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Perceived Difficulty Accessing Medical Care And 30-Day Prescription Drug Adherence Post-Myocardial Infarction

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Table of Contents

List of Tables and Figures

Tables

Figures

Abstract

Introduction: Prescription drugs can reduce the risk of adverse events post-myocardial infarction (MI), but despite the known benefits, use of these drugs remains low. Prior research has found that younger patients, women, minorities, and those with limited access to care are less likely to be adherent. Currently, little is known on how perceptions of access to care affect adherence rates.

Objective: To determine the association between patients' perceived difficulty accessing care and adherence to prescription drugs 30 days after an MI event in young patients.

Methods: VIRGO (Variation in Recovery: Role of Gender on Outcomes of Young Acute Myocardial Infarction Patients) is a prospective cohort study of young MI patients, 18-55 years of age. Patients' baseline perceived difficulty accessing care and adherence to prescription drugs at 30 days were measured by self-report. Bivariate comparisons of patient characteristics were evaluated using student t-tests and the chi-square test, with statistical significance of $p<0.05$. The relationship between perceived difficulty accessing care and adherence was tested using multivariate logistic regression that sequentially adjusted for sociodemographic characteristics, medical history, and health insurance status.

Results: Almost half of all patients (45.1%) experienced some difficulty accessing the care that they need. Approximately, 17.4% reported extreme or moderate perceived difficulty and 27.7% reported their perceived difficulty as somewhat or not at all. The three primary reasons patients perceived difficulty were cost, lack of health insurance, and difficulty getting an appointment. In adjusted analyses, patients with extreme or moderate perceived difficulty were 25% less likely to be adherent (OR= 0.75, 95% CI: 0.51-1.13) than those reporting no difficulty, and patients reporting somewhat or little difficulty were 14% less likely to be adherent (OR= 0.86, 95% CI: 0.62-1.19) than those with no perceived difficulty.

Conclusions: Patients' perceptions of difficulty accessing care do not predict 30-day prescription drug adherence after accounting for health insurance status. Healthcare providers should consider the health insurance status of young patients with MI as well as their perceived difficulty accessing care as potential factors that may contribute to one-month medication adherence rates.

Introduction

Heart disease is the leading cause of death in the United States, accounting for 25% of the deaths that occur annually[1]. Within five years of having a myocardial infarction (MI), 36% of men and 47% of women over the age of 45 will die[2]. Survivors of MI are more likely to experience a recurrent cardiac event, heart failure, and stroke[2]. Many of these adverse events can be prevented by effectively managing risk factors of heart disease, such as high blood pressure, high cholesterol, and high blood glucose levels[2]. Evidence-based prescription drug therapies, such as statins, aspirin, and beta-blockers, are commonly used to help manage these risk factors and have been shown to significantly reduce the risk of recurrent disease and death[3, 4]. Despite the known benefits of these medications, compliance with these drugs after MI continues to remain low.

Recent studies have reported that almost a quarter of individuals hospitalized for MI have stopped filling all of their discharge medications by one week post-hospital discharge[5]. By one month, over a third of patients with MI were not fully adherent to their medications as prescribed[4]. These findings have significant public health implications, as uncontrolled risk factors are estimated to account for $100 billion in health care costs and between 33% to 69% of hospital admissions in the United States per year[6].

In the World Health Organization (WHO) 2003 report on medication adherence, the WHO identified a number of factors that are associated with low adherence. These factors included patients' demographic characteristics, medical history, health care status, and lack of access to care[7]. Although the evidence in support of the associations between these factors has been established, little research has focused on how perceptions of difficulty accessing care may be related to adherence. By understanding the relationship between perceived difficulty and adherence, physicians may be able to better recognize patient barriers that put them at high-risk for low adherence and identify opportunities to intervene prior to discharge for their MI.

The primary objective of the current study is to investigate the relationship between perceived difficulty accessing care and medication adherence within the first 30 days after hospital discharge in a

population of young patients with MI, a group at-risk of low adherence rates[7]. Thirty-days post-MI was chosen to assess adherence, as evidence suggests that patients who initially delay filling their prescription medications may be a group at high risk of poor adherence over time[8]. The secondary objective of this paper is to describe the primary reasons patients report difficulty accessing care.

Methods

The Variation in Recovery: Role of Gender on Outcomes of Young Acute Myocardial Infarction Patients (VIRGO) study is an observational, prospective cohort study on the presentation, treatment, and outcomes of young patients with MI. The study methods have been described elsewhere, but in brief, the study enrolled 2990 patients (2012 women and 978 men) that were between 18-55 years of age[9]. Patients were recruited from 104 United States hospitals from August 21, 2008 to January 5, 2012. In order to be eligible for inclusion in the study, patients were required to have a cardiac biomarker greater than the 99th percentile of the upper reference limit of the recruiting center within 24 hours of hospital presentation and at least one of the following: symptoms of ischemia, electrocardiographic changes indicative of new ischemia (new ST-T changes; new or presumably new left bundle-branch block; or the development of pathological Q waves), or other evidence of myocardial necrosis. Additionally, eligible patients were those that spoke either English or Spanish, provided informed consent, could be reached for follow-up, and were not incarcerated. Patients were ineligible for the study if they had elevated cardiac biomarkers due to a complication of elective coronary revascularization or an MI caused by physical trauma.

Baseline and 1-month follow-up data were collected from patient interviews and medical record abstractions. Baseline interviews were conducted in-person and within approximately 24-72 hours of admission to the hospital for MI by the local site coordinator. One-month follow-up interviews were conducted over the telephone by the field staff at the Yale Follow-up Center.

Predictor Variable

The primary predictor variable was a question at baseline focused on assessing a patient's perception of difficulty accessing medical care when in need. Specifically, patients were asked "Overall, how difficult is it for you to get medical care when needed?" Patient response choices were: "Extremely difficult", "Moderately difficult", "Somewhat difficult", "Not very difficult", and "No problem at all". Based on the frequency of patient responses and the clinical significance of the item, the variable was reclassified for analysis into a trichotomous variable as "Extremely/Moderately difficult", "Somewhat/Not very difficult" and "No problem at all".

Patients who reported experiencing some level of difficulty accessing medical care were asked to respond to a list of possible reasons why they had difficulty obtaining care. If more than one response choice was selected, patients were asked to identify the primary reason they perceived difficulty obtaining care. Possible response options included: cost, difficulty getting appointments, finding a doctor, travel/transportation, lack of insurance, and other. Patients that selected "other" were able to specify their reason for difficulty through an open-ended follow-up question. One author (M.D.) reviewed the free responses provided and coded back any responses that were consistent with the five primary response categories; responses that were not appropriate to recode remained in the "other" category. The recoded responses can be found in Appendix A.

Outcome Variable

The primary outcome variable was a self-report question from the 1-month follow-up interview that asked patients to report their adherence to medications as prescribed by their doctors over the past month following the index MI event. Patients were classified as "Adherent" if they reported adhering greater than 90% of the time and "Less Adherent" if they reported adhering 90% of the time or less. This approach is consistent with prior studies[10, 11].

Other Variables

Baseline sociodemographic and medical history variables considered as possible covariates or confounders included: sex, age, self-identified race (white, black or other), ethnicity (Hispanic or non-Hispanic), marital status (married or not married), education (≤ high school education or > high school education), working status (working full-/part-time or not working for pay), prior coronary artery disease (MI, percutaneous coronary intervention [PCI], or coronary artery bypass grafting [CABG]), congestive heart failure, prior stroke/transient ischemic attack, hypertension, history of diabetes (diagnosed and undiagnosed), hypercholesterolemia, chronic kidney disease, cigarette smoking within the past 30 days, obesity, final diagnosis of ST-elevation MI, and ejection fraction. Additionally, patients were asked if they had health insurance and, if so, whether the insurance assists with the cost of prescription medications. Patients were also asked if they had a physician that they felt was primarily in charge of their care and, if so, the average time since they last saw that physician and the specialty of the physician that they saw most often. Consistent with our prior approach, we recoded any "other" physician specialty responses that were consistent with the provided categories; responses that were not appropriate to recode remained in the "other" category. The "cardiologist" response category for physician specialty was added during data cleaning due to the frequency and clinical significance of the response choice. All recoded responses for patient characteristics can be found in Appendix A.

Statistical Analysis

Differences in patient characteristics were compared by level of difficulty and by adherence status using a standard 2-tailed t-test for continuous variables and the chi-square test for categorical variables. Statistical significance level was defined as a p-value <0.05. A logistic model was built to examine whether difficulty accessing care, the primary explanatory variable, predicted medication adherence at 30 days post-hospital discharge, after adjusting for clinically significant covariates. The logistic model was built through the sequential addition of variables in three steps. First, demographic variables (age, sex, race, education) were added to the model. Second, adjustments were made for medical history (diabetes, prior

MI, PCI or CABG, smoked within the past 30 days). Final adjustments were made based on health insurance status. The final model was tested for multicollinearity. Tolerance values were found to be > 0.65 and eigenvalues were > 0.4, suggesting that collinearity was likely not a significant threat to the validity of this model. Statistical analyses were completed using SAS version 9.3.

Results

Patient Characteristics

The final study sample was restricted to 2735 patients (1841 women and 894 men) due to missing data. Of those individuals, 2726 (99.7%) responded to our measure on perceived difficulty and 2702 (98.8%) responded to our question on adherence. Approximately half of all patients (45.1%) reported that they experienced some difficulty accessing care when they needed it. Approximately 17.4% said they experienced extreme or moderate difficulty accessing care, as compared with 27.7% who perceived a somewhat difficult or not very difficult time accessing care (Figure 1). The respondents that reported extreme or moderate difficulty were, on average, older ($p=0.021$) and more likely to be male ($p=0.012$), nonwhite ($p<0.001$), Hispanic ($p<0.001$), have greater than a high school education ($p=<0.001$), unmarried ($p<0.001$), and unemployed ($p<0.001$) (Table 1). Those with extreme or moderate difficulty were also more likely to be in poorer health. Specifically, these individuals were more likely to have had prior coronary artery disease ($p=0.033$), diabetes ($p=0.008$), hypercholesterolemia ($p=0.009$), be a current smoker ($p<0.001$), and be obese ($p=0.049$).

Access to the healthcare system prior to hospitalization for the MI event differed markedly by level of difficulty. As level of perceived difficulty accessing care increased, patients were less likely to have health insurance; 89.6% of those that experienced no difficulty at all had insurance as compared with only 78.3% of those that perceived their difficulty as somewhat or not very and only 38.0% of those with extreme or moderate difficulty ($p<0.001$). Among those with health insurance, irrespective of difficulty level, approximately 90% received assistance with the cost of prescription drugs.

Less than 50% of respondents who perceived extreme or moderate difficulty getting the care that they need had a provider they found to be primarily in charge of their health ($p<0.001$). For those who had a physician, the average time since they last saw that physician was significantly longer for those with higher levels of perceived difficulty accessing care ($p<0.001$). Internal medicine physicians or general practitioners were the most common specialties seen across all difficulty levels.

Patient sociodemographic characteristics, medical history, and health insurance and provider status did not greatly differ between those that were adherent and those that were not. The only significant differences between groups were for factors such as race, marital status, prior coronary artery disease, smoking history, health insurance status, and for those with a primary care provider, the average time since last seeing the provider. Specifically, those who were less adherent were more likely to be black ($p=0.002$), not married ($p=0.002$), not have a history of coronary artery disease ($p=0.001$), not be a current smoker ($p=0.004$), not have health insurance ($p=0.012$), and have less time pass since last seeing their primary care provider ($p=0.030$). All baseline patient characteristics by adherence status can be found in Appendix B.

Reasons Patients Perceived Difficulty

By level of difficulty

Almost half of the patients interviewed perceived difficulty getting care when in need. Patients reported a number of reasons for perceived difficulty getting care, including cost, lack of insurance, difficulty getting an appointment, difficulty finding a doctor, and travel/transportation. The three most commonly reported reasons for difficulty were cost, lack of insurance, and getting an appointment, collectively accounting for 78.8% of respondent reasons. The primary reason for perceived difficultly greatly varied by level of perceived difficulty, as shown in Figure 2A. Almost 75% of those with perceived extreme or moderate difficulty accessing care assigned cost or lack of insurance as the primary reason for their difficulty, as compared to only approximately 40% of those who perceived getting care as somewhat or not very difficult. Difficulty getting an appointment was the most commonly reported (30.9%) primary

reason for perceived difficulty getting care among patients with a level of difficulty that was somewhat or not very difficult.

When patients were asked to select all reasons for perceived difficulty accessing care, a similar pattern was observed to that described above for the primary reason. Cost, lack of insurance and difficulty getting an appointment remained the three dominant reasons. Figure 2B shows a graphical presentation of these findings. The number of reasons for perceived difficulty ranged from one to six, with a mean of 1.58 ± 0.87 responses. Patients with extreme or moderate perceived difficulty, on average, selected more reasons for difficulty than those with a somewhat or not very level of difficulty (1.91 ± 1.01 responses vs. 1.35 ± 0.68 responses).

By adherence

When comparing primary reason for difficulty accessing care by adherence to prescription drugs, travel and transportation issues was found to be the only statistically significant difference ($p=0.044$). Those patients who were fully adherent were more likely to find travel and transportation to be the primary reason for difficulty than those with lower adherence. Cost, difficulty getting an appointment, and finding a doctor were slightly more common problems for patients with lower adherence than for patients with full adherence. Similar patterns were seen when patients were able to select multiple response. Figures 3A and 3B present the primary reason and all reasons, respectively, for difficulty getting care by adherence.

When stratifying adherence by level of difficulty, no statistically significant difference were observed by level of adherence. Irrespective of adherence status, patients with extreme or moderate difficulty were more likely to cite cost or lack of insurance as the primary barrier to care (Figure 4A) as compared with those who had somewhat or not very difficulty citing cost and getting an appointment as primary barriers (Figure 4B).

Adherence and Perceived Difficulty Accessing Care

In unadjusted analyses, patients who perceived the greatest level of difficulty (extreme or moderate) were 40% as likely as those individuals who perceived no difficulty accessing care to be less adherent. This

relationship persisted after the first level of adjustments was made for demographic characteristics (Odds Ratio [OR]=0.62, 95% CI: 0.43-0.88). After the second level of adjustments for medical history, the association between adherence and the extreme or moderate level of difficulty continued to show an inverse relationship; however, the magnitude was less pronounced (OR= 0.67, 95% CI: 0.47-0.96). Finally, after adjustment for health insurance status, the relationship between extreme or moderate levels of difficulty and low adherence to prescription medications at 30 days was no longer significant (Figure 5). Patients who found it somewhat or not very difficult to access care when in need were found to be 25% less likely to be adherent when compared with those with no difficulty accessing care in unadjusted analyses; however, this association was not statistically significant. After adjusting for patient demographics, medical history and health insurance status, respondents with the somewhat or not very level of difficulty were approximately 15% less likely to be adherent, and this relationship remained nonsignificant (Figure 5). In the adjusted model, the three factors with the strongest relationship to adherence were black race, prior history of coronary artery disease, and current smoking history.

Discussion

We did not find an independent association between patients' perceived difficulty accessing care and prescription drug adherence at 30 days post-hospitalization for an MI event. Our findings suggest that availability of health insurance may be the most significant explanation for patients' decreased adherence to prescription drugs.

Consistent with prior literature, we found that those respondents with lower adherence rates were, on average, younger, nonwhite, and had less than a high school education. Contrary to prior studies, we did not find an association between lower adherence rates and female sex[12, 13]. Being a smoker was associated with lower adherence rates, a finding that is consistent with the literature.[12, 14]. Patients who had a history of coronary artery disease were also less likely to be adherent in our study sample. This finding is consistent with previous literature and may be due to other health concerns or possibly due to patients'

with a history of heart disease holding negative views of the healthcare system and the importance of risk reducing behaviors[5, 15].

Financial barriers, such as cost and lack of health insurance, accounted for the majority (55%) of all patients' primary reason for perceived difficulty getting care, which is consistent with what has been reported in prior studies[16, 17]. Surprisingly, we found that this barrier differed significantly by the level of difficulty. Those with extreme or moderate difficulty were more likely to have financial concerns as the key reason for their difficulty, as compared with those that perceived their difficulty as somewhat or not very. This difference may be explained by the health insurance status of the two groups, with only 38.0% of those with extreme or moderate difficulty having health insurance compared to 78.3% of those with somewhat or not very difficulty. Patients with somewhat or not very difficulty were more likely to find difficulty in getting an appointment, transportation to and from an appointment, or finding a doctor, which may suggest that financial concerns with respect to their health are not a key concern.

We did not observe strong statistical differences between primary reasons for difficulty by adherence status. These findings suggest that the reasons that patients perceive for barriers to accessing needed care are common and unassociated with their future compliance to risk reducing behaviors.

An association between lower adherence and greater perceived difficulty accessing care was present; however, the association was not significant in analyses that accounted for patient demographic factors, medical history, and health insurance coverage. Health insurance coverage appeared to be the driving factor in the relationship between perceived difficulty accessing care and adherence. This finding suggests that patients' perceptions of difficulty may be correlated with health insurance status when predicting their future risk of lower adherence. Therefore, perception of difficulty is not an independent predictor of adherence.

There are a number of limitations to our study. First, our assessment of adherence was based on patients' self-reported behavior over the past month. This method of estimating adherence is susceptible to inaccuracies in patient estimation due to recall bias and social desirability bias. Second, adherence was extraordinarily high in our cohort and may have limited our ability to observe differences by perceptions.

Third, the VIRGO study enrolled young patients who were hospitalized with MI and may not reflect the experiences of nonhospitalized or older patients.

Conclusion

Patients' perceptions of difficulty accessing care are not an independent predictor of prescription drug adherence within the first 30 days after discharge for an MI among younger patients. Our findings suggest that lack of healthcare insurance may be driving the relationship between patients' perceived difficulty accessing care and prescription drug adherence at 30 days. For this reason, we suggest that healthcare providers consider both the health insurance status and a patient's perceived difficulty accessing care when assessing patient's future risk of low prescription drug adherence. Additionally, we suggest that future research examine the role of psychosocial factors in this relationship as well as further assess this relationship over a longer follow-up period.

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Table 1. Patient characteristics by perceived difficulty

Characteristic	Extremely/ Moderately Difficult 474 (17.4%)	Somewhat/Not very Difficult 755 (27.7%)	Not Difficult 1497 (54.9%)	P-value
Sociodemographic Characteristics, %				
Age, mean ± SD, y	47.5 ± 5.9	46.8 ± 6.6	46.9 ± 6.1	0.021
Female	65.1	71.3	68.6	0.012
Race				
White	69.8	74.6	79.0	<0.001
Black	23.6	19.2	15.1	
Other	6.5	6.2	6.0	
Hispanic	12.8	7.8	6.1	<0.001
Married	34.6	48.1	56.4	<0.001
> High School	43.6	59.3	59.9	<0.001
Working full or part time	42.5	60.4	69.1	<0.001
Medical History, %				
Prior MI, PCI or CABG	25.3	21.2	19.7	0.033
History of hypertension	70.0	67.5	63.9	0.028
Diabetes (Diagnosed and Undiagnosed)	41.4	35.4	33.5	0.008
Hypercholesterolemia	90.9	85.4	85.8	0.009
Prior stroke/TIA	6.1	5.4	4.0	0.104
Chronic kidney disease	13.7	10.4	10.6	0.131
Smoked within past 30 d	69.8	59.5	52.0	<0.001
Obesity (BMI ≥30 kg/m^2)	56.1	54.3	50.4	0.049
Final MI diagnosis: STEMI	46.2	49.0	51.1	0.162
Ejection fraction <40%	10.4	10.8	10.9	0.954
Healthcare Access and Provider Status Variables, %				
Health insurance	38.0	78.3	89.6	<0.001
Assistance with prescription drugs	88.3	95.4	96.5	<0.001
Primary care provider	47.7	74.5	80.0	<0.001
Average time having seen doctor, mean ± SD, years	8.0 ± 7.7	6.6 ± 7.8	6.0± 7.3	<0.001
Type of doctor seen most				
General practitioner	55.2	71.0	72.6	<0.001
Cardiologist	3.6	3.9	3.8	
OB/GYN	2.6	5.3	5.2	
Specialist	6.8	7.9	9.6	
No doctor	31.8	11.9	8.8	
Fully adherent	88.6	90.9	93.0	0.009

Figure 1: Number of Patients by Perceived Difficulty Getting Care

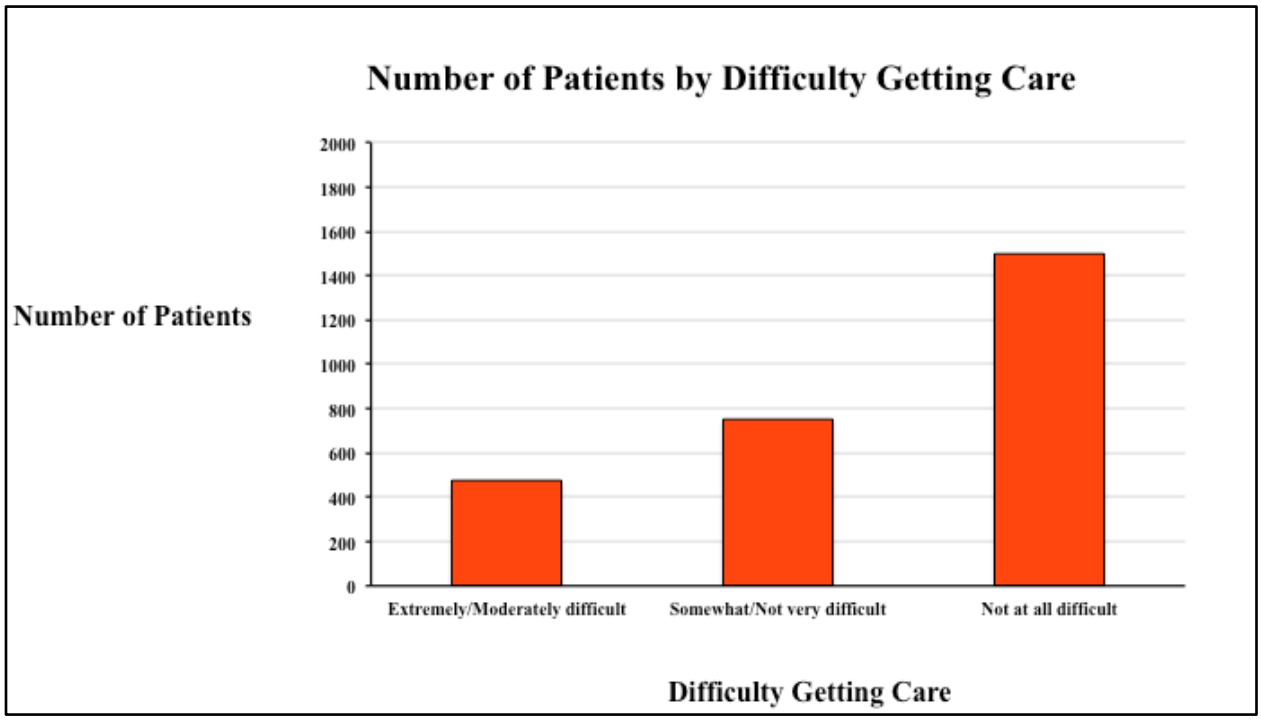


Figure 2. Reasons for Perceived Difficulty Getting Care by Adherence Status

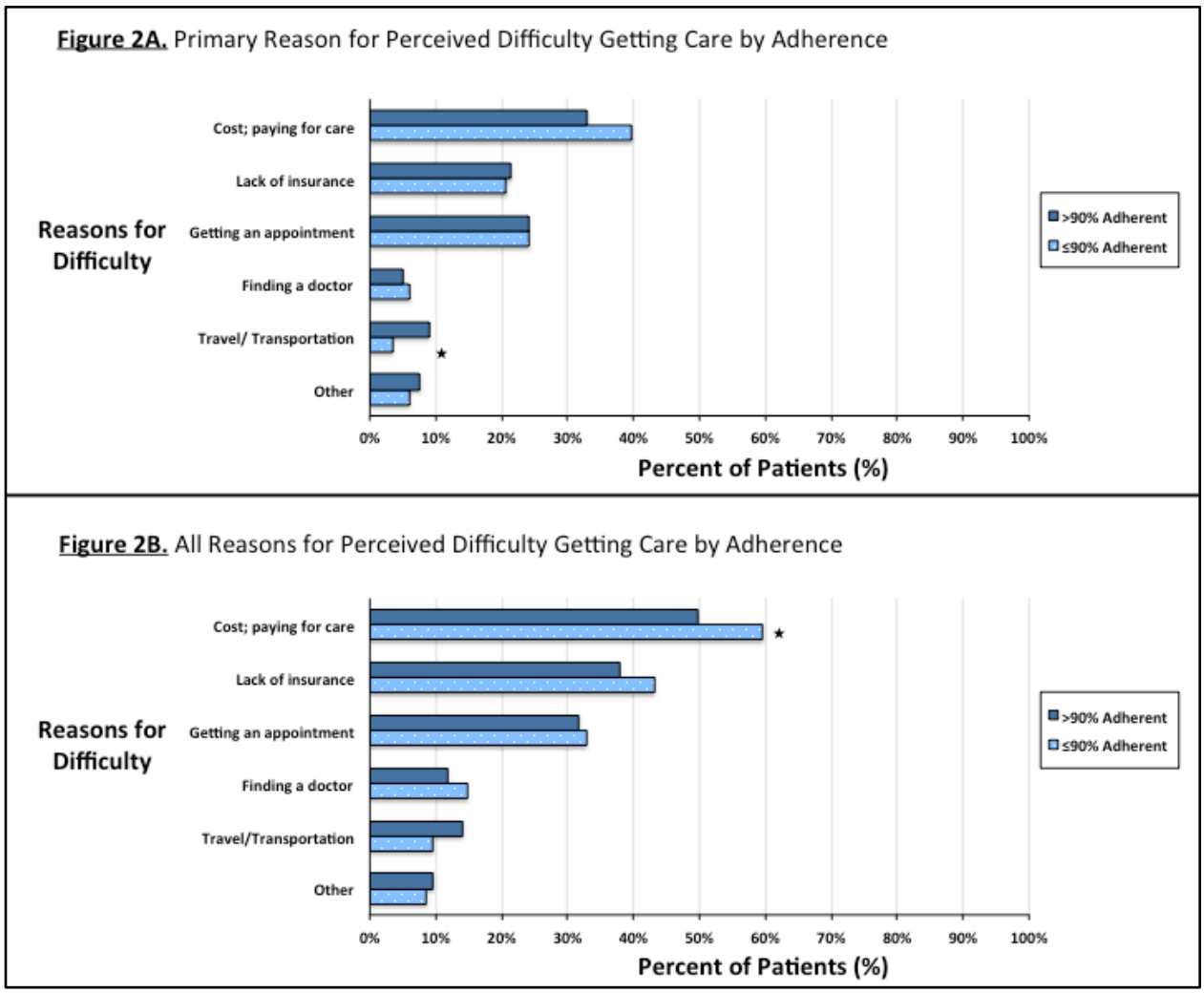


Figure 3: Reasons for Perceived Difficulty Getting Care by Level of Difficulty

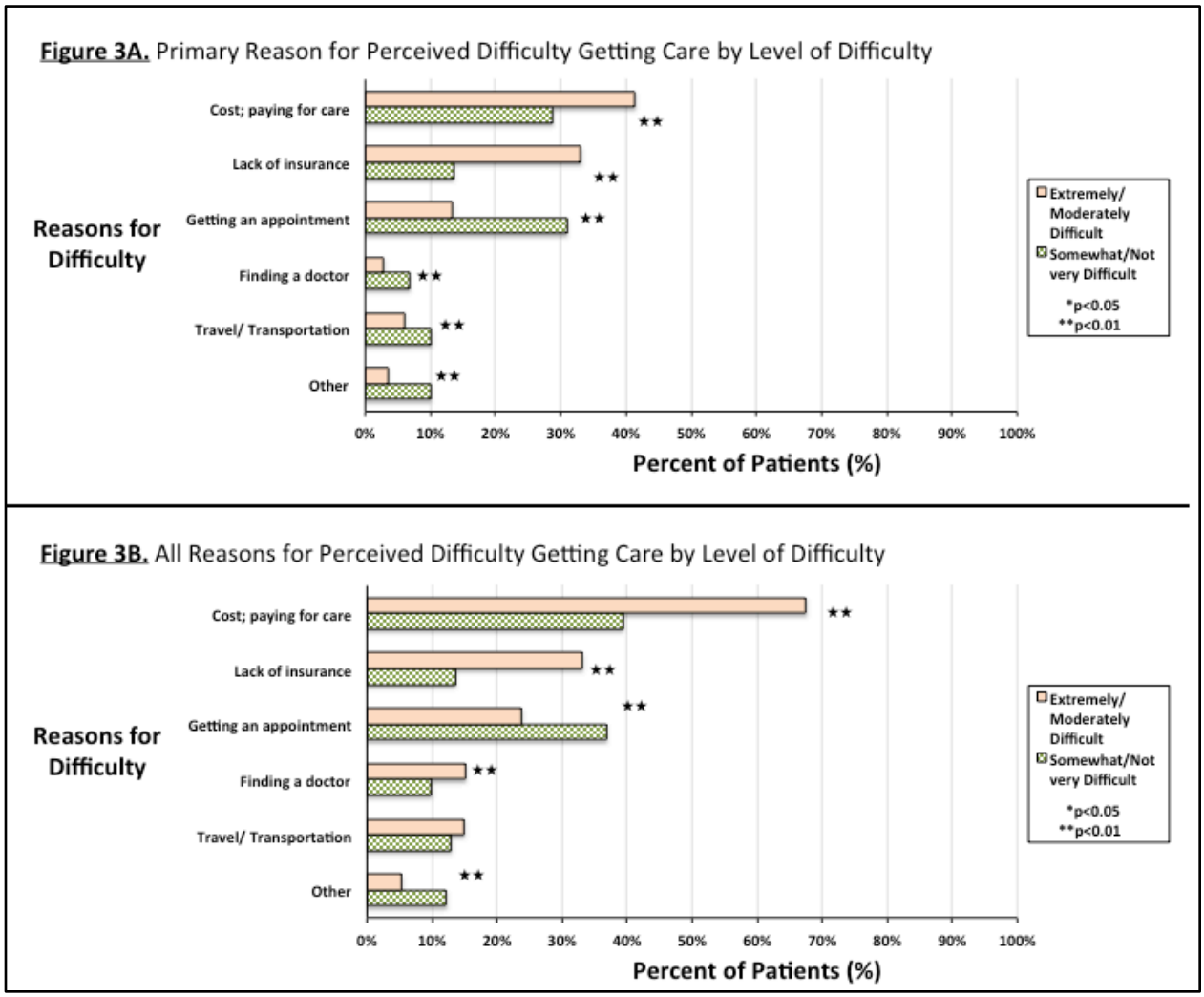


Figure 4: Primary Reason for Perceived Difficulty Getting Care by Adherence: Stratified by Level of Difficulty

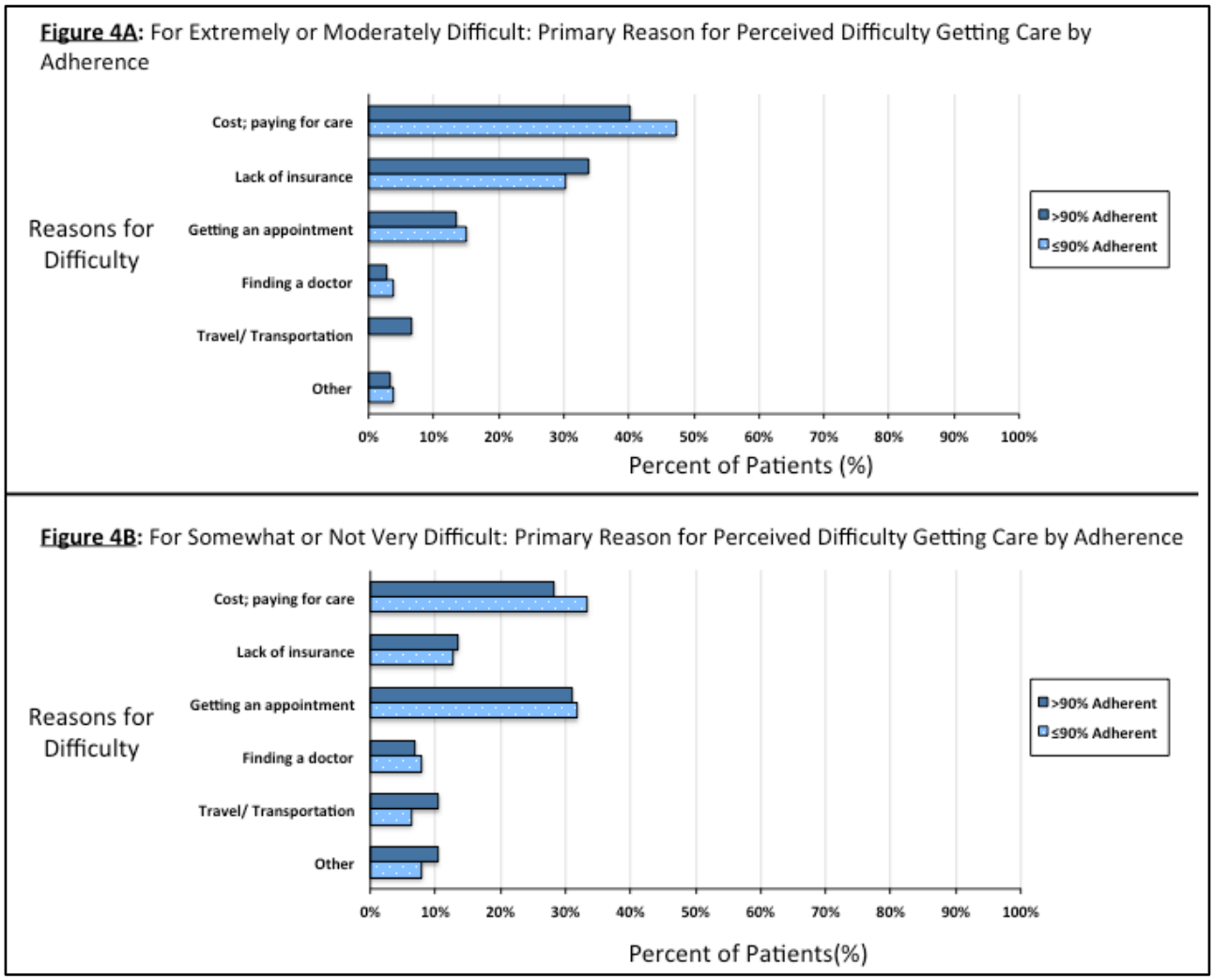
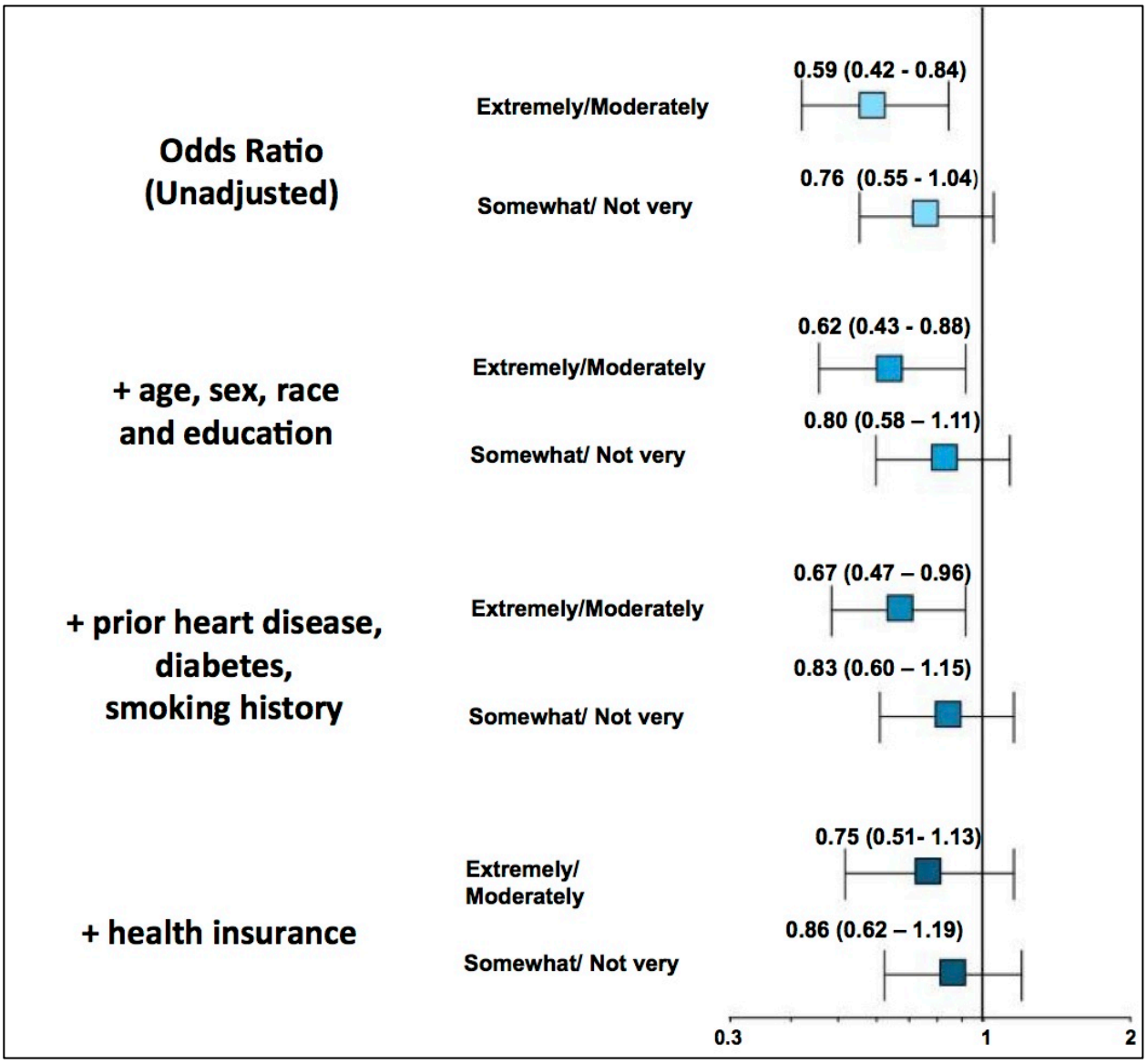


Figure 5: Sequentially-Adjusted Logistic Model for Predicting Adherence by Level of Perceived Difficulty Accessing Care



Appendix A. Other Category Recoded Responses

Table A-1. Recoded reasons for perceived difficulty getting care "other" category

Participant Response	Recode Category
Co-pay	cost; paying for care
FINANCES IN GENERAL	cost; paying for care
HIGH CO-PAY	cost; paying for care
No money	cost; paying for care
paying for prescriptions after visit	cost; paying for care
Insurance companies willingness to pay. Physician/	cost; paying for care
worried about insurance paying	cost; paying for care
Availability of doctors hours	difficulty getting an appointment
DIFFICULT GETTING AN APPT. AT DOCTOR'S OFFICE	difficulty getting an appointment
GETTINGF APPOINTMENT AT THE RIGHT TIME	difficulty getting an appointment
ability to see specific MD, not many in practice	difficulty getting an appointment
appt times	difficulty getting an appointment
busy practice	difficulty getting an appointment
clinic open limited hours	difficulty getting an appointment
conflict of schedule	difficulty getting an appointment
doctor is very busy	difficulty getting an appointment
doctor only works 3 days	difficulty getting an appointment
inconvienient office hours	difficulty getting an appointment
mutually convenient tiem	difficulty getting an appointment
overbooked	difficulty getting an appointment
scheduling	difficulty getting an appointment
took a long time to get an appointment	difficulty getting an appointment
trying to get into contact with the MD and staff	difficulty getting an appointment
work conflicts with doctors schedule	difficulty getting an appointment
Changing Physicians	finding a doctor

Doesn't have a primary care physician	finding a doctor
Finding a provider with parking access for truck	finding a doctor
Finding the right doctor	finding a doctor
finding a good doctor	finding a doctor
finding someone she likes	finding a doctor
not available at the county clinic	finding a doctor
rural areas with few doctors	finding a doctor
travel expenses	travel/transportation
Arranging a ride to the MD	travel/transportation
Finding a ride	travel/transportation
Getting around on mass transit due to disability	travel/transportation
NO TRANSPORTAION	travel/transportation
NO TRANSPORTATION	travel/transportation
TRANSPORTATION	travel/transportation
Transportation	travel/transportation
Transportation Issues	travel/transportation
Transportation- patient has to be driven	travel/transportation
Travel - getting rides	travel/transportation
Travel to MD/Transportation	travel/transportation
Unable to drive	travel/transportation
actually going to doctor	travel/transportation
can only get rides on others time	travel/transportation
difficulty getting transportation	travel/transportation
does not drive	travel/transportation
finding transportation	travel/transportation
getting to MD office	travel/transportation
no money to pay for rides	travel/transportation
no transportation	travel/transportation
transportation	travel/transportation
transportation issues	travel/transportation
transportation problems	travel/transportation
transportation to MD	travel/transportation
transportation to appointments	travel/transportation
unable to drive	travel/transportation
Difficulty obtaining state assistance	lack of insurance
Transition of medical insurance	lack of insurance

due to age trouble getting insurance	lack of insurance
fight with the state to get coverage	lack of insurance
'don't know'	no reason/ don't know
Don't know	no reason/ don't know
No reason	no reason/ don't know
None	no reason/ don't know
Reason not given	no reason/ don't know
don't know.	no reason/ don't know
none	no reason/ don't know
not sure	no reason/ don't know
patient denies having had the need to see a MD	no reason/ don't know
pt states NA	no reason/ don't know
unclear	no reason/ don't know
unknown	no reason/ don't know
wouldn't specify	no reason/ don't know
I forgot to ask the patient this question	Missing
Problems with phone system and car problems	travel/transportation; other

Table A-2. Recoded primary care provider type most often seen "other" category

Participant Response	Recode Category
General practice	General Practitioner
General practitioner and vascular surgeon	General Practitioner
IM/Physician Assistant	General Practitioner
Internal Medicine	General Practitioner
Internal medicine	General Practitioner
Internist	General Practitioner
Internist & endocrinologist	General Practitioner
NP	General Practitioner
Nurse Practitioner	General Practitioner
Nurse practitioner	General Practitioner
PA at MD office	General Practitioner

Rheumatoid and Internal Medicine Doctor	General Practitioner
internal med	General Practitioner
internal medicine dr.	General Practitioner
internist	General Practitioner
physician assistant	General Practitioner
Unknown	Don't know
CARDIOLOGIST	Cardiologist
Cardiologist	Cardiologist
Cardiologist and Gastro Enterologist	Cardiologist
Cardiologist/Internal Medicine	Cardiologist
Cardiologist/Oncologist/infectious disease/gastrot	Cardiologist
Cardiology	Cardiologist
Cardiopulmonary	Cardiologist
Cardo	Cardiologist
GI, Pulmonary, Neuro, Cardiac	Cardiologist
Heart and Endocrinologist	Cardiologist
Heart; Eye	Cardiologist
Pulmonologist and cardiologist	Cardiologist
cardiologist	Cardiologist
cardiologist (no PCP)	Cardiologist
cardiologist and psychologist	Cardiologist
cardiologist, endocrinologist	Cardiologist
cardiologist, neurologist	Cardiologist
cardiology	Cardiologist
endocrinologist, cardiologist	Cardiologist

Table A-3. Recoded marital status "other" category

Participant Response	Recode Category
Getting Divorced	married
1st marriage widowed. 2nd marriage divorced.	divorced
SEPARATED 8 YEARS	separated
married, but separated	separated
See annotation	missing

Appendix B. Table of Patient Characteristics by Adherence Status

Patient Characteristics by Adherence			
Characteristic	**>90% Adherent 2476 (91.6%)**	**≤90% Adherent 226 (8.4%)**	**P-value**
Sociodemographic Characteristics, %			
Age, mean ± SD, y	47.3 ± 6.1	46.7 ± 6.5	0.220
Female	67.5	67.7	0.948
Race			
White	76.9	68.6	0.002
Black	16.8	26.1	
Other	6.4	5.3	
Hispanic	7.7	8.5	0.651
Married	51.3	40.6	0.002
> High School	57.0	56.7	0.927
Working full or part time	62.0	62.8	0.805
Medical History, %			
Prior MI, PCI or CABG	20.3	30.1	0.001
History of hypertension	4.3	6.2	0.181
Diabetes (Diagnosed and Undiagnosed)	66.0	66.5	0.868
Hypercholesterolemia	86.3	88.9	0.268
Prior stroke/TIA	4.6	4.9	0.879
Chronic kidney disease	11.1	10.7	0.855
Smoked within past 30 d	56.1	65.9	0.004
Obesity (BMI ≥30 kg/m^2)	52.2	55.3	0.374
Final MI diagnosis: STEMI	50.2	43.4	0.049
Ejection fraction <40%	10.9	10.1	0.729
Healthcare Access and Provider Status Variables, %			
Health insurance	78.1	70.8	0.012
Assistance with prescription drugs	95.7	94.3	0.437
Primary care provider	73.3	69.3	0.199
Average time having seen doctor, mean ± SD, years	7.5 ± 7.5	6.1 ± 7.2	0.030
Type of doctor seen most			
General practitioner	69.4	65.9	0.117
Cardiologist	3.5	6.7	
OB/GYN	4.6	6.3	
Specialist	8.8	8.1	
No doctor	13.6	13.0	
Perceived difficulty accessing care			
Extremely/Moderately difficult	55.7	46.2	0.022
Somewhat/Not very difficult	33.5	40.0	
Not difficult at all	10.7	13.8	