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Johnnie Carrico
University of St. Augustine for Health Sciences

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Reducing the No Show Rates for Mental Health Appointments among Young Adults

Johnnie Carrico FNP

School of Nursing, University of St. Augustine for Health Sciences

This Manuscript Partially Fulfills the Requirements for the

Doctor of Nursing Practice Program and is Approved by:

Dr. David Liguori, DNP

Dr. Reagan Thompson, DNP

Final Approval: November 29, 2023

University of St. Augustine for Health Sciences
DNP Scholarly Project
Signature Form

Student Last Name:	First Name:	Middle Initial:
Carrico	Johnnie	K

E-mail:
J.Carrico@usa.edu

Title of DNP Project:

Reducing the No Show Rates for Mental Health Appointments among Young Adults

My signature confirms I have reviewed and approved this final written DNP Scholarly Project.
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Type Name in Blue Box Below	Signature	Date
DNP Project Primary Faculty: David Liguori DNP	*David Liguori*	11/28/2023
DNP Project Preceptor: Reagan Thompson DNP, APRN, FNP-C		11/29/2023
DNP Project Preceptor:		

Abstract

Practice Problem: Missed patient appointments have become an increasingly significant issue for healthcare organizations, private practices, and clinics. No show appointments can negatively impact the operational functions of these organizations including lost revenue. The clinical practice site's pre-intervention no-show rate for young adult mental health appointments was 21%. The high percentage of missed mental health visits has resulted in both lost revenue for the clinic and disruptions in patient care.

PICOT: The PICOT question that guided this project was: In young adults 18-25 years with mental health appointments (P) how does patient preferred appointment reminders (I) compared to standard appointment reminders (C) affect no show rates (O) within 8 weeks (T)?

Evidence: Current evidence demonstrates that patient appointment reminders improve the overall adherence rates of patient appointments thus providing support for the utilization of patient preferred appointment reminders for young adult mental health appointments to mitigate the high rate of no shows.

Intervention: The proposed practice change of preferred patient reminders was implemented in response to the high number of no-show rates of mental health appointments in the student and employee clinic. The intervention focused on changing the clinic's standard practice of phone call reminders two days prior to appointments with the evidence-based intervention of patient preferred appointment reminders. Patient preferred reminders included telephone and/or email reminders based on patients' preference one week before and the day before scheduled appointments. Questionnaires were provided to ascertain patients' preferences, thereby allowing patient involvement in the process.

Comparison: The intervention was compared against the facility's current practice standard of providing reminder cards with appointment dates and times and phone call reminders two days before appointments.

Outcome: The anticipated outcome was a reduction in missed appointments. As a result of the evidence-based intervention of preferred patient reminders, the number of missed appointments was reduced to 15%, two percent greater than predicted.

Time: The project was completed within the predicted 8-week timeframe

Conclusion: Evidence supports the use of patient preferred appointment reminders in reducing the number of no-show appointments. The patient preferred appointment reminders utilized by the registration and nursing staff throughout the practice change project resulted in a significant reduction in no-show rates of mental health patients in the student and employee clinic.

Reducing the No Show Rates for Mental Health Appointments among Young Adults

The issue of missed patient appointments is an ongoing concern facing many healthcare organizations. Missed patient appointments, commonly referred to as "no shows", occurs when patients fail to keep their scheduled appointments and fail to inform the clinic that they will not be at their scheduled appointment time. No-show appointments can be harmful to both patients and the organizations. For example, missed appointments can delay patient treatment leading to an overall decrease in quality of life, especially for individuals with mental health issues. According to McQueenie et al. (2020), patients who have one or more long-term conditions and fail to attend appointments may be at risk of premature death. In addition, no-show appointments can decrease productivity and revenue, increase healthcare costs, and prevent access for other patients (Milicevic et al., 2020). Stewart (2019) estimates that missed appointments can cost a medical practice approximately $150,000 annually.

Studies have demonstrated that consistency with appointments and follow-up is necessary for optimal treatment success in patients dealing with mental health issues (Papageorgiou et al., 2017). Several reasons have been postulated for missing appointments including patients forgetting appointment dates and times, substance abuse, and scheduling conflicts (Miller & Ambrose, 2019). Nevertheless, assisting patients in keeping their scheduled appointments is imperative for treatment success and improving the quality of life for individuals dealing with mental health issues. This scholarly project aimed to decrease the rates of missed mental health appointments for individuals attending the student and employee health clinic.

Significance of Practice Problem

Missed patient appointments have become an increasingly significant issue for healthcare organizations as well as private practices and clinics. Missed or no-show appointments can range from 10% in primary care clinics up to 60% in mental health clinics (Milicevic et al., 2020). No-show appointments can decrease revenue for the organizations and clinics. For

example, missed appointments can cost up to $150,000 annually for a small clinic that has a single physician practicing (Stewart, 2019). The missed appointments can also decrease positive outcomes for many patients. In addition, when patients don't keep or call to cancel their appointments, they are preventing others from being seen during that open time.

In the current practice setting, it was determined that the clinic had a high rate of no-show mental health appointments ranging from 18%-21%. The no-show percentage was identified in young adults and college students. Young adults in college settings can have extra stress on them due to courses and financial strains. Mental health disorders can begin at any time, but more than three-quarters of mental disorders will begin before the age of 25 (Li et al., 2022). Mental disorders such as depression and anxiety are common in college students (Li et al., 2022). Mental health problems can affect the young adult college students in many ways such as anxiety, depression, sleep disturbances, learning, and can even lead to suicide (Ma et al., 2022). Having an extended wait time for mental health appointments can increase the chances of negative outcomes among the patients. No-show appointments can decrease productivity of clinics, increase health care cost, decrease revenue, and prevent access of the appointment times for other patients (Milicevic et al., 2020). Consequently, no-show appointments can affect the clinic and young adult population and any delay in mental health appointments can have a negative effect on society and the community.

Stigmas around mental health conditions in college students can have a negative effect and can delay the patients from getting the help they need (Criswell, 2022). Reducing no-show appointments can increase healthcare quality. According to the Institute of Medicine, healthcare quality is the services offered to patients to increase likelihood of positive health outcomes. Reducing the no-show rates can benefit two of the six domains of healthcare quality which would be timely appointments that reduce wait times and the efficient domain which is reducing waste for the organization (AHRQ, 2022). It is important to find ways to reduce the missed

appointments so that the student clinic is able to provide the best care to multiple patients and improve the quality of healthcare in the clinic setting.

PICOT Question

The PICOT questions guiding this scholarly project is: In young adults 18-25 years with mental health appointments (P) how does patient preferred appointment reminders (I) compared to standard appointment reminders (C) affect no show rates (O) within 8 weeks (T)?

Population

The population is young adults who have mental health appointments in the student and employee health clinic. The young adult population includes college students. The ages range from 18-25 years of age.

Intervention

The practice change project was based on the high number of no-show rates of mental health appointments in the student and employee clinic and the organization. The intervention is focused on changing the clinic's practice of appointment reminders. The standard that the clinic practices for appointment reminders is to attempt one phone call two days before the patient's appointments. The intervention is using evidence-based patient preferred appointment reminders one week before the appointment and the day before the appointment. The intervention included telephone and/or email appointment reminders based on patient's preference. The patients were given a questionnaire if they would like to receive the appointment reminders by email or by a telephone call. This intervention allowed the patients to be involved with appointment reminders. The intervention was set to reduce the no-show rates for mental health appointments in college students.

Comparison

The intervention was compared to the standard appointment reminders which is to give them a card with the appointment date and time. Giving a card with the appointment date and

time is not the best practice due to appointment cards can be lost and forgotten by the patients.

The phone call two days before also was not best practice due to patients forgetting that they had

conflicting activities during the appointment time.

Outcome

The outcome of the results was projected that no-show rates would be reduced to 17% for

mental health appointments in young adults. Reducing no-show rates can improve patient

outcomes and reduce the time it takes to get other patients in to be seen.

Time

The project was completed in 8 weeks. At the end of the 8-week period the results were

viewed and discussed. The no-show rates of mental health appointments in young adults did

decrease with the implementation of the patient preferred appointment reminders.

Evidence-Based Practice Framework and Change Theory

The evidence-based framework that is used in this project to reduce the no-show rates for

mental health appointments in young adults is the Johns Hopkins Evidence-Based Practice model

for Nurses and Healthcare Professionals. The John Hopkins Evidence-Based Practice model is a

problem-solving approach that helps healthcare professionals in clinical decision making. It

shows that evidence-based practice is an activity that increases interprofessional collaboration

and helps improve patient care coordination (John Hopkins Medicine, 2023).

The John Hopkins Evidence-Based framework PET is a three-step process that helps with

the latest research and best practices. PET stands for practice question, evidence, and translation

(Upstate Medical University, 2022). PET helped to guide the development of the project by

research used to find the need for change and development a practice question, the practice

question used in this project is using patient preference appointment reminders will the no-show

rates in mental health appointment among young adults decrease? The evidence showed the

latest research that was reliable and identifies the best evidence to answer the question of

decreasing the no-show rates in mental health appointments among young adults. The implementation of patient preference appointment reminders showed a decrease in no-show rates in mental health appointments among young adults in the clinic. The evidence was translated and showed how the rates decrease. Reflection of the project is important to ensure it to be used as best practice which will increase practice improvements (Dang et al., 2022).

Change is important to healthcare to improve best practices. Due to change being important to improve best practices and improve healthcare, the change theory is important to implement new changes. Kurt Lewin's three stage model of change was used in this project. Lewin's model of change which is also known as the unfreeze-change-refreeze model. Lewin's shows the behavior that defines his model of change is forces working in opposite directions (Petiprin, 2023). The concepts of Lewin's change theory are driving forces, restraining forces, and equilibrium. Unfreezing is the process that finds a method to help people let go of old practices that are out of date practices or counteractive practices.

Methods that were used in the unfreeze stage are the following: to increase the driving forces, decrease the restraining forces, or a combination of increasing the driving forces while decreasing the restraining forces (Petiprin, 2023). The change stage is the movement stage. This stage is when thoughts, feelings, and behaviors change to be more productive (Petiprin, 2023). The refreezing stage is the stage that the new process becomes standard operation (Petiprin, 2023). This change theory is important to the project because the clinic is in an old habit of sending out patient reminders that are convenient for the clinic without considering the patients' preference which could result in the no-show appointments. Every patient is different and collaborating with the patients as individuals is important and a best practice. Having the patients more involved and allowing them to choose their preference for appointment reminders helped reduce the no-show rates for mental health appointments in the clinic. The change was beneficial for the patients, the clinic, the staff, and the organization.

Evidence Search Strategy

The literature review for this project utilized University of St. Augustine's library and Google Scholar. The number of results from the databases was over 29,000. In the evidence search strategy five databases were used. The databases that were used are Google Scholar, ProQuest, DynaMed, PubMed, and CINAHL. The search terms that were used included Medical Subject Headings (no-show patients, no show mental health patients, patient missed appointments) and non-Medical Subject Headings (no-show appointments, appointment reminders, appointment compliance, and adherence of appointments). The keywords used for the CINAHL included no-show or missed appointments AND appointment reminders. This yielded 7 articles. The keywords used for DynaMed were no-show mental health appointment or missed mental health appointments AND appointment reminders yielded 13 articles. The keywords for PubMed were no-show mental health appointments or missed mental health appointments AND appointment adherence AND appointment reminders yielded 31 articles. The keywords used for ProQuest were no-show mental health appointments or missed mental health appointments AND appointment reminders which yielded 54 articles. The keywords used for Google Scholar were no-show mental health appointments or missed mental health appointments AND appointment reminders AND appointment adherence which yielded 81 articles.

Advanced searches were used for full text with abstract articles. The limit on the dates was set to 2015-2023 for all databases. Only English language articles were included if they investigated no-show mental health appointments, appointment reminders, and appointment adherence. Articles that were removed from the search included articles that were before 2015, not in English, and any that did not fit the project specifics such as pediatric patients, elderly patients, infants, and any specialties other than mental health. Duplicates were excluded.
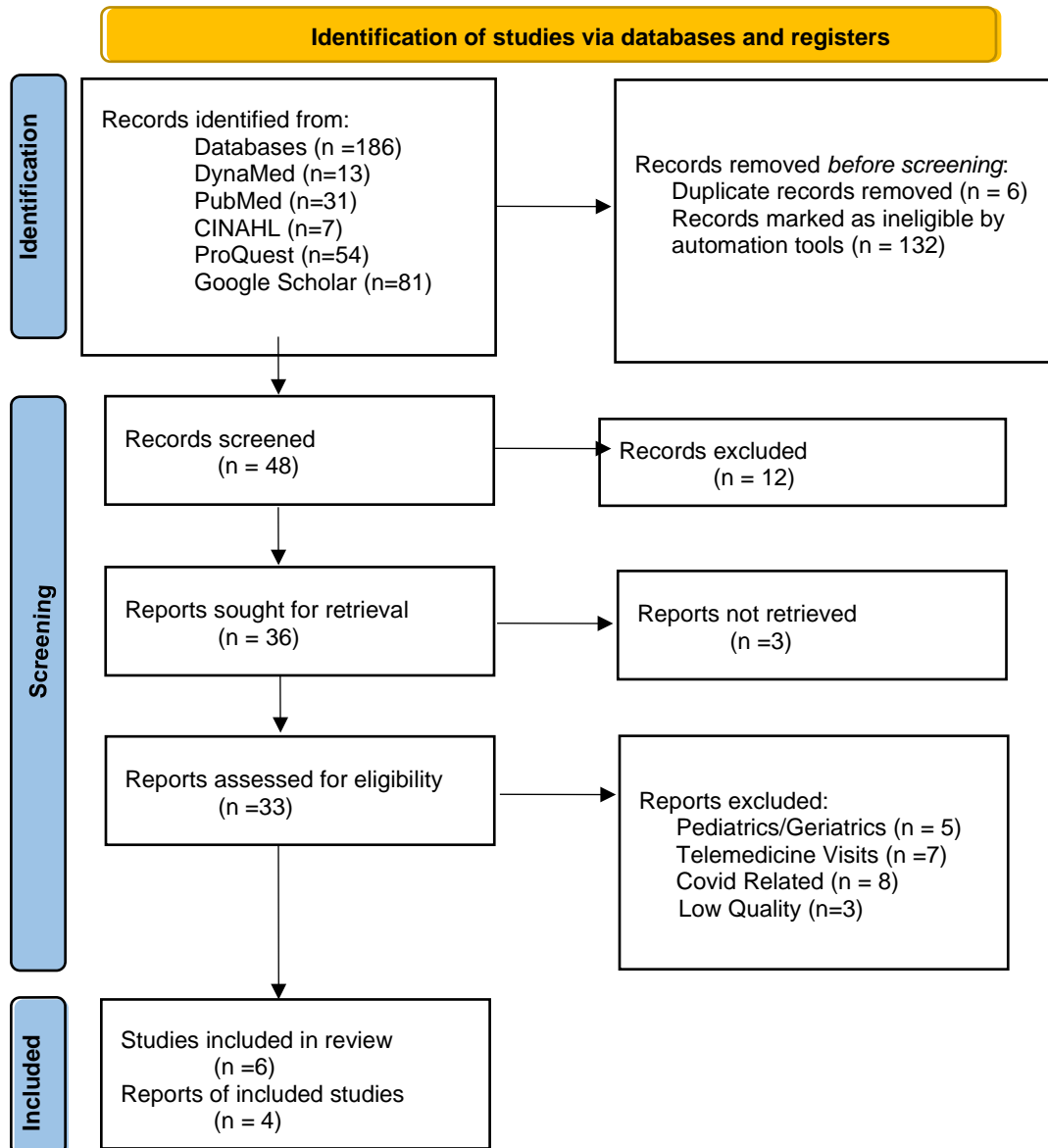
Evidence Search Results

The search of the databases yielded 186 articles between the years 2015-2023. DynaMed yielded 13 articles. PubMed yielded 31 articles while CINHL yielded 7 articles using no-show mental health appointments or missed mental health appointments AND appointment adherence AND appointment reminders. ProQuest searches for no-show mental health appointments or missed mental health appointments AND appointment reminders yielded 54 articles. The keywords used for Google Scholar were no-show mental health appointments or missed mental health appointments AND appointment reminders AND appointment adherence which yielded 81 articles. Many articles did not directly apply to the PICOT question. The results were narrowed down to articles that were relevant to the project such as decreasing no-show appointments and increasing appointment adherence in mental health. Articles that were excluded are articles that focused on pediatrics, geriatrics, dermatology, or that did not have relevance to appointment reminders or no-shows. Tables for primary research and systematic reviews that were used for the project are seen in Appendix A and B.

The articles were narrowed down to four primary research and three systematic reviews. These articles are rated for evidence based on levels from John Hopkins Nursing-Based Practice Evidence Level and Quality Guide. The articles selected were good quality and consistent results and good sample sizes. Having good quality, consistent results, and good sample sizes is important for quality research for the project (Dang et al., 2022).

One article had cross-sectional data which compared network and centrality in females and males separately, as well as students with suicidal ideations. This was a level III and quality C. One study used predictive models and was a level III and Quality B. One article discussed a quality improvement study which was a level III and Quality B. The last two articles were cohort studies and were considered a level III and Quality B.

The three systematic review articles that were used good quality articles. The articles were relevant to the project. Two of the articles had a quality grade of A and one article had a quality grade of B. All the articles included definitive conclusions and recommendations that were based on comprehensive review.

Identification of studies via databases and registers	
Identification	

Records identified from:
    Databases (n =186)
    DynaMed (n=13)
    PubMed (n=31)
    CINAHL (n=7)
    ProQuest (n=54)
    Google Scholar (n=81)

→ Records removed *before screening*:
    Duplicate records removed (n = 6)
    Records marked as ineligible by automation tools (n = 132)

Screening

Records screened
(n = 48)

→ Records excluded
(n = 12)

Reports sought for retrieval
(n = 36)

→ Reports not retrieved
(n =3)

Reports assessed for eligibility
(n =33)

→ Reports excluded:
    Pediatrics/Geriatrics (n = 5)
    Telemedicine Visits (n =7)
    Covid Related (n = 8)
    Low Quality (n=3)

Included

Studies included in review
(n =6)
Reports of included studies
(n = 4)

Themes with Practice Recommendations

The synthesis of ten project-related articles which were considered good quality when the review was conducted, which revealed themes related to the project. The themes were appointment no-shows, patient appointment reminders and increasing appointment adherence.

The main ideas, designs, and quality grading can be viewed in the Appendix A while the

summary of systematic reviews is noted in Appendix B.

Appointment No-Shows

Appointment no-shows is a common theme within the research. According to Crable et

al. (2021) certain factors caused more patient no-show appointments. These factors include

transportation issues, lack of insurance, patients with behavioral and emotional issues, and

patients with cognitive issues. Woojin and Fentl, (2017) showed that patients more often do not

show up for appointments during winter months than any other season. Patients with mental

health issues who miss appointments have a high-risk rate for all-cause mortality, these patients

are at high risk for premature death such as suicide (McQueenie et al., 2020). Patients having

no-shows can decrease revenue for the organization and have a negative impact on their health.

Appointment Adherence

Appointment adherence is another common theme. One study of 182 appointments

determined that 46.2% respondents had missed appointments (Ramlucken, & Sibiya, 2018). The

reasons for missed appointments according to Ramlucken & Sibiya (2018) were forgetfulness,

work commitments, lack of transportation and financial constraints. Knowing the reasons and

frequency of missed appointments, interventions can be used to increase appointment adherence

with patients. Appointment adherence can be increased with great communication skills and

therapeutic relations with patient who suffer from mental illnesses (Ramlucken & Sibiya, 2018).

Appointment reminders are shown to increase appointment adherence (Teo et al., 2017). Patients

should be educated that appointment adherence is important and it can increase positive

outcomes regarding their health.

Appointment Reminders

Appointment reminders was another common theme in the research. The research

revealed evidence that patient appointment reminders will decrease missed or no-show

appointments (Crable et al., 2021, and Teo et al., 2017). According to Teo et al. (2017) appointment adherence increased when researchers spoke with the patients for telephone appointment reminders which caused the no-show rate to decrease to 3%. Appointment reminders done by live human telephone calls showed an increase in appointment adherence (Andreae et al., 2017). Appointment reminders are an important part of patient care and can help with positive outcomes for both the patients and the organization.

Practice Recommendations

The literature review answered the PICOT question by supporting the implementation for evidence-based practice project change strategies. The evidence-based practice change project evaluated the student and employee clinic's appointment reminder adherence. The current appointment reminder policy for the clinic is to contact patients by telephone, leave a message if no answer, and use email if no phone number is available. The patient is contacted one time a day before the appointment.   After reviewing the research, practice recommendations are the following:

- Develop an appointment reminder policy that would work for the clinic and the patient population.
- Consider using patient preferred appointment reminder methods.
- Increase the live human telephone reminders which can increase appointment adherence.

Settings, Stakeholders, and System Change

The setting for the evidence-based practice change project was a small student and employee health clinic located in southwest Virginia. Patients with mental health appointments were evaluated via telemedicine with a psychiatrist. The patients who sought care were young adults between the ages of 18-24. The clinic setting also saw acute care visits and primary care visits. The setting has staff that includes a psychiatrist via telemedicine, one nurse practitioner,

one registered nurse, and two receptionists. The mental health appointments come in to the clinic

to have the PHQ9 screening, GAD screening, vital signs, height, and weight recorded by the RN

and logged into the EMR for the psychiatrist to view. The psychiatrist then saw the patient via

telemedicine in the clinic. The nurse practitioner did not see the patient unless general medical

needs were requested. Mental health telemedicine visits are required to come into the clinic for

their appointments. Telemedicine visits with the psychiatrist could be done off site for special

circumstances such as the patient has Covid-19 and are isolating. The clinic setting contained

two exam rooms, one exam room which is used for mental health telemedicine visits. The

organization is a non-profit medical center.

Leadership Team

The leadership team of the project setting included an administrator of Population Health,

a director of Population Health Clinical Services, and a medical director of the clinic. The

organization's need in addressing mental health appointment adherence was determined by the

project clinic's medical director, nursing staff, and the director of Population Health Clinical

Services.

Organizational Culture

The organization's mission is to transform health and hope to all patients and beyond.

The organization's vision is to strive to be the best healthcare system and the best place to work

while transforming patient care, research, education, and engagement with diverse communities.

Some of the organization's values are professionalism, accountability, respect, integrity, equality,

and stewardship.

Stakeholders

Stakeholders play a major role in this evidence-based project. Stakeholders' perceptions

of the project's inventions and the sustainability of the project determines the success of the

project. The stakeholders are groups or an individual who are responsible or affected by

healthcare decisions and policies (Hacker & Smith, 2018). The key stakeholders for this project

consisted of upper management, practice manager, healthcare providers, and staff members.

Other stakeholders included the DNP student, the patients, and the supervising university.

The evidence-practice project had acceptance of all the stakeholders which resulted in a

successful implementation and for best outcomes. The clinic, the providers, the nursing staff,

and even the patients have been negatively impacted by the amount of mental health no-shows in

the clinic. A determination was made that patient no-shows causes decrease in revenue for the

organization, clinic, and the provider. Appointment no-shows also impact patients by having

disruptions in care and a waiting list to see psychiatrist.

System Change

The evidence-practice change project impacted the organization by improving patient

care and increasing revenue. The project also impacted the patient population by improving the

number of open appointments (when appointments are cancelled with a 24-hour notice) and

showed improvement to patient care and outcomes. The project worked to promote best care

practices and was easy to implement the recommendations. Staff received education by

presentation and handouts which took under 30 minutes to show the importance of changing the

appointment reminder policy and trained the staff on the new changes to the appointment

reminder policy.

SWOT (Strengths, Weaknesses, Opportunities, and Threats)

A SWOT analysis was conducted to identify any strengths, weaknesses, opportunities,

and threats that might impact the readiness for the proposed change. (See Appendix C). The

internal strengths were nursing staff that is engaged and the desire to change to improve patient

care. The organization desires improvement in healthcare. The internal weakness that was

identified is the receptionists are hesitant to change and a new psychiatrist will come aboard

within three months. The opportunity identified was that the nursing staff was willing to help

and educate patients on appointment reminders and appointment adherence. External threats included a slight increase of workload on reception staff and nursing staff.

The level of change is a micro-level since it was a change within the clinic to help with appointment adherence for mental health appointments of young adults. The micro level system change included changes in the patient appointment reminders for mental health appointments, nursing staff helping educate patients on the importance of appointment adherence and appointment reminders, and receptionists increasing the number of appointment reminder calls. These changes helped decrease the appointment no-show rates and positively impacted the patients who are being seen for mental health issues.

Implementation Plan with Timeline and Budget

The implementation plan for this practice change plan included a planning and monitoring period focused on mental health no-show appointments. The planning period assisted in determining the need for change to reduce the no-show rate in mental health appointments. The percentage of mental health no-show appointments over an eight-week period was determined to be a high 21% in the student clinic this was out of fifty-one mental health appointments. The appointment reminder policy that was in place for the student clinic is one attempt for appointment reminders via telephone or email one day before the scheduled mental health appointments. The Johns Hopkins Evidence-Based PET framework was ideal for approaching changes within the clinical setting and in creating sustainable change.

The objectives for the practice change project were to decrease the patient mental health no-shows by the following:

1. Implementing patient preferred appointment reminders by contacting the patient by their preferred method (telephone or email) one week before the scheduled appointment and then again one day before the appointment to improve appointment adherence rates.

2. Increase productivity and revenue for the clinic and organization by decreasing the no-show rates of mental health appointments.

3. Improve overall patient outcomes

The implementation phase collected evidence using the Practice Questions, Evidence, Translation framework. The evidence collection using PET framework assured that the change project was a proper fit for the clinic (Upstate Medical University, 2022).

Model of Change

Kurt Lewin's three stage model of change also known as the unfreeze-change-refreeze model guided this evidence-based change project by using this opportunity to decrease the mental health appointment no show rate in the student health clinic (Petiprin, 2023). The staff in the clinic worked together to help decrease the rate of patient no shows for mental health appointments. The change was a benefit for the patients, the clinic, and the organization. According to Upstate Medical University (2022), the John Hopkins Nursing Evidence-Based Practice Model shows the importance of gaining support from stakeholders such as organizational leaders and the staff of the clinic to make the plan of change successful.

Unfreeze phase

With the support of the stakeholders and after approval for the change project was granted from the organization and university the implementation of the change project began. First, unfreezing the current policy of contacting the patients for appointment reminders one day before the appointment was changed. Once the unfreezing of the current policy was completed, we moved on to the change stage.

Change phase

The practice change project was presented to the clinic upon approval and before the implementation phase by the project manager. The change stage included training the front desk associates and nursing staff on patient preferred appointment reminders and how often to contact

the patients for the appointment reminders. Training the staff took no more than five to ten

minutes on two separate days. The training used oral presentation and handouts about the

intervention of using patient preferred appointment reminders and the questionnaires which are

seen in appendix D-1, D-2, and D-3. The project proposal included modifying the clinic's

current appointment reminders by using a questionnaire for patients asking their preferred

method (email or telephone) for appointment reminders and alerting them they would receive

appointment confirmation/reminder one week before their appointment and another appointment

confirmation/reminder one to two days before their appointment. For mental health patients who

are students only a scripted phone call was used by the front desk associates and the nursing staff

for patients who opted for telephone appointment reminders. The scripted telephone

appointment reminder took less than two minutes per telephone call. For student mental health

appointments only, the students received an email that was secured and was sent to the ones who

opted for email appointment reminders. The email was scripted and contained no identifying

properties such as name or date of birth. See examples of scripted telephone calls reminders and

email reminders in Appendix D (1-3). This intervention modified the current appointment

reminder policy that was used by the clinic and that was already part of the receptionist's job role

so there was no added expense to the implementation of the project. Other options for

appointment reminders are not ideal for this clinic's population. EMR appointment reminders

are not ideal for the student population due to most of the students opted out of using the

Mychart feature. Text message is not an option for the student/employee clinic to use due to the

organizational policies. The clinic staff was supported and lead by the DNP student. No added

harm was identified in this project of implementing patient preferred appointment reminders.

The risk of harm was the same as the current appointment reminders which was if the patient

does not show for their appointments. The risk of harm of no-show appointments are the delay

of care, delay of needed medication, and increase of anxiety, depression, or SI. During the

implementation phase the data and results of no-show rates was evaluated over an eight-week

period of time using an excel spreadsheet. The excel spreadsheet was used to show the amount of

no-show appointments for the student mental health patients who selected email appointment

reminders and for the patients who selected telephone appointment reminders. Names of patients

were not included on the excel spreadsheet, just a number representing student mental health

appointments. The only patients who were included on the excel spreadsheet and in the project

are students who attend the college that are seen for mental health appointments. Any patient

who has primary or acute appointments that does not include mental health appointments with

the psychiatrist were not included in this project. Any employee that has mental health

appointments were not included on the excel spreadsheet or in the project intervention count.

Reflection of the project was important to ensure it to be used as best practice which increased

practice improvements (Dang et al., 2022). During the implementation of the project the

stakeholders were updated every two weeks. When the change phase was finished and proven

successful in decreasing the no-show rates then the clinic can move into the refreeze phase. After

the implementation the following weeks consisted of the project's dissemination and

sustainability measurement periods.

Refreeze phase

The refreeze phase is when change project is accepted into policy after evaluation phase.

The project coordinator provided ongoing support to the clinic staff. The policy was sustainable

and increased positive outcomes for the clinic and the patients.

Budget

The project organization did not provide a project budget. The budget is net neutral. The

project intervention to modify the existing appointment reminders that is already part of the

receptionist's job role which was no extra cost. The project manager and voluntary staff

conducted the project's interventions. The project manager which is the DNP student supported

the staff, monitored the number of mental health appointment no-shows, collected data, and communicated with the stakeholders. The cost was minimal and included the use of printer paper. No extra costs were identified. (See Table 1).

Timeline

The timeline for this project included assessing the organization for change need, preceptor meetings, evaluating data pre-project, project proposal, project implementation, and evaluation. The preceptor helped working and overseeing the project manager throughout the whole project change plan. The assessing the organization's need for change was completed in 3 weeks, evaluating the data pre-project took 2 weeks, prepare project proposal was 15 weeks, meet with management/stakeholders took 3 weeks , evidence search strategy-weeks took 4 weeks, monitoring no-show rates took 8 weeks, working with clinic staff on appointment reminders took 9 weeks, budget analysis was completed in 1 week, implementing change took 8 weeks, collecting and evaluating data took 10 weeks, monitoring/evaluating change-took 10 weeks, and presenting data to management, stakeholders, and preceptor took 3 weeks (see appendix E).

Evaluation Plan and Results

The evaluation plan is an integral component of evidence-based practice and serves to measure the effectiveness of the intervention in achieving the projects proposed outcomes.

The participants of this project are the student mental health patients. Using an excel spreadsheet the data collected was student mental health patients' appointments. The excel spreadsheet included no-show and attended appointment data of the student mental health patients who selected email appointment reminders and the ones who selected phone appointment reminders (Appendix F). No employee mental health appointments, no primary care appointments, and no acute medical care appointments were included. The project began after evaluating the student clinic for needs. The data was collected from an eight-week time

span to show pre-intervention no-shows rates. The pre-intervention scheduled appointments total was 51 with 11 no-show appointments, which was a 21% no-show rate among student mental health patients. The implementation phase of the project included eight weeks of collecting data on scheduled student mental health appointments and the number of no-show appointments. The number of mental health appointments and the number of no-shows were stored on Excel on a secure computer in the student clinic. The project manager used secured access to collect the data. The project is HIPAA compliant as it does not use identifying factors and also the project only focuses on the number of no-show mental health appointments. Since the participants had to sign permission forms for the clinic to contact them via telephone or personal email the HIPAA rules have been addressed for this project.

The project manager utilized inferential statistics to determine the patient preferred appointment reminder project effects on mental health appointment adherence. A t-test was used to evaluate the data of the patient preferred appointment reminder project. The project manager used Intellectus Software (2021) to analyze the data. Intellectus Software is software that is a valid and reliable measuring tool which has been shown to efficient interpretive analysis of data that can be complex (Chen et al., 2018). The integrity of the current appointment schedule for the clinic works well for staffing and is stored on an encrypted medical center computer.

The pre-project no-show rates over a period of eight weeks were at 21%. Applying the intervention of the patient preferred appointment reminder project showed a significant difference in the no-show rates of mental health appointments over an eight-week period of time. Variations of the results are statically significant if they are $p<0.05$ (Andrade, 2019). The project was approved by the University of St. Augustine IRB before implementation of the project took place.

The results of the project showed a decrease in the no-show rates in the student clinic for mental health appointments. The implantation of the project lasted 8 weeks. During the 8 weeks

there were 20 scheduled mental health appointments for students that were between the ages of

18-24. Out of the 20 scheduled appointments 3 patients missed their appointments. Which is a

15% no-show rate after the project was implemented. Clinical significance is most important in

evidence-based projects because the findings help improve medical care to improve the health

and wellbeing of patients (Sharma, 2021) . Clinical significance was achieved by the no-show

rates decreasing to 17% or less compared to the pre-intervention no-show data rate of 21%.

Having a lower rate of no-show mental health appointments is a positive outcome for the patients

and the clinic. Even with the new patient reminders set in place one student expressed that they

forgot the appointment even with them confirming the day before the scheduled appointment.

The t-test from Intellectus Software was used in the project. The results of the t-test for

scheduled appointments vs no show appointments are the following:

Two-Tailed Paired Samples *t*-Test

A two-tailed paired samples *t*-test was conducted to examine whether the mean difference

of scheduled appointments and no-shows was significantly different from zero. The project

noted 20 scheduled appointments who had the patient preferred appointment reminders with 3

no-shows out of 20 scheduled appointments.

A Shapiro-Wilk test was conducted to determine whether the differences in

scheduled_apts and no_shows could have been produced by a normal distribution. The results of

the Shapiro-Wilk test were significant based on an alpha value of .05, $W = 0.43$, $p < .001$. This

result suggests the differences in scheduled_apts and no_shows are unlikely to have been

produced by a normal distribution, indicating the normality assumption is violated. The sample

size of 20 student mental health appointments is a small sample size which can lead to normality

assumption violations. During the implementation of the change project steps were taken to

ensure that errors were avoided in the data. Sample size included only mental health

appointments among students that were between the ages of 18-24 years old that had signed up

for the patient preferred appointment reminders. Due to the time limitations of the project the sample size was small but still showed clinical significance. A larger sample size would be preferred to reduce errors and avoid normality assumption.

Results

The result of the two-tailed paired samples *t*-test was significant based on an alpha value of .05, $t(19) = 10.38$, $p < .001$, indicating the null hypothesis can be rejected. This finding suggests the difference in the mean of scheduled_apts and the mean of no_shows was significantly different from zero. The mean of scheduled_apts was significantly higher than the mean of no_shows. The results are presented in Table 1. A bar plot of the means is presented in Figure 1 (Intellectus Statistics, 2021). This showed the intervention of patient preferred reminders for student mental health appointments was clinically significant to decrease the no-show rate.

Two-Tailed Paired Samples t-Test for the Difference Between scheduled_apts and no_shows

scheduled_apts		no_shows				
M	*SD*	*M*	*SD*	*t*	*p*	*d*
1.00	0.00	0.15	0.37	10.38	< .001	2.32

Note. N = 20. Degrees of Freedom for the *t*-statistic = 19. *d* represents Cohen's *d*.

The means of scheduled_apts and no_shows with 95.00% CI Error Bars
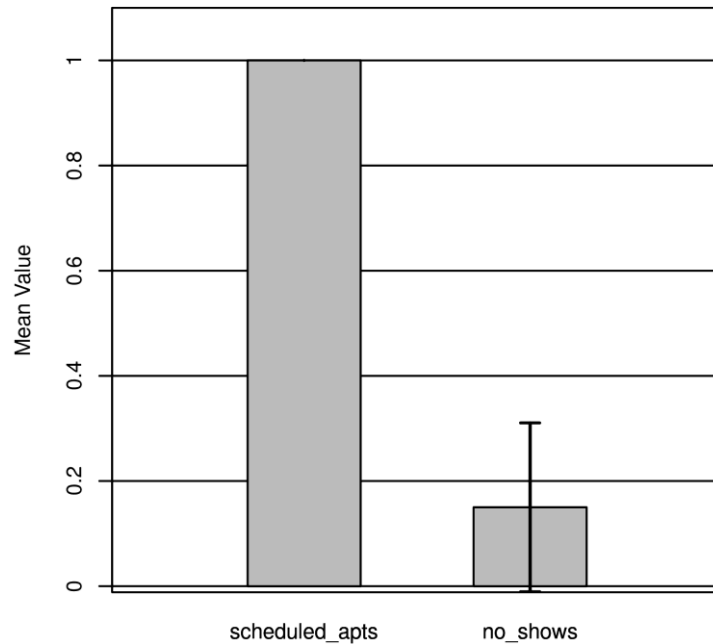
Impact

The patient preferred appointment reminders implemented during the project demonstrated a positive impact on decreasing the no-show rates among the student mental health appointments in the clinic. Increasing adherence of mental health appointments can have a positive effect on patients' health. Accordingly, it is anticipated that the practice change will continue to show the clinical significance and decrease the no-show rates. The leadership team of the project clinic acknowledged the statistical significance of the data. By showing the decrease rate for no-show appointments among student mental health patients, the change in patient appointment reminders is anticipated to be incorporated into the clinic's daily workflow. The scripted calls and emails of the project utilized by the clinic's receptionists and nursing staff may be incorporated to other appointments in the clinic such as primary care appointments to help reduce the no-show rates among other appointments. The expansion of the practice change project to other types of appointments is vital in ensuring that patient preferred appointment reminders become the standard of care throughout the clinic and possibly throughout the

organization. The limitations of the project included reluctance to change by some of the staff, change in psychiatrist, small clinic size, and the small sample size within the eight weeks of the project. The practice change project allowed for early appointment communication and intervention by the clinic's staff, which increased the communication between the staff and the patients. Therefore, it is anticipated that the practice change will improve overall patient health by increasing adherence of appointments. This project change will continue to be monitored by the clinic's management team.

Dissemination Plan

The evidence-based patient preferred appointment project's key message aligned with the needs and interests of the stakeholders, the organization, and the patients. The dissemination of the project results is intended for the clinic leaders, stakeholders, and clinic staff. The project results were presented to the clinic's leaders and the clinic's staff. The presentation allowed the clinic staff and clinic leaders to discuss the practice change. The project's presentation reflected the clinical significance of the project and how it improved the overall appointment adherence of young adult mental health appointments. The presentation also showed how the project was beneficial and promoted positive outcomes for the patients and the clinic. The project was presented in writing and as a PowerPoint presentation for the clinic leadership team and the project preceptor. The information was shared with the stakeholders during a clinical meeting.

An oral poster presentation of the evidence-based project was presented to the University of Saint Augustine Health Sciences. The project will also be submitted by manuscript to the Scholarship and Open Access Repository (SOAR) for the University of Saint Augustine Health Sciences. University of Saint Augustine Health Science's SOAR will further disseminate student's scholarly projects to promote discoverability at a professional level.

Plans for Sustainability

The plan of sustainability of the change project includes maintaining the practice change of patient preferred appointment reminders by the clinic's staff. The clinic's staff will continue to discuss the results of the practice change in monthly clinical meetings. The clinic staff will be able to have input about the sustainability of the project and any concerns they may have with the patient preferred appointment reminders.

<div align="center">

Conclusion

</div>

Missed patient appointments are an ongoing concern that many healthcare organizations face each day. Missed patient appointments, also known as no-shows occur when patients fail to keep their scheduled appointments and fail to notify the clinic that they will not be attending the appointment. No-show appointments affect both patients and the organizations in a negative way. No-shows can delay patient treatment leading to an overall decrease in quality of life, especially for individuals with mental health issues. No-show appointments can decrease productivity and revenue, increase healthcare costs, and prevent access for other patients (Milicevic et al., 2020). According to Stewart (2019) no-show appointments can cost a medical practice $150,000 annually.

No-show appointments can happen for many different reasons. Several reasons for missing appointments include patients forgetting appointment dates and times, substance abuse, and scheduling conflicts (Miller & Ambrose, 2019). Helping patients keep their appointments is imperative for treatment success and improving outcomes for patients. This scholarly project aimed to decrease the rates of missed mental health appointments for individuals attending the student and employee health clinic. The no-show rate for mental health appointments in the student and employee clinic started at 21%. The patient preferred appointment reminder project made a significant impact and decreased the no-show rate for mental health appointments among young adults to 15%. This project was a benefit to the organization by increasing revenue and

increasing positive outcomes for the patients by decreasing the no-show rates for mental health

appointments.

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Table 1

Budget

Expenses		Revenue	
Direct		**Billing**	N/A
Salary/Benefits	**0**	**Grants**	**N/A**
Supplies	**0**	**Organization Budget support**	**N/A**
Services	**0**		
Evaluation Tools	**Excel (project manager)** **0**		
Indirect			
Overhead	**0**		
Total Expenses	**0**	**Total Revenue**	**$50-200 per appointment**

Appendix A

Citation	Design Level Quality Grade	Sample Sample Size	Intervention Comparison	Theoretical Foundation	Outcome Definition	Usefulness Results Findings
Ma, S. et al, (2022) *Journal of Affective Disorders, 311,* 47–54	cross-sectional data compared network and centrality in females and males separately, as well as students with suicidal ideation. Level III Quality C	29,099 college students	analyze mental health symptoms of college students of different genders, so network analysis method was introduced.	Theory of Patient Behavior	Identified gender differences in college students' mental health network and central symptoms. no gender difference in the suicidal ideation network	Limitations included. Study used cross-sectional data, making it impossible to examine dynamic relationships between symptoms, intervention based on the study results has not been verified in clinical practice, and further research is needed Overall shows that college students are at risk for anxiety, depression, and SI.

Milicevic, A et al, (2020) *Military Medicine*, 18 5(7/8), e988–e994.	Predictive models Level III Quality B	1,206,271 unique appointment records 13 VA medical clinics	developed and validated a patient no-show predictive model based on empirical data. Nationwide procedures to track unused outpatient appointment s	Theory of planned behavior	best indicator of whether someone will miss an appointment is their historical attendance behavior.	Limitations only enough data to observe that having an appointment with social worker increased the likelihood of no-show but need to expand our inquiry to account for this phenomenon. Our data set lacks information on education, income, or geographic distance between patients and clinics, Results ability to predict a patient's risk of missing an appointment and developing strategies to reduce them would allow for both advanced intervention s during scheduling process to decrease no shows and for more efficient scheduling
Teo, et al. 2017 American Psychiatric Services, 68(11)	Quality Improvement Study Level III Quality B	Sample size 2270 patients in 4 VA clinics	Evidence from the study that assessed no-show rates in clinic setting in New Hampshire,	PDSA Cycle	Appointment reminders can decrease no-show appointments	Using appointment reminders decrease the rate of no-show appointments
			daily reminder phone calls to patients reduce no show rates. No additional cost involved.			

Woojin, C., & Fantl, J.A. (2017). Urologic Nursing, 37(6), 319-324.	Cohort Study Level III Quality B	Medical records of 21 years of age individuals for urodynamic testing that occurred between 5/2016-8/2016	During March April more no-show appointments happened and this did not change with appointment reminders	Theory of Planned Behavior	No Show appointments are a major problem for cost effective healthcare and patient safety. Knowing which patients are likely to miss an appointment is important to reducing the no-shows.	Limitation sample size is small. Appointment reminders can help decrease the no-show rates
Mcqueenie et al. (2019). *BMC medicine*, *17* (1), 2.	Cohort Study Level III Quality B	11,490,537 separate appointments from 824,374 patients. NHS data	NHS data from general practices across Scotland during September 5, 2013, and September 5, 2016. Examined the underlying patient and practice factors for missed appointments	Theory of Patient Behavior	No show appointments are a major problem that can put patients a high risk for premature deaths Knowing why patients miss appointments and how to predict which patients will miss can decrease the no show rates	Limitation sample size is very large. Future interventions should be developed with a particular focus on increasing attendance by these patients.
Ramlucken, L., & Sibiya, M. N. (2018). *Curationis*, *41* (1), e1–e4.	Quantitative, descriptive survey	four outpatient psychiatric clinics in the uMgungundlovu District 182 MHCUs	Study was for one week. Quantitative, descriptive survey to determine the frequency and reasons for missed appointments of outpatient MHCUs	Theory of Patient Behavior	Missed appointments are high in MHCUs. Knowing reasons why most people miss appointments can help with interventions to increase appointment adherence	Limitations Small sample size Frequency and reasons for missed appointments may prove to be different in other clinics that have pharmacies or site or not.

Appendix B

Citation	Quality Grade	Question	Search Strategy	Inclusion/ Exclusion Criteria	Data Extraction And Analysis	Key Findings	Usefulness Recommendation Implications
Li, W. et al., (2022). *Journal of Child Psychology and Psychiatry, 6 3*(11), 1222–1230	A	Prevalence and associated factors of depression and anxiety symptoms among college students	PubMed	no-show appointments and mental health in college students Full text, 2017-2023 English	64 studies with 100,187 individuals were included in the present metanalysis. Pooled prevalence of depression and anxiety symptoms among college students were 33.6% (95% confidence interval [CI] 29.3%– 37.8%) and	college students experience depression and anxiety symptoms and clarifies factors that are related to these mental disorders.	Intervention and prevention of mental health disorders such as anxiety and depression should be developed to help college students who are struggling
					39.0% (95% CI, 34.6%– 43.4%), respectively.		
Crable, et al., (2021). *Journal of Evaluation in Clinical Practice 27(4):*965-975	A	Effects of appointment reminders on adherence	Google Scholar	Appointment no shows or appointment noncompliance and appointment reminders. English Full text 2016-2023	Patients who had appointment reminders were three times more likely to keep their appointment	No-show Appts are a problem in healthcare. 9 different interventions were used to decrease no-show appts. No single one was clearly better than the other	Appointment reminders is a need to decrease no-show appointments.
Lee et al. (2019). *Singapore Medical Journal. 60(5);*216-223	B	Effects of Appt reminders on pt. adherence	PubMed	Appointment no-shows and appointment reminders English 20172023	Multifactorial Patient no shows and adherence	Improving patient and provider communication and relationships decreases missed appointments.	Strong patient and provider communication can decrease missed appointments.

Papageorgiou, A et al. (2017). *The Cochrane database of systematic reviews*, *6*(6), CD010006	C	Effects of communication skills on patient adherence to appointments and treatment in mental health settings	PubMed	Appointment adherence and mental health English text 2016-2023	Adding a CST program has positive effect on patients' experiences.	Adding a CST program had modest positive effect on therapeutic relationship. Communication Skills important for patient satisfaction	Communication is important for patients. More evidence is needed to make robust conclusions

Appendix C SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
Nursing staff that is engaged.	Receptionists hesitant to change.	The nursing staff willing to help and educate patients on appointment reminders and appointment adherence.	Slight increase of workload on reception staff.
Organization desire improvement in healthcare.	New psychiatrist within three months.	Improved patient outcomes.	Slight increase of workload on nursing staff.

Appendix D -1

Patient Appointment Reminder Preference

I, _____ give permission for the _____ clinic to contact

me for appointment reminders/confirmation one week before upcoming appointment and one-

two days before the upcoming appointment.

Preferred Method of Contact

(Please check preferred method of contact)

Telephone call _____.   Preferred number _____

If unable to answer the telephone call a voicemail can be left at the above number. Yes__ No__

Email ____. Preferred email address _____

Patient signature _____
Witness signature _____

Appendix D-2

Hello,

    This is the _____ clinic, calling to confirm and remind you of your

upcoming appointment on _____ at _____.   Please call us at _____ to

confirm, cancel and/or reschedule your appointment.

Thank you and have a great day.

Appendix D-3

Hello,

This is _____ clinic, contacting you to confirm and remind you of your

upcoming appointment on _____ at _____. Please reply to this email to confirm,

cancel and/or reschedule your appointment. You may also contact us at our office at

_____.

Thank you and have a great day.

_____ Clinic.

Appendix E

Project Schedule

Activity	NUR7801								NUR7802								NUR7803							
	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15
Meet with preceptor	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Prepare project proposal	X	X	X	X	X	X	X	X																
Organization assessment	X	X	X																					
meet with management		X	X										X	X							X	X		
evidence search		X	X																					
monitor no-shows	X	X												X	X	X	X	X	X	X	X			
work with staff on appointment reminders		X											X	X	X	X	X	X	X	X	X	X	X	X
budget analysis					X																			
implement project														X	X	X	X	X	X	X	X	X		
collect/evaluate data	X	X											X	X	X	X	X	X	X	X	X	X	X	X

Appendix F

Student Mental Health Appointment Email Reminders 7/18/23-9/19/23	Attended apt	No showed	Student Mental Health Telephone Reminder	Attended apt	No showed
Student 1 (7/10) selected both email/phone (email 1st) 7/10/7/17	18-Jul				
Student 2 (7/12)both email/phone (email 1st) 7/12/7/17	18-Jul				
Student 3 (7/20)selected both email/phone (email 1st)	no show	8-Aug	Aug 8 patient called late to cancel didn't reschedule		
			Student 4 (7/20)selected phone reminder (1day)	21-Jul	
			Student 5 (7/20)selected phone reminder (7/20/7/24)	25-Jul	
Student 6(7/26) selected email reminder (7/26/7/31)	1-Aug				
Student 7 (8/7) selected email reminder (8/7, 8/10).	11-Aug				
Student 8 telephone reminder (8/4 8/8)				11-Aug	
student 9 email 8/18-8/21	22-Aug				
Student 10 email 8/22 8/28	29-Aug				
student 11 email 8/18-9/1	5-Sep				
Student 12 email 8/29 9/7	8-Sep				
Student 13 email 9/7 9/11	no show	12-Sep			
Student 14 email 9/7 9/11	no show	12-Sep			
student 15 call 9/7 9/11				12-Sep	
student 16 email 9/7 9/11	12-Sep				
Student 17 9/7-9/14 email	15-Sep				
Student 18 email 9/11 9/18	19-Sep				

Student 19 email 9/11
9/18   19-Sep
Student 20 telephone
call 9/11 ,9/18   19-Sep

Total appointments 20
as of 9/19

total no-shows or late
cancels 3

13 email reminders 4
phone reminders 3
patients selected both
email/phone

15% no show rate