Psychiatric Medication Appointment No-Shows: Reduction through Text Message Reminders in an Outpatient Mental Health Clinic

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Abstract

This paper explores the construction, application, and results of a doctoral of nursing practice quality improvement project. The project aim was to decrease no show rates in an outpatient mental health clinic using an intervention initiated by the electronic health record (EHR). Text message appointment reminders is the specific intervention. The hypothesis predicts that text message appointment reminders will decrease no show rates. Possible reasons for no shows are explored with an emphasis on the vulnerable mental health population. The execution of the project was supported through the theoretical framework of the Donabedian Model. Quality improvement program results are discussed, and indications for future programs are explored.

Keywords: text message, EHR, no show, mental health, appointment reminder

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The goal of any outpatient mental health clinic is to provide effective and efficient psychiatric care. The term mental health refers to functioning at the optimal level of behavioral and psychological wellness (Centers for Disease Control and Prevention [CDC], n.d.). Whereas mental illness is defined as conditions in which mood, thought, or behavior are altered, and which causes significant social or personal distress (First, 2014, Chapter 1). In terms of mission then, a mental health clinic's goal is to help mentally ill clients attain a state of mental health in which the emotional, psychological and social facets of their life are in harmony. These three areas are considered the project indicators of mental health (CDC, n.d.). In a time of increased managed patient care, this is a difficult goal to achieve when the large patient population served suffers from mental health diagnoses that impact memory and focus. In the United States 44 million adults suffer from mental illness (Substance Abuse and Mental Health Services Administration [SAMHSA], 2016, p. 36).

One of the most significant obstacles to providing needed care is psychiatric medication appointment no shows. The average no show rate for an outpatient psychiatric practice can range from 18-25% depending on client average severity of mental illness, geographic location, and clinic specialty (Van Dieren, Rijckmans, Mathijssen, Lobbestael, & Arntz, 2013). No shows are problematic for any practice in terms of lost revenue and obstacles to continuity of care. No shows are defined as occurring when the client misses their appointment without 24-hour notice of cancellation. There has been extensive research on this topic. But how do we translate this research into a workable plan to address this phenomenon? The doctor of nursing practice

project provides an appropriate venue to implement evidenced based strategies that improve the quality of patient care.

Background

Clinicians in the outpatient setting have long been concerned with no show rates due to both financial and health implications. The cost of appointment nonadherence can be a significant financial burden (Shah et al., 2016). In one study it was estimated that no shows were responsible for a revenue shortfall of 14% of net profit or roughly $196 lost per patient (Kheirkhah, Feng, Travis, Tavakoli-Tabasi, & Sharafkhaneh, 2016). In terms of patient access to care, the result of no shows is detrimental. In the outpatient mental health setting a single no show has a significant impact on financial reimbursement and access to care alike. Many insurances, including Medicare and some state Medicaid programs will not allow a no-show fee to be charged for an initial psychiatric medication evaluation (Nevada Hospital Association, 2013). Medicare will not allow providers to charge patient fees for a missed psychiatric medication appointment. Initial psychiatric intakes, per industry standard, are usually sixty minutes in length. Thus, the revenue for that hour is lost.

No shows also impact efficiency of care by denying other patients earlier access to care. Patients who have been waiting for psychiatric services lose the opportunity to be seen in a timelier manner. With wait times of three months or more being typical depending on geographic location and specialty, no shows contribute to this significant delay in care (National Mental Health Association [NMHA], 2015). Reasons associated with no shows include; forgetting the appointment, feeling better/mental health crisis has passed so deciding not to attend, and transportation barriers (Kheirkhah et al., 2016).

Problem Statement

We currently face a national mental health epidemic due to no shows in mental health clinics. If this problem persists, the nation will continue to experience escalating health care costs associated with mental health emergencies due to increased inpatient hospitalization resulting from improper management of chronic mental health conditions (SAMHSA, 2017, p. 40). In addition, no shows result in patient care delays due to underutilized open appointments that could have been offered to waitlisted or emergent clients.

The implementation of text message appointment reminders for mental health clinic clients will help reduce instances of no shows and promote appointment adherence (Stephenson, 2016).

Focused Needs Assessment

Currently, Nevada is in the top five states for number of individuals requiring mental health services as well as one of the bottom three states in terms of access to mental health services (NMHA, 2015). No show rates fluctuate based on geography, clientele base, and clinic specialty. For mental health, a typical no-show rate is generally between 18 – 25% (Van Dieren et al., 2013). This can be quite impactful to a small outpatient clinic. A typical private insurance reimbursement for an initial psychiatric intake is anywhere from $150 – 350 per intake (F. Ebonka, personal communication, June 28, 2017). In a small outpatient setting with a typical patient load of fifty clients per week with five of those as initial intakes, the practice site stands to lose $3000 – 7000 in gross revenue monthly.

A recently opened outpatient mental health clinic in the Las Vegas, Nevada area is currently facing this challenge. There is a greater portion of initial intakes due to the lack of an established client base. Thus, no shows are an even more significant problem for this practice site. As a recently opened practice, the business infrastructure is still undergoing solidification.

Basic policies and procedures are being constructed and revised. At present, the facility has no system in place to remind clients of their appointments.

Rationale

Several doctorate of nursing practice core competencies are addressed through this project (National Organization of Nurse Practitioner Faculties [NONPF], 2006):

Scientific foundation. A systematic evaluation of relevant research was undertaken. Opinions of key stakeholders were acquired. The knowledge gained was reviewed and synthesized into a workable plan to implement in an appropriate practicum setting.

Leadership. Assumption of a complex leadership role in the practicum setting. In this role I will be responsible for fostering collaboration between clinic staff.

Quality. This project is a quality improvement measure which will impact accessibility of services by means of a systemic change in protocol.

Purpose Statement

The purpose of this doctoral nursing project is to effect a positive fiscal change as well as improve accessibility to care in a small mental health clinic. The following goals will be addressed through the implementation of a text message appointment reminder system. The proposed project is expected to decrease psychiatric medication appointment no shows.

Project Question and Objectives

Project Question

The following question was formulated using population, intervention, comparison, outcome, and time (PICOT) formatting. In (P) outpatient mental health clinic clients, does (I) using text message appointment reminders in (C) comparison to the current appointment

methods decrease the no show rates of psychiatric medication appointments (T) over a span of two weeks?

Objectives

- Objective One – By day three all inter-specialty staff involved in patient scheduling will be trained in new text message appointment reminder protocol and tracking system.
- Objective Two – Institute a HIPAA compliant automated text message appointment reminder system for all new and existing mental health clients by end of week one.
- Objective Three – Reduce psychiatric medication appointment no-show rate by at least 10% after a two-week trial of the text message appointment reminder intervention.

Search Terms

A systemic review was conducted with the objectives of; determining the impact of no show rates on healthcare facilities, the causes of no shows, and what has been done to address this problem. Search terms included the following: text message, appointment reminder, mental health clinic, outpatient mental health, no show. Additional references were gathered by searching the reference list of included articles as well as soliciting guidance from peers and the designated project mentor. Databases used were: EBSCO, ProQuest, JSTOR, and ERIC.

Research was limited to English language studies from peer reviewed journals in the last five years. A few exceptions were made for noteworthy earlier studies. Of the pertinent articles found, 16 were included in this literature review.

Review of Literature

The purpose of this literature review is to identify key concepts and studies that contribute to identifying and addressing no shows in the outpatient mental health setting. Careful attention was paid to the quality of the research included. Systemic reviews, best practices, and large-scale randomized control trials were targeted for review and inclusion. There were limitations to the search. Very few high-quality studies were found that specifically looked at the problems of no shows in the outpatient mental health clinic setting. Thus, the search was expanded to include medical outpatient clinics of all specialties. The inclusion of these additional sources allowed a variety of themes to emerge that will be explored in the remainder of this literature review. These include; no shows impact on the financial health of the outpatient clinic and their hindrance to patients obtaining timely care, the main reasons for patients to no show, and the lack of consensus as to how to specifically address the problem.

Impact of the Problem

Wait times. No shows by their nature extend patient wait times due the inability to fill the unused appointment with a waitlisted client. This is a significant issue in the mental health outpatient setting where new clients are routinely asked to wait up to three months for an appointment in most areas of the country (NMHA, 2015). Increased wait times for access to care has been shown to lead to poor patient outcomes such as increased risk of morbidity and disease process complications (Institute of Medicine [IOM], 2015a, p. 11). It has been shown that mental health patients have a better therapeutic outcome if treated within a brief period after their initial crisis (Shaffer et al., 2017).

Financial. No shows incur a significant financial burden on mental health outpatient facilities (Shah et al., 2016). To reiterate, one study estimated that no shows were responsible for a revenue shortfall of 14% of net profit or roughly $196 lost per patient (Kheirkhah et al.,

2016). That same study looked at a ten-clinic system which lost $14 million dollars to no shows in 2008 alone. There is also a financial burden placed on the waitlisted patient. These potential clients are more likely to seek out of network access or pay privately for mental health services if they feel they cannot wait (IOM, 2015b). In the United States, currently 40% of all psychiatrists have 100% private pay practices, making this a viable, if expensive option (NMHA, 2015).

Patient perception of care. No shows can also have a detrimental effect on the patient's perception of care. Long wait times for appointments as well as watching providers seemingly have open appointments without being aware of the no show problem can instill feelings of animosity towards the clinic and provider and decreased feelings of self-worth/ importance (Brown, 2016). With an already fragile mental health patient, additional stressors can cause destabilization with resultant increased likelihood of emergent inpatient psychiatric hospitalization (Morrison, 2014).

Addressing the Problem with Current Evidence

No show causes. So why do clients no show? There a variety of reasons. A prevalent one is that of the phenomenon of anosognosia. Anosognosia occurs when the mentally ill individual does not recognize that they suffer from a psychiatric disorder (Amador, 2011). Once thought to manifest in only the most severe of schizophrenia cases, it has been determined that there are varying degrees of anosognosia and that it can be present in some degree with most psychiatric illnesses (Wheeler, 2014). It is difficult for the client suffering from anosognosia to attend outpatient appointments because they feel they do not have any issues that need addressed.

A second reason for no shows is that the initial crisis has passed, and the patient no longer feels services are required (Van Dieren et al., 2013). Due to the often-lengthy wait time

for initial psychiatric evaluation appointments a transient mental health crisis may have resolved, and the client forgets to attend the appointment. Other factors that may come into play are access to transportation, conflict with work schedule, and inability to secure child care (Feldman, Liu, Topaloglu, & Ziya, 2014; Van Dieren et al., 2013; IOM, 2015b).

Current management. Current management of the problem at the designated practicum site includes a reminder phone call the day before the appointment by the clinic receptionist. However, this receptionist is shared with other types of providers in the office complex and these calls are completed as she is able. She has expressed to the clinic owner that she often is not able to make these reminder calls due to her other job obligations, so the clients are left unreminded (M. Binyange, personal communication, December 11, 2017).

Current recommendations. As can be expected with a problem this impactful, much research has been conducted into the no show or missed appointment issue in health care. Viable solutions explored have been phone call follow ups, text message and email reminders (Kheirkhah et al., 2016; Shah et al., 2016). Many policies both punitive and reward based have also been explored (Van Dieren et al., 2013; IOM, 2015b). These include client termination policy for no shows, walk in hours, and preferred scheduling for appointment compliant patients (Stephenson, 2016; IOM, 2015a). These have had varying success, often dependent on the clinic specialty and population served. For this outpatient mental health clinic, an intervention of a text message reminder has been chosen.

Benefits of current recommendations. The benefits of this system are:

- It can be conveniently, and cost effectively added to the practice site's current electronic health record (EHR) and appointment system.

- The system is not reliant on the receptionist and so has less room for human error as it is an automated system.
- Clients in general perceive text message reminders as less invasive and are more tolerant of this type of reminder (Feldman, Liu, Topaloglu, & Ziya, 2014).

Issues still under investigation. Issues still under investigation are whether a release to allow text message reminders will need to be signed by the patient prior to receiving reminders. Also, of concern if how appointment reminders will be handled if the patient declines text message reminders or does not have a cell phone. Further, in the case of minor children, which parent will be texted the appointment reminder, or if both prefer a text, can the EHR be configured to do that task.

Controversies. There is a concern for patient safety. For example, a patient with an abusive partner is seeking services and does not want their partner to know. Will a text message reminder potentially place the client in danger of physical or emotional harm if discovered?

Historical Development of the Donabedian Conceptual Framework

Conceptual frameworks are often used as a lens through which to assess interventions in the healthcare setting (Moran, Burson, & Conrad, 2017, p. 100). Donabedian provides one such model. Avedis Donabedian constructed a model to evaluate healthcare systems to assess quality of programming (Donabedian, 1988).

In his seminal work, Donabedian proposed that it is the healthcare practitioner's responsibility to assess the quality of care we provide. To do so, he stated, the practitioner needs to have a systematic approach to complete this task (Donabedian, 1988). Donabedian (1988) continued by outlining three key components of such an assessment: structure, process, and outcome. Structure is considered the physical setting as well as staff characteristics and

established protocols. Process refers to how care is provided and to whom. The final component of the Donabedian model is outcome. These measured outcomes can be both physical (reduction in waste circumference in centimeters) or psychological (increased feelings of self -worth associated with weight reduction intervention).

Applicability of Donabedian Model to Current Practice

in the field of nursing, quality improvement is seen not only as fiscal responsibility, but to improve patient care and outcomes (Moran et al., 2017). A brief library search with the terms quality improvement in the title and nursing as the subject yielded 1,237 results. These studies covered all facets of nursing. The Donabedian Model was used to assess patient care outcomes of the Performance -based Incentive Payment Program (PIPP) implementation in nursing home settings (Abrahamson, Davila, Rehkamp, & Arling, 2016). This conceptual framework was also used to assess outcomes of the implementation of a hospital based pediatric fall prevention program (Murray, Vess, & Edlund, 2016). One final study example which used the Donabedian Model as a lens to view research was conducted after a psychiatric facility noticed weight gain when child and adolescent patients were changed to family style dining (Praglowski, 2015). The facility reviewed their protocols, staff education, and food choices (structure). They changed this structure by implementing nutrition education classes, a dietician consult, staff training, and healthier food options. The outcome was a significant decrease in average patient weight gain per inpatient hospitalization (Praglowski, 2015).

As can be seen, quality improvement is heavily utilized in the nursing field which makes the Donabedian concept of quality improvement a logical choice for many areas of nursing research.

Major Tenets of the Donabedian Conceptual Framework

Donabedian viewed patient centered care as an evolving process subject to frequent reevaluations for quality improvement (Donabedian, 1988). This continual process of quality improvement is centered around three main concepts: structure, process, and outcomes.

Structure

This involves the physical setting of the care as well as tangible and intangible items. Some examples would be the office furniture and computers, the qualification of professional and support staff, location of the facility, operating systems and written protocols of the facility (Donabedian, 2005).

Process

Process involves determining how care has been provided. The term care can encompass many things, so Donabedian (2005) further clarifies by breaking down the care process into three subcategories. These are appropriateness, acceptability, and completeness. Is the care appropriate for the diagnosis? Is the care provided acceptable to the patient? Has a thorough evaluation been completed and all avenues for treatment been explored?

Outcomes

The final category in the Donabedian model is that of outcomes. This area is concerned with both quantitatively and qualitatively measurable outcomes of the care provided. Was medication compliance increased? Did the patient feel increased satisfaction with services after follow up appointments were lengthened from fifteen to thirty minutes? Outcomes are often a source of increased focus as they are more easily defined and amenable to study (Donabedian, 2005).

Application of the Donabedian Model to the DNP Project

Donabedian's conceptual model has been used in a variety of settings and is highly applicable to this doctorate of practice nursing project.

Structure

At the project site, the following structural elements were reviewed; protocol for appointment reminders, staff responsibilities and training, the physical setting and equipment of the practice site, and the patient management software.

Process

At the project site, the following process elements were reviewed: patient/staff communication and performance appraisal of staff involved in patient appointment notifications.

Outcomes

At the project site, the project lead assessed the outcome of the text message appointment reminder intervention in terms of comparison of the pre-and post-text message intervention no show rates.

Project Design

The project applied a quality improvement (QI) design, implemented and evaluated an educational program for mental health clinic staff on a new appointment reminder system, and determined if this new system improved medication appointment no show rates. This QI initiative involved the adoption of an automated appointment text messaging service to the project site's EHR.

A single staff member was the designated data collector as the project lead did not have direct access to the EHR. An auditing grid was constructed with four categories. These categories are: text message, no text message, showed up, no show (Appendix A). Initially a more complex grid was devised with multiple categories including; gender, age group, payor

category (private pay, Medicare/Medicaid, private insurance), text message sent (yes/no), no text sent category (only used if not sent, includes no cell phone number given, wrong contact information or declined text message contact). After consultation with a data and research analysist specialist, the scope of data collection was curtailed due to concerns that further delineation of subgroups would impact the statistical significance of outcomes as the sample size is small at 120 or less (Vanier, 2018).

Baseline data was collected by the designated data collector. This individual conducted a retrospective chart audit collecting no show data for the immediate 50 appointments prior to intervention implementation. The designated data collector collated the data using the audit tool (Appendix A). This data was reviewed by the project lead. During the intervention stage data was collected daily by the designated data collector, with all audit sheets reviewed by the project lead at the end of the intervention period. Prior to data collection, the project lead conducted an onsite training session with the designated data collector which involved both verbal explanation as well as presentation of mock data for the designated data collector's review and placement in the auditing grid. Knowledge levels were measured by performance during a mock data demonstration and corrective instruction was performed as needed. The format for the verbal presentation, auditing tool, and any handouts used for the teaching is included as an appendix for review.

The project site's initial intake forms already incorporate a category for permission to receive communication via cell phone text messaging. The project lead was informed that current and prospective clients had already been alerted that at some future date text message appointment reminders will be instituted (P. Lopez, personal communication, March 22, 2018). The clients then could change their contact preferences if needed.

Medication no show rates were defined as clients who did not arrive for their appointment or those who arrived too late to be seen. Appointment cancellations were not included in this data, even if the client failed to meet the 24 hour prior to appointment current agency policy.

An uncomplicated design was chosen as it has the potential to create a lasting impact on the clinic's overall financial goals as well as increase access for those mental health services. With that in mind, a Fisher's Exact Test was used to determine if the intervention did have a significant effect. To describe this effect, the percentage of no-shows who received text reminders was compared to those who did not. Ancillary data such as age group, gender, or insurance were not collected.

The Template for Intervention Description and Replication (TIDieR) is a tool often employed to standardize intervention descriptions to aid in future applications and replication (Hoffman et al., 2014). The TIDieR for this project is as follows:

Name

Text message appointment reminder.

Why

The goal of the intervention was to decrease the medication appointment no show rate at the project site.

What

Materials used included a text message function available through the project site's current EHR. Specific content of the text included appointment date, time, name of provider and patient name. The text message intervention was sent to the project subjects 48 hours in advance. Consent for text message content was already included in the project site's intake

paperwork. A single designated data collector was used. There was a training for this individual which included a post training assessment of knowledge using mock data and completion of a sample audit sheet. The audit sheet was completed daily by the designated data collector.

Who Provided

The intervention was provided by the EHR. If the subject agreed to receive text messaging as part of their initial intake or subsequent preference, the EHR automatically texted the appointment reminder to the subject at the designated time (48 hours prior to appointment).

How

The intervention was implemented by the EHR through a HIPAA compliant internet to cellular connection. Each individual message was sent automatically 48 hours prior to the scheduled appointment time. There were no mass texts for this intervention.

Where

The intervention had no physical location. The EHR servers are offsite. While the project site does have access to the online platform for charting, prescribing, etc., the text message intervention occurred at the site of the secure offsite servers.

When and How Much

The intervention was delivered one time for each appointment. Subjects receiving two text message reminders due to two appointments during the two-week data collection period could theoretically have occurred if the subject was the legal guardian of multiple minor child clients, a legal guardian was scheduling for their charge as well as themselves, or the subject canceled the appointment after the text reminder and was able to reschedule within the same two-week time frame of the intervention.

Tailoring

There was no tailoring of the intervention for individual subjects. All text messages were sent in standard English.

Modifications

There were no modifications made to the intervention during the project.

Population of Interest

The population of interest for this DNP project included the designated medical assistant (MA) who is employed at this mental health clinic in a large metropolitan area of the southwestern United States. The MA educated clients about the text message reminder appointment intervention. The MA received training from the project lead.

Even though the clients were not considered a population of interest in this DNP project, the text message appointment reminder system was implemented at the mental health clinic to track client no show rates for clients, those legal guardians scheduling for a disabled adult client, and those legal guardians scheduling for minor children.

The inclusion criteria were as follows: psychiatric conditions treated by the project site include, but are not limited to; anxiety, post-traumatic stress disorder (PTSD), depression, bipolar disorder, schizophrenia, obsessive compulsive disorder (OCD), attention deficit hyperactivity disorder (ADHD), and autism spectrum disorders. As it has been determined that delineation of data into subcategories may compromise the statistical power of the data set no age, gender or insurance type was collected.

The exclusion criteria were as follows: the project site EHR currently does not collect data on ethnicity or social categories such as income or employment status.

The data will show no age groups, including child/adolescents, the intervention was directed at the adult guardian of the client, not the designated minor. In this way IRB concerns

surrounding children and interventions were addressed. The project site reported statistic per their EHR prior to baseline data collection of 37% male, 63% female with and equal number of private insurance and Medicare/Medicaid and few private payers (P. Lopez, personal communication, March 22, 2018).

Setting

The setting was a small outpatient mental health clinic offering psychiatric medication management services in a large metropolitan area located in the western region of the United States. The clinic was established in Fall 2017. Patient appointments are booked for three days each week. The average number of patient appointments per week is currently 36. Clients range in age from six to 73. There are currently an equal proportion of Medicaid and private insurance with five private pay clients. Gender is skewed towards female at 63%. No other demographic information was collected by the project site at this time. Permission was obtained from the project site administrator. This clinic does not have their own internal review board and felt it was unnecessary to form one as there was no direct access of patient data by the project lead.

Stakeholders

Stakeholders included the following; clinic patients, the advanced practice registered nurse (APRN) owner/prescriber, EHR liaison and clinic staff. Rapport was established through close communication with the APRN owner, EHR liaison and clinic staff early in the process. There was no direct or indirect contact with clinic patients. At present staff includes one medical assistant and the owner who is a licensed psychiatric nurse practitioner. The project site was opened in September 2017 with the owner and shortly thereafter hired the medical assistant. Currently the clinic is operating three days a week and averages 36 scheduled appointments

weekly. There are no plans to expand days or hours currently. There are no plans at present to add on new clinical or support staff.

There are also two ancillary clerical staff who are employed by the office building and whose services are shared with other inhabitants of the building. These ancillary staff greet clients in the waiting area, forward calls to the medical assistant, and receive mail for the project site. They have no access to the EHR and provide no information to clients other than office hours, take messages, and greet clients as they arrive in the common waiting area.

Recruitment Methods

Staff Member

There were no recruitment efforts that needed to be undertaken as this project was a practice change initiative. The clinic psychiatric nurse practitioner/owner was the DNP project mentor. The medical assistant was informed of the project and was in close contact with the project lead. Additionally, informed consent was not required as no private patient data was accessed or collected.

Chart Audits

All client charts scheduled for appointments during the baseline data collection and intervention stage were reviewed by the designated data collector for inclusion in the audit tool. Charts associated with cancellations within 24 hours of the designated appointment time and those arriving too late to be seen were not included.

Tools and Instrumentation

An audit tool was constructed for data collection (Appendix A). Prior to data collection an onsite training was conducted by the project lead with the designated data collector (the medical assistant participant). Verbal instruction as well as mock data was presented, and

knowledge assessed by return demonstration of the data collection process. Remediation was provided for knowledge gaps. An outline of the verbal instruction as well as mock data, auditing tool and any other instructional tools is included in an appendix (Appendix B). As there was only one data collector, interrater reliability was assured (Grove, Burns, & Gray, 2013). The project lead had no direct access to the EHR. The auditing tool and competency checklist is included as an appendix (Appendix A and B).

Data Collection Procedures

The data was collected daily using the audit tool by the designated data collector. The audits were reviewed by the DNP project lead once at the end of the base line data collection and again at the end of intervention data collection. The reviewed information contained no client details. Again, it is reiterated the project lead had no direct access to confidential patient information. With no direct access to confidential patient information, patient privacy was assured.

Staff Competency Level

The designated data collector's knowledge level was assessed post onsite instruction using mock data application to the audit tool through return demonstration. Remediation was performed if the data collector made entry errors.

Medication Appointment No Shows

Medication appointment no shows were tracked with the auditing tool grid (Appendix A). This included whether a text message appointment reminder was sent and if the client attended their appointment. This included clients who arrive too late to be seen. It does not include clients who cancelled within at least 24 hours of their appointment. Cancellations are updated in the EHR at the close of each business day for the next. Late cancellations are marked in the

system by the medical assistant but are still visible on the EHR dashboard as cancelled late in the daily schedule.

Intervention and Timeline

Week 1

Week one (July 11 – 14) – Training was conducted with the designated data collector in the use of the data collection tool. The designated data collector conducted a retrospective chart audit of the last 50 appointments prior to the intervention start for baseline data collection.

Week 2

Week two (July 15 – 21) – The electronic health record system used to implement the automated text message appointment reminders was tested by the project mentor through creation of mock patient records over three days July 16 - 19. After initial technical glitches were addressed through coordination with the electronic health record (EHR) technical support team, the intervention was started on 07/20/18. The intervention will end when 50 total post intervention appointments have been tracked. The project mentor and designated data collector monitored the EHR automated appointment reminder system to ensure no technical issues occurred.

Week 3

Week three (July 22-28) – The designated data collector continued to track no show statistics using the grid provided.

Week 4

Week four (July 29 -Aug 4) – Data collection ended 8/3/18 after 50 post intervention appointments were tracked. The project lead met with the designated data collector on 8/6/18 to collect the final data sheets. The project lead is currently analyzing the provided data.

Ethics and Human Subjects Protection

An online course for basic researchers, approved by Touro University Nevada, was completed by the project researcher (Collaborative Institutional Training Initiative Program website, 2018). This CITI training included ethical considerations in research and specific guidelines for the use of human subjects in research. Great care was taken to follow these guidelines. Additionally, the project design was quality improvement in nature and therefore qualified for internal review board (IRB) exemption. The proposal was reviewed by Touro University Nevada's nursing faculty to ensure compliance with IRB exemption status for further human research participant protection. The IRB determined the project met exempt status which involves minimal risk to the participants. Participants were selected from a pool of candidates who had already agreed to the intervention during intake as a clinic communication method. The project lead had no direct access to protected health information. All data was collected by a single staff member assigned to the duty, the designated data collector. No personal information was shared with the project lead. There was no compensation for participants. The participants do not include any vulnerable populations as defined in the CITI training (Collaborative Institutional Training Initiative Program website, 2018).

Analysis and Evaluation

The data was collected by the designated data collector. Time requirements for completing the auditing tool were 15 minutes per day total. Baseline data was collected immediately prior to intervention start using a retrospective chart audit. Fifty charts were audited for baseline data. The implementation of the intervention was completed during the two weeks immediately following the baseline data collection. Sixty-two charts were audited post intervention. The cumulative charts reviewed for the quality improvement project were 112. A

statistical package for social sciences (SPSS) program was used to analyze the data. Specifically, a Fisher's Exact Test was utilized in this instance to determine if the intervention incurred a significant effect. A Fisher's Exact Test is often used instead of a Chi-square when there is a small sample size for a two by two contingency table (Pallant, 2016). Unfortunately, as can be seen in the Table 1 below, the p value of the Fisher's Exact Test is not less than .05, thus the null hypothesis, that there is no effect of text message appointment reminders on appointment attendance, cannot be refuted (p = .536).

Table 1

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.484[a]	1	.487		
Continuity Correction[b]	.142	1	.707		
Likelihood Ratio	.481	1	.488		
Fisher's Exact Test				.536	.351
Linear-by-Linear Association	.480	1	.489		
N of Valid Cases	112				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.91.

b. Computed only for a 2x2 table

Discussion and Implications for Nursing

The results indicated the null hypothesis that text message appointment reminders have no effect on appointment attendance, could not be refuted. As the main objective of this quality improvement project was to decrease no show rates, what other factors could predict the likelihood a client would miss an appointment? One study indicated markers such as; age of patient, visit type, anticipated wait time, and insurance type were all factors (Parikh et al., 2010). Another study cited extended lead time (the time between the appointment being scheduled and

the actual appointment day/time), insurance type, client age, and prior history of nonattendance as major predictors of missed appointment behavior (Norris et al., 2014). Could any of these factors impacted the results of this quality improvement project? This is difficult to determine without further investigation. No data was gathered as to client age, insurance type, or other identifying information. Recommendations for future quality improvement projects would include gathering of this data to determine if any confounding factors exist.

Implications for future applications in nursing and other fields is highly dependent on project results. The project may have presented several areas of significance to nursing research, quality improvement projects, and mental health clinic business practices if the null hypothesis had been refuted. It was anticipated that text message appointment reminders would overall, improve no show rates as previously indicated in the literature (Stephenson, 2016; Van Dieren et. al, 2013). This did not occur. There was no significant difference between pre and post intervention no show rates. Further research is warranted into the specific barriers to appointment attendance mental health clients may experience and how best to address these issues. Mental health clinics may determine that incurring additional operating costs through the implementation of an automated text message appointment system may not be fiscally responsible until further evaluation is completed.

Limitations

There were several limitations to this quality improvement project which may have impacted the results. First, the project design may have been too simple to capture the nuances of the population. For example, no demographic or other additional information such as type of insurance, was collected. Studies have indicated both client age and insurance type have an impact on appointment attendance (Norris et al., 2014; Parikh et al., 2010). Second, the project

was conducted with a clinic that is recently opened. There is no comparison no show data from the previous year to compare possible fluctuations in no show rates due to season. Finally, the intervention was conducted over a short time, less than three weeks, and included a small sample size. Larger sample sizes and lengthier applied interventions typically yield more accurate predictive results (Grove et al., 2013).

Dissemination

Internal

Executive summary. An executive summary, containing a brief introduction to the project, the results, and recommendations can be created to internally disseminate in an agency setting to clearly delineate the project objectives and outcomes (Bemker & Schreiner, 2016, p. 87). In this case an executive summary was deferred. This is was due to the small agency size, with only the psychiatric nurse practitioner owner and one medical assistant with whom to share results internally.

Although the results of the quality improvement project were not as expected, the clinic has decided to continue the text message appointment reminder intervention dissemination. It is an effective time management tool. Staff do not have to attempt to call clients to remind them of impending appointments. The intervention is sustainable and cost effective, at less than the cost of one hour per month of administrative help, all clients who opt in will receive automated text message reminders. Additionally, most clients have reported a preference for text message reminders, increasing client satisfaction with clinic services (P. Lopez, personal communication, August 17, 2018).

External

Publication. Publication is one way in which the results of the quality improvement project can be disseminated externally (Bemker & Schreiner, 2016, p. 91). Often the delivery method assumed to be in the form of journal circulation, either print or online. However, dispersal of quality improvement project results can be disseminated in other forms of publication. This quality improvement project will be disseminated through a media presentation to the faculty and students of Touro University Nevada. It will also be added to the Doctors of Nursing Practice Doctoral Project Repository (Doctors of Nursing Practice, n.d.).

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Appendix A

Grid for Baseline Data Collection – Designated Data Collector will review last 50 appointments prior to intervention start for numbers. Only clients not meeting exclusion criteria* will be counted.

	# of Clients
SHOWED	
NO SHOW	

Intervention Data Collection – clients not meeting criteria* will be excluded. Data collected daily by designated data collector until total # of 50 total appointments has been achieved.

	# of Clients
SHOWED	
NO SHOW	

Project Lead Cumulative Data Collection Grid – used to reflect total baseline and intervention data.

	# of clients (no text message- baseline data)	# of clients (text message intervention)
SHOWED		
NO SHOW		

* Exclusion Criteria – Do not include in data those who: arrive too late to attend their appointment, reschedule their appointment even if it is technically a no show per clinic policy (less than 24 hours prior to scheduled appointment time), or those who are unable or decline to receive text message reminders (intervention group only).

Appendix B

Training Examples for Review with Designated Data Collector for Intervention Data Collection

Question 1

It's Wednesday at 5pm and you are reviewing the schedule for the day. A total of 18 clients were scheduled. Of those 18, 2 called to cancel, one just 2 hours prior to their appointment. Three others no showed. How would you fill out the data collection grid for today?

Answer

	# of Clients
SHOWED	13
NO SHOW	3

The 2 who cancelled would not be included.

Question 2

It's Wednesday at 5pm and you are reviewing the schedule for the day. A total of 22 clients were scheduled. Of those 22, 5 no showed. Of the 5 that no showed, 2 did not agree to text message appointment reminders. One client called to cancel their appointment. How would you fill out the data collection grid for the day?

Answer

	# of Clients
SHOWED	16
NO SHOW	3

A total of 16 clients showed up. Of the 22, one client cancelled. Two additional no show clients did not agree to text messages. The client who cancelled and the two no shows who did not receive text message reminders are excluded from the data. That leaves 19 total clients to account for in the grid.

Question 3

It's Wednesday at 5pm and you are reviewing the schedule for the day. A total of 16 clients were scheduled. Of those 16, 1 no showed. One of the clients who did show up did not receive a text message appointment reminder as they have no cell phone. How would you fill out the data collection grid for the day?

Answer

	# of Clients
SHOWED	14
NO SHOW	1

One client no showed. One client showed but did not receive a text message reminder because they do not have a cell phone, so this client is excluded. Thus 14 clients showed who meet criteria and one no showed who met criteria.