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Relationship Between Mental Health Facilities' Pre-Intake Practices and Children's First Appointment Attendance Rates

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Abstract

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Between 20% and 57% of patients at community mental health centers miss their first mental health appointment, resulting in wasted resources and longer wait times for other patients. To date, only one peer-reviewed quantitative study examined the relationship between appointment reminder practices and children's and adolescents' first appointment attendance rates for community mental health centers. The purpose of this quantitative study was to examine the relationship between first appointment wait times, electronic appointment reminders, phone appointment reminders, and first appointment attendance for U.S. community mental health centers, along with the potential moderating effects of age, ethnicity, and gender. Blumer's symbolic interaction theory served as the theoretical framework. Secondary data on was collected from 12 Texas-based community mental health centers covering 5,260 patients. Binary logistic regression uncovered the following key study findings: (a) wait time and message type significantly predicted appointment attendance; (b) e-mail appointment and text reminders were significantly more effective than were phone reminders; and (c) age, gender, and ethnicity moderated the relationship between wait time and message type, and first appointment attendance. The implications for positive social change include improving our understanding of the optimal appointment reminder tactics that increase children's and adolescents' mental health appointment attendance rates, improve operating efficiency of community health centers, and increase the likelihood that children and adolescents will receive needed mental health services.

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Dedication

I dedicate this study to my children even though they told me it would never make the best seller list.

Acknowledgments

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Chapter 1: Introduction to the Study

Introduction

In 1963, United States Congress passed the Mental Retardation Facilities and Community Mental Health Centers Act. This act identifies Community Mental Health Centers as a sanctuary place such that, if an individual needs mental health services, that person or their family can receive the services from these facilities (United States Department of Health and Human Services [HHS], 2014). According to the HHS (2014), there were over 6 million individuals who needed mental health services in the United States in 2014. Children's and adolescents' attendance at mental health appointments is a necessary predicate for delivering community mental health services to those in need (Schneider & Sidney, 2009). Community mental health services promote healthy development of positive coping skills, resilience, and good judgment that in turn promotes well-being and provides a foundation for positive mental health in adulthood (HHS, 2014). The prevalence of mental disorders among the 24.8 million U.S. children and adolescents in 2012 was between 16% and 22%, or 4.0 to 5.5 million children (National Institute of Health Care Management [NIHCM], 2009). Approximately 10% to 40% of the children and adolescents in need of mental health services received treatment in 2012, and less than half of those with severe psychiatric disorders received any kind of treatment (Costello, He, Sampson, Kessler, & Merikangas, 2014; NIHCM, 2009, National Institute of Mental Health [NIMH], 2013). The mental health services treatment gap for adolescents and children has been associated with a failure to attend scheduled services, a lack of access to appropriate services, inadequate health insurance coverage, and a lack of referrals (Costello et al., 2014).

This quantitative study examined the relationship between first appointment wait times, electronic appointment reminders, phone appointment reminders, and first appointment attendance at U.S. community mental health facilities, with the aim of informing interventions to reduce missed mental health appointments. The study contributed to the body of knowledge for potential interventions to improve community mental health resource utilization by reducing missed appointments by children and adolescent clients. Chapter 1 includes a discussion of the problem statement, study purpose, research questions, and nature of the study.

Background

Providing accessible and competent mental health services for underprivileged U.S. children and adolescents is paramount (Runnels, 2013). Researchers focusing on outpatient attendance in mental health found that approximately one out of five children had a diagnosable mental health disorder. Before the implementation of the Affordable Healthcare Act, most underprivileged children and adolescents lacked adequate medical insurance coverage to pay for needed mental health services (Bloom, Jones, & Freedman, 2013). At the same time, there was a lack of adequate, affordable community mental healthcare centers, which led to long waits for initial appointments, often more than two weeks (Runnels, 2013). As initial appointment wait time increased, first appointment nonattendance rates have been between 20% and 40% among children and adolescents (Runnels, 2013; Williams, 2008), resulting in additional delays in access to vital mental health care and wasted resources for clinics (Benway, Hamrin, & McMahon, 2003; Bleich, 2009; McKay, 2009; Najafi, 2011; Runnels, 2013; Sims et al., 2012; Vogel, Wester, & Larson, 2007; Williams, 2008). Missed appointments squander scarce clinician

resources and contribute to long appointment wait times (Benway et al., 2003; McKay, 2009; Runnels, 2013). Researchers found that certain policies and procedures can significantly increase adult first appointment attendance rates by reducing wait time for the first appointment (Filippidou, Lingwood, & Mirza, 2014; Najafi, 2011; Sims et al., 2012; Sherman, Barnum, Buhman-Wiggs, & Nyberg, 2009; Williams, 2008). Appointment reminders in the form of voice or text messages increased first appointment attendance.

Sawyer, Zalan, and Bond (2002) reported that telephone reminders significantly improved children and adolescent first appointment attendance, and 79% of the study participants were supportive of their use. Behavioral factors, socioeconomic status (SES), certain disorders and their severity, and insurance status negatively affected first appointment attendance. In another study, Guy et al. (2012) conducted a meta-analysis of research on short message service (SMS) effectiveness as appointment reminders in various mental health settings. Study findings indicated significant improvements in first appointment attendance for reminders sent 24, 48, and 72 hours before the scheduled appointment (Guy et al., 2012). SMS reminders substantially increased first appointment attendance; SMS appealed to smart phone owners.

SMS appointment reminder applications reduced labor cost relative to phone appointment reminders (Guy et al., 2012). SMS provided a convenient, direct, and confidential appointment reminder delivery. SMS applications are cost effective for large message volumes and enabled patients to confirm, cancel, or reschedule via return SMS. Sims et al. (2012) found similar results. Sims et al. (2012) sent text message reminders to

each patient the week before the scheduled appointment, which reduced participants' nonattendance rates by 25% to 28% over three years.

Problem Statement

Studies found that between 60% and 90% of U.S. children and adolescents in need of mental health services did not receive treatment from 2007 through 2009 (Knopf, Park, & Mulye, 2008; Merikangas et al., 2010). Research identified a lack of access to appropriate services, inadequate health insurance coverage, lack of appropriate referrals, and insufficient mental health services capacity as likely causes (NIHCM, 2009). Reflecting the lack of adequate mental health services capacity, children's psychiatric services were subject to a long wait list for appointments, frequently more than two weeks (Runnels, 2013).

Initial appointment nonattendance at family mental health clinics drains scarce resources otherwise available to treat patients. Runnels (2013) found that first appointment nonattendance occurs at a rate of 20%–40% resulting in delayed access to vital care, continuing nonattendance, disengagement from services, rehospitalization, and wasted resources for clinics. Sims et al. (2012) estimated that missed adult health appointments cost the National Health Services in England more than $980 million annually for a population 20% of that of the United States. Researchers found that certain policies and procedures could significantly increase adult first appointment attendance rates (Benway et al., 2003; Sims et al., 2012). Researchers found a significant reduction in first appointment nonattendances by reducing wait time for first appointments (Benway et al., 2003) and text-message appointment reminders (Sims et al., 2012). Electronic text appointment reminders that were sent to the patient during the week

before the first appointment reduced nonattendance by 25% to 28% over 3 years for a sample of community mental health clinics in London (Sims et al., 2012).

The literature included few studies on appointments missed by children in U.S. community mental health centers, and the adult studies produced mixed and contradictory findings (Runnels, 2013). While some studies suggested no age effects, results of other studies have indicated that adolescents were more likely to miss initial appointments than were children. Data on sex differences were inconclusive. There is a gap in the literature on factors associated with child first appointment nonattendance for U.S. community mental health centers (McKay et al., 2006; Williams, 2008).

Purpose of the Study

The purpose of this quantitative study was to examine the relationship between first appointment wait times, electronic appointment reminders, phone appointment reminders, and first appointment attendance for U.S. community mental health facilities. The study added to the body of knowledge on missed first appointments at U.S. community mental health facilities with the aim of informing interventions to reduce missed mental health appointments. I collected patient data on first appointment attendance, wait times, electronic reminder use, age, gender, and ethnicity. I conducted binary logistic regression (BLR) analyses to examine the relationship between the dependent variable (first appointment attendance) and the independent variables (wait times, electronic reminder use) and moderating variables of age, gender, and ethnicity.

The following issues were beyond the scope of the study: (a) the causes for missed appointments, (b) parental circumstances, issues, or motivations related to missed appointments, and (c) interventions other than appointment reminders. See Chapter 3:

Study Variables for detailed definitions and variable operationalization for all study variables. No attempt was made to identify the causes for missed appointments or the position that the parent may have in the attendance. The study extended the work of Sims et al. (2012) to a U.S. population examining the association between message and phone reminders and missed first appointments for children and adolescents.

Research Questions and Hypotheses

RQ1: What is the relationship between appointment wait time, appointment reminders, and first appointment attendance for children/adolescents at family community mental health outpatient clinics?

$H_0$1: There is no relationship between appointment wait time, electronic reminders, phone call appointment reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

H_a1: There is a relationship between appointment wait time, electronic reminders, phone call appointment reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

RQ2: Do age, gender, and ethnicity moderate the relationships between appointment wait time, appointment reminders, and first-appointment attendance for children/adolescents at family community mental health outpatient clinics?

$H_0$2: Age, gender, and ethnicity do not moderate the relationships between appointment wait time, electronic reminders, phone call appointment

reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

H_a2: Age, gender, and ethnicity moderate the relationships between appointment wait time, electronic reminders, phone call appointment reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

RQ3: What is the relationship between electronic appointment reminders and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics after controlling for appointment wait time?

$H_0$3: There is no relationship between electronic call appointment reminders and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics after controlling for appointment wait time.

H_a3: There is a relationship between electronic call appointment reminders and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics after controlling for appointment wait time.

Theoretical Framework

The study used Blumer's (1969) symbolic interaction theory as the theoretical framework. The roots of symbolic interaction theory date back to the German sociologist and economist, Max Weber (1864-1920) and the American philosopher, George H. Mead (1863-1931), both of whom emphasized subjective meaning. Symbolic interaction theory posits that a person's definition of the situation gives meaning to the situation and sets

expectations for others and self (Burke, 1991; Cast & Burke, 2002; Mead, 1934). Subsequent actions reflect meaning drawn from previous interactions in a continuous loop. A person's self-concept is rooted in, and derived from, interactions with others (Kinch, 1963). The self is a fluid and dynamic process shaped by interactions with others, and the self operates as both subject and object (Mead, 1934).

An individual's conscious or subconscious mind plays an ultimate role in describing and defining the self via the person's internal dialog (Sandstrom, Martin, & Fine, 2006). Included in this process is the manner in which a person internalizes something that was once external (e.g., the processes of communication between people; Sandstrom et al., 2006). A person's internal dialog happens in real-time, whether positive, negative, or rational, and is a portion of an individual's overall thinking. This is an important element in the internalization process, because the manner in which a person is spoken to is internalized, particularly in relationships where others' opinions are important (Cast, 2003). Individuals internalize others' words, and treatment of themselves, through internal self-dialog. The self's ability to treat itself as an object, to treat itself as others would, is a central element of the self from an interactionist perspective (Burke, 1991).

Burke (1991) described self as the sum total of all that an individual can call hers or his, and described four types of self: (a) material self, (b) spiritual self, (c) social self, and (d) pure ego. The social self is the reflection of all recognition given a person by others, and is derivative of relationships with others. The social self reflects the multifaceted character of a heterogeneously organized society and forms the basis for social interactions. The self is also described by Burke (1991) to be a positive self-image

of worth and esteem. Additionally Burke (1991) augments names and labels to the self that serve as identifiers which he associates as an individual's internalized expectations. One of those identifiers is self-worth or self-esteem, which is built through an environment of healthy mental functioning. Burke saw self-esteem or self-worth as a healthy mental function of receiving recognition or attention from others that may be specific to situations or relationships. Moreover, Burke (1991) recognized self-esteem as a function of both recognition and attention received from others, as well as the individual's own aspirations and shared behavioral expectations. Furthermore, for the purposes of the study, the fulfillment of behavioral expectations and the recognition and attention received could appeal to a person's social self in receiving an electronic appointment reminder because an individual's social self and identifier should be aligned with the idea of enhancing self-esteem. The working hypothesis for the study was that electronic appointment reminders and short appointment wait times reinforced the message that attendance was important and consistent with taking care of the self, which increased first appointment attendance rates.

Nature of the Study

The study used a quantitative correlational approach to examine relationships between study variables. A quantitative study includes the collection of numeric data and the use of hypotheses to accept or reject suppositions based upon measurable, observable data. The quantitative approach is appropriate when (a) independent and dependent variables are clearly defined and measurable, (b) all study variables are numeric or can be converted to numeric data, and (c) there is a desire to produce findings with high levels of reliability using controlled observations (Leedy & Ormrod, 2015). A quantitative

approach was appropriate for this study because the study variables and study aims were consistent the conditions for a quantitative study.

Data on individuals was collected on first appointment attendance, wait times, electronic reminder use, age, gender, and ethnicity. BLR analyses were conducted to estimate the probability of first appointment attendance based on wait times and electronic reminder use, as well as assessing the potential moderating effect of age, gender, and ethnicity. The quantitative study included clinic attendance records of 5,260 children and adolescent patients from community health centers that provide mental health services. Each participating community clinic director completed the informed consent form. Data analyses included descriptive statistics and BLR to examine research questions and test hypotheses. The research was nonexperimental because no attempt was made influence behavior.

Definitions

Data were collected on individual first appointment attendance, wait times, electronic reminder use, age, gender, and ethnicity. The following terms are defined for the purposes of the study:

First appointments wait time: First appointment wait time was measured in days as the difference between the date of intake call and date of first scheduled appointment (Benway et al., 2003).

Phone call appointment reminders: For the purposes of this study, phone call reminder status was categorized as follows: no phone reminder = 0, one phone reminder =1, and 2 or more phone reminders = 2 (Benway et al., 2003).

Electronic appointment reminders: For the purposes of this study, electronic reminder status was categorized as follows: no electronic reminder = 0, one text or e-mail reminder = 1, and 2 or text or e-mail reminders = 2 (Sims et al., 2012).

First appointment attendance: A first appointment was considered missed if the child's first appointment was not kept and not cancelled at least 48 hours in advance (Benway et al., 2003).

Assumptions

The first assumption for the study was that parents of health center patients have access to phones, text messages, and e-mail to receive appointment reminders. While the Obama Administration policies made smart phones available on a subsidized basis, the proportion of low-income households without smart phones is unknown. The second assumption is that community mental health clinics attendance records are up to date, accurate, and available.

Scope and Delimitations

The study tested for an association between first appointment wait times, electronic appointment reminders, phone appointment reminders, and first appointment attendance for U.S. community mental health facilities, and the moderating effects of age, gender and ethnicity. The study variables were chosen based on the availability of each in the databases of U.S. community mental health clinics. The study was delimited to children and adolescent mental health patients attending community mental health clinics. As such, study participants were predominantly non-White and from lower socioeconomic status.

The scope of the study was nationwide, which was consistent with the nationwide needs for improvements in community mental health operations. No effort was made to duplicate the proportion of any demographic variable to match proportions in the U.S. population. Therefore, study findings may not generalize to populations or subpopulations differing from the study sample in terms of age, cultures, ethnicity, or other nonstudy variables (Leedy & Ormrod, 2015). Any correlational study finding may be the result of an unmeasured covariate.

Limitations

The study was limited to one dependent variable, three independent variables, and three moderating variables. The use of mental health services in the low-income community is a complex phenomenon. Studies have found SES, ethnicity, race, and a number of psychosocial variables to be associated with avoidance of mental health services (Mitchell & Selmes, 2007); therefore, study findings may not be generalizable to other populations within the U.S. or in other countries. Another limitation was the use of secondary data drawn from community records, which may contain uncorrected errors.

Significance

This study was significant because it provided community mental health administrators with choices for improving first appointment attendance rates. According to Mitchell and Selmes (2007), 20%, or more of mental health patients missed their intake appointments, and up to 50% dropped out of therapy before completion at a cost of $604 million per year to mental health service institutions. McKay (2009) suggested that clinicians could reduce nonattendance rates by examining and manipulating administrative policies and procedures.

Available literature on child nonattendance rates revealed that appointment age, ethnicity, gender, and maternal depressive disorder predicted first appointment nonattendance (Gordon, Antschel, Lewandowski, & Seigert, 2010; McKay, 2009; Williams, 2008). Other research was inconclusive about the relationship between appointment wait times, diagnoses, and intake appointment nonattendance (Williams, 2008). To date, there has been only one research study that identified the importance of pre-intake practices in regard to nonattendance at the child first appointments for community health centers (Williams, 2008). The study aimed to address the gap in the literature in first appointment wait times, electronic appointment reminders, and child first appointment attendance for community mental health facilities

Summary

Approximately 20% to 57% of patients at community health centers miss their first mental health appointment, resulting in wasted resources and contributing to wait times for other patients. The purpose of the quantitative study was to examine the relationship between first appointment wait times, electronic appointment reminders, phone appointment reminders, and first appointment attendance for U.S. community health centers providing mental health services. The study used Blumer's symbolic interaction theory (1969) as the theoretical framework. The research questions focused on the relationship between first appointment wait times, electronic appointment reminders, phone appointment reminders, and first appointment attendance, and the potential moderating effect for age, gender, and ethnicity. The quantitative study included the attendance records from 5,260 children and adolescents from 12 community mental health centers, and employed BLR to examine the relationships between child first-

appointment attendance and the independent and moderating variables. Chapter 2 summarizes the results of the Literature Review, and Chapter 3 details the methodology.

Chapter 2: Literature Review

Introduction

Childhood development of positive coping skills, resilience, and good judgment is critical for adult health and well-being (HHS, 2013). Childhood and adolescent community mental health intervention for those with psychological issues is critical for improving first attendance outcomes. The prevalence of diagnosable mental disorders among the 24.8 million U.S. adolescents in 2012 was estimated between 16% and 22% (NIHCM, 2009). Between 10% and 40% of those individuals received mental health treatment in 2012 (NIHCM, 2009). The low treatment rate was due to a variety of factors, including low appointment attendance rates, the focus of this study (HHS, 2013).

Most children or adolescents with medical insurance coverage have limits on the type and frequency of mental health services that can be received (Bloom et al., 2013). A lack of adequate affordable mental health capacity often led to long waits for an initial appointment, sometimes more than two weeks at subsidized community health centers (Runnels, 2013). Long initial appointment wait times contributed to first appointment nonattendance rates of between 20% and 40% among adolescents (Runnels, 2013; Williams, 2008). The impact on mental health facilities is substantial, and results in a delayed access to vital mental health care, continuing nonattendance rates, and wasted resources for clinics (Benway et al., 2003; Bleich, 2009; McKay, 2009; Najafi, 2011; Runnels, 2013; Sims et al., 2012; Vogel et al., 2007; Williams, 2008).

Researchers found that certain policies and procedures could significantly increase adult first appointment attendance rates by reducing wait times for first appointments (Filippidou et al., 2014; Najafi, 2011; Sherman et al., 2009; Sims et al.,

2012; Williams, 2008). Current literature shows the first appointment is three times more likely to have nonattendance when compared to later appointments in mental health services (Benway et al., 2003; Najafi, 2011; Sawyer et al., 2002; Sherman et al., 2009; Williams, 2008). This was problematic because community mental health facilities were short on staff and tightly budgeted; therefore, the first missed appointment ultimately interfered with the optimal use of limited finances and employee morale (Benway et al., 2003; McKay, 2009; Runnels, 2013). Appointment reminders in the form of voice or text messages were found to increase first appointment attendance with adults (Benway et al., 2003; Guy et al., 2012; Schauman, Aschan, Arias, Beards, & Clement, 2013; Sims et al., 2012). Benway et al. (2003) reported significant increases in attendance rates for adult study participants who received appointment phone reminders. Sawyer et al. (2002) confirmed those findings for a sample of adolescent community mental health services patients. Furthermore, it was reported that 79% of the adolescents' parents agreed that telephone reminders were supportive in promoting attendance (Sawyer et al., 2002). The researchers also found clinic nonattendance to be influenced by behavioral factors, SES, certain disorders and their severity, and insurance status. In another study, Guy et al. (2012) undertook a review of studies that assessed SMS effectiveness appointment reminders in different health settings. The results indicated that there has been an increase in SMS appointment reminders via cellular telephone services in the last five years. The researchers conducted meta-analysis in order to calculate the overall effect of nonattendance in clinical outpatient appointments. The findings from the study indicated that the relationship between SMS reminders and clinical attendance had the same estimated effect in primary care and outpatient clinics when messages were sent 24, 48,

and 72 hours before the scheduled appointment (Guy et al., 2012). Moreover, the SMS reminders substantially increased attendance rates, the first appointment, service delivery, and were found to be appealing due to the wide number of people who own a mobile telephone.

The current literature includes few studies on missed appointments for children or adolescents in U.S. community mental health centers; additionally, the existing studies have produced contradictory findings (Runnels, 2013; Sherman et al., 2009). While some studies suggested no age effects, results of others have indicated that older children are more likely to miss initial appointments. Data on sex differences were similarly inconclusive. There was a gap in the literature on factors associated with children and adolescence first appointment nonattendance for U.S. community mental health centers (Sherman et al., 2009; McKay, 2006; Williams, 2008). The purpose of this study was to examine the relationship between first appointment wait times, electronic appointment reminders, phone appointment reminders, and the first appointment attendance in children for community mental health facilities.

In Chapter 2 I review the literature on the factors informing attendance rates at the initial appointment in mental health facilities for children: (a) causes of first mental health appointment nonattendance, (b) interventions to reduce first appointment nonattendance, (c) symbolic interaction theory, and (d) potential interventions to reduce adolescent first appointment nonattendance. The goal of the study was to examine the association between electronic appointment reminders and children's attendance in mental health services. In addition, Chapter 2 includes the research question, literature

search strategy, the theoretical foundation, conceptual framework, literature related to key variables and concepts, and a summary.

Literature Search Strategy

The literature review included searches of the following scholarly article, book, and dissertation databases: EBSCOhost, ERIC, Google Scholar, ProQuest, PubMed, and JSTOR. Government healthcare websites and the following privately funded mental health-related websites were searched: Centers for Disease Control and Prevention, Center for Science in the Public Interest, Henry J. Kaiser Foundation, Robert Wood Johnson Foundation, Trust for America's Health, National Institute of Mental Health, National Institute for Health Care Management, National Survey of Children's Health, and U.S. Department of Health and Human Services. The Google search engine was used except when websites or databases required use of an internal search engine.

The development of keywords and key search terms was an iterative process. Initially, databases and websites were searched using the following keywords: *adolescent and children community mental health services, adolescent and children community mental health statistics, adolescent and children community mental health appointment attendance, adolescent and children mental health nonattendance, adolescent and children mental health appointment nonattendance intervention, adolescent and children mental health appointment nonattendance demographic factors, mental health appointment wait time, adolescent and children mental health appointment wait time, mental health appointment reminders, adolescent and children mental health appointment reminders, adolescent and children mental health services availability, community mental health administration, symbolic interaction theory, adolescent and*

children mental health insurance availability, and *federal programs to promote adolescent and children's mental health treatment.*

Chapter 2 includes a review of relevant peer-reviewed journals, scholarly books, dissertations, federal and state mental health websites, and related periodicals. The literature review covered the period from 2000 to 2014, but drew on some earlier works to research the theoretical framework. Sixty-three works were cited of which 49 were quantitative studies and 14 were qualitative or theoretical.

Theoretical Framework

The theoretical framework for the study was Blumer's (1969) symbolic interactionism (SI). The main construct in SI is that people attach symbolic meaning to objects, their own and others' behaviors, and other people (Blumer, 1969). While Blumer coined the term SI, he was influenced by the philosophy of pragmatism, which emphasizes human agency, consciousness, meaning, and process (Musolf, 2003). The foundation of tradition evolved from the thinking of German sociologist and economist, Max Weber (1864-1920) and the American philosopher George H. Mead (1863-1931), both of whom emphasized subjective meaning (Musolf, 2003).

Mead's (1934) primary contribution to SI was his 1934 book entitled *Mind, Self, and Society*. The *mind* is focused on the internal dialogue regarding the meaning of objects and people. The internal dialogue, or thinking, is the essence of the mind. From the continuous process of thought about experience, meaning is derived and attached to those objects and people in the experience. A person's definition of an object, behavior, or person gives it meaning and sets expectations for others and self (Mead, 1934). Subsequent actions reflect meaning drawn from previous interactions in a continuous

loop. A person's self-concept is rooted in, and derived from, interactions with others (Musolf, 2003). The self is a fluid and dynamic process shaped by interactions with others, and the self operates as both subject and object (Mead, 1934). Individual conscious or subconscious mind plays an ultimate role in describing and defining the self via a person's internal dialog (Sandstrom et al., 2006). Also, included in this process is the manner in which a person internalizes something that was once external (e.g., the processes of communication between people; Sandstrom et al., 2006). Additionally, a person's internal dialog happens in real-time, whether positive, negative, or rational, and is a portion of an individual's overall thinking. This is an important element in the internalization process because it is the manner in which a person is spoken to that is internalized, particularly in relationships where another's opinion is important (Cast, 2003). Individuals internalize another's words and treatment of themselves through internal self-dialog. The self's ability to treat itself as an object, to treat itself as others would, is a central element of the self from an interactionist perspective (Burke, 1991).

For Mead (1934), the *self* goes beyond a person's physiological presence to include thought and learning processes, which are reflective. Individual qualities are communicated depending on the situation. Mead (1934) suggested that it was not possible to separate self from the relationship/situation people find themselves in at any particular moment. Each individual has a chameleon-like quality, in that manifested qualities of self are socially and situationally dependent. This chameleon-like quality and experience allow individuals to adapt in order to survive within a society of norms (Stryker, 1980). *Society* is the collection of individuals' minds and selves in a constant process of evaluating each other and themselves in a continuous process of evolution.

Society exists because it is adaptive for the advancement and continuation of the species (Mead, 1934). The working hypothesis for the study was electronic appointment reminders and short appointment wait times reinforce the message that attendance is important and consistent with taking care of one's self.

Key Variables and Concepts

Engaging families in the child mental health treatment process has proven challenging despite significant research and effort (Gopalan et al., 2010). Existing literature on adult mental health appointment attendance reported a significant predictive relationship between nonattendance and employment, age, ethnicity, gender, and certain depressive disorders (Gopalan et al., 2010). Relatively little research exists regarding factors affecting children and adolescent mental health appointment attendance (Williams, 2008). The study examined the relationship between first appointment attendance (dependent variable), wait times, phone reminders, and electronic reminders (independent variables), and gender, age, and ethnicity (moderating variables). In addition, for this study the term *children* is defined as persons 3 to 18 years of age and the term *mental disorder* is defined as a serious deviation in social, emotional and cognitive development, as well as meeting the conditions of the DSM-IV-TR.

Appointment Attendance

The processes of emotional healing and behavioral therapy begin in a similar manner. The patient must attend the first scheduled appointment (i.e., the intake session). Studies show that nonattendance rates for initial sessions were between 20% and 40% for children and adolescents (Benway et al., 2003; McKay et al., 2006). According to McKay et al. (2006), the first initial point of contact with the patient is a "Critical Point" (p. 243).

This is defined at a particular point in time when the patient calls to make the appointment and is in need of services. McKay et al. (2009) found positive results that lead to higher attendance rates on patients' initial appointments when staff are trained in techniques that foster authenticity and engagement. McKay et al. (2006) developed the Engaging Youth and Families training, which was an 8-hour intensive workshop for helping service providers to promote understanding of barriers to children and adolescents' accessing mental health care and to teach strategies to overcome these barriers. Barriers included social stigma associated with receiving mental health care, mistrust of professionals, fear of being blamed, and discouragement from family members.

Mental health appointment attendance research has been operationalized in a variety of ways, including pre-treatment dropout, initial intake non-attendance, or missing first scheduled treatment appointments (Gordon et al., 2010). Patient disengagement happens at a troubling rate. Literature defines pre-treatment dropout as patient disengagement, such that the patient discontinues treatment prematurely, omits appointments or sessions, attrition, or drops out of services entirely (McKay et al., 2006). Furthermore, most of the research identifies the rates of disengagement as non-attendance or "no shows." This is defined as the patient making an appointment and then not attending (Moore, Wilson-Witherspoon, & Probst, 2001; McKay, 2009).

For the purposes of this study, nonattendance meant the failure to attend the initial intake meeting, including all efforts to reschedule (Gopalan et al., 2010). To clarify, a family member that reschedules an initial appointment, but eventually attends, is considered to have attended the first appointment. First appointment wait time negatively

affected first appointment attendance, while age, family history of service use, and financial and social resource availability positively affected attendance (Benway et al., 2003; HyunSoo, Munson, & McKay, 2012). The following issues are beyond the scope of the study: (a) the causes for missed appointments, (b) parental circumstances, issues, or motivations related to missed appointments, and (c) interventions other than appointment reminders.

Wait Time

Wait time refers to the number of days between the initial request for a mental health appointment and the date of the first appointment, sometimes referred to as an intake appointment (Sherman et al., 2009). Benway et al. (2003), and Najafi, (2011) found a significant negative relationship between wait time for initial appointment and first appointment attendance. In another study of 1,317 children and adolescents seeking mental health services in the rural U.S., Sherman et al. (2009) obtained data showing wait-time, ethnicity, and referral source were significantly related to first appointment attendance. The relationship between wait time and first appointment attendance was significant even after accounting for the variance associated with ethnicity and referral source.

Sherman et al. (2009) found for each day that passed between initial phone contact and scheduled appointment, the odds of nonattendance at the scheduled intake appointment increased by 1.4%. Furthermore, the longer the wait-time for a scheduled appointment, the greater the chance for a crisis to dissipate, or motivation to seek assistance to dissipate (Sherman et al., 2009). However, it was reported by Sherman et al. (2009) that the data collected was limited to initial telephone contact, such that there was

no follow-up data to prove the causes for non-attendance. Moreover, Sherman et al. (2009) added there could be the possibility that the patients with a longer wait-time for the initial appointment found services elsewhere. Thus, it was not possible to conclude that the population from this study did not go without receiving mental health services.

Appointment Reminders

The most commonly cited reason for missing a mental health appointment was forgetting, which led to the use of reminders as a method to improve attendance rates (Mitchell & Selmes, 2007; Sims et al., 2012). Postal letters, telephone calls, and pre-intake parent orientations had a beneficial effect on appointment attendance (Benway et al., 2003). Postal prompts (Jayaram, Rattehalli, & Kader, 2008) and phone calls (Reda, Rowett, & Makhoul, 2010) typically delivered one to 14 days in advance of an adult mental health appointment reduced nonattendance rates 26% to 76% and were most effective when received closer to the appointment date (Hilty, Yellowless, Cobb, Neufeld, & Bougeois, 2006). Likewise, results from Tambling, Johnson, Templeton, and Melton (2007) indicated a decrease in nonattendance to 54% when patients were reminded by telephone calls. Gopalan et al. (2010) found that phone call reminders increased attendance for all patients, without regard to logistical, cultural, or perceptual barriers. Shoffner, Staudt, Marcus, and Kapp (2007) discovered the use of new technology of computers and cell phones to be effective with increasing the first appointment in mental health services.

An alternative reminder approach uses SMS technology, or text messaging. SMS texts are cost-effective, easy to automate and provide a convenient method for patient response, a text confirmation. SMS reminders can be generated automatically by

appointment software, removing the need for labor and reducing errors. Text messaging has proven effective with prescription medication adherence effecting clinical outcomes for diabetes, and tuberculosis (Sims et al., 2012).

Sims et al. (2012) examined the efficacy of SMS as a mental health appointment reminder on a large sample over a three-year period. Missed appointments fell from 36% of all appointments in 2008 to 27% of all appointments in 2010. Attendance at family clinic outpatient appointments was examined during 2008 (N=648), 2009 (N=1,081), and 2010 (N=1,088). The treatment was as follows: no text messages in 2008, reminder messages seven and five days before a 2009 appointment, and reminder messages seven and three days before a 2010 appointment. Missed appointments accounted for 36% of appointments in 2008, 26% of appointments in 2009, and 27% of appointments in 2010. Appointment attendance rates were significantly higher in 2009 and 2010 than for the 2008 sample. No significant difference in attendance was found between was the 2009 and 2010 messaging protocols. SMS-based technology can offer a time, labor, and cost-efficient strategy for encouraging engagement with psychiatric outpatient services.

Guy et al. (2012) reported that SMS were an effective and expedient delivery method for of appointment reminders. SMS were immediate, direct, and private while reducing staff time devoted to phone reminders, thereby freeing resources for other work. The success of SMS was a function of the number of messages that can be transmitted cheaply, and the ability for patients to confirm, cancel, or reschedule the agency by responding electronically to the SMS. Comparable results were also concluded in a similar study by Sims et al. (2012) in text messaging appointment reminders. Research by Sims et al. (2012) sent text message reminders to each patient the week before the

scheduled appointment. The findings indicated the ability to reduce the facility's nonattendance rates by 25% to 28% over three years.

Other Factors Affecting Nonattendance

The research regarding factors that may affect first mental health appointment attendance by children and adolescents is mixed and conflicting (Barrett, Chua, Crits-Christoph, Gibbons, & Thompson, 2008; Benway et al., 2003; Najafi, 2010; Williams, 2008).

Age. A large-scale study of 2,358 cases drawn from consecutive case files pulled from a single community mental health clinic found that appointment non-attendance increased with children's and adolescents' age (Najafi, 2010).

Ethnicity. African American, Asian, and Latino children and adolescents were less likely to attend a mental health intake appointment than Caucasians, even after accounting for the variance associated with SES (Neighbors et al., 2007). Sherman et al. (2009) found that intake appointment nonattendance in a mental health setting was significantly related to ethnicity. African Americans and Asians were less likely than European Americans whites were to attend the intake appointment than non-whites. Individuals from African American and Asian cultures were found to feel shame about obtaining mental health services, embarrassed about discussing family issues, and feared being stigmatized by family members (Gordon et al., 2012; McKay, 2009; Vogel et al., 2007; Williams, 2008). These ethnicities were socialized to hold to their cultural values and social independence by not disclosing personal information (Paige & Mansell, 2013).

Socioeconomic status. SES has a significant impact on mental health appointment attendance (Delaney, 2012). Williams (2008) examined the relationship of

waiting-times between the first initial contact for appointment and the first initial appointment in community mental health outpatient clinics over a period of 8 months.

Williams (2008) used median income as a proxy for SES.

Mitchell and Selmes (2007) reported that lower SES status was an indicator of low attendance at first intake for mental health appointments. A review of a comprehensive study of 221,000 appointments revealed there was a strong correlation with nonattendance and low SES. However, later studies failed to replicate the relationship between lower SES and missed first mental health appointments (Paige & Mansell, 2013).

Referral source. Self-referral to mental health services was as a significant predictor of intake attendance (Benway et al., 2003; Sherman et al., 2009). Sherman et al. (2009) evaluated secondary data regarding attrition rates and referrals in outpatient community mental health clinic. The results indicated that the referral source was a primary indicator of initial attendance rates such that, if the patient was self-referred there was a 54% of attending vs. a 19% referred by court or legal services. However, in a study by Kessler (2012) data were collected on referrals made to mental health centers, the results indicated 95.5% of those patients attended their first appointment of mental health services. Kessler (2012) argued that by scheduling mental health service appointment while in the primary doctor's office, it was not only a collaborative effort, but also, data indicated a higher percentage of first appointment patient attendance in mental health. There was an automated phone appointment reminder to the patient before the scheduled mental health appointment. Data for the study was recorded in referral forms and the billing system to compile a list of attended patient appointments. Findings also suggested

an improvement of poor treatment initiation rate for mental health services despite differences in practice type, populations, locations, and periods of data collection. However, Kessler (2012) noted the results from the study had obvious limitations with data collection in a small office (location and population); still, more research is needed to confirm results only with a larger population utilizing the same research questions.

Diagnostic presentations. Certain symptoms and disorders place potential clients at greater risk for intake nonattendance. Presentations such as violent behavior, suicidal ideation or action, and acute or concerning psychosis are significant factors when considering wait time for adolescents at community mental health clinics. However, Sherman et al. (2009) found no differential predictive value in case urgency when evaluating intake attendance. Another diagnostic presentation factor considered in the research was psychological mindedness, which refers to an individual's ability to recognize psychological problems, use of psychological terminology, and acknowledge possible psychological terminology. Reis and Brown (2006) found that psychological mindedness was positively associated with intake attendance.

A randomized controlled study by Compton, Rudisch, Craw, Thompson, and Owens (2006) collected data for initial intake and assessment appointments were evaluated from county community mental health clinics and private practices between December 2003 and July 2004. The study's aim was to identify predictors of appointment attendance from patient charts, previous treatment, without using rating scales that are not normally used in clinical practice. Patients who were hospitalized more than one time during data collection were not included a second time. These patients were not given any appointment reminders except for a card with pre-arrangements of a scheduled

appointment. The outcome variable was whether or not the patient attended the first appointment in outpatient mental health services after receiving inpatient treatment of 7 to 14 days, and referred for outpatient follow-up treatment facility. Both initial inpatient hospital and three county community mental health clinics served a predominantly low-income, urban population of female, African Americans. Analyses were completed for patient data as adherent or non-adherent outcomes. The data differed on 5 predictors of the 12 clinical variables investigated. The data showed that only 36% attended the intake and the first scheduled appointment (Compton et al., 2006).

Summary

Approximately 4.0 (16%) to 5.5 (22%) million of the 24.8 million U.S. children and adolescents in the U.S. suffer from severe mental disorders at any given time. Less than 40% of those suffering from a severe mental disorder receive treatment due to the lack of access to mental healthcare services or inadequate health insurance coverage. Children and adolescents seeking mental health assistance experience first appointment nonattendance rates between 20% and 40%. Factors associated with intake nonattendance include long appointment wait times, ethnicity, SES, referral source, and diagnostic presentation.

Certain family community health center policies and procedures may significantly increase first appointment attendance rates. Due to the lack and insignificant current data relating to childrens' first appointment attendance rates within the mental health sector, there is a need for a quantitative, archival data study with first appointment attendance rates by way on electronic reminders was indicated. The purpose of the study was to examine the relationship between first appointment wait times, electronic appointment

reminders, phone appointment reminders, and child's first appointment attendance for community mental health facilities. The study used Blumer's (1969) theory of Symbolic Interactionism. Symbolic interactionism describes the reason that an individual initiates and maintains relationships with others.

Chapter 3: Methodology

Introduction

The purpose of the quantitative study was to examine the relationship between first appointment wait times, electronic appointment reminders, phone appointment reminders, and first appointment attendance for U.S. community health facilities providing mental health services. Between 20% and 57% of patients at community health centers miss their first mental health appointment, which results in wasted resources and contributes to wait times for other patients (Benway et al., 2003; McKay, 2009; Mitchell & Selmes, 2007). To date, there has been only one research study that examined the relationship between pre-intake practices and children's first appointment attendance rates for community health centers (Williams, 2008). Community health administrators are in need of new strategies and tactics to improve first appointment attendance rates and reduce appointment wait times (Gordon et al., 2010; McKay, 2009; Williams, 2008). This quantitative study aimed to address the gap in the literature in first appointment wait times, electronic appointment reminders, phone appointment reminders, and children's first appointment attendance for community mental health facilities.

Chapter 3 includes a description of the research and rationale, study population, participants, sampling method and powering, categorical variables, ethical considerations, instrumentation and materials, and data collection. The chapter also includes study variable operationalization, the data analysis plan, research questions and hypotheses, and statistical procedures used to test each hypothesis. The quantitative study used secondary data drawn from the records of 12 community health centers to address the research questions.

Research Design and Rationale

The study used a quantitative research approach to address the research questions. The quantitative research approach involved the measurement of observable events and the performance of statistical analysis on a body of numerical data (Leedy & Ormrod, 2015). This quantitative approach used the positivist paradigm that assumes there is an objective reality that can be objectively measured and explained scientifically, using reliable and valid measurements, and with repeatable and generalizable procedures to isolate the effects of study variables.

A quantitative research approach is appropriate when: (a) the research problem can be clearly articulated, (b) study variables are clearly defined and numeric, and (c) data can be collected from reliable sources at an acceptable cost (Leedy & Ormrod, 2015). The primary advantages of the quantitative approach are (a) the ability to achieve high levels of validity and reliability, and (b) eliminating or minimizing subjectivity. A quantitative study involves hypotheses that are either accepted or rejected based upon observable results using statistical analyses.

Population

The target population for the study was composed of child and adolescent mental health patients from the 91 federally qualified community health care centers in Texas located predominantly in low-income, medically underserved communities (NIMH, 2012). Community health centers were distributed evenly between urban (51%) and rural (49%) communities. Community health centers operated approximately 91 sites in Texas and provided 6.4 million visits to about 1.6 million patients, of which approximately 500,000 visits were mental health related. Approximately 70% of all health center

patients had income below the federal poverty level. More than 50% of patients in Texas were from racial or ethnic minority groups and community health centers served approximately one in six low-income people. Data were collected for calendar years 2011, and 2012 for all mental health appointments made for 5,260 children and adolescents at 12 Texas community health clinics. The relevant population for the study was community mental health centers in Texas that provided approximately 500,000 mental health service appointments in 2011 and 2012.

Samples

A Texas-based community received the recruitment e-mail (Appendix B). An e-mail reminder was sent seven days after the initial recruitment e-mail, followed by phone calls until two Texas-based community health centers agreed to provide study data. Twelve Texas-based community mental health centers provided secondary study data on children and adolescent patient attendance for a 12 month period. Anonymized patient data were collected from center directors associated with the Texas Association of Community Health Centers, a private, nonprofit membership association.

SMS-based appointment reminders sample (SMS sample). The SMS sample included child and adolescent patient records collected from a Texas-based community mental health center that uses SMS appointment reminders for all appointments.

Phone-based appointment reminders sample (phone sample). The phone sample included child and adolescent patient records collected from a Texas-based community mental health center that uses telephone appointment reminders for all appointments.

Sample Powering

The level of examination for the study was the attendance behavior of the individual patient; therefore, sample powering was conducted to determine the number of patient records needed to power the test statistic. The study used BLR statistics to test hypotheses. According to Knoke, Bohrnstedt, and Mee (2002), BLR is used to show a linear relationship when "calculating the odds ratio and/or predicated scores" (p. 173). G*Power analysis for BLR was conducted for seven variables, $\alpha \leq .05$, $\beta = 0.80$, effect size = 0.3 (medium), resulting in a minimum sample size of 269 (Faul, Erdfelder, Buchner & Lang, 2009). Based on the G*Power analysis, 135 patient records from each of the SMS and phone samples constituted the minimum sample size for the study.

Data Collection

Study data on the study variables were collected from community mental health centers using an Excel spreadsheet or other format convenient for the community health centers. Patient demographic data and study variable data were collected using Excel spreadsheets (Appendix A).

Operationalization of Study Variables

The dependent variable was first appointment attendance, which is binary, and independent variables were first appointment wait times, phone call reminders, and electronic reminders. Gender, age, and ethnicity were included as moderating variables based on previous studies (Benway et al., 2003; Mitchell & Selmes, 2007; Williams, 2008). All study variables were categorical or interval.

First appointments wait time. First appointment wait time was measured in days from the completion of the intake call to first scheduled appointment (Benway et al., 2003).

Phone call appointment reminders. For the purposes of this study, phone call reminder status was categorized as follows: no phone reminder = 0, one phone reminder =1, and 2 or more phone reminders = 2 (Benway et al., 2003).

Electronic appointment reminders. For the purposes of this study, electronic reminder status was categorized as follows: no electronic reminder = 0, one text or e-mail reminder = 1, and 2 or text or e-mail reminders = 2 (Sims et al., 2012).

Data Analysis Plan

Study data from center directors was transferred from Excel to Statistical Package for the Social Sciences 23® (SPSS) software. Data were analyzed for outliers using SPSS; bad data, missing data and outliers were addressed. Bad or missing data can be addressed using one of the following methods: (a) list-wise deletion, in which all participant data is excluded; (b) pairwise deletion, which excludes only the missing data for a specific analysis and retains the data; or (c) replacing missing data with the mean (Leedy & Ormrod, 2015). For the purposes of the current study, any missing respondent data were accounted for by using a list-wise deletion technique to maintain the sample size (Leedy & Ormrod, 2015), and outliers were considered on a case-by-case basis. Descriptive statistics means and frequencies were calculated and reported to characterize the community center sample and their patient demographics. Inferential statistics were used to test hypotheses.

Research Questions and Hypotheses.

The research question for the study was as follows:

RQ1: What is the relationship between appointment wait time, appointment reminders, and first appointment attendance for children/adolescents at family community mental health outpatient clinics?

$H_0$1: There is no relationship between appointment wait time, electronic reminders, phone call appointment reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

H_a1: There is a relationship between appointment wait time, electronic reminders, phone call appointment reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

RQ2: Do age, gender, and ethnicity moderate the relationships between appointment wait time, appointment reminders, and first-appointment attendance for children/adolescents at family community mental health outpatient clinics?

$H_0$2: Age, gender, and ethnicity do not moderate the relationships between appointment wait time, electronic reminders, phone call appointment reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

H_a2: Age, gender, and ethnicity moderate the relationships between appointment wait time, electronic reminders, phone call appointment

reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

RQ3: What is the relationship between electronic appointment reminders and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics after controlling for appointment wait time?

$H_0$3: There is no relationship between electronic call appointment reminders and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics after controlling for appointment wait time.

H_a3: There is a relationship between electronic call appointment reminders and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics after controlling for appointment wait time.

Table 2 depicts the study variables for each hypothesis and statistical tests conducted to test each hypothesis. Age, gender, and ethnicity were included as moderating variables based on their significant association to appointment nonattendance in earlier studies (Gordon, et al., 2010; McKay, 2009; Williams, 2008). Results were reported using odds ratios and 95% confidence intervals (95% CI). The dependent variable was first appointment attendance; three different blocks of independent and moderating variables were tested to evaluate their individual and combined relationships with the dependent variable.

Table 1

Statistical Tests for Null Hypotheses

Hypothesis	Variables	Statistics
$H_0$1: There is no relationship between appointment wait time, electronic reminders, phone call appointment reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.	Wait time, electronic reminders, phone reminders, attendance	Binary Linear Regression
$H_0$2: Age, gender, and ethnicity do not moderate the relationships between appointment wait time, electronic reminders, phone call appointment reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.	Wait time, electronic reminders, phone reminders, attendance, age, gender, ethnicity	Hierarchical Linear Regression
$H_0$3: There is no relationship between electronic call appointment reminders for children/adolescent child first appointment attendance rates at family community mental health outpatient clinics, after controlling for appointment wait time.	Wait time, electronic reminders, phone reminders, attendance	Binary Linear Regression

Threats to Validity

External validity refers to the generalizability of findings to other settings or populations. Results might not be generalizable to different-sized community health centers or community health centers with significantly different racial or ethnic compositions (Leedy & Ormrod, 2015). The primary threat to internal validity is data integrity. Data integrity is a function of the data capture process. The primary threat to statistical conclusion validity is the potential for an unmeasured covariate with greater explanatory value of the independent variables.

Ethical Procedures

Walden University IRB approval (# 0930150123617) was received before any contact was made with potential participants or any data collection was initiated for this study. I agreed all IRB rules would be followed exactly and explicitly and understood that IRB policies and procedures are designed to ensure the integrity of the university and protect human subjects from harm. While the study involved only secondary data, potential participating institutions received assurance of the anonymity of participants and confidentiality of all study data. Study-related records, notes, files, and database records will remain confidential and only I as the researcher have the capability to access records. No personally identifiable information was collected. Study data will be stored offline in a locked drawer for a period of five years and then destroyed.

Summary

The purpose of the quantitative study was to examine the relationship between first appointment wait times, electronic appointment reminders, phone appointment reminders, and first appointment attendance for U.S. community health facilities

providing mental health services. The study used a correlational research design and a quantitative methodology. The correlational research design was appropriate for this study given the potential for an empirical relationship between variables and the reasonable relationship in time. Chapter 4 presents the findings, characterizes the study sample, and discusses any methodological issues arising during the research process.

Chapter 4: Results

Introduction

The purpose of this correlational study was to examine the relationship between first appointment wait times, electronic appointment reminders, and first appointment attendance for children and adolescent clients at community mental health clinics. The following research questions and hypotheses regarding the efficacy of appointment reminders to improve first mental health appointment attendance were addressed:

RQ1: What is the relationship between appointment wait time, appointment reminders, and first appointment attendance for children/adolescents at family community mental health outpatient clinics?

$H_0$1: There is no relationship between appointment wait time, electronic reminders, phone call appointment reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

H_a1: There is a relationship between appointment wait time, electronic reminders, phone call appointment reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

RQ2: Do age, gender, and ethnicity moderate the relationships between appointment wait time, appointment reminders, and first-appointment attendance for children/adolescents at family community mental health outpatient clinics?

$H_0$2: Age, gender, and ethnicity do not moderate the relationships between appointment wait time, electronic reminders, phone call appointment

reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

H_a2: Age, gender, and ethnicity moderate the relationships between appointment wait time, electronic reminders, phone call appointment reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

RQ3: What is the relationship between electronic appointment reminders and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics after controlling for appointment wait time?

$H_0$3: There is no relationship between electronic call appointment reminders and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics after controlling for appointment wait time.

H_a3: There is a relationship between electronic call appointment reminders and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics after controlling for appointment wait time.

The study aim was to examine empirical evidence regarding appointment reminder practices for community mental health centers to improve appointment attendance rates by using resources more efficiently. Data were collected for calendar years 2011 and 2012 for all mental health appointments made for 5,260 children and adolescents at 12 Texas community health clinics. Chapter 4 presents data collection

issues and results divided into: (a) sample descriptive statistics, and (b) research question findings.

Data Collection

Data were collected from a sample of 12 Texas-based community mental health facilities. The sample was ethnically representative of the population attending these facilities for services because all records for the full year for each participating clinic were included in the study, except for approximately 8% of the records that contained errors. Patient attendance data were collected in spreadsheet form and records with outliers or missing data were excluded. The data collection period was from April 2016, through December, 2016, and patient attendance rates were collected for the 12 month period ending December 31, 2016. The SPSS was used to conduct all statistical analyses. Significant data errors were found for all 12 participating institutions, and in two cases, data were coded wrong initially and required a replacement set of data. In 10 cases, at least one study variable was either not included or the data provided was not responsive. For instance, ethnicity data for one community center were recorded as participants' ages rather than ethnicities. In two cases, patient attendance data was coded exactly. Despite some difficulties initially, the final data were consistent both internally and externally relative to similar prior research. Means and frequencies for demographic data and study variable data were within expected limits.

Results

Descriptive Statistics

Tables 2 characterizes the study sample for demographic factors and reports overall frequencies for each study variable. In terms of demographics, the study included

2,968 (56.5%) male participants and 2,281 (43.5%) female participants. The study sample gender composition had a lower proportion of males than the U.S. average for adolescents/children seeking community mental health services, which were 65.4% male and 34.6% female (Substance Abuse and Mental Health Services Administration [SAMHSA], 2013). The study sample included 4,076 (77.5%) Whites, 957 (18.2%) Blacks, 65 (1.2%) Hispanics, and 162 (3.1%) individuals from other races/ethnicities. The study sample racial/ethnic profile was similar to the U.S. average for adolescents/children seeking community mental health services, which were 61% White, 17% Black, 17% Hispanic, and 5% other (SAMHSA, 2013). The low proportion of Hispanics in the study sample was likely due to the stigma in the Hispanic community against seeking mental health assistance (Gordon et al., 2010). A total of 1,997 (38.0%) children and 3,263 (62.0%) adolescents were included in the study sample. The study sample age group composition was similar to the U.S. average for adolescents (67%)/children (33%) seeking community mental health services (SAMHSA, 2013).

Also reported in Table 2 are frequencies for wait time, attendance, and message type. Appointment wait time for 2,817 (53.6%) participants was 1 to 7 days, wait time for 1,693 (32.2%) participants was 8 to 14 days, and wait time for 750 (14.2%) participants was 15 days or more. The wait time for 85.8% of the study sample was 14 days or less. A total of 3,486 (66.3%) attended their first community mental health appointment and 1,774 (33.7%) missed the first appointment. The study finding of a 66.3% first appointment attendance rate for children and adolescents at community mental health centers confirms earlier studies that reported attendance rates between 60% and 80% (Runnels, 2013; Williams, 2008). A total of 3,618 (68.8%) participants were reminded of

their appointment by e-mail, 1,561 (29.7%) were reminded by text, and 81 (1.5%) were reminded by phone call. Each patient received exactly one message reminder of the type specified.

Table 2

Sample Demographics and Study Variable Frequencies

Variable	Frequency (%)
Gender	
Male	2,968 (56.5%)
Female	2,281 (43.5%)
Ethnicity	
White	4,076 (77.5%)
Black	957 (18.2%)
Hispanic	65 (1.2%)
Other	162 (3.1%)
Group	
Children (6-12)	1,997 (38.0%)
Adolescents (13-19)	3,263 (62.0%)
Wait Time	
1 to 7 days	2,817 (53.6%)
8 to 14 days	1,693 (32.2%)
15+ days	750 (14.2%)
Attendance	
Attend	3486 (66.3%)
Missed	1774 (33.7%)
Message Type	
E-mail	3,618 (68.8%)
Text	1,561 (29.7%)
Phone	81 (1.5%)

Note. N = 5,260 except for gender with N =5,249.

Table 3 reports attendance rates by each demographic characteristic and study variable. Initial appointment attendance rate for children was 59%, and the attendance rate for the adolescents was 71%. Of the 2,968 male participants, 2,036 (69%) attended and 932 (31%) missed their initial appointment. Of the 2,281 female participants, 1,444

(63%) attended their first appointment and 837 (37%) missed their appointment. The attendance rate for Whites was 68%, 61% for Blacks, 65% for Hispanics, and 57% for other, for an aggregate attendance rate of 68%. The attendance rate for participants receiving an e-mail was 71%, 57% for those receiving a text reminder, and 52% for those receiving a phone reminder. The attendance rate for those with an appointment wait time of 1 to 7 days was 68%, the attendance rate for those with a wait time of 8 to 14 days was 66%, and 63% for those with a wait time of 15 or more days.

Table 3

Attendance by Variable

Variable	Attend	Missed	*N*
Gender			
Male	2,036 (69%)	932 (31%)	2,968
Female	1,444 (63%)	837 (37%)	2,281
Total	3,480 (66%)	1,769 (34%)	5,249
Group			
Children	1,175 (59%)	822 (41%)	1,977
Adolescents	2,311 (71%)	952 (29%)	3,263
Total	3,486 (66%)	1,774 (34%)	5,260
Ethnicity			
Black	582 (61%)	375 (39%)	957
Hispanic	42 (65%)	23 (35%)	65
White	2,769 (68%)	1,307 (32%)	4,076
Other	93 (57%)	69 (43%)	162
Total	3,486 (66%)	1,774 (34%)	5,260
Wait Time			
1 to 7 days	1,907 (68%)	910 (32%)	2,817
8 to 14 days	1,110 (66%)	583 (34%)	1,693
15+ days	469 (63%)	281 (37%)	750
	3,486 (66%)	1,774 (34%)	5,260
Message Type			
E-mail	2,555 (71%)	1,063 (29%)	3,618
Text	889 (57%)	672 (43%)	1,561
Phone	42 (52%)	39 (48%)	81
Total	3,486 (66%)	1,774 (34%)	5,260

Statistical Assumptions

Logistic regression does not involve many of the key assumptions of linear regression and general linear models that are based on ordinary least squares algorithms, particularly regarding linearity, normality, homoscedasticity, and measurement level (Tabachnick & Fidell, 2012). The primary assumption for the use of BLR is a dichotomous dependent variable. Independent variables are not needed to meet the requirements for the use of regression analyses, which include data that is normally distributed, linear, and of equal variance within each group (Leedy & Ormrod, 2015).

BLR requires the dependent variable to be binary and ordinal logistic regression requires the dependent variable to be ordinal. Because logistic regression assumes that $P(Y=1)$ is the probability of the event occurring, it is necessary that the dependent variable is coded accordingly. In binary regression, the factor level 1 of the dependent variable represents the desired outcome. Dependent and independent variables need not be related linearly.

Findings by Research Question

RQ1: What is the relationship between appointment wait time, appointment reminders, and first appointment attendance for children/adolescents at family community mental health outpatient clinics?

$H_0$1: There is no relationship between appointment wait time, electronic reminders, phone call appointment reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

H_a1: There is a relationship between appointment wait time, electronic reminders, phone call appointment reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

Binary logistic regression statistics were calculated to estimate the probability of appointment attendance for children and adolescents based on combinations of wait times, and message types. Binary dummy variables were coded for attendance with 1 (attended) or 0 (did not attend) and categorical predictor variables (wait time, type of reminder) were entered into the covariates box within the BLR statistic protocol. Results were reported using odds ratios and 95% confidence intervals with the dependent variable as first appointment attendance.

Nagelkerke's R-Squared statistics measures the predictive power of the model. Hosmer and Lemeshow's (HL) statistic calculates the model's goodness of fit for the model depicted in Table 4. Nagelkerke's R-Squared was .025, indicating that 2.5% of the variation in the dependent variable was explained by the logistic model. The H-L test resulted in a χ^2 statistic = 19.9 (p = .001), which means the model is not a good fit. Prediction success of the overall model that includes the wait time and reminder type variables was 66.3% for attend and 33.7% for missed appointment. Essentially, the model tested, which is that appointment wait times and appointment reminders will predict first appointment attendance is not a good fit with the data.

Table 4 details the binary logistic regression model's results, that is, the model's ability to predict the relationship between appointment wait time, reminder, and first appointment attendance for children and adolescents at family community mental health

outpatient clinics. First appointment wait time was a significant predictor of first appointment attendance for the study sample. The odds of attending a first appointment with a wait time between 1 and 7 days was 26% greater than individuals with a wait time of 15+ days (OR: 1.26, 95% CI: 1.06 – 1.48, $p < .01$). The odds of attending a first appointment with a wait time between 8 and 14 days was not significantly different than a wait time of 15+ days (OR: 1.14, 95% CI: 0.95 – 1.36, $p = .15$). Therefore, the null hypothesis was rejected for wait times between 1 and 7 days and accepted for wait times between 8 and 14 days.

First appointment reminder type was a significant predictor of first appointment attendance for the study sample. The odds of attending a first appointment for individuals receiving an e-mail was 123% greater than individuals receiving a phone reminder (OR: 2.23, 95% CI: 1.43 – 3.47, $p < .01$). The odds of attending a first appointment for individuals receiving a text were also statistically significant. When comparing attendance for those who received a text reminder to those who received a phone reminder, those who received a text were 21.3% more likely to attend (OR: 1.213, 95% CI: 0.77 – 1.91, $p = .36$). Therefore, the null hypothesis was rejected for E-mail appointment reminders and accepted for Text reminders.

Table 4

Relationship between Appointment Wait Time, Reminder Message Type, and First Appointment Attendance

Variable	Attendance		OR (95% CI for OR)	*p*-value	Null hypothesis
	Attend	Missed			
Wait time					
1 to 7 Days	1,907 (68%)	910 (32%)	1.26 (1.06 – 1.48)	<0.01**	Rejected
8 to 14 Days	1,110 (66%)	583 (34%)	1.14 (0.95 – 1.36)	.15	Accepted
15+ Days	469 (63%)	281 (37%)	1		
Message type					
E-mail	2,555 (71%)	1,063 (29%)	2.23 (1.44 – 3.47)	<0.01**	Rejected
Text	889 (57%)	672 (43%)	1.23 (0.79 – 1.94)	.36	Accepted
Phone	42 (52%)	39 (48%)	1		

Notes. **Significant at p<.01. *Significant at p<.05. OR: Odds ratio; CI: Confidence Interval. Results are expressed as number (%), Odds ratio and 95% confidence interval for odds ratio. *p*-value has been calculated using Wald test statistics.

RQ2: Do age, gender, and ethnicity moderate the relationships between appointment wait time, appointment reminders, and first-appointment attendance for children/adolescents at family community mental health outpatient clinics?

$H_0$2: Age, gender, and ethnicity do not moderate the relationships between appointment wait time, electronic reminders, phone call appointment reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

H_a2: Age, gender, and ethnicity moderate the relationships between appointment wait time, electronic reminders, phone call appointment reminders, and first appointment attendance rates for children/adolescents at family community mental health outpatient clinics.

To test the hypothesis patient's age moderates the relationship between message type and first appointment attendance a moderator analysis was performed. Statistical moderation analysis was tested using hierarchical multiple regression. In the first step of this analysis, two variables were included: message type and patient's age. These variables accounted for a significant amount of variance in first appointment attendance, $R^2 = .019$, $F(2, 5259) = 52.76$, $p < .001$. To avoid potentially problematic high multicollinearity with the interaction term, the variables were centered and an interaction term between message type and patient's age was created. Next, the interaction term between message type and patient's age was added to the regression model, which did not account for a significant proportion of the variance in first appointment attendance, $\Delta R^2 = .001$, $\Delta F(2, 5258) = 9.27$, $p = .073$, b = -.026, $t(5259) = -1.796$, $p = .073$. Examination of the interaction plot showed an enhancing effect that as message type and patient's age increased, adolescents' receiving e-mail appointment reminders had the highest first appointment attendance. The null hypothesis was rejected.

Hierarchical multiple regression analyses tested the hypothesis that patient's gender moderates the relationship between message type and first appointment attendance. In the first step, two variables were included: message type and patient's gender. These variables accounted for a significant amount of variance in first appointment attendance, $R^2 = .019$, $F(1, 5259) = 50.92$, $p < .001$. To avoid potentially problematic high multicollinearity with the interaction term, the variables were centered and an interaction term between message type and patient's gender was created. Next, the interaction term between message type and patient's gender was added to the regression model, which accounted for a significant proportion of the variance in attendance, $\Delta R^2 =$

.034, $\Delta F(2, 5258) = 248.27$, $p = .001$, b = .213, $t(5258) = 15.75$, $p = .000$. Therefore, gender moderated the relationship between message type and appointment attendance. Female patients receiving e-mail appointment reminders were significantly more likely the highest first appointment attendance; the null hypothesis was rejected.

To test the hypothesis patient's ethnicity moderates the relationship between message type and first appointment attendance, a hierarchical multiple regression analysis was conducted. In the first step, two variables were included: message type and patient's ethnicity. These variables accounted for a significant amount of variance in first appointment attendance, $R^2 = .020$, $F(1, 5259) = 52.40$, $p < .001$. To avoid potentially problematic high multicollinearity with the interaction term, the variables were centered and an interaction term between message type and patient's age was created. Next, the interaction term between message type and patient's age was added to the regression model, which accounted for a significant proportion of the variance in attendance, $\Delta R^2 = .01$, $\Delta F(2, 5259) = 37.66$, $p = .001$, b = .039, $t(5258) = 2.83$, $p = .005$. Therefore, ethnicity moderated the relationship between message type and appointment attendance. White patients receiving e-mail appointment reminders had the highest first appointment attendance; the null hypothesis was rejected.

RQ3: What is the relationship between electronic appointment reminders for children and adolescents' first appointment attendance rates at family community mental health outpatient clinics after controlling for appointment wait time?

Table 6 details the results of multiple binary logistic regression models to determine the relationship between appointment reminders and child and adolescents'

first appointment attendance rates at family community mental health outpatient clinics, after controlling for appointment wait time. There was little change in the adjusted odds ratio for message type after controlling for wait time (AOR= 2.23, 95% CI: 1.43 – 3.47, $p < .01$) and the results were significant at $p < .01$ for E-mail and not significant for Text messages ($p = 0.40$).

Nagelkerke's R^2 statistic was calculated and Cox and Snell's R^2 was .045, indicating that 4.5% of the variation in the dependent variable was explained by the logistic model. The H-L statistic was 22.1 with $p = .001$, which means that it is statistically significant and therefore our model is not a good fit. Nagelkerke's R^2 of .065 indicated a moderately strong relationship between message type and first appointment attendance after controlling for wait time.

Table 5

Relationship between Appointment Wait Time, Reminder Message Type, and First Appointment Attendance after Controlling for Wait Time

	Adjusted odds ratio (AOR)	95% CI for AOR	*p*-value
Message type controlling for wait time			
E-mail	2.23	1.43 – 3.47	<0.01**
Text	1.21	0.77 – 1.91	0.40
Phone	1		

Notes. **Significant at p<.01. *Significant at p<.05. OR: Odds ratio; CI: Confidence Interval. Results are expressed as number (%), Odds ratio and 95% confidence interval for odds ratio. *p*-value has been calculated using Wald test statistics.

Summary

The key study findings were: (a) wait time and message type significantly predicted appointment attendance; (b) e-mail appointment reminders were significantly

more effective than phone reminders before and after controlling for wait time; and (c) age, gender, and ethnicity were shown to moderate the relationship between message type and first appointment attendance. Shorter wait times and the use of e-mail appointment reminders increased the probability of first appointment attendance for both children and adolescents in the study. Chapter 5 includes a discussion of how the study findings relate to prior research, and provides concluding remarks and recommendations for future research on the relationship between child and adolescent first appointment attendance at community mental health clinics.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this quantitative correlational study was to examine the relationship between first appointment wait times, electronic appointment reminders, phone appointment reminders, and first appointment attendance at U.S. community mental health facilities. Study findings identified opportunities to reduce missed appointments by children and adolescents at community mental health centers, estimated at 20% to 40% of all such appointments (Runnels, 2013; Sims et al., 2012).

Runnels (2013) indicated that first appointment nonattendance delayed access to vital mental healthcare, caused disengagement from services and rehospitalization, and wasted scarce clinical resources. First mental health nonattendance significantly contributed to wait times, frequently of more than two weeks (Runnels, 2013). Researchers found that certain policies and procedures could significantly increase adult first appointment attendance rates (Benway et al., 2003; Sims et al., 2012).

Three significant study findings emerged from the present study: (a) wait time and message type were statistically significant predictors of appointment attendance; (b) e-mail appointment reminders were significantly more effective than phone reminders; and (c) and age, gender, and ethnicity moderated the relationship between appointment wait time and electronic reminders, and first appointment attendance. More specifically, the use of e-mail appointment reminders significantly increased the probability of first appointment attendance and were more effective than either text or phone appointment reminders. The social benefit of the study findings is to provide decision makers with empirical data to make procedure changes to appointment reminder policy to increase

mental health appointment attendance. This is of importance because attendance at mental health appointments is associated with the development of positive coping skills and good judgment, helping to lay a foundation for positive mental health in adulthood (HHS, 2014). Despite between 16% and 22% of U.S. children possessing some form of mental disorder, which means 24.8 million children requiring mental health care (NIHCM, 2009), only between 10% and 40% of these children received the needed mental health services in 2012 (Costello et al., 2014). These circumstances have created a treatment gap that is exacerbated by high initial appointment nonattendance rates (Costello et al., 2013; Knopf et al., 2008).

Interpretation of Findings

This study assessed attendance rates resulting from appointment reminders. The findings are presented first with a discussion of first session attendance when compared against message reminder types. The second set of findings provides the influence of wait times on first session attendance.

Significant Correlation Between E-mail and First Appointment Attendance

There is a statistically significant positive relationship between e-mail reminders and first appointment attendance compared to text messages and phone reminders. For the whole study sample, first appointment attendance rate for e-mail reminders was 71%, a significantly greater attendance rate compared with the attendance rate of those contacted by text messages (57%) and phone calls (52%). This relationship is important for clinics because they can develop strategies for increasing first session attendance based around the use of e-mail reminders. Findings confirmed earlier studies by Runnels (2013), Sims et al. (2012), and Shoffner et al. (2007) that indicated that electronic

appointment reminders using internet based messaging applications were an effective means of increasing first appointment attendance relative to phone reminders. This study supported findings from Runnels (2013), Sims et al. (2012), and Shoffner et al. (2007) regarding the efficacy of digital appointment reminders relative to phone reminders.

One potential explanation for the efficacy of e-mail reminders to predict first appointment attendance is keen in the era of social media. Social media applications, such as Facebook, provide birthday reminders and instant message notifications as their default setting. At the same time, the use of calendars with automated reminders for birthdays, holidays, medical, business, and personal events is widespread. Appointment reminder e-mails may assume the elevated status of birthday or business-meeting reminders that many people rely on to organize their time. In any case, the hypothesis that e-mail reminders serve to reinforce the message that the appointment is important enough to receive a reminder improved attendance rates.

The reason(s) for the significant advantage of e-mail reminders to improve first appointment attendance are beyond the scope of this study. While Runnels (2013), Sims et al. (2012), and Shoffner et al. (2007) reported similar findings, none speculated on the reason for the disparity. Sims et al. discussed the cost benefit to the community mental health center in terms of message delivery and first appointment attendance, but offered no discussion of potential reasons beyond the society-wide migration from phone calls to social media, e-mail, and text messaging. Without regard to the underlying causes for the behavior, community mental health clinics might benefit from pilot studies to substantiate the benefit from their particular patient population to increase attendance. Digital messaging holds the potential to reduce costs and increase attendance rates. With fairly

streamlined or automated e-mail reminder services, organizations could reduce the investment they make into reminders. Unlike text messages, e-mails have the power to increase first appointment attendance significantly.

No Significant Difference Between Text and Phone Reminders

Text message reminders were not significantly different from phone reminders for predicting first appointment attendance. These results suggest clinics may benefit from migrating from text reminders to e-mail reminders as a strategy to increase first appointment attendance. However, this finding is different than Sims et al. (2012), who found that the use of text messages were linked to a decrease in missed appointments of 36% in 2008 and 27% in 2010. Despite the advantages touted for SMS and the increased attendance linked with it, the use of text messages did not prove effective in increasing first session attendance for patients in this study when compared against the use of phone calls or e-mails. Rather, text messages and phone calls produced a similar attendance rate. When compared against the use of e-mails, text reminders were a comparatively poor way of producing first session attendance.

Wait Time Between 1 and 7 Days Significantly Increased Appointment Attendance

Wait time from intake call to first appointment date of 1 to 7 days increased the probability of first appointment attendance significantly compared to longer periods. Wait times of 8 to 14 days did not significantly improve attendance rates compared to wait times of 15 days and beyond. This finding is consistent with earlier research regarding wait time and first appointment attendance. Wait time, defined as the number of days between the initial appointment request and date of the first appointment (Sherman et al., 2009), possesses an inverse relationship with attendance rates (Benway

et al., 2003; Najafi, 2011). From the initial day when the appointment is set, there is a decreasing likeliness of attendance for each additional day. Sherman et al. (2009) found that while multiple variables could influence first session attendance, wait time independently remained a strong predictor for attendance. The results of this study confirm the bulk of the literature that suggests increased wait times linked with decreased first session attendance. When wait times were between one to seven days, there was a miss rate of 32%. When the wait time was between eight to 14 days, there was a miss rate of 34%. Finally, when wait times exceeded 15 days, there was a miss rate of 37%. The differences between wait time ranges translated into significantly lower attendance rates.

As presented in Table 6, increased wait time was significantly predictive of increased nonattendance. This finding is important for organizations attempting to improve first session attendance rates. The findings confirmed previous research indicating that increased wait times reduced attendance, and organizations have an increased chance of higher attendance rates when they reduce the wait time between the initial setting of an appointment and the actual attendance date. Part of any core effort clinics should make is to minimize first appointment wait time. In combination with the use of e-mail reminders, this would help to achieve a higher attendance rate. Community mental health administrators can develop strategies that combine SMS and e-mail reminders to maximize first session attendance, based on the preferences of their population. Because SMS and e-mail reminder applications are flexible and easy to administer, administrators can test appointment reminder types, frequency, and proximity to appointment to maximize attendance.

The theoretical framework for this study was Blumer's (1969) symbolic interactionism (SI). In SI theory, a person's self-concept is rooted in, and derived from, interactions with others (Musolf, 2003). Individuals internalize others' words and treatment of self through internal self-dialog. The self's ability to treat itself as an object, to treat itself as others would, is a central element of the self from an interactionist perspective (Burke, 1991). Mead (1934) suggested that it was not possible to separate self from the relationship/situation people find themselves in at any particular moment. Each individual has a chameleon-like quality, in that manifested qualities of self are socially and situationally dependent. This chameleon-like quality and experience allow individuals to adapt in order to survive within a society of norms (Stryker, 1980). The working hypothesis for the study was electronic appointment reminders and short appointment wait times would reinforce the message that appointment attendance was important to others and consistent with taking care of the self.

The tendency for short wait times to predict appointment attendance can be explained by SI theory and the recency effect, that is, people tend to remember things that happened more recently (Hintzman, 2016; Musolf, 2003). SI theory suggests that the intake call and first appointments represent signals that an external object is interested in the person's attendance and, by extension, health and well-being. A short first appointment wait time (a) reinforces the "you are important" signal; (b) creates a sense of urgency regarding the mental health issue; and (c) when combined with several electronic appointment reminders, eliminates communication gaps. Near constant communication, using electronic appointment reminders combined with a wait time under a week minimizes the number of days with no communication, which decrease social distance

and close the space for doubt about the potential for treatment to be useful to address the mental health issue.

Cognitive psychology research firmly established that serial position effects recall (Baddeley & Hitch, 1974). The primacy and recency effect refers to the phenomenon that people are more likely to recall items at the beginning or at the end of a list than items in the middle. In the context of appointment reminders, appointment reminders proximate to the appointment date are more effective than reminders more distant from the appointment date (Bokinskie, Johnson, Mahoney, & Young, 2016). Therefore, the longer the appointment wait times the greater the decay in recall and the higher the nonattendance rate. Taken together, SI theory and the recency effect explain the phenomenon of shorter appointment wait times predicting appointment attendance rates.

Gender and Ethnicity Moderated the Relationship Between Message Type and First Appointment Attendance

A moderator variable in correlation research is a third variable that affects the strength of the relationship between a dependent and independent variable (Leedy & Ormrod, 2015). I conducted hierarchical linear regression statistics to tested hypotheses that age, ethnicity, and gender moderated the relationship between message type and first appointment attendance. Gender and ethnicity had a statistically significant effect on the relationship between message type and first appointment attendance. The correlation between message type and first appointment attendance increased for female patients relative to males. The correlation between message type and first appointment attendance increased for White patients. Age, or membership to either the child or adolescent group,

had no statistically meaningful effect on the relationship between message type and first appointment attendance.

Limitations of the Study

The study was limited to a single dependent variable, three independent variables, and three moderating variables. While this study did not directly measure SES, which was previously shown to effect appointment attendance (Mitchell & Selmes, 2007), ethnicity was included as a moderating variable and the setting was community mental health centers that are primarily used by low SES members. Individuals from a low socioeconomic background often avoid mental health services for a number of reasons. Mitchell and Selmes indicated that SES, ethnicity, race, and a number of psychosocial variables were associated with avoidance of mental health services; therefore, study findings may not generalize to other populations within the United States or in other countries. Another potential limitation of the study is the veracity of the raw data. Data initially provided for the study had numerous coding errors that required the removal of individual data records and the resubmittal of the entire dataset from two of the 12 participating institutions. These unique factors limited the study's generalizability across other ethnicities or from differing socioeconomic backgrounds and to settings other than community health centers.

Recommendations

Early mental health interventions produce positive mental outcomes into adulthood, but despite this fact, there remains a significant portion of children and adolescents who go without mental health treatment (Runnels, 2013). The problem is compounded by SES, ethnicity, and race, all of which can influence attendance at mental

health sessions. Beyond demographic variables, simple forgetfulness or disruptive life events can also prevent attendance.

This study concludes with a recommendation that a future study be conducted that expands population demographics to increase the generalizability of the findings. Data were collected from Texas based community mental health facilities and from among individuals who were representative of children and adolescents typically seeking community mental health services. While attempting to be ethnically representative of those seeking help, the study was restricted to a single region of the United States. Future studies could expand on this study by examining first session attendance in multiple states across the nation. Future research can consider the role of geography, such as distance from a community mental health facility, as a predictor variable. An examination of SES as a moderating or mediating variable is suggested for future research. The possibility that an individual misses a first session due to financial restrictions, even including an inability to find transportation, exists. Lower SES may even interfere in the form of reminders an individual could receive, such as restricting access to e-mails and text messaging. Future studies should take into consideration SES and geography in order to produce more generalizable findings. In addition, Future research is needed to better understand differences between community mental health facilities that may explain first appointment nonattendance, such as varying availability of psychiatrists in residence, therapeutic approach, theoretical orientation, or other center-level sources of variance in attendance rates.

Finally, future research could examine the underlying reasons for the increase in attendance associated with e-mail reminders. What aspect of e-mail reminders explain the

efficacy relative to test reminders? Are three e-mail reminders more effective than four or two? E-mail campaigns could be created and tested against one another to determine the most effective combinations.

Implications

Community mental health interventions rely on patient attendance. Among community mental health facilities in Texas, improvement in first appointment attendance may be achieved by first reducing wait times to seven days or less and sending e-mail appointment reminders. Confirming previous literature, this study found that wait times in excess of seven days predicted increased nonattendance. In addition to reducing wait times, facilities can improve attendance by employing e-mail reminders to parents. The social implications include the benefit to the children themselves, who will receive increased mental health care through increased attendance. There is hope that increased care will produce several repercussions in the individual lives of these children both at school and at home.

The study mostly confirms what was previously discovered in the literature, although the lack of increased attendance when text message reminders were used indicates that there may be only specific times when text messages produce increased attendance. As an example, this study did not take into account SES. As a result, there may be an interaction between that status and the efficacy of text messages as a reminder. However, the implication for the research as it stands is that text messages may not be an effective means of increasing attendance in all cases. Mental health facilities themselves can benefit through the increased use of e-mails, which produced a significant increase in first session attendance. The immediate benefit of e-mail reminders is that they produce

an increase in attendance, but organizations may experience the secondary benefit of decreased time and labor investment.

The moderating effect of gender and ethnicity on the relationship between message type and first appointment attendance has implications for appointment reminder practices. Subpopulations with lower first appointment rates (at-risk population), in this case male, non-White patients, can receive appointment reminders at an accelerated rate, or across message types. For example, if the standard protocol for electronic reminders is one e-mail reminder two days before an appointment, at-risk patients receive reminders everyday by e-mail plus a phone reminder the day before the appointment from a live person. SI theory suggests the act showing concern for personal well-being causes an increase in the desired behavior, in this case attendance. SI theory also suggests that personal communication predicts increase in desired behavior. While the data in this study does not support phone reminders, a follow up study to test recorded reminders and live-person reminders is needed.

Conclusions

The finding that e-mail reminders significantly increased first mental health appointment attendance for both children and adolescents is significant. The results of this study advanced knowledge for use by community mental health clinic administrators on the how to improve first appointment attendance using low cost e-mail reminders. In addition, age, ethnicity, and gender moderated the relationship between wait time and message type, and first appointment attendance. Community mental health clinics would benefit from reducing wait time for first appointment below seven days and employing

the use of e-mail reminders to improve the likelihood that children and adolescents receive community mental health treatment that is sorely needed.

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Appendix A: Community Health Center Data Requirements

Clinic Name _____

Number of mental health patients seen in 2014 _____

Patient ethnic composition: African American __ % Hispanic __% Caucasian __%

% of patients under age 18 ___

1. For each study participant, how many days lapsed between the phone intake and first mental health appointment?

2. For each study participant, how many phone reminders occurred between the initial phone intake and first mental health appointment?

   None_____ 1 Phone reminder_____ 2 or more phone reminders_____

3. For each study participant, how many SMS or e-mail reminders occurred between the initial phone intake and first mental health appointment?

   None_____ 1 reminder_____ 2 or more reminders_____

4. For each study participant, was the first appointment kept?

   Yes _____ No _____

5. Participant demographic data:

Gender _____

Age _____

Ethnicity _____

Appendix B: Community Health Center Recruitment Letter

To: [Community Center Director]

From: Christine De Santis Collis: Doctoral candidate at Walden University

Subject: Your input as a Community Center Director is essential for my research.

My name is Christine De Santis-Collis. I am conducting a research study on Relationship between Mental Health Facility Pre-intake Practices and First Appointment Attendance Rates for children in partial fulfillment of the doctoral degree requirements. The purpose of this study is to advance the understanding of the initial mental health attendance rates in an effort to reduce missed appointments.

Attached is the data fields required to complete the analysis, no names or identifying information is necessary. Participation is voluntary and there will be no compensation, nor are there any physical risks. All data will be kept strictly confidential and clinic names will not be used. In return for your participation, I will send you the results (once data collection and analysis are complete). You will get a sense for emerging trends, community center performance relative to peers.

Please contact me to discuss methods for transmitting the necessary data.

Many thanks!

Contact info:

Christine De Santis Collis