


2016

Impact of Distance, Diagnosis, and Demographics on Attendance for Rural Outpatient Treatment

Trey Howard Jensen
Walden University

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Walden University

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Trey Jensen

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Walden University
2016

Abstract

Impact of Distance, Diagnosis, and Demographics on Attendance for Rural Outpatient
Treatment

by

Trey Howard Jensen

MA, Argosy University, 2008

BA, Winona State University, 2006

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Missed psychotherapy appointments inhibit mental health treatment, limit the availability of treatment to those waiting for care, and reduce clinician revenue. Previous research has revealed that the factors that predict missed appointments vary depending on the geographic location in which that research is conducted. There is not a complete understanding of the characteristics of people who miss appointments in a rural context. This study used information from 281 client records to examine the predictive relationships among missed appointments and the distance traveled to the clinic, mental health diagnosis, age, and gender at a rural outpatient mental health clinic. The purpose of this research was to identify the factors that significantly predicted if clients missed 30% or more scheduled psychotherapy appointments. The health belief model was used as the framework. Logistic regression analysis revealed that clients with a diagnosis of depression, bipolar disorder, or anxiety were more likely to miss 30% or more appointments. The distance travelled to the clinic did not predict missed appointments. This finding deviates from results in previous literature which found that long travel distances increase the likelihood of missed appointments. This could be due to the geographic region or how the client records were selected in this study. This study can have a positive impact by informing rural mental health clinics of factors that may predict the likelihood of missed appointments. Clinics could then use the information to develop empirically-supported retention interventions. Retention interventions could promote social change by increasing appointment attendance, which could improve overall patient care and reduce health care waste accrued by missed appointments.

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Dedication

This dissertation is dedicated to my family and friends who demonstrated unwavering encouragement, love, and support to me while completing this project.

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Chapter 1: Introduction to the Study

Introduction

Missed outpatient psychotherapy appointments are a problem for individuals because they do not receive adequate mental health care that is recommended for them (Balikci, Erdem, Bolu, Bozkurt, & Uzun, 2013; Coodin, Staley, Cortens, Desrochers, & McLandress, 2004). Missed appointments are a problem for other potential clients who would have been able to attend an appointment, but could not do so because an appointment time was blocked by someone who did not show up at the appointed time. Missed appointments are also a problem for therapy providers who experience wasted time and lost income (Coodin et al.). This chapter introduces the nature of the problem, why missed appointments are a problem for clients as well as for clinicians, and how missed appointments are a drain on mental health funding. This chapter also contains descriptions of the purpose and methodology of this archival study. The background of the research on missed appointments is presented in the next section.

Background

Findings from research have revealed that individuals with certain characteristics are more likely to miss appointments (Cuijpers et al., 2013; Gudjonsson & Main, 2008). Research has also shown that there are several challenges in conducting these studies and making it applicable to larger groups. Researchers who attempted to generalize adherence findings to the overall population reported significant but impractical results that could be used to improve attendance, which demonstrates a gap in this research area. An example of these findings is that people with depression are more likely to miss appointments than

those without depression (Worley, Trim, Tate, Hall, & Brown, 2010). Studies with a focus on individuals belonging to specific psychotherapy treatment groups (e.g., veterans) or individuals in a single geographic area (e.g., being treated at a single clinic or in a single county versus throughout a state) revealed more relevant results that could lead to better interventions to improve treatment attendance (Gudjonsson & Main).

Reducing missed appointments can decrease barriers to treatment such as long wait times (Balikci et al., 2013) and increase the availability of outpatient psychotherapy. By reducing missed appointments, underserved populations such as clients with low income and clients who live in rural areas can receive the recommended level of mental health care that can lead to a better quality of life (Oldham, Kellett, Miles, & Sheeran, 2012).

There has been considerable research that examined the relationship between predictor variables such as a client's diagnosis, distance traveled to treatment, age, and gender and treatment adherence to mental health services (Busby & Sajatovic, 2010; Paige & Mansell, 2013). Little research has been conducted on variables related to missed appointments as a form of adherence to treatment (Balikci et al., 2013; Coodin et al., 2004; Fenger et al., 2011). This study addressed the gap in the literature by examining which factors best predicted missed outpatient psychotherapy appointments. This research is important to those who avail themselves of psychotherapy and psychotherapy providers, and it can inform psychotherapy providers about creating interventions that can translate into reducing waste in healthcare costs and improve overall client care.

Missed Appointments to Psychotherapy as a National Economic Problem

Health expenditures in the United States approached \$2.6 trillion in 2010, of which \$688 billion was spent on outpatient services (U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics [CDC], 2014b). Approximately \$57.5 billion—6% of U.S. health care expenses—have been directed to some form of mental health care in 2006 (U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration [SAMHSA], 2013). Mark, Levit, Vandivor-Warren, Buck, and Coffey (2011) estimated that \$135 billion of public and private funds were spent on mental health treatment, including chemical dependency, in the United States in 2005. Unfortunately, the cost of mental health care rose to \$201 billion in 2013 (Roehrig, 2016) and it is estimated those costs will be \$280.5 billion by 2020 (SAMHSA, 2014).

Insel (2011) asserted that it is difficult to accurately measure the costs of mental health care because indirect costs, such as loss of work and the cost of disability benefits, might not be factored into the expenditure calculations. Part of the challenge of determining the cost of mental health care involves payment mechanisms. The United Kingdom has a single-payer health care system, which allows for relatively straightforward tracking and analysis of health care expenses on a national scale (Sims et al., 2012). The present study was not conducted in the United Kingdom, but calculating the costs of missed appointments in the United Kingdom can assist in approximating how missed appointments contribute to health care costs in the United States. Sims et al. (2012) estimated that in 1999, lost income on all outpatient medical appointments in the

United Kingdom was £360 million (\$582 million). In 2009, the cost of all outpatient medical appointments increased to approximately £600 million (\$970 million); the increase was attributed to approximately 12% of appointments not having been kept (Sanghara, Kravariti, Jakobsen, & Okocha, 2010; Stone, Palmer, Saxby, & Devaraj, 1999). The increase in wasted medical spending of around \$400 million would be a very conservative estimate. However, the financing of health care in the United States is quite different.

Unlike a socialized health care system that is funded completely by taxes, health care in the United States is funded both publicly through taxes as well privately through insurance (Oldham et al., 2012). Clients who are members of subsidized programs cause waste if they miss appointments, and consequently tax dollars are wasted. For example, MinnesotaCare is a subsidized health program used by 129,000 Minnesotans (“A Next-Generation Model,” 2013). The MinnesotaCare insurance program charges premiums based on income and family size, but approximately 95% of costs are subsidized by state and federal funds; these subsidies affect all those who pay taxes (Chun, 2016). Programs like MinnesotaCare often do not let providers bill for services, leading to less income, which is why wasted healthcare expenses is just a part of the problem of missed appointments.

Missed Psychotherapy Appointments as a Provider/Clinic Problem

Reports of missed appointment rates for outpatient psychotherapy range from a low of 12% to a high of 60% (Cruz, Cruz, & McEldoon, 2001; Defife, Conklin, Smith, & Poole, 2010; Mitchell & Selmes, 2007; Oldham et al., 2012; Rajasuriya, de Silva, &

Hanwella, 2010). The ideal percentage of missed appointments is zero, but most studies indicated that having a 10% or 15% missed appointment rate is within the range that has a negligible impact on patient outcomes, and as a result no intervention to improve attendance would usually be implemented (Rajasuriya et al., 2010). Missed appointments are an anticipated component of providing mental health care services, but when the percentage of missed appointments is high, this aspect of practice can affect a provider's ability to stay in business (Lester & Harris, 2007). Mental health clinics and therapists experience financial hardship as a result of missed appointments (Kwintner, 2011). Individual therapists and clinic- or hospital-based providers who lose income because of missed appointments attempt to recuperate those losses by increasing the amount they charge to others who show for services, which increases the overall price of healthcare services (Lester & Harris, 2007).

In addition to the direct loss of income, missed appointments have several indirect effects on clinicians and mental health clinics. Hasvold and Wooton (2011) found that missed appointments resulted in clinicians and support staff being less efficient in their work due to increased paperwork, which gave them less time for other job requirements. They also found scheduling staff required more time to prepare documents such as insurance forms and collect basic client information. Missed appointments resulted in time being spent calling the client (for purposes of outreach and client retention) who missed their appointment rather than contacting wait-listed clients who might be able to fill the appointment time (Branson, Clemmey, & Mukherjee, 2013). Wait lists could be lengthier than necessary because missed appointment times are inefficiently used.

When clients miss appointments, clinicians can feel discouraged and question whether they are effective practitioners (Centorrino et al., 2001; Oldham et al., 2012). Oldham et al. (2012) asserted clinicians' reactions of questioning their role in the client's decision to miss an appointment are both normal and responsible; these internal reflections can lead to changes in clinicians' approaches to improve attendance. Regardless of whether clinicians accept any portion of the blame, poor treatment adherence including missing appointments strains the client-clinician relationship (Oldham et al., 2012).

Missed Psychotherapy Appointments as an Individual Client Problem

Clients have reported feeling negative impacts from missed psychotherapy appointments because their mental health symptoms were not treated (Mazzotti & Barbaranelli, 2012; Smith & Glass, 1977). These negative impacts include being at risk of experiencing prolonged symptom duration and more frequent recurrences of symptoms (APA, 2000). For instance, the therapeutic treatment for major depression with suicidal ideation or suicidal attempts often requires more than a year of treatment (Alonzo et al., 2011). Clients with major depression who miss appointments and do not complete treatment through that 1-year period are at risk of suicidal ideation/behaviors recurring later in life (Brossart, et al., 2013). Issakidis and Andrews (2004) found those with depression who miss appointments and do not complete the entire course of treatment have increased occurrences of anxiety disorders (e.g., continued high anxiety levels, ineffective coping with symptoms). Cully, Jameson, Phillips, Kunik, and Fortney (2010)

found that people who participated in only part of the recommended treatment regimen had decreased symptom resolution.

Defife et al. (2010) studied missed appointment rates in a hospital psychiatric outpatient setting and found four main reasons for missing appointments: (a) clinical problems (e.g., physical illness, acute medical issue), (b) practical matters (e.g., work conflict, schedule conflict, family member/child issues), (c) motivational issues (e.g., client forgot, low motivation to attend), and (d) negative treatment reactions (e.g., part of treatment too difficult to tolerate, negative reaction to therapist's requests). The researchers proposed that missing appointments is in itself a therapeutically harmful behavior, especially if not properly addressed by the therapist (Defife et al., 2010). Williston, Block-Lerner, Wolanin, and Gardner (2014) reported that 70% of people who need therapeutic services do not receive them. Missing those appointments prevents individuals from receiving needed services and necessary mental health treatment.

Features and Patterns of Missed Appointments

Missing psychotherapy appointments can have a negative impact on individual clients, and several causes for missing appointments have been identified. Among those causes are things such as distance to treatment, mental health diagnosis, age, and gender. This section presents a brief synopsis of literature on those variables.

Distance to treatment as a predictor of missed appointments

The distance clients were required to travel to mental health treatment was often cited as a variable related to missed appointments (Brems, Johnson, Warner, & Roberts, 2006; Cully et al., 2010; Fortney, Lancaster, Owen, & Zhang, 1998; Fortney, Owen, &

Clothier, 1999; Skarsvåg & Wynn, 2004). According to Paige & Mansell (2013) most clients were not willing to travel more than 60 miles one way to obtain mental health treatment. In general, past research has revealed that the further away clients lived from treatment, the more often they missed appointments.

Missing psychotherapy appointments can have a negative impact on individual clients, and several causes for missing appointments have been identified. For example, Cully et al. (2010) examined appointment keeping in veterans seeking mental health services. Those in rural areas with a longer travel time to treatment, as compared to veterans in urban areas or with shorter travel times, participated only in medication management by a psychiatrist versus medication management and psychotherapy, which was recommended. While this work assessed veterans specifically, the means of travel to appointments is generalizable to all of those seeking outpatient psychotherapy services.

Researchers argued that factors affecting why distance has an impact on missed appointments should be differentiated between rural and urban populations (Bergdahl, Allard, Lundman, & Gustafson, 2007; Cully et al., 2010). For example, a client who lives in a rural area may need to travel 30 miles to an appointment, necessitating a 30-minute trip. Travel time in rural areas is more predictable than in urban settings because standard commutes lack the variable of traffic conditions common to metropolitan areas. In contrast, a client who lives in an urban area at a distance of 30 miles from treatment will likely experience a significantly lengthier travel time, which could affect attendance more than it would for the person living in a rural area (López-Lara, Garrido-Cumbrera, & Díaz-Cuevas, 2012; Skarsvåg & Wynn, 2004). The effects of distance on missed

appointments are also affected by factors such as convenient clinic locations in urban areas (Sample, Tomter, & Johns, 2007) and whether treatment is delivered in a general-care clinic or a clinic that specializes in caring for patients with a particular diagnosis (e.g., chemical dependency, eating disorders) (Swan-Kremeier, Mitchell, Twardowski, Lancaster, & Crosby, 2005).

Mental health diagnosis as a predictor of missed appointments

Research has revealed a link with certain mental health diagnoses and missed appointments. Alonzo et al. (2011) found those with more severe depression were more likely to miss appointments than those with less severe depression. Other studies (Basco & Smith, 2009; Fenton, Blyler, & Heinssen, 2007) revealed that people who were diagnosed with bipolar disorder and psychotic disorders were less likely to show up for treatment if they had low insight into their symptoms and they did not adhere to their medication regimen, as compared to people with these diagnoses who had high insight and followed the prescribed treatment. Murphy et al. (2010) reported that individuals who attempted suicide were more likely to miss appointments and less likely to follow through with treatment than those who did not engage in self-harm. Issakidis and Andrews (2004) found that individuals with anxiety disorders were more likely to miss appointments if there was a long delay between the pretreatment period (i.e., signing up for therapy) and starting treatment, as compared to those who experienced a short delay.

Patient age and gender

Research into the relationship between demographic variables and missed psychotherapy appointments has produced mixed results. Some researchers found no

significant relationships between age, gender, and missed psychotherapy appointments (Lee & Held, 2015; Patra et al., 2010; Swan-Kremeier et al., 2005). In contrast, Busby and Sajatovic (2010) found men had lower psychotherapy appointment attendance than women.

The present study was needed to investigate if specific variables of missed appointments predicted missed appointments in a clinic in east-central Minnesota. This localized study has the potential to inform clinicians and administrators about the factors that predict missed appointments. Understanding which factors predict the likelihood of missed appointments may lead to both procedural changes (e.g., reminder calls to clients at risk of missing appointments) within the clinic and to changes clinicians implement in their own practice (e.g., incorporating organization skills necessary for reducing missed appointments into psychotherapy treatment plan, confirming that other barriers to attending appointment will not impede attendance). These changes could bring about positive social change for the individuals seeking treatment, clinicians providing treatment, and society as a whole.

Problem Statement

Missed psychotherapy appointments contribute to a waste of national health care resources by increasing prices per care unit (Lester & Harris, 2007; Mark et al., 2011). Mental health providers who bill insurance for reimbursement or are directly paid by clients do not receive income if clients do not show to psychotherapy, which can result in anxiety for providers (Brems et al., 2006; Gault, 2009; Hunt, 2005; Lawn, Delany, Pulvirenti, Smith, & McMillan, 2016). Missed appointments increase waiting times for

clients to attend psychotherapy as well as negatively affect treatment delivery for psychological disorders (Barrett et al., 2008; Henzen, Moeglin, Giannakopoulos, & Sentissi, 2016). Consequently, missed appointments for outpatient mental health treatment is an ongoing quality-of-life problem for individual clients and financial problem for treatment providers. Missed appointments indirectly affect those who are not in need of mental health treatment by causing waste in mental health care spending subsidized by taxes (SAMHSA, 2014).

This study addressed a gap in the literature by focusing on missed appointment patterns in a local rural mental health population of outpatients seeking psychotherapy with the objective of determining what variables significantly predict the likelihood of missed appointments. Research investigating which client traits predict the likelihood of missed psychotherapy appointments is lacking (Paige & Mansell, 2013). Investigating the problem of missed psychotherapy appointments will have a positive effect on individuals in treatment, clinics and practitioners who treat these patients, and society as a whole by empowering clinics and practitioners with the knowledge to implement interventions to improve attendance.

Purpose of the Study

The purpose of this quantitative study was to examine how well the independent variables of distance traveled to treatment, distance from the center of nearest town, age, gender, and type of diagnosis (depression, anxiety, bipolar disorder, substance abuse, personality disorder, psychotic disorder) predicted the likelihood of missed appointments. The dependent variable in this study was whether patients missed 30% or more missed

appointments within 1 year. The setting for the study was a mental health clinic located in east-central Minnesota. Archival data were employed in this research to investigate whether referenced independent variables were statistically significant predictors of 30% or more missed appointments in 1 year.

Research Question

To what degree do the independent variables of distance traveled to treatment, distance from nearest town, age, gender, diagnosis of depression, anxiety, bipolar disorder, substance abuse, personality disorder, or psychotic disorder predict the likelihood of 30% or more missed appointments in 1 year? The null hypothesis for this study was that the abovementioned independent variables did not predict the likelihood of missing 30% or more appointments. The alternative hypothesis for this study was that the abovementioned independent variables did predict the likelihood of missing 30% or more appointments. The variables were measured in the following ways: distance traveled was measured in miles, age was measured in years, gender was measured with dichotomous variables (0 = female, 1 = male), and the six diagnosis variables were dummy coded as either being present (1) or not present (0).

Theoretical Basis of the Study

The theory used in this study to interpret the factors that significantly predict the likelihood of missed appointments was the health belief model (HBM). Rosenstock, Hochbaum, Kegeles, and Leventhal proposed the HBM in the early 1950s to provide a framework to understand why people seek health services (Becker, Maiman, Kirscht, Haefner, & Drachman, 1977; Glanz, Rimer, & Viswanath, 2008). Early in the

development of the HBM, five principles were used to explain how individuals make the choice to seek medical help: (a) perceived susceptibility (vulnerability or likelihood of having health problem), (b) perceived severity (how serious the health problem seems), (c) perceived threat (how threatening to the self the problem seems), (d) perceived benefit (how initiating a health behavior change will reduce the perceived threat), and (e) perceived barriers (issues/problems were perceived to be in the way of making a health change; Mirotznik, Ginzler, Zagon, & Baptiste, 1998). Subsequent research conducted using this theoretical construct also included self-efficacy (whether one is able to change his or her health behaviors; Smith, 2009). The HBM was used to explain some of the barriers that may have contributed to patients missing scheduled psychotherapy appointments (Henshaw & Freedman-Doan, 2009).

Nature of the Study

I used a quantitative, archival research design in this study, using quantitative data assembled from medical records (Laerd Statistics, 2015). This study examined whether 10 predictor variables (distance traveled to treatment; distance traveled from town; age; gender; and presence of depression, anxiety, bipolar disorder, substance abuse, psychotic disorder, and/or personality disorder) predicted the likelihood of missed appointments. The outcome variable, missed appointments, was 30% of scheduled appointments missed over a period of 1 year. A logistic regression analysis was chosen for this study because it identifies what predictors are significant, after which this information can be used to advocate for the need to develop interventions and reduce missed appointments. Data for the study were accessed from a rural mental health clinic during the 1-year period of

2014. No identifying information was used in this study. Data were entered into IBM SPSS Version 23 for analysis and subsequent interpretation.

Definition of Terms

Terms used in the literature reviewed for this study are defined as follows.

Client: Individuals seeking psychotherapy treatment (Fassino, Pierò, Tomba, & Abbate-Daga, 2009).

Clinic: The location or agency within which treatment is administered (i.e., outpatient practice, hospital; Defife et al., 2010).

Clinician: The treatment provider, which could include individuals who hold job titles such as therapist, psychiatrist, mental health practitioner/professional, clinical social worker, or psychologist (Brems et al., 2006; Gault, 2009).

Distance traveled to town: The distance (in miles) a client needs to travel between his or her residence and the center of the nearest town, which established if a client lives in town or out of town. Greater distances to the nearest town (versus to the clinic) have been reported to be a factor that significantly predicts missed appointments (Cully et al., 2010).

Distance traveled to treatment: The distance (in miles) a client needs to travel between his or her home and where the client attends psychotherapy appointments (Skarsvåg & Wynn, 2004).

Diagnosis: All variants of a type of diagnosis found in the archived data (e.g., major depressive disorder and depression not otherwise specified), as designated in the *DSM-IV-TR* (American Psychiatric Association [APA], 2000). The *DSM-IV-TR*

diagnoses were organized into one of the six categories used in this study (e.g., depression, anxiety, bipolar disorder, substance abuse, psychotic disorder, and personality disorder).

Assumptions of the Study

The mental health clinic archived records used in this study were obtained from a community clinic versus a specialty clinic, so I assumed that the data reflected a more general treatment population (e.g., various travel distances, ages, genders, and diagnoses) versus a subset of clients (e.g., only people with eating disorders or only children). I also assumed that the client records used for this study were compiled correctly because this agency had been using electronic health records for several years and those entering information into the client records were trained to do so. Finally, it was assumed that the clients resided at their stated addresses from which distance data were calculated. This assumption was necessary because the distance measures included in the dataset were based on the assumption that the client's travel distance originated from the client's home (and travelling to the center of the nearest town or travelling to the clinic).

Scope of the Study

The scope of this study extended to the east-central Minnesota region community mental health population. Only data from outpatient psychotherapy clients were utilized in this study. The agency that supplied the data offers several types of therapeutic services such as day treatment, substance abuse classes, in-home skills work, and children's therapy. Data from patients treated in other service capacities (e.g., substance abuse classes, in-home skills work) was not included in this study. Client data that were

not obtained from outpatient psychotherapy were not included in the dataset; only data concerning outpatient therapy were included. The dataset categorically listed the same predictor variables that were tested in this study (e.g., age in years, gender, and the diagnosis categories). The distance traveled to the center of the nearest town and distance traveled to the clinic were reported to the nearest 1/10th of a mile.

The scope of the research question was developed from research in the general subject of psychotherapy treatment attendance, and the predictor variables in this study were chosen because they were the predictors tested or commonly suggested for testing in the literature. They were also chosen due to their applicability to the population served by the rural clinic that supplied data for this study.

The results of this study apply only to the east-central Minnesota client population and the findings are not intended to be generalized to other geographic areas or client populations because the significance of predictor variables could change depending on the geographic area (Evans, Jaffe, Urada, & Angling, 2012). The findings of this study will inform a rural mental health clinic about the factors that predict missed psychotherapy appointments within their service area. This information can be used by the agency on to develop an intervention program to decrease missed appointments within this agency. The findings of this study can be used to advocate for the need to develop interventions to reduce missed appointments by other clinics providing mental health services.

Limitations

An inherent limitation in this project is that it identifies a client population in only one specific geographic area. To minimize this limitation, the data were interpreted only in terms of the geographic area that was used in this study. Most of the literature examined for this study eschewed nongeneralizable findings and was not limited to one geographic area. Previous findings indicated that the predictors of missed appointments differ between geographic areas (Spence et al., 2007).

This archival study identified significant predictors of missed appointments. No issues with the representativeness of the data were identified by the clinic that supplied the dataset (e.g., the 1-year sample of client data would not be representative of other years, problems with client sampling, and so on. Threats to internal validity such as history, maturation, regression toward the mean, bias in selection of client data, or other threats need to be carefully considered (Gravetter & Wallnau, 2010; Robson, 2002), but were not anticipated to have a significant impact on the conclusions made in this study, but are acknowledged as limitations nonetheless.

Internal validity might not be as strong as might have been achieved if data had been collected specifically for the study (Shadish, Cook, & Campbell, 2002) rather than relying on archival data, which would have allowed for assigned and sampled groups. Second, clients' diagnoses are made by a clinician and are vulnerable to the subjective nature of intake diagnoses. Finally, data were compiled from clients' electronic health records, which were entered by healthcare personnel, making the dataset vulnerable to data entry errors. Repeated reviews of clients' electronic health records at every

appointment minimized the risk of error by presenting the opportunity to update and correct any erroneous information in the electronic record.

This study was conducted in a particular geographic area. As such, findings of this study should not be generalized to other geographic areas. Data checking by the agency director was the only specific measure used to address limitations associated with the dataset used in this archival research study.

Significance of the Study

Findings from this study could be a very relevant, informative tool to use for others who are attempting to increase client attendance. A diagnosis of depression, anxiety, and bipolar disorder was a significant predictor for missing appointments, and being aware of this phenomenon can inform intervention development by clinicians and administrators. For example, agencies could create strategies or programming for helping clients to address barriers that prevent them from attending appointments (i.e., lack of reliable transportation, financial hardship, issues with finding or accessing the clinic location, or lack of organization to assist in remembering appointments). Effective client retention strategies might reduce the financial and emotional stress clinicians experience as well as reduce the impact of mental health symptoms on clients (Bergdahl et al., 2007). This study may also serve to inform similar agencies to conduct similar studies to find predictors for missed psychotherapy appointments.

Summary

Approximately \$57.5 billion, or 6% of the total annual cost of medical care in the United States, is spent on mental health care (SAMHSA, 2013). Missed psychotherapy

appointments are a problem that contributes to inefficient use of mental health resources (CDC, 2014a). Mental health clinics and therapists experience financial hardship as a result of missed appointments (Kwintner, 2011). Treatment providers reported experiencing stress and frustration when clients fail to attend their appointments (Hunt, 2005). Likewise, clients reported feeling negative impacts from missed psychotherapy appointments because their mental health symptoms were not treated (Mazzotti & Barbaranelli, 2012; Smith & Glass, 1977).

This study examined which independent variables (client diagnosis, age, gender, distance traveled from clinic, and distance traveled from nearest town) were statistically significant predictors of the likelihood of missed appointments for an outpatient psychotherapy population in east-central Minnesota. The HBM was used to interpret which factors predict the likelihood of missed appointments. Results of this study might help clinic administrators and individual psychotherapists to develop programming to assist clients who may be at risk of missing 30% or more psychotherapy appointments.

Chapter 1 included background literature on the potential predictors of missed psychotherapy appointments, the problem statement, purpose, research question, introduction to the HBM, nature of the study, definition of key terms, assumptions, scope, limitation, and significance of the study. Chapter 2 includes a review of relevant literature on the subject, the theoretical framework of this study, and variables used. Chapter 3 includes a discussion of the research design, methodology, threats to validity, and ethical concerns and procedures. Chapter 4 is a presentation of the results of the logistic

regression models, and Chapter 5 includes a discussion on the results, future research directions, and implications for practice.

Chapter 2: Literature Review

Missed psychotherapy appointments are a problem because they are costly to mental health systems, put clients at risk for hospital admissions and relapses, and delay the care of those who are willing to attend appointments but are prevented from doing so because of a lack of provider availability (Balikci et al., 2013; Coodin et al., 2004). The purpose of this quantitative study was to examine how the independent variables of distance traveled to treatment, distance traveled from the center of nearest town, age, gender, and diagnosis (depression, anxiety, bipolar disorder, substance abuse, personality disorder, psychotic disorder) predicted the likelihood of missed appointments. If clinic administrators or individual psychotherapy practitioners can identify what variables predict the likelihood of missed appointments, they can create an intervention to address future clients who have factors which predict missed appointments. An example of this is if a clinic knows that clients with bipolar disorder are at risk of missed appointments, they can instruct their scheduling staff to spend extra time discussing barriers that may interfere with attending appointments. This literature review frames the study of missed appointments within the larger context of adherence literature and research related to the variables associated with age, gender, distance traveled to treatment, and diagnosis that can be used to predict missed psychotherapy appointments.

Literary Search Strategy

I used the Walden University Library service to access online journal articles reviewed for this study. The search results were filtered to exclude articles that were not peer-reviewed and were not published in academic journals. The entire EBSCO online

journal database was searched, and relevant articles from the PsychInfo and PsychArticles databases were also sought. When seeking out research journal articles, I divided the search focus into the following three basic categories: adherence to treatment and missed appointments, treatment of mental health disorders, distance traveled to treatment, and other factors affecting treatment attendance and outcomes. Keywords used in searching for treatment compliance articles included *compliance, concordance, adherence, persistence, attendance, show/no show, missed appointments, and participation*. Articles concerning mental health treatment included terms such as *mental health disorders, treatment of (mental health diagnosis or diagnoses, i.e., schizophrenia, psychotic disorders, depression, anxiety, posttraumatic stress disorder/PTSD, substance abuse/dependence, eating disorders, personality disorders, antisocial, borderline), psychotherapy, medication management, counseling, and group therapy*. Articles concerning distance traveled to treatment included search terms of *travel time, distance to treatment location, distance from town, mode of transportation, rural, urban, and commute*. Search terms for other factors affecting treatment included *age, gender, sex, race, demographic(s), population characteristics, and culture(al)*. In addition to online searches of journal articles, textbooks on statistical procedures and ethics used in postsecondary and graduate courses were also used in the literature review.

Health Belief Model

This literature review contains research on the demographic variables, distance traveled, and diagnostic variables that affect treatment attendance. The HBM is a theoretical orientation that guided the interpretation of the research reviewed for this

study. Rosenstock et al. proposed the HBM in the early 1950s to identify barriers to seeking out preventive health services and, since that time, the HBM has been applied in multiple health care disciplines (Becker, Drachman, & Kirscht, 1974; Becker et al., 1977). The HBM contained five original factors that predict if someone will engage in a given health behavior:

- perceived susceptibility to the illness/problem;
- perceived severity to the illness/problem, which would have an impact on function;
- perceived benefits of the treatment/intervention that is suggested to reduce symptoms;
- perceived barriers to obtaining treatment; and
- a cue to action, which can be any type of incident that reminds someone of the severity of the illness (i.e., missing work due to depressed mood) or the recommendation of a healthcare provider.

The HBM has evolved through the incorporation of elements of social cognitive theory, and the factor of self-efficacy—the perceived ability to have an impact on the illness/problem—has been added to the model (Henshaw & Freedman-Doan, 2009). When first developed, the HBM was not intended to be applied specifically to psychological and psychiatric settings, but it has been used successfully as a theoretical model to interpret behavior choices in the use of mental health care (Smith, 2009). It is unlikely that a single approach to improving mental health treatment utilization will be implemented because of variances observed between age groups and gender of patients.

For example, young adults may not value the perceived benefits of seeking mental health treatment, especially if no strong cue to action (e.g., being passed up for a promotion at work, marriage suffering because of mental health symptoms) is present. The researchers whose work was reviewed relative to the HBM (Kim & Zane, 2016; O'Connor, Martin, Weeks, & Ong, 2014; Smith, 2009) reported a strong relationship between the number of kept appointments and the barriers to attending appointments. These barriers to care measured in this study are the predictor variables of demographics, distance traveled to treatment, and diagnosis. I used other factors of the HBM to explain how the symptoms of diagnoses can affect a client's decision to attend psychotherapy appointments.

A client's perceived severity of mental health symptoms is a factor in making a decision to act, and perceived severity of the illness is a factor of the HBM. Corrigan, Rüsich, Ben-Zeev, and Sher (2014) found that thought processes, emotional effects, and the immediacy of the need to make a decision add to the abstract and difficult-to-quantify nature of mental illness. Corrigan et al. asserted that people tend to prioritize physical health ailments over mental health. Although, to the individual patient, acting on mental health treatment may not be as valued or considered as immediately necessary as treatment of a physical illness, "[m]ental disorders and related symptoms pose threats to the quality of life and individual productivity in and of themselves, requiring no additional justification to warrant treatment" (Smith, 2009, p. 446).

The HBM factor of perceived barriers is the most fitting for explaining why distance traveled to treatment is an independent variable in this study. Having to

physically attend a psychotherapy appointment can be a barrier for individuals who have problems accessing transportation (Mirotznik et al., 1998; Pfeiffer et al., 2011). The time to travel the distance to the appointment, owning a vehicle, and having money to pay for fuel are just some of the considerations associated with why distance traveled to treatment might be a perceived barrier to attending psychotherapy appointments (Paige & Mansell, 2013). The HBM is a practical model for addressing distance traveled to treatment as a barrier that can be used to predict of missed appointments (Langlie, 1977; Pfeiffer et al., 2011).

Rationale for Measurement of Attendance as Missed Appointments

The percentage of missed appointments is the dependent variable used in this study, but other studies have used different measures to study treatment adherence. Pizzi and Biskupiak (1999) conceptualized attendance to psychotherapy as an objective measurement of adherence. Postel et al. (2011) made a distinction between measuring attendance and attrition in treatment. Attrition, in respect to adherence, indicates the decline of client attendance after a certain number of appointments have been missed. The measurement of attrition is also used as a measure for manualized program analysis (e.g., dialectical behavior therapy, Love & Logic® courses, day treatment, anger management).

For example, attrition might be measured in clients who have completed only 3 days of a 15-session day treatment program, as opposed to attendance, which might not have a minimum show requirement because treatment was simply delayed rather than missed. Outpatient psychotherapy often does not have a set number of sessions for

treatment completion, which makes it difficult to detect attrition from a review of attendance data (Postel et al., 2011). So, because of the difficulty in using other measures of adherence, like attrition, in an archival study from medical records, I chose to use attendance as the measure for this study.

This study only included records of clients who had attended at least three therapy appointments. This was done to establish a baseline of interest in receiving psychotherapy which may not be the case for clients who are not invested in participating in treatment. This cutoff was chosen because the agency supplying the dataset bills insurance for intake appointments under psychotherapy, even if the treatment is for another program administered by the agency, so three attended appointments categorized under psychotherapy appointments were used as inclusion data.

Demographic Variables Related to Adherence to Treatment

Demographic variables (demographics) such as age, gender, ethnicity, annual income, marital status, and education level are frequently included as independent variables in studies that address adherence to treatment (Busby & Sajatovic, 2010). In some articles, demographics were the main variables of focus of the study. In other articles, demographics were reported on the periphery as a means of addressing possible limitations with the study design and limited generalization of findings to other populations (Busby & Sajatovic, 2010). Demographics are also a fairly standard part of the data collected in medical databases, which makes them readily available to be included in the data analysis for specific research questions (Cui, Tate, Cummins, Skidmore, & Brown, 2015; Cully et al., 2010; Mills et al., 2014). This study used age in

years and gender as independent variables because they were the only two demographic measures that were available in the client records.

Other studies used the variables of age and gender as predictors of premature termination from treatment, but the client's diagnosis is also a frequently used predictor. For example, Buckner et al. (2009) measured the efficacy of a pretreatment intervention to increase treatment adherence for people with anxiety disorders. A pretreatment intervention (information about effectiveness of therapy), an imagery intervention (e.g., imagining what intake meeting would be like), and control group were created and an analysis of variance (ANOVA) was performed to determine the impact on attendance. Buckner et al. found an imagery intervention predicted increased session attendance, but age and gender were not predictive of premature termination.

Patra et al. (2010) used age and gender in a discriminant function analysis and chi-square to measure the relationship between adults in a chemical dependency program who completed the program, dropped out early, or had low attendance. Swan-Kremeier et al. (2005) examined the relationships between treatment participation in an eating disorder program and independent variables such as client diagnosis, distance traveled to treatment, age, gender, education level, and employment status. The only significant relationships revealed by chi-square analyses were that people who were employed were more likely to drop out of treatment than were people who were not employed. Although these studies did not find relationships between demographic features and attendance or adherence, several studies have found demographic features were related to attendance.

Alonzo et al. (2011) studied the relationship between sociodemographic variables, scores on clinical measures, and treatment participation for clients with depression. Their goal was to identify what clinical measures (e.g., Beck Depression Inventory, suicide scale scores) and demographic characteristics (i.e., years of education, ethnicity, number of prior suicide attempts) could predict clients who would be at risk of poor participation in therapy in the future. Alonzo et al. used logistic regression in their quantitative study and found that a low number of years of education, low severity of depression, and whether clients had inpatient or outpatient treatment were significant predictors of low participation

Research by Spence et al. (2007) revealed that variables that are significant predictors of psychotherapy attendance in one geographic location might not significantly predict psychotherapy attendance in another location. The authors compared the degree to which differences in demographic variables in Hispanic respondents predicted adherence to treatment at three community mental health clinic locations. Patient attendance in two of the three clinics varied significantly in the demographics of marital status (single), generation in country (first), level of acculturation as measured by language (bilingual, primary Spanish, primary English, non-primary English being a predictor of poor attendance), and income level (lower). The authors concluded that interventions/programs designed to improve attendance at psychotherapy appointments need to vary for each individual clinic rather than having one intervention for all three clinics.

When answering the question, “Do demographics matter in mental health attendance research,” the simple answer is: “it depends.” The relevance of demographic variables in attendance research depends on a client’s diagnosis (Lee & Held, 2015), the population to which the client belongs (Anagnostopoulos et al., 2006), and the geographic location where the clinic is located (Henzen, Moeglin, Giannakopoulos, & Sentissi, 2016). Like age and gender, distance traveled to treatment is a variable that is often collected as part of attendance research.

Distance Traveled to Treatment

Several studies have examined the relationship between distance traveled to psychotherapy appointments and adherence to treatment. However, the results should be interpreted with caution whether distance traveled to treatment serves as a barrier to treatment attendance varies for individuals living in urban and rural areas (Tirupati et al., 2010). Because this study used archival data from records of patients of a rural mental health clinic, it was important to discuss the differences between studies completed in rural versus urban settings.

Several researchers (Bergdahl et al.; 2007; Spence et al., 2007; Tirupati et al., 2010) addressed the effects of travel distance to treatment as a barrier to care of mental health treatment from the point of view that “urban” has an implied proximal value and “rural” has a connotation of being far away. Spence et al. found that the contributing factors to treatment attendance, including distance traveled, were highly dependent on what specific community was studied.

There are different factors involved in travel distance to treatment depending on living in an urban or rural community (Sample et al., 2007). In a rural community, public transportation is usually sparse and typically not an option for getting to a scheduled appointment. So owning a vehicle or at least having access to a vehicle would be necessary for transportation to treatment (Mohr et al., 2006). However, in urban communities, public transportation is more likely to be a viable option to get to and from treatment. However, public transportation may be a barrier to care because of the time needed to travel (e.g., 20 miles on a bus could mean switching busses, or sitting/standing for several stops before reaching the intended destination). Because of these and other considerations, comparing distance traveled to treatment as a predictor variable related to treatment adherence without differentiating between the accessibility to transportation in rural and urban communities could result in conflicting conclusions (Bergdahl et al., 2007; Spence et al., 2007). Bergdahl et al. and Spence et al. acknowledged that using only distance traveled as a predictor of missed appointments is not in literature based on the location of the research sample. However distance traveled is more consistently identified as a significant predictor of missed appointments when not the only independent variable of a study (López-Lara, Garrido-Cumbrera, & Díaz-Cuevas, 2012).

Distance Traveled to Treatment Within Urban Settings

Fortney et al. (1998) investigated the geographic market areas (i.e., how far someone is willing to travel to treatment) of medical and the provisions of mental health services for veterans. They found that, to receive care at a Veterans Administration medical center in a metropolitan area, clients were willing to travel approximately 60

miles for mental health treatment and approximately 90 miles for medical treatment. Fortney et al. (1998) concluded that patients place a higher value on medical treatment over mental health treatment in many cases. Fortney et al. (1999) found travel distance over 60 miles yielded a significant drop-off in attendance for more acute psychiatric illnesses (e.g., suicidality, active psychotic state, mania). Pfeiffer et al. (2010) and López-Lara, Garrido-Cumbrera, and Díaz-Cuevas (2012) also found that travel distance to treatment was a variable that significantly affected adherence to treatment. Results from Pfeiffer et al.'s study revealed that veteran patients who lived more than 30 miles from a treatment location failed to complete more than eight therapy sessions over a one year period. López-Lara, Garrido-Cumbrera, & Díaz-Cuevas found that clinics that were intentionally created to be as close as possible to all people living in a specific geographic area yielded better attendance to treatment. Some of the participants whose data were used in this study may have been required to travel well over 50 miles to go to treatment, which could have been a large barrier for them obtaining care. The need to travel the long distance may have negatively affected the participants' attendance.

Distance Traveled to Treatment Within Rural Settings

Travelling in an urban area versus a rural area can include very different factors and resources, and travel in a rural setting can cause different issues to arise. Pfeiffer et al. (2011) found that veterans treated at a small community mental health clinic were less likely to complete follow-up psychotherapy appointments than were veterans in an urban setting or at a Veterans Affairs hospital. This finding was attributed to the lack of

available psychotherapy providers in rural areas as well as the distance needed to travel to providers in urban areas.

Patient treatment attendance at an eating disorders outpatient clinic was found not to be related to the distance a client traveled to treatment (Swan-Kremeier et al., 2005). However, other studies found that the time required to travel to an appointment can be a large barrier. Skarsvåg and Wynn (2004) reported the time needed to travel to treatment was consistent based on distance (i.e., it takes 5 minutes to drive 5 miles, 20 minutes to travel 20 miles, and so on). Clients who traveled less than 35 minutes to treatment were two times more likely to show for appointments than were those patients who had to travel more than 35 minutes. This finding is in contrast to predicting travel times in an urban area, where it can take longer to travel the same distance as in a rural area. The results of research on travel distance in rural areas indicate that the barriers of travel distance need to be investigated respective to the rural or urban setting.

Patient Diagnosis and Missed Appointments

Another variable that affects missed appointments is an individual client's mental health diagnosis (Henshaw & Freedman-Doan, 2009; O'Connor, Martin, Weeks, & Ong, 2014; Worley, Trim, Tate, Hall, & Brown, 2010). There are many diagnoses and diagnostic subtypes in the *Diagnostic and Statistical Manual of Mental Disorders* ([*DSM-IV-TR*] APA, 2000). The data from the report that I use in this study included diagnostic codes, which I converted into the diagnostic categories using the *DSM-IV-TR*. This section presents an overview of general mental health diagnostic categories,

common symptoms of those diagnoses, and how those symptoms might contribute to missed appointments.

Substance Abuse–Related Disorders

The first symptom category discussed in this section is substance-related disorders, which can include the abuse or dependency of a substance (e.g., alcohol, marijuana, methamphetamine) (APA, 2000). Low participation in treatment for chemical dependency seems to be highly influenced by factors such as travel distance from treatment (lengthy distance), community size (small town/rural), age (younger), marital status (single), ethnicity (non-Caucasian), and high severity of illness (due to chemical abuse; Sebastian, Mushtaq, Easow, & Luty, 2012). Fortney et al. (1995) research was one of the earliest studies that measured the utilization of aftercare programs for veterans after being discharged from inpatient chemical dependency programs. The authors created high, low, and average risk profiles of hypothetical clients relative to attending aftercare therapy sessions. Components of the profile for high risk of low aftercare program use included the following predictors of poor adherence: single, African American, younger aged, and male, having a low education level, living in a metropolitan area, and living less than 10 miles away from the aftercare program service site. Although Fortney et al.'s study was conducted more than 20 years ago, it is relevant to the present study because literature on substance abuse treatment attendance is limited (Coulson, Ng, Geertsema, Dood, & Berk, 2009). More recent studies have found similar factors that predict low attendance to treatment and low improvement in clients who have low

education level, African American, and male (Evans, Jaffe, Urada, & Angli, 2012; Guerro et al., 2013).

More recently, the delivery of chemical dependency treatment has gone beyond face-to-face interactions. Web-based chemical dependency treatment is one innovation utilizing technology that makes services more accessible to those who are uncomfortable with or find face-to-face treatment somewhat aversive (Postel et al., 2011). Of 144 participants who began web-based treatment, only 65 completed the 12-week program. While travel barriers and physical access to treatment were cited by Fortney et al. (1995) and Hall et al. (2008), those factors do not explain the over 50% attrition rate for web-based chemical dependency treatment (Postel et al., 2011). This indicates that travel to treatment alone, within the substance abuse diagnostic group, does not solely explain low attendance in substance abuse treatment.

Tate et al. (2011) measured attendance in veterans who presented for substance dependency treatment. The authors found that participant attendance in the program was affected by mental health diagnoses. These results indicated that certain diagnostic combinations (e.g., chemical dependency and schizophrenia) might increase the number missed appointments, as compared to predictions of participant retention if only one mental health diagnosis is present. For this study, it is possible that substance abuse could be a larger perceived barrier to missed appointments because the setting was a rural one rather than an urban/metropolitan one (Corrigan et al., 2014).

Substance abuse or dependence can affect a person's judgment and prioritization of needs. The HBM factor of perceived need is based on rational thought, and a mental

health diagnosis of any kind can negatively affect rational thought (APA, 2000). In the case of substance abuse, the client may judge the cessation of drug or alcohol use to be overwhelming when they are experiencing low self-efficacy to change the condition. This may result with the client choosing not to following through with care.

Mood Disorders

Mood disorders include depressive disorders and bipolar disorders (APA, 2000). A client's perceived self-efficacy is a factor that could affect the choice to attend treatment (Henshaw & Freedman-Doan, 2009). People with bipolar disorder have periods of elevated, irritable, or expansive moods (APA, 2000), or what are commonly referred to as manic or hypomanic episodes. Individuals experiencing manic episodes might display one or more of the following symptoms: grandiosity, decreased need for sleep, being hypervocal, racing thoughts, easily distracted, psychomotor agitation, and engaging in pleasurable activities with little regard to the negative consequences. Individuals who experience depressive disorders might display one or more of the following symptoms: depressed mood, anhedonia, significant weight fluctuations, sleep difficulties, psychomotor retardation or agitation, low physical energy, feeling hopeless/helpless/worthless, difficulty concentrating, indecisiveness, and suicidal ideation.

Depression. Up to 30% of people, at some point in their lives, experience symptoms that warrant a diagnosis of depression (APA, 2000). Alonzo et al. (2011) measured adherence and utilization of treatment for clients who had received a diagnosis of major depression or bipolar disorder. The patients whose data were included in the

study were depressed and had been in treatment for 1 year. The number of sessions was readily identified from patient records. Alonzo et al. administered the Beck Depression Inventory (BDI) to clients upon entry into treatment and re-administered the instrument after 1 year to compare changes in self-rated level of depression. The authors found that those who did not attend or adhere to treatment during the 1 year reported a higher level of depression. Those who scored lower (less depression symptoms) on the BDI after treatment was completed were also more likely to have missed fewer appointments than those who scored lower on the BDI. Henzen, Moeglin, Giannakopoulos, and Sentissi (2016) measured predictors of dropout in a mental health crisis program. While they found bipolar disorder and anxiety diagnoses predicted higher rates of missed appointments, a depression diagnosis was not a significant predictor. This research showed mixed results on the predictive capability of a depression diagnosis on missed appointments. Like other diagnostic predictors, geographic location and population subgroup affect the predictive capability of a depression diagnosis. .

Bipolar disorder. Busby and Sajatovic (2010) analyzed studies on treatment adherence of clients with bipolar disorder. The demographic factors that correlated with clients' poor adherence included younger age, male, single, presence of legal history (i.e., arrests, felony), and low level of education. The symptoms that correlated with missed appointments included an active psychotic state, elevated mood, low insight into symptoms, past suicide attempts, presence of a substance abuse disorder, irregular hospital discharges (i.e., against medical advice), and low treatment provider expectations of improvement. Also, missed appointments were found to be associated with negative

medication side effects, a negative attitude towards taking mood stabilizing medications, low accessibility to treatment/care, and fewer treatment resources. Moczygemba, Osborn, and Lapane (2014) found that homeless clients with a primary diagnosis of bipolar disorder were less likely to attend both medication management and psychotherapy appointments. The HBM can be used to interpret why symptoms of a mood disorder can affect the perceived efficacy of the course of treatment (e.g., if the treatment is helpful to the client) and relatively low self-efficacy to change the situation (Pastore, Griswold, Homish, & Watkins, 2013). The episodic nature of mood disorders can have a clear effect on perceiving treatment as an effective activity, which in turn can limit appointment attendance as clients may not see them as useful. An individual may feel helpless when feeling depressed or out of control when in a manic state. Those that feel this way may experience a low sense of self-efficacy to change the situation. Consequently, they may choose not to attend appointments because they do not see the potential to change their current situation.

Anxiety Disorders

The diagnostic category of anxiety disorders includes panic disorders, phobias, obsessive-compulsive disorder, and posttraumatic stress disorder (APA, 2000). Issakidis and Andrews (2004) and Roberge, Fournier, Menear, and Duhoux (2014) found that potential psychotherapy clients with anxiety were at significant risk of not showing to the first appointment. Issakidis and Andrews investigated the factors associated with attrition and dropout in treatment among people who had received a diagnosis of anxiety. The researchers focused on the pretreatment period, which is the time after initial intake

(being “signed up” for treatment) and the first psychotherapy appointment. They found that approximately 30% of people did not arrive for their first appointment, but only 10% of the remaining clients stopped attending appointments after they made the first appointment. Roberge et al. found that only 49% of clients recommended to participate in psychotherapy by their primary physician followed through with making and attending an appointment. Buckner et al. (2009) found similar results for treatment attendance among people with anxiety disorders. But they also examined the effect of a pretreatment intervention on therapy attendance and also found it predicted higher attendance. Chartier-Otis, Perreault, and Belanger (2010) investigated the unmet treatment needs of people with anxiety disorders as well as barriers to care that might have contributed to missed appointments. Factors found to negatively affect treatment attendance included a comorbid diagnosis of depression, strong avoidance behaviors, the duration of symptoms, and the degree to which symptoms affected functioning (low symptom severity correlated with low attendance rates). Treatment attendance rates were relatively high among individuals with anxiety disorders without a comorbid diagnosis.

The HBM factor of perceived self-efficacy can be applied to those with an anxiety disorder who have low attendance. Low self-efficacy to overcome the anxiety experienced to making it to the first appointment seems to be where many cease attempts to gain treatment. Attending appointments may seem like an exercise clients with anxiety do not see helping their condition, consequently they may choose the less anxiety-provoking behavior of avoidance (e.g., anxious because feeling judged, going into unfamiliar places, anxiety experienced driving/travelling, etc.). A clinic that would use

this paper to inform interventions may choose to focus on alleviating those barriers to care (e.g., a brief phone conversation with their future therapist to alleviate anxiety, ensuring the new client knows how to find the building) (Corrigan, Rüscher, Ben-Zeev, & Sher, 2014).

Psychotic Disorders

Psychotic disorders, including schizophrenia, are estimated to be present in up to 1.5% of the population (APA, 2000). Symptoms can include delusions (e.g., paranoia, grandiosity), hallucinations (e.g., hearing voices, seeing things that are not there), disorganized speech, disorganized thoughts/behaviors, catatonic behavior, and affective flattening. Varieties of psychotic disorders can include mood disorder symptoms (i.e., schizoaffective disorder). Psychotic disorders can vary in duration and intensity of symptoms. While psychotropic medications are a primary treatment modality for psychotic disorders, therapy is also effective in addressing distorted perceptions, dysfunctional social relationships, and achieving a higher level of organization (Dobson, 2001). Symptoms of psychotic disorders can directly affect the perceptions of individuals with schizophrenia, resulting in more distorted health beliefs than those without schizophrenia (Smith, 2009). In general, people with schizophrenia have a 40–50% adherence rate in treatment (Acosta et al., 2009).

Past research has shown that participation in treatment (i.e., medication and psychotherapy) for schizophrenia and similar psychotic disorders is highly correlated with a reduced risk of relapse (Gutiérrez-Casares, Cañas, Rodríguez-Morales, Hidalgo-Borrajo, & Alonso-Escolano, 2010; Staring, Van der Gaag, Duivenvoorden, Weiden, &

Mulder, 2011). Individuals who do not participate in treatment are than 3 times more likely to have a relapse of psychotic symptoms within 2 years of the most recent period of symptom exacerbation (Beck, Cavelti, Kvrpic, Kleim, & Vauth, 2011; Fenton et al., 1997). People diagnosed with paranoia or other persecutory delusions (e.g., schizophrenia, psychotic disorder) as part of their symptom presentation had lower treatment attendance rates and a higher risk of frequent psychotic episodes (Acosta et al., 2009). Finally, clients with schizophrenia who had strong family support, low financial burdens, and were more regimented in their daily lives (including having a good system of organization) were more likely to adhere to treatment recommendations. Positive (or non-negative) factors that promote good attendance are indicative of a relationship between fewer perceived barriers to seeking treatment and an increase in attendance amongst those with schizophrenia (Smith, 2009).

An underlying premise of the HBM is that a person's beliefs and perceptions about making a health change affect the decision to make the change and distorted perceptions can be a feature of a psychotic disorder. A high level of personal insight into how symptoms affect a client's functioning has a positive effect on treatment attendance, which could be interpreted as a high benefit factor of the HBM (Corrigan et al., 2014). Clients with schizophrenia who make a direct connection between the efficacy of medications and psychotherapy are also more likely to follow treatment recommendations (Staring, Van der Gaag, Duivenvoorden, & Mulder, 2011).

A history of missed appointments is a predictor of future missed appointments (Orgrodniczuk, Piper, & Joyce, 2006). The results from several studies revealed that how

the complex symptoms of a psychotic disorder could affect treatment attendance (Dobson, 2001; Gutiérrez-Casares, Cañas, Rodríguez-Morales, Hidalgo-Borrajo, & Alonso-Escolano, 2010; Smith, 2009). Findings from the studies that investigated schizophrenia support my rationale for including any type of psychotic disorder as a predictor of treatment adherence in the present study.

Personality Disorders

Personality disorders cause individuals to display an “enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual’s culture, is pervasive and inflexible, has an onset in adolescence or early adulthood, is stable over time, and lead to distress or impairment” (APA, 2000, p. 685). According to Prunetti, Bosio, Bateni, and Liotti (2013), borderline personality disorder is the most frequently diagnosed personality disorders. Individuals with this condition can experience symptoms such as interpersonal dysfunction, impulsivity, suicidal thoughts/actions, and self-harm (i.e., cutting.).

Ogrodniczuk, Piper, and Joyce (2006) examined treatment attendance among patients with personality disorders in a group psychotherapy setting. The authors sought to identify what symptoms and interpersonal features were related to differences in attendance frequency. They found that interpersonal distress and group cohesion were significant predictors of whether clients completed group therapy. They also measured differences in attendance between individuals with different types of personality disorders. In a sample composed primarily of women, predictors of poor attendance included being highly avoidant and having borderline traits. Ogrodniczuk et al. indicated

their findings were not generalizable to non-group settings because group cohesion (positive) was a predictor of acceptable attendance.

Gudjonsson and Main (2008) measured adherence rates in incarcerated patients with mental health treatment needs. Of the participants, 93% had either a diagnosable personality disorder or personality disorder traits. Of those diagnosed with a personality disorder or trait, 72% had a comorbid diagnosis. The most common comorbid diagnoses in this sample were anxiety and substance dependence. Gudjonsson and Main found that patients with Cluster C disorders such as avoidant personality disorder, dependent personality disorder, and obsessive-compulsive personality disorder were the most adherent to treatment.

Prunetti et al. (2013) assessed the efficacy of a treatment program for patients with a personality disorder. Pretest and posttest measures from the program indicated improvement on mood, anxiety, interpersonal, and anger scales. Using a repeated measures ANOVA, Prunetti et al. found that clients were significantly more likely to attend individual therapy with an outpatient therapist, both while in the program and 3 months after the program was completed. This indicates that positive changes in scale scores indicate higher rates of attendance. It also indicates that variables in common with this dissertation, such as mood and anxiety, affected missed appointments. Williams, Hartstone, and Denson (2010) found similar results when evaluating a dialectical behavior therapy program, whereas clients who participated in the outpatient group program were more likely to attend their therapy appointments. Also, Williams et al. found that the clients, all of whom had a diagnosis of borderline personality disorder,

were less likely to present for urgent or emergent mental health care (i.e., crisis calls or emergency hospital visits) than patients who did not have borderline personality disorder.

The factors of perceived self-efficacy and barriers to care may affect a client with a personality disorder attending appointments. A distorted or fragile self-image may affect a client's ability to see attending outpatient psychotherapy as beneficial. Also, clients with personality disorders often have a comorbid axis I diagnosis such as depression or anxiety. Consequently, HBM factors that contribute to missed appointments amongst other diagnostic categories can also apply to those with a personality disorder, respective of the comorbid diagnosis.

Literature on the predictability of attendance based on client diagnosis revealed mixed results. Personality disorders are more difficult to treat than other mental health conditions and often take higher levels of intervention (e.g., inpatient treatment or day treatment) than Axis I disorders (e.g., depression or anxiety) (Prunetti et al., 2013). The other diagnoses affecting missed appointments that were factors in the present study (i.e., depression, anxiety, bipolar disorder, substance abuse, and psychotic disorder) have not been found to be consistent significant predictors of missed appointments (Bossart et al., 2013; Evans, Jaffe, Urada, & Anglin, 2012; Cui, Tate, Cummins, Skidmore, & Brown, 2015). This lack of consensus between studies further legitimizes the need for this type of research on a local level.

Methods to Predict Variables of Missed Appointments

During my literature review I found that researchers took several methodological approaches to investigate which variables predicted missed appointments. Alonzo et al.

(2011) measured the attendance rates of participants using multiple regression and logistic regression analyses to determine which demographic variables were the best predictors of missed appointments in a group of clients with depression. Postel et al. (2011) measured attendance to a web-based treatment program for alcohol use. Participants were randomly sorted into a wait-list (control) group and an experimental group. Postel et al. also included open-access data (no grouping), so both correlation and experimental statistics were used to determine significant differences between treatment groups as well as predictors of treatment attendance. The authors found that the intervention was useful for those who regularly attended and participated..

Tate et al. (2011) conducted a client retention study using a group of veterans with substance abuse and depression who were entering outpatient therapy. ANOVA and post-hoc chi-square tests were used to determine the predictors of retention and the strength of those predictors, respectively. The researchers found that none of the variables tested (i.e. age, gender, and level of depression) were significant predictors of missed appointments (Tate et al., 2011).

Brems et al. (2006) surveyed 1,500 healthcare providers representing a broad range of disciplines to determine what factors presented barriers for patients seeking treatment in rural and urban populations. Data were collected using individual interviews and focus groups. Data were first coded using a qualitative approach. A factor analysis was used to identify the types of responses with the highest concern, which included service access, patient avoidance of care, provider travel, and resource limitations.. Leibing (2010) took a similar approach, and interviewed nurses on issues affecting

patient adherence. A factor analysis was also used to determine nurses' biggest concerns and contributors to patient nonadherence to treatment, which identified non-adherence, mistrust of caregiver, comorbidity of physical and mental health problems, and lack of nurse training.

Fenger et al. (2011) used an archival research method to measure the significance of predictors of no shows to appointments among nonpsychotic patients. The researchers collected grouped the data into clinical and demographic variables. They used several statistical analyses, including logistic regression, to determine what variables were statistically significant predictors of missed appointments. They found that predictors of treatment no-shows were young age (below 25), 9 years of school or less, personality disorder diagnosis, no substance abuse history, and those not given sick leave through their employers. Burnett-Zeigler et al. (2012) also performed logistic regression analysis in their archival study to determine predictors of psychotherapy utilization. They found that young female veterans were the most likely to attend and participate in individual psychotherapy. Male and female veterans who were younger than 35 years of age were the most likely to use both individual and group psychotherapy. As part of this archival study, Fenger et al. used a report created from client records to determine which variables significantly predict the likelihood of missed appointments.

Logistic regression was the most commonly used method of analysis in literature reviewed for the present study. This method of analysis is used to determine if an independent variable is a significant predictor of the dependent variable. Therefore, the use of logistic regression as a data analysis tool was appropriate for this study

Summary

Missed psychotherapy appointments are a problem that has been addressed in numerous studies (Balikci et al., 2013; Coodin et al., 2004; Coulson et al., 2009). Significant predictors of missed appointments were not consistent across the literature in terms of travel distance measures, diagnostic categories, age, or gender (Gonzalez & Brossart, 2015; Guerrero et al., 2013). This dissertation, conducted at the local level, addresses the gap in the knowledge base regarding the factors that significantly predict missed psychotherapy appointments. The results of this study could be used by others to inform the development of alternate interventions to mitigate the impact of the significant predictor variables within this local clinic setting. The data collection and analysis methods used in this study are discussed in detail in Chapter 3. The logistic regression analysis conducted as part of this study can produce a binary *significant* or *not significant* result, which was a preferred measure used in many studies reviewed in this chapter.

Chapter 3: Research Method

Introduction

When clients miss psychotherapy appointments, the wasted provider time and resources are costly to mental health care systems (Balikci et al., 2013; Coodin et al., 2004). Hospital admissions and relapses occur more frequently among those who miss appointments. A client's mental health symptoms are not being treated if they are missing appointments. The purpose of this quantitative study was to examine how well the independent variables of distance traveled to treatment, distance from the center of nearest town, age, gender, and type of diagnosis (depression, anxiety, bipolar disorder, substance abuse, personality disorder, psychotic disorder) predicted the likelihood of missed appointments.

This chapter begins with a description of the design and rationale for this study, followed by the methodology, which includes discussions regarding how the population was identified, sampling procedures, permissions, and operationalization. Threats to internal, external, and conclusion validity are discussed and ethical procedures are described.

Research Design and Rationale

The purpose of this study was to investigate the predictive relationships between 10 predictor/independent variables (i.e., travel distance to treatment; travel distance to center of nearest town; gender; age; and diagnosis of depression, anxiety, bipolar disorder, substance abuse, psychotic disorder, and personality disorder), and one binary outcome/dependent variable of missed appointments (whether 30% or more appointments

are missed within 1 year). All data were collected from a report generated from client records by an administrator of a rural mental health clinic. No contact with the clients was made. The quantitative method was used to identify which factors predict the likelihood of missed appointments. This method was chosen because the purpose of this study was to identify factors that predicted the likelihood of missed appointments based on pre-existing data within a rural mental health clinic. To accomplish this, a quantitative research method was the necessary way to approach this problem instead of a qualitative approach (Laerd Statistics, 2015).

This method was chosen over a qualitative or mixed methods design because the data were pre-existing archival medical records. Due to financial constraints and limited time to complete the study, client contact or implementation of a retention program were not viable options for this dissertation. Other researchers who conducted studies measuring predictors of missed appointments also chose to use archived patient records and a logistic regression analysis to identify which factors predict the likelihood of missed appointments (Burnett-Zeigler et al., 2012; Fenger et al., 2011).

All of the clients represented by the data used in this study had a mental health diagnosis, so random assignment into diagnostic groups was not possible. Using a nonexperimental, archival research design was appropriate, given no group assignment took place and the relationship between independent variables and the dependent variables was postdicted and not predicted (Philips & Wennberg, 2014; Trochim, 2006). The design also fit with the research questions such that the significance of the relationship between the predictor variables and the dependent variable (missed

appointments) could be determined using a logistic regression analysis. The use of a quantitative, archival method using logistic regression yielded replicable research in this discipline because the methods were well founded and the data sources of archived medical records were a reliable and typically well-regulated/maintained source of information (Di Bona, Saxon, Barkham, Dent-Brown, & Parry, 2014; Skarsvåg & Wynn, 2004).

Setting and Sample

Setting. In this study, I used a set of archived medical records data from a rural mental health clinic in east-central Minnesota. This geographic area consists of several small towns and surrounding rural residences. Census data from 2012 indicated that there was fairly low ethnic diversity in the area because the percentage of Caucasian (non-Hispanic or Latino) residents ranged from 90% to 95% (U.S. Department of Commerce, U.S. Census Bureau, 2013). The median household income between counties in the targeted area varied between \$44,000 and \$67,000. Unlike a metropolitan area that attracts more professionals and careers with a higher earning potential, the workforce in this area is predominately unskilled laborers, those who have vocational training, and relatively few professionals. However, small businesses and factories provide a number of jobs in the area.

The targeted population consisted of adult clients who participated in individual psychotherapy between January 1, 2014, and December 31, 2014. I chose this date range because client rates of attendance to psychotherapy sessions naturally ebb and flow throughout year. For example, rates of attendance for a sample of clients are likely to be

lower during the summer than during the fall. A sample of clients taken over only the summer would likely show lower attendance than if the sample was taken over only the fall months. The medical database program used by this agency was implemented several years ago, so no issues with competency to operate the program were expected or encountered. Primary funding for the agency comes from reimbursement from insurance; in some cases, private payment is required.

Clients seek psychotherapy for a variety of reasons, including treatment for complications due to a mental health diagnosis, legal problems, academic issues, interpersonal relationships, and family issues. Some clients treated at this agency received only a diagnostic assessment and chose to not participate in individual therapy. Only data from clients who had attended at least three psychotherapy appointments any time within a specific 1-year period (January 1, 2014, to December 31, 2014) qualified for inclusion in this study. Data from clients who attended two appointments or less during that time were not included. The executive director of the research site suggested a minimal attendance of three appointments to qualify for this research. A minimum attendance was required in this study to establish the client had an interest in attending therapy on an ongoing basis. The inclusion criteria for this study were applied to the client records for 2014: stated age of client was 18 years of age or older, listed a home address, disclosed age and gender, had at least one mental health diagnosis, and attended individual psychotherapy (versus some other service offered at the clinic). It was assumed, but not known, that clients might not be invested in the process after just one visit. Only adult clients were used in this study because Centorrino et al. (2001) found

children's attendance is affected by different factors than those affecting adults. Also, clients with a documented diagnosis of developmental cognitive impairment or a pervasive developmental disability (e.g., on the autism spectrum) were not included in this study because different factors affect predictors of their attendance to therapy.

Sample size. A power and sample size analysis was calculated with the G*power program with 10 predictor levels (i.e., age; gender; distance traveled to treatment; distance traveled to the center of town; and diagnosis of anxiety, depression, bipolar, psychotic disorder, personality disorder, substance dependence/abuse). To achieve a desired effect size of at least $r^2 = 0.15$, and a power of at least 0.80, an odds ratio of at least 0.184 (estimated 30% of clients missing 30% or more appointments = 70% adherent), a minimum sample size of 67 psychotherapy clients' data was required (Faul, Erdfelder, Buchner, & Lang, 2009). Trochim (2006) recommends 10–30 records per independent variable, which necessitated a sample size of 100–300 client records. I used the entire sample from the records available that met the inclusion and exclusion criteria.

Data Collection

I requested a report from the administrator of a rural community mental health center that included data for the 10 predictor variables but did not disclose information that could reveal a client's identity. I personally retrieved from the administrator a USB mobile storage device that contained an electronic copy of the report. The report included the number of appointments attended and the number of appointments missed. A missed appointment was defined as an appointment that was not attended and not cancelled within 24 hours of the scheduled appointment time. The agency report also contained

data on client age, gender, distance in miles traveled to treatment, and distance in miles traveled to the center of the nearest town. The primary, secondary, and tertiary (if applicable) diagnoses of each patient, identified according to the *DSM-IV-TR* diagnostic codes, were included in the agency report.

Data from the agency report were imported from an Excel spreadsheet format into IBM SPSS, Version 23. The coding schema used to code the variables is summarized in Table 1. The independent variables were age, gender, travel distance from clinic, travel distance from center of town, and the presence or absence of each of the six diagnostic categories. The dependent variable was a binary variable indicating if 30% or more appointments were missed. First, age (in years) was entered as a whole number and a ratio variable (Robson, 2002). Second, gender was entered as a binary variable (1 = male, 0 = female). Distance traveled included two measurements: distance in miles traveled to treatment and travel distance in miles to the center of the nearest town. The travel distance to treatment measure was a continuous variable. The distance traveled to the nearest town was dummy coded as in town (1 or less miles to center of town = 0) and out of town (more than 1 mile from the center of the nearest town = 1). Empirical literature supporting a good means to determine what constituted living “in town” and living “out of town” was not found in the literature review. The rural mental health center director in the area of investigation suggested that living more than one mile out of town isolates clients from the convenience of in-town transportation and from easy access to neighbors to obtain a ride to treatment.

The mental health diagnoses for each record on each of the six diagnostic categories were entered into SPSS using the dummy coding method (i.e., using 1 or 0), which consisted of indicating the presence (1) or absence (0) of each diagnostic category (Institute for Digital Research and Education, 2013). This method was useful because many clients could be assigned to more than one diagnostic category (i.e., depression and anxiety). Each record had six diagnosis columns that contained either a 1 (for presence of diagnosis) or 0 (absence of diagnosis).

The dependent variable for this study was entered as a binary outcome of 1 (30% or more appointments were missed) or 0 (fewer than 30% of appointments were missed). The cutoff percentage of identifying which independent variables predict a significant percentage of missed appointments was determined after the data had been collected, but the agency director suggested that those who missed 30% or more appointments would be of concern. Thus, agency report data might be divided into groups of people who missed 30% or more appointments (1) and those who missed fewer than 30% of scheduled appointments (0). Data analysis was completed after the data were entered.

Table 1

Coding Schema for Predictor Variables

Predictor variable/subgroup	Explanation of predictor variable	Coding
Distance traveled to treatment	Distance in miles traveled from home to treatment center	Continuous variable, rounded to nearest whole number
Distance traveled to town	Used to identify whether client lived within town or outside town	Distances ≥ 1 mile from town center = 1; < 1 mile from town center = 0
Age	Age in years (study included only adults)	Coded as continuous variable in whole number
Gender	Male or female	Male = 1; female = 0
Diagnosis (each a separate predictor variable)	Diagnostic categories in italics were dummy coded	
Depression	Presence of depressive disorder (e.g., major depressive disorder, dysthymic disorder, adjustment disorder with depressed mood)	Dummy coded; 1 = presence of diagnosis in subgroup; 0 = diagnosis not present
Anxiety	Presence of anxiety disorder (e.g., general anxiety disorder, specific phobias, adjustment disorder with anxiety)	Dummy coded; 1 = presence of diagnosis in subgroup; 0 = diagnosis not present
Bipolar	Presence of bipolar disorder including schizoaffective disorder—bipolar type, cyclothymia	Dummy coded; 1 = presence of diagnosis in subgroup; 0 = diagnosis not present
Substance abuse	Presence of any drug or alcohol abuse or dependence diagnosis not including sustained, full remission	Sustained, full remission diagnosis = 0; not sustained, full remission = 1 (substance use possible active factor affecting attendance)
Psychotic disorder	Presence of any variant of schizophrenia including schizophreniform disorder, psychotic disorder NOS	
Personality disorder	Any Cluster A, B, or C personality disorder diagnosis, most commonly borderline personality disorder and antisocial personality disorder	

Note. Previous research that indicated predictors of client no-shows were dummy coded as 1.

Research Question

To what degree do the independent variables of distance traveled to treatment; distance traveled from center of nearest town; age; gender; and diagnosis of depression, anxiety, bipolar disorder, substance abuse, personality disorder, or psychotic disorder

predict the likelihood of 30% or more missed appointments in 1 year? I hypothesized that any or all of the independent variables would predict the likelihood of 30% or more missed appointments in 1 year (H_a).

Data Analysis

Data were analyzed to determine to what degree the independent variables of distance traveled to treatment, distance traveled from center of nearest town, age, gender, and diagnosis of depression, anxiety, bipolar disorder, substance abuse, personality disorder, or psychotic disorder predict the likelihood of 30% or more missed appointments in 1 year. A logistic regression analysis was appropriate to use in this study because of the presence of multiple independent variables used to predict one dependent (outcome) variable (Laerd Statistics, 2015). This test revealed if the null hypothesis (H_0) of each question could be rejected. The significance of the regression model was also analyzed with a Nagelkerke pseudo R^2 to determine the amount of variance explained by the predictor variables (Burnett-Zeigler et al., 2012). The dataset was checked for errors or data points that did not meet inclusion criteria before the dataset was imported to SPSS; no dataset errors were found.

Logistic regression requires independent observations, and this requirement was met because each client record was independent of all other clients' records. Pearson's correlation and phi correlation tests were conducted to determine whether the variables lacked multicollinearity. The linearity of independent variables and log odds was tested using the Hosmer-Lemeshow test (Trochim, 2006). To determine the significance of the logistic regression equation, a chi-square test was performed using a significance of $\alpha =$

.05 (Gravetter & Wallnau, 2010). The Wald statistic was used to identify the statistical significance of each predictor variable. Because this study used a logistic regression analysis, the predictor variables were determined to be significant or not significant, whereas a predictor variable found to be significant was one that, if present, was likely to cause a number of missed appointments above the significance cutoff value of 30% or more missed appointments.

Threats to Validity

This quantitative, archival research study had several threats to external validity (Trochim, 2006). Interaction effects between selection variables are a threat to external validity. The sample was not randomly assigned (the sample was grouped when the data were created), so this assignment was not controlled. This assignment can be tested by a phi correlation, but ultimately, it cannot be changed. Poorly operationalized variables that lack specificity to the setting in which the findings can be generalized is another threat to external validity. This threat was addressed as best as possible by accurately placing diagnoses, using the realistic distance a client would need to travel to treatment, and measuring age in years. Multiple treatment interference was a threat to external validity but it was not able to be assessed in this study because of the use of pre-existing data that were collected for another purpose (medical records). It was impossible to make assumptions about the effect of other activities, therapeutic or not, that have an impact on missed appointments. The initial list of client records was screened to include only those in outpatient psychotherapy.

The main threat to internal validity in this study was the use of instrumentation: the archived client records. The records had already been created and were assumed to be accurate, reliable, and contain data that is relevant to the study even though it was not collected for the purpose of this study (Trochim, 2006). The most that could be done to mitigate this threat was to consult with the agency providing the records. I spoke with the agency director and records administrator for several hours about this project, and clearly delineated how the records were generated.

Finally, conclusion validity is threatened when reasonable conclusions about the relationship between variables are reached (Trochim, 2006). In this study, conclusion validity could be addressed by attempting to reduce the likelihood of type I and II errors by ensuring the statistical power was high, using a standard significance level, and attempting to increase the effect size. All 281 records were used in this study to increase the sample size, a power of 0.8 was used, and the significance levels were set at $p=0.05$.

Ethical Considerations

Section 8.05 of the American Psychological Association (2002) code of ethics describes the necessity of informed consent for research. This archival study used data derived from client records, but contains no identifying information. As such, no informed consent was needed from the individual clients to use the archived data; the individual clients had already given consent to the clinic to use their data for research. Consent to use the agency report was needed from the institution/clinic that created the agency report. I obtained consent to use the archived data by means of a letter of cooperation to comply with the Walden University Institutional Review Board (IRB)

requirements to conduct this research (IRB Approval Number 01-29-16-0110476). I provided the participating clinic director with documentation that the IRB has granted approval to conduct research before I received the dataset.

No individually identifying client information was included in the agency report. The cooperating agency removed all personally identifying client information before the data was provided to me. The report and all electronic materials including the output of statistical procedures were provided to the cooperating agency per their request because this information could be used to advocate for clinics to develop an intervention to reduce missed appointments. The data in my custody were returned to the supplying clinic. No incentives or conflict of interest regarding data acquisition was identified.

Summary

This chapter detailed the population studied within a community mental health center in north-central Minnesota. Because the study was conducted using archival data and permission from the community mental health center, informed consent from clients was not needed. This quantitative, archival design included conducting logistic regression analysis to understand the relationship and impact on the independent variables of a diagnosis of depression, bipolar disorder, anxiety, substance abuse, psychotic disorder, or personality disorder, distance traveled to treatment, resides in town or out of town, age, gender, and the dependent/outcome variable measured by the percentage of missed appointments out of the total scheduled appointments. This statistical method aided in understanding what predictor variables are the most useful for this unique client population. Before the archival data were provided to this researcher, the identifying

information that could violate clients' confidentiality was deleted, thereby ensuring compliance with IRB requirements.

Chapter 4: Results

Introduction

The purpose of this quantitative, archival study was to examine how well the independent variables predicted the dependent variable, which was missed appointments. The research question was, “To what degree do the independent variables of distance traveled to treatment, distance traveled from center of nearest town, age, gender, and diagnosis of depression, anxiety, bipolar disorder, substance abuse, personality disorder, or psychotic disorder predict the likelihood of 30% or more missed appointments in 1 year?” I hypothesized that missed appointments were related to these predictors. The results reported in Chapter 4 describe the data collection process used in this study, descriptive statistics, tests of assumptions of logistic regression, significance of the regression model, and significant predictors of missed appointments.

Data Collection

The administrator of a local, rural mental health agency in east-central Minnesota provided archival data containing 281 cases. The mental health agency director estimated approximately 2,000 clients were served by the agency in 2014. Of those 2,000 clients, approximately 600 clients received outpatient psychotherapy services. Inclusion criteria of each case included that a client: must have a home address, must have attended at least three psychotherapy sessions in 2014 (to establish intent to attend therapy, versus only participate in an assessment), and must be at least 18 years old. Medical records of clients whose data met the inclusion criteria were included in the dataset provided to this researcher. The mental health agency calculated the distance from each client’s home to

the center of the nearest town and the distance from each client's home to the clinic he or she attended. After applying the inclusion criteria, 281 cases qualified. The dataset I was provided included these 281 cases.

Data collection was completed exactly as stated in the IRB application. The data contained the number of appointments attended and the number of missed appointments. A new variable was created to indicate the percentage of missed appointments by dividing the number of missed appointments by the sum of attended plus missed appointments. This variable was created so that dummy coding could be used. Because the data were retrieved from a clinic that serves a large portion of clients in a specific geographic area, these data were assumed to be representative of those who attend outpatient psychotherapy in this region.

Descriptive Statistics

The records from this data set indicated the population seeking treatment was mostly female ($n = 195$, 69.1%) and the average age was 40.1 years. The average distance traveled to an appointment was 13.1 miles and the average distance traveled from the client's home to the center of the nearest town was 4.0 miles. Of the 281 clients whose data were included in the dataset, 157 (55.7%) clients missed fewer than 30% of appointments and 124 (44.0%) missed 30% or more scheduled appointments.

At least 10 and up to 50 cases are recommended for each dichotomous predictor (Laerd Statistics, 2015; Trochim, 2006) to obtain results from the logistic regression that are strong enough to interpret with confidence. The predictors of depression ($n = 192$, 61.8%), anxiety ($n = 131$, 46.5%), and bipolar ($n = 38$, 13.5%) were well above the

minimally recommended number of cases. Psychosis ($n = 21$, 7.4%) was on the low end of the number of cases recommended, but still contained enough to include in the regression model. Personality disorder ($n = 6$, 2.1%) and substance abuse ($n = 1$, 0.4%) did not contain 10 to 30 cases and were not used in the initial regression equation (see Table 2).

Table 2

Frequencies and Percentages of Diagnostic Categories

Diagnostic category	<i>n</i>	Frequency		%
		Missed 30% or more	Did not miss 30% or more	
Depression	192	89	103	68.1
Anxiety	131	62	69	46.5
Bipolar	38	23	15	13.5
Substance abuse	1	1	0	0.4
Psychosis	21	6	15	7.4
Personality disorder	6	2	4	2.1

Analysis of Results

The research question for this study was, “To what degree do the independent variables of distance traveled to treatment, distance from center of nearest town, age, gender, and diagnosis of depression, anxiety, bipolar disorder, substance abuse, personality disorder, or psychotic disorder predict the likelihood of 30% or more missed appointments in 1 year?” A logistic regression analysis was conducted to test the hypothesis that the predictor variables do predict if a client is likely to miss 30% or more appointments. This section first addresses the seven assumptions of a logistic regression analysis, how they were tested or addressed, and then reports the findings on the impact of distance variables, demographic variables, and diagnostic variables.

The seven assumptions of logistic regression can be addressed either by addressing the study design or by statistical tests on the data. The first assumption of logistic regression is that the one dependent variable is dichotomous (Laerd Statistics, 2015; Menard, 2002, 2010). The dependent variable is dichotomous (missed 30% or more, missed less than 30%), so this assumption was satisfied. The second assumption is that the variables are measured on a continuous scale (e.g., distance traveled to treatment, distance traveled to center of town, age) and/or a nominal scale (e.g., gender, the six diagnostic categories), which was also satisfied in this study. The third assumption is that there is independence of observations and the variable categories are mutually exclusive. The variables were created so that someone cannot both have and not have depression or miss 30% or more appointments and simultaneously not miss 30% or more appointments, so this assumption was satisfied. The fourth and last assumption of the model design is that there have to be enough cases per independent variable to ensure an adequate reliability of estimates, which has been cited as being anywhere between 10 and 50 cases per independent variables (Laerd Statistics, 2015; Trochim, 2006). Some predictors did not meet the minimum of 10 (i.e., substance abuse, personality disorder); psychosis, with 21 cases, was included in the regression model but the results must be interpreted with caution due to having a low number of cases which can affect the strength of conclusions made from the results.

The last three assumptions were addressed by testing the data in the logistic regression model. The fifth assumption is that there is a linear relationship between the continuous predictor variables and the logit (inverse of the logistic function) of the

dependent variable (Laerd Statistics, 2015; Menard, 2010). This assumption was tested by the Hosmer-Lemeshow test and was found to support the null hypothesis that there is a linear relationship ($\chi^2(8) = 6.89, p = .548$). The sixth assumption is a lack of multicollinearity between dichotomous predictor variables and was tested with the phi coefficient. Most relationships between dichotomous variables were not significant, but those that were significant are included in Table 3. These relationships indicate that the correlations between diagnosis variables are also seen in psychopathology rates of occurrence (APA, 2000) and are not unexpected. Although significant, the largest phi coefficient ($\phi = -0.036$) is still quite small, this assumption has been largely met. The last assumption is that there should be no outliers included in the model. A casewise diagnostic was used and did not yield any studentized residuals greater than two standard deviations from the mean of each continuous variable. With the assumptions of logistic regression addressed, the results of the regression analysis including all predictor variables was created (see Table 4).

Table 3

Significant Categorical Predictor Variables Indicating Multicollinearity

Diagnostic categories	Phi (ϕ)	Significance (p)
Gender x depression	-0.13	.031
Bipolar x psychosis	0.17	.006
Depression x psychosis	-0.30	.000
Anxiety x depression	-0.33	.000
Bipolar x depression	-0.36	.000

Table 4

Logistic Regression Analysis on 10 Predictors of Missed Psychotherapy Appointments

Predictor	<i>B</i>	SE	Wald	<i>df</i>	<i>P</i>	<i>OR</i>	95% CI for <i>OR</i>	
							Lower	Higher
Age*	0.004	0.01	0.27	1	.602	1.00	0.988	1.021
Gender	-0.19	0.28	0.44	1	.507	0.83	0.48	1.44
Distance to clinic**	0.01	0.01	0.78	1	.379	1.01	0.99	1.03
Distance to town**	-0.005	0.03	0.04	1	.850	0.10	0.94	1.05
Depression	0.63	0.34	3.39	1	.066	1.88	0.96	3.67
Anxiety	0.48	0.28	2.97	1	.085	1.61	0.94	2.78
Bipolar D/O	1.23	0.42	8.44	1	.004	3.38	1.49	7.70
Substance abuse	21.766	40192.97	0.00	1	1.000	2.84 x 10 ⁹	0.00	0.00
Psychosis	-0.55	0.56	0.96	1	.329	0.58	0.19	1.73
Personality D/O	-0.16	0.92	0.03	1	.867	0.86	0.14	5.23

Note: * Age is measured in years.

**Distance traveled was measured in miles.

The specific variables used in the first logistic regression model including all variables were age, gender, distance traveled to center of nearest town, distance traveled to clinic, anxiety, depression, bipolar, personality disorder, psychosis, and substance abuse. The omnibus test was conducted to determine if the model with all predictors entered would require the null hypothesis to be rejected. Results of the model did not indicate the need to reject the null hypothesis ($\chi^2(10) = 17.32, p = .068$). The model only

explained 8.0% of the variance, indicating a low predictive capability (Nagelkerke $R^2 = .080$). The continuous variables of distance traveled to clinic and distance traveled to center of nearest town were not significant predictors of the likelihood of missing 30% or more appointments. The predictor variables of age and gender were also not significant predictors of missing 30% or more appointments.

Some of the diagnostic variables were significant. Substance abuse and personality disorder were not significant and did not contribute to the predictive capability of the model. Consequently, age, gender, distance traveled to town, distance traveled to clinic, substance abuse, and personality disorder were excluded before creating the second regression model in an attempt to improve the predictive capability of the model (see Table 6). The only coefficients that were significant in the second regression analysis were bipolar and depression, with anxiety very close to significance but not meeting the $p = .05$ requirement. The final logistic regression model was created with only the predictors of depression, anxiety, and bipolar to determine if this combination of predictors would improve the predictive capability of the model.

Logistic Regression Analysis, Type of Diagnosis as Predictor of Missed Psychotherapy Appointments

Predictor*	B	SE	Wald	df	p	OR	95% CI for OR	
							Lower	Higher
Depression	0.71	0.33	4.60	1	.032	2.03	1.06	3.869
Anxiety	0.46	0.27	2.81	1	.093	1.58	0.93	2.68
Bipolar D/O	1.24	0.41	9.12	1	.003	3.46	1.55	7.75
Psychosis	-0.62	0.55	1.26	1	.263	0.54	0.57	5.22

Note: * Predictors of substance abuse and personality disorder were excluded from regression model due to having too few cases.

The final regression model was created with only significant variables (depression, anxiety, and bipolar disorder) from the second regression model. The model was tested for significance with omnibus tests and found to be significant ($\chi^2(3) = 12.72$, $p = .005$). The model decreased in predictive capability as the amount of variance accounted for by the model was only 5.9% (Nagelkerke $R^2 = .059$). However, because the goal of this study was to determine the significance of the predictor (i.e., logistic regression) and not the precise prediction of the dependent variable (i.e., multiple regression), the strength of the predictor, besides statistical significance, is not a concern for the purpose of this study. The results of the Hosmer-Lemeshow test of goodness of fit was not significant, indicating that there is a linear relationship between the predictor variables and the logit of the dependent variable ($\chi^2(4) = 0.80$, $p = .938$).

The strongest predictor variable in the final regression model was the diagnosis of bipolar disorder, which was significant at $p = .003$ (see Table 5). The odds ratio of 3.34 means that the odds of a person in this sample who was diagnosed with bipolar missed 30% or more of scheduled appointments was 3.34 times higher than the odds for a person without bipolar disorder. This finding fits the alternate hypothesis that those who have a

diagnosis of bipolar disorder are more likely to miss mental health appointments than those without bipolar disorder. The same effect was found with depression ($p = .011$). Results for clients diagnosed with anxiety slightly missed the significance mark of $p = .05$. The data further revealed that individuals in the sample who had a diagnosis of depression were more than 2 times more likely to miss 30% or more appointments than those without depression ($OR = 2.24$). Those with anxiety were 1.67 times as likely to miss 30% or more appointments than those who did not have anxiety ($OR = 1.67$; see Table 6).

Table 6

Modified Logistic Regression Using Only Predictors Contributing to Model

Predictor	<i>B</i>	SE	Wald	<i>df</i>	<i>p</i>	<i>OR</i>	95% CI for <i>OR</i>	
							Lower	Higher
Depression	0.81	0.32	6.52	1	.011	2.24	1.21	4.16
Anxiety	0.51	0.27	3.67	1	.056	1.67	0.99	2.80
Bipolar D/O	1.20	0.41	8.80	1	.003	3.34	1.51	7.40

Summary

Results of the logistic regression analysis provided an answer to the research question of the degree to which the independent variables of distance traveled to treatment, distance traveled from center of nearest town, age, gender, and diagnosis of depression, anxiety, bipolar disorder, substance abuse, personality disorder, or psychotic disorder predict the likelihood of 30% or more of missed appointments in 1 year. I hypothesized that these predictors would significantly predict if someone in this sample would miss 30% or more appointments to outpatient psychotherapy. None of the distance measures, age, or gender were significant predictors of missing 30% or more

appointments. The only diagnostic predictors that were significant were bipolar disorder, depression, and anxiety. For practical purposes, this finding indicates that the mental health clinic that provided the dataset could categorize clients who are known to have a diagnosis of bipolar disorder, depression, or anxiety as more likely to miss more appointments than those who do not have any of those diagnoses.

Chapter 5 contains a more detailed comparison of the results from the logistic regression analysis to the literature reviewed and interpreted relative to the HBM. The limitations of the study, especially in the area of external validity, are discussed as well as implications for future research in this area. The several ways of helping clinics improve client attendance are explained in terms of how this line of research is helpful to individuals, clinicians, and national health funding that could bring about positive social change.

Chapter 5: Discussion

The purpose of this archival study was to examine how well the independent variables of distance traveled to treatment, distance traveled from the center of the nearest town, age, gender, and type of diagnosis (depression, anxiety, bipolar disorder, substance abuse, personality disorder, psychotic disorder) predicted missed outpatient psychotherapy appointments. The outcome variable was whether a client missed 30% or more appointments over the 1-year period of 2014. The archival data were supplied by the administrator of an east-central Minnesota mental health center with multiple rural clinics in the area.

This study was conducted to provide the mental health center with the ability to predict what client traits might put clients at risk for poor attendance, thus allowing the agency to take a proactive approach to reducing missed appointments. The results indicated that clients were more likely to miss 30% or more appointments if they had a diagnosis of depression, anxiety disorder, or bipolar disorder.

Interpretation of the Findings

This section includes a discussion of the significance of anxiety, depression, and bipolar disorder as predictors of missing 30% or more appointments. This section also includes a discussion on factors that disconfirm predictions based on reviewed literature.

The first factor discussed is anxiety. Although results for anxiety did not achieve the $p = .05$ mark ($p = .056$) in this study, it would be a mistake to discount anxiety as a factor that contributes to missed appointments. Results from the data revealed that clients attending treatment at these clinics were 1.67 times as likely to miss more than 30% of

appointments if they had a diagnosis of anxiety than if they did not have anxiety.

Previous research showed mixed results for using an anxiety disorder diagnosis as a predictor for missing appointments (Buckner et al., 2009; Issakidis & Andrews, 2004).

The HBM factor of barriers to care can be used to explain why anxiety is a predictor of missed appointments. People with anxiety have several diagnostic criteria that might be barriers that prevent them from taking action to seek treatment for this disorder (Henshaw & Freedman-Doan, 2009). Those criteria include strong avoidance behaviors and a low symptom severity (Chartier-Otis et al., 2010; Smith, 2009). For example, if a client is experiencing strong anxiety about attending a psychotherapy appointment, any procedural action they take to attend could be perceived as a barrier to care. It may be that even personal hygiene before leaving home, or perhaps the commute to the clinic, could be overwhelming. Many of my own clients disclose that they experienced anxiety at simply attending their first appointment, and that feeling would likely be compounded in a person who has an anxiety disorder.

About half of the clients in this data set had a diagnosis of anxiety disorder, and about half of those with an anxiety disorder missed 30% or more appointments. Even though this this disorder was not a statistically significant predictor of missed appointments, this finding has practical implications for clinical practice. Those with anxiety have close to a 50/50 chance of missing more than 30% of appointments, and that would be too high of a rate to dismiss simply because the $p = .05$ significance requirement was barely missed.

The results from this study showed that clients with a diagnosis of depression were 2 times more likely to miss 30% or more appointments than were those without a diagnosis of depression. Alonzo et al. (2011) found that those with depression were more likely to miss treatment if they reported a higher level of depression at the start of treatment rather than a lower level of depression. Cui, Tate, Cummins, Skidmore, and Brown (2015) found that those with severe or chronic physical health problems and also had a depression diagnosis showed less improvement and lower attendance rates. Worley, Trim, Tate, Hall, and Brown (2010) found that clients attending integrated treatment for substance abuse and comorbid depression had higher attendance than treatment for just one diagnosis individually.

This dissertation did not have a measure for the severity of depression symptoms or any other comorbid factors. Of the 281 cases that met inclusion criteria, 192 had a diagnosis of depression. The practical, real-world value of this predictor is relatively lower because the group with depression is so large. This is because retention interventions target those with traits that make them more likely to miss appointments. Since over half of the people in this study had depression, it is not a group that has small enough numbers to be specifically engaged with targeted retention interventions. Slightly less than half of those with depression in this study missed 30% or more appointments; a similar rate to those with anxiety. The data did not break down any specifiers of those with depression, such as severity, a PHQ-9 scale score, etc. Information on the type of depression (e.g., depression NOS, major depressive disorder) and the severity (e.g., PHQ-

9 score, Beck Depression Inventory score) could have made the significant predictor of depression a more robust metric of missed appointments in this study.

The factors of perceived benefits to treatment, cue to action, and low self-efficacy from the HBM can explain the impact of depression symptoms on missed appointments (Corrigan, Rüschi, Ben-Zeev, & Sher, 2014). An adult client with depression, especially more chronic types (APA, 2000), have been living with the disorder for much of their lives and have likely developed some hopeless attitudes toward the prospect of symptom improvement. Hopelessness about their perceived self-efficacy to manage their depressed mood, and client might not see attending psychotherapy appointments as a worthwhile endeavor and consequently may miss appointments. Finally, a common symptom of severe depression is suicidal ideation or thoughts of death (APA, 2000). A suicide attempt survivor may view the incident as a cue to action, and the treatment following an attempt (e.g., assuming others are aware, the client is hospitalized) may help the individual recognize the potential benefits that treatment may offer. As a result, this may increase appointment attendance.

The last significant and most robust predictor of missed appointments in this study was a diagnosis of bipolar disorder. Clients with bipolar disorder were found to be the group at the highest risk of missed appointments. Only 38 clients were in this group, and they were 3.34 times as likely to miss 30% or more appointments than those who did not have a diagnosis of bipolar disorder. More than half of the 38 clients with a bipolar diagnosis missed 30% or more appointments. This was the most significant result in this study. In practice, a new client calling for an appointment who endorses a diagnosis of

bipolar disorder should definitely be flagged as a risk of poor attendance and should receive any further assistance a retention intervention may provide.

Because of the mania requirement for a diagnosis of bipolar disorder, many clients experience a sense of low self-efficacy to change their situation, which is a factor of the HBM (Busby & Sajatovic, 2010; Pastore et al., 2013). Most clients with a bipolar disorder diagnosis often experience depression symptoms as well (versus only mania), so to avoid redundancy only the manic symptoms' impact on missed appointments will be discussed in this section (APA, 2000). A client's perceived benefits of attending treatment can explain high rates of missed appointments. People who are actively manic and not experiencing a low mood may have symptoms such as having a lot of energy and need less sleep than usual to feel rested. A client who is contemplating psychotherapy may feel an aversion to not feeling energized. However, mania also comes with racing thoughts, being more distracted, and taking more risks and using poor judgment (i.e., risks to physical health, unprotected sex, bingeing on drugs/alcohol). Some people experiencing mania may even experience delusions of grandeur or paranoia, which would also lead them to place a low value on mental health treatment (Henshaw & Freedman-Doan, 2009; Smith, 2009).

Distance traveled to treatment was another primary area of interest in this study because many previous studies found that, in rural settings, the further an individual needs to travel to treatment, the less likely he or she is to do so (Bergdahl et al., 2007; Mohr et al., 2006; Skarsvåg & Wynn, 2004; Tirupati et al., 2010). I hypothesized that travel distance would affect attendance based on a fairly large consensus in the research,

but the results did not show a significant impact on attendance. Moreover, the results showed practically no difference in travel distance measures between groups which is surprising and deviates from general literature findings. A factor that was not measured in this study and would be useful to understand is the impact that access to transportation might have on attendance; this information would mostly be of value for the agency administration to know and certainly represents a possible barrier to care.

Age and gender were investigated as predictors, but were not found to be significant. Previous research showed varying levels of predictive significance for age and gender (Buckner et al., 2009; Patra et al., 2010) and their lack of significance is unremarkable. If age or gender were significant predictors they would probably not have much informative value on an agency implementing client retention efforts. And, if significant, gender and age can be identified when a client first calls for an appointment versus after the initial appointment where a client would receive a diagnosis.

Finally, the diagnostic factors of personality disorder, substance abuse, and psychosis were not included in the data analysis because they did not contribute to knowledge in this area due to having small sample sizes. I hoped at least 10 clients per diagnosis would be present to meet the minimal requirements for inclusion in the logistic regression analysis for these diagnoses. These diagnoses are less common than depression and anxiety, and if they were found to be significant in this study, those predictors could be easily used to identify people who are at risk of missing appointments.

Limitations of the Study

All studies have limitations and the methods and design used in this dissertation are no exception. This dissertation examined predictors of missed appointments in a specific geographic area. As such, it is difficult to generalize findings to other settings, even those of neighboring mental health agencies (Spence et al., 2007). By design, the study would have a data pool limited only to the clinic supplying the data. A limitation that affected the results of this study was the low number of cases of certain types of diagnoses (i.e., personality disorder, substance abuse, and psychotic disorder). This resulted in those variables to not be included in the final regression analysis because the sample was limited. The diagnosis was given by multiple trained clinicians, and this is a limitation because there was no measure of agreement between clinical opinions.

This study was archival in nature and groups were not randomly assigned or sampled, which is a limitation that results in a threat to internal validity. The age, gender, and travel distance measures (calculated by the clinic supplying the data from a client's home address) were all self-reported, and not independently verified, which is a limitation. Finally, the measures used in this study were very concrete, often polarized data (e.g., male or female, presence or absence of depression). A limitation with data of this nature is that measures of the severity or intensity of these factors was not available. For example, data on the severity level of a depression diagnosis or information regarding the level of access to transportation a client had would have allowed for a more in-depth analysis. The limitations listed above also inform what future studies may investigate in this research area.

Recommendations

The goal of this study was to identify which variables related to distance traveled to treatment, distance traveled to the nearest town, DSM-IV-TR diagnostic category, or demographic features that predicted poor attendance for treatment for patients attending a rural mental health clinic setting. This goal was accomplished through this project, but the scope of this study leads to implications for further research on missed appointments (Barrett et al., 2008; Paige & Mansell, 2013). The primary strength of this study is the specificity of the population and the successful identification of traits that predicted missing 30% or more appointments, but there are several limitations of this study that, if addressed in future research, could yield relevant, robust results.

The data used in this study were collected from one organization, although there were other smaller clinics scattered throughout the same geographic area that could have contributed data to this research. Using data from other smaller clinics would also address the limitation in this study of having too few cases for some of the variables, which inhibits the ability to make any definitive conclusions about less common mental health diagnoses (e.g., personality disorder, substance abuse, and psychotic disorders; Jordan et al., 2014; Ogrodniczuk et al., 2006). Further research would also be useful for determining the maximum size of a geographic region to make reliable conclusions of factors that predict the likelihood of missed appointments.

The diagnosis variables in this study were created using *DSM-IV-TR* (APA, 2000) codes and then categorizing those types of diagnoses into the six diagnosis variables. Future research might yield insights into the role that creating these arbitrary categories

could play in finding useful predictors of missed appointments. For example, to simplify coding, no adjustment disorder diagnoses were included in the final dataset, but variations of adjustment disorders are diagnoses that are commonly given to clients who might not meet the full criteria for one of the diagnostic categories used in this study. Future research in this area could use more variables as predictors; for example, a variable indicating the amount of time between a client making an appointment and the time of the actual appointment might yield useful information (Roberge, Fournier, Menear, & Duhoux, 2014).

Further research on this subject could include using different methods to reach conclusions of factors that predict the likelihood of missed appointments. This study involved analyzing data from a 1-year period, but Busby and Sajatovic (2010) suggested that more longitudinal studies (or analyses over longer periods of time for archival research) could be more useful for tracking changes in attendance patterns. Besides the length of time the study over which data were analyzed, Barrett et al. (2008) called for more qualitative, exploratory studies to gain insights into causes of poor attendance. These could be focused around interviews with patients who reflect on factors that have caused them to miss appointments, questions on their emotional state at the time they chose to miss appointments, etc. Outpatient psychotherapy was the treatment modality of focus in this study, but Postel et al. (2011) suggested that multiple modalities such as web-based treatment (e.g., e-mail correspondence with a therapist, online message boards) and televideo services are growing in popularity and have the potential to reach those who might experience barriers to treatment based on distance needed to commute

to treatment facilities. Since these are emerging technologies, the base of research on these is small and more studies are needed to evaluate the pros and cons of each. Also, studies may be necessary to compare the delivery of similar services (e.g., comparing Brand A with Brand B of online therapy), which could assist the development and improvement of those services.

Mazzotti and Barbaranelli (2012) called for more research on the specific effects of stigma on treatment adherence. Henshaw and Freedman-Doan (2009) further asserted that studies on the implementation of disseminating basic knowledge about the nature of mental health could reduce stigma in the general public. The authors believed that potential clients who experience less stigma around mental health care would be more willing to attend treatment because it would be seen as a less onerous barrier to care. I would suggest further research that uses the level of a client's knowledge about mental health (perhaps in a survey form or litmus scores) and about their perceived level of stigma towards having and mental illness and stigma towards accepting treatment. Testing those measures as predictors for missed appointments in a localized setting is something that has been lacking in the literature.

The final recommendation for future research suggestions stemming from this study is to conduct local research on the financial cost of missed appointments in more rural clinic settings. Research measuring the difference financial loss associated with missed appointments could strengthen advocacy for further private and public insurance coverage of evidence-based psychotherapy (Roberge et al., 2014). Further research into the financial impact of missed appointments might make it easier to legitimize more

investment in funding studies that could lead to improving appointment attendance (Oldham et al., 2012). These suggestions from research stem from the literature and personal experience as a clinician and small business owner. Implementing any type of client retention program that would cost employee hours of effort would need to be something I was thoroughly convinced would help me in the long run, as it would initially be a financial investment. Research that has clear, robust conclusions about the efficacy of certain retention interventions will make the choice to implement said interventions much easier.

Implications for Social Change

I was compelled to conduct this study after experiencing the abrupt closure of a rural community mental health center due to, in a large part, poor attendance causing lost revenue. The fallout of the closure was extensive. The counties that funded the mental health center were left with several hundred thousand dollars lost (which will need to be recouped in taxes). Clinicians (like me) and 75 other staff were unexpectedly out of jobs. Most importantly, many clients were not able to even have a final session with their therapist to discuss future care options.

A study similar to this one, if it had been conducted years ago, might have aided the mental health center where I was formerly employed. Findings and conclusions drawn from this study will provide information to the mental health clinic that supplied the data. This information could inform the creation of a retention intervention to reduce missed appointments. The agency that supplied the data is not in financial peril, but by increasing revenue it will be able to expand services to underserved areas. Also, it could

then more adequately compensate staff for their labor, which will also serve to ensure that clinic staff and clients do not experience a situation such as the one encountered at the clinic where I was previously employed.

First, the longer the time between a client calling to schedule an initial appointment and the time of the initial appointment, the less likely the client will attend that appointment (Burnett-Zeigler et al., 2012). Reducing time from calling to schedule and attending the first appointment, reminders for appointments, and approaches to retain current clients is another approach to improving overall attendance. Sometimes, a lengthier waiting period than desired from calling to schedule and the actual appointment is unavoidable, so reminders closer to the appointment date can be an invaluable tool to reduce the impact of wait times.

The second area of focus to improve attendance is using reminders for appointments. Most clinics still use phone calls to remind clients of upcoming appointments. Research into the efficacy of using other mediums (e.g., e-mail and text messaging) shows promise. Horvath et al. (2011) found that those who enrolled in an online medical portal (e.g., HealthView, MyChart) were significantly more likely to attend scheduled appointments than were those who were not enrolled. Although portal users were primarily Caucasian, female, and had private insurance, the automated e-mail reminders associated with this service were found to be efficacious across demographic groups. Milne (2010) investigated the efficacy of using text messaging as a reminder of appointments and found the use of text messages reduced the number of missed appointments. However, both health portal (with e-mail) and text messaging services are

expensive and might not be feasible to implement, especially for smaller clinics and those in private practice, which is more likely the case in rural areas. These mechanisms might be good tools to investigate in a local area for efficacy, both for financial reasons and to improve treatment quality/delivery.

The last area often suggested in psychotherapy appointment attendance research that can lead to social change is the approach clinicians take to improving attendance. Barrett et al. (2008) suggested that clinicians tailor their approach to addressing no shows with clients in terms of the stage of treatment (i.e., before intake, during first few sessions, after several sessions) because a face to face intervention might seem too serious/intense for clients not yet personally engaged in the process. Conversely, a mailed letter to a client who has been seeing a therapist for more than a dozen sessions might be perceived as cold or distant, which can have an adverse impact on therapeutic rapport. Missed appointments can be personally distressing to therapists, and Kwinter (2011) suggested therapists should take the time they need to process missed appointments as countertransference, which is inevitable when in a therapeutic relationship. Kao and Liu (2010) suggested that clinicians hold discussions with clients about ways to encourage appointment keeping. For example, clients struggling with disorganization might benefit from implementing an organization system that might work for their specific needs, which could, in turn, increase attendance and improve symptom severity. This study and others similar to it can inform clinicians and clinics which could allow them to better address missed appointments. The consequential benefit of improved attendance to appointments is that it takes some emotional and financial stress of clinicians (Kwinter).

This project used data from an east-central Minnesota mental health agency, and as part of sharing the statistical results with them, I will be making recommendations for the agency director based on the findings of this study. I will conclude this section with an abbreviated narrative of what I will present to the agency after the completion of the dissertation. First, I will inform the agency director that those with a diagnosis of bipolar disorder, depression, and anxiety will need extra attention when scheduling for appointments, especially in the areas of organization (e.g., personal calendar, arranging a ride, and so on). Second, the current system of using a reminder call the day before an appointment might benefit from a revision. The agency is large enough that investing in a text messaging service to automatically send text reminders at fixed intervals (e.g., 3 days before, 24 hours before and again 2 hours before an appointment) to clients would likely be a cost-effective tool. Finally, I will suggest that all clinicians (including mental health rehabilitation staff, independent living skills workers, etc.) participate in training in how to incorporate a discussion on organization using appointment keeping as the topic. Clinicians should also be encouraged to take control over how clients with poor attendance should be engaged because retention efforts are not a “one size fits all” endeavor.

Conclusion

The goal of this study was to identify the outpatient psychotherapy client traits that predict missed appointments within a specific rural geographic area. Missed appointments to psychotherapy reduce treatment efficacy for clients, have a negative impact on practicing clinicians and the businesses they work for, and contribute to

financial waste in public funding of mental health care. Mental health treatment options are more limited in rural areas, so improving the efficiency of mental health care in these areas is a worthwhile initiative that other researchers should consider investigating. This study focused on travel distance, demographics, and diagnostic predictors of missed appointments and found that diagnoses of depression, anxiety, and bipolar disorder were significant predictors. The results of this study will contribute to interventions to improve client retention within a rural mental health agency in east-central Minnesota. The results of this study fill a gap in the literature about predictors of missed appointments in this specific geographic area, as well as serve as a contributor to the general knowledge base regarding missed appointments. Previous studies showed inconclusive results on traits that predict the likelihood of missed appointments. This study revealed insights into which factors predict the likelihood of missed appointments and offered suggestions for future research.

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