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ABSTRACT
Rural areas have experienced higher than average healthcare workforce problems, especially concerning limited access to mental health services. Telepsychiatry may provide at least a partial solution, as it has improved access and quality of care available in rural environments despite implementation problems. As technology continues to advance access, telepsychiatry will also need to strengthen making access more readily available. Additional research is required to identify modalities and diverse methods that can be used to increase access to mental health services further and improve outcomes in rural and underserved areas.

Keywords
Access, benefit, rural communities, telehealth, tele-medicine, telepsychiatry

1 INTRODUCTION

In 2010, 19.3% of the population lived in rural areas (Ratcliffe et al., 2016). According to the United States Census Bureau, a rural area is any population, housing, or territory not defined as an urbanized area or urbanized cluster while an urbanized area contains 50,000 or more individuals and an urban cluster has at least 2,500 but less than 50,000 people (The United States Census Bureau, 2016).

Rural areas experience higher than average healthcare workforce shortages limiting accessibility to healthcare services (RHIhub, 2014). To illustrate, less than 10% of physicians practice in rural areas although 20% of the U.S. population lives in rural communities (Stanford School of Medicine, 2010). Geographic constraints are another challenge (Stanford School of Medicine, 2010). Residents travel further to access different and often limited services (Smalley et al., 2012). Some patients have conveyed substantial burden about time and money (Smalley et al., 2012). Lack of public transportation, distance, hazardous weather conditions, and environmental issues have been among other challenges exacerbated in this environment (Eberhardt and Pamuk, 2004).

For urban and rural areas, the incidence and prevalence of most behavioral disorders have been comparable (Hecke, 2012). A 2014 study found no significant difference in incidence or prevalence of major depression or severe mental illness (SMI) in large metropolitan and rural areas (Breslau et al., 2014). Specifically, a 5.6% prevalence of major depression and SMI was found in large metropolitan areas while a 6% prevalence of major depression and SMI was observed in rural areas (Breslau et al., 2014). Be that as it may, rural areas provide limited availability of mental health services (NRHA, 2017; Douthit et al., 2015). As of September 2017, 59.36% of mental health provider shortage areas were in non-metropolitan areas (HRSA, 2017). Thus, residents were less likely to receive treatment (Eberhardt and Pamuk, 2004). This has led to disparities between rural and urban residents (NRHA, 2017).

Rural areas have higher depression, domestic violence, child abuse, and suicide rates compared to their urban counterparts (Douthit et al. 2015). A lack of providers in addition to other challenges has led to many states developing behavioral health models (Hecke, 2012). Alternatively, telehealth has been utilized. Varying definitions, policies, and regulations across states surround how telehealth has been used (CCHP, 2017). Telehealth, also known as telemedicine, has used technology to deliver healthcare services and clinical information through telecommunications technology (HRSA, 2013; ATA, 2016; AHRQ, 2016).

Telehealth included direct, electronic patient-to-provider interactions in addition to medical devices that transmit and collect health information (ONC, 2017). Medical tools involved have included smartphone applications, activity trackers, automated

reminders, and blood glucose monitors (ONC, 2017). Video conferencing, the internet, store-and-forward imaging, streaming media, and terrestrial and wireless communications technologies have also been utilized to expand access to healthcare services (HRSA, 2015). Tele-behavioral health, also known as telepsychiatry, can be provided in nursing homes, clinics, schools, and other localized community settings (HRSA, 2013). As of 2016, 65% of hospitals in the U.S. have used or implemented telehealth (AHA, 2016).

The purpose of this research was to examine the benefits of telepsychiatry for adults living in rural communities to determine if telepsychiatry improved access and quality. We posit that utilization of telepsychiatry in rural areas increases accessibility to mental health services for adults, and also that the integration of telepsychiatry in primary healthcare settings improved quality of mental health care for rurally located adults.

2 RESULTS

Access to mental health care

Practitioners, psychiatrists, and researchers have long recognized the mental health obstacles exhibited by rural communities and the need for trained mental health professionals (Smalley et al., 2010). In 2015, 46.2 million or 14% of the nation lived in rural communities (U.S. Department of Agriculture, 2016). Rural areas reported a higher percentage of adults with any mental illness, 18.3%, and SMI, 4.7%, compared to large metro areas where 17.3% recorded any mental illness and 3.8% reported SMI (RHIhub, 2017). Unfortunately, are numerous barriers limit access to mental health services in rural areas of the U.S., including transportation infrastructure, limited numbers of providers, poverty, social stigma, and lack of insurance (Cohn and Hastings, 2013).

Rural patient access to appropriate and adequate mental health services has been limited by various barriers including accessibility, availability, and acceptability. Utilization of telepsychiatry has shown to overcome these limitations by allowing psychiatrists to connect to health personnel staff and patient from a distance while keeping treatment in the patients' community which has proven to help better manage their disease, their symptoms, and lives (Shore, 2013; Trondsen et al., 2012). A range of mental health issues has shown to be efficiently handled using telepsychiatry (Trondsen et al., 2012).

The majority of patients of all ages report high satisfaction with telepsychiatry (Wynchank and Fortuin, 2010). Research has established that increase in patient satisfaction leads to decrease missed appointments, 7%-10% missed appointments compared to non-telepsychiatry rates of 35%-42% of missed visits (Saeed, Diamond and Bloch, 2011). Research has shown that other benefits of telepsychiatry included saved time and reduced need to travel outside the community for services, and that psychiatric and psychological treatment delivered via telepsychiatry have the same clinical outcomes as therapy provided face-to-face (Egede et al., 2013; Fortney et al., 2015; Trondsen et al., 2012). Unfortunately, a review of the literature (Bolton and Dorstyn, 2015, p. 252) characterized most studies as "characterized by small and underpowered samples" such that "the equivalence of telepsychology and face-to-face psychotherapy could not be determined."

Referencing availability of mental health providers, telepsychiatry has been shown not necessarily to create resources, but to reorganize them (Grady, 2012). There has been a continued shortage of mental health providers. A nationally, over 75% of U.S. counties qualify as having a shortage, 85% of deficit stemming from rural areas, and half of all U.S. counties report no mental health providers (RHIhub, 2017; Smalley et al., 2010; Thomas et al., 2009). Research has shown the shortage of mental healthcare providers in rural communities have been attributed to lower incomes compared to peers in urban/metro settings, few social/educational opportunities, professional isolation, being overburdened by demand, and difficulties adapting to rural life (Cohn and Hastings, 2013; Smalley et al., 2010; Thomas et al., 2009).

Additionally, telepsychiatry has proved to alleviate professional isolation, expand networks that provide telepsychiatry, and increase collaboration between rural mental health clinics and urban/metro mental health clinics (Chung-Do et al., 2012; Grady 2012). Programs such as East Carolina University Telemedicine Center have developed, and expanded services provided by the center by adding sites in 13 eastern North Carolina counties using only three psychiatrists to offer patient services (Saeed, Diamond, and Bloch, 2011). Similar results of expansion have been evident in West Virginia where the Department of Behavioral Medicine and Psychiatry in conjunction with WVU Mountaineer Doctor Television has operated 35 telepsychiatry clinics in 16 counties (West Virginia University, 2015).

The stigma associated with mental health has been shown to act as a barrier to mental health (RHIhub, 2017; Gamm, Stone and Pittman, 2010). Those living in rural areas often have believed they have less privacy and confidentiality, and they have proven a lack of understanding and knowledge of mental illness, and lack of perceived need for mental health care, which causes hesitation in seeking treatment (Bryant et al., 2013).

Quality issues

When patients have used telepsychiatry in the form of video conferencing, it has been deemed equivalent to face-to-face care received in a physician's office (Fortney, 2015; Morland et al., 2013; Saeed et al., 2017; Whealin et al., 2015). Studies have proven that telepsychiatry has been a method used to provide continuous quality care to several types of adult populations who would have otherwise been left with their mental illnesses untreated (Deslich et al., 2013; Shore, 2015; Saeed et al., 2017).

Rurally located adults usually only have access to a primary care physician for their physical care, as well as their mental care. This has often led to misdiagnosed mental illnesses, lack of appropriate referrals to psychiatrists, and medication mismanagement (Saeed et al., 2017). The integration of mental health care into primary health facilities using a form of telehealth such as telepsychiatry has been a method that has increased the quality of care while treating adults in rural communities (Riding-Malon and Werth, 2014, Lambert et al., 2016). There have been many successful studies developed regarding the integration of telepsychiatry into primary health in rural areas (Fortney et al., 2015; Guerrero et al., 2017; Lu et al., 2014).

In 2012 the U.S. VA was responsible for 179,146 telepsychiatry sessions with rurally located veterans (Fortney et al., 2015). Mental disorders have been diagnosed in more than 30% of Veterans that have used healthcare through the U.S. Department of Veteran's Affairs (VA). Approximately 41% of veterans who are currently using the VA for healthcare live in a rural community (Whealin et al., 2015).

Due to geographical location, access to mental health facilities is scarce, and there are veterans that do not want to leave their homes due to trauma endured while overseas in countries such as Afghanistan and Iraq (Whealin et al., 2015). Telepsychiatry has been a successful treatment method for veterans and other adult patients who felt more comfortable being treated without having to be face-to-face with their psychiatrist (Ganzini et al., 2013; Waugh, Voyles and Thomas, 2015). When telepsychiatry has been used as a treatment with veterans who utilize the VA for healthcare, admissions to hospitals and facilities due to psychiatric issues have decreased by 25 % (Lu et al., 2014).

In a 2017 study, performed by a psychiatric department at Wayne State University in Michigan, Amirsadri et al. (2017) utilized telepsychiatry as a treatment modality after receiving many calls from an elderly patient's daughter asking them to care for her mother who had been diagnosed with schizophrenia in the past. The homebound old patient lived in a rural area and had not followed up on her mental health care in 20 years. Combining in-person care with a virtual type of care such as telepsychiatry was referred to as 'hybrid care' (Hilty and Yellowlees, 2015). The "hybrid care" method used in Armirsadri's et al. (2017) study consisted of a social worker who traveled to the patient's home and used a tablet computer to video conference with a psychiatrist. The case study demonstrated that the patient's mental health was appropriately assessed, and she reported great improvement, but the patient's physical health issues were also assessed and adequately referred by the social worker to other providers.

Another 2017 study took place in Hawaii, in a rural neighborhood island. This rural community did not have any psychiatrists available to care for 1,500 patients who utilized a federally qualified community health center (FQHC). A grant-funded Behavior Health Integration team (BHI) was established as a route to assist in this disparity, and a psychiatrist, who was readily available through video-teleconferencing, was integrated as part of the patients' primary care provided by the FQHC (Guerrero et al., 2017). The integration of psychiatric consultations through video-teleconferencing was very well received by the Hawaiian rurally located adult patients (Fortney et al., 2015; Guerrero et al., 2017). Finally, because the BHI team ensured that psychiatric care was integrated, it has been utilized on five to ten patients a month (Guerrero et al., 2017). Similarly, in a pilot project designed to evaluate a teleconferencing clinical psychology service, the majority of clients reported that they were satisfied with this therapeutic approach, and some expressed a preference for it because they felt it was less confrontational than face-to-face therapy and made them feel more in control of the therapeutic process (Simpson, Deans and Brebner, 2001).

Cost issues

Cost analysis of telepsychiatry is mandatory (Jones, 2001), especially in today's reimbursement-based behavioral healthcare world (Waugh, Voyles and Thomas, 2015). Early studies (see Hyler and Gangure, 2004 for a review) regarding the cost-effectiveness of telepsychiatry yielded mixed results, especially as this approach to mental health care is not suitable for all patients (Norman, 2006). The situation is changing, however, as technology advances and policies shift (Waugh, Voyles and Thomas, 2015), and telepsychiatry is now thought to provide cost-savings to practitioners and healthcare organizations (Brauser, 2012; Deslich et al., 2013; Deslich, Thistlethwaite and Coustasse, 2013). For example, Thomas et al. (2017) determined that telepsychiatry consultations for pediatric psychiatric emergencies, as measured by charges and time, were more cost-efficient from the perspective of the hospital system compared with usual care consisting of in-person consultation at a children's hospital main campus after transportation by ambulance. In a study of the homeless individual in India (a resource-poor country), the majority of whom suffered from long-term mental illness, a telepsychiatry model was found to be 50 times more economical than providing either mental health care at a tertiary care center or via community outreach service (Moirangthem et al., 2017).

The U.S. Government now recognizes telehealth, including mental health care, as an efficient and cost-effective alternative to face-to-face healthcare provision for Medicaid (SecureTelehealth, 2017) and Medicare (CMS, 2016), although there are dramatic variations in claims among states because regulations from state-to-state vary widely (Boyles, 2017). The private sector has adopted telemedicine, including telepsychiatry, even more quickly than the public one, with nearly 60% of employers providing coverage for telemedicine (Jaspin, 2016), and consequently, Griffin (2017) has described behavioral telehealth as "mainstream."

3 DISCUSSION

The purpose of this research was to examine how having access to telepsychiatry in rural geographic areas can improve the quality of mental health care, reducing the overall symptoms of mental health issues in adults. The results of the literature review have suggested that having access to telepsychiatry can assist the adult rural population in getting mental health care that they may not have received otherwise. Increased access to telepsychiatry to the rural mental adult population has been supported in this literature review. When telepsychiatry has been utilized by rurally located adults, the quality of care that this community receives to reduce mental health issues improves.

It should be a priority for rural areas to have the same access and quality of mental health care as surrounding urban areas (Nelson, 2013, Riding-Malon and Werth, 2014). Access to telepsychiatry has been established as a viable option for adults with mental illnesses living in rural areas. Using telepsychiatry as an option, psychiatric quality of care can be improved, and populations that do not have access can significantly benefit from this healthcare technology (Deslich et al., 2013).

Adults with mental illness who require psychiatric care and live in rural areas could experience personalized, patient-centered care with the utilization of telepsychiatry (Shore, 2015). Incorporating telepsychiatry in some capacity in the primary care setting, rural adults needing mental health treatment would be more likely to be exposed to integrated healthcare which would potentially increase their quality of care.

Telepsychiatry has the potential to impact the quality of care for patients, especially in areas that do not have access to specialists, such as rural communities. However, it's more widespread implementation has been limited by problems with reimbursement, issues with licensure, privacy/security/HIPPA concerns, lack of training, cooperation from physicians and technological limitations (Chandra, Pettry and Paul, 2005; Deslich et al., 2013; McGinty et al., 2006; Hyler and Gangure, 2004; Wang and Alexander, 2014).

4 CONCLUSIONS

Telepsychiatry utilization in rural areas has been demonstrated to have significant ability to transform care delivery and clinician productivity. The preponderance of the evidence indicates that telepsychiatry has increased access to mental health services for adults in rural areas, as well as improved mental healthcare delivery, and patient outcomes.

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