemental health services (namely, internet-based CBT) was comparable to in-person services and found that the two were equivalent in quality across multiple factors. However, there are some researchers that have found that telehealth treatment supplemented with in-person modalities is more engaging to patients than telehealth-only treatment, such as Severe et al. (2022). Along a similar line, in a study seeking to determine if the rate of non-

adherence in psychiatric patients would change with the use of telehealth services, Shulman et al. (2017) found that there was no significant difference between adherence to in-person outpatient visits and telepsychiatry visits; however, patient engagement improved with telehealth services.

Nonetheless, many studies associated telebehavioral health services with positive patient outcomes. For example, Dent et al. (2018) found significant reductions in symptoms of depression, anxiety, and stress, while others reported results of high patient engagement and satisfaction (Lin et al., 2019). Similarly, Whealin et al. (2017) found that most of their participants were satisfied and comfortable receiving their care remotely. Farabee et al. (2016) noted that offenders with psychiatric disorders might be more satisfied with telepsychiatry compared to in-person treatment; however, the researchers concluded that further research was needed to analyze factors such as therapeutic alliance and long-term satisfaction with treatment. These studies portray behavioral therapy delivered via telehealth as a suitable answer to the issue of access posed by Mehrotra et al. (2017).

Multiple studies discussed the use of telemental health with regards to substance abuse disorders in adults to determine if patient satisfaction and engagement rates were comparable to in-person therapy. Oesterle et al. (2020) concluded that in the absence of in person-therapy, both synchronous and asynchronous therapies modalities are a safe and effective way of providing care for SUDs patients, despite the barrier they had faced with state and federal regulations regarding substance abuse. Both Huskamp et al. (2018) and Lin et al. (2019) faced a similar issue with regulations, and Huskamp et al. still found that the growth rate of telehealth service utilization involving substance use disorders (SUDs) to be lower compared to other modalities, such as telemedicine. Lin et al. reported that telehealth interventions were

associated with high patient satisfaction and deemed them a suitable alternative to in-person treatment.

Koblauch et al. (2018) concluded that they were unable to find a definite correlation between tele-psychiatry modalities and the rate of readmission. However, this review took place prior to the COVID-19 pandemic, and since then telehealth services have increased to an unprecedented degree. Studies such as Sasangohar et al. (2020) and Mochari-Greenberger et al. (2020) discussed telehealth after its increase due to the pandemic. Sasangohar et al. found that patient attendance and engagement in treatments had improved dramatically, with the biggest positive changes seen in patients with avoidance disorders. Similarly, Mochari-Greenberger et al. found that there was a statistically significant reduction in anxiety, depression, and stress-related symptoms in telemental health treatments ($p < 0.0001$).

Ethical Considerations

The DNP project team has completed research ethics training to ensure the protection of human subjects. Furthermore, an application was submitted to the Institutional Review Board (IRB) of Liberty University for review to determine if this study complies with the Office for Human Research Protections (OHRP) regulations regarding human subject research, and approval was granted. Collaborative Institutional Training Initiative (CITI) courses on Biomedical & Health Science Researchers have also been completed (See Appendix B & C).

SECTION SIX: DISCUSSION

In this integrative review, modern literature has been reviewed, critiqued, and synthesized in order to assess the state of telebehavioral care, and to determine whether implementation of telepsychiatry services would effectively increase adherence to psychotherapy treatment. As demonstrated in the literature, a sizable increase in modern

telebehavioral implementations and clinics with telebehavioral services in the latter half of the 2010's (Koblauch et al., 2018) reflects an increasing acceptance with technology driving healthcare through video, telephone, or asynchronous web applications. Many other investigative studies have assessed telebehavioral implementations and found them to have increased patient engagement and satisfaction rates reported from patients and providers (Dent et al., 2018; McDowell et al., 2021; Sasangohar et al., 2020).

Additionally, in support of examining the clinical question, supplemental positive indicators for patient adherence were examined, as well as their effects on telebehavioral health services. This allowed for a deeper exploration of synthesized articles. Considering the limited body of work examining telemental health patient adherence directly, this allowed for significant descriptive analysis that can provide further context to the studies. In Shulman et al.'s (2017) study seeking to determine the effect telehealth service implementations would have on psychiatric patient non-adherence, the authors found that there was no significant difference between in-person outpatient visit adherence and telepsychiatry visit adherence. Theoretically, this does not support the assertion that telepsychiatry services improve adherence in mental health patients; however, there was indication that patient engagement had improved. Furthermore, there are other studies that showed observed ancillary benefits of telehealth implementations. For example, Fletcher et al. (2018) favorably compared the cost-effectiveness of telemental care versus person-to-person care, without observing any significant loss in quality of care reported. In practicality, therefore, the totality of evidence suggests that further clinical research, possibly even pilot implementations or replication studies, is warranted to better explore telehealth and adherence.

Implications for Future Practice

In order to increase positive outcomes in adult mental health patients, further research

on ways to increase rates of adherence in this population is needed. It is clear from the research that telehealth-delivered modalities have the ability to increase adherence and access to psychotherapy treatment in adults, and that for many, telebehavioral health services act as a viable substitute to in- person care. Telebehavioral health modalities are often more convenient, as they can be relatively easy to use if one has a smartphone and/or reliable internet access. However, there is little research that directly compares the effectiveness of in-person behavioral health care and telebehavioral health care in terms of patient engagement and treatment adherence. In order to draw a definitive conclusion as to whether the use of telebehavioral modalities can increase adherence to mental health treatment in adult patients, further study is warranted.

Dissemination

The topic of interest will be presented at my current telebehavioral organization during a national provider meeting. This review will be published to serve as a foundation for future evidence-based research as well as to educate healthcare providers and patients about this phenomenon. With the rapid increase in the use of tele-modalities in healthcare due to the COVID-19 pandemic, it is imperative that these methods are further studied and optimized so that patient outcomes may be improved.

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TABLES

Table-1
Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Adult population	Less than 18 yrs of age
Involve telebehavioral/telehealth services	Does not include: telebehavioral/telehealth services
Publications from 2016 and above	Publications prior to 2016
Published in English language	Non-English language
Full-text articles	Abstract only
Peer-reviewed research	Non-peer reviewed, non-research publications
Any form of Psychotherapy treatment	Non- psychotherapy treatment
Outpatient	Inpatient
Articles classified Levels 1-5 on Melnyk scale	Articles classified Levels 6-7 on Melnyk scale

Table-2
Levels of Evidence Table

Level of Evidence	Description
Level 1	Evidence from a systematic review of all randomized controlled trials (RCTs) or evidence-based guidelines based on a systematic review of RCTs
Level 2	Evidence from at least one well-designed RCT
Level 3	Evidence from at least one well-designed quasi-experimental or non-randomized trial
Level 4	Evidence from case controlled or cohort studies
Level 5	Evidence from systematic review of qualitative/descriptive design studies
Level 6	Evidence from a single qualitative/descriptive design study
Level 7	Expert opinion

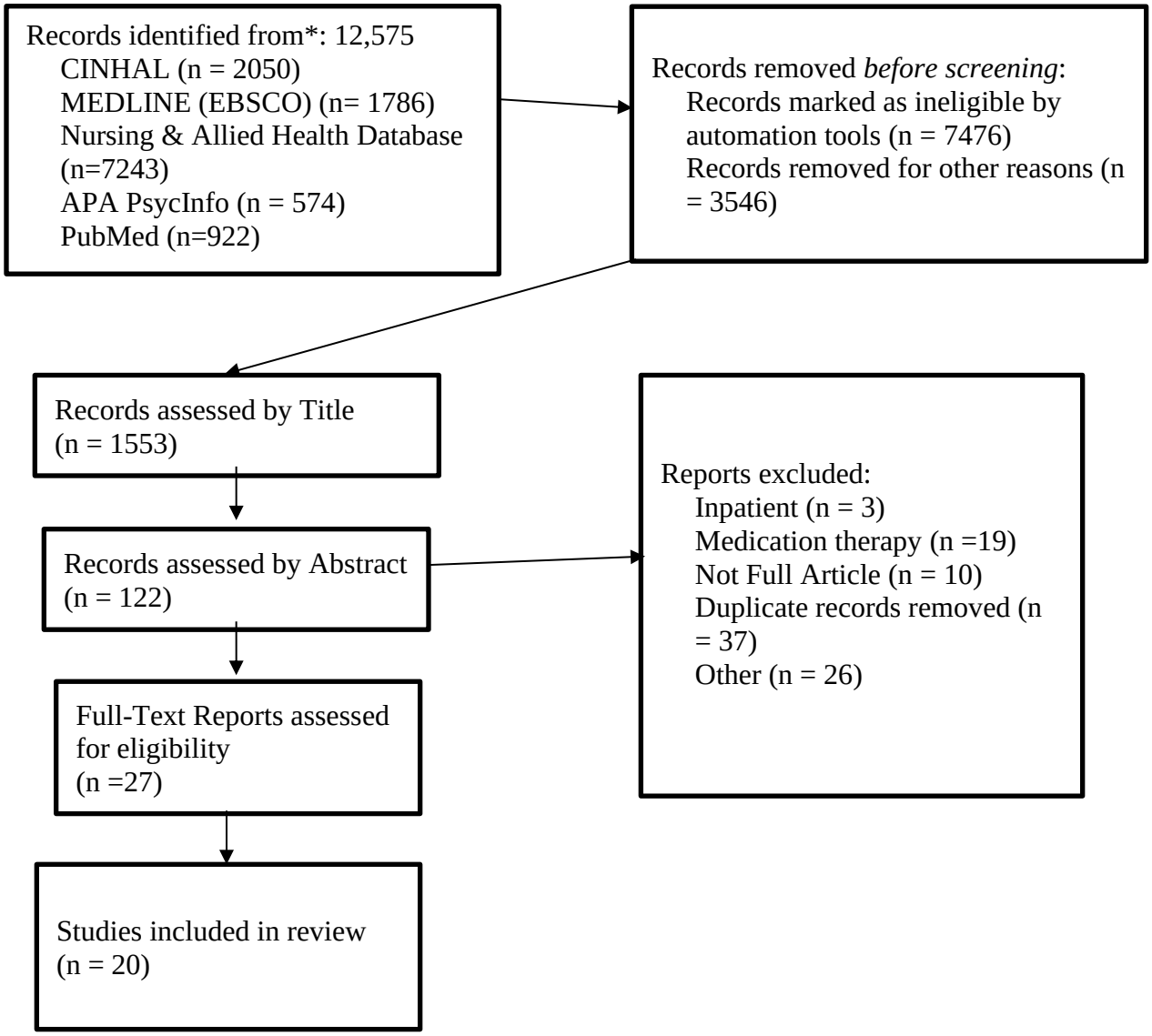
Melnyk, B.M. & Fineout-Overholt, E. (2015).*Evidence-based practice in nursing & healthcare: A guide to best practice (3rd ed.)* (pp. 11). Philadelphia, PA: Wolters Kluwer Health:

Extrapolated and adapted from Melnyk and Fineout-Overholt's 2011 model by Penn State University Libraries

FIGURES

Figure 1

PRISMA Flow Diagram



Appendix A

Evidence Table

Author (year)	Study Purpose/ Objective(s)	Design, Sampling Method, & Subjects	LOE*	Intervention & Outcomes	Results	Study Strengths & Limitations
Article-I Blalock, D. V., Calhoun, P. S., Crowley, M. J., & Dedert, E. A. (2019).	Recent findings show that telehealth CBT increases access to treatment, so authors want to see if such interventions for alcohol misuse would be beneficial for hypertensive populations.	The researchers systematically reviewed studies that pertained to one of three types of telehealth interventions: telehealth Cognitive Behavioral Therapy (CBT), Mobile Contingency Management (MCM), and mHealth Texts & Apps. Authors examined a total of 40 articles.	Level 2	The authors compared and contrasted literature surrounding the three types of telehealth interventions to find the efficacy of each. The quality, number of subjects, and ways of implementing the intervention varied across articles but the author found that telehealth-delivered treatment was beneficial to some degree.	Findings show that telehealth CBT is efficient and increases access to treatment and that patients liked using text apps in treatment, however there are a large number of highly variable treatments that make a decisive conclusion difficult. Authors suggest more research is needed in order to match the best interventions to different stages of alcohol misuse.	Strengths: The authors examined as many modes of telehealth interventions as possible given available evidence to analyze the effects of each Limitations: There was not enough research about whether or not certain interventions were more suitable for those as various stages of alcohol misuse and hypertension
Article-II Carlbring P, Andersson G,	To compare Internet-delivered CBT with face-to-face CBT	Systematic review and meta-analysis, including a total of 20 peer-reviewed	Level 2	The authors analyzed the effects of the two delivery types of	The researchers found that overall, there is equivalent quality of care	Strengths: the study had a large population with various psychologically conditions Limitations: more

Cuijpers P, Riper H, Hedman-Lagerlöf E. (2019).		research articles and 1418 participants in total.		CBT by comparing dropout rates, satisfaction rates, and other factors. The conditions they compared were social anxiety disorder, panic disorder, depressive symptoms, body dissatisfaction, insomnia, tinnitus, male sexual dysfunction, spider phobia, snake phobia, fibromyalgia.	between Internet-delivered CBT and face-to-face delivered CBT	comparisons need to be done for certain mental illnesses and conditions and the difference in in person and remote treatment processes
Article-III Chan, S., Li, L., Torous, J., Gratzer, D., & Yellowlees, P. M. (2018).	To review the various uses of asynchronous technology in mental health care and how clinicians can help ensure that this technology remains effective.	Authors have performed a review of studies, ultimately using 82 peer-reviewed articles published from 2015-2018	Level 2	Found literature surrounding the use of remote technology in treating mental health patients, with great focus on the use of asynchronous technology. Also made notes based on their own experiences in mental health care administration.	Asynchronous technology can be highly beneficial for many patients. There are a myriad of ways clinicians can use asynchronous technologies to better connect to patients and ensure that patients are participating in their treatment.	Strengths: provides a great deal of evidence explaining the many different types of uses asynchronous technology has and why clinicians should be invested in ensuring its therapeutic uses. Limitations: Many of the studies used had relatively few participants over short periods of time, and it was difficult to compare the many different criteria each source used
Article-IV Dent, L., Peters, A.,	To evaluate the implementation of a tele-behavioral health	1,482 participants, aged 18 years and above, who have	Level 4	15 modular meetings carried over roughly 8	Tele-mental has the ability to reach nationwide, high-	Strengths: study used a large sample size and well-justified interventions for

Kerr, P. L., Mochari-Greenberger, H., & Pande, R. L. (2018).	solution designed to identify, engage, and treat patients with behavioral health comorbidities in order to address nationally recognized barriers to behavioral health.	access to a telephone, and were identified as having high risk of behavioral health issues, high amounts of resource use, and high-risk medical comorbidities. Program took place in 2014, Jan-June. Participants were found using outbound engagement (via telephone) or by direct inbound referral from the community or from healthcare providers.		weeks that alternate between psychotherapy sessions and behavioral coaching via telemental/telehealth	level patient satisfaction, and considerable reductions in symptoms of depression, anxiety, and stress.	measurement. Limitations: The study had no control group, long term follow-up data is not available, and doesn't include those patients that are low-income or Medicare and Medicaid recipients.
Article-V Farabee, D., Calhoun, S., & Veliz, R. (2016).	To study the effectiveness of telepsychiatry for offenders with psychiatric disorders compared to in person treatment	Studied 71 parolees receiving outpatient psychiatric treatment over a six-month period, with 60 total who were reviewed (20 of which received telepsychiatric care, 40 who received conventional psychiatric care)	Level 1	Randomized field experiment in which subjects were followed over a six-month period. The researchers measured treatment satisfaction, therapeutic alliance, medication adherence, and psychological	Findings showed increased patient satisfaction in tele psychiatric treatment overall. However, there were little to no difference in the other measures. For therapeutic alliance, there was a reported feeling of decreased alliance.	Strengths: Study took into account many important measures in judging use of telepsychiatry Limitations: somewhat unequal ratio between telepsychiatric patients and convention psychiatric patients in the comparison

				functioning.		
Article-VI Fletcher, T. L., Hogan, J. B., Keegan, F., Davis, M. L., Wassef, M., Day, S., & Lindsay, J. A. (2018).	To determine if televideo delivered mental health care (VTH) is comparable in quality to in-person care.	Systematic review from databases such as PsychINFO, PubMed, and SCOPUS for articles regarding televideo mental health from 2013-2018. 10 articles total, 8 RCTs	Level 2	Authors analyzed the following factors of VTH: impact on treatment adherence, patient/provider satisfaction rates, cost-effectiveness, and clinical effectiveness compared to in-person treatment.	Televideo mental health interventions are comparable in the aforementioned categories in addition to being less costly. It has the potential to help spread access to mental health treatment in underserved populations.	Strengths: Authors analyzed subject matter from a myriad of angles, giving credibility to their conclusion on the quality of telemental health treatment Limitations: televideo services restrictions and regulations have greatly changed over the years so circumstances from article to article might have changed
Article-VII Gandy, J., Sawin, E. M., Zook, S., & Eggert, L. (2019).	The aim of this article was to improve rates of adherence in low-income, mental health adult patients using collaborative and community-based interventions.	A total of 72 participants. Adults aged 18-64 years, who spoke either English or Spanish, who met the clinic's low income criteria, and whose eligibility was determined through screening tools such as the PHQ-4 tests and interviews conducted by the clinic providers.	Level 4	Patients were retrospectively assessed prior to interventions, then their adherence rates (including missed appts, dropout rates, etc.) were collected over the course of six months. Interventions included phone calls, reminders for appts., patient education, warm and friendly handoffs.	There were a total of 296 visits scheduled during study. (104 pre-intervention, 192 post-intervention). Authors have found that patients were 13.3% more likely to attend appts following the implementation of this bundle of interventions. The average number of "no-shows" to appts decreased by 60%.	Strengths: This article illustrates that there are relatively simple and inexpensive ways to improve mental health patient compliance to treatment, even in small clinics where resources are limited. Limitations: Due to the small clinic size, there was a lack of access to big data. There was also no way to measure which intervention of the bundle was the most effective in improving patient adherence.
Article-VIII Gentry, M. T., Lapid,	To examine literature surrounding telemental health care	76 articles were reviewed, including 68 that	Level 2	The authors sectioned the articles into	They found that telemental health provides increased	Strength: This article carefully examines telepsychiatry

M. I., & Rummans, T. A. (2019).	regarding geriatric patients.	pertained to psychiatric treatment of the elderly via telehealth services. A combination of RCTs, qualitative, and open label studies were reviewed.		several categories: Cognitive Testing, Clinical Diagnosis and Treatment of Dementia, Inpatient and Nursing home consultation, Collaborative and Integrated Care, Psychotherapy, and misc. The authors then carefully examined the role of telepsychiatry in each type of study.	access to high quality and specialized mental health care for geriatric patients while reducing costs. However, there needs to be an increase in both the quality and quantity of research on this subject.	from multiple angles to deduce its effectiveness in multiple categories, strengthening the conclusion Limitations: Some of the articles used were somewhat older, taking place in times where connection issues were more frequent than present day, which could possibly impact the results.
Article-IX Huskamp, H., Busch, A., Souza, J. (2018).	To describe how telehealth SUD (substance use disorders) tech/workflows are being used and developed, by investigating claims data from 2010–2017 from a large commercial insurer.	Tele-SUD users from a single commercial insurer in rural US communities.	Level 5	Utilizing the insurance claims data, the authors identified characteristics of tele-SUD users and examined how tele-SUD is being used in conjunction with in-person substance abuse disorder care.	Despite a general increase in the adoption of tele-SUD over the years, both the instances and growth rate of tele-SUD were very low compared to other telehealth modalities (telemedicine, telemental, etc.).	Strength: Shows telehealth can have positive impact on patients with SUDs Limitations: Differing states have various laws which can create regulations that conflict with one another across differing regions. The way data was collected does not allow for any regional analysis on a case-by-case basis.
Article-X Koblauch, H., Reinhardt, S. M., Lissau, W., & Jensen, P. (2018).	The researchers aim to conduct a systematic literature review on the effect that tele-psychiatry has on readmission	Literature gathered from databases such as Embase, Cochrane, MEDLINE,	Level 1	The inclusion criteria for this review were “patients with a psychiatric diagnosis”, “tele-	The methodology-based studies did not seem sound enough to make a definite conclusion. Therefore, the	Strength: The study continued 3 or more high quality RCT studies and directly compared the relationship b/n the admissions rate and

	rates.	CINAHL, PsycINFO and Joanna Briggs from October 2015. Eight studies were used, with several being RCTs.		psychiatric interventions" and "an outcome related to readmission". The authors have found 218 studies, but only eight were eligible for this review.	authors concluded that they were unable to find a definite effect of tele-psychiatry modalities on the rate of readmission from their research.	telepsychiatry. Limitation: The authors could have used a broader time frame, which could have helped analyze the effects of tele-psychiatry.
Article-XI Lin, L., Casteel, D., Shigekawa, E., Weyrich, M. S., Roby, D. H., & McMenamin, S. B. (2019).	To determine whether telebehavioral health implementation is an effective approach for increasing reach and access to treatments for mental health disorders and other chronic illnesses.	Out of 841 studies, 13 met the inclusion criteria. These studies discussed interventions for nicotine, alcohol and opioid use disorders. Both delivery of psychotherapy and medication treatments were examined.	Level 5	This study was a systematic review focusing on studies that examine the effectiveness of telemedicine interventions to deliver treatment for patients with substance use disorders (SUDs).	The authors found that most articles suggested telemedicine interventions were associated with a high amount of patient satisfaction. They are an effective alternative for in-person treatment, especially when access to treatment is limited.	Strength: This research was able to utilize RCTs in its gathering of evidence Limitations: Several articles had methodological limitations. Therefore, more studies on this subject are needed.
Article-XII McDowell, A., Huskamp, H. A., Busch, A. B., Mehrotra, A., & Rose, S. (2021).	To categorize the various patterns of mental health care prior to the implementation of telemental health services for patients who have a Serious Mental Illness (SMI)	The authors examined a cohort of 4,930 rural beneficiaries. An index of telemental health visits in 2010–2017 was built using claims for a 20% random sample of fee-for-service Medicare beneficiaries.	Level 4	Utilized "latent class analysis" to identify three classes of mental health care use in the six months prior to the index of telemental health visits. The characteristics of each class were reviewed.	Largest class (3,066) had minimal use of PCP mental health care. 2nd largest (1,537) had minimal specialty mental health care. Last class (327) categorized by recent hospitalization/emergency department use. All in all, index	Strength: Found strong evidence that telemental health services play a key role in maintaining care for rural patients with SMI's Limitations: Patients were assigned to classes based on predictive possibility so the possibility that patients should be in alternative classes might exist.

		SMIs included schizophrenia, bipolar disorder, and related disorders.			visits were frequently established visits with existing providers, and for specialty care.	
Article-XIII Mehrotra, A., Huskamp, H. A., Souza, J., Uscher-Pines, L., Rose, S., Landon, B. E., Jena, A. B., & Busch, A. B. (2017).	To evaluate the use of tele-behavioral modalities for Medicare recipients using self-pay	Rural Medicare beneficiaries with a mental disorder diagnosis who filed fee-for-service claims in the time period of 2004–2014.	Level 4	The research investigated billing information from those patients who requested to be reimbursed.	It was found that telebehavioral services and their use cases expanded over 100% over the course of a decade. Moreover, these services will continue to expand in the future. However, further developments in establishing comprehensive access to care across all communities will require more research and improvements.	Strength: The study analyzed 10 years of data. This large time period allows for statistically significant implications Limitation: Some of the Development in remote service technology and user awareness of teleservices renders some older data obsolete. Any tele-mental health visits covered only by Medicare are not represented in the data, so patients who are covered by both Medicare and Medicaid may be underrepresented in this study.
Article-XIV Mochari-Greenberger, H., Andreopoulos, E., Peters, A., & Pande, R. L. (2020).	To assess clinical and work effects from an evidence-based tele-mental behavioral therapy for patients with pain and behavioral health problems.	Cohort of 1,086 participants, between September 1, 2016, and August 31, 2017 (mean age 53 ± 11.5 years; 71% female, 29% male)	Level 4	Retrospective de-identified data analysis. Standardized, evidence-based telebehavioral therapy program over a course of eight weeks with licensed therapists/behavioral coaches.	Pain severity and pain interference improved by 17% and 27%, respectively ($p < 0.0001$). The reduction in anxiety, depression, and stress-related symptoms were significant and associated with	Strengths: well-designed cohort study with statistically significant data to make conclusions with. Limitations: Causal inferences cannot be made solely on the intervention. Delivery mode (telephone or video) was not specified in the research data set.

				Multiple surveys and questionnaires in regards to anxiety, depression, work life and general life enjoyment.	reductions in pain interference ($p < 0.0001$). Absenteeism and presenteeism (used as measurement of noncompliance and compliance) improved more than 25% ($p < 0.0001$).	
Article-XV Mohr, D. C., Tomasino, K. N., Lattie, E. G., Palac, H. L., Kwasny, M. J., Weingardt, K., Karr, C. J., Kaiser, S. M., Rossom, R. C., Bardsley, L. R., Caccamo, L., Stiles-Shields, C., & Schueller, S. M. (2017).	The purpose of this study was to create mental health apps that are well suited to the ways people tend to use mobile apps and see if they are able to effectively reduce symptoms of anxiety and depression in its users.	99 adult volunteer participants with a history of anxiety and depression.	Level 4	Participants took the PHQ-9 (depression) and GAD-7 (anxiety) tests before and after an eight-week trial of using IntelliCare apps. Authors measured usage, how many apps each participant used, and participants were asked how they felt about the apps.	99 participants used the apps an average of 195.4 times per week, and 95% of users downloaded five or more IntelliCare apps. The participants overall scored lower in depression and anxiety tests (PHQ-9 and GAD-7) compared to before the intervention.	Strength: Study thoroughly questioned participants using several highly respected medical questionnaires Limitations: The study measured how many times each participant opened the applications but did not mention how much time was spent upon each log in.
Article-XVI Oesterle, T. S., Kolla, B., Risma, C. J., Breitinger, S. A., Rakocevic, D. B., Loukianova, L. L., Hall-Flavin, D. K., Gentry, M. T., Rummans, T. A., Chauhan, M., &	This study evaluated research regarding telepsychiatry and its use in treating substance abuse.	Tele psychiatric literature and research published between 2012 and 2020.	Level 1	The research used a systematic review of evidence from multiple sources to answer the research question.	The study found that in time critical (synchronous) and looser (asynchronous) methods of conducting therapy are safe and effective care methods to treat	Strength Was able to use a set of guidelines to synthesize the large amount of data available for this topic. Limitations: Barriers such as state and federal law actively hamper the proposed treatment modality. Additional barriers that can deter them include

Gold, M. S. (2020).					substance abuse patients.	recommendations and the willingness of the patient/treatment provider in accepting this recent phenomenon.
Article-XVII Sasangohar, F., Bradshaw, M. R., Carlson, M. M., Flack, J. N., Fowler, J. C., Freeland, D., Head, J., Marder, K., Orme, W., Weinstein, B., Kolman, J. M., Kash, B., & Madan, A. (2020).	To investigate and determine the effectiveness of a stay-home mandated telemental implementation in a large healthcare system.	Cohort study of psychiatric patients getting treatment at Houston Methodist Hospital	Level 4	Outpatient clinic adopted a 100% telehealth platform. Utilized multiple platforms and modalities (phone, email, computer-WebEx, Microsoft Teams, Zoom, and other such platforms at the request of patients).	The study determined that, since the implementation had begun, patient attendance and engagement had risen dramatically. Those with avoidance disorders showed the greatest positive shift in outcomes	Strength: The study has included the perspectives of all stakeholders while rapidly implementing a new method of practice -Patients should have contacted and informed beforehand of the telemental implementation. Failure in doing so demonstrated a lack of proper consideration for the patient stakeholder. - Work-life balance is critical for provider health and satisfaction. Telemental care, especially in a first-time implementation, can make that separation difficult when many users are working from a home office.
Article-XVIII Severe, J., Pfeiffer, P. N., Palm-Cruz, K., Hoeft, T., Sripada, R., Hawrilenko, M., Chen, S., & Fortney, J. (2022)	To assess the clinical predictors of treatment engagement in adult patients with complex psychiatric conditions, namely PTSD through the use of Telepsychiatry Collaborative Care	Conducted randomized trial of 24 primary care clinics without onsite psychiatrists or psychologists, and included 1004 18+	Level 1	The two telehealth modalities used: for the TCC group, the remote specialists consulted with primary care teams and an onsite manager who	There was no association between complex psychiatric condition symptom severity and patient engagement, however engagement in TCC psychotherapy visits	Strengths: Included a highly diverse and large sample size Limitations: the teams were limited in the scope of what kind of therapy they could provide (for example, there was no substance abuse therapy available). And

	(TCC) treatment and Telepsychology Enhanced Referral (TER)	patients with PTSD		provides psychotherapy. For the TER group, the remote specialists conducted direct telehealth treatment	was greater compared to TER. The onsite managers had engaged patients in more psychotherapy sessions compared to the remote therapists	psychometric scale results were used rather than psychiatric diagnoses when creating the randomized groups
Article- XIX Shulman, M., John, M., & Kane, J. M. (2017).	To determine if mental health patients who are non-adherent with outpatient appointments would be more adherent if they were given telepsychiatric treatment	22 adult patients randomly selected from a psychiatric clinic. Visit adherence was monitored and authors performed two-sample t-test.	Level 1	Patients were given home-based telepsychiatric intervention over a six-month period. After which a two-sample t-test was performed to assess visit adherence.	There was no significant difference between adherence to in-person outpatient visit adherence and telepsychiatry visit adherence (14% to 15%). However, patients reported having less difficulty keeping up with telepsychiatric visits.	Strengths: directly compared the difference in levels of adherence in the same group from pre intervention to post invention. Shows merit in further researching this topic Limitations: due to this being a pilot study with a small sample, and possible selection bias, no conclusive results can be made
Article-XX Whealin, J. M., King, L., Shore, P., & Spira, J. (2017).	To evaluate the effectiveness of tele-mental care delivery for PTSD U.S. veterans residing in the rural Pacific islands	Using the scale of attitude, patient satisfaction and usefulness were assessed from 47 veterans who self-reported as minority background with PTSD for treatment of	Level 4	CPT intervention for PTSD via home telepsychiatry/tele health video conference for those was clinically indicated.	It indicates that the delivery of EB-PTSD treatment directly into the patients' homes was achievable. The scales measured for comfort, patient satisfaction with mental health delivery and	Strength: The study evaluated the perception in the future which allowed for the assessment of attitude shift over time. Limitations: The research presented an intervention for PTSD and many not applied to other mental health diagnosis. Additionally,

		telepsychiatry CPT			usability were equally optimistic for CPT focused on PTSD. Only 7% of the participants reported privacy concerns.	unable to generalize to other than rural Pacific island location

Appendix B

IRB Approval Documentation

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

February 21, 2022

Almaz Assefaw
Folashade Odedina

Re: IRB Application - IRB-FY21-22-761 INCREASING ADHERENCE TO PSYCHOTHERAPY TREATMENT IN ADULT MENTAL HEALTH PATIENTS THROUGH THE USE OF TELE BEHAVIORAL SERVICES

Dear Almaz Assefaw and Folashade Odedina,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study does not classify as human subjects research. This means you may begin your project with the data safeguarding methods mentioned in your IRB application.

Decision: No Human Subjects Research

Explanation: Your study is not considered human subjects research for the following reason:

(1) It will not involve the collection of identifiable, private information from or about living individuals (45 CFR 46.102).

Please note that this decision only applies to your current application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued non-human subjects research status. You may report these changes by completing a modification submission through your Cayuse IRB account.

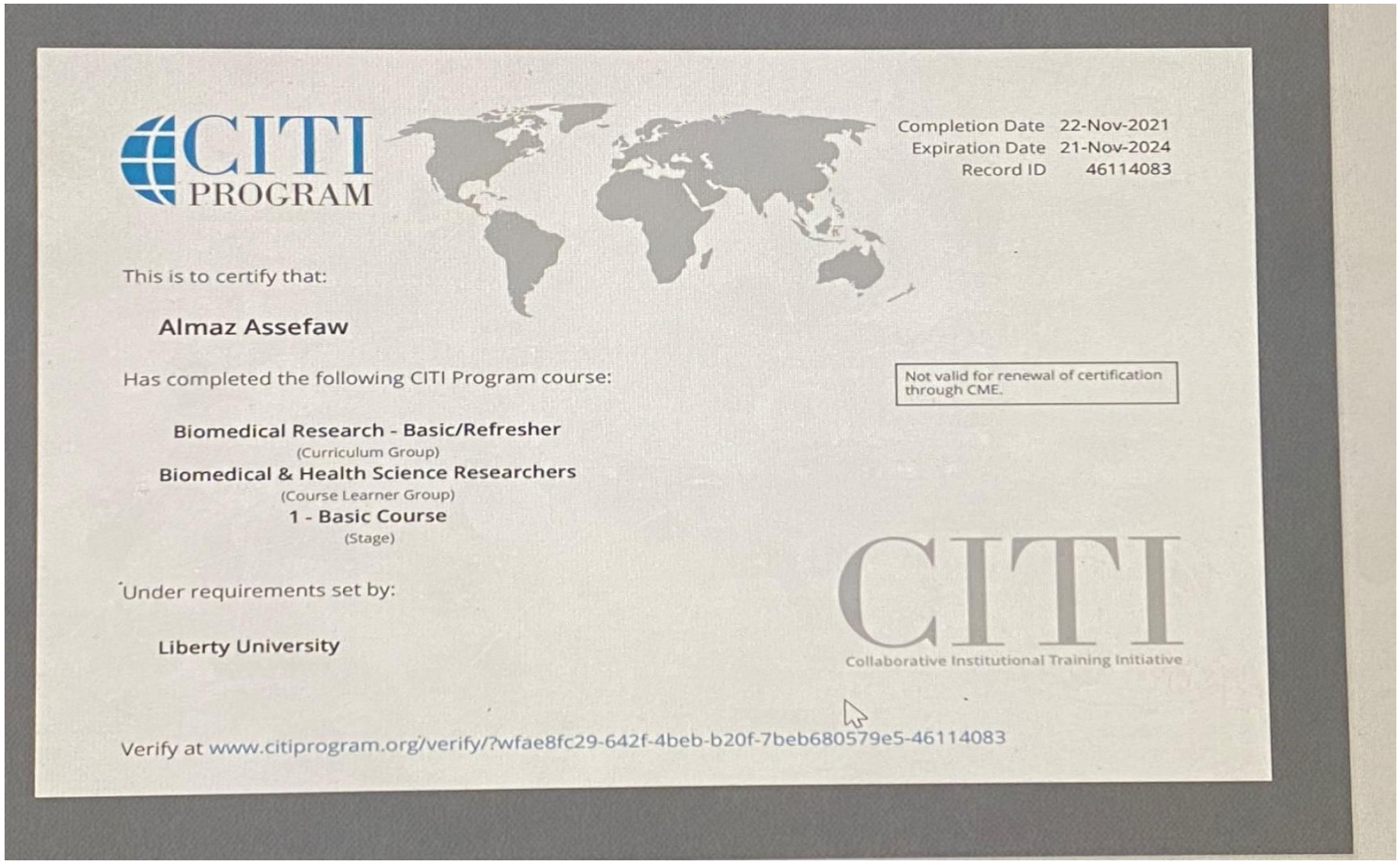
Also, although you are welcome to use our recruitment and consent templates, you are not required to do so. **If you choose to use our documents, please replace the word *research* with the word *project* throughout both documents.**
If you have any questions about this determination or need assistance in determining whether possible modifications to your protocol would change your application's status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
Research Ethics Office

Appendix C

CITI Certificate



Appendix D

Timeline

Deliverable	Description	Estimated Completion Date
Preliminary Literary Analysis	Preliminary articles search and matrix	11/20/2021
CITI Training Completion Certificate	Complete CITI Training Exercises and examinations	10/27/2021
Proposal Defense	Preliminary proposal (PowerPoint) defense to the chair	02/11/2022
Scholarly Project	Proposal Sections 1-3 Final	02/13/2022
Proposal Defense PowerPoint	Submitted final Defense PowerPoint	02/20/2022
IRB Exemption permission	IRB Exemption Received	02/21/2022
Summary & analysis	Submit spreadsheet assignment	04/17/2022
Proposal Defense PowerPoint	Submit final defense PowerPoint	05/01/2022
Project Submission	Final literature review, analyze and writing of final proposal	05/06/2022
Project Defense	Present formal project defense	05/20/2022
Dissemination	Prepare the final project for publication	05/2022