Marshall University

Marshall Digital Scholar

2020

Utilization of Telepsychiatry to Combat the Opioid Crisis in the United States

Haley Tallarico
Hschlarb@salubermd.com

UTILIZATION OF TELEPSYCHIATRY TO COMBAT THE OPIOID CRISIS IN THE UNITED STATES

ABSTRACT

Introduction: In the past five years, the United States (U.S.) has experienced an unprecedented epidemic of opioid misuse, abuse and overdose related death, leading to a national public health crisis. Telepsychiatry along with medication-assisted treatment has been proposed as a viable solution. The purpose of this research was to examine the field of telepsychiatry as a practical means to combat the rapidly increasing opioid epidemic facing America and to determine the effect of telepsychiatry utilization on access to treatment received in an outpatient medical setting.

Methodology: The methodology for this study was a literature review including the use of the PRISMA approach. Five electronic databases and five websites were utilized. Twenty-one total sources were carefully selected and referenced.

Results: This literature review examined several studies pertaining to the utilization of telepsychiatry for opioid addiction treatment. After analyzing research on access and quality of telepsychiatry, the results have shown that telepsychiatry along with medication-assisted treatment has been shown to increase access to opioid addiction treatment while maintaining quality care for patients.

Discussion/Conclusion: Telepsychiatry has been shown to have a positive impact on the way opioid addiction treatment has been delivered. Benefits of increased access and quality of treatment are further discussed.

Key Words: Access, Quality, Rural, Telehealth, Telepsychiatry

INTRODUCTION

In the past five years, the United States (U.S.) has experienced an unprecedented epidemic of opioid misuse, abuse and overdose related deaths (Gerhart et al., 2020). From 2000 to 2017, more than 700,000 Americans have died from an opioid-related drug overdose, equating to a six-fold increase in the death toll since 1999 (CDC, 2019). On average, more than 130 Americans have died daily as a direct result of opioid overdosing (The National Institute on Drug Abuse, 2019). Furthermore, while nationwide, this epidemic has been increasing at an alarming rate, the crisis has increased the greatest in rural areas, where the likelihood of opioid misuse has been five times more than that in urban area counterparts (CDC, 2019). This rapidly exploding epidemic has been attributed to the growing prevalence of chronic pain, combined with historical changes in opioid prescribing patterns due to illicit fentanyl, heroin and other opioid abuse (Gerhart et al., 2020).

Opioids have been defined as a class of drugs naturally found in the opium poppy plant, or synthetically produced in a laboratory, that work to block pain signals in the nervous system between the brain and the body leading to the production of feelings of pleasure and pain relief (Johns Hopkins Medicine, 2019). Commonly prescribed opioids have included oxycodone, methadone, hydrocodone, codeine and morphine, while illicitly abused synthetic opioids have included heroin and fentanyl (Scholl, Seth, Kariisa, Wilson & Baldwin, 2018).

While opioids have been commonly prescribed to reduce pain, regular use of this class of drugs has been proven to increase an individual's tolerance and dependence, thus requiring higher and more frequent dosing, known to have led to addiction or a use disorder (Johns Hopkins Medicine, 2019). A use disorder has been defined as a pattern of opioid use that has

been problematic to one's well-being and has led to significant impairment or distress (National Institute of Health, 2019). Roughly 29% of patients who have been prescribed opioids for chronic pain have misused the drug, while 12% have consequently developed an opioid use disorder (The National Institute on Drug Abuse, 2019).

In addition, when taken at high doses, opioids have been shown to restrict an individual's ability to breathe, known as respiratory depression, and when misused, have led to fatal overdoses (National Institute of Health, 2019). Total drug overdoses in the United States resulted in 70,237 deaths during 2017, with 47,600 (67.8%) of these involving opioids (Scholl et al., 2018).

Opioid addiction, abuse and overdose has become a national public health crisis, estimated to have annually cost the U.S. $78.5 billion, with healthcare and substance abuse treatment accounting for $29 billion of that substantial sum (Mahmoud & Vogt, 2019). Thus, novel and innovative solutions have been explored, including both psychiatric and medicine assisted telehealth intervention. Telehealth has been defined by the World Health Organization as the remote use of electronic communication technologies to support long-distance clinical healthcare, health-related education, public health or health administration (Brandt & Hensley, 2012). Telepsychiatry, a specialized subset of telehealth, has been defined as the provision of mental healthcare at a distance through real-time videoconferencing and may include care consultation, supervision, or patient education (Crawford, Sunderji, Lopez & Soklaridis, 2016).

In terms of pharmacotherapy for opioid addiction, only two opioid agonists have been approved by the U.S. Food and Drug Administration for treatment known as medication-assisted treatment, methadone and buprenorphine (Crawford et al., 2016). Unsurprisingly, such

medication-assisted treatment has congruently seen a sharp increase in demand, with a 900% increase in usage from 2011, however, traditional psychiatric services have been unable to keep up with such demand (Molfenter, Boyle, Holloway & Zwick, 2015). Thus, telepsychiatry along with medication-assisted treatment has been proposed as a viable solution (Mahmoud & Vogt, 2019). Telepsychiatry has offered great potential for enhancing treatment and recovery for people with opioid use disorder (Molfenter et al., 2015).

The purpose of this research was to examine the field of telepsychiatry as a viable means to combat the rapidly increasing opioid epidemic facing America and to determine the effect of telepsychiatry utilization on access to treatment received in an outpatient medical setting, as well as to analyze the effect on patient outcomes.

METHODOLOGY

The primary hypothesis of this research study was that the utilization of telepsychiatry has expanded treatment access to those suffering from opioid use disorder, especially for patients in rural or underserved areas where treatment was not freely available. A secondary hypothesis was that telepsychiatric treatment services have maintained quality received by patients, as opposed to traditional face-to-face psychiatric services, which led to improved patient outcomes in terms of long-term recovery rates.

The methodology for this research study was a literature review that included a semi-structured interview with an expert clinician. The literature review was conducted in four distinct stages including: 1) literature identification and collection, 2) literature analysis and 3) the semi-structured interview and 4) conceptual framework.

Step 1: Literature Identification and Collection

A mix of databases and online websites were used to assemble a collection of references. The electronic databases of Academic Search Premier, Ebsco Host, Google Scholar, ProQuest and PubMed were searched for keywords such as 'telehealth' OR 'telepsychiatry' AND 'opioid' OR 'substance use' OR 'addiction' AND 'access' OR 'patient outcomes' AND 'rural' OR 'underserved.' The reputable websites of the Centers for Disease Control and Prevention, the National Institute on Drug Abuse, the National Institute of Health, the World Health Organization and Johns Hopkins were also used.

Step 2: Literature Analysis

The inclusion criteria for searches was limited to articles published between 2005 and 2020 in the English language. Research studies including primary and secondary data, along with original articles and reviews which were included. This search criterion provided a considerable amount of reliable data that had been researched, reported and utilized throughout the telepsychiatry and behavioral health industry. The literature search was conducted by HT and validated by AC who acted as a secondary reviewer and verified the resources met the research study inclusion and exclusion criteria.

After a thorough investigation using PRISMA, the most relevant data was collected and employed. The search identified 310 relevant articles. Additionally, articles from other reputable online sources (N=20) were included in the search. Articles were excluded, (N=275) if they did not meet the inclusion criteria. Articles were included (N=55) if they depicted utilization of telehealth services as a means to increase access to treatment for opioid addiction or as a measure of patient outcomes. Of these 55 sources, (N=28) were subject to full text

review. Subsequently, (N=20) were included throughout the text, with (N=9) plus the interview

included in the results and (N=11) included in the remaining sections (see Figure 1).

Step 3: Semi-Structured Interview

A semi-structured interview with an expert clinician well-versed in the utilization of

telehealth services was conducted on April 18th, 2020. This clinician was a physician who has

been involved with a telehealth company for many years as both a provider and medical director.

This interview received IRB approval before conduction. The interview was subsequently

conducted in-person in a face to face format without the use of a tape recorder. Electronic notes

were taken during the interview process by the interviewer and later reviewed and implemented

into the research. (See Appendix)

Step 4: Conceptual Framework

The conceptual framework for this research displays the process of telehealth integration

in terms of technology uptake and utilization in Figure 2 (Pijnen et.al, 2011). User requirements

along with proven prototyping of technology must be considered at the forefront to telehealth

integration into an existing system. However, telehealth technology development must

continually involve formative evaluation cycles. Adhering to this framework has led to

successful telehealth implementation for healthcare systems.

RESULTS

Increased Access to Opioid Treatment

A proposed benefit of any telehealth service has been to increase access to care for

patients, especially patients residing in rural or underserved areas (Lin et al., 2018). An analysis

from 3,142 U.S. counties found that 46.4% of those areas lacked a publicly available health care

professionals who could both prescribe the two medications, buprenorphine and methadone,

used to treat opioid use disorder and to provide proper psychiatric treatment in terms of patient

education (Huskamp et al., 2019). Furthermore, this number was found to significantly increase

to 71.2% when only rural areas were examined (Huskamp et al., 2019).

However, researchers have projected that if academic medical centers, federal agencies,

and for-profit companies begin using telehealth, this number can be drastically decreased

(Huskamp et al., 2019). Using telehealth and telepsychiatry to combat opioid addiction has been

established as a means to improve patient care by improving therapy engagement and providing

additional sources of treatment that could help patients overcome transportation or distance

barriers (Huskamp et al., 2019).

In 2017, West Virginia University (WVU) created the Comprehensive Opioid Addiction

Treatment (COAT) Program (Zheng et al., 2017). This program was based at WVU in

Morgantown, West Virginia, but provided care by establishing the first remote clinic for opioid

addiction treatment to the rural area of Clay County, West Virginia (Zheng et al., 2017). This

rural area was located four hours away from Morgantown and lacked any healthcare providers

that were legally able to prescribe the needed medication-assisted treatment to the local

population (Zheng et al., 2017).

The COAT program required the 100 enlisted patients to participate in counseling,

therapy, a 12-step addiction procedure and a buprenorphine medication program, all via

telehealth services (Zheng et al., 2017). The results showed that the patients who received this

telehealth enabled treatment would not have been able to receive the buprenorphine drug needed

to complete the program without the use of remote prescription monitoring via telehealth (Rubin, 2019).

A similar study conducted in rural Maryland found comparable results (Weintraub, Greenblatt, Chang, Himelhoch, & Welsch, 2018). This study evaluated a program that provided buprenorphine treatment to 177 patients at an outpatient treatment center in rural Maryland via telehealth (Weintraub et al., 2018). Toxicological urine screening for use of opioids revealed the following pattern, 65% (115/177) of the patients were opiate negative at initiation of treatment; of the 173 patients still engaged in therapy at 1 week of treatment 78.6% (136/173) had opiate negative toxicology; and of the 101 patients still engaged at 3 months of treatment, 86.1% (87/101) remained opiate negative (Weintraub et al., 2018). This study further concluded that the telehealth program was an adequate method to deliver opioid addiction treatment to underserved rural areas that otherwise may not have had the opportunity to receive any form of treatment (Weintraub et al., 2018).

According to an Expert in Telehealth services, who has been a medical director for a telehealth company for the past three years, this technology has provided increased access to mental health, psychiatric and medication-assisted treatment for the American population and specifically for those underserved. Around 70% of patients needing treatment for addiction disorders have difficulty in receiving treatment in terms of logistics (Expert in telehealth, 2020). Furthermore, over 80% of patients receiving traditional face-to-face care claim they are unhappy with their healthcare (Expert in telehealth, 2020). According to the expert, telepsychiatry has been the perfect platform to increase access to treatment, as much of the consultation has revolved around education and talk therapy. This type of therapy, combined with medication,

has the potential to greatly increase access to care with the hopes of eventually decreasing the

burden of opioid addiction to society (Expert in telehealth, 2020),

Improved Patient Outcomes

Opponents to the use of telehealth for treatment purposes have often stated the fear of

reduced quality of care thus leading to poor patient outcomes (Lin et al., 2019). However, a 2-

year retrospective study initiated by West Virginia University researchers and published in 2017,

found no difference in outcomes between patients receiving opioid use disorder treatment

through telehealth or from face-to-face encounters (Rubin, 2019). Similar studies conducted by

the University of Maryland and the University of Kentucky echoed these findings, further

emphasizing the appropriateness of virtual treatment (Rubin, 2019).

Moreover, other studies have found that patient outcomes are not only maintained but

furthermore improved when using a telehealth-based treatment platform (Lin et al., 2019). The

National Drug Abuse Treatment Clinical Trials Network conducted a retrospective study in

which they contrasted telepsychiatry addiction treatment with traditional face-to-face treatment

for 107 studies (Marsch et al., 2020). In a trial conducted in 2019, 135 patients were randomly

assigned to receive either 12 weeks of standard outpatient use disorder treatment or a model in

which telehealth was incorporated via 2 hours of weekly telehealth therapy and psychoeducation

(Marsch et al., 2020). The authors found that participants who received the telehealth treatment

as part of their care model had a markedly lower rate of treatment dropout, from 50% versus

78% of those patients solely enrolled in traditional in-person therapy (Marsch et al., 2020).

Furthermore, the telehealth patients had a higher rate of drug abstinence measured via a drug

urine test of 49% versus 39% abstinence rate for those receiving traditional treatment (Marsch et al., 2020).

However, an important caveat that has been documented when using telehealth technologies has been the possibility of participant dropout due to technical difficulties (King, Brooner, Peirce, Kolodner, & Kidorf, 2014). In a study that consisted of 12 weeks of telepsychiatric sessions via internet-based videoconferencing for 85 patients, 26 patients were noted to have withdrawn from the telehealth program, stating frustration with technology as the main cause (King et al., 2014). However, it is worth noting, that since that study, significant advances in technology and an importance placed on user-friendliness, have led to increased participant retention rates (Ho & Argaez, 2019).

DISCUSSION

The purpose of this research was to examine the field of telepsychiatry as a viable means to combat the rapidly increasing opioid epidemic facing America and to determine the effect of telepsychiatry utilization on access to treatment received in an outpatient medical setting. The results of the literature review and the interview with an expert in the field have demonstrated that telepsychiatry has indeed had a positive effect on the access to treatment for opioid addicted individuals. This literature review supports the use of telepsychiatry as an appropriate means of psychiatric and medication-assisted treatment for individuals struggling with opioid abuse, use disorder and addiction.

With a high prevalence of opioid addiction disorders in the US, adequate treatment is imperative. However, as the prevalence of individuals suffering from opioid addiction has risen,

the availability of treatment has not. Thus, telepsychiatry has offered a unique solution, allowing more patients to receive treatment that otherwise may not have the access or the option to do so.

According to the Expert in telehealth services, telepsychiatry has incredible promise and potential to help those suffering from opioid addiction. With the future economic burden combined with increasing unemployment, the number of individuals battling addiction may increase. This has historically shown to be problematic, as the already overworked healthcare system cannot handle more treatment in terms of physicians and support. Thus, the Expert has predicted that telepsychiatry used in combination with medication-assisted treatment, will see a further increase in utilization. In fact, the Expert has predicted that this will become the main way to provide addiction treatment in the future.

This research was not without its limitations. The literature review was limited due to the search strategy employed to find sources, such has the number of databases. In an effort to find relevant information, articles were limited to telepsychiatry, and mainly searches were conducted to find articles that supported increasing the access of care through the use of telepsychiatry. With this method, articles could have been filtered out from the searches and that information would not have been accessed or used. Furthermore, in all the information that was utilized, there was the possibility of publisher or researcher bias. Publishers of the case studies could have only utilized surveys that would cater to supporting their claims. Additionally, researcher bias could have played a role as well.

CONCLUSION

Telepsychiatry has been shown to have a positive impact on the way opioid addiction treatment has been delivered. This literature review has indicated that utilization of telepsychiatry has

increased the access of specialized addiction treatment to those in rural or underserved areas while maintaining, or even improving, patient outcomes. Thus, both the primary and secondary hypotheses have been supported by this literature research

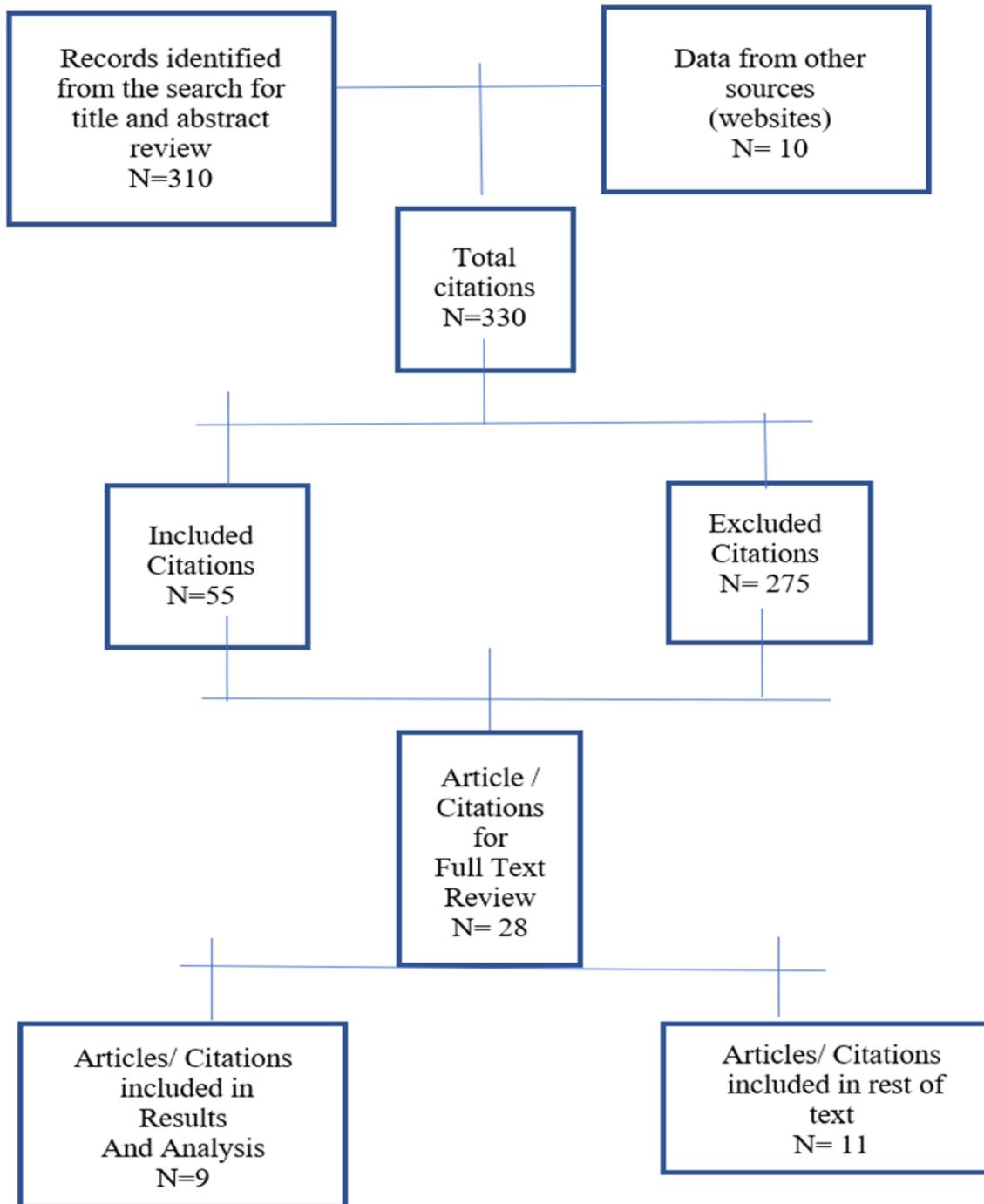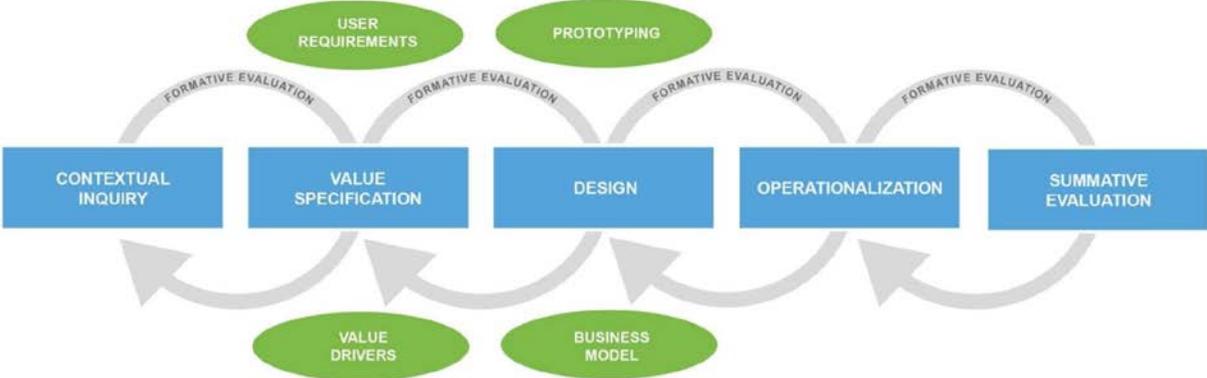Figure 1. Overview of Literature Evaluation, PRISMA

Figure 2. Conceptual Framework

REFERENCES

Brandt, R., and Hensley, D. (2012). Teledermatology: The Use of Ubiquitous Technology to

   Redefine Traditional Medical Instruction, Collaboration, and Consultation. *The Journal*

   of Clinical and Aesthetic Dermatology, 5 (11), 35-37.

Centers for Disease Control and Prevention [CDC]. (2019). *Understanding the Epidemic.*

   Retrieved February 5, 2020 from

   https://www.cdc.gov/drugoverdose/epidemic/index.html

Crawford, A., Sunderji, N., Lopez, J., & Soklaridis, S. (2016). Defining Competencies for the

   Practice of Telepsychiatry through an Assessment of Resident Learning Needs. *BMC*

   Medical Education, 16 (28), 120-129.

Expert in Telehealth. (2020). Personal communication. April 10, 2020.

Gerhart, J., Duberstein, P., Paull, D., O'Mahoney, S., Burns, J., Denicolo, M., & Hoerger, M.

   (2020). Geopersonality of Preventable Death in the United States: Anger-Prone States

   and Opioid Deaths. *American Journal of Hospice and Palliative Care,* 23 (10), 1-8.

Ho, C., & Argaez, C. (2019). Telehealth-Delivered Opioid Agonist Therapy for the Treatment of

   Adults with Opioid Use Disorder. *Canadian Agency for Drugs and Technologies,* 5(18),

   1-7.

Huskamp, H., Busch, A., Souza, J., Pines, L., Rose, S., Wilcock, A., Landon, B., & Mehrotra, A.

   (2018). How is Telemedicine Being Used in Opioid and Other Substance Use Disorder

   Treatment? *Health Affairs,* 37(12), 1940-1947.

Johns Hopkins Medicine. (2019). *What are Opioids?* Retrieved February 4, 2020 from

https://www.hopkinsmedicine.org/opioids/what-are-opioids.html

King, V., Brooner, R., Peirce, J., Kolodner, K., & Kidorf, M. (2014). A randomized trial of web-based videoconferencing for substance abuse counseling. *Journal of Substance Abuse Treatment,* 46(1), 10-19.

Lin, L., Casteel, D., Shigekawa, E., Weyrich, M., Roby, D., & McMenamin, S. (2019). Telemedicine-delivered treatment interventions for substance use disorders. *Journal of Substance Abuse Treatment,* 101(2019), 38-49.

Lin, C., Dievler, A., Robbins, C., Sripipatana, A., Quinn, M., & Nair, S. (2018). Telehealth in Health Centers: key adoption factors, barriers, and opportunities. *Health Affairs*, 37(12), 1967-1974.

Mahmoud, H. & Vogt, E. (2019). Telepsychiatry: An Innovative Approach to Addressing the Opioid Crisis. *The Journal of Behavioral Health Services & Research,* 46(4), 680-685.

Marsch, L., Campbell, A., Campbell, C., Chen, C., Erin, E., Ghitza, U., Harris, C., Hassanpour, S., Holtyn, A., Hser, Y., Jacobs, P., Klausner, J., Lemly, S., Kotz, D., Meier, A., McLeman, B., McNeely, J., Mishra, V., & Young, S. (2020). The application of digital health to the assessment and treatment of substance use disorders: the past, current, and future role of the National Drug Abuse Treatment Clinical Trials Network. *Journal of Substance Abuse Treatment,* 112 (20), 4-11.

Molfenter, T., Boyle, M., Holloway, D., & Zwick, J. (2015). Trends in Telemedicine Use in Addiction Treatment. *Addiction Science and Clinical Practice,* 10 (14), 15-30.

Haley Tallarico – April 27, 2020 – HCA 695 – Final Draft

National Institute of Health [NIH]. (2019). *Opioid Addiction.* Retrieved February 5, 2020 from

https://ghr.nlm.nih.gov/condition/opioid-addiction

Pijnen, J., Nijland, N., Limburg, M., Ossebaard, H., Kelders, S., Eysenbach, G., & Seydel, E.

(2011). A Holistic Framework to Improve the Uptake and Impact of eHealth

Technologies. *Journal of Medical Internet Research,* 13(4), 11-20.

Rubin, R. (2019). Using Telemedicine to Treat Opioid Use Disorder in Rural Areas. *The Journal*

of the American Medical Association, 322(11), 1029-1031.

Scholl, L., Seth, P., Kariisa, M., Wilson, N., & Baldwin, G. (2018). Drug and Opioid-Involved

Overdose Deaths – United States, 2013-2017. *Morbidity and Mortality Report,* 67 (5152),

1419-1427.

The National Institute on Drug Abuse [NIDA], (2019). *Opioid Overdose Crisis.* Retrieved

February 6, 2020 from https://www.drugabuse.gov/drugs-abuse/opioids/opioid-overdose-

crisis.

Weintraub, E., Greenblatt, A., Chang, J., Himelhoch, S., & Welsch, C. (2018). Expanding access

to buprenorphine treatment in rural areas with the use of telemedicine. *American Journal*

on Addictions, 27(8), 612-617.

Zheng, W., Nickasch, M., Lander, L., Wen, S., Xiao, M., Marshalek, P., Dix, E., & Sullivan, C.

(2017). Treatment Outcome Comparison Between Telepsychiatry and Face-to-face

Buprenorphine Medication-assisted Treatment for Opioid Use Disorder: A 2-Year

Retrospective Data Analysis. *Journal of Addiction Medicine*, 11(2), 138–144.

APPENDIX A

Questions Asked in Semi-Structured Interview of an Expert in Telehealth and Addiction

• How have you seen the opioid epidemic affect patients and society in recent years? Why?

• What traditional methods are best equipped to combat drug addiction, specifically opioid addiction? Why?

• How have you seen telehealth and specifically telepsychiatry expand on services provided to patients? Why?

• What is involved in a typical telehealth consultation?

• Do you think patients who undergo telehealth treatment for addiction have positive outcomes and are able to overcome their addictions? Why or Why not?

• Have patients reacted well to telehealth experiences as opposed to in-person consultations? Why or why not?

• How do you feel telehealth can benefit patients struggling with addiction? Why?

• What are some of the disadvantages of using telehealth for both patients and providers? Why?

• How do you think telehealth has impacted rural access to care? Why?

• What do you feel is the future of telehealth usage for addiction? Why?