

Transportation and Other Nonfinancial Barriers Among Uninsured Primary Care Patients

Health Services Research and
Managerial Epidemiology
Volume 5: 1-6
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DOI: 10.1177/2333392817749681
journals.sagepub.com/home/hme



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Abstract

Introduction: Nonfinancial barriers are frequent causes of unmet need in health-care services. The significance of transportation barriers can weigh more than the issues of access to care. The purpose of this cross-sectional study was to examine transportation and other nonfinancial barriers among low-income uninsured patients of a safety net health-care facility (free clinic).

Methods: The survey data were collected from patients aged 18 years and older who spoke English or Spanish at a free clinic, which served uninsured individuals in poverty in the United States.

Results: Levels of transportation barriers were associated with levels of other nonfinancial barriers. Higher levels of nonfinancial barriers were associated with elevation in levels of stress and poorer self-rated general health. Higher educational attainment and employment were associated with an increase in other nonfinancial barriers.

Conclusion: Focusing only on medical interventions might not be sufficient for the well-being of the underserved populations. Future studies should examine integrative care programs that include medical treatment and social services together and evaluate such programs to improve care for underserved populations.

Keywords

free clinics, medically uninsured, nonfinancial barriers, transportation, USA

Introduction

Nonfinancial barriers are frequent causes of unmet need in health-care services.¹ For the uninsured, while financial barriers are obvious problems to reduce access to care, nonfinancial barriers affect health-care access negatively.² Among nonfinancial barriers, transportation barriers are common barriers since the availability of transportation to a health-care facility is associated with timely health-care visits for those with chronic illness.³ The lack of transportation impedes primary care access, particularly among the uninsured.⁴

The significance of transportation barriers can weigh more than the issues of access to care.^{5,6} Transportation barriers are related to health decision-making and self-management behaviors of chronic conditions.⁵ In addition, transportation barriers can affect medication adherence because those who have limited transportation tend to delay picking up medications.⁶ Focusing mainly on the issue of access to care may hinder other unmet needs related to transportation barriers. A previous study shows that approximately 20% of free clinic patients had

missed a clinic appointment due to a transportation problem.⁷ However, little is known about the impact of transportation barriers on other nonfinancial barriers among the uninsured who already have access to a safety net health-care facility, which provides health-care services for underserved, uninsured, and working poor individuals.⁸

The purpose of this study was to examine transportation and other nonfinancial barriers among low-income uninsured patients of a safety net health-care facility. For low-income uninsured individuals, having access to primary care services

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Submitted November 28, 2017. Accepted November 28, 2017.

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at a safety net facility may not be enough. The population may still experience a number of barriers in order to fully utilize available services. Transportation barriers may be a key factor that affects other nonfinancial factors. This project provides the information that would help better serve low-income uninsured patients because having safety net health-care facilities in the community may not be enough of a solution.

Methods

Setting

This cross-sectional study was approved by the university's institutional review board and was conducted at a free clinic in the Intermountain West. The free clinic has been serving uninsured individuals who are not eligible for any sorts of health insurance and live below 150% of the federal poverty level since 2005. The clinic is open 5 days a week and has approximately 75 patient visits a day. The clinic offers primary and preventive care and is staffed by 10 paid personnel and over 400 volunteers. The clinic locates in a metropolitan area and is approximately 15 minutes from the downtown area. There is access to the clinic by public transportation from nearby cities.

Data Collection and Participants

Data were collected using a self-administered paper survey from January to April in 2017. Eligibility criteria for participants included being the age of 18 or older and being able to read and speak English or Spanish. All survey materials were available in English and Spanish. An interpreter translated English materials into Spanish. Another interpreter translated Spanish materials back to English. The third interpreter verified the accuracy of the translation. Participants were recruited by research assistants in the waiting room of the clinic. Since the clinic does not accept walk-ins and verifies the eligibility to be patients of the clinic (uninsured and below 150% of the federal poverty level), all patients in the waiting room are uninsured and have low or no income. The method of sampling was convenience sampling. All potentially eligible patients in the waiting room were approached when a research assistant was present for survey collection. If a patient expressed an interest in participating in the survey, he or she received a consent cover letter and a survey instrument. Informed consent was obtained from each participant. Participants received a small gift (approximately US\$1 or less value) such as sample shampoo, conditioner, and/or lotion at the completion of the survey.

Measures

Transportation barriers. Transportation-related questions were created based on the study conducted by Syed and colleagues.³ The questions included whether or not a participant had a driver's license, whether or not a participant or family member they are living with owns a car, how a participant traveled to the

clinic on the day the survey was administered (eg, on foot, by public transportation, by car, by bike, other), and whether or not a participant had missed an appointment with a provider at the clinic because of transportation problems. In addition, the following 4 items were asked using a 4-point Likert scale (4 = no problem at all, 3 = occasionally a problem, 2 = sometimes a problem, 1 = a major problem): (1) finding transportation to get to the clinic, (2) long distance to the clinic from home/work; (3) too much time to get to the clinic, and (4) high cost of transportation to get to the clinic. Lower scores indicate higher levels of transportation barriers. Cronbach α for this study population was .825.

Nonfinancial barriers (other than transportation barriers). Other nonfinancial barriers were measured using a 7-item scale with a 4-point Likert scale (4 = no problem at all, 3 = occasionally a problem, 2 = sometimes a problem, 1 = a major problem). Six of the items were from a subset of the scale developed by Kullgren and colleagues¹ and included the following: (1) too busy with work or other commitments to take the time, (2) couldn't get there when the clinic was open, (3) couldn't get through on the telephone, (4) had to wait in the clinic too long, (5) couldn't get off work, and (6) caring for family members. In addition, 1 original item "The clinic always looks busy and the staff and providers may not have time to pay attention to each patient" was added. Lower scores indicate higher levels of other nonfinancial barriers. Cronbach α for this study population was .925.

Stress

Levels of stress were measured by a validated reliable 10-item scale, the Perceived Stress Scale.⁹ The scale uses a 5-point Likert scale (0 = never, 1 = almost never, 2 = sometimes, 3 = fairly often, 4 = very often). The examples of the items include "How often have you been upset because of something that happened unexpectedly?" and "How often have you felt that you were unable to control the important things in your life?" The positively stated items are reversed coded. Higher scores indicate higher levels of stress. Cronbach α for this study population was .692.

Self-Rated General Health and Sociodemographic Characteristics

Self-rated general health was asked using a 5-point Likert scale (1 = excellent, 2 = very good, 3 = Good, 4 = fair, 5 = poor). The following demographic information was asked: whether a participant had been a patient of the clinic less than 2 years, or 2 years or longer; age; gender; country of origin; race/ethnicity; educational attainment; employment status; and marital status.

Data Analysis

Data were analyzed using IBM SPSS version 22. Multiple regression was performed with nonfinancial barriers as a

Table 1. Sociodemographic Characteristics of Participants and Descriptive Statistics.^{a,b}

Participant characteristics and transportation and other nonfinancial barriers	Total (N = 580)	US-Born English Speakers (n = 144)	Non-US-born English Speakers (n = 145)	Spanish Speakers (n = 291)	P Value	
Frequency (%)						
Female	372 (64.1)	80 (55.6)	86 (59.3)	206 (70.8)	<.01	
Race/ethnicity						
White–non-Hispanic	127 (22.6)	107 (80.5)	15 (10.7)	5 (1.7)	<.01	
Hispanic/Latino/Latina	360 (64.1)	15 (11.3)	63 (45.0)	282 (97.6)	<.01	
Asian or Pacific Islander	54 (9.6)	8 (6.0)	46 (32.9)	0		
Some college or higher	228 (39.3)	76 (52.8)	59 (40.7)	93 (32.0)	<.01	
Currently employed	262 (45.2)	61 (42.2)	64 (44.1)	137 (47.1)	NS	
Currently married	253 (43.6)	23 (16.0)	77 (53.1)	153 (52.6)	<.01	
US born	149 (25.7)	144 (100)	0	5 (1.7)		
Patient of the clinic—2 years or longer	280 (48.3)	47 (32.6)	78 (53.8)	155 (53.3)	<.01	
Mean (SD)						
Age	47.90 (13.69)	44.51 (13.10)	48.54 (15.50)	49.40 (12.64)	<.05	6.05
Years in the United States (non-US born only)	14.83 (10.43)		14.81 (12.23)	14.84 (9.39)		
Stress ^c	16.81 (5.76)	18.30 (6.91)	16.79 (4.99)	15.88 (5.14)	<.01	7.41
General health ^d	3.09 (0.97)	3.26 (1.03)	2.90 (1.03)	3.10 (0.88)	<.01	4.96
Transportation barriers ^e	3.53 (0.69)	3.58 (0.64)	3.43 (0.80)	3.57 (0.64)	NS	1.87
Finding transportation to get to the clinic	3.49 (0.84)	3.53 (0.80)	3.45 (0.89)	3.49 (0.83)	NS	0.37
Long distance to the clinic from home/work	3.38 (0.90)	3.53 (0.85)	3.26 (0.97)	3.36 (0.89)	<.05	3.05
Too much time to get to the clinic	3.54 (0.82)	3.63 (0.70)	3.41 (0.94)	3.55 (0.81)	NS	2.43
High cost of transportation to get to the clinic	3.63 (0.76)	3.60 (0.79)	3.54 (0.90)	3.71 (0.65)	NS	2.22
Other nonfinancial barriers ^f	3.42 (0.60)	3.39 (0.60)	3.34 (0.66)	3.49 (0.55)	NS	2.55
Too busy with work or other commitments to take the time	3.28 (0.89)	3.19 (0.97)	3.18 (0.90)	3.39 (0.82)	<.05	3.53
Couldn't get there when the clinic was open	3.46 (0.82)	3.43 (0.83)	3.43 (0.83)	3.49 (0.80)	NS	0.36
Couldn't get through on the telephone	3.24 (1.02)	3.04 (1.06)	3.20 (1.04)	3.41 (0.94)	<.01	6.02
Had to wait in the clinic too long	3.28 (0.90)	3.33 (0.91)	3.13 (0.98)	3.35 (0.85)	NS	2.74
Couldn't get off work	3.44 (0.88)	3.51 (0.84)	3.30 (0.96)	3.48 (0.84)	NS	2.49
Caring for family members	3.52 (0.79)	3.66 (0.65)	3.36 (0.95)	3.54 (0.75)	<.01	4.95
The clinic always looks busy and the staff and providers may not have time to pay attention to each patient	3.52 (0.78)	3.58 (0.72)	3.38 (0.90)	3.55 (0.75)	NS	2.70

Abbreviations: NS, not significant; SD, standard deviation.

^an (%) or mean (SD).

^bP value denotes significance from Pearson χ^2 tests between categorical variables (for cell size ≥ 5 only), and analysis of variance (ANOVA) tests for continuous variables comparing US-born English speakers, non-US-born English speakers, and Spanish speakers.

^cHigher scores indicate higher levels of stress.

^dLower scores indicate better health.

^eLower scores indicate higher levels of transportation barriers.

^fLower scores indicate higher levels of other nonfinancial barriers.

dependent variable. The following sociodemographic characteristics were included as independent variables: age, gender (female = 1, not female = 0), nativity (US born = 1, non-US born = 0), educational attainment (some college or higher = 1, less than some college = 0), employment status (employed = 1, unemployed = 0), marital status (married = 1, not married = 0), and a patient of the clinic for 2+ years (yes = 1, no = 0). In addition, the following independent variables were included: transportation barriers, stress, and self-rated general health. Multicollinearity was tested using the variance inflation factor (VIF). There was no significant multicollinearity finding among the variables. The significance level was determined based on .01 and .05. The minimum sample

size was determined based on a 95% confidence interval level, 0.5 standard deviation (SD), and a $\pm 5\%$ margin of error.

Results

Table 1 presents sociodemographic characteristics of participants (N = 580; US-born English speakers n = 144, non-US-born English speakers n = 145, Spanish speakers n = 291) and descriptive statistics of stress, self-rated general health, transportation barriers, and other nonfinancial barriers. More than half of participants were female. Spanish speakers had higher percentage of female participants (70.8%) than US-born and non-US-born English speakers (55.6% and 59.3%; $P < 0.01$).

Table 2. Predictors of Other Nonfinancial Barriers.^a

Independent variables	β	P Value
Age	.001	NS
Female	-.08	NS
US born	.08	NS
Some college or higher	-.21	<.01
Employed	-.31	<.01
Married	.06	NS
Clinic patient 2+ years	-.10	NS
Transportation barriers	.33	<.01
Stress	-.02	<.01
General health	-.09	<.01
Constant	3.17	<.01
R ²	.35	
F	16.94	
P value	<.01	

Abbreviation: NS, not significant.

^aN = 580. Multivariate multiple regression. P value denotes significance from multivariate regression analysis.

Over 60% (64.1%) of the participants were Hispanic, Latino, or Latina. Approximately 40% (39.3%) of the participants had some college or higher educational attainment. The percentage of those with some college or higher educational attainment was highest among US-born English speakers (52.8%) and lowest among Spanish speakers (32%; $P < .01$). Less than half (45.2%) of the participants had a full- or part-time job. Slightly more than 40% (43.6%) of the participants were married. The percentage was the lowest among US-born English speakers (16%) compared to non-US-born English speakers (53.1%) and Spanish speakers (52.6%; $P < .01$). Half (48.3%) of the participants had been patients of the clinic for 2 years or longer. The average age of the participants was 47.90 years (SD = 13.69). US-born English speakers (44.51 [SD = 13.10] years) were significantly younger than non-US-born English speakers (48.54 [SD = 15.50] years) and Spanish speakers (49.40 [SD = 12.64] years; $P < .01$). The average years in the United States among non-US-born participants was 14.83 (SD = 10.43).

US-born English speakers (mean = 18.30 [SD = 6.91]) reported higher levels of stress compared to non-US-born English speakers (mean = 16.79 [SD = 4.99]) and Spanish speakers (mean = 15.88 [SD = 5.14]; $P < .01$). Non-US-born English speakers (mean = 2.90 [SD = 1.03]) reported the best self-rated general health, while US-born English speakers (mean = 3.26 [SD = 1.03]) reported the worst ($P < .05$). There was no significant difference in levels of transportation and other nonfinancial barriers among the 3 groups.

Table 2 shows the factors associated with other nonfinancial barriers. Having some college or higher educational attainment and being employed were associated with an increase in levels of other nonfinancial barriers ($P < .01$). Fewer transportation barriers were related to fewer other nonfinancial barriers ($P < .01$). Higher levels of stress and poorer self-rated general health were associated with an elevation in levels of nonfinancial barriers ($P < .01$).

Discussion

This study examined transportation and other nonfinancial barriers among low-income uninsured patients of a safety net health-care facility (free clinic) and has 3 main findings. First, levels of transportation barriers were associated with levels of other nonfinancial barriers. Second, higher levels of nonfinancial barriers were associated with higher levels of stress and poorer levels of self-rated general health. Third, higher educational attainment and having employment were associated with higher levels of other nonfinancial barriers.

The result suggesting higher levels of transportation barriers were associated with higher levels of other nonfinancial barriers indicates that free clinic patients with transportation barriers experienced additional barriers. The relationships between transportation and health are complex, and it includes accessibility to health care and other goods and services, types of other people to interact, physical activity, and stress.¹⁰ Thus, nonmedical needs are very important to be addressed to advance population health.¹¹ Health-care organizations may collaborate or integrate with nonmedical organizations to meet nonmedical needs of patients.¹¹ Free clinic patients with transportation barriers may particularly need interventions to deal with transportation and other barriers to improve health.

The results of this study also show that higher levels of nonfinancial barriers were associated with higher levels of stress and worse self-rated health among free clinic patients. All free clinic patients are supposed to be in poverty that is a risk for health issues.¹² While all free clinic patients are in poverty, those who experienced more nonfinancial barriers reported higher levels of stress and worse self-rated health. Primary care providers need to consider patients' social circumstances to develop an appropriate treatment plan.¹² Primary care physicians need to develop specific skills that deal with challenging social context that underserved populations encounter.¹³

Furthermore, the results of this study suggest that higher educational attainment and employment were associated with higher levels of nonfinancial barriers, which may be contradictory to previous studies on barriers and health care.¹⁴ Free clinic patients who are employed do not have health insurance and are in poverty. A previous study on patient satisfaction among free clinic patients shows that free clinic patients who had employment reported lower levels of satisfaction in patient-doctor relationship than those who did not have employment.⁷ Another study on free clinic patients reported that higher levels of educational attainment were associated with worse social relations.¹⁵ Factors that are considered positive in general do not necessarily reduce nonfinancial barriers among free clinic patients. Further research is necessary to better understand the social context experienced by free clinic patients.

While this project adds new insights about the social context that underserved populations experience, there are limitations. This study was cross-sectional and cannot determine causal relationships among variables. There is potential selection bias among patients who agreed to take the survey. Patients of the

clinic are from more than 50 countries. Since the sample is a convenience sample, an actual response rate is unknown. This project surveyed only patients who spoke English or Spanish. The results did not reflect voices from patients who did not speak English or Spanish. The scales which were used to measure transportation or other nonfinancial barriers had not been validated. The Cronbach α for the stress scale fell between an acceptable level and a questionable level. It should be noted that another study on free clinic patients and stress that used the same stress scale had good reliability (0.84).¹⁶ Finally, since this project was conducted only at 1 free clinic, this generalizability may be challenging. However, since all free clinics serve underserved populations, there should be common features across free clinics and their patients.

Conclusion

Free clinic patients experience transportation and other nonfinancial barriers while they have access to primary care at a safety net clinic. In addition, higher educational attainment and employment may not always reduce nonfinancial barriers among free clinic patients. However, the barriers may be perceived worse by those with higher educational levels or jobs. It is important to examine further details about transportation and other nonfinancial barriers, which free clinic patients experience. Nonfinancial barriers are associated with worse mental and physical health. Well-beings of free clinic patients and other underserved populations may not be improved if providers focus only on medical problems and do not consider social problems. Future studies should examine integrative care programs that include medical treatment and social services together, and evaluate such programs to improve care for underserved populations.

Acknowledgments

The authors want to thank the patients who participated in this study and acknowledge the contribution of the staff and volunteers of the Maliheh Free Clinic. In addition, the authors thank Guadalupe Aguilera, Travis Dixon, Misty Pedersen, Zane Pedersen, Maria Reyes, Emily Seegrist, Shanna Singh, and Mary Stoddard for their help in data collection, data entry, or translation related to this study.


Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was funded by the Sorenson Legacy Foundation.

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