

TELEMENTAL HEALTH CARE:
PROVIDERS' KNOWLEDGE AND BELIEFS

by

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TABLE OF CONTENTS

1. INTRODUCTION	1
Background and Significance	1
Problem	4
Purpose.....	5
Definition of Terms.....	6
Theoretical Framework.....	7
Summary	14
2. REVIEW OF LITERATURE	15
Incidence of Mental Illness.....	15
Barriers to Seeking Mental Health Care	16
Effectiveness of Telemental Health.....	17
Patient Outcomes	23
Patient Satisfaction.....	27
Provider Satisfaction.....	31
Cost Outcomes.....	33
Liability and Legal Concerns.....	35
Use of Telemedicine and Telemental Health.....	37
Telemedicine.....	37
Telemental Health.....	38
College Student Population.....	41
Perceived Provider Barriers	44
Summary	45
3. METHODS	47
Participants.....	47
Data Collection	47
Measures and Instruments.....	49
Data Analysis	51
Protection of Human Subjects	52
Summary	52
4. OUTCOMES AND RESULTS.....	53
Sample.....	53
Survey Results	53
Summary.....	64

TABLE OF CONTENTS CONTINUED

5. DISCUSSION66

 Survey Results66

 Diffusion of Innovation Attributes.....71

 Recommended Next Steps for CC and SHC.....77

 Reflection and Insight79

 Relationship to DNP Essentials80

 Limitations82

 Summary82

REFERENCES CITED.....84

APPENDICES92

 APPENDIX A: Request to the Telemedicine Survey.....93

 APPENDIX B: Telemedicine Survey Permission to Use.....95

 APPENDIX C: Invitation for Survey97

 APPENDIX D: Reminder for Survey99

 APPENDIX E: Post-Presentation Survey.....101

 APPENDIX F: Resource Handout for Presentation103

 APPENDIX G: Telemental Health Nonuser Survey107

 APPENDIX H: Telemental Health User Survey111

LIST OF TABLES

Table	Page
1. Demographic and Practice Characteristics of the Sample	54
2. Knowledge About Telemental Health, Nonuser and Users	55
3. Beliefs About Telemental Health.....	56
4. Users' Perceptions of Telemental Health	58
5. Nonusers' Thoughts Regarding Benefits and Disadvantages to Using Telemental Health	59
6. Users' Thoughts Regarding Benefits and Disadvantages to Using Telemental Health	60
7. Comparison of Pre-Presentation with Post-Presentation Surveys	60
8. Provider Concerns Identified in Telemental Survey.....	62
9. Attribute Table for Telemental Health Survey Questions	63
10. Indications for Telemental Health Training.....	64

ABSTRACT

University X, a state university in a northwestern state, offers a wide range of health care services for its students, one of which is mental health care. For students living on or near the university's main campus, access to care is generally not a problem. However a majority of nursing students are located on its distant satellite campuses 200 miles or more away, and distance serves as a barrier to access. This barrier to services is especially concerning when a student is experiencing an emergency or crisis, and it could potentially be mitigated by the use of telemental health. The purpose of this DNP project was to explore University X mental health care providers' knowledge and beliefs regarding telemental health. Providers were recruited from the counseling center (CC) and the student health center (SHC) on the University X campus. Providers completed an online survey that examined self-assessed knowledge and beliefs regarding telemental health. Fourteen providers completed the survey; two that identified as previous or current users of telemental health and 12 as nonusers of telemental health. The survey results highlighted the knowledge and beliefs regarding telemental health of both users and nonusers regarding quality of interactions with clients, inconveniences, and licensure. Baseline survey results were presented to the staffs of both agencies, accompanied by a presentation of literature that addressed these concerns and supported the use of telemental health. A follow up survey demonstrated some change in select attitudes.

CHAPTER ONE

INTRODUCTION

Background and Significance

Telehealth incorporates the use of information and communication technology to deliver health care services at a distance (Wade, Elliott, & Hiller, 2014). “Telehealth is synonymous with telemedicine and encompasses all uses of information and communications technology that support health care” (Al-Shorbaji & Geissbuhler, 2012). Telemental health, a form of telehealth, is defined as the use of telemedicine to provide mental health assessment and treatment at a distance. Telemental health has entered its sixth decade as a well-known practice in the medical arena that is increasing access to and satisfaction with care from both patients and providers by offering a wide variety of services (Hilty, Ferrer, Parish, Johnston, Callahan, & Yellowlees, 2013). While effective for a variety of populations, the potential for use with college students is an area that needs further exploration.

College campuses characteristically have a wide variety of resources that positively impact mental health for college students, but the majority of students are not seeking treatment (Blanco, Okuda, Wright, Hasin, Grant, Liu, & Olfson, 2008; Eisenberg, Hunt, & Speer, 2012). The nationwide shortage of mental health care providers affects access to care and, according to Korn and Chen (2015), one third of college campuses lack a psychiatrist on campus. Untreated compromised mental health can lead to social isolation, substance abuse, impaired academic functioning, and withdrawal from school.

The American College Health Association (ACHA) (2015) found that, during a one-year period, 85% of college students felt overwhelmed by everything that they had to do, 30% reported that stress negatively impacted their academic performance, and one in three felt so depressed that it was difficult to function. The Healthy Minds Studies (2007, 2009) included over 13,000 survey respondents on 26 college campuses and results demonstrated that only 36% of students with an apparent mental health problem had received any form of treatment in the previous year (Eisenberg, Hunt, Speer, & Zivin, 2011).

The Healthy Minds Studies (2007, 2009) identified multiple reasons for students not receiving services for untreated mental health problems. These include that students (1) think the problem will get better by itself, (2) think stress is normal in college or graduate school, (3) question how serious their problem is, (4) prefer to handle their problems themselves, and (5) do not have the time to seek treatment (Eisenberg et al., 2012). Early mental health interventions can improve immediate and long-term outcomes, as well as reduce the risk of symptoms developing into a diagnosable mental illness (Koenen, Rudenstine, Susser, & Galea, 2013; Mental Health & Drug & Alcohol Office, 2001).

Students with suicidal thoughts have identified barriers to seeking mental health care that include (1) the fear of being stigmatized or judged, (2) not wanting to be a burden to others, (3) thinking that the problem is transitory, (4) not having anyone to tell, and (5) the fear of consequences, such as expulsion (Drum, Brownson, Denmark, & Smith, 2009). Telemental health has the potential to increase access to care, as well as

decrease the fear of being judged, since students are able to be assessed outside the mental health clinic. Healthy Campus 2020 was developed by the ACHA and provides 10-year national objectives for improving the health of college students on campuses nationwide (American College Health Association, 2016).

Important objectives of Healthy Campus 2020, an initiative of the ACHA, include increasing the proportion of students reporting a diagnosis of depression or anxiety and receiving treatment within the previous 12 months (American College Health Association, 2016). Depression prevalence continues to rise among college students leading to a negative effect on their quality of life and an increased risk of discontinuation of the student's college career (Williams, LaRocca, Chang, Trinh, Fava, Kvedar, & Yeung, 2014). Eisenberg et al. (2011) stated that "recent evidence suggests that many untreated students have positive attitudes and beliefs about treatment, implying that new approaches to help-seeking interventions may be useful" (p. 226).

Telehealth, as a new approach, can be described as a disruptive technology that has the potential to threaten traditional healthcare delivery, but also "has the potential to reform and transform the industry by reducing costs and increasing quality and patient satisfaction" (Schwamm, 2014, p. 200). Telemental health, as a newer technology for delivering mental health care, has providers concerned regarding its use and effectiveness. "Added processes such as traveling to a special room, making the appropriate technical arrangements, scheduling and documenting changes can cause just enough disruption to dissuade some practitioners from adopting this practice" (Brooks, Turvey, & Augusterfer, 2013, p. 434).

Problem

Located in the northwestern United States, University X is a state university with an enrollment of greater than 10,000, but less than 20,000, full and part-time students. The University X College of Nursing (CON) is distributed across the state, with one main campus and multiple satellite campuses where both students and faculty are physically located and the CON curriculum is implemented. Each satellite campus is between 142 and 308 miles from the main campus. No other colleges within University X are structured in this way. University X offers a wide range of healthcare services for its students, one of which is mental health care. For students living on or near the main campus, access to care is generally not problematic. However, the majority of upper-division students in the College of Nursing are located on one of the satellite campuses, where physical distance presents a significant barrier to accessing student mental health services.

Currently, student mental health services are provided on the University X main campus by both the student health center (SHC) and counseling center (CC). At the time of this project, the wait period for a counseling-center appointment was approximately one week, unless the student was deemed to be at risk or in crisis. Appointments were available daily at 11AM, 1PM, and 3PM for these types of emergency visits. A new, non-emergent patient needing an appointment experienced a one-week wait to be seen. The SHC reported that a student with an emergency or crisis mental-health visit was typically seen the same day as the request was received. For a non-emergent visit, the wait period for an appointment varied from one day to two weeks.

An example provided by a nursing professor at one satellite campus depicted the concerns when a student is in crisis without local resources in the satellite city. This student, a current patient of the University X counseling center, needed to be seen for an emergent mental health care assessment. This student was several hours away from the main campus and was unable to access care in her current location without a delay of several weeks. The University X providers were willing to see her immediately, if she could come to the main campus, which is what she ultimately opted to do in the middle of winter with icy roads. Follow-up conversations with additional faculty at this site confirmed that the example above was not a rare occurrence for satellite campus students needing more immediate access to mental health care. Thus, the problem is that a unique population of students at University X experiences distance as a significant barrier to access to student mental health services. Telehealth has the ability to bring mental health care closer to patients and increase the range and quality of mental health services (Shore, 2013).

Purpose

While current evidence supports telehealth as a promising approach to increased access to care and improved patient outcomes, provider and patient knowledge and beliefs regarding telehealth can also directly affect clinical outcomes (Brodie, 2015). Providers' support for telemental health is crucial for its diffusion, and commonly identified provider concerns include personal barriers, clinical workflow, technology, licensure, credentialing, and reimbursement barriers (Brooks et al., 2013). Fundamental

to change is the engagement of the stakeholders in understanding the need for change and how it would improve future results (Maccoby, Norman, Norman, & Margolies, 2013). Provider attitudes would be considered a constraint or bottleneck if telemental health was implemented without their acceptance or willingness to change the current practice delivery model. Therefore, as a potential first step to adopting the use of telemental health services at University X, the purpose of this DNP project was to explore University X mental health care providers' knowledge and beliefs regarding telemental health.

Definition of Terms

To provide clarity and consistency, the following terms will be defined:

Telemedicine/telehealth, telepsychology, telecommunications, telemental health, and videoconferencing.

1. Telemedicine and Telehealth: Describe the use of medical information exchange from one site to another via electronic communications to improve patients' health status. For the purpose of this project, these terms were used interchangeably (American Telemedicine Association, July 2009).
2. Telecommunications: The preparation, transmission, communication, or related processing of information by electrical, electromagnetic, electromechanical, electro-optical, or electronic means (Guidelines for the Practice of Telepsychology, 2013).
3. Telepsychology: The provision of psychological services using telecommunication technologies (Guidelines for the Practice of

Telepsychology, 2013).

4. Telemental Health: Alternatively known as telepsychiatry, involves the provision of prevention services, assessment, diagnosis, treatment, and/or follow up care for mental illness and substance misuse by a clinician with videoconferencing (Vernig, 2016).
5. Videoconferencing: Real-time two-way transmission of digitalized video images between two locations; telecommunication used to bring people at physically remote locations together for meetings (American Telemedicine Association, July 2009).

Theoretical Framework

Despite growing research and support regarding the use of telemental health care, providers have been hesitant to use this technology. “Provider support for TMH (telemental health) is critical to its diffusion because clinicians often serve as the initial gatekeepers to telehealth implementation and programs success” (Brooks, Turvey, & Augusterfer, 2013, p. 433). Identified provider barriers regarding telemental health include (1) the effectiveness of telemental health, (2) the ability to establish a therapeutic relationship, (3) the lack of formal instruction prior, (4) reimbursement concerns, (5) licensure across state lines, (6) privacy concerns, (7) technology not equivalent to face-to-face visits, and (8) concerns regarding patient safety (Brooks et al., 2013; Deslich, Stec, Tomblin, & Coustasse, 2013; Barton et al., 2007). Providers’ acceptance of telemental health as a new innovation could be a complex process involving a significant amount of

time and effort to achieve. Although telemental health has been in practice for over 50 years and has been supported with a growing body of research and the development of organizational guidelines, the use of televideo communications to deliver psychiatric care is still considered an innovation (Ellington & Repique, 2013). Everett Rogers's (2003) Diffusion of Innovations theory provides a theoretical framework to integrate the innovation of telemental health into practice (Rogers, 2003)

Everett Rogers's (2003) Diffusion of Innovations theory is often used as a valuable change model for guiding technological innovation that meets the needs of the specific population. Originally developed by E.M. Rogers in 1962, the Diffusion of Innovations theory defined diffusion as "the process in which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 2003, p. 5). Communication channels refer to the means by which information is spread about the innovation. Two major communication channels described by Rogers include mass media channels and interpersonal channels (Rogers, 2003). Mass media channels include radio, television, and newspapers that enable a source of one to reach an audience of many while interpersonal channels involve person to person communication. "Mass media channels are relatively more important at the knowledge stage and interpersonal channels are relatively more important at the persuasion stage" (Rogers, 2003, p. 217). The knowledge and persuasion stages are part of the stages in the process of innovation-decision making.

Individuals, as part of the social system, make their own decisions about an innovation that follows a five-stage adoption process. These stages include the following:

1. Knowledge, whereby the individual becomes aware of an innovation's existence and has some understanding of how it works.
2. Persuasion, whereby the individual forms a favorable or unfavorable attitude toward the innovation.
3. Decision, whereby the individual engages in activities that lead to a choice to adopt or reject the innovation.
4. Implementation, whereby the individual puts an innovation into use.
5. Confirmation, whereby the individual evaluates the results of the innovation-decision already made.

Individuals do not adopt an innovation at the same time, and individuals can be classified into different adopter categories based on their innovativeness (Rogers, 2003). Innovativeness refers to “the degree to which an individual (or other unit of adoption) is relatively earlier in adopting new ideas than other members of a system” (Rogers, 2003, p. 267). Individuals who adopt an innovation early have different characteristics from those adopting innovations later (Rogers, 2003). Rogers established adopter categories that classify individuals on the basis of their innovativeness as (1) innovators, (2) early adopters, (3) early majority, (4) late majority, and (5) laggards. “The measure of innovativeness and the classification of a system's members into adopter categories are based upon the relative time at which an innovation is adopted” (Rogers, 2003, p. 22). The time element of the diffusion process can be represented by a bell-shaped adoption curve. Two statistics, mean and standard deviation, are used to divide a normal adopter distribution into the five categories (Rogers, 2003). Different approaches are needed for

each category when encouraging an innovation. The five categories are described as:

- Innovators (2.5%) – These are individuals willing to take risks, they want to be the first to try an innovation. They are venturesome and willing to cope with a high degree of uncertainty. Very little needs to be done to appeal to this group.
- Early Adopters (13.5%) – These individuals have the highest degree of opinion leadership among the adopter categories. They are aware of the need to change and very comfortable adopting new ideas. Strategies to appeal to this group include how-to manuals and information sheets on implementation.
- Early Majority (34%) – These individuals adopt new ideas before the average person, but they need to see evidence that the innovation works before they are willing to adopt it. Success stories and evidence of innovation's effectiveness appeal to this group.
- Late Majority (34%) – These individuals are skeptical of change and will adopt an innovation after it has been tried by the majority. Strategies for this group include providing information on how others have tried the innovation and adopted it successfully.
- Laggards (16%) – The individuals are conservative and suspicious of innovations and change. They are the hardest to persuade. Strategies that appeal to this group include statistics and pressure from other adopter groups (LaMorte, 2016).

The Diffusion of Innovation theory's goal is "not to move people within the five

adopter categories into another category, but to streamline the innovation to meet the needs of all five categories” (Kaminski, 2011, p. 2). It is the critical mass achieved by the influence of the opinion leaders, innovators, and early adopters that sparks the initial “take off” in the innovation adoption process (Kaminski, 2011). Until this critical mass occurs at a relatively early stage in the diffusion process, the rate of adoption is very slow; but after critical mass is achieved, the rate of adoption accelerates (Rogers, 2003). The attributes of the Diffusion of Innovation theory influence the innovation adoption process and the five adopter categories.

The rate of adoption of an innovation is influenced by the attributes of an innovation, and most variance in the rate of adoption, from 49% to 87%, is explained by five attributes: relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). Each of these attributes is defined as:

- Relative advantage – the degree to which the innovation is thought to be better than current practice.
- Compatibility – the degree to which an innovation is perceived to be consistent with the existing values, past experiences, and needs of potential adopters.
- Complexity – the degree to which an innovation is perceived as being difficult to understand and use.
- Trialability – the degree to which an innovation may be experimented with before a commitment to adopt is made.
- Observability – the degree to which the results of an innovation are visible to

other (Rogers, 2003).

Rogers (2003) recommends that diffusion studies develop measures of these five perceived attributes rather than using existing scale from previous investigators.

Additional variables that affect the rate of adoption include (1) the type of innovation-decision, (2) the nature of communication channels diffusing the innovation, (3) the nature of the social system, and (4) the extent of change agents' promotion efforts (Rogers, 2003).

Rogers's (2003) Diffusion of Innovations theory is a useful framework for assessing mental health care providers' knowledge and beliefs of telemental health. This project used the Telemental Health survey responses that are categorized by beliefs about telemental health (Table 3), users' perceptions of telemental health care (Table 4), nonusers' thoughts regarding overall benefits and disadvantages to using telemental health care (Table 5), current or former users' thoughts regarding the overall benefits and disadvantages to using telemental health care (Table 6) and the post-presentation survey (Table 7), which are associated with the Diffusion of Innovation attributes of relative advantage, compatibility, and complexity (see Table 9). The attributes of trialability and observability, as described earlier, do not correlate at this stage with the application of the surveys. Attribute categories can be used as the basis for structuring formative evaluation questionnaires in order to measure potential adopter perceptions about an intervention (Dearing, 2009). While the attributes did not guide the development of the Telemental Health survey questions, the attributes guided the synthesis of the survey results. It is the providers' knowledge and beliefs that will identify their perceptions of telemental health.

It is “the individuals’ perceptions of the attributes of an innovation, not the attributes as classified objectively by experts or change agents, [that] affect its rate of adoption” (Rogers, 2003, p. 223).

Innovations that require individual-optional innovative-decision are usually adopted more quickly than those requiring an organizational decision (Rogers, 2003). It was unknown at the time of initial data collection if University X would be an optional, collective, or authority type of decision for any judgments regarding the use of telemental health. Optional decisions are choices made by the individual independent of other members of the system. Collective decisions are those made by consensus of the system members. Authority decisions are those by individuals who possess power or technical expertise. Interpersonal communication would be the communication channel to create awareness and knowledge of telemental health at the post-survey presentation. Generally, this communication channel has a slower rate of adoption than that of mass media. The social system would be that of the University mental health care providers. The change agents and opinion leaders among the mental health care providers were not known.

This project provided information relative to the attributes of relative advantage, compatibility, and complexity. Specific to the innovation-decision process, the analysis of telemental health knowledge and beliefs of the mental health care providers will begin at the knowledge stage. This stage is where the individual “is exposed to an innovation’s existence and gains an understanding of how it functions” (Rogers, 2003 p. 171). The results of the telemental health survey specified University X mental health care providers’ knowledge and beliefs regarding telemental health care. These results

indicated providers' concerns regarding telemental health that were then discussed with the subsequent presentation to these providers. Additional information regarding telemental health and these concerns was provided in this presentation along with the provision of a resource handout regarding telemental health. The next stage would be persuasion where "the individual forms a favorable or unfavorable attitude toward the innovation" (Rogers, 2003, p. 174). The addition of the resources and literature that support telemental health at the post-survey presentation would signify the advantages of telemental health and persuade the individual mental health care provider to form a specific attitude of telemental health.

Summary

University X offers mental health care at its main campus for students who are physically able to come to the campus for a face-to-face visit. Unfortunately, for those students located at distant satellite campuses, physical distance is a barrier to access. Telemental health care has the potential to increase access to mental health care services for students. Currently, this is a service not offered at either the CC or the SHC. The identification of knowledge and beliefs of University X's mental health care providers towards telemental health would be the first step in assessing the feasibility of developing a telemental health care program on the University X campus.

CHAPTER TWO

REVIEW OF LITERATURE

Incidence of Mental Illness

College students may be overwhelmed by the transition from high school to the college setting. Pressure to do well academically, manage their finances, and decide on their career choice while trying to develop an adult identity can be stressful and confusing. According to the American College Health Association (2015), over a 12-month period, 86% of college students felt overwhelmed by all that they had to do, 48% felt things were hopeless, 35% felt so depressed it was difficult to function, and 45% felt academics were traumatic. Results from the National Survey of Counseling Center Directors showed that 44% of centers had seen students with psychological problems. Of these, 6.3% had impairments so serious that they could not remain in school and 37.7% had severe problems that could be treated successfully (Gallagher, 2010). Additionally, 59% of students indicated that counseling helped them remain in school and 60% felt that counseling helped improve their academic performance (Gallagher, 2010). The National Alliance on Mental Illness (NAMI) survey of college students found that 73% had experienced a mental health crisis while at college and, in most cases, colleges were not aware of this crisis (National Alliance on Mental Illness, 2012). Most college students with mental health problems are not receiving treatment, and stigma only partially explains the high prevalence of untreated disorders (Eisenberg et al., 2012).

Barriers to Seeking Mental Health Care

According to the NAMI survey of college students, stigma remains the number one barrier to students seeking help, and colleges could be a key player in reducing stigma. Additionally, survey respondents reported that busy personal schedules were a significant barrier to care, which suggests the importance of providing flexible hours of service (National Alliance on Mental Illness, 2012). Students fear being judged negatively when physically accessing care and this fear reduces the use of mental health care. Telemental health could increase access to and use of mental health care by allowing students access to psychological services from the privacy of their dorm room or their private residence. “Rural colleges/universities often have few resources to meet the health and mental-health needs of students, which leads to relying heavily on community health and mental-health resources” (Khasanshina, Wolfe, Emerson, & Stachura, 2008).

The shortage of mental health care providers, especially in rural areas, decreases access to mental health care. Large geographic distances, transportation issues, time off from work, childcare, and high treatment costs are some of the barriers that patients encounter (Deslich, Stec, Tomblin, & Coustasse, 2013; Jenkins-Guarnieri, Pruitt, Luxton, & Johnson, 2015; Nelson, Bui, & Sharp, 2011). Telemental health has the potential to improve access to care for those living in remote areas or those who can't leave home due to illness or mobility problems (Guidelines for the Practice of Telepsychology, 2013).

Effectiveness of Telemental Health

Shore (2013) identified psychiatry as an ideal fit with telepsychiatry and videoconferencing with “no known absolute exclusion criteria or contraindications for any specific psychiatric diagnoses, treatments or populations” (p. 259). Live, interactive videoconferencing and telepsychiatry have been in use since the 1950s, but it has only been in the last decade that growing scientific evidence and implementation have shown telepsychiatry’s ability to “bring care close to patients and to increase the range and quality of available mental health services” (Shore, 2013, p. 256). Indications for telepsychiatry include depression, panic disorders, obsessive-compulsive disorders, and post-traumatic stress disorders (Shore, 2013; Fishkind, Cuyler, Shiekh, & Snodgrass, 2012). The increasing number of controlled trials has shown the efficacy and efficiency of specific treatments, as well as cost saving, with reduced travel, improved coordination of care, and cost avoidance with early treatment (Shore, 2013, p. 256).

Langarizadeh, Tabatabaei, Tavakol, Naghipour, Rostami, and Moghbeli (2017) performed a systematic review to search for high quality research articles regarding the applications, technologies, advantages, and challenges related to telemental health care since 2000. Twenty-five articles contained all the following inclusion criteria: (1) studied various applications of telemental health care, (2) published between the years 2000 and 2017, and (3) indexed by one or more of the databases PubMed, Embase, ISI Web Sciences, and Science Direct. These 25 articles included 16 reviews, six case studies, an original research article, a five-medical-center research document, and an expert panel statement. Current applications of telemental health were separated into five categories:

(1) capabilities, (2) specific designs, (3) available technologies, (4) advantages, and (5) challenges. Capabilities included online information exchange, psychiatric consultation in primary care and emergency rooms, and asynchronous psychotherapy. Specific designs included synchronous and asynchronous interactions. Available technologies were identified as (1) videoconference, telephone, and message systems; (2) web-based interactions; (3) mobile phone technology; (4) networking via social media and group discussions; and (5) internet games. Advantages included: (1) improved access, (2) excellent results from individual and group therapies, (3) flexible online interactions, (4) enhanced profits and reduced costs, and (5) social networks. Challenges identified with telemental health care included: (1) costs of online services and equipment, (2) communication quality control, (3) limited professional skills for online communication, (4) ethical and regulatory concerns, and (5) information privacy and reliability. Langarizadeh et al. (2017) concluded that telemental health is a cost effective, efficient, and adaptable solution to provide mental health care with promising outcomes.

A meta-analysis of synchronous TMH by Osenbach, O'Brien, Mishkind, and Smolenski (2013) was done to "examine systematic differences in the efficacy of psychotherapy administered via synchronous TMH as compared to none-telehealth approaches." Fourteen publications met the inclusion criteria for the meta-analysis, with a total of 1,734 participants included; 867 in the telemental health groups and 858 in the comparison groups. Overall, a statistically significant, systematic difference between the different modes of telemental health was not identified (Osenbach et al., 2013). This meta-analysis found no evidence to suggest that the delivery of psychotherapy via

synchronous telemental health was less effective than non-telemental health means in reducing depression symptoms (Osenbach, et al., 2013)

Hilty et al. (2013) reviewed published telepsychiatric literature from July, 2003, to March, 2013, to synthesize information on what is and what is not effective regarding telemental health. Areas reviewed regarding telemental health's effectiveness in clinical care included: (1) diagnostics/assessment processes, (2) populations (child, geriatric, and ethnic), (3) new models of care, (4) settings (collaborative care, asynchronous, emergency, home health), (5) mental health disorders, and (6) cost-related and other outcomes (Hilty et al., 2013). The reviewers searched for articles from July, 2003, to March, 2013, and initially found 755 articles of which 70 actual studies were chosen based on the theme of effectiveness. Assessment criteria for effectiveness included: (1) diagnosis reliability and validity, (2) comparison with in-patient care, and (3) feasibility, acceptability, and sustainability of telemental health for children, geriatrics, and different cultures. Comparisons have noted that telepsychiatry may be better than in-person services with children/adolescents because of the novelty of the interaction, direction of the technology, the psychological and physical distance, and the authenticity of the family interaction. Other studies found reduced length of hospitalization, better medication adherence, reduction of symptoms with disorders, and effective therapy, such as group cognitive processing, in comparison to in-person services. One qualitative study found that young peoples' perceptions on telepsychiatric services included feeling sessions were helpful, a sense of personal choice during the consultation, and liking the technology. With either a single assessment or follow-up visit, videoconferencing has shown to "be as

effective as in-person care for most parameters, such as feasibility, outcomes, age and satisfaction” (Hilty et al., 2013, p.446). Over the past decade, patient access to telemental care has increased. “Patients may have less travel, absence from work, and time waiting, more clinical choice and control, and better outcomes” (Hilty et al., 2013). There remain unresolved concerns with telemental health access including: (1) privacy and confidentiality, (2) cultural and language nuances, and (3) inadequate payment for indigent, rural, and other underserved patients. In conclusion, Hilty et al. (2013) stated that telemental health is effective in most regards for diagnosis and assessment across many populations (adult, child, geriatric, and ethnic) and disorders in many settings (home health, emergency rooms), is comparable to in-person care, and complements other services in primary care (Hilty et al.). Better evaluations with formal measures and analysis of variance to predictors of outcomes are needed. Limitations for this review included not being a systematic review of the literature and the exclusion of specifics regarding medication management, therapies, and other treatments. Future research was indicated for specific disorders, service models, and concerns regarding culture, language, and cost.

Hubley, Lynch, Schneck, Thomas, and Shore (2016) completed a systematic literature search to critically summarize the evidence base for telepsychiatry. Inclusion criteria included: (1) published in a peer-reviewed journal after 2000, (2) written in English, 3) used videoconferencing technology for mental health assessment or treatment, and 4) used an adequately-powered, randomized-controlled trial design for treatment outcome studies. One hundred thirty-four articles met the inclusion criteria, with 86 that

reported on satisfaction with telepsychiatry, 38 that evaluated reliability of clinical assessments conducted via telepsychiatry, 32 that were RCTs, 43 that reported on implementation outcomes, 29 that estimated cost-effectiveness, and 23 that evaluated legal issues associated with telepsychiatry. These 134 studies were organized into one of six categories: (1) satisfaction, (2) reliability, (3) treatment outcomes, (4) implementation outcomes, (5) cost effectiveness, and (6) legal issues. In general, high satisfaction was found among outpatients seeking specialty mental health care, but satisfaction scores were statistically higher for rural patients as compared to suburban patients. Participants' responses in qualitative studies found prominent themes including ease of use and decreased burden of transportation, whereas prominent negative themes included privacy concerns, challenges in developing a patient-doctor relationship, and technical challenges. In one experimental study that compared reactions of outpatients (n=48) randomized to telepsychiatry or face-to-face psychiatric consultation, "patients reported comfort in disclosing the same information that they would disclose in a face-to-face consultation but reported slightly lower levels of satisfaction regarding feeling supported and encouraged than did face-to-face patients" (Hubley et al., 2016). Provider satisfaction results were mixed. Rural primary care physicians (PCPs) were more satisfied with telepsychiatry than PCPs based in suburban locations. Providers perceived patients to be less satisfied with telepsychiatry service than patients actually reported, and expressed concerns that their lack of experience with telepsychiatry would result in lower levels of care. The majority of studies that evaluated telepsychiatry reliability reported moderate to high levels of agreement between providers using telepsychiatry and face-to-face

assessments regardless of instrument, provider, or setting type. Overall, the review found that, in general, assessments made via telepsychiatry are comparable to face-to-face assessment in terms of reliability. Thirteen RCTs were found that evaluated treatment outcomes for mental health intervention that were delivered by telepsychiatry. Treatment outcomes comparing face-to-face versus telepsychiatry were summarized as: (1) telepsychiatry appears to be better than usual care, with the exception of depression treatment in primary care, where telepsychiatry has failed to show superior treatment outcomes to usual care; (2) there were no differences in the findings for delivery of pharmacotherapy or psychotherapy provided via telepsychiatry; (3) with the exception of one study, current data suggest telepsychiatry interventions produce outcomes that are statistically equivalent to those produced by FTF intervention; and (4) the treatment outcome data on telepsychiatry are strongest for the treatment of depression (Hubley et al., 2016). One study compared utilization data from 7523 telepsychiatry appointments and 115,148 face-to-face visits and found that patients kept more telepsychiatry than face-to-face appointments (92% telepsychiatry vs 87% face-to-face) (Hubley et al., 2016). Of the 18 studies that compared direct or indirect costs associated with providing telepsychiatry services, the majority (n=13) found that telepsychiatry was associated with less direct and indirect costs than face-to-face visits. Hubley et al. (2016) also looked at the evidence regarding the cost-effectiveness of telepsychiatry and found that, in general, most studies showed “telepsychiatry reduces direct and indirect costs and increases quality of life adjusted years when compared to FTF” (p.276). In summary, telepsychiatry overall (1) reduces costs associated with patient travel, (2) has more

upfront costs, but these are recovered after 6-379 sessions depending on the population served, and (3) cost effectiveness may differ depending on the setting (e.g., rural or urban). In conclusion, the authors found that the evidence reviewed suggested “that telepsychiatry is comparable to FTF in the reliability of assessment and effective treatment of a range of behavior and mental health disorders” (Hublely et al., 2016, p.277).

Patient Outcomes

Godleski, Darkins, and Peters (2012) evaluated clinical outcomes of 98,609 mental health patients before and after being enrolled in a telemental health program of the United States Department of Veterans Affairs (VA) from 2006 to 2010. The study compared the number of inpatient psychiatric admissions and days of psychiatric hospitalization among patients six months before and six months after their enrollment in a remote, videoconferencing, telemental health program. The study’s hypothesis was that, with increased access to mental health services with remote technologies, patients would demonstrate decreased hospital utilization. This utilization was described as the number of hospital admissions and total days hospitalized for inpatient treatment on acute general psychiatry, substance abuse, and posttraumatic stress disorder units. Telemental health encounters were done from community-based outpatient clinics by mental health providers from larger hospital services. All psychiatric diagnoses and clinical types of telemental health videoconferencing were included. Clinical visits included “intakes, urgent care visits, medication management, individual therapy, group therapy and family therapy” (Godleski et al., 2012, p. 384). Results of the study showed the total number of

hospital admissions with telemental health patients over the four-year period “dropped from 3,948 before enrollment to 2,994 after enrollment” and total days of hospitalization decreased “from 35,532 before enrollment to 26,080 after enrollment” (Godleski et al., 2012, p. 384). Decreased hospitalization utilization may have been related to the increased access to telemental health services that included evidence-based psychotherapy, patient education group, medication management, and interventions provided immediately for those patients who were dangerous or on the edge of decompensation.

Luxton, Sirotnin, and Mishkind’s (2010) systematic literature review evaluated the safety of telemental health care delivered to unsupervised settings. Safety was defined as “the reduction and prevention of adverse reactions or events that might be experienced by patients who partake in care services” (Luxton et al., 2010, p.705). Objectives of the review were to (1) identify empirical studies that specifically evaluated telemental health delivered to unsupervised settings, (2) identify those studies that specifically discussed safety planning, (3) review safety issues addressed and discuss adverse events that occurred during the studies, and (4) report how safety situations were resolved. The final review included nine studies: six randomized-controlled trials (RCTs), two non-RCTs, and one case study. The telemental health technology involved was mainly standard telephones to deliver treatment. Treatments used in the primary studies included cognitive-behavior therapy, depression home monitoring, administration of psychological tests, and alcohol consumption monitoring. Six of these studies “explicitly described a safety plan or precautions that could be deployed in the event that a participant or

researcher became at risk” (Luxton et al., 2010, p.707). One safety plan included a screening plan that would exclude potential participants if (1) there were concerns that family members’ presence would impede disclosure of information, (2) discussing the trauma over the telephone would be too traumatic, or (3) patients were reporting dissociation, psychosis, or suicidality. Other safety plans monitored for changes in symptoms during the treatment process with screening tools such as the Patient Health Questionnaire-9 (PHQ-9) for depression. If scores of the PHQ-9 were too high or fluctuated irregularly, a safety plan was implemented. Two of the nine studies reported events that resulted in the use of safety procedures in response to situations of participant safety concerns. One study implemented procedures including contacting the participant’s emergency contacts and the local police for a welfare check for a participant who identified suicidal ideation on the PHQ-9. In another study using the PHQ-9, safety alerts to the participant’s clinician were implemented when an increase in symptom severity was seen. The authors felt that the review provided “initial evidence that telemental health services delivered to a clinically unsupervised setting can be safely managed” (Luxton et al., 2010, p.709). The paucity of data and limited number of peer-reviewed studies limit the generalization of this conclusion.

Ruskin et al. (2004) examined treatment outcomes in depression using a randomized-controlled trial. The primary objective of this RCT was to “compare treatment outcomes of patients with depressive disorders treated remotely by means of telepsychiatry to outcomes of depressed patient treated in person” (Ruskin et al., 2004, p.1471). Participants were 119 depressed veterans that were referred for outpatient mental

health treatment. These participants were randomly assigned to either a telepsychiatry or in-person treatment. These treatments lasted six months and consisted of psychotropic medication, psychoeducation, and brief supportive counseling. Treatment outcomes, satisfaction, adherence to treatment, and cost of treatment were compared between the two treatment modalities. The Hamilton Depression Rating Scale and the Beck Depression Inventory were used to assess for changes in depression severity. Patient scores for both of these scales improved over the treatment period without a difference between the two modalities. Both groups of patients adhered to medication treatment and appointments equally. “Telepsychiatry was more expensive per treatment session, but this difference disappeared if the costs of psychiatrists’ travel to remote clinics more than 22 miles away from the medical center were considered” (Ruskin et al., 2004, p.1471). The study concluded that treatment of depression either via telepsychiatry or in-person had comparable outcomes with equal levels of adherence, satisfaction, and healthcare cost.

O’Reilly, Bishop, Maddox, Hutchinson, Fisman, and Takhar (2007) utilized a randomized-controlled equivalence trial to compare clinical outcomes of telepsychiatry versus face-to-face psychiatry. The study compared a variety of clinical outcomes for 495 patients who were referred for psychiatric consultation between 2001 and 2004. Only patients who had an initial Brief Symptom Inventory (BSI) score of dysfunctional were randomly assigned to either a face-to-face examination (N=254) or to a telepsychiatric examination (N= 241). The primary clinical outcome included moving from dysfunctional to functional status on the BSI four months after the initial consultation. The BSI scores “showed that patients reported less distress from symptoms and improved

mental health after the clinical intervention in both groups” (O’Reilly et al., 2007, p.840). Face-to-face visits required travel expenses for the psychiatrist, which increased the fees to compensate them. The average cost of telepsychiatry for this study was 10% less per patient than the cost of in-person service. The authors concluded that psychiatric consultation can be as effective with telepsychiatry as with face-to-face visits.

Patient Satisfaction

Important concerns regarding telemental health include whether patients and providers will be accepting of this model of delivery and the quality of care patients would receive (Vernig, 2016). Access to care can be greatly increased with telemental health, which in turn has increased patient satisfaction by less travel, absence from work, and time waiting, more clinical choice and control, and better outcomes (Hilty et al., 2013).

A systematic review of patient perceptions of telemental health (Jenkins-Guarnieri, Pruitt, Luxton, & Johnson, 2015) examined patient treatment satisfaction and the therapeutic alliance with video teleconferencing or telephone-based, psychotherapeutic, telemental health treatment (TMH) when compared with in-person care. Previous research has concentrated on telepsychiatric interventions, which most often involved medication management with brief intermittent meetings. This may not generalize well to other types of treatment such as psychotherapeutic treatments that rely on the therapeutic relationship and detailed discussions that develop over multiple sessions (Jenkins-Guarnieri et al., 2015). Inclusion criteria for studies included: (1) both TMH and in-person treatment groups were included, (2) TMH intervention involved

direct, synchronous communication with the mental health provider, (3) TMH treatment primarily involved a psychological treatment with a psychotherapeutic relationship, and (4) measure of treatment satisfaction and/or therapeutic alliance were outcome variables. Fourteen articles met these inclusion criteria; nine of these studies involved randomized-controlled trials and five studies relied on nonexperimental designs. All the studies involved adults from both rural and urban populations from the United States, Canada, the United Kingdom, and Australia. Most of the studies (n=13) involved treatment delivered by video teleconferencing with cognitive behavioral therapy; the most common therapeutic intervention. Patient satisfaction was evaluated in the primary studies, using a variety of custom scales for four studies and standardized measures for the remainder of the studies. These standardized measures included the Working Alliance Inventory, the Session Evaluation Questionnaire, or the Charleston Psychiatric Outpatient Satisfaction Scale-VA. Results indicated no statistically significant condition effects for the studies that directly compared patient rating of satisfaction with psychotherapeutic treatment between TMH and in-person. Six studies found no significant differences between modalities on patient ratings of therapeutic alliance. A strong support for comparable levels of patient satisfaction between TMH and in-person care was seen with the studies involving cognitive behavioral therapy, particularly for individual psychotherapy. Three of the studies found differences between TMH and in-person care with group interventions. Evidence also suggested that “the presenting problem does not strongly influence satisfaction ratings for the method of treatment delivery” (Jenkins-Guarnieri et al., 2015, p. 657). Two studies noted patient dissatisfaction that resulted when technical

difficulties with the TMH equipment were experienced. In general, the results of this systematic review found that patient ratings of satisfaction with psychotherapeutic intervention and therapeutic alliance in treatment were comparable between in-person delivery and remote TMH (Jenkins-Guarnieri et al., 2015). Limitations included the small sample sizes of these studies and variables, such as rapport, provider experience, and patient variables, such as personality and treatment preference. These limitations are important when assessing patient satisfaction and therapeutic alliance with TMH. The differences in satisfaction levels between modalities appear to be associated with the modifiable factors of group treatment or technological videoteleconferencing quality. The authors noted that the inconsistency in the types of patient satisfaction measures “used across studies makes it difficult to objectively compare studies and evaluate patient satisfaction as an outcome” (Jenkins-Guarnieri et al., 2015).

Morgan, Patrick, and Magaletta (2008) compared inmates’ perceptions regarding psychiatric and psychological mental health services delivered through either telemental health or face-to-face visits. The purpose of the study was to examine how telemental health impacts the therapeutic relationship as well as inmates’ mood, satisfaction, and general attitudes and perceptions toward mental health services delivered via telemental health. The authors hypothesized that inmates would have a comparable therapeutic relationship (working alliance) with the treatment provider with both telemental health and face-to-face modalities. Participants of the study were 186 adult male inmates who received mental health services in an adult correctional institution. Of these participants, “50 received face-to-face psychological services in a general population correctional

facility, 36 received telemental health psychological services in a general population correctional facility, 50 received face-to-face psychiatric services in a psychiatric prison, and 50 inmates received telemental health psychiatric services in a general population correctional facility” (Morgan et al., 2008). Three different questionnaires were used to assess inmate perceptions of the type of psychiatric or psychological care they received. These questionnaires included: (1) The Client Satisfaction Questionnaire, an eight-item, self-report measure to assess client satisfaction with mental health services; (2) The Working Alliance Inventory, a 35-item questionnaire to assess different aspect of the working alliance; and (3) The Session Evaluation Questionnaire, which measures two basic dimensions of the participants’ post session mood: positivity and arousal. Inmates were recruited for the study at the conclusion of one of their regularly scheduled mental health sessions. Inmates were assigned to either telemental health or face-to-face modality based on what was available at their prison and what was clinically necessary. After the mental health visit, inmates were instructed to complete all three questionnaires. Results for psychological services (telemental health vs. face-to-face) found that inmates receiving the psychological services via telemental health were similarly satisfied with the services they received when compared with those inmates receiving these services via a traditional, face-to-face visit. No significant differences were found with either the working alliance or evaluation of the psychological session for smoothness, positivity, or arousal. Results for psychiatric services found no significant difference for the working alliance and their evaluation of the psychiatric session for smoothness, positivity, or arousal. Inmates receiving either telemental health or traditional face-to-face visits were

similarly satisfied with the service they received. In conclusion, the authors found the results supported their hypothesis that “there were no significant differences between telemental health and face-to-face delivery modalities for perception of the therapeutic relationship, postsession mood or general satisfaction with services” (Morgan et al., 2008, p.161).

Provider Satisfaction

Clinician “confidence and buy-in can be significantly improved when clinicians are given the opportunity to actually use telehealth” (Brooks, et al., 2013, p. 434). Simms, Gibson, and O’Donnell (2011) suggested that mental health workers’ confidence in the use of videoconferencing is related to hands-on training in the use of the equipment and opportunities to use it.

Cunningham, Connors, Lever, and Stephan (2013) evaluated providers’ perspectives regarding the utilization of telepsychiatry in schools. This small study’s (n =4) purpose was to obtain feedback from psychiatrists who provided consultation to school mental health providers in the Prince George School Mental Health Initiative (PGSMHI). The PGSMHI was “initiated in 2006 to provide clinical and case management support to students in special education who have severe emotional and behavioral difficulties” (Cunningham et al., 2013, p. 794). At the time of the study, PGSMHI was based in eight schools in a large urban school district in Maryland. Clinicians provided counseling services and teacher consultation on site while psychiatrists and psychiatrist fellows provided psychiatric consultation via telepsychiatry. The majority of these schools have access to videoconferencing equipment and the

psychiatrist has the ability to interact with students, school staff, and family members directly. Four of the five psychiatrists contacted completed a qualitative/quantitative survey regarding their perspectives on psychiatric consultation. Two quantitative questions regarded the psychiatrists' perspectives of students' comfort of speaking with video and the other question regarded the psychiatrists' own comfort of speaking with students. Eight remaining questions were open-ended and queried general experiences providing consultation via videoconferencing, benefits and disadvantages of using videoconferencing in comparison to face-to-face appointments, experiences providing consultation to clinicians over the phone, technological disadvantages, and suggestions for improvement. Overall, the psychiatrists described positive experiences providing consultation via videoconferencing, with specific advantages defined as "being able to assess students in collaboration with the therapists, being able to discuss medication options with students, and being able to collaborate with the therapist in 'real-time'" (Cunningham et al., 2013, p. 796). Telephone call consultations were noted to be a disadvantage when interacting with the student to assess their mental health, physical, or cognitive challenges. When comparing the telepsychiatry with face-to-face formats, overall benefits included being (1) financially efficient, (2) timely, (3) clinically efficient, (4) flexible, and (5) able to communicate with clients in remote locations. One psychiatrist "noted that when working with students who had a history of trauma, the students appeared more comfortable communicating via the video" (Cunningham et al., 2013, p. 796). All of the psychiatrists felt very comfortable using the video equipment, but three noted technological problems such as spontaneous disconnections, poor

resolution, and lack of audio or general bandwidth issues. The authors felt that communication, scheduling, and technological difficulties could be effectively addressed with training, supervision, and enhanced communication between the psychiatrists and clinicians. Another recommendation was the use of technology specialists to provide basic guidelines on how to address technology problems during a consultation to avoid disruption of the session. The limitations included the small number of participants, that information was obtained from self-reported survey data, and the lack of a control group.

Cost Outcomes

Hublely et al. (2016) also looked at the evidence regarding the cost-effectiveness of telepsychiatry and found that, in general, most studies showed “telepsychiatry reduces direct and indirect costs and increases quality of life-adjusted years when compared to FTF.” Telepsychiatry overall (1) reduces costs associated with patient travel; (2) has more upfront costs, but these are recovered after 6-379 sessions depending on the population served; and (3) cost effectiveness may differ depending on the setting (e.g., rural or urban) (Hublely et al., 2016).

Lambert, Gale, Hartley, Croll, and Hanson (2016) conducted a national study of rural telemental health programs that included online surveys of 53 programs and follow-up interviews with 23 programs. The study assessed sustainability of rural telemental health programs with the current delivery system and reimbursement structure. In the first phase, the authors queried a sample of 53 rural mental health programs. A questionnaire was used to assess organization context, services provided, staffing patterns, and area and population served. The second phase involved semi-structured telephone interviews with

23 program administrators to understand their clinical and business environments, successes and challenges in establishing and delivering services, the contractual relationships to develop services, and the opportunities and challenges to long-term sustainability (Lambert et al., 2016). Findings from the study suggest that rural communities experience disadvantages related to access to mental health care that include: (1) shortage of specialty mental health providers, (2) long travel distances to available services for patient and providers, (3) lack of available transportation, (4) high rates of un-insurance and under-insurance, and (5) the ongoing stigma of the use of specialty mental health services (Lambert et al., 2016). Technology improvements have decreased the concerns of equipment maintenance and technical support and reduced the expense for this technology. The programs studied used startup funds for the launch of their programs and these generally were capital grants. Reimbursement continued to be a concern with gaps in coverage from third-party payers. Forty-six states have provision for the reimbursement of live video services with these services generally coded and billed as are regular in-office services (Lambert et al., 2016). Medicaid reimbursement varies from state to state, as does reimbursement from private plans, but 24 states and the District of Columbia “have enacted laws mandating the coverage of telehealth services by private insurance” (Lambert et al., 2016, p.374). Some of the survey respondents “felt that reimbursement rates were not adequate to cover the full costs related to the provision of services either by the originating or distant sites” (Lambert et al., 2016, p.374). Telemental health may help mitigate the challenges related to location and the shortage of mental health care providers, as well as reduce patient travel barriers, but challenges,

such as poor reimbursement rates, recruitment and retention difficulties, high rates of un-insurance, and high no-show rates, need to be addressed for telemental health to reach its full potential (Lambert et al., 2016). This study supported the clinical and business case for using telemental health services to expand care to rural communities and that televideo technology can be used to deliver mental health services efficiently with quality and effectiveness comparable to face-to-face services (Lambert et al.).

Liability and Legal Concerns

Many clinicians have legitimate concerns about practicing telemental health safely, given that the current legal and regulatory environment is based on providing health care in the traditional, in-person setting (Kramer & Luxton, 2016). Kramer and Luxton (2016) reviewed existing laws and regulations in order to summarize risk management for providing telemental health care, specifically by videoconferencing, not only to adults, but also children and adolescents. Clinicians need to be aware of legal and regulatory areas that include: (1) licensure, (2) malpractice liability, (3) credentialing and privileging, (4) informed consent, (5) security and privacy, and (6) emergency management (Kramer & Luxton, 2016). Telemental health affords the opportunity to practice across state lines, which is an important concern with the current state-based licensure system. Individual states have “control over establishing and enforcing licensure requirements for healthcare professionals located within their jurisdiction (United States Department of Health and Human Services, 2010). At the state level, for telemental health providers “the ability to practice across state lines without obtaining multiple licenses remains an issue” (Kramer & Luxton, 2016, p. 199). Individuals are

recommended to clarify state law in their area of residence for further clarification, as many states are currently reviewing and modifying current licensure requirements for telemedicine practice. Federal employees have less of an issue with cross-state licensure because “statute or case law interpretation allows certain categories of federal employees to provide healthcare services anywhere under federal duty as long as they are licensed in one state” (Kramer & Luxton, 2016, p. 199). Telemental health care, as a new technology to deliver care, generates questions about what the appropriate standard of care is to avoid malpractice liability. “Best practices, standards, and guidelines for in-person care also apply to TMH (telemental health care) although additional guidelines, regulations, and best practice information that are TMH specific is emerging” (Kramer & Luxton, 2016, p.199). The few cases that have been adjudicated regarding telemental health dealt with prescribing medication via technology without the appropriate initial examination of the patient. TMH providers who prescribe medications via technology need to become aware of medical-practice laws, not only within their state, but also the state where the patient is located; specifically what constitutes the requirement for an established patient-provider relationship and what is necessary for meeting the initial-examination requirement (Kramer & Luxton, 2016). Credentialing and privileging (C+P) are relevant to the practice of telemental health care with the need to have privileges at any site that the provider sees patients. The process of obtaining C+P every few years at more than one site can be a burden for providers.

Risk management can help establish telemental health care as safe and effective and includes informed consent, data security and privacy, and emergency management

protocols that can help assure competent and ethical TMH practice (Kramer & Luxton, 2016). Informed consent is a standard of care, just as with traditional in-person care, but different states have specific legal requirement of what constitutes a valid informed consent and providers are recommended to review informed consent requirements specific to their state. Specific to children is the age of consent, which can vary among states. Failure to know the age of consent when providing TMH to another state can expose the TMH clinician to potential liability. Additionally, the development of a safety plan is an important part of emergency and risk management. This plan should address technical, medical, and clinical emergencies, and these should be addressed with the patient at the initial visit. Telemental health technologies need to be compliant with the Health Insurance Portability and Accountability Act of 1996 (HIPAA) in order assure patient privacy and data security. “New HIPAA rules enacted in 2013 make the fines and consequences for HIPAA noncompliance greater than they have been in the past” (Kramer & Luxton, 2016, p. 201). The American Medical Association has developed a summary of the new HIPAA rules to help with the appropriate rules to ensure patient privacy and data security. TMH practice that is consistent with published guidelines and risk management strategies can increase clinician comfort level as well as mitigate risk (Kramer & Luxton, 2016).

Use of Telemedicine and Telemental Health

Telemedicine

“Advances in technology such as telemedicine have made access to cost-effective,

quality health care feasible for remote patients” (Kulkarni, 2018, p. 33). This technology has the capability of focusing on acute, episodic, and chronic conditions with the fundamental goal of migrating health care from hospitals and clinics to the home with the use of mobile devices for monitoring and data transmission (Kulkarni, 2018). In addition to healthcare delivery for patients in remote areas, telemedicine provides access to specialists and services for those who have difficulty accessing health clinics (e.g., homeless, incarcerated, inner-city residents) (Kulkarni, 2018). Telemedicine can be real time and interactive (synchronous), or store-and-forward (asynchronous), or a combination of both. Asynchronous examples include radiologic images and monitoring of laboratory values that a provider looks at, at a later time, while synchronous requires the use of interactive videoconferencing with a secure site that ensures patient confidentiality (Kulkarni, 2018). Telemedicine also can be used for teleconsultation, tele-education, and tele-research with a wide variety of settings and uses.

Telemental Health

The mental health applications of telemedicine “are the most common outpatient applications of telemedicine due to high service needs, provider shortages, interactions predominantly based on conversation and observational skill and minimal technology needs” (Nelson, Bui & Sharp, 2011, p. 42).

Almost every psychiatric diagnosis has been seen over telemedicine in settings including schools, daycare facilities, community mental health centers, hospitals, primary care offices, military sites, Veteran Administration centers, nursing homes, reservations, correctional facilities, homes, and other creative service locations” (Nelson, et al., 2011, p. 42).

Deen, Godleski, and Fortney (2012) used data from the Veterans Health Administration (VHA) to determine the types of telemental health services that were provided at the VHA over a five-year period and determine if the composition of telemental health services had changed over this time period. The purpose of this study was to describe the types of telemental health services provided by the VHA. Patient encounter data from October 1, 2005, to September 30, 2010, were identified as telemental health visits from VHA and U.S. Department of Veterans Affairs stop codes. These visits were categorized using Current Procedural Terminology (CPS) codes as medication management, individual psychotherapy with or without medication management, group psychotherapy, and diagnostic assessment. A total of 342, 288 telemental health encounters were identified. All five types of encounters increased over the five years with individual psychotherapy with medication management being the most frequent followed by medication management alone. “Individual psychotherapy with medication management (N=139,569) grew by 218% over the five-year period while encounters for medication management (N=110,626) grew by 140%, individual psychotherapy without medication management (N=48,627) by 174%, group psychotherapy (N=15,184) by 178% and diagnostic assessment (N=28,282) by 175%” (Deen et al., p.1132). These findings demonstrate the increasing number of telemental health encounters, with the majority of telemental health services related to medication management and medication management with psychotherapy services.

A study by Grubbs, Fortney, Dean, Williams, and Godleski (2015) compared the mental health diagnoses of patient encounters delivered face-to-face and via interactive

video in the Veterans Healthcare Administration (VHA) for the fiscal year 2012. One year of VHA administrative data were assessed for patient encounters with a mental health diagnosis and the VHA Mental Health Stop Code (n= 11,906,114). These patient encounters were then identified as either a telehealth visit or face-to-face visit based on secondary stop codes. Patient primary diagnoses were categorized as posttraumatic stress disorder (PTSD), depression, anxiety, bipolar disorder, psychosis, drug use, alcohol use, and other (Grubbs et al.). For the fiscal year 2012, 1.5% of all mental health patient encounters were telehealth interactive video. A larger percentage of these patient encounters via telehealth were for PTSD, depression, and anxiety as compared to face-to-face encounters. As telemedicine capacity continues to grow in the VHA, it will be necessary to ensure that a range of services continue to be offered with the potential for offering a broader range of psychiatric disorders (Grubbs et al., 2015)

A randomized-controlled, non-inferiority trial was used to compare the safety, feasibility, and effectiveness of home-based tele-behavioral health to care provided in a traditional, in-office setting among military personnel and veterans (Luxton, Pruitt, Wagner, Smolenski, Jenkins-Guarnieri, & Gahm, 2016). One hundred twenty-one, U.S. military service members and veterans were randomized to receive eight sessions of behavioral activation treatment for depression either in the participant's home via videoconferencing or in the traditional, in-office setting. The Beck Hopelessness Scale and the Beck Depression Inventory II assessment tools were used at baseline, mid-treatment, eight weeks posttreatment, and three months posttreatment. Mixed-effects modeling results suggested relatively strong and similar reductions in hopelessness and

depressive symptoms for both groups. However, “noninferiority analyses failed to reject the null hypothesis that in-home care was no worse than in-office treatment based on these measures” (Luxton et al., 2016, p.923). Treatment satisfaction was the same for both treatment groups. Safety procedures were used successfully, which supported the feasibility of home-based tele-behavioral health care. In summary, the authors indicated that home-based, tele-behavioral health care can be feasibly used to deliver care to the homes of active service members and veterans, especially when traditional, in-office care is less practical (Luxton et al., 2016).

College Student Population

Telepsychiatry has been used for college students to increase access to effective, appropriate psychiatric care with a minimal disruption to students’ daily lives (Deslich et al., 2013). One-third of colleges lack a psychiatrist on campus, limiting appointment times and making it difficult for students to schedule around their busy schedules (Korn and Chen, 2015). The flexibility of telemental health care enables students to access care when it’s convenient for them.

Khasanshina et al. (2008) implemented a pilot study that “focused on student satisfaction in their school setting, comparing satisfaction with in-person and telehealth encounters,” and also examined whether videoconferencing technology had an adverse effect on the therapeutic alliance between the student clients and resident providers (Khasanshina et al., 2008, p. 39). Four questionnaires were used: (1) an intake questionnaire prior to the first session with a counselor, (2) a post-intake survey for students immediately after an initial session, (3) a therapist rating scale for counselors’

perceptions of the client and visit, and (4) a second post-intake survey following the first tele-clinic session. In addition, students completed a Student Feedback Form to assess their satisfaction with the counseling center services. Data from the intake questionnaire and the therapist rating sheet were used to compare clients referred to the tele-clinic with those counseling center clients that were not referred (Khasanshina et al., p. 38). The results confirmed that tele-clinic clients reported more stress and were in more need for psychotropic medications. The most reported diagnoses included: (1) major depression, (2) bipolar types I and II disorders, (3) dysthymia, (4) posttraumatic stress disorder, (5) obsessive-compulsive disorder, (6) social phobia, and (7) alcohol abuse. The post-intake survey used a scale of 1-7, with 1 being the most negative and 7 the most positive. Tele-clinic (TC) clients “assigned relatively high ratings to their interaction with the TC provider ($Mean = 6.1 \pm 0.9$), to their comfort level with mental health treatment generally ($Mean = 5 \pm 1.5$), and to the overall results of the session ($Mean = 5.9 \pm 0.7$)” (Khasanshina et al., p. 39). The mean score for the post-intake survey completed following their first counseling center intake were compared with the first tele-clinic session with no significant differences found. Clients did report “more positive initial rating with their initial counselor ($Mean = 6.4 \pm 0.9$) as compared to their TC provider ($Mean = 5.4 \pm 1.4$) [$t(33) = 4.3, p < 0.001$]” (Khasanshina et al., p. 39). The authors felt that the pilot study empowered students and expanded available counseling center services.

Toscos, Carpenter, Drouin, Roebuck, Kerrigan, and Mirro (2017) found that a limitation identified in previous research was students’ limited knowledge of telemental

health. The goal of their study was to assess college students' preferences for, previous experience with, and willingness to use telemental health with a 35-question survey. This survey assessed college students' experiences with, as well as preferences for, telemental health technologies and identified sources for information and pathways to mental health care. The survey also assessed: (1) current stress level, (2) depression and anxiety symptoms, (3) suicide ideation, (4) feelings of persistent sadness/hopelessness, (5) prior experience with a mental-health professional, (6) previous use of telemental health, (7) willingness to use telemental health, (8) preferences for communication when facing distress, and (9) comfort with face-to-face and online therapy. A blind recruitment email yielded 662 college students enrolled at two northeast-Indiana universities during spring 2017. Results of the survey indicated 10.1% – 13.8% of the students had experiences with telemental health resources such as anonymous chat, online therapy, and self-help resources. An additional 24.6% – 40.1% indicated willingness to try these resources. “At risk students, especially those higher in depression/anxiety scores, showed greater use of and willingness to use some applications” (Toscos et al., 2017, p.1). The study concluded that college counseling centers might consider endorsing telemental health care as a potential pathway to mental health care that would broaden reach with minimal cost, decrease barriers to mental health seeking, and provide support for at-risk populations (Toscos et al., 2017)

Lungu and Sun (2015) evaluated college students' reported willingness to seek help for emotional distress with novel delivery mediums, to play computer games to learn emotional coping skills, and to share personal information online. The study used an

anonymous online survey that assessed students' beliefs regarding likelihood of help-seeking for emotional problems, ownership of technological devices, likelihood of seeking help for emotional problems online, likelihood to disclose information online compared to a face-to-face visit, and any interest in playing computer games designed to improve coping skills for emotional difficulties. In addition to the survey, students completed the Mental Health Inventory (MHI) which is designed to assess mental health in nonclinical and clinical samples. A sample of 572 students completed the survey and MHI. Significantly more participants (75.3%) endorsed the willingness to seek help for emotional problems online rather than from a professional in a face-to-face setting (Lung and Sun, 2015). There was not a relationship found between the MHI and help-seeking preference. One-third of the participants indicated that they would likely disclose at least as much information online as face-to-face. The majority of the students (98.6%) owned a computer and 84.96% owned a smart phone. Lungu and Sun (2015) suggested that these results indicated that college students "are very open to creative ways of receiving emotional help such as playing games and seeking emotional help online, suggesting a need for online evidence-based treatments" (p.991).

Perceived Provider Barriers

Telemental health providers and staff "include psychiatrists, nurse practitioners, physician assistants, social workers, psychologists, counselors, primary care providers and nurses" (American Telemedicine Association, 2009, p. 6). Provider barriers regarding telemental health include: (1) the effectiveness of telemental health, (2) the ability to

establish a therapeutic relationship, (3) the lack of formal instruction prior, (4) reimbursement concerns, (5) licensure across state lines, (6) privacy concerns, (7) technology not equivalent to face-to-face visits, and (8) concerns regarding patient safety (Brooks et al., 2013; Deslich et al., 2013; Barton et al., 2007). The rapid advancements in telemental health have reduced many of these obstacles and include improvements such as increased training, growing evidence to support positive telemental health outcomes, and improved technologies (Brooks et al., 2007).

A mixed-methods study was used to investigate the attitudes of community-based, outpatient clinic providers (CBOCs) about telemental health services (TMH), current utilization of TMH in their clinics, and sources of knowledge regarding TMH (Jameson, Farmer, Head, Fortney, & Teal, 2011). Semi-structured, on-site group interviews were conducted with 86 providers and were followed by an in-depth phone survey. The study found that “the utilization of TMH services varied widely between the CBOCs and the scope of services provided typically focused on delivery of medication management, with little provision of psychological services” (Jameson et al., 2011, p.425). Barriers to implementing TMH were identified as limited TMH education and training and shortage of dedicated space for TMH encounters

Summary

College students are at risk for experiencing a mental-health crisis while at college. Telepsychiatry has been in use since the 1950s, but a growing body of literature supports its ability to remove barriers associated with physical distance, remove barriers

associated with fear of stigma, and reduce costs of care. Unfortunately, provider concerns about quality of care, ability to establish a therapeutic relationship, use of technology, and patient safety are barriers to implementing telepsychiatry.

CHAPTER THREE

METHODS

The purpose of this DNP project was to explore University X mental health care providers' knowledge and beliefs regarding telemental health. An online survey was used to assess these areas and results of the survey were shared in meetings with providers. Concerns regarding telemental health identified in the survey were discussed during these meetings. Evidence-based literature was used in the follow-up presentation to address these concerns and a resource list regarding telemental health was distributed to the providers after the presentation.

Participants

Mental health care providers of both CC and SHC included psychiatrists, psychologists, counselors, social workers, physicians, physician assistants, and advanced practice nurse practitioners. There were 20 potential provider respondents at the counseling center and 16 at the student health center. Additional demographic details are provided in the next chapter.

Data Collection

Permission to carry out the project was obtained from the directors of the CC and the SHC at University X, as preliminary discussions with staff at both sites had indicated a willingness to participate in this project. Provider email addresses were obtained from

the director of each center and an email was sent to 36 providers at both the CC and the SHC with a link for the Qualtrics Survey (see Appendix C). The email contained information about the purpose of the survey, as well as benefits and risks to participation. There were two options for the survey; one for previous/current users and the other for nonusers of telemental health. There were five responses to the initial email. A follow-up reminder for non-responders was sent by email one week following the initial invitation for the survey and this resulted in six more responses. After two weeks, a second invitation to the survey was sent (see Appendix D), which added three more responses for a total of 14 survey participants. Participation implied consent.

Subsequent to the first data collection, a presentation of the initial survey results was completed for the providers. Follow-up meetings with the providers were scheduled by the CC director and the SHC director for this PowerPoint presentation of survey results. The presentation included the provision of additional information regarding key areas of concern identified in the survey. These concerns included: (1) how telemental health and videoconferencing are defined, (2) resources for training or education, (3) patient satisfaction with telemental health, (4) applications for use, and (5) specific provider concerns. Open discussion of the results and concerns was encouraged. Evidence-based literature was used in the presentation to address these concerns and a resource list regarding telemental health was distributed to the providers after the presentation. A post-presentation survey was used to assess for changes from the first survey.

The first meeting was for the providers at the student health center and one provider was in attendance. The second meeting at CC occurred immediately prior to a staff meeting and was well attended by 16 providers. Discussions after the presentation with the CC focused mainly on the provider concerns related to use of telemental health technology. After the presentation, the possibility of a pilot study to trial telemental health was introduced, but the idea did not seem to stimulate the provider attendees. During the first meeting with the one provider from the student health center, the idea of a pilot study was also introduced and was received more favorably, with this provider interested in how a pilot study would be accomplished.

Measures and Instruments

Data were collected using the Telemedicine User and Nonuser Surveys, a demographic survey, and a narrative questionnaire addressing the overall knowledge and beliefs regarding telemental health care. The Telemedicine User and Nonuser Surveys developed by Barton et al. (2007) were used to examine “self-assessed knowledge and beliefs about telemedicine among users and nonusers, examining also the demographic characteristics of both groups (Barton et al., 2007 p. 487). This survey was relevant to the purpose of this project, but, as the survey was developed for the original study, the reliability and validity of the survey are unknown. Permission to use and modify these surveys was obtained from one of the authors; see Appendices A and B (personal communications, Jim Grigsby, February 15, 2017). The survey was adapted to the purposes of this setting and providers. Minimal changes were made to the original

telemedicine surveys by changing the term telemedicine throughout the survey to telemental health.

The original Telemedicine User Survey was used for specialists and subspecialist physicians who were telemedicine users, and the Telemedicine Nonuser Survey was used for specialists/subspecialists who were not telemedicine users. “Areas of investigation included: (1) demographic and practice information, (2) physician attitudes toward and knowledge of telemedicine, (3) perceived advantages for practice, (4) telemedicine and referral patterns, (5) perceived convenience/inconvenience of telemedicine, (6) effect of the technology on patients, (7) perceived financial investment, (8) concerns regarding malpractice and liability, and (9) reimbursement issues, especially related to Medicare” (Barton et al., 2007, p. 487).

Providers identified as current or former users or nonusers based on self-reported use of telemental health. The current or former user survey consisted of 43 questions with a five-point Likert-type scale (strongly agree, agree, disagree, strongly disagree, and not applicable), 22 short-answer questions, and one narrative question (see Appendix J). The nonuser survey consisted of 33 questions with the previously described five-point Likert-type scale, 19 short-answer questions, and one narrative question. A web-based delivery was chosen for the convenience of the participants and the potential to produce a higher response rate than a paper survey (Truell, Bartlett, & Alexander, 2002).

The instrument was administered again after the presentation. The purpose of this post-presentation survey was to assess for changes from the original Telemental health survey. This survey consisted of four questions from the original survey, using the same

five-point Likert-type scale, that addressed the providers' readiness for training or education regarding telemental health and plans to implement telemental health in their practice (see Appendix E). This survey did not delineate between current/former users and nonusers of telemental health.

Data Analysis

Descriptive analyses of the first survey results were completed. Areas of analysis included the areas identified in the original Telemedicine survey: (1) demographic and practice information, (2) provider attitudes and knowledge of telemental health, (3) perceptions of advantages of telemental health for practice, (4) perceived convenience or inconvenience of telemental health (5) technology effects on patients, (6) apparent financial investment, (7) malpractice/liability concerns, and (8) reimbursement concerns. The majority of questions were presented on a five-point Likert scale: strongly agree, agree, disagree, strongly disagree, and not applicable. The original authors of the Telemental Health Survey used this five-point Likert-type scale for analysis and subsequently collapsed the results into dichotomous agree/disagree categories (Barton, et al., 2007). This project followed the same analysis. Analysis included means and standard deviations when appropriate. However, because the sample size of previous users was only two, raw data is provided where deemed more appropriate for clarity. The post-presentation survey was assessed for the percentage of change from the first survey using the same five-point Likert-type scale and method of analysis as the original survey.

Protection of Human Subjects

The project received exemption from full review September, 2017, from the University X Institutional Review Board (IRB). A subsequent minor modification for the addition of the post-presentation survey was also approved February, 2018.

The surveys were completed without identifiers and all information was anonymous. All survey results were stored with the capstone project leader in a locked cabinet in the leader's office and remained confidential. The participants' participation in the survey implied consent.

The post-presentation survey was paper-based and was available to the providers at the conclusion of the survey-results presentation. Again, participation implied consent. The surveys were collected without identifiers and placed in a covered box.

Summary

The project sought to assess mental health care providers' knowledge and beliefs regarding telemental health. After receiving approval from the IRB, baseline data were obtained. These results were shared with the participants and additional information was shared based on the literature. A subsequent data collection was implemented to explore changes in beliefs regarding telemental health care implementation as well the need for telemental health training for University X mental health care providers.

CHAPTER FOUR

OUTCOMES AND RESULTS

The purpose of this DNP project was to explore University X mental health care providers' knowledge and beliefs regarding telemental health as a first step to potential implementation. All 36 mental health care providers at both the SHC and CC were invited to participate in the survey.

Sample

All 36 providers at the CC and SHC received an email invitation to participate in the survey. Fourteen providers responded. Of these participants, two were current/former users and 12 were nonusers of telemental health care. Both current/former users were from the SHC. Of the nonusers, three were from the CC, eight were from the SHC, and one participant did not report an area of practice. This sample size represented 39% of the providers targeted for recruitment in the project across the two sites. Due to the small sample size of users, statistical comparison between the two groups was not appropriate. Demographic and practice characteristics of the sample are provided in Table 1.

Survey Results

The majority of the knowledge and belief questions were presented with the five-point Likert scale. The original authors of the Telemental Health Survey used this five-point Likert scale for analysis and subsequently collapsed the results into dichotomous

agree/disagree categories (Barton, et al., 2007). The same analysis was used for this project. Results for knowledge and beliefs about telemental health for all respondents can be found in in Tables 2 and 3. A majority (n = 13) of non-users, indicated that “I do not know enough about telemental health technology and its applications to use it in my practice.” Additional perceptions of telemental health specific to current users are presented in Table 4. Both providers agreed that interactive video technology is more acceptable for second opinions or informal consults than for diagnosing new patients, and that reduced travel to distant communities to see patients is an important consideration in the use of telemental health. Both providers stated that they do not use telemental health enough to make it a regular part of their practice. Commonly used areas for telemental health included continuing medical education, second opinion, diagnosis, follow-up, and chronic disease management.

Table 1: Demographic and Practice Characteristics of the Sample

<i>Variable</i>	<i>Nonusers (n = 12)</i>		<i>User(n=2)</i>	
	Male	Female	Male	Female
Gender	3	9	0	2
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Age	49	8.9	41.5	3.75
Years Practicing in Community	12.2	7.2	4	2
Years Practicing in Specialty	16.4	8.1	8.5	5.5
Number of States Licensed to Practice	1 State: 12 responses		1 State: 2 responses	
State your practice area serves	University X, State: 12 responses		University X, State: 2 responses	

Table 1: Demographic and Practice Characteristics of the Sample Continued

	<i>Affirmative</i>	<i>Affirmative</i>
Current Area of Practice: Student Health Services	8	2
Current Area of Practice: Counseling Center	3	0
Self-declared specialty	<i>Count</i>	<i>Count</i>
Emergency Medicine	1	0
Family Medicine	4	1
College Health	1	0
Psychiatry, Child/Adolescent Psychiatry	1	0
Travel Medicine	1	0
Family Practice & Urgent Care	1	0
Counseling	1	0
Psychology	1	0
Clinical Psychology	1	0
Urgent Care/Student Health	0	1

Table 2: Knowledge About Telemental Health, Nonuser and Users

<i>Variable</i>	<i>Nonusers (n = 12)*</i>	<i>Users (n = 2)*</i>
Knowledge Source		
Colleagues	6	0
Medical Literature	7	1
Formal Telemedicine Training	0	1
Medical or postgraduate Training	2	1
Presentations	3	0
Mass Media	4	0
Professional Assoc. Meetings/Conferences	4	1
Electronic Media	1	0
Other (specified –vendor & none)	2	0
	*Mark all that Apply	* Mark all that apply

Table 2: Knowledge About Telemental Health, Nonuser and Users Continued

Knowledge Level about Telemental Health		
Not at all knowledgeable	2	1
Somewhat knowledgeable	10	0
Knowledgeable	0	1
Very Knowledgeable	0	0
Agree that "I do not know enough about telemental health technology and applications to use it in my practice (strongly agree and somewhat agree combined)	12	1
<hr/>		
Current/Former Users		
Your common uses of telemental health technology:		
Continuing medical education		1
Second Opinion		1
Diagnosis		1
Follow-up		1
Chronic Disease Management		1

Table 3: Beliefs About Telemental Health

<i>Attitude Statement</i>	<i>Nonusers</i>	<i>Users</i>
	<i>n = 12</i>	<i>n = 2</i>
Beliefs about patient care	Affirmative	Affirmative
Patients likely to better quality care with in-person care	12	2
Would consider telemental health for initial office visits	1	0
I use telemental health in my practice time for initial office visits	0	0
Would consider telemental health for follow-up care.	3	0
I use telemental health in my practice time for follow-up care	0	0
Using telemental health would increase the number of patients in my practice	5	0
Using telemental health has increased the number of patients in my practice	0	0
Despite possible inconvenience, patients would prefer to see a provider in person than with interactive video	9	0
Telemental health could improve/does improve continuity of care for patients	8	1
Do not like the loss of personal contact associated with telemental health	10	2
I do not think an adequate patient assessment can be conducted without the patient being present physically	9	2
I think my specialty is one that can readily be adapted to the use of interactive video for consultation	5	0
I am satisfied with the quality of care my patients receive with telemental health	0	0

Table 3: Beliefs About Telemental Health Continued

Time and Convenience in use of telemental health		
If interactive video were available in my office, I would use it	3	1
Use of telemental health would not be/is not an efficient use of my time	4	2
I am willing to put up with some inconvenience in order to provide telemental health	2	2
The inconvenience involved in telemental health is greater than any benefits I might receive	0	2
I would be likely to provide consultation using interactive video if I could do it by computer from my office	5	0
Early adopter of technology		
I am generally one of the first among my specialty to adopt promising new technology	8	1
If colleagues adopted telemental health, it would influence me to think about it also	9	0
Knowledge statement		
I do not know enough about telemental health technology and applications to use it in my practice	12	1
My use of telemental health has been influenced by the opinions of my colleagues	0	1
Those of my colleagues who have used telemental health have found it an acceptable means of seeing patients	0	0
Licensure, credentialing, and malpractice		
I am concerned about possible liability issues associated with the use of telemental health	8	2
Using telemental health would increase my risk of being sued for malpractice	5	1
If additional credentialing and licensure procedures were required, that would discourage me from using telemental health	9	0
Credentialing and licensure for telemental health care are burdensome	0	1
Reimbursement		
I would have to be compensated on a par with in-person patient visits before I would agree to use/expand my use of telemental health	7	1
Telemental Education/Training		
I would be/am willing to participate in CME regarding telemental health via videoconferencing	9	2
Other factors influencing use of telemental health		
Use of telemental health would expand my network of professional colleagues	6	0
I plan to use telemental health in my practice	0	0
More research is needed on the effectiveness of telemental health before I would refer patients for telemental health/feel comfortable expanding its use in my practice	8	2
I prefer standard charting to an electronic medical record	2	0
Coordinating telemental health appointments would be/is disruptive to my established office	6	2
The telemental health technology available to me is well suited to the needs of my populations	0	0

Table 3: Beliefs About Telemental Health Continued

Telemental Health might be effective for the following types of care:		
Emergency care	1	0
Preventive services	12	1
Chronic condition management	12	2
Acute, nonemergency care	7	1
All things being equal, would you prefer to consult with a primary care provider about a patient using store-and-forward telemedicine or interactive video?		
No clear preference	9	1
Somewhat prefer interactive video	1	0
Strongly prefer interactive video	2	1
If you've used telemental health, did it involve (Mark all that apply)		
Interactive Video	0	1
Shared computer screen images with audio	0	1
Telemetry	0	1
Is store-and-forward telemental health useful (or would it be likely to be useful) in your specialty?	6	0

Both users and nonusers responded to a short answer question regarding the overall benefits and disadvantages to using telemental health care (see Tables 5 and 6). There were a total of 16 post-presentation surveys completed. See Table 7 for the post-presentation-survey results.

Table 4: Users' Perceptions of Telemental Health

Perception	Number of Responses
I have adequate technical assistance available to me during telemental health consultations	1
Most of the consults I do could be accomplished using interactive telemental health	1
Interactive video technology is more acceptable for second opinions or informal consults than for diagnosing new patients	2
Reduced travel to distant communities to see patients is an important consideration in my use of telemental health	2
Technical problems with the telemental health equipment interfere with telemental health consultations	1

Table 4: Users' Perceptions of Telemental Health Continued

The quality of the sound during a telemental consult is adequate for clinical purposes	1
My access to the telemental health equipment and facilities is limited by other uses of the system	1
Using telemental health has expanded my network of professional colleagues	1
I do not use telemental health enough to make it a regular part of my practice	2
How many times in the last 12 months have you used telemental health for any purpose?	0
My use of the telemental health system has increased over time	0
What are your common uses of telemental health technology?	
Continuing medical education	1
Second opinion	1
Diagnosis	1
Follow-up	1
Chronic Disease Management	1

Table 5: Nonusers' Thoughts Regarding Benefits and Disadvantages to Using Telemental Health

Nonusers: Please share your thoughts regarding the overall benefits and disadvantages to using telemental health care:

I think current staffing shortage and high patient volume make it difficult to consider adding telemedicine at this time

Access can be improved as well as continuity for students from other communities with an established provider

I think it is better than no care in isolated settings

I have to do so little mental health focused visits, this would be a difficult adaptation

Unknown

No thoughts

Providing actual therapy (from a licensed mental health professional) seems challenging in this venue. This survey seems to be based on a medical model of treatment, and not a psychological/therapeutic model, so I'm not sure how well it lends itself to truly understanding the practice of comprehensive mental health care from those who actually provide therapy (vs. med management)

Table 5: Nonusers' Thoughts Regarding Benefits and Disadvantages to Using Telemental Health Continued

Benefits – ability to follow up with patients who cannot return to clinic due to time or travel issues.

Disadvantages – multiple studies have shown that in-person interactions aid in patient-provider communication (non-verbal cues). In primary care, the act of a physical examination, even brief/focused exams, has been shown to improve provider diagnostic ability and patient satisfaction.

Physical exam cannot be achieved in the same way with telemental health care.

Table 6: Users' Thoughts Regarding Benefits and Disadvantages to Using Telemental Health

Current or Former Users: Please share your thoughts regarding the overall benefits and disadvantages to using telemental health care:

Not appropriate for urgent care visits but could be helpful in managing our mental health patients/consults with psychiatry (RA)

Benefits would include access to specialty care limited in my area. (RA)

Disadvantages include patient perception of the interaction, scheduling inconveniences with coordinating providers, requiring two providers to be available at the same time, technological difficulties, increased time required (CPLX)

Table 7: Comparison of Pre-Presentation with Post-Presentation Surveys

<i>Survey Question</i>	<i>Pre-survey (n=14)</i>	<i>Post Survey (n=16)</i>
I plan to use telemental health in my practice	0 (Non-Users)	7
I use telemental health in my practice time for initial office visits &/or for follow up care	0 (Users)	0
I would consider using telemental health in my practice for follow-up care	3 (Non-Users)	12
I do not know enough about telemental health technology and its applications to use telemental health in my practice	12 (Non-Users) 1 (User)	12

Table 7: Comparison of Pre-Presentation with Post-Presentation Surveys Continued

I would be willing to participate in CME regarding telemental health via video conferencing	9 (Non-Users) 2 (Users)	14
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Provider concerns are identified in Table 8. This matrix identifies the top areas of concern that were addressed in the post-survey presentation to the CC and SHC staff. These concerns included: (1) not knowing enough about telemental health technology to use it in practice, (2) loss of personal contact associated with telemental health, (3) an adequate patient assessment cannot be done without the patient being present physically, (4) the perception that more research is needed on the effectiveness of telemental health, and (5) liability, credentialing, and licensure concerns. This presentation included current research on the effectiveness and indications for telemental health, the current nomenclature for telemental health, training, education and available resources for telemental health, patient satisfaction with telemental health, and known provider concerns with telemental health. Due to externally imposed time constraints on the presentation, other identified areas of concern were covered with a handout given to the providers (see Appendix F).

The Diffusion of Innovation theory identified five attributes that determine an innovation's rate of adoption: (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability. For this project, the first three of these attributes were classified as appropriate for identifying provider knowledge and beliefs regarding telemental health care. Trialability and observability were classified as areas that would not apply at this stage of the project with the analysis of the survey results. The

Telemental Health survey results were compared with the definitions of the first three attributes (see Chapter One), and those responses that related to these attributes were placed into an attribute matrix (see Table 9).

Table 8: Provider Concerns Identified in Telemental Survey

Provider Concerns	Affirmative Responses Nonuser <i>N=12</i>	Affirmative Responses Users <i>N=2</i>
I do not know enough about telemental health technology and its applications to use it in my practice	12	1
Despite possible inconvenience, patients would prefer to see a provider in person than with interactive video	9	0
Do not like the loss of personal contact associated with telemental health	10	2
Do not think an adequate patient assessment can be conducted without the patient being present physically	9	2
Dissatisfied with quality of care my patients receive with telemental health	0	1
Use of telemental health would not be/is not an efficient use of my time	4	2
The inconvenience involved in telemental health is greater than any benefits I might receive	0	2
I am concerned about possible liability issues associated with the use of telemental health	8	2
Using telemental health would increase my risk of being sued for malpractice	5	1
Credentialing and licensure for telemental health care are/would be discouraging/burdensome	9	1
I would have to be compensated on a par with in-person patient visits	7	1
More research is needed on the effectiveness of telemental health before I would refer patients for telemental health/or feel comfortable expanding its use in my practice	8	2
Coordinating telemental health appointments would be/is disruptive to my established office routine	6	2
The telemental health technology available to me is not well suited to the needs of my population	0	1
Narrative Concerns:		
Current staffing shortage and high staffing shortages would make it difficult to consider adding telemedicine at this time	1	0
Providing actual therapy from a licensed mental health professional seems challenging with this venue	1	0
Physical exam cannot be achieved in the same way with telemental health care	1	0
Patient perception of the interaction, scheduling inconveniences, technological difficulties, increased time required, requiring 2 providers to be available at same time	0	1

Table 9: Attribute Table for Telemental Health Survey Questions

Attribute	Affirmative Responses Nonusers <i>n=12</i>	Affirmative Responses Users <i>n=2</i>
Relative Advantage:		
Telemental health could improve/does improve continuity of care for patients	8	1
Using telemental health would increase/has increased the number of patients in my practice	5	0
Use of telemental health would expand my network of professional colleagues	6	0
I think it is better than no care in isolated settings	1	0
Not appropriate for urgent care visits but could be helpful in managing our mental health patients/consults with psychiatry	0	1
Benefits would include access to specialty care limited in my area	0	1
Access can be improved as well as continuity for students from other communities with an established provider	1	0
Ability to follow up with patients who cannot return to the clinic due to time or travel issues	1	0
Compatibility		
I think my specialty is one that can readily be adapted to the use of interactive video for consultation	5	0
If interactive video were available in my office, I would use it	3	1
I am willing to put up with some inconvenience in order to provide telemental health	2	2
I would be likely to provide consultation using interactive video if I could do it by computer from my office	5	0
I would have to be compensated on a par with in-person patient visits before I would agree to use/expand my use of telemental health	7	1
Telemental health might be effective for:		
Preventive services	12	1
Chronic condition management	12	2
Acute, nonemergency care	7	1
Complexity		
I am concerned about possible liability issues associated with the use of telemental health	8	2
Using telemental health would increase my risk of being sued for malpractice	5	1
If additional credentialing and licensure procedures were required, that would discourage me from using telemental health	9	0
Credentialing and licensure for telemental health care are burdensome	0	1
More research is needed on the effectiveness of telemental health before I would refer patients for telemental health/feel comfortable expanding its use in my office.	8	2

Table 9: Attribute Table for Telemental Health Survey Questions Continued

Coordinating telemental health appointments would be/is disruptive to my established office	6	2
I think current staffing shortage and high patient volume make it difficult to consider adding telemedicine at this time	1	0
I have to do so little mental health-focused visits, this would be a difficult adaptation	1	0
Disadvantages: scheduling inconveniences with coordinating providers, requiring 2 providers to be available at the same time, technological difficulties, increased time required	0	1

To determine the next stage for this project, the survey results were analyzed for areas that would indicate gaps in provider knowledge, interest in telemental health training, and the potential adopter status of the participants (see Table 10).

Table 10: Indications for Telemental Health Training

Indications for Telemental Health Training	Affirmative Answer Nonusers <i>n=12</i>	Affirmative Answers Users <i>n=2</i>
I do not know enough about telemental health technology and its applications to use it in my practice	12	1
I am generally one of the first among my specialty to adopt promising new technology	8	1
If colleagues adopted telemental health, it would influence me to think about it also	9	0
My use of telemental health has been influenced by the opinions of my colleagues	0	1
I would be/am willing to participate in CME regarding telemental health via videoconferencing	9	2

Summary

Fourteen of 36 mental health care providers for University X responded to the Telemental Health survey. Two of these providers self-identified as current or former users of telemental health and 12 identified as nonusers. The majority of providers felt

somewhat knowledgeable regarding telemental health care, but also reported not knowing enough about telemental health technology to use it in practice. Those providers with previous or current experience with telemental health felt that benefits included access to specialty care and managing mental health patients with psychiatry. Nonuser providers felt access can be improved, as well as continuity for students from other communities with an established provider, but expressed concerns with technology, therapeutic relationship, and time constraints. A follow up survey identified an increase in those planning to use telemental health in practice, but a direct comparison to the first survey was not statistically relevant with uneven proportions of providers from SHC for the first survey and CC on the subsequent survey.

CHAPTER FIVE

DISCUSSION

The purpose of this DNP project was to explore University X mental health care providers' knowledge and beliefs regarding telemental health. The project utilized a quantitative/qualitative survey to assess the knowledge and beliefs of these providers regarding telemental health care. Initial data was obtained from 14 providers, three from CC, 10 from the SHC, and one unidentified. Post-presentation-survey participants included one from the SHC and 15 from CC. The results, as they relate to the current evidence, recommendations for practice and practice improvement, and the limitations are discussed in this section.

Survey Results

Many of the survey findings were consistent with the literature. The majority of the participants reported that they did not know enough about telemental health technology to use it in their practice and rated their knowledge level about telemental health as "somewhat knowledgeable." The lack of knowledge regarding telemental health was identified in the literature review as a common barrier identified by providers. Therefore, it stood to reason that education would be a logical strategy to begin to overcome this barrier, and the presentation on current evidence regarding TMH provided a useful first step. The use of telemental health is a change in practice and requires the

appropriate education for current and future practitioners (Edirippulige & Armfield, 2016).

Providers also indicated that telemental health could improve or did improve continuity of care for patients. There are increasing numbers of controlled trials showing the efficacy and efficiency of mental health care treatments, the cost saving with reduced travel, and improved coordination of care with TMH (Shore, 2013). Telemental health has been shown to increase access to quality mental health care with more clinical choice and better outcomes (Hilty et al., 2013). In moving forward, it may be possible to draw on providers' natural desires to improve patient outcomes to provide rationale for implementation of telemental health. This belief that telemental health could be better than current practice relates to Rogers's (2003) attribute of relative advantage. Providers also stated concerns regarding quality of care as compared to in-person care and that an adequate patient assessment could not be conducted without the patient being present physically. Studies have found that telemental health is effective for most assessments and diagnoses across many populations and disorders and in many settings, while also being comparable to in-person care (Hilty et al., 2013). The concerns regarding loss of personal contact with telemental health and that patients would prefer to see a provider in person were not supported by the literature reviewed. Hubley et al. (2016) found that patients generally report higher satisfaction with telepsychiatry than providers do, and those patients recognize the potential challenges that can occur with therapeutic alliance, but are less concerned than providers.

Concerns regarding the convenience of using telemental health included lack of efficient use of the providers' time, inconvenience, and disruption of established office routines. Cunningham et al. (2013) found that, when comparing telepsychiatry with in-person care, the overall benefits included being financially efficient, timely, flexible, and efficient. A cost and time analysis before and after implementation of telemental health would be recommended. Langarizadeh et al. (2017) also found that the new technologies that have been developed for telemental health are expected to reduce work stress and save time without adding to providers' workload. Reimbursement concerns are a current challenge with telemental health, especially with poor reimbursement rates and high rates of uninsured (Lambert et al., 2016).

A majority of the providers stated that more research is needed on the effectiveness of telemental health before either referring patients or feeling comfortable using it in their practice. However, numerous studies found in the literature search supported the use of telemental health. Shore (2013) identified psychiatry as an ideal fit with telepsychiatry with no known, absolute exclusion criteria or contraindications for any particular psychiatric diagnoses, treatment, or population. Hubley et al. (2016) completed a systematic literature review that found telepsychiatry and face-to-face, mental-health interventions resulted in the same outcomes with no differences found between pharmacotherapy or psychotherapy when provided via telepsychiatry.

Current or previous users' concerns included not using the telemental health technology enough to make it a regular part of their practice. Mental health care providers' confidence in the use of telemental health and buy-in can be significantly

improved if clinicians are given the opportunity to use the technology and with hands-on training for the use of the equipment (Brooks et al., 2013; Simms et al., 2011). Providers also felt that telemental health was more appropriate for second opinions or informal consults, not for diagnosing new patients. As stated previously, there are no known, absolute exclusion criteria or contraindications for any particular psychiatric diagnoses, treatment, or population (Shore, 2013).

Nonuser providers identified benefits of improved access, continuity of care, and the ability to follow up with patients who cannot return to the clinic, which are supported by current research. Growing evidence shows telepsychiatry's ability to "bring care close to patients and to increase the range and quality of available mental health services" (Shore, 2013 p. 256).

Evidence-based literature was used in the follow-up presentation to address these concerns, and a resource list regarding telemental health was distributed to the providers after the presentation. Open discussion of the telemental health survey results, concerns, and additional information were encouraged. The majority of providers indicated a lack of knowledge regarding telemental health, which could indicate the need for training regarding telemental health.

Training for telehealth is essential. Rogers's (2003) knowledge stage would include this training where providers develop a deeper understanding of telemental health and how it could be implemented into their practice. Taking a provider who has been doing face-to-face appointments their entire career and putting them in front of a camera without suitable training won't likely be effective, as there are several subtle

considerations when working with someone over an electronic connection (Novotney, 2011). These include the use of eye contact, camera adjustment to ensure eye contact, technology adjustments, and the need to concentrate on what is seen on the TV monitor (Novotney, 2011). Several national organizations have led the movement to educate professionals and the public regarding the development of telehealth and critical factors regarding the use of telehealth (Brooks et al., 2013). The most significant of these are the American Telemedicine Association, the Office for the Advancement of Telehealth, and the Telehealth Resource Center (Brooks et al., 2013). Research has shown that training for telehealth can increase clinicians' comfort and confidence while also increasing patient satisfaction (Jenkins-Guarnieri et al., 2015). Telehealth implies a change in practice and should be supported by appropriate education for both current and future practitioners, but there is limited published evidence regarding the delivery of telehealth education and training (Edirippulige & Armfield, 2016). Currently, there are two main types of telehealth education/training: formal university courses and continuing professional development (Edirippulige & Armfield, 2016).

The U.S. Department of Veterans Affairs (VA) has been on the forefront of training for telehealth. The VA developed a comprehensive National Telehealth Training Program to deliver care using clinical video technologies and has served over 50,000 remote patients annually nationwide (Godleski, 2012). To date, the VA has provided mental health services for nearly all diagnoses including posttraumatic stress disorder, substance-use disorders, schizophrenia, bipolar disorder, and pain disorders using multiple modalities such as psycho-pharmacological intervention, individual and

group therapy, cognitive behavioral and processing therapies, neuropsychological evaluation, psychosocial rehabilitations, and expert clinical consultations (Godleski, 2012).

Diffusion of Innovation Attributes

Relative advantage is the degree to which the innovation is thought to be better than current practice (Rogers, 2003). Providers stated that telemental health could improve the continuity of care for patients, increase the number of patients seen, and improve follow-up for patients who cannot return to the clinic due to time or travel issues. The American Psychological Association reported that telemental health has the potential to improve access for those in rural areas or for those who can't leave their home, which supports these providers' beliefs regarding telemental health care (Guidelines for the Practice of Telepsychology, 2013). Specific quotes from the survey results included:

“I think it's better than no care in isolated settings.”

“Access can be improved as well as continuity for students from other communities with an established provider.”

“Benefits would include access to specialty care limited in my area.”

Compatibility is the degree to which an innovation is perceived to be consistent with the existing values, past experiences, and need of potential adopters (Rogers, 2003). Provider responses indicated that telemental health would be compatible with their specialty of practice and they would be willing to use interactive video, even with some

inconveniences, if it could be integrated into their own office equipment. Provider reimbursement would need to be comparable with in-person visits before they would plan to use or expand their use of telemental health. Providers felt that telemental health would be compatible in their practices for preventative services, chronic condition management, and acute/nonemergency care. Telemedicine has the capability to focus on cost-effective, quality health care for remote patients for acute, episodic, and chronic conditions (Kulkarni, 2018).

Complexity refers to the degree to which an innovation is perceived as being difficult to understand and use (Rogers, 2003). Providers were concerned with liability and malpractice risks associated with telemental health care. Concerns included the burden of any credentialing or licensure requirements to use telemental health. Telemental health care, as a new technology by which to deliver care, brings to light concerns related to the appropriate standard of care to avoid malpractice liability. “Best practices, standards, and guidelines for in-person care also apply to TMH (telemental health care) although additional guidelines, regulations, and best practice information that are TMH specific is emerging” (Kramer & Luxton, 2010, p. 199). Additionally, several providers felt that more research was needed regarding telemental health effectiveness before implementing it. However, an increasing number of controlled trials have shown the efficacy and efficiency of specific treatments, as well as cost savings with reduced travel, improved coordination of care, and cost avoidance with early treatment (Shore, 2013, p. 256).

Technological concerns, disruption in office routine, and coordinating telemental

health appointments were identified as areas that would make it difficult to use telemental health. Langarizadeh et al. (2017) reported that the new technologies for telemental health are expected to reduce work stress and save time without adding to providers' workload. Specific remarks from the survey results include:

“I think current staffing shortage and high patient volume make it difficult to consider adding telemedicine at this time.”

“Disadvantage of using telemental health would be scheduling inconveniences with coordinating providers, technological difficulties, and the increased time required.”

Rate of adoption of an innovation is also affected by other variables: (1) the type of innovation-decision, (2) the nature of communication channels diffusing the innovation, (3) the nature of the social system, and (4) change agents' efforts in diffusing the innovation (Rogers, 2003). For this project, interpersonal communication was used to increase telemental health awareness and knowledge during the post-survey presentation. The PowerPoint presentation included information regarding telemental health and a resource handout was available for the providers (see Appendix F). The use of mass media generates a faster rate of adoption as compared to interpersonal communication channels, but for this project the use of the survey and presentation of survey results required the interpersonal form. At this time, it is unknown what type of decision process would be involved to implement a telemental health program at University X. The social system of University X would be the mental health care providers on campus, but, at this stage of the innovation process, change agents or opinion leaders among these providers

have not been identified. These variables affect the innovation-decision process, which is organized into five main stages.

The Diffusion of Innovation theory involves a five-stage process. These include (1) knowledge, (2) persuasion, (3) decision, (4) implementation, and (5) confirmation. Specific to the innovation-decision process, the analysis of telemental health knowledge and beliefs of the mental health care providers will begin at the knowledge stage. This stage is where the individual “is exposed to an innovation’s existence and gains an understanding of how it functions” (Rogers, 2003, p. 171). The results of the telemental health survey indicated University X mental health care providers’ knowledge and beliefs regarding telemental health care. The knowledge stage involves the individual mainly seeking information regarding the technological innovation and information that reduces the uncertainty about the innovation’s capacity to solve a problem (Rogers, 2003). Increased awareness and knowledge regarding telemental health were given with the post-survey presentation as well as in the provider discussion and questions following the presentation. University X mental health care providers are currently in the knowledge stage. Providers may not have had sufficient knowledge about or experience with the technology to be able to move from the knowledge to the persuasion stage (Helitzer, Heath, Maltrud, Sullivan, & Alverson, 2003).

The Diffusion of Innovation theory established six categories for the “degree to which an individual (or other unit of adoption) is relatively earlier in adopting new ideas than other members of a system” (Rogers, 2003, p. 267). There are different adoption characteristics for each category with different approaches needed for each category

when encouraging an innovation. Nine early adopters of technology were identified in the Telemental Health survey. Early adopters are those who are aware of the need for change and are generally very comfortable adopting new ideas (Rogers, 2003). These individuals often serve as role models for many others of a social system and can help trigger the critical mass when they adopt an innovation (Rogers, 2003). These early adopters can be engaged later with the development of telemental training or a pilot study at either CC or SHC.

Innovators are usually in the first 2.5% of individuals in a system to adopt an innovation (Rogers, 2003, p. 280). These are the ones with great time, energy, and creativity for developing new innovations. This is where the APRN with telemental expertise can help build the innovators' self-esteem by mentoring. The APRN can invite the innovator to be part of developing telemental-health-care training for the mental health care providers. Clinical practice information would be discussed with the innovator. This would include research publications, databases, guidelines, web sites, etc. The innovator(s) could also be the one(s) who would be instrumental in developing a pilot study if they saw the relative advantage or "the degree to which the innovation is perceived as better than the idea it supersedes" (Sanson-Fisher, 2004). Their enthusiasm and imagination could help pull in more providers who are holding back, waiting to see the relative benefits of adding telemental health to their practice. The use of the innovator has the advantage of showcasing the advantages and benefits of using telemental health, which could help bring those resisting the change on board. But it could, on the other hand, show that telemental health would not work in this area. Research has shown that

clinician “confidence and buy-in can be significantly improved when clinicians are given the opportunity to actually use telehealth (telemental health)” (Brooks et al., 2013). This could also reduce resistance among those not ready for telemental health. The use of the innovator and their success would be key to implementing telemental health care.

The next groups of adopters, early adopters, are an integral part of the local system and tend to be well informed and socially respected. The early adopter is often the one to check with before adopting a new idea and is often the one that embodies the use of successful new ideas (Rogers, 2003, p. 282). When working with this group, strong face-to-face support would be indicated to trial the use of telemental health and study these trials to discover how to improve the idea to make it more convenient and marketable (Rogers, 2003). This would be relevant to the nine providers who identified as early adopters in the survey.

In retrospect, Rogers’s (2003) Diffusion of Innovation theory was useful in identifying the process by which new technologies, such as telemental health, are adopted. This framework identifies the multiple factors that interact to either expedite or impede the adoption of a new innovation. The identification of attributes helped identify areas that needed additional effort if diffusion was to occur. The Diffusion theory shows that most individuals do not evaluate an innovation on the basis of scientific studies of its consequences. Instead, most people depend mainly upon subjective evaluation of an innovation that is conveyed to them from others who have already adopted the innovation (Rogers, 2003). Thus, the uses of these innovators will be needed to persuade the

remaining mental health care providers to develop the use of telemental health at University X.

Rogers's (2003) Diffusion of Innovation theory is often used to guide technological innovation diffusion into practice. This framework guided the development of a matrix of innovation attributes to categorize the information from the Telemental Health survey (see Table 9). The five attributes of the Diffusion of Innovation theory (relative advantage, compatibility, complexity, trialability, and observability) influence the individuals' innovativeness or their rate of adoption for a new innovation—telemental health in this project. For this project, the attributes of relative advantage, compatibility, and complexity were assigned to the appropriate Telemental Health survey answer where appropriate. The attributes of trialability and observability were not included in the analysis and presentation of the survey results, but are useful in considering future recommendations.

Recommended Next Steps for CC and SHC

It is recommended that the next step be hands-on demonstration of simple videoconferencing technology for University X's mental health care providers. Rogers's (2003) attributes of compatibility and complexity relate to the providers perception of how telemental health would be consistent with their current values and how difficult it would be to implement into their practices. This could be a scaled-down version of telemental health with just the use of computers, a platform such as Skype, and participants being in separate rooms to simulate a remote patient visit. Participants of this

demonstration could be analyzed for which adopter category they would fit, i.e., innovators, early adopter, early majority, late majority, or laggard. It could be assumed that providers that attend an early demonstration of telemental health would be innovators or early adopters. Identifying providers as either of those categories would lead to identification of any change agents and/or opinion leaders among the mental health care providers. Critical mass that sparks the initial “take off” of the innovation process would be in relation to the commitment of change agents or opinion leaders to developing telemental health.

Following the telemental demonstration, a small pilot implementation is recommended. Interest for a pilot study could be assessed by open discussion following the telemental health simulation. An identified change agent or opinion leader would be used as the provider in this pilot study. According to the Diffusion of Innovation theory, “Potential adopters of a new idea are aided in evaluating an innovation if they are able to observe it in use under conditions similar to their own” (Rogers, 2003, p. 389). A pilot study would give the mental health care providers the opportunity to use telemental health in their own practice environment to see if it would be compatible. The pilot study would need to secure funding to develop the telemental health technology used. This funding could include grants, in which case a proposal and writing of a grant application would need to be done first. This study could involve one provider and would involve all the elements of telemental health, but both the patient and this provider would physically be at the same site, albeit in different rooms. The patient sample would include patients being seen on that day with that provider for a mental health care visit. The use of

videoconferencing would be in both rooms and would simulate the use of telemental health care remotely. Patient and provider surveys could be done at the end of the visit to assess for quality and effectiveness of the visit. The implementation of a telemental health program could be based on this pilot study, if the results warranted.

Reflection and Insight

The current mental health care providers' shortage in the United States, combined with the increased need for mental health care services, highlight the need for changes to increase access to care. Telemental health care has the capacity to meet this need as an efficient, cost-effective, and effective innovation. Rogers's (2003) Diffusion of Innovation theory would be useful in furthering advanced-practice registered nurse (APRN) practice by applying this to the diffusion of telemental health. Rogers's theory provides insight into the complex process that can ensue with the introduction of new innovations into the health care area. APRNs have the ability to be change agents or opinion leaders within areas of their expertise, as well as part of the critical mass or tipping point at which a new technology takes hold and spreads exponentially through a system.

This project has influenced my thoughts and beliefs regarding the process of outcomes improvement in nursing practice. The nurse practitioner core competency area of scientific foundation correlated with the project's critical analysis of the data and evidence of telemental health (Thomas et al., 2017). Telemental health is a new practice approach that brings mental health care closer to patients and increases the range and

quality of these services (Shore, 2013). Although the idea of telemental health appears to be a significant means to increase access to mental health care for University X's students, the mental health care providers were not yet at that point in the diffusion process of wanting to adopt this new technology. The APRN could provide leadership in the translation of the innovation of telemental health into the practice setting.

Additionally, the nurse practitioner core competency regarding practice inquiry would be investigated by identifying the providers' knowledge and beliefs that either support or encumber the adoption of telemental health and by appraising current evidence to implement telemental health into practice. This would also include the project's development and implementation to assess the providers' knowledge and beliefs regarding telemental health. Additional work is needed in the diffusion process to persuade the provider to form an attitude towards this innovation; hopefully a favorable attitude.

Relationship to DNP Essentials

The project's purpose was to explore University X mental health care providers' knowledge and beliefs regarding telemental health. The Doctor of nursing practice (DNP) Essential II, organizational and systems leadership for quality improvement and systems thinking, is relevant when working within an organization and developing policy in order to create the change and sustainability of a new innovation such as telemental health (Zaccagnini & White, 2014). Communication is essential to convey the relative advantages, compatibility, and complexity of telemental health. These attributes from the

Diffusion of Innovation theory influence the innovation adoption process and need to be addressed in order to effectively guide the diffusion of telemental health into practice. The DNP Essential VI, inter-professional collaboration for improving patient and population health outcomes, applied to both the project and reducing resistance for the adoption of telemental health care. Encouraging the collaboration between the SHC and the CC could increase access to mental health care for University X's students and, as such, would "accomplish the IOM mandate for safe, timely, effective, efficient, equitable, and patient-centered care in a complex environment" (American Association of Colleges of Nursing, 2006). This can also be implemented with any new innovation that produces positive patient outcomes in APRN practice.

The use of telemental health technology and videoconferencing with a mental-health visit can increase clinician confidence and comfort with using this new innovation. This relates to the DNP Essential IV; information systems/technology and patient care technology for the improvement and transformation of care (American Association of Colleges of Nursing, 2006). The use of telemental health care and its trial of use require the APRN to analyze and communicate the critical elements that are needed to ensure that the clinicians are exposed to, and able to use, the telemental health care technology. Established guidelines should be used to develop the use of the videoconferencing equipment and computer. Ease-of-use technology with a minimal need for training can reduce concerns the providers provided in the original survey. On-site or easily available technical support and backup would be essential to increase confidence in being able to use telemental health in an efficient, productive manner (Helitzer et al., 2003).

Limitations

While offering insight into the potential for telemental health care at University X, this project has several limitations that should be considered when interpreting the results. The small, single-site sample size limits the generalizability of the findings. Expanding the study to include mental health care providers in the surrounding area of University X could be beneficial. The small number of participants with previous or current use of telemental health prevented useful comparison with nonusers. Additionally, the questionnaire used in the project was originally developed for the more general use of telemedicine and, although adapted for telemental health for this project, there were areas that providers thought were inappropriate for the focus of telemental health. The location of the study was at a large university in the upper northwest of the United States. No incentive was used for the initial survey and, with a response rate of 39%, there could be an improvement if there was some form of incentive for future projects.

Summary

University X's mental health care concerns regarding telemental health, including disruption of established routine, inconvenience, loss of personal contact, effectiveness, and malpractice/liability, can be found within other studies regarding the use of telemental health. These were expected, and the Diffusion of Innovation theory provided resources to further evaluate the providers' knowledge and beliefs in order to develop a plan to further diffuse this innovation in the mental health care providers' practice.

Mental health care providers at University X (CC and SHC) have identified areas about which they have concerns regarding telemental health care, but have also indicated an increased awareness of how telemental health can increase access to mental health care for University X students. Telemental health is especially relevant in regard to the number of students who don't live on or near campus and can't physically be on campus. Research has shown that telemental health care is a method to increase access for college students to effective, appropriate, psychiatric care with minimal disruption to students' daily lives (Deslich et al., 2013).

Providers' support for telemental health is crucial for its diffusion, and concerns such as personal barriers, clinical workflow and technology barriers, and licensure can be addressed with education and training. Telemental health advancements, such as extensive opportunities for training, increased evidence supporting positive telemental health outcomes, and improved technology that improve provider convenience, can address these provider concerns (Brooks et al., 2013). While the results of the initial survey did not indicate a need for telemental health training, the post-presentation survey indicated that this may be a useful next step in developing a telemental health program at University X.

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APPENDICES

APPENDIX A

REQUEST TO USE THE TELEMEDICINE SURVEY

Hello Dr. Grigsby,

My name is Kathy Damberger and I am a student at [REDACTED] working towards completion of the Doctor of Nursing Practice (DNP) degree. I am currently in the process of completing my capstone project proposal which focuses on the attitudes and knowledge of telemental health of providers on [REDACTED]. My project aims to assess the knowledge and beliefs of telemental health care at the counseling center and student health center at [REDACTED]. I am requesting permission to have access to and use your Telemedicine User Survey and the Telemedicine Nonuser Survey from the *Specialist physicians' knowledge and beliefs about telemedicine: A comparison of users and nonusers of the technology* study in 2007. My plan would be to adapt these surveys for my capstone project and use them as the primary survey instrument.

Thank you for your consideration and feel free to contact me with any questions.

Respectfully,

Kathy Damberger, APRN, WHNP-BC, PMHNP-DNP-student

[REDACTED]
College of Nursing
[REDACTED]

APPENDIX B

TELEMEDICINE SURVEY PERMISSION TO USE

Kathy,

Yes, you can modify them as needed. Please cite the source. That will suffice.

Thanks, I'm feeling better this morning.

Take care,

Jim

Dr. Grigsby,

Thank you so much! This is a tremendous help. Would I have your permission to amend the surveys to fit my project?

Hope you are feeling well soon.

Respectfully,

Kathy Damberger

Hi Kathy,

I found them, unexpectedly. Attached are all four surveys we used in our research project. Let me know if you have any questions.

Best wishes,

Jim

APPENDIX C

INVITATION FOR SURVEY

Dear Providers:

You are invited to participate in a research study titled “Telemental Health: Provider attitudes and perceptions.” This study is being conducted by Kathleen Damberger and her DNP capstone committee from the College of Nursing at [REDACTED]. The purpose of this study is to assess University X provider attitudes and perceptions of telemental health. Telemental health involves the provision of prevention services, assessment, diagnosis, treatment and follow up for mental illness by a provider with videoconferencing.

You were selected to be contacted because you work in the critical area of providing mental health care to the students of University X. By nature of your occupation, you have a unique and important perspective on mental health care on this campus.

In this study, you will be asked to complete an electronic survey. Your participation in this study is voluntary and you are free to withdraw your participation from this study at any time. However, you can help very much by taking the time to share your experiences and observations. The survey should take only 15 minutes to complete. Your answers are completely confidential and will be released only as summaries in which no individual’s answers can be identified.

This survey has been approved by the Institutional Review Board of [REDACTED]. While you will not experience any direct benefits from participation, information collected in this study may benefit patients regarding mental health care at University X.

If you have any questions regarding the survey or this research project in general, please contact Kathleen Damberger at [Kathleen.damberger@\[REDACTED\]](mailto:Kathleen.damberger@[REDACTED]) or her advisor [REDACTED]. If you have any questions concerning your rights as a research participant, please contact the IRB of [REDACTED].

By completing and submitting this survey, you are indicating your consent to participate in the study. Your participation is appreciated.

Kathleen Damberger, Doctoral Candidate, [REDACTED]
[REDACTED]

PLEASE CLICK ON THE SURVEY LINK BELOW AND PROVIDE US WITH YOUR FEEDBACK NO LATER THAN **November 24, 2017**

Telemental Health Users (Current and Former Users) Survey
[REDACTED]

Telemental Health Nonuser Survey
[REDACTED]

APPENDIX D

REMINDER FOR SURVEY

Thanks to all of you who have already responded to the survey titled “Telemental Health: Provider attitudes and perceptions.” If you have not yet participated, please take a few minutes to do so now by clicking the link below. By nature of your occupation, you have a unique and important perspective on mental health care on this campus. I really want to know more about your perceptions, and surveys such as this are the best way! Your participation in this study is voluntary and you are free to withdraw your participation from this study at any time.

Here are the links: Please pick the most appropriate based on your experience with telemental health.

Telemental Health Users (Current and Former Users) Survey

[REDACTED]

Telemental Health Nonuser Survey

[REDACTED]

Sincerely,

Kathleen Damberger, Doctoral Candidate, [REDACTED]

APPENDIX E

POST-PRESENTATION SURVEY

Post Presentation Survey regarding Telemental Health Care

Please select the most appropriate response to the following statements.

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Not Applicable
I plan to use telemental health in my practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would consider using telemental health in my practice for follow-up care.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not know enough about telemental health technology and its applications to use telemental health in my practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be willing to participate in CME regarding telemental health via videoconferencing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

By completing and submitting this survey, you are indicating your consent to participate in the study. Your participation is appreciated.

APPENDIX F

RESOURCE HANDOUT FOR PRESENTATION

Useful Websites Providing Practical Information Regarding Telemental Health Practice

(American Academy of Child & Adolescent Psychiatry
https://www.aacap.org/AACAP/Clinical_Practice_Center/Business_of_Practice/Telepsychiatry/Telehealth_Websites.aspx)

General Information

AMERICAN TELEMEDICINE ASSOCIATION (ATA)

<http://www.americantelemed.org/>

The American Telemedicine Association (ATA) is an international resource and advocate promoting the use of advanced remote medical technologies. ATA and its diverse membership, works to fully integrate telemedicine into transformed healthcare systems to improve quality, equity and affordability of healthcare throughout the world. The ATA website provides comprehensive information on developing standards, technology, applications, vendors, and other needs for telehealth providers.

UNIVERSITY OF COLORADO (UC) TELEMENTAL HEALTH GUIDE “ELIMINATING MENTAL HEALTH DISPARITIES”

<http://www.tmhguide.org/>

This Telemental Health Guide is a very informative website developed by the UC telemental health group with funding from the Substance Abuse and Mental Health Services Administration (SAMHSA) to provide an overview of telemental health (TMH) for the clinician, administrator, policy maker, consumer, and media. There is a wealth of helpful information addressing TMH across the lifespan, setting, and stakeholder. The section “Clinicians and Administrators” provides excellent information about the practical steps necessary to establish a telemental health program. This section covers practical applications for conducting a telemental health session, ranging from room setup, billing codes, suggestions on how to support and sustain telemental health services, and tools for promoting these services

CENTER FOR TELEHEALTH AND E-HEALTH LAW (CTEL)

<http://ctel.org/>

Licensure requirements are particularly important, both for interstate and international practice. CTel’s mission is to overcome the legal and regulatory barriers that impact the utilization of telehealth and related e-health services. It has established itself as the “go-to” legal and regulatory telehealth organization – providing vital support to the community on topics such as: physician and nurse licensure; credentialing and privileging; Medicare and Medicaid reimbursement; and private insurance payment policies. CTel provides a summary of findings regarding malpractice and telemedicine, which can be accessed here.

TELEHEALTH TIMES: YOUR AUTHORITATIVE SOURCE ON TELEMEDICINE

<http://www.telehealthtimes.com/about/>

TelehealthTimes.com is a source of information about the telehealthcare and telemedicine industry. The sites includes telehealth and telemedicine news, reviews of the latest telehealth videoconferencing equipment, software, tools and accessories, active discussion forums, a large selection of sample galleries, a telehealth database and buyers guide and the most comprehensive database of telehealth and telemedicine software and equipment features and specifications.

NORTHERN ARIZONA REGIONAL BEHAVIORAL HEALTH AUTHORITY (NARBHA)

<http://www.rbha.net/presentations/RealWorldTelepsychRev/player.html>

This website contains a slideshow that explores the following topics: provisions of real world telepsychiatry, the practical considerations and of getting organized, telemedicine challenges, how telemedicine works and diagnostic instruments and exams. The website also has a demonstration of conducting the Abnormal Involuntary Movement Scale (AIMS) through videoteleconferencing (VTC).

TELEMENTAL HEALTH INSTITUTE

<http://centerforonlinecounseling.com>

This website offers online courses in a variety of delivery methods i.e. webinars, individual courses, and group courses that cover a range of topics such as theory and practice, legal/ethical issues, reimbursement and advanced clinical telepractice models for success.

Reimbursement Information Relating to Telemedicine and Telemental Health

CENTER FOR MEDICARE AND MEDICAID SERVICES (CMS)

<https://www.cms.gov/Manuals/>

Telemental health providers should review information at the CMS website prior to any billing to determine any state-specific guidelines. Some client sites are eligible for Medicare/Medicaid's originating site fees related to the videoteleconferencing (VTC) coordinator assistance. This [web site](#) managed by the Centers for Medicare and Medicaid Services (CMS) provides the definition of telemedicine, telemedicine terms, provider and facility guidelines, reimbursement and approach to reviewing telemedicine. This [information](#) is also helpfully summarized by the Center for Telehealth and e-Health Law (CTeL). This [link](#) directs to the Medicare Claims Processing Manual. See #100-04, Ch. 12, # 190 (page 7 of 228) regarding "Medicare payments for Telehealth Services."

AMD GLOBAL TELEMEDICINE.

http://www.amdtelemedicine.com/telemedicine-resources/private_payer.html

This is a reference to support private payer reimbursement for telemedicine clinical consults. The information contained in this website is the result of a survey jointly sponsored by the American Telemedicine Association and AMD Global Telemedicine. The directory contains a listing of: telemedicine providers receiving private payer reimbursement; private payers providing reimbursement; state legislation mandating private payer reimbursement of telemedicine services

This [link](#) directs to information regarding private payer reimbursement by state and this [link](#) directs to helpful information regarding private payer telemedicine programs.

REIMBURSEMENT HANDBOOKS:

<http://crihb.org/files/Telemedicine-Reimbursement-Handbook.pdf>

Some states provide handbooks regarding reimbursement. It is recommended that telemental health providers conduct internet searches to determine whether there are existing documents relevant to their state's reimbursement guidelines. If these are not in place, reviewing documents by other states can also aid in advocacy efforts within the provider's home state.

RURAL HEALTH CARE PROGRAMS:

<http://transition.fcc.gov/wcb/tapd/ruralhealth/>

The Federal Communications Commission supports the Rural Healthcare Program that matches line charges so that rural areas have rates that are competitive with urban rates in that state. Information about this program can be obtained through their website above.

Relevant Publications

- AMERICAN MEDICAL ASSOCIATION: *Policy Statement H-480.969*: The promotion of quality telemedicine: <https://ssl3.ama-assn.org/apps/ecomm/PolicyFinderForm.pl?site=www.ama-assn.org&uri=%2fresources%2fhtml%2fPolicyFinder%2fpolicyfiles%2fHnE%2fH-160.937.HTM>
- AMERICAN PSYCHOLOGICAL ASSOCIATION (APA): American Psychological Association ethical principles of psychologists and code of conduct: <http://www.apa.org/ethics/code/index.aspx>
- AMERICAN PSYCHOLOGICAL ASSOCIATION ETHICS COMMITTEE (APA): The APA's statement on services by telephone, teleconferencing, and internet: <http://www.apa.org/ethics/education/telephone-statement.aspx>
- AMERICAN PSYCHOLOGICAL ASSOCIATION. PRACTICE DIRECTORATE, LEGAL & REGULATORY AFFAIRS: Telehealth 50-state review: <http://www.apapracticecentral.org/advocacy/state/telehealth-slides.pdf>
- FEDERAL COMMUNICATIONS COMMISSION: *National Broadband Plan, See Chapter 10, Health Care*: <http://transition.fcc.gov/national-broadband-plan/national-broadband-plan.pdf>
- NATIONAL ASSOCIATION OF SOCIAL WORKERS AND ASSOCIATION OF SOCIAL WORK BOARDS STANDARDS FOR TECHNOLOGY AND SOCIAL WORK PRACTICE: <http://www.socialworkers.org/practice/standards/NASWTechnologyStandards.pdf>
- AMERICAN PSYCHOLOGICAL ASSOCIATION, TASK FORCE ON THE DELIVERY OF SERVICES TO ETHNIC MINORITY POPULATIONS: *Guidelines for Providers of Psychological Services to Ethnic, Linguistic, and Culturally Diverse Populations*: <http://www.apa.org/pi/oema/resources/policy/provider-guidelines.aspx>

- FEDERATION OF STATE MEDICAL BOARDS PUBLIC POLICY COMPENDIUM: Telemedicine and License Portability policy documents 140.001 – 140.007: http://www.fsmb.org/pdf/GRPOL_Public_Policy_compendium.pdf
- TELEMENTAL HEALTH STANDARDS AND GUIDELINES WORKING GROUP (co-chaired by Grady B, Myers K, Nelson EL): *Practice Guidelines for Videoconferencing-based Telemental Health*. American Telemedicine Association; *Practice Guidelines for Videoconferencing-Based Telemental Health*; October, 2009: <http://www.americantelemed.org/docs/default-source/standards/practice-guidelines-for-videoconferencing-based-telemental-health.pdf?sfvrsn=6>
- TELEMENTAL HEALTH STANDARDS AND GUIDELINES WORKING GROUP (co-chaired by Grady B, Myers K, Nelson EL): Evidence based Practice for Telemental Health. American Telemedicine Association; July 2009. <http://www.americantelemed.org/docs/default-source/standards/evidence-based-practice-for-telemental-health.pdf?sfvrsn=4>
- GUPTA, A. AND SOA, D. (2010). The Constitutionality of Current Legal Barriers to Telemedicine in the United States: Analysis and Future Directions of its Relationship to National and International Health Care Reform. *Health Matrix: Journal of Law-Medicine*. Available at Social Science Research Network. <http://ssrn.com/abstract=1549765>
- TURVEY C, CHAIR, AND THE TELEMENTAL HEALTH PRACTICE GUIDELINES WORK GROUP: *Practice Guidelines for Video-based Online Mental Health Services*: American Telemedicine Association; May 2013. <http://www.americantelemed.org/docs/default-source/standards/practice-guidelines-for-video-based-online-mental-health-services.pdf?sfv>

APPENDIX G

TELEMENTAL HEALTH NONUSER SURVEY

Telemental Health Nonuser Survey

Q1) What is your current area of practice?

- a. Counseling Center
- b. Student Health Center

Q2) What is your age? _____

Q3) What is your gender?

- a. Male
- b. Female

Q4) How many years have you been practicing in your present community? _____

Q5) How many years have you been practicing in your specialty area? _____

Q6) What is your specialty (self-declared)? (Note: you do not need to have board certification in your self-declared specialty)

Q7) List the state(s) where you are currently licensed to practice

Q8) List the state(s) your practice area serves

Q9) Type of site(s) where you practice: (Mark all that apply)

Hospital, public health center, community/migrant health center, rural health center, physicians' private practice, other (specify)

Q10) What is the approximate number of patients in your practice

Q11) Please provide an estimate of the percent of your patients who payer is:

% Medicare (including managed care); % Medicaid (including managed care); % Other private insurance (including managed care); % Workers Compensation; % Uninsured/uncompensated; % Other (specify)

Q12) Most of my knowledge of telemental health has come from: (Mark all that apply)

Colleagues; Medical Literature; Formal telemedicine training programs; medical or postgraduate training; Presentations; Mass media; Professional association meetings/conference CME; Electronic media; Other (specify)

Q13) Approximately how many times in the last 12 months have you used telemental health for any purpose (e.g., patient encounter, continuing education, or administrative) or referred any of your patients for telemedicine?

Q14) How much time in (in minutes) on average does it take you to get from your office to the place where the telemental health equipment is located?

Q15) How would you describe your knowledge of telemental health? (Mark one of the following): Not at all knowledgeable; Somewhat knowledgeable; Knowledgeable; Very knowledgeable.

- Q16) For the following items, please select the most appropriate response (strongly agree, somewhat agree, somewhat disagree, strongly disagree, not applicable)
1. I am generally one of the first among my specialty to adopt promising new technology.
 2. I do not know enough about telemental health technology and its applications to expand telemental health in my practice.
 3. Patients are likely to receive better quality care when they see the provider in person.
 4. Using telemental health would increase the number of patients in my practice
 5. Using telemental health would expand my network of professional colleagues
 6. I plan to use telemental health in my practice
 7. I would consider using telemental health in my practice for initial office visits
 8. I would consider using telemental health in my practice for follow-up care
 9. If interactive video were available in my office, I would use it
 10. Despite possible inconvenience, I think patients would prefer to see a provider in person than over an interactive video system
 11. The use of telemental health would not be an efficient use of my time
 12. I am concerned about possible liability issues associated with the use of telemental health
 13. I do not like the loss of personal contact associated with telemental health.
 14. Using telemental health would increase my risk of being sued for malpractice
 15. I am willing to put-up with some inconvenience (e.g., travel to another office, setup time, scheduling) in order to provide telemental health
 16. I would be willing to participate in CME regarding telemental health via videoconferencing
 17. More research is needed on the effectiveness of telemental health before I would refer patients for telemental health
 18. If colleagues adopted telemental health, it would influence me to think about it also
 19. Telemental health could improve continuity of care for patients
 20. I prefer standard charting to an electronic medical record.
 21. I would be likely to provide consultation using interactive video if I could do it by computer from my office
 22. If additional credentialing and licensure procedures were required, that would discourage me from using telemental health.

- Q17) Telemental health might be effective for the following types of care: please select the most appropriate response (strongly agree, somewhat agree, somewhat disagree, strongly disagree, not applicable) Emergency care; Preventative services; Chronic condition management; Acute, nonemergency care.

- Q18) For the following items, please select the most appropriate response (strongly agree, somewhat agree, somewhat disagree, strongly disagree, unknown):
1. The current location of telemental health facilities is convenient for me to use regularly
 2. Coordinating telemental health appointments would be disruptive to my established office routine
 3. I would have to be compensated on a par with in-person patient visits before I would agree to use telemental health
 4. I do not think an adequate patient assessment can be conducted without the patient being present physically
 5. Those of my colleagues who have used telemental health have been satisfied with their patient outcomes
 6. I would prefer “store & forward” (i.e., computer-based transmission of images and information for later interpretation) over real-time interactive video consultation
 7. I think that my specialty is one that can readily be adapted to the use of interactive video for consultation

Q19) Is store-and-forward telemental health useful (or would it be likely to be useful) in your specialty?
Yes or No

Q20) Assuming store-and-forward telemental might not work for all the cases on which you consult, for what approximate percentage do you think it might be feasible?

Q21) Assuming interactive telemedicine might not work for all the cases on which you consult, for what approximate percentage do you think it might be feasible?

Q22) All things being equal, would you prefer to consults with a primary care provider about a patient using store-and-forward telemedicine or interactive video? (select the answer that best applies).

Strongly prefer store-and-forward; Somewhat prefer store-and-forward; no clear preference; Somewhat prefer interactive video; Strongly prefer interactive video.

Q23) Please share your thoughts regarding the overall benefits and disadvantages to using telemental health care.

APPENDIX H

TELEMENTAL HEALTH USER SURVEY

Telemental Health Users (Current and Former) Survey

Q1) What is your current area of practice?

- c. Counseling Center
- d. Student Health Center

Q2) What is your age? _____

Q3) What is your gender?

- c. Male
- d. Female

Q4) How many years have you been practicing in your present community? _____

Q5) How many years have you been practicing in your specialty area? _____

Q6) What is your specialty (self-declared)? (Note: you do not need to have board certification in your self-declared specialty)

Q7) List the state(s) where you are currently licensed to practice

Q8) List the state(s) your practice area serves

Q9) Type of site(s) where you practice: (Mark all that apply)

Hospital, public health center, community/migrant health center, rural health center, physicians' private practice, other (specify)

Q10) What is the approximate number of patients in your practice

Q11) Please provide an estimate of the percent of your patients who payer is:

% Medicare (including managed care); % Medicaid (including managed care); % Other private insurance (including managed care); % Workers Compensation; % Uninsured/uncompensated; % Other (specify)

Q12) Most of my knowledge of telemental health has come from: (Mark all that apply)

Colleagues; Medical Literature; Formal telemedicine training programs; medical or postgraduate training; Presentations; Mass media; Professional association meetings/conference CME; Electronic media; Other (specify)

Q13) Approximately how many times in the last 12 months have you used telemental health for any purpose (e.g., patient encounter, continuing education, or administrative) or referred any of your patients for telemedicine?

Q14) What are you common uses of telemental health technology? (Mark all that apply)

Administrative; Continuing medical education; Second opinion; Diagnosis; Follow-up, Emergency; Chronic disease management; Other (specify)

Q15) How many times have you been referred a patient for a telemental health consultation in the last six months?

- Q16) If you've used telemental health, did it involve: (Mark all that apply):
 Interactive video; Store-and-forward image/text transmission; Shared computer screen images with audio; Telemetry (e.g. for certain diagnostic tests-real time); Other (specify)
- Q17) How much time (in minutes) on average does it take you to get from your office to the place where the telemental health equipment is located?
- Q18) How would you describe your knowledge of telemental health? (Mark one of the following): Not at all knowledgeable; Somewhat knowledgeable; Knowledgeable; Very knowledgeable.
- Q19) For the following items, please select the most appropriate response (strongly agree, somewhat agree, somewhat disagree, strongly disagree, not applicable)
- 1.I am generally one of the first among my specialty to adopt promising new technology.
 - 2.I do not know enough about telemental health technology and it applications to expand telemental health in my practice.
 - 3.Technical problems with the telemental health equipment interfere with telemental health consultations.
 - 4.Patients are likely to receive better quality care when they see the provider in person.
 - 5.The quality of the sound during a telemental consult is adequate for clinical purposes.
 - 6.My access to the telemental health equipment and facilities is limited by other uses of the system.
 - 7.Using telemental health has increased the number of patients in my practice.
 - 8.Using telemental health has expanded my network of professional colleagues.
 - 9.I do not use telemental health enough to make it a regular part of my practice.
 - 10.I use telemental health in my practice time for initial office visits.
 - 11.I use telemental health in my practice time for follow-up care.
- Q20) Telemental health is effective for the following types of care: please select the most appropriate response (strongly agree, somewhat agree, somewhat disagree, strongly disagree, not applicable)
 Emergency care; Preventative services; Chronic condition management; Acute, nonemergency care.
- Q21) For the following items, please select the most appropriate response (strongly agree, somewhat agree, somewhat disagree, strongly disagree, not applicable):
1. If interactive video were available in my office, I would use it
 2. I am satisfied with the quality of care my patients receive with telemental health
 3. The use of telemental health is not an efficient use of my time
 4. I am concerned about possible liability issues associated with the use of telemental health.
 5. The inconvenience involved in telemental health is greater than any benefits I might receive.
 6. I do not like the loss of personal contact associated with telemental health
 7. Using telemental health increase my risk of being sued for malpractice.
 8. I am willing to put up with some inconvenience (e.g. travel to another office, setup time, scheduling) in order to provide telemental health
 9. I am willing to participate in CME regarding telemental health via videoconferencing
 10. More research is needed on the effectiveness of telemental health before I will feel comfortable expanding its use in my practice

11. My use of telemental health has been influenced by the opinions of my colleagues.
12. Telemental health improves continuity of care for patients
13. I prefer standard charting to an electronic medical record
14. Credentialing and licensure for telemental health are burdensome.
15. I have adequate technical assistance available to me during telemental health consultations
16. The telemental health equipment available to me is conveniently located
17. I don't think an adequate patient assessment can be conducted without the patient being physically present
18. Coordinating telemental health appointments disrupts my established office routine
19. The telemental health technology available to me is well suited to the needs of my patient population.
20. The current Medicare reimbursement rate for telemental health consults is adequate for my level of participation
21. I would have to be compensated on a par with in-person patient visits before I would expand my use of telemental health
22. Most of the consults I do could be accomplished using interactive telemental health
23. In most cases, I am able to conduct a thorough assessment with a patient using interactive video.
24. Those of my colleagues who have used telemental health have found it an acceptable means of seeing patients
25. Interactive video technology is more acceptable for second opinions or informal consults than for diagnosing new patients
26. In general, I would prefer "store-and-forward" (i.e., computer-based transmission of images and information for interpretation) over real-time interactive video consultation
27. Reduced travel to distant communities to see patients is an important consideration in my use of telemental health
28. My use of telemental health system has increased over time.

Q22) Is store-and-forward telemental health useful (or would it be likely to be useful) in your specialty? Yes or NO

Q23) Assuming store-and-forward telemental might not work for all the cases on which you consult, for what approximate percentage do you think it might be feasible?

Q24) Assuming interactive telemedicine might not work for all the cases on which you consult, for what approximate percentage do you think it might be feasible?

Q25) All things being equal, would you prefer to consult with a primary care provider about a patient using store-and-forward telemedicine or interactive video? (select the answer that best applies).

Strongly prefer store-and-forward; Somewhat prefer store-and-forward; no clear preference; Somewhat prefer interactive video; Strongly prefer interactive video.

Q26) Please share your thoughts regarding the overall benefits and disadvantages to using telemental health care.