

ORIGINAL RESEARCH

Health risk behaviors in insured and uninsured community health center patients in the rural US South

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ABSTRACT

Introduction: The impact of health behaviors on the leading causes of death across the USA has been well demonstrated. However, limited focus has been placed on the leading health risk behaviors of rural Federally-Qualified Health Center (FQHC) patients, a particularly underserved group. The current study was undertaken to examine the most common risk-taking behaviors of rural FQHC patients and to examine if risk-taking behaviors vary between insured and uninsured patients.

Methods: A convenience sample of 199 patients was recruited at an FQHC in the rural US South. Participants completed a battery of demographic and health risk behavior assessments.

Results: The most common risk behaviors were eating fried foods, not eating five servings of vegetables per day, not eating three servings of fruit per day, drinking caloric beverages, not exercising regularly, not wearing a seatbelt, having sex without a condom and smoking. Uninsured patients were more likely to talk on their cell phones while driving ($p < 0.001$), more likely to text while driving ($p = 0.007$), more likely to have unprotected sex ($p = 0.004$), more likely to drink alcohol ($p = 0.043$) and more likely to not seek medical care when needed ($p = 0.005$).

Conclusions: Rural FQHC patients demonstrated high levels of behavioral and health risk-taking, including dietary-, exercise- and traffic-related risks, in a context where traditional prevention methods have failed to penetrate. Differences exist between insured



and uninsured patients, indicating that the reasons behind behavioral risk-taking may be context-specific and need to be explored further to help identify intervention targets that are culturally and situationally appropriate for diverse rural groups.

Key words: health behavior, health risks, insurance status, USA.

Introduction

Risk-taking behaviors

Behavioral risk-taking and unhealthy behaviors have been recognized as the 'actual' leading causes of death across nearly all populations in the USA^{1,2}. These behaviors are diverse, ranging from not wearing a seatbelt to eating a high-fat diet, and affect a variety of acute and chronic outcomes (such as motor vehicle accidents and heart disease). While the reasons individuals engage in such risky or unhealthy behaviors are complex and beyond the scope of this article, the fact remains that educational programs and behavioral interventions focusing on modifying these behaviors present unique opportunities for decreasing the impact of many of the leading causes of death across the lifespan^{3,4}. Unfortunately, behavioral interventions (frequently developed in urban research centers) sometimes fail to reach the populations most at need – particularly populations that are rural and uninsured. Both of these populations have repeatedly been demonstrated to have poorer health status and less access to regular physician services regardless of income level⁵⁻⁷, and the need for interventions specifically tailored to the unique cultural and contextual realities of these groups has been repeatedly articulated⁸⁻¹⁰.

When considering health risk-taking behaviors in particular, rural groups have been shown to have higher levels of risk-taking behaviors than their urban counterparts. In a sequence of comprehensive examinations of behavioral risk-taking differences between rural and urban groups in 1998 National Health Interview Survey (NHIS) data, Patterson and colleagues found that tobacco use and heavy drinking were comparable or higher in rural settings (varying by racial/ethnic group), that seat belt use was

lower in rural settings across all racial/ethnic groups, and that rural residents were less likely to engage in recommended levels of daily physical activity (regardless of racial or ethnic group)^{8,9}. Because of the unique cultural realities of rural living such as increased religiosity, higher rates of poverty, lower access to care and more permissive attitudes toward substance use, differences in risk behaviors indicate the strong need for rural-focused interventions designed to reach populations most at-risk¹¹. The literature surrounding risk-taking behaviors among the uninsured is less robust, but in addition to having lower self-rated health (even when controlling for socioeconomic status and health behaviors)¹², the uninsured also have lower attention to health messages across media and are therefore less likely to be affected by traditional health promotion intervention messages¹⁰. Because of the lower rates of health literacy and decreased access to care seen in uninsured populations, they represent an especially underserved group in all areas, but particularly in rural settings¹⁰.

Caring for the needs of the rural uninsured

While there is no comprehensive safety net of medical providers for uninsured and underinsured Americans, the nationwide system of Federally Qualified Health Centers (FQHCs) provides reduced cost care to more than 16 million patients through 63 million patient visits each year, serving 20% of the low-income uninsured, 33% of individuals who live in poverty and nearly 15% of all rural Americans¹³. Despite the fact that rural residents only comprise approximately 20% of the US population¹⁴, more than 40% of FQHCs are located in rural settings, providing nearly 3,500 locations nationwide that provide natural health behavior intervention access points for underserved rural groups^{15,16}. FQHC patients represent some of the most at-risk groups in the United States: over 70% of FQHC patients live below 100% of the Federal Poverty Line and only 15% have private insurance¹³. In addition, FQHC patients are more than twice as likely to have a



chronic illness (for instance, 11.4% of all FQHC patients are hypertensive, whereas only 4.0% of office-based physician patients are hypertensive)¹³. Each of these factors make FQHC locations a unique intervention point for reaching groups traditionally underserved by health promotion efforts, particularly rural and uninsured patients. The current literature has largely failed to examine the unique needs that this particular patient group has with regards to behavioral intervention needs, and any variation that may exist between its insured and uninsured patients.

Need for sub-rural investigations

As mentioned, rural-urban differences in risk-taking behaviors have been consistently found. While there are many nationally-representative surveillance programs (such as the national Behavioral Risk Factor Surveillance System [BRFSS] and the National Health Interview Survey [NHIS]) that elucidate population-level differences between geographical groups (eg rural vs urban), these national efforts are not fully able to describe risk-taking within rural areas¹⁷. There is remarkable diversity within rural settings where unique cultural factors and socioeconomic circumstances greatly influence behaviors and unexamined subpopulations (such as the rural uninsured) may have individual needs masked by population-level investigations¹⁸. This gap in knowledge is even more pronounced when examining the risk-taking behaviors of rural clinical populations, particularly those receiving care in reduced-cost settings such as FQHCs. Knowledge of the most common risk-taking behaviors in rural FQHC populations, and any variations that may exist between insured and uninsured patients, can have a broad impact on what types of programs are most needed within rural FQHC settings. This can guide the development of culturally-tailored, behaviorally-focused interventions designed to directly improve health outcomes in rural areas. The current study was undertaken to examine the most common risk-taking behaviors of rural FQHC populations and to examine if risk-taking behaviors vary between insured and uninsured rural patients with the goal of informing future behavioral intervention development specific to rural populations.

Methods

These methods were originally published in the journal *Health and Technology*¹⁹.

Sampling

A sample of 199 patients was collected at an FQHC in the rural South US using convenience sampling techniques. The FQHC clinic is located in a federally-recognized rural county that is both a Health Professional Shortage Area (HPSA) and a Medically Underserved Area (MUA). The recruitment FQHC is dedicated to serving the uninsured and underserved residents of the local rural area. Potential participants were approached by clinic staff at an already-scheduled clinic appointment. If interested, participants were screened for eligibility (18 years of age or older and able to understand written or spoken English) and informed consent was conducted. Participants were then asked to complete an Audio Computer-Assisted Self-Interview (ACASI), which allowed participants at all literacy levels to complete the questionnaire. Upon completion of the questionnaire, participants were compensated US\$5 for their time and effort.

Measures

Participants completed a battery of assessments including demographics (including health insurance coverage), a brief medical history and a survey of the frequency of selected health risk behaviors (the Health Risk Questionnaire). Health insurance was defined to participants as 'any type of health plan that helps pay for your medical services, including health insurance, Medicaid, Medicare, etc'. The Health Risk Questionnaire (HRQ) is a 28-item instrument assessing self-reported frequency of engagement in a variety of health risk behaviors, including diet, exercise, substance use, motor vehicle risks, sexual behaviors, violence and medical risk-taking (eg not taking prescribed medication). Items are scored on a five-point frequency scale (never, rarely, sometimes, most of the time, always or almost always).



Analysis

Descriptive statistics were calculated to describe both the demographic characteristics and the health risk-taking behaviors of the sample. To examine potential differences in health risk-taking behaviors between insured and uninsured participants, differences in frequencies of behaviors were examined using nonparametric Mann–Whitney *U*-tests. Because of the number of behaviors being examined, an omnibus test was not conducted. All analyses were conducted using Statistical Package for Social Sciences v17 (IBM; Armonk, NY, USA; <http://www-01.ibm.com/software/analytics/spss/>).

Ethics approval

All study activities were conducted with the approval of the Institutional Review Board of Georgia Southern University (protocol H11230).

Results

Demographics

Average age of participants was 42.7 years (SD=14). The sample was predominantly female (81.4%), with wide racial/ethnic diversity: 45.7% of the sample identified as African-American, 39.7% as Caucasian and 8.6% as Hispanic. This racial/ethnic distribution is generally consistent with the overall FQHC population of Georgia (49% African-American, 37% Caucasian and 15% Hispanic²⁰). The majority of the sample (55.8%) had a high school education or less, and only 26.6% of the sample was employed full-time. More than half of the participants (57.3%) had no medical insurance (consistent with the overall Georgia FQHC clinic population with 49.7% uninsured²⁰), and the most commonly reported diagnoses among the patients were hypertension (48.2%) and diabetes (21.1%). Other demographic and medical history descriptive information is provided (Table 1).

Health risk behaviors

When examining health risk behaviors, the most commonly engaged in behaviors were eating fried foods (23.9% most of the time/always), not eating five servings of vegetables per day (35.9% never or rarely), not eating three servings of fruit per day (42.9% never or rarely), drinking caloric beverages (44% most of the time/always), not exercising regularly (43.9% never or rarely), not wearing a seatbelt (15.2% most of the time or always not wearing), having sex without a condom (36.5% most of the time/always) and smoking (14.6% most of the time/always). Additional health risk behaviors are provided (Table 2).

Differences between insured and uninsured patients in their health risk behaviors are also provided (Table 2). Uninsured patients were more likely to talk on their cell phones while driving ($p<0.001$), more likely to text while driving ($p=0.007$), more likely to have unprotected sex ($p=0.004$), more likely to drink alcohol ($p=0.043$) and more likely to not seek medical care when needed ($p=0.005$).

Discussion

This article suggests that the behavioral risk-taking of FQHC patients in the South USA is largely dietary- and exercise-related, with other specific risk behaviors (such as smoking and not wearing seatbelts) also high. More importantly, our findings suggest there may be important differences in risk-taking behaviors between insured and uninsured patients, even in a setting designed to address the needs of uninsured patients. This becomes particularly important when deciding what types of programs to offer in certain settings – in a clinic where many/most patients are uninsured (such as an FQHC), additional focus may need to be placed on behaviors such as proper cell phone use while driving or the importance of having protected sex. While the underlying cause of the differences between the insured and uninsured groups is likely due to a combination of socioeconomic factors such as income and education, examining these differences can help guide the types of interventions that may be most needed when reaching out to groups with a high representation of uninsured individuals.



Table 1: Participant characteristics

Characteristic (n = 199)	n (%) [†]
Demographics	
Age – M (SD)	42.7 (14)
Gender	
Female	162 (81.4)
Male	37 (18.6)
Race	
African-American	91 (45.7)
Caucasian	79 (39.7)
Native American	5 (2.5)
Other/multiracial	9 (12.1)
Ethnicity	
Hispanic	17 (8.6)
Non-Hispanic	181 (91.4)
Education level	
Less than high school	20 (10.1)
Some high school	37 (18.6)
High school graduate	54 (27.1)
Greater than high school	88 (44.2)
Employment status	
Full-time	53 (26.6)
Part-time	19 (9.5)
Unemployed/seeking work	33 (16.6)
Unemployed/seeking work	16 (8.0)
Disability	
Retired	12 (6.0)
Other	24 (12.2)
Long-term relationship	137 (70.3)
Access to care	
Uninsured	114 (57.3)
Unable to afford doctor in past 12 months	92 (46.2)
Unable to afford prescribed medication in past 12 months	87 (43.7)
Medical history	
Hypertension – self	96 (48.2)
Hypertension – family	132 (66.3)
Diabetes – self	42 (21.1)
Diabetes – family	80 (40.2)
Mental Illness – self	22 (11.1)
Mental Illness – family	26 (13.1)

[†] Counts may not sum to total n due to missing values.

Interestingly, two of the behaviors with demonstrated differences between rural insured and uninsured patients are related to cell phone use while driving (involving a relatively new technology). Historically, rural areas have been seen as technologically delayed²¹ and even today questions are still frequently raised about access to technologies among rural populations (particularly the

underserved)¹⁹. It could be that assumptions about technology use among underserved rural residents have minimized prevention education surrounding safe cell phone use in rural settings. Future studies should examine the reasons behind these differences and explore ways to increase safe cell phone use among underserved rural groups.



Table 2: Selected health risk behaviors of insured and uninsured patients

Behavior	Frequency %									p-value ^{††}
	Total Sample (N=199)			Uninsured (n=114)			Insured (n=85)			
	N/R [†]	S [†]	M/A [†]	N/R [†]	S [†]	M/A [†]	N/R [†]	S [†]	M/A [†]	
Marijuana use	95.4	3.6	0	93.9	5.3	0.8	97.6	1.2	1.2	0.206
Eat fried foods	28.9	47.2	23.9	25.7	47.8	26.5	33.3	46.4	20.3	0.103
Eat 5 servings of vegetables	35.9	35.9	28.1	37.7	37.7	24.6	33.3	33.3	33.3	0.349
Eat 3 servings of fruit	42.9	34.8	22.3	43.0	38.6	18.4	42.9	29.8	27.3	0.594
Drink caloric beverages	23.7	32.3	44.0	22.8	33.3	43.9	25.0	31.0	44	0.757
Eat when not hungry	50.5	41.4	8.1	48.2	42.1	9.7	53.6	40.5	5.9	0.081
Skip meals	39.4	44.4	16.2	36.0	46.5	17.5	44.0	41.7	14.3	0.189
Exercise regularly	43.9	27.8	28.3	43.9	28.9	27.2	44.0	26.2	29.8	0.792
Not wear seatbelt in car	65.0	19.8	15.2	63.2	21.1	15.7	67.5	18.1	14.4	0.527
Speed when driving	69.9	24.0	6.1	66.7	25.4	7.9	74.4	22.0	3.6	0.130
Talk on cell phone when driving***	70.9	23.0	6.1	61.4	28.9	9.7	84.1	14.6	1.3	< 0.001
Text while driving**	92.3	5.6	2.1	91.2	5.3	3.5	93.9	6.1	0	0.007
Drive while intoxicated	100	0	0	100	0	0	100	0	0	0.661
Unprotected sex**	55.6	7.9	36.5	45.0	11.0	44.0	70.0	3.8	26.2	0.004
Yell at others	54.8	35	10.2	53.1	34.5	12.4	57.1	35.7	7.2	0.103
Smoke	77.3	8.1	14.6	78.1	8.8	13.1	76.2	7.1	16.7	0.918
Drink alcohol*	89.4	9.6	1	88.6	11.4	0	90.5	7.1	2.4	0.043
Drink >5 alcoholic drinks	97.0	3.0	0	98.2	1.8	0	95.2	4.8	0	0.653
Skip prescription medications	75.3	18.7	6.0	75.4	20.2	4.4	75.0	16.7	8.3	0.934
Not seek medical care when needed**	58.9	28.9	12.2	50.9	34.2	14.9	69.9	21.7	8.4	0.005
Go against medical advice	73.6	16.2	10.2	75.4	15.8	8.8	71.1	16.9	12	0.864

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

[†] Never/Rarely vs Sometimes vs Most of the Time/Almost Always or Always.

^{††} Mann-Whitney *U*-test of full 5-point frequency scale.

When examining the difference in seeking medical care when needed, it is interesting that strong differences emerged despite the fact that all participants were active patients at a low-cost clinic. One would expect to see strong differences between general insured and uninsured populations with respect to seeking medical care when needed, but the fact that this difference emerged so strongly even within an active patient population indicates that the impact of not having insurance goes beyond perceptions of access to care. Nearly half of the uninsured participants (49.1%) reported that they sometimes or more often avoid going to the doctor even when they know they need to, whereas only 30% of insured patients reported this behavior. Given that all of these patients had access to care at greatly reduced cost through the FQHC, the continued barrier to seeking out care demonstrated by this difference between insured and

uninsured patients needs further investigation to identify the additional barriers at play. Cultural factors such as traditions of self-reliance and avoidance of ‘charity’ care within rural settings may be influencing this process¹¹. Until the barriers to seeking care faced by individuals with access to reduced cost services can be identified, efforts to improve access alone may not sufficiently address the needs of underserved rural patients.

The difference found in frequency of unprotected sex was strong: more than half of uninsured patients reported sometimes, most of the time, or always having unprotected sex, whereas 70% of insured patients reported never or rarely having unprotected sex. This strong difference has significant implications for sexual health, including STIs and HIV. While HIV rates in rural areas tend to be low compared



to urban settings, rates of condom use are consistently low and indicate that the HIV epidemic could rapidly spread further into rural settings without new intervention²². It is therefore critically important to develop HIV-prevention interventions targeted to rural settings (particularly for the most underserved). The lasting perception that HIV is 'not a problem' in rural areas may be influencing both rural residents' perceptions of their own risk and the perceived importance of HIV prevention to care providers.

Limitations

The results of the study should be interpreted within the context of its design. All patients came from a single rural FQHC, therefore affecting the ability to generalize outside of the rural South US where traditions involved with risk (eg alcohol use, smoking, unhealthy diet) and protection (eg increased social connectedness and high religiosity) are somewhat unique in the nation. Additionally, while most demographic characteristics were generally representative of the larger Georgia FQHC patient population, participants in this study were disproportionately female (80% vs the Georgia average of 60%) and the study's results may be different if looking at male patients in particular. However, there was not a significant gender difference between the insured and uninsured groups (data not shown), minimizing the potential for artificiality of the differences found between the insured and uninsured groups. While frequency of health risk behaviors was assessed, no qualitative data were collected to examine why differences in behaviors may have emerged. Such data would be very illustrative for the development of behavioral interventions.

Conclusion

Rural FQHC patients demonstrate high levels of behavioral and health risk taking, including dietary-, exercise- and traffic-related risks. Differences exist between insured and uninsured patients, indicating that the reasons behind behavioral risk-taking may be context-specific and need to be explored further to help identify intervention targets that are

culturally and situationally appropriate for diverse rural groups.

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