

Factors Contributing To Clinic No-Show at a Safety Net Hospital

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Abstract

Appointment no-show refers to patient nonattendance to previously scheduled clinic or surgical appointments without canceling the appointment in advance. No-shows have been an ongoing issue nationally and incur significant strains on the healthcare system, while negatively impacting health outcomes. Furthermore, when no-shows occur in an academic institution, they can lead to fewer educational opportunities for healthcare trainees such as medical students and residents. Prior studies have demonstrated variable no-show rates depending on the location and the type of healthcare setting, with rates range between 15% and 30% in general medicine clinics and urban community centers. In academic otolaryngology clinics, the no-show rate has been estimated to be around 8.3% [5].

Keywords: academic otolaryngology clinics; surgical appointments

Background

Appointment no-show refers to patient nonattendance to previously scheduled clinic or surgical appointments without canceling the appointment in advance. No-shows have been an ongoing issue nationally and incur significant strains on the healthcare system, while negatively impacting health outcomes [1]. Furthermore, when no-shows occur in an academic institution, they can lead to fewer educational opportunities for healthcare trainees such as medical students and residents. Prior studies have demonstrated variable no-show rates depending on the location and the type of healthcare setting [2, 3], with rates range between 15% and 30% in general medicine clinics and urban community centers. [4] In academic otolaryngology clinics, the no-show rate has been estimated to be around 8.3% [5].

Factors that have been shown to affect no-show rates include insurance status, socioeconomic status, patient ethnicity, and type of clinic visits. Studies have demonstrated that higher no-show rates are associated with patients with Medicaid, Latino or African American ethnicity, lower socioeconomic status, and new patient visits versus follow-up visits[5-8]. Furthermore, barriers to appointment keeping include lack of dependable transportation, financial barriers, and patient work schedule conflicts. Previous studies focused mainly on demographic factors that correlated with outpatient no-shows. This study aims to identify obstacles to appointment keeping and examine factors that contribute to lack of appointment compliance from the patients' perspectives.

Our institution cares for one of the nation's most disadvantaged patient populations in North Philadelphia, with approximately 85% of our patients having either Medicaid, Medicare, or no medical insurance. Despite being more vulnerable, we have seen the rate of clinic appointment no-shows remain high in North Philadelphia.

Aims/Objectives

The aim of this study is to explore possible barriers, either personal or systemic, that prevent patients from keeping appointments. Understanding these barriers will provide utility for future studies, and development of policies and procedures that can improve patients' ability to keep their scheduled appointments.

Material and Methods

This protocol was approved by the Temple University Institutional Review Board (Protocol #27148). In this qualitative study we interviewed 50 patients via telephone who failed to keep their scheduled in-person clinic appointments. Patients who did not keep their appointments were identified on the Epic electronic medical record system and subsequently contacted at the end of the week. Patients were contacted between August 2020 and December 2020 until 50 patient interviews were conducted. Patients who were unable to consent, unable to speak colloquially in English with our interviewers, and under 18 years of age were excluded from our study and not interviewed.

The interviews were scripted using a questionnaire (**Figure 1**) developed for this study. The questions focused on demographic data as well as other factors that potentially affect patients' ability to keep their scheduled

appointments. Patient responses were recorded using Microsoft Excel. Once 50 patient interviews were collected, the excel data was analyzed to generate descriptive statistics.

Independent Variables	N (%)
Gender	
Male	20 (40%)
Female	30 (60%)
Mean Age (Years old)	49.40
Race	
White	4 (8%)
Latino	15 (30%)
African American	29 (58%)
Asian	2 (4%)
Preferred Language	
English	42 (84%)
Spanish	6 (12%)
Other	2 (4%)
Education Level Completed	
8 th grade or less	4 (8%)
Some high school	11 (22%)
High school graduate or GED	23 (46%)
Some college or 2-year degree	4 (8%)
4-year college graduate	5 (10%)
More than 4-year college degree	3 (6%)
Employment Status	
Employed	12 (24%)
Unemployed	38 (76%)
Income	
0-20k	7 (14%)
20-40k	8 (16%)
40-60k	4 (8%)
60-100k	2 (4%)
SSID	15 (30%)
Welfare	14 (28%)
Appointment Type	
New Patient	23 (46%)
Follow-up	27 (54%)

Table 1: No-Show Patient Demographics

The next portion of our study involved introducing an intervention in attempts to reduce the no-show rate. Temple University Faculty Practice Plan initially used a voice mail system to remind patients of their appointment 3 days prior to their appointment. From our survey we discovered that patients frequently reported not receiving the reminder either due to missing the phone call, not checking voicemail, or not picking up phone calls from unknown numbers. We implemented a text messaging system (SMS) that reminds patients of their upcoming appointments. The SMS reminder is provided through Televox software. The SMS provides information regarding patients' upcoming appointment and provides options for patients to cancel or reschedule their appointment.

The Televox SMS reminder service was implemented on March 22, 2021. Clinic visits were tracked 2 months prior and after the intervention from January 19, 2020 to March 15, 2021 and from March 23, 2021 to May 17, 2021. Daily clinic schedules were monitored, and any patient no shows were recorded. The total number of no-show patients were divided by the total number of scheduled patients over the two-month period before and after the intervention to calculate the pre- and post-intervention no-show rates. The data was analyzed using Fisher exact test with a significance level of 0.05.

Results

Of the 50 patients interviewed, 60% were women and the average age was 49.4 years. Fifty-eight percent of patients identified as African American followed by 30% of patients identifying as Latino. White and Asian patients made up 8% and 4% of the study sample, respectively. Regarding education level, 46% of patients had a high school education or Graduate Equivalency Degree, followed by 22% with some high school education, and 8% with an education level of 8th grade or below (Table 1). Most of our no-show patients were unemployed (76%) with a high percentage of them on Social Security Disability Insurance, Medicaid, or Medicare. New patients made up 46% of the study population.

Most no-show patients had their preferred appointment time and location (78%) and were able to reach the office by telephone. Sixty percent of no-show patients scheduled the appointments themselves and 92% were able to get their preferred appointment time and location. Ninety-two percent of patients who presented to the Temple otolaryngology clinics had a primary care provider and 48% of patients had assistance with health management. Eighty-eight percent of the no-show patients felt like their needs were met at prior appointments, while 92% felt the advice or treatment provided were beneficial to them. Patient concerns regarding appointments included: cost of appointment (12%, $p < 0.05$), wait time at

appointment (6%, $p < 0.05$), and transportation (12%, $p < 0.05$). Eighty percent reported not receiving a reminder ($p < 0.05$) and 54% requested a reminder prior to their future appointments (**Table 2**).

Patient experience with prior clinic visit	Yes %	No %
Able to reach office by telephone	39 (78)	11 (22)
Seen by TUH Otolaryngology Department in the past	36 (72)	14 (28)
Appointment scheduled by self	30 (60)	20 (40)
Appointment at preferred time and location	46 (92)	4 (8)
Has assistance managing health	24 (48)	26 (52)
Has primary care provider	46 (92)	4 (8)
Felt like needs were met at last appointment	44 (88)	6 (12)
Felt advice/treatment was beneficial at last appointment	46 (92)	4 (8)
Concerned with cost of appointment	6 (12)	46 (92)
Concerned with wait time at appointment	3 (6)	47 (94)
Concerned with transportation to or from appointment	6 (12)	44 (88)
Received a reminder call prior to appointment	9 (20)	36 (80)
Requested a reminder prior to future appointments	27 (54)	23 (46)
Requested a text message reminder prior to future appointments	11 (22)	39 (78)

Table 2: Patient Experience with Clinic and the Current Reminder System

In terms of patient clinic experience with the Temple Department of Otolaryngology, most had positive experiences with clinic staff and providers, rating these experiences 9.06 out of 10 and 9.12 out of 10, respectively, on average. Most patients expressed moderate concern with their current symptoms, with an average rating of 6.84 out of 10. The most

common reason for no-show was forgetting the appointment (60%, $p < 0.05$) (**Table 3**). Post-intervention no-show rates increased across all otolaryngology subspecialties except for general otolaryngology. The overall no-show rate increased from 30.2% to 32.8% post-intervention (**Table 4**).

	Mean score (1-10)
Experience with TUH physicians	9.12
Experience with TUH staff	9.06
Concerns with current symptoms	6.84
Reason for missing appointment	N (%)
Transportation	2 (4)
Schedule Conflict	12 (24)
Appointment Not Useful	1 (2)
Forgot	30 (60)
Changed mind	1 (2)

Table 3: No-Show Patient Experience with Otolaryngology Clinic

	Pre-intervention %	Post-intervention %	P value
Rhinology	31.6	38.9	.29
Laryngology	23.8	27.9	.88
General	33.8	32.4	.99
Facial Plastic	36.8	40.8	.66
Otology	31.9	34.9	.76
Head and Neck	23.3	27.0	.62
Total	30.2	32.8	.87

Table 4: Pre- and Post-intervention No-show Rates

Discussion

Clinic nonattendance negatively impacts patient care and the healthcare system altogether. Due to a forecasted high no-show rate, clinicians often overlook their daily schedules to counter the effect of no-shows. [9,10] However, this method of scheduling often leads to both excessive wait times for patients and prolonged working hours for clinicians when the

no-show rate is lower than forecasted. Both of these effects compromise clinicians' ability to provide optimal care for patients.

Overall, our study demonstrated similar findings for factors associated with clinic no-show that have been identified in previous studies. Patients with either Medicaid or Medicare as their insurance have the highest rates of nonattendance. Other factors associated with high no-show rates demonstrated in prior studies include Latino and African American

ethnicity, and low socioeconomic status. Our study found within the no-show population, 88% were either African American or Latino, 76% were unemployed, and 72% had a household income of less than \$20,000 per year. Although our study had similar findings, we lacked a control population to compare to our study population. Temple University Hospital (TUH) serves patients of North Philadelphia which consists of mainly low-income neighborhoods, as such there is a selection bias in that most patients who present to TUH are low-income, on Medicaid, and mainly African American and Latino.

A significant portion (76%) of our no-show patients had a twelfth-grade education or less. This finding is consistent with prior studies that examined patient compliance with regards to patient level of education. [10] A lower-level education can contribute to patient nonattendance in a variety of ways. With a lower level of education, patients may lack the foundational and health literacy required to appreciate the necessity for clinic appointments. Furthermore, if patients are unable to gain valuable information because they do not fully comprehend their diagnosis or treatment plan, they are less likely to attend their appointments and may be less likely to comply with medical advice. Furthermore, a lack of higher education may contribute to a lack of understanding of the healthcare system and the burden no-show can inflict upon it. For patients with lower socioeconomic status, it is especially important that clinicians ensure patient understanding prior to closing a clinic visit. Across all aspects of healthcare, studies have shown effective patient education greatly increases compliance [11, 12].

Overall, we found patients generally have positive experiences with the office staff and providers in our practice. Studies have demonstrated that positive interaction between patients, office staff, and care providers increases overall compliance with management and follow up appointments [13].

Overall patients were moderately concerned with their current symptoms, with an average rating of 6.84 out of 10. Prior studies have shown that patient disease severity and beliefs about their symptoms are associated with nonattendance [14]. A large portion of otolaryngology clinic visits are non-urgent and low acuity in nature. This could possibly explain the lower no-show rate with head and neck and laryngology patients as a larger percentage of these visits are high acuity.

Most of our no-show patients reported forgetting their appointment as the main reason for their failure to keep their clinic appointments. This is consistent with prior studies which showed patient forgetfulness as the most common cause for nonattendance [15-17]. Our previous clinic reminder system consisted of an automated reminder call to the number provided by the patient 3 days prior to their scheduled appointment. The phone call does not allow for making changes or cancelling the appointment at the time of the phone call. However, only 20% of our patients reported ever receiving a reminder call. While the exact mechanism for the low rates of patients receiving reminder calls is unclear, it can potentially be due to a combination of factors including outdated contact information, malfunctioning of the reminder system, or patient recall bias.

In attempts to mitigate this issue, we transitioned to a SMS reminder system. The SMS reminder system was provided by Televox and functions similarly to a reminder SMS system for restaurant reservations. When patients receive the SMS, they are reminded of the date and time of their appointment. Additionally, they also have the option to respond to the SMS by replying either to keep, change, or cancel the appointment. Prior studies have shown SMS reminders to be equally as effective as telephone reminders with the added benefit of being more cost effective.¹⁸ However, when our SMS reminder went into effect, we did not see any significant changes in nonattendance rates. This is inconsistent with prior studies which examined the effects of SMS reminders on clinic no-show

rates. In most studies, the no-show rate decreased after implementing SMS reminder systems. [19] From our patient survey we also found that prior to our intervention, 52% of patients preferred a reminder prior to their appointment and future efforts will be made to investigate and address these logistical issues at TUHS.

This study has several limitations. The surveys relied on participants' selection of pre-generated answer choices, which does not allow individualized answers and may not detect other reasons for no-show that are not within the answer choices provided. An alternative method is to record interview conversations with participating patients and subsequently analyze the conversation transcriptions using qualitative research software. However, during our interviews we noticed that providing the opportunity to elaborate did not result in more detailed answers, possibly due to time constraints and inconvenience. Due to the lack of detailed responses, relying on conversation transcriptions with subsequent qualitative analysis was not possible.

Furthermore, our study calculated the show and no-show rates during the COVID-19 pandemic. The pandemic potentially skewed no-show rates and our data may not represent typical clinic attendance prior to the pandemic. It is unknown whether the clinic no-show rate returned to the pre-pandemic rate by the time the pre- and post-intervention no-show rates were recorded.

Lastly, the SMS system was implemented in March 2021, but it is not known if messaging went into effect immediately as there was no reliable way to track if the SMS reminder was received by patients who did not attend clinic.

Community health workers (CHWs) are valuable members of the healthcare team, but they are often underutilized. CHWs can assist the healthcare team and patients in overcoming certain social determinants that limit patients access to healthcare.²¹ Given the multifactorial nature of the clinic no-show problem, CHWs should be integrated in future efforts at reducing patient clinic no-show as they may offer insight to the solutions for no-shows in addition to factors identified in our study as well as prior studies.

Conclusion and Significance

Patient forgetfulness was the most common reported reason contributing to patients' clinic nonattendance, but other reasons including conflicts and lack of transportation. The SMS reminder system did not significantly improve patient nonattendance as compared to a telephone-based reminder system.

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