An Analysis of Factors Associated with Non-Attendance at an Adult Medicine Clinic

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A. Study Purpose and Rationale

Missing clinic appointments is a frequently encountered problem in the outpatient setting, with estimates ranging from 15-50% in general adult clinics.[1,2] Missed appointments lead to inefficient use of physician time and clinic resources, and may result in failure of prevention or early identification of medical problems and make chronic conditions hard to manage. Over 200 factors have been associated with non-compliance with treatment.[3] Predictors of appointment breaking in previous studies include younger age, lower socioeconomic status, previous appointment breaking behavior, seriousness of medical condition, psychosocial problems, alcohol and drug abuse, cost to patient and day and time of appointment.[1] However, few recent studies are available on missed appointments in the general adult clinic setting. A telephone survey of patients who missed their appointment at a clinic for indigent patients staffed by internal medicine residents reported that lack of transportation was the most often cited primary reason for missed appointments (13%), while forgetfulness was a close second (11%).[4] A retrospective study including a telephone questionnaire of patients of adult care clinics in internal medicine, surgery, gynecology and orthopedics of a charity hospital also reported that lack of transportation was the main reason patients missed appointments, and identified higher economic status, acuteness of illness, recent hospitalization, perceived severity of illness and shorter time since scheduling of appointment as important factors for keeping an appointment.[5]

Non-attendance is a major obstacle to providing health care in our clinics of the Associates in Internal Medicine (AIM) at New York Presbyterian Hospital. These clinics serve an indigent population that is largely represented by Hispanic immigrants, mostly Dominican Republicans, and African Americans. Studies on non-attendance on a patient population such as ours are lacking. This study will attempt to identify health related and sociodemographic patient characteristics as well as organizational factors that are associated with appointment breaking. It is hoped the results will help understand and address the reasons for and factors predictive of appointment breaking, in addition to providing an estimate of the severity of the problem.

B. Study Design and Statistical Analysis

One part of this will be a case-control study of patient and organization related factors between those who miss and keep a clinic appointment, while the other part will be a descriptive study of patient reasons for missing clinic, attending clinic and suggestions for improving attendance.

The AIM clinic is composed of 5 physically separate units numbered as AIM 1-3, 4-6, 7-9, 10-12 and 15. Both attendings and residents see patients in each of these units and about 60 appointments are scheduled in each every day. On five successive days in early August, patients scheduled for one of the 5 units for both morning and afternoon sessions will make up the study population of approximately 300 subjects (60 per day from each of the 5 clinics x 5 days). These patients will then be contacted by phone, if possible, and a telephone questionnaire administered, if agreeable, within 3 weeks of the appointment. Additional information will be gathered by a chart review. At least 3 attempts will be made to reach a patient, as well as at least 3 attempts to reach a contact person identified in the medical records. The telephone questionnaire will be in the form of a script. It will be administered to the English speaking patients by a second year medical resident, and to the Spanish speaking patients by a member of the volunteer interpreter service at the New York Presbyterian Hospital. Partial completion of the questionnaire by those who fall to complete the interview will be included in the data analysis.

This study will test the following hypothesis: there are no significant differences in the individual sociodemographic, health-related and organizational measures between patients who missed and kept their appointments.

The dependent variable will be the outcome measured, which will be attendance or non-attendance at clinic. The independent variables will be: 1) Sociodemographic measures including, age in years, coded as "21-40", "41-60" or "more than 60", gender, coded as "male" or "female", marital status, coded as "married", "single", "widowed" or "separated", number in household, coded as "one" or "more than one", insurance status, coded as "Medicaid", "Medicare", "Disability", "Self pay" or "none", years of education, coded as "none", "l-5", "6-8", "8-12" or "more than 12", employment status, coded as "employed" or "unemployed", household income per month, coded as "less than 500", "$501-1000", "$1001-2000" or "more than 2000", social index*, coded as "1", "2" or "3", language spoken, coded as "English", "Spanish", "both" or "other", mode of transportation, coded as "walk", "public transportation", "ambulette", "taxi" or "other", number of years in the US, coded as "less than 5", "6- 10", or "more than 10", country of birth, coded as, "USA", "Dominican Republic", "Puerto Rico", "Cuba" or "other" and travel outside US in the past year, coded as "did travel" or "did not travel".

2) Health related measures including number of medications prescribed, coded as "none", "1-2", "3-5" or "more than 5", hospitalizations over the last year, coded as "none", "1-2" or "more than 2", ER visits over the last year, coded as "none", "1-2" or "more than 3", walk-in clinic visits over the last year, coded as "none", "1-2", "3-5" or "more than 5", current smoking, coded as "smoker" or "non-smoker", perceived general health, coded as "excellent", "very good", "good", "fair" or "poor"[**] and seeking health care from an outside source within the past year, coded as "seeked" or "did not seek", 3) organizational variables, including day of appointment, coded as "Monday", "Tuesday", "Wednesday", "Thursday" or "Friday", appointment session, coded as "AM" or "PM", whether patient is new or established[+], coded as "new" or "established", believes appointments are too frequent, coded as "too frequent" or "not too frequent", knowledge of specific appointment time, coded as "has knowledge" or "no knowledge", who made the appointment, coded as "return to clinic", "patient called", "ER", "another clinic", or "other" and when appointment was made, coded as "less than 2 weeks ago", "24 weeks ago", "1-2 months ago" or "more than 2 months ago".

For the purpose of analysis, the above factors will be further grouped into a patient dimension, comprising sociodemographic and health-related categories, in addition to the organizational dimension. The goal of the statistical analysis will be to, evaluate patient versus organizational factors to determine which dimension is primarily associated with missing appointments identify important variables within patient and organizational dimensions find possible interactions among patient and organizational dimensions. These analyses will be conducted using a logistic regression model. Individual factors within each dimension will also be analyzed using χ^2, Mann Whitney and t-tests as appropriate to determine significant differences between those who kept and missed appointments.

Sample size was determined to be 200 using power analysis for 80% power with 2-tail specification and cc = 0.05. About 300 patients will be called with the expectation that about 200 will complete the questionnaire.

A pilot study will be done with 10 patients and will be used to improve the study design and revise the questionnaires.

C. Subjects and Methods of Recruitment

[**] The single question, "In general, compared to other people your age, would you say your health is:" coded as above has been shown to be strongly predictive of subsequent health care utilization.[7]

[+] Patients who have never been to the clinic will be considered "new", while those who have been to the clinic at least once before will be considered "established."

Potential subjects will be identified from the AIM clinic appointment schedule during 5 successive clinic days in early August as described above. They will then be contacted by telephone and requested to complete a telephone questionnaire. Inclusion criteria will be, (1) age over 21 (as all patients seen at AIM clinic) (2) contactable by telephone (3) scheduled appointment at AIM clinic. The majority of the subjects will be from ethnic minority groups as they will be drawn from the AIM clinic population. "Vulnerable" populations will not be enrolled.

Study Procedures: Answering a questionnaire over the phone will be the only procedure. The questionnaire will be in English or Spanish and should take approximately 15 minutes. It is expected that no pain and only a minimum of inconvenience will be caused. The likely duration of the entire study will be about 3 weeks.

D. Study Drugs

None

E. Medical Devices

None

F. Study Questionnaires

Enclosed

G. Confidentiality of Study Data

The data will be coded and the confidentiality of the subjects maintained and available only to the investigators.

H. Potential Conflict of Interest

Not applicable

I. Location of the Study

AIM Clinic of the New York Presbyterian Hospital

J. Potential Risks

None

K. Potential Benefits

Identifying factors associated with missing clinic appointments, which will help planning for improved attendance and ultimately result in improved health care delivery to the community.

L. Alternative Therapies

Not applicable

M. Compensation to Subjects

None

N. Costs to Subjects

None

O. Minors as Research Subjects

Not applicable

P. Radiation or Radioactive Substances

Not applicable

Q. References

1. Bean AG, Talaga J. Appointment breaking: causes and solutions. Journal of Health Care Marketing 1992; 12(4): 14-25.

2. Eraker SA, Mrscht JP, Becker MH. Understanding and improving patient compliance. Annals of Internal Medicine 1984; 100: 258-268.

3. Haynes EM, Taylor DW, Sackett DL. Compliance in health care. Baltimore, MD: Johns Hopkins University Press, 1979.

4. Little B, Cannon C, Whitson B, Jarolim DR. The failed appointment. Journal of Oklahoma State Medical Association 1991; 84: 455-458.

5. Ide BA, Curry MA, Drobinies B. Factors related to the keeping of appointments by indigent clients. Journal Of Health Care for the Poor and Underserved. 1993; 4(1): 21-39.

6. Brown KAE, Shetty V, Dent M, Delrahim S, Belin T, Leathers R. Correlates of missed appointments in orofacial injury patients. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endod 1999; 87: 405-410

7. Bierman AS, Bubolz TA, Fisher ES, Wasson JH. How well does a single question about health predict the financial health of Medicare or Managed Care plans? Effective Clinical Practice 1999: March/April.

Data to be collected from medical records

- age
- sex
- zip code
- day of appointment
- time of appointment
- diagnoses medications
- previous clinic visits
- hospitalizations during the last year
- ER visits during the last year

Introduction on telephone call: "I am calling from the New York Presbyterian Hospital for a study that is being conducted to help understand why patients either come to clinic or miss clinic. I would like you to answer a list of questions that will take about 15 minutes. Your answers will be kept confidential and no one other that the investigators will see them. You may decline to answer a question and if at any point during the questionnaire, you want to stop, you may do so. Your assistance will be greatly appreciated. Would you like to answer the questions now?"

Questionnaire for patients who missed appointment

The following questions ask about your reasons for missing your appointment and information about yourself and views on clinic. If you are not sure about an answer to a question, please give the best possible answer.

(1)   What is your primary reason for missing the appointment: illness, transportation, didn't know, forgot, financial, not helpful, don't like clinic, good weather, bad weather, conflicting appointments, other (specify):

(2)   Do you believe attending clinic is helpful for you?   yes   no

(3)   Did you know the time of your appointment?   yes   no
         If yes, what time?

(4)   What would make it easier for you to make it to your appointments?

(5)   Do you speak:
         (1) English only
         (2) Spanish only
         (3) Both English and Spanish
         (4) Other (specify):

(6)   Do you think your appointments are scheduled too frequently?   yes   no
         If yes, how many appointments were you scheduled for last year?

(7)   Who made the appointment?
         at the last clinic appointment
         called to get appointment
         ER
         another clinic
         other (specify):

(8)   When was the appointment made?
         (a) less than 2 weeks ago
         (b) 2-4 weeks ago
         (c) 1-2 months ago
         (d) more than 2 months ago

(9)   How do you usually travel to clinic?
         (a) walk
         (b) public transportation
         (c) Ambulette
         (d) taxi
         (e) other (specify):

(10) What is your marital status? (married, single, widowed, divorced, separated)

(11) What is your race? (African American, Hispanic, White, Other (specify):

(12) How many people live in your home, including yourself?

(13) What is your country of birth?

(14) How many times within the past year have you left the US? a) Where did you go?

(15) For how many years have you lived in the US?

(16) Did you go to school?   yes   no
      If yes, for how many years?

(17) Do you have insurance?   yes   no
       a) if yes, what kind of insurance do you have? (Medicare, Medicaid, Disability, Self pay,
          other (specify))

(18) Are you currently employed?   yes   no
           a) if yes, Full time or part time?

(19) In general, compared to other people your age, would you say your health is: a) excellent b) very
      good c) good d) fair c) poor

(20) 1 have enough friends and social life: yes   no

(21) 1 have close contact with members of my family: yes   no

(22) When things get really bad, I know I can count on my friends and family for help: yes no

(23) Have you been to the clinic before?   yes   no
          a) If yes, how many times within the past year have you been to the walk in clinic?

(1-4)   How many times within the past year have you been to a doctor outside of the Presbyterian
         Hospital?

(25) How many times within the past year have you been to a traditional healer or alternative medicine
      therapist? a) Are you taking or have taken within the past year medications given or prescribed by
      him or her?

(26) Do you currently smoke?   yes   no
          a) if yes, how many cigarettes a day?

Questionnaire for patients who kept their appointment

The following questions ask about your reasons for keeping your appointment and information about yourself and views on clinic. If you are not sure about an answer to a question, please give the best possible answer.

(1)   What is your primary reason for keeping the appointment? need urgent attention routine care other (specify):

(2)   Do you believe attending clinic is helpful for you?   yes   no

(3)   Did you know the time of your appointment?   yes   no
      a) If yes, what time?

(4)   What would make it easier for you to make it to your appointments?

(5)   Do you speak:
         English only
         Spanish only
         Both English and Spanish
         Other (specify):

(6)   Do you think your appointments are scheduled too frequently? yes   no
      If yes, how many appointments were you scheduled for last year?

(7)   Who made the appointment?
         at the last clinic appointment
         called to get appointment
         ER
         another clinic
         other (specify):

(8)   When was the appointment made?
      (a) less than 2 weeks ago
      (b) 2-4 weeks ago
      (c) 1-2 months ago
      (d) more than 2 months ago

(9)   How do you usually travel to clinic?
      (a) walk
      (b) public transportation
      (c) Ambulette
      (d) taxi
      (e) other (specify):

(10) What is your marital status? (married, single, widowed, divorced, separated)

(11) What is your race? (African American, Hispanic, White, Other (specify):

(12) How many people live in your home, including yourself?
(13) What is your country of birth?

(14) How many times within the past year have you left the US? a) Where did you go?

(15) For how many years have you lived in the US?

(16) Did you go to school?   yes   no
    If yes, for how many years?

(17) Do you have insurance?   yes   no
    a) if yes, what kind of insurance do you have? (Medicare, Medicaid, Disability, Self pay, other (specify))

(18) Are you currently employed?   yes   no
    a) if yes, Full time or part time?

(19) In general, compared to other people your age, would you say your health is:
    a) excellent
    b) very good
    c) good
    d) fair
    e) poor

(20) 1 have enough friends and social life: yes   no

(21) 1 have close contact with members of my family: yes   no

(22) When things get really bad, I know I can count on my friends and family for help: yes   no

(23) Have you been to the clinic before?   yes   no
    a) If yes, how many times within the past year have you been to the walk in clinic?

(24) How many times within the past year have you been to a doctor outside of the Presbyterian Hospital?

(25) How many times within the past year have you been to a traditional healer or alternative medicine therapist? a) Are you taking or have taken within the past year medications given or prescribed by him or her?

(26) Do you currently smoke?   yes   no
    if yes, how many cigarettes a day?