

ORIGINAL ARTICLES

Reasons for non-attendance nutrition appointment among medically underserved community in Rural Mississippi

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ABSTRACT

Objective: This study sought to examine the reasons for nonattendance of nutrition appointments and explore the determinants that contribute to this phenomenon among medically underserved and uninsured individuals.

Methods: A cross-sectional quantitative study was conducted with five sections questionnaires distributed at a healthcare clinic in a rural area in south Mississippi. Participants (n = 346) were surveyed who had attended the clinic for a health appointment. Nutrition appointment attendance, reasons to miss a scheduled nutrition appointment, and effective appointment reminders were evaluated. Descriptive statistics were determined for the variables, Chi square and bivariate correlation tests were used to determine relationships between participants' demographics, health conditions, and other variables.

Results: About 87% of participants indicated that they had not attended a nutrition appointment and 26.8% indicated that they had missed a nutrition appointment. Most participants specified that forgetfulness (39%) and transportation problems (25%) were the most likely reasons to miss a nutrition appointment. Most indicated that a phone call would be the most effective appointment reminder. About half of participants believed the reason behind missing a nutrition appointment is that their physicians did not place importance on attending such appointment. No significant association or differences were found between the variables.

Conclusion: Findings can be used to improve access to nutrition counseling among underserved patients, and to develop effective appointment reminders to decrease nonattendance rates. Future research is warranted to analyze the effect that nutrition appointments has on individual's health.

Key Words: Health service, Nutrition care access, Nutrition counseling, Rural health

1. INTRODUCTION

Nutrition therapy is an individualized process used to motivate patients to create genuine and enduring change towards a healthy diet in order to reduce chronic disease risk.^[1] Registered and Licensed Dietitians are a health care professional that administers this process, considered nutrition experts

and have knowledge and experience pertaining to individuals' nutritional health.^[1] Patients who regularly fail to attend nutrition appointments significantly increase their risk for disease complications.^[2] Attending regularly scheduled nutrition appointments is associated with progressive management of many chronic diseases such as diabetes mellitus and

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hypertension; conversely, nonattendance of nutrition appointments associated with adverse health outcomes and increased risk of chronic diseases due to poor nutrition management.^[3]

Average nonattendance rates vary from 3% to 80%, with self-reported nonattendance in primary care settings being greater than 50%.^[4-6] These high rates of nonattendance are associated with prolonged treatment of critical illnesses, causing a strain on health service resources and the financial stability of health clinics.^[7-9] Furthermore, a reported average no-show rate of 62 appointments per day has resulted in an estimated annual cost of \$3,000,000 across healthcare systems.^[9,10]

There are many factors that have been identified to have an influence on nonattendance for healthcare appointments including limited transportation, lack of medical insurance, forgetfulness, undesirable experience with past appointments, negative attitude toward nutrition counseling, and lack of social support.^[11,12] Studies mentioned specifically that forgetfulness and lack of transportation have been shown to be the main reasons for nonattendance of nutrition appointments in several healthcare settings.^[12-16]

Researchers had implemented measures to reduce nonattendance rates in healthcare facilities while recovering revenue.^[17] Cell phone message has shown significant reduction of missed appointments from 11.4% to 7.8%.^[18] Other intervention procedures explored the use of three different interventions: multiple phone calls and texting, patient education on the importance of attending clinic appointments, and the systematic updating of patient contact information each visit.^[19] It was determined that the combination of more than one intervention was most effective in reducing nonattendance rate.^[19]

In 2013, we conducted several research projects intended to improve obesity and chronic disease management and examine community-based solution for health disparities in rural areas of Mississippi.^[20,21] The projects also designed a strategy to improve underserved patients' engagement with health care providers such as primary care physicians and registered dietitians.^[20,21] The present study is part of this project. Given the high number of people who do not attend nutrition appointments in health facilities, there is a need for strategies to evaluate the various determinants that impact the decision for people to attend nutrition appointments. Furthermore, limited research has been conducted to understand the causes and consequences of nonattendance of nutrition appointments in rural and underserved communities. The goals of this study were to (a) examine the reasons for nonattendance of nutrition appointments; (b) explore the determinants that contribute to this phenomenon; and

(c) determine an effective method of appointment reminder among an underserved population in an outpatient primary care setting.

2. METHODS

2.1 Design

This study was conducted at a primary health care center in south Mississippi. The center is in a rural area and accessible to low-income individuals, primarily, the underserved and underinsured population. Individuals were invited to participate in the study at the health center's waiting area, soon after they checked in. Participants were asked to complete a questionnaire using a tablet device which took 10-15 minutes to complete. All participant responses were saved electronically in a password-protected folder and the data were not identifiable. The University of Southern Mississippi Institutional Review Board approved the study protocol.

2.2 Sample

The target population included community health clinic patients who were referred to nutrition counseling either by physicians, or were patients who had an appointment for nutrition counseling. Patients were considered eligible if they met the following self-reported criteria: age above 18 years, ability to speak and read English, attend the clinic for a health-related appointment, and treated at the clinic for common nutrition-related conditions (diabetes, hypertension, obesity, cardiovascular disease, or dyslipidemia). Patients who did not meet these criteria were deemed ineligible for the study.

2.3 Measures

The study measures included 25 questions divided into 5 sections, beginning with 3 inclusion criteria questions addressing age and clarifying whether individuals were patients at the clinic and diagnosed with nutrition-related conditions. Additional questions requested that participants provide socio-demographic information regarding age, gender, race, marital status, education level, income level, health insurance status and (when applicable) health insurance provider.

Participants who answered "yes" to either being referred to a nutrition appointment or having attended a nutrition appointment in the past were asked 7 questions about their opinion and experience with the nutrition counseling process, registration and check-in procedure, and appointment scheduling method. Participants also asked to respond to questions answered by Likert scale, regarding potential reasons for missing a nutrition appointment, reminder procedures to reduce nonattendance, and method they believed is most effective

as an appointment reminder. Participants were also asked about the most likely reasons to not call to cancel a nutrition appointment beforehand if they were to or ever have missed a nutrition appointment. The study instrument was adapted from a validated previous instrument.^[12, 19, 22]

2.4 Analysis

The researcher used the Statistical Package for Social Sciences software (IBM SPSS for Windows, version 22.0, 201, Chicago, IL) for data analysis. Descriptive statistics, including frequencies and percentages were determined for all variables. Chi square and bivariate correlation tests were used to examine associations between demographics variables (age, income, sex, and race) and reasons for missing an appointment, reasons to not call and cancel nutrition appointments, and the most effective appointment reminder. Significance was considered at $\alpha < 0.05$.

3. RESULTS

3.1 Participants' characteristics and nutrition-related disease

Data was collected from 435 individuals who attended a rural primary health clinic in south Mississippi. Three participants were excluded due to age, 26 for not attending the clinic for a health problem, and 60 for not reporting a nutrition-related health condition. Three hundred and forty-six participants met inclusion criteria and were eligible for further analysis (N = 346).

Most participants were female and African American, the mean age was 54.8 (SD 11.8) years with approximately two thirds between 45 and 64 years of age. Most participants reported attaining at least a high school diploma or equivalent, and a yearly household income less than \$19,000 per year and unemployed. With regards to medical history, most participants indicated that they had hypertension and other chronic diseases. Table 1 provides a complete list of the participants' characteristics.

3.2 Nutrition appointment referral and attendance

There were unique participants who had either been referred for a nutrition appointment at the clinic (n = 44, 13.3% of total sample) or had indicated they had attended a nutrition appointment in the past (n = 42, 12.9%). Of the 44 who had been referred at the clinic, the majority were referred by a physician (76.7%) followed by a registered nurse or other healthcare provider (23.3%). Of the participants (n = 60) who had either been referred to a nutrition appointment at the clinic or had attended a nutrition appointment in the past, 11 (18.3%) indicated that they had previously missed a nutrition appointment. Those who had attended a nutrition appoint-

ment in the past (n = 42) strongly agreed with the following: (1) nutritionist/dietitian understood my needs (78.6%, n = 33); (2) nutritionist/dietitian explained things well to help me understand my condition (88.1%, n = 37); and (3) after attending the appointment, I have a clear plan (71.4%, n = 30) and I feel confident to make health changes (80.5%, n = 33).

Table 1. Characteristics of the sample (N = 346)

Characteristic	n (%)
Gender	
Female	220 (65.3)
Male	114 (33.8)
Race	
Black/African American	226 (67.1)
White	92 (27.3)
Mixed Races	5 (1.5)
Hispanic/Latino	4 (1.2)
American Indian	3 (0.9)
Asian	2 (0.6)
Education Level	
High School	154 (45.7)
Some College	59 (17.5)
Less than High School	40 (11.9)
2-Year Vocational	34 (10.1)
4-Year college degree	34 (10.1)
Graduate or advanced	11 (3.3)
Household Income	
\$29,999 or less	186 (55.2)
\$30,000-\$49,999	22 (6.5)
\$50,000-69,999	9 (8.7)
\$70,000 and above	3 (0.9)
Unemployed	109 (32.3)
Marital Status	
Single	141 (41.8)
Married or cohabitating	117 (34.7)
Divorced or Separated	71 (21.1)
Health Condition	
Hypertension	294 (87.2)
High Cholesterol	141 (42.5)
Diabetes Mellitus	121 (35.9)
Obesity	115 (34.2)
Heart Disease	44 (13.3)
Health Insurance Coverage	
Yes	229 (68.0)
No	100 (29.7)

Note. Percentages in a category do not total 100% because some participants refused to answer certain questions; Percentages of "Health Condition" category total more than 100% because multiple answers were allowed.

3.3 Reasons for missed or no show appointments and best reminder mode

Forgetfulness (38%, n = 146) followed by transportation problems (24%, n = 127) and unable to miss work (22.3%, n = 91) were the most likely reasons to miss a nutrition

appointment across the sample (see Table 2). Most of the participants (82.1%) believed that a phone call would be the most effective appointment reminder, followed by a text message on their cellphone (51.6%) (see Table 3).

Table 2. Reported reasons for missing nutrition appointments (N = 346)

Reason	Most Likely (%)	Very Likely (%)	Sometimes Likely (%)	Very Unlikely (%)	Not Likely (%)
Unable to miss work	8.9	4.2	9.2	5.9	67.7
Forgetfulness	8.3	11.9	17.8	6.5	51.4
Transport problems	6.8	6.5	10.7	8.6	63.2
Feeling better	5.6	3.9	8.3	8.9	69.1
Weather conditions	5.0	4.5	10.4	7.7	68.0
Lack of health insurance	0.9	1.8	5.6	8.9	78.6
Lack of instruction on appointment scheduling process	0.9	1.8	5.6	8.9	78.6
Lack of daycare	0.6	1.5	2.4	6.5	84.9

Table 3. Reported most effectiveness nutrition appointment reminders variable (N = 346)

Reminder	Most Effective (%)	Very Effective (%)	Sometimes Effective (%)	Least Effective (%)	Not Effective (%)
Phone call	75.4	9.2	3.9	2.4	0.9
Text messages	46.6	11.0	7.4	7.7	16.9
Letter/Mail	14.2	18.4	12.8	23.4	18.4
Email	12.8	9.2	10.4	23.2	30.7

The most reported reason that participants selected if they were to or ever had missed a nutrition appointment without calling beforehand (“no show” appointment) was the physician did not place importance on attending a nutrition appointment (see Table 4).

Table 4. Reported reasons to not call and cancel nutrition appointments (N = 346)

Reason	n (%)
Doctor didn't place importance on attending appointment	163 (49.7)
Emergency	117 (33.8)
Forgot to call	99 (30.3)
Forgot about the appointment	46 (14)
Didn't think it was necessary	44 (13.4)
Lack of access to phone	33 (10.1)
Embarrassed	7 (2.1)
Phone anxiety	5 (1.5)
Do not value the dietitians/nutritionists' opinion	4 (1.2)
The counseling isn't helping	3 (0.9)

3.4 Associations and group means testing

Chi square tests were used to examine associations between sex, race (White versus non-White), and marital status (married versus not married) and reasons for missed appointments (forgetfulness, transport problems, lack of health insurance,

lack of instruction on appointment scheduling process, unable to miss work, feeling better, lack of daycare, and weather conditions), reasons to not call and cancel nutrition appointments (embarrassed, emergency, forgot to call, lack of access to phone, didn't think it was necessary, the counseling isn't helping, forgot about the appointment, phone anxiety, doctor didn't place importance on attending appointment, and do not value the dietitian's/nutritionist's opinion), and the most effective appointment reminder (phone call, email, and letter/mail and text messages). A significant association was found between race and lack of phone access ($\chi^2(1) = 8.13, p = .004$) where 18% of whites reported it as a very-most likely reason to miss an appointment compared to 7.3% of nonwhites. Gender differences were also observed with 10.8% females versus 22.9% males reported very-most likely to miss an appointment due to lack of health insurance ($\chi^2(1) = 10.88, p = .028$), and 27% women versus 4.5% men selected very-most likely to miss an appointment due to weather conditions ($\chi^2(1) = 9.79, p = .044$). An association was also observed between gender and selecting embarrassed as a reason for not calling to cancel a nutrition appointment with 4.6% men versus 0.9% women ($\chi^2(1) = 4.54, p = .033$).

Correlation tests examined the association between age and income levels and reasons for missed appointments, reasons to not call and cancel nutrition appointments and the most effective appointment reminder. Age was inversely associated with unable to miss work ($r = -0.18, p = .001$), feeling better ($r = -0.15, p = .009$), forgot about my appointment ($r = -0.12, p = 0.037$), and not valuing the dietitian's or nutritionist's opinion ($r = -.12, p = .031$) as reasons to miss a nutrition appointment. On the contrary, age was positively associated with my doctor did not place the importance on attending a nutrition appointment for my condition ($r = .11, p = .031$) and emergency ($r = .13, p = .020$) as reasons for missing an appointment.

Income levels were inversely associated with forgetfulness ($r = -0.15, p = .006$), transportation problems ($r = -0.16, p = .006$), and positively associated with unable to miss work ($r = .24, p < .001$) as reasons to most likely miss an appointment. With regards to most effective appointment reminders, income level was positively associated with selecting email ($r = .39, p < .001$), age was inversely associated with selecting email ($r = -0.33, p < .001$) and text ($r = -0.25, p < .001$) as a reminder method. No other significant correlational associations were noted.

4. DISCUSSION

This study provides an overview of nonattendance of nutrition appointments among a low-income, underserved population in rural area of southern U.S. The result indicates that nonattendance rates among underserved and underinsured patients are high. Despite the fact that nutrition appointment attendance has been shown to be positively associated with the management of chronic diseases,^[10,11] the nutrition appointment nonattendance rate reported in this study is consistent with other studies who had reported average rates on nutrition appointment nonattendance.^[4,5] The majority of our participants reported having chronic diseases such as hypertension, obesity, and heart disease, and yet did not attend a nutrition appointment or had missed a scheduled appointment. Thus, there is a gap in the need for nutrition intervention in outpatient primary care clinics.

Approximately half of our participants believed the reason behind missing a nutrition appointment is that their physicians did not place importance on attending such appointment. Prior studies indicate that patient-physician relationships and communication is an important factor in nutrition appointment attendance.^[23,24] Physicians and other health professionals should express the importance of nutrition counseling to their patients, and should identify registered dietitians as a powerful partner in managing patient's condition. According to a survey of providers ($n = 500$) across the U.S. previously,

providers cited the dietitian or nutritionist as the most qualified health professional for obesity management, indicated a need for physician training in nutrition and exercise counseling to improve obesity care and suggested the inclusion of specific diet or physical activity tips in patient charts as needed practice-based changes.^[25] Therefore, registered dietitians may need to advocate for their services to reinforce or enhance the physician's message and provide support for obesity management in primary care.

Participants indicated that forgetfulness was the second most likely reason for them to miss a nutrition appointment. Previous studies^[12,25] had also showed that forgetfulness is one of the main factor that can influence patient's nonattendance at health facility, in addition to other factors such as transportation problems, lack of medical insurance, forgetfulness, lack of health education, and negative attitude toward nutrition counseling to be related to nutrition appointment nonattendance.^[12,26] This finding is important as it displays the importance of an organized and consistent appointment reminder systems at healthcare clinics.

The present finding also indicates that underserved and uninsured populations specifically, report transportation as a big problem to access healthcare. A study looking at HIV-infected women and transportation barriers showed that it is "very difficult" to access healthcare and attend scheduled appointments as necessary.^[14] This is also true of rural patients in comparison to their urban counterparts.^[27,28] Rural communities often lack adequate public transportation to allow underserved populations attend health appointments. This is a major issue in Mississippi with a largely rural population.

Another aim of this study was to assess the effectiveness of appointment reminders on nutrition appointment attendance. Most participants believed that a phone call would be the most effective form of appointment reminder, which was consistent with previous studies.^[17,18] It was also noted in our sample that younger age preferred text and email as reminder methods. Combining phone calls, text message, and patient education has been shown to be effective in reducing nonattendance.^[19] Thus, the utilization of mixed-methods for reminders may be integral to meet the needs of different age and income populations while combatting forgetfulness, which was the most commonly reported reason for nonattendance.

Most participants were at a low socioeconomic status and had a high school diploma or less. It has been observed that people with lower education levels had a tendency to skip scheduled appointments and were more likely to misunderstand the importance of scheduled appointments.^[29] Furthermore, patients who are unable to understand the im-

portance of appointments or have inadequate knowledge of what these appointments consist of, are potentially demotivated to attend nutrition counselling services.^[29–31] This amplifies the importance of productive patient-provider conversations about the role of nutrition in disease management, especially among health disparate individuals who may be at risk for developing chronic disease.

This study had some limitations, the survey was self-administered, potentially causing a lack of ability to clarify questions or to probe; however, research staff was present to clarify questions and concerns. The study instrument was adapted from other studies valid and reliable instruments, this may cause some limitation, as those instruments were administered in different populations. Another possible limitation is that this study used purposive sampling method, the study sample may not represent the total underserved population who have been referred for nutrition counseling; however, our study selected the site based on the clinic's

mission and history of serving underserved populations.

5. CONCLUSION

This study provides important information for nutrition management programs and outpatient clinics for retention of underserved populations in health care setting. Findings can be used by other researchers to further explore how nonattendance of nutrition appointments vary across different populations and locations, and to determine the health impact that nonattendance of nutrition appointments have on individual health. There is still a need for further research to explore nutrition referral and appointment issues in depth to explore effective strategies that improve nutrition and chronic disease management programs among medically underserved individuals.

CONFLICTS OF INTEREST DISCLOSURE

The authors state no conflicts of interest in this study.

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