



# Medical Care Needs of Laundromat Users in San Antonio, Texas: A Potentially Unique Setting for Health Interventions

Jack Tsai<sup>1,2,3</sup> · Victoria Solis<sup>1</sup> · Vanessa Schick<sup>1</sup>

Accepted: 9 August 2022 / Published online: 25 August 2022

© This is a U.S. Government work and not under copyright protection in the US; foreign copyright protection may apply 2022

## Abstract

Innovative community-based public-private partnerships are forming to address health needs of underserved communities. This study partnered with laundromats in San Antonio, Texas to understand the health and healthcare needs of laundromat users as a possible underserved population. A total of 193 laundromat users across eight laundromats participated in a survey based on the Texas Behavioral Risk Factor Surveillance System (BRFSS) that asked about health status, access to care, vaccinations, and use of preventive healthcare services. Responses were compared to population estimates from Bexar County and the state of Texas. Results showed that over half of the sample of laundromat users were female, racial/ethnic minorities, living at poverty level, and did not have health insurance coverage. Compared to county and state population estimates, laundromat users were significantly more likely to report poor health and physical impairment; and were less likely to have a primary care provider, to have received a routine medical checkup in the past year, and to have been tested for HIV. Laundromat users were also less likely to receive some gender-specific preventive healthcare screenings such as pap smears and mammograms for women, and prostate exams for men than county or state population estimates. In the laundromat sample, 78% expressed interest in receiving healthcare services on-site at laundromats. Together, these findings suggest laundromats may be a unique setting for healthcare intervention to reach underserved, racial/ethnic minority communities. Pilot programs that target this setting are needed to explore this opportunity to deliver community-based public health practice.

**Keywords** Laundromats · Preventive Care · Outreach · Health Disparities

Low-income, racial/ethnic minority populations are often difficult to engage in healthcare services despite high levels of medical needs [1–4]. Research has identified various explanatory factors, including distrust of healthcare institutions, stigma around help-seeking, uninsurance or underinsurance, language barriers, lack of transportation and other logistical challenges, etc. [5–8]. With these factors, there is a large growing body of research highlighting health disparities that exist across various medical conditions, including

heart disease and stroke [9, 10], diabetes [11], cancer [12], lung disease [13], and chronic pain [14, 15]. The differential rates of these conditions have led to sociodemographic disparities in disease mortality [16–18]. Multiple systematic reviews of the existing literature on the effectiveness of healthcare interventions for low-income, racial/ethnic minority groups have concluded that further work is needed to better engage, treat, and provide follow-up care for these groups [1, 3].

As a result, there is growing development of unique and novel ways to offer healthcare to target populations. One approach has been to provide care in community settings where target populations live, work, and play. For example, over 20 intervention studies have been conducted that have made barbershops and beauty salons as key settings for reaching populations at risk for health disparities [19]. For example, one study conducted outreach events at dozens of barbershops with the intent to inform, screen, and refer black men to participating physicians and healthcare

✉ Jack Tsai  
Jack.Tsai@uth.tmc.edu

<sup>1</sup> School of Public Health, University of Texas Health Science Center at Houston, Houston, TX, United States

<sup>2</sup> Department of Psychiatry, Yale University School of Medicine, New Haven, CT, USA

<sup>3</sup> 7411 John Smith Drive, Suite 1100, 78240 San Antonio, TX, United States

facilities [20]. Another study conducted found a health promotion program situated in barbershops could effectively help black men with hypertension monitor and improve their blood pressure over time [21].

To the best of our knowledge and our review of the literature, there has been no published study of healthcare needs among laundromat users nor exploration of laundromats as a potential unique, community-based setting to offer healthcare services. Laundromats may offer a new opportunity to reach low-income, racial/ethnic minority individuals with lower access barriers than traditional barriers to office-based primary care. In addition, many users of laundromats may have time available for healthcare interventions while waiting for their clothes to wash and dry. Many laundromat users are also repeat users so they may be available for follow-up care at subsequent visits to their laundromats.

To explore this opportunity, we surveyed the health needs of laundromat users in San Antonio, Texas, the 7th largest city in the U.S. We also examined their interest in receiving preventive care, treatment, and referral to healthcare services on-site at laundromats. The results provide the first information in the research literature about laundromats as a potentially unique setting to engage and deliver healthcare services to low-income, racial/ethnic minority individuals.

## Methods

Project CLEAN (Customers of Laundromats: Examination and Analysis of Needs) was started in 2021 in which local laundromats within 25 miles of San Antonio were identified and contacted to participate in this project. Out of the 75 locations we found, we closely partnered with eight local laundromats. In 4 of these locations, we visited the laundromats in-person and were able to talk to customers, share information, and distribute a health needs survey. In the other four locations, we had access to their facility to distribute flyers via their employees. At more than 45 other laundromat sites, we posted flyers on commercial bulletin boards inviting customers to complete our health needs survey. Across sites, 193 laundromat customers completed our health needs survey. The survey collected information on sociodemographic characteristics, access to health care, and use of preventive medical care.

For the project, laundromat users were invited to complete an online survey on their phone via a barcode on a promotional flyer or with an iPad that was provided on site. The survey took approximately 20 min and participants were provided with a \$10 gift card for compensation. All participants provided informed consent and were provided a Spanish-translated survey if needed. All study procedures were approved by the institutional review board

at University of Texas Health Science Center at Houston (HSC-SPH-21-0392).

## Measures

Participants were asked a series of questions about their access and experiences with healthcare services. Items were adopted or adapted from the Texas Behavioral Risk Factor Surveillance System (BRFSS)[22] in order to allow for comparisons across populations.

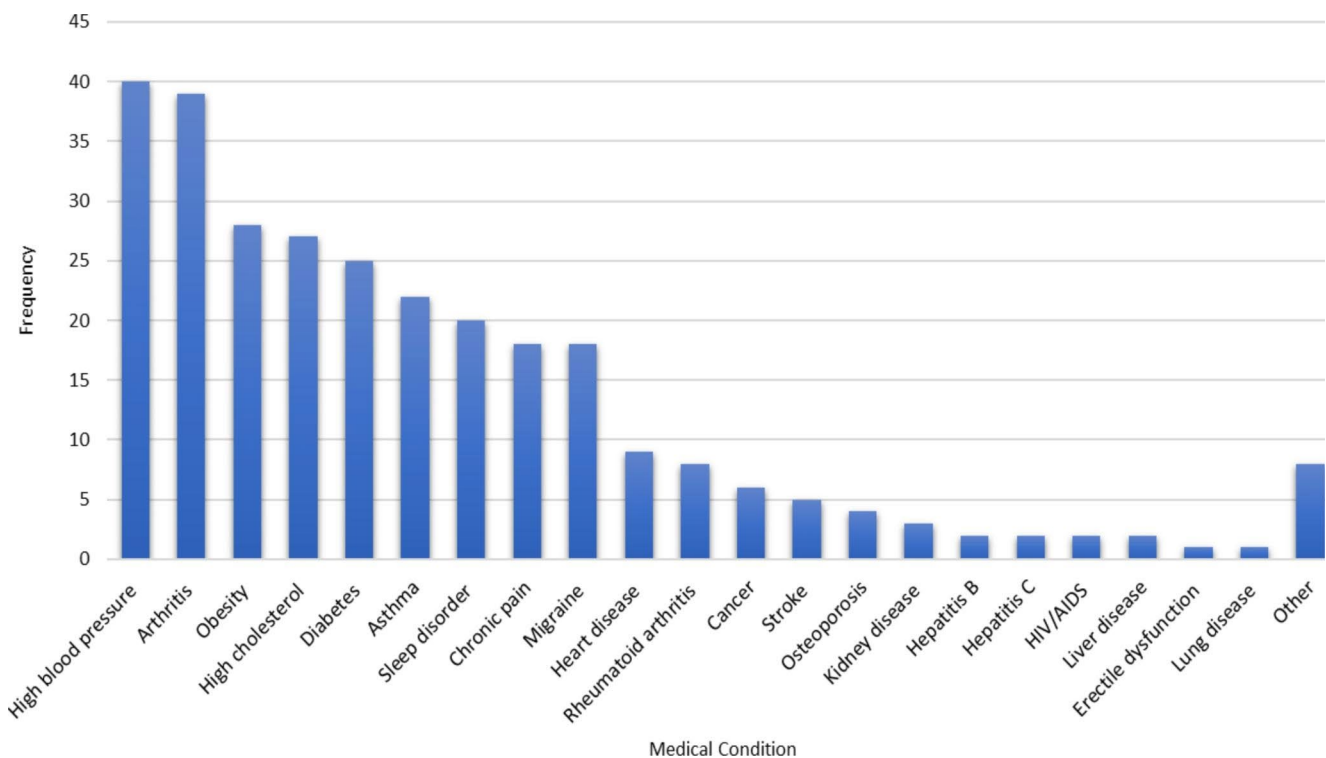
*Sociodemographic Characteristics.* Participants were asked to indicate their age, race, gender, income, marital status, and education with multiple items (e.g., ethnicity and race) from the BRSS. Additional items were added that asked about employment, veteran status, type of health insurance coverage, employment status, and use of any public benefits (e.g., social security, disability income).

*Chronic Health Conditions.* Participants were asked about chronic medical conditions with items from the BRFSS that asked: “Has a doctor or healthcare professional ever told you that you have any of the following medical conditions?” Participants were instructed to indicate all that applied to a list of medical conditions (see Fig. 1 for list).

*Health Related Quality of Life.* Participants were asked a question from the BRFSS to assess health status, ‘Would you say that in general your health is \_\_\_’ followed by five response options ranging from Excellent to Poor. This was followed by a BRFSS question used to assess number of health days, ‘During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?’ with a fill-in-the-blank option ranging from 0 to 30 days.

*Healthcare Access and Utilization.* With items from the BRFSS, to assess whether individuals have a primary care provider, they were asked, “Do you have one person you think of as your personal doctor or health care provider?” with options of ‘yes, only one’, ‘yes, more than one’, and ‘no’. Barriers to healthcare related to cost was assessed by asking the following question from the BRFSS: “Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?” with the options of ‘Yes’ or ‘No’.

*Preventative Services.* Participants were asked to indicate whether they had received a list of vaccinations including COVID-19, Hepatitis B, HPV, Flu Vaccination and/or Pneumococcal vaccinations. They were asked to indicate ‘yes’, ‘no’ or ‘unsure’ to each vaccination. Participants were then asked to indicate whether they had received a variety of preventive services with a list to check all that apply or indicate that they had never received any of the services (e.g., mammogram, colorectal cancer). These questions were followed-up with a question regarding the recency of the



**Fig. 1** Frequency of medical conditions among laundromat users (n = 193)

test (e.g., past year). They were then asked a similar set of questions regarding their testing history. They were asked, “Have you ever been tested for any of the following” with a list that included HIV, Hepatitis B, Hepatitis C, Sexually Transmitted Infections and Never (Not within my lifetime). They were then asked a question about the recency of testing (i.e., in the past year, past 5 years, more than 5 years ago).

### Data analysis

First, we conducted descriptive statistics to examine the sociodemographic characteristics of the sample of laundromat users. Second, we conducted a comparative descriptive analysis of the health of laundromat users with population estimates in Bexar county and Texas state. Population estimates for both the state of Texas and Bexar County were based on data obtained from the Texas BRFSS [19]. All data were based on 2020 BRFSS tables, except HIV, Hepatitis B, and flu vaccination data were based on 2019 BRFSS tables and pneumococcal vaccination and HIV testing data were pulled from 2018 BRFSS tables. We calculated 95% confidence intervals (CIs) for the proportions in our sample and obtained 95% CIs for the population estimates from the Texas BRFSS to allow comparisons; non-overlapping 95% CIs between our sample CIs and population CIs were

indicative of a statistically significant difference at the  $p < .05$  level.

### Results

Table 1 shows the sociodemographic characteristics of the laundromat users. The majority of laundromat users were single, white, heterosexual Hispanic women in their late thirties with some high school education. Over 60% of laundromat users were working full time/part time and over 50% were living at or near poverty level (i.e., annual income < \$20,000). About 53% of the sample reported they did not have any health insurance coverage and 36% were receiving SNAP benefits. Among laundromat users, the top 5 most frequent medical conditions reported were high blood pressure (22.4%), high cholesterol (14.0%), diabetes (13.0%), arthritis (20.2%) and obesity (16.1%). (Fig. 1).

Table 2 shows the health status reported by laundromat users as compared to Bexar County and Texas state population estimates. Compared to Texas state estimates, laundromat users were significantly more likely to report fair/poor health, to not have a primary care provider, being unable to afford a doctor visit in the past 12 months, and to report 5 or more days of physical impairment in the past month. Laundromat users were also significantly less likely to have a routine medical checkup in the past year, and to have

**Table 1** Sociodemographic characteristics of laundromat users (n = 193)

Characteristics	Mean/Frequency	SD/%
<b>Age</b>	39.38	13.90
<b>Gender</b>		
Male	62	32.12%
Female	128	66.32%
No Response	3	1.55%
<b>Race</b>		
White	144	74.61%
Black	33	17.10%
Asian	3	1.55%
Other	16	8.29%
<b>Ethnicity</b>		
Hispanic	122	63.21%
Not Hispanic	71	36.79%
<b>Highest Education Level</b>		
High School and below	99	51.30%
Some College	51	26.42%
Associates/Bachelors	33	17.10%
Advanced Degree	7	3.63%
No response	3	1.55%
<b>Marital Status</b>		
Single	95	49.22%
Divorced/Widowed/Separated	33	17.10%
Married/Living with Partner	63	32.64%
No response	2	1.04%
<b>Sexuality</b>		
Heterosexual/ Straight	155	80.31%
Lesbian or Gay	5	2.59%
Bisexual	19	9.84%
Queer	3	1.55%
Other	11	5.70%
<b>Employment Status</b>		
Full-time/ Part-time	121	62.69%
Self-Employed	12	6.22%
Retired/Disability/Other	16	8.29%
Unemployed	41	21.24%
No response	3	1.55%
<b>Health insurance coverage</b>		
No health insurance	102	52.85%
Insurance through current or former employer	35	18.13%
Insurance purchased directly from insurance company	7	3.63%
Medicare	15	7.77%
Medicaid	14	7.25%
VA	2	1.04%
TRICARE, CHAMPUS, or other military health care	2	1.04%
Healthy Texas Women	4	2.07%
Other	12	6.22%
<b>Government assistance program</b>		
SNAP benefits	68	35.23%
Social Security Disability Income	23	11.92%
<b>Annual Income</b>		
Under 10k	57	29.53%
10k-19k	42	21.76%
20k-29k	36	18.65%
30k-49k	27	13.99%

**Table 1** (continued)

Characteristics	Mean/Frequency	SD/%
50k-69k	13	6.74%
70k+	7	3.63%
No response	11	5.70%

received a pneumococcal vaccine than the general Texas state population. Compared to Bexar County population estimates, laundromat users were significantly less likely to have a primary care provider, to have been able to afford a doctor’s visit in the past 12 months, and to have a routine medical checkup in the past year.

Table 3 further shows use of gender-specific preventive care services among laundromat users compared to Bexar County and Texas state population estimates. Among women, laundromat users were significantly less likely to have had a pap smear in the past year (particularly among those within the recommended screening age of 18–44) and in the past 5 years compared to the general Texas state female population. Female laundromat users were also significantly less likely to have had a mammogram in the past

year compared to the general Bexar County female population and the Texas state female population. Among men, laundromat users were significantly less likely to have had a colorectal cancer screening than the Texas state male population in the past year, past five years, and more than five years ago. Male laundromat users were also significantly less likely to have had a prostate exam in the past year compared to the Bexar County male population. Only a small proportion of male and female laundromat users reported that they were tested for HIV in the past year, which was dramatically lower than the Texas state population (over 30% difference). In addition, only a small proportion of our laundromat sample reported they had been tested for Hepatitis B, Hepatitis C, or sexually transmitted infections in the past year, past five years, and more than five years ago; the

**Table 2** Health status of laundromat users compared to Bexar County and Texas state population estimates

	Laundromat users			Bexar County population estimates		Texas state population estimates	
	#	%	95% CI	%	95% CI	%	95% CI
<b>Perception of General Health</b>							
Good to better health	133	70	<b>63.48-76.52%</b>	81.7	76.4-86%	84.1	<b>82.8-85.3%</b>
Fair to Poor health	57	30	<b>23.48-36.52%</b>	18.3	14.0-23.6%	15.9	<b>14.7-17.2%</b>
<b>Have a personal health care provider</b>							
Yes, only one	59	32.07	<b>25.32-38.81%</b>	57.4	<b>50.9-63.6%</b>	61.6	<b>59.7-63.3%</b>
Yes, more than one	17	9.24	5.06-13.42%	5.5	3.6-8.4%	5.3	4.6-6.1%
No	108	58.70	<b>51.58-65.81%</b>	37.1	<b>31-43.6%</b>	33.2	<b>31.4-34.9%</b>
<b>Couldn’t see a doctor due to cost in past 12 months</b>							
95	51.35	<b>44.15-58.55%</b>	17.6	<b>13.1-23.2%</b>	15.2	<b>13.9-16.5%</b>	
<b>Last doctors visit for a routine checkup</b>							
Within the past year	98	53.85	<b>46.6-61.09%</b>	72	<b>65.7-77.5%</b>	72.6	<b>70.9-74.2%</b>
Within the past 2 years	22	12.09	7.35-16.82%	13.3	9.3-18.6%	13.6	12.3-15.0%
Within the past 5 years	26	14.29	<b>9.2-19.37%</b>	6.2	3.9-9.7%	7	<b>6-8%</b>
5 or more years	29	15.93	<b>10.62-21.25%</b>	6.9	3.9-11.8%	5.8	<b>5.0-6.6%</b>
Never	7	3.85	1.05%-6.64				
<b>Have received vaccines for</b>							
COVID-19	134	71.28	64.81-77.74%	68.59	-	64.74	-
Hepatitis B	73	38.83	31.86-45.80%	-	-	37.7	35.6-39.8%
HPV	45	23.94	17.84-30.04%	-	-	17.6	15.3-20.3%
Flu (Influenza)	74	39.36	32.38-46.35%	45.1	38.8-51.6%	40	38.3-41.8%
Pneumococcal	35	18.62	<b>13.05-24.18%</b>			28.7	<b>26.9-30.6%</b>
<b>Days that poor health kept you from doing usual activities in the past 30 days</b>							
5 or more days	38	25	<b>18.12-31.88%</b>	16.4	12.4-21.5%	13.4	<b>12.2-14.6%</b>
Less than 5 days	114	75	<b>68.12-81.88%</b>	83.6	78.5-87.6%	86.6	<b>85.4-87.8%</b>

Note: Bexar County and Texas state estimates were obtained from the Texas Behavioral Risk Factor Surveillance System (BRFSS); all data were based on the 2020 BRFSS, except data on Hepatitis B and flu vaccinations were from the 2019 BRFSS and pneumococcal vaccinations were from the 2018 BRFSS. COVID-19 vaccination data was from Texas Department of State Health Services (DSHS) and were based on the % of population aged 5 or older who were fully vaccinated in March 2022. Bolded values indicated non-overlapping 95% confidence intervals between the laundromat sample and Bexar County or Texas state population estimates

majority (53% male and 52% female) reported they had not been tested for any of these diseases.

In the total sample of laundromat users, 78.48% reported they were willing to receive healthcare services on-site at the laundromats. In addition, 50% reported interest in receiving vaccinations, 60% reported interest in receiving health screenings, and 55% reported interest in receiving assistance connecting to any healthcare services.

## Discussion

In a convenience sample of laundromat users in the 7th largest city in the U.S., we found that many laundromat users were low income, racial/ethnic minorities with substantial healthcare needs. Many laundromat users reported chronic medical conditions with hypertension, arthritis, high cholesterol, and diabetes being the most common conditions at rates higher than those found in general population estimates. For example, we found about 40% of our laundromat sample reported hypertension and 25% with diabetes compared to the 32% prevalence of hypertension [23] and 14% prevalence of diabetes [24] estimated among U.S. adults in the general population. Compared to county and state population estimates, our laundromat sample reported significantly greater healthcare needs including lower rates of receiving preventative care services among men and women. Health screenings for pap smears, mammograms, colorectal cancer, and prostate exams were also significantly lower among laundromat users when compared to available county and state population estimates. These findings suggest laundromat users may be an important group that experiences health disparities and could be better targeted for healthcare services, especially preventive care.

Given the high proportion of the sample interested in receiving healthcare services on-site, laundromats may be a potentially unique setting to engage, assess, and deliver interventions for healthcare prevention and treatment for a range of health conditions. This may be particularly pertinent since users of laundromats have a waiting period during their clothes washing and drying—a time in which they may be available and amenable to receiving healthcare services. Partnering with laundromats to deliver healthcare interventions may be an extension of unique community-public health partnerships that have formed in barbershops and beauty salons [12, 14, 17] to reach underserved communities. However, more research is needed on what health interventions may be most successful to provide on-site, what opportunities there are for health education, and how on-site healthcare might affect laundromat businesses. Pilot programs that partner with laundromats to investigate these questions should be encouraged.

This study had several limitations to note. First, we used a cross-sectional survey with one sample in a geographic area and replication of these findings with larger samples in other cities is needed. Second, our survey was based on participant self-report as were data from the Texas BRFSS and future research using medical records is needed to validate these results. Third, the relatively low testing rates should be interpreted with caution. To reduce time and survey space, the testing and preventative healthcare items were provided using a ‘check all that apply’ option including an option to indicate that none of the responses apply. With this format, it is possible that individuals may have missed a response or did not realize that multiple options could be checked. These limitations notwithstanding, this study is the first, to our knowledge, to report on the health characteristics and healthcare utilization patterns of laundromat users. The results provide information for further investigation and opportunities for intervention.

**Authors’ Contributions** J. Tsai and V. Schick designed the study. V. Solis helped collect the data. All three authors contributed to interpreting the results and writing the manuscript. All authors read and approved the final manuscript.

**Funding** There was no specific external funding for this work and this work was supported by university funds.

**Data Availability** Data generated for this project are not publicly available because they are part of ongoing research but are available from the corresponding author on reasonable request with proper approval by the institutional review board.

**Code Availability** Not Applicable.

## Declarations

**Conflicts of Interest/Competing Interests** The authors declared no conflicts of interest with respect to the authorship and/or publication of this. The institutional review board approved all study procedures at the University of Texas Health Science Center at Houston (HSC-SPH-21-0392).

**Consent to Participate** To participate, individuals read an electronic informed consent form using an electronic device. All participants signed the consent electronically before starting the survey. Consent forms were available in English and Spanish to all participants.

**Consent for Publication** The digital informed consent that was provided and signed by all participants informed them aggregate data may be published.

## References

1. Bull, E. R., Dombrowski, S. U., McCleary, N., & Johnston, M. (2014). Are interventions for low-income groups effective in changing healthy eating, physical activity, and smoking

**Table 3** Use of preventive care services among laundromat users, the Bexar county population, and Texas state population

	Laundromat users			Bexar County population estimates		Texas state population estimates	
	#	%	95% CI	%	95% CI	%	95% CI
<b>Women (n = 128)</b>							
Pap smear							
In the past year	37	28.91	21.05-36.76%	44	34.4-54.1%	42.6	<b>39.7-45.4%</b>
18–29 Years	16	38.10	23.41-52.78%	-	-	61.7	<b>53.3-69.4%</b>
30–44 Years	9	23.08	9.85-36.30%	43.7	28.4-66%	51.9	<b>46.4-57.2%</b>
45–65 Years	11	26.19	12.89-39.49%	42.2	28.3-57.5%	41.3	36.6-46.3%
65+ Years	1	20	0-55.06%	-	-	16.6	13.3-20.6%
In the past five years	15	11.72	6.15-17.29%	-	-	7.7	6.2-9.4%
18–29 Years	5	11.90	2.11-21.70%	-	-	-	-
30–44 Year	3	7.69	0-16.06%	-	-	6.7	4.3-10.1%
45–65 Years	6	14.29	3.70-24.87%	-	-	6.9	4.6-10.1%
65+ Years	1	20	0-55.06%	-	-	13.4	9.6-18.5%
More than five years	9	7.03	2.6-11.46%	19	<b>13.9-27.7%</b>	21.2	<b>18.9-23.6%</b>
18–29 Years	-	-	-	-	-	-	-
30–44 Years	5	12.82	2.33-23.31%	-	-	10.1	7-14.4%
45–65 Years	4	9.52	0.65-18.40%	25	14.2-40.2%	22	18.3-26.4%
65+ Years	-	-	-	-	-	47.7	42.2-53.2%
Mammogram							
In the past year	16	12.50	6.77-18.23%	54	<b>43.7-64%</b>	52	<b>48.8-55.3%</b>
18–29 Years	1	2.38	0-6.99%	-	-	43.4	<b>29-58.9%</b>
30–44 Years	4	10.26	0.73-19.78%	-	-	42.1	<b>34.2-50.4%</b>
45–65 Years	9	21.43	9.02-33.84%	53.6	<b>38.7-67.8%</b>	52.6	<b>47.6-57.6%</b>
65+ Years	2	40	0-82.94%	60.4	42.4-75.9%	57.7	52.6-62.7%
In the past five years	8	6.25	2.06-10.44%	-	-	5.8	4.5-7.5%
18–29 Years	-	-	-	-	-	-	-
30–44 Years	2	5.13	0-12.05%	-	-	10.6	6.5-16.9%
45–65 Years	5	11.90	2.11-21.70%	-	-	4.3	2.9-6.3%
65+ Years	1	20	0-55.06%	-	-	4.9	2.9-8.3%
More than five years	2	1.56	0.00-3.71%	12.5	<b>6.9-21.7%</b>	11.9	<b>9.9-14.1%</b>
18–29 Years	-	-	-	-	-	-	-
30–44 Years	-	-	-	-	-	16.7	11-24.5%
45–65 Years	2	4.65	0-10.95%	-	-	9.3	6.9-12.5%
65+ Years	-	-	-	-	-	12.2	9.4-15.6%
Visual Exam for Skin Cancer							
In the past year	6	4.69	1.03-8.35%	-	-	-	-
In the past five years	1	0.78	0.00-2.31%	-	-	-	-
More than five years	1	0.78	0.00-2.31%	-	-	-	-
<b>Men (n = 62)</b>							
Colorectal Cancer Screening							
In the past year	4	6.45	0.34-12.57%	30.3	<b>18.2-46%</b>	22.4	<b>18.3-27.2%</b>
In the past five years	4	6.45	0.34-12.57%	17.2	7.7-33.8%	20	<b>16.2-24.5%</b>
More than five years	1	4.61	0.00-4.75%	-	-	17.1	<b>13.8-20.9%</b>
Prostate Exam							
In the past year	4	6.45	0.34-12.57%	57.7	<b>40.3-73.4%</b>	56.5	<b>51.3-61.7%</b>
In the past five years	1	1.61	0.00-4.75%	-	-	7	4.6-10.5%
More than five years	2	3.23	0.00-7.62%	-	-	12.3	4.6-10.5%
Visual Exam for Skin Cancer							
In the past year	2	3.23	0.00-7.62%	-	-	-	-
In the past five years	-	-	-	-	-	-	-

**Table 3** (continued)

	Laundromat users			Bexar County population estimates		Texas state population estimates	
More than five years	-	-	-	-	-	-	-
<b>Tested for the following:</b>							
<b>HIV</b>							
In the past year (n = 193)	7	3.63	0.99-6.26%	-	-	42.3	<b>40.2-44.3%</b>
Male (n = 62)	2	3.23	0-7.62%				
Female (n = 128)	4	3.13	0.11-6.14%				
No response (n = 3)	1	33.3	0-86.68%				
In the past five years	14	7.25	3.59-10.91%	-	-	-	-
Male	6	9.68	2.32-17.04%				
Female	8	6.25	2.06-10.44%				
More than five years	12	6.22	2.81-9.62%	-	-	-	-
Male	3	4.84	0-10.18%				
Female	9	7.03	2.6-11.46%				
<b>Hepatitis B</b>							
In the past year	5	2.59	0.35-4.83%	-	-	-	-
Male	1	1.61	0-4.75%				
Female	4	3.13	0.11-6.14%				
In the past five years	10	5.18	2.05-8.31%	-	-	-	-
Male	5	8.06	1.29-14.84%				
Female	5	3.91	0.55-7.26%				
More than five years	3	1.55	0-3.30%	-	-	-	-
Male	-	-	-				
Female	3	2.34	0-4.96%				
<b>Hepatitis C</b>							
In the past year	6	3.11	0.66-5.56%	-	-	-	-
Male	1	1.61	0-4.75%				
Female	5	3.91	0.55-7.26%				
In the past five years	9	4.67	1.69-7.64%	-	-	-	-
Male	5	8.06	1.29-14.84%				
Female	4	3.13	0.11-6.14%				
More than five years	3	1.55	0-3.30%	-	-	-	-
Male	-	-	-				
Female	3	2.34	0-4.96%				
<b>Sexual Transmitted Infections</b>							
In the past year	18	9.33	5.22-13.43%	-	-	-	-
Male	4	6.45	0.34-12.57%				
Female	13	10.16	4.92-15.39%				
No response	1	33.3	0-86.68%				
In the past five years	18	9.33	5.22-13.43%	-	-	-	-
Male	5	8.06	1.29-14.84%				
Female	13	10.16	4.92-15.39%				
More than five years	9	4.57	1.69-7.64%	-	-	-	-
Male	3	4.84	0-10.18%				
Female	6	4.69	1.03-8.35%				
<b>Never been tested before for any of the above diseases</b>							
Male	33	53.23	40.81-65.65%				
Female	67	52.34	43.69-61%				

Note: Bexar County and Texas state estimates were obtained from the Behavioral Risk Factor Surveillance System (BRFSS); all data were based on the 2020 BRFSS, except data on HIV testing were from the 2018 BRFSS. COVID-19 vaccination data was from Texas Department of State Health Services (DSHS) and was based on the % of population aged 5 or older who were fully vaccinated in March 2022. Bolded values indicated non-overlapping 95% confidence intervals between the laundromat sample and Bexar County or Texas state population estimates

behaviours? A systematic review and meta-analysis. *British Medical Journal Open*, 4, e006046

2. Chan, K. S., Parikh, M. A., Thorpe, R. J., & Gaskin, D. J. (2020). Health Care Disparities in Race-Ethnic Minority Communities



- and Populations: Does the Availability of Health Care Providers Play a Role? *J Racial and Ethnic Health Disparities*, 7, 539–549
3. Taylor, W. C., Baranowski, T., & Young, D. R. (1998). Physical activity interventions in low-income, ethnic minority, and populations with disability. *American Journal of Preventive Medicine*, 15, 334–343
  4. Tsai, J., Desai, M. U., Cheng, A. W., & Chang, J. (2014). The Effects of Race and Other Socioeconomic Factors on Health Service Use Among American Military Veterans. *Psychiatric Q*, 85, 35–47
  5. Al Shamsi, H., Almutairi, A. G., Al Mashrafi, S., & Al Kalbani, T. (2020). Implications of Language Barriers for Healthcare: A Systematic Review. *Oman Med J*, 35, e122
  6. Calhoun, E. A., & Esparza, A. (2018). *Patient Navigation*. New York, NY: Springer New York
  7. Carrillo, J. E., Carrillo, V. A., Perez, H. R., et al. (2011). Defining and Targeting Health Care Access Barriers. *Journal of Health Care for the Poor and Underserved*, 22, 562–575
  8. Peterson-Besse, J. J., Walsh, E. S., Horner-Johnson, W., et al. (2014). Barriers to Health Care Among People With Disabilities Who are Members of Underserved Racial/Ethnic Groups: A Scoping Review of the Literature. *Medical Care*, 52, S51–S63
  9. Centers for Disease Control Prevention. (2005). Racial/Ethnic and Socioeconomic Disparities in Multiple Risk Factors for Heart Disease and Stroke --United States, 2003. *Morbidity and Mortality Weekly Report*, 54(5), 113–117
  10. Cooper, R., Cutler, J., Desvigne-Nickens, P., et al. (2000). Trends and Disparities in Coronary Heart Disease, Stroke, and Other Cardiovascular Diseases in the United States: Findings of the National Conference on Cardiovascular Disease Prevention. *Circulation* 102:3137–3147
  11. Gaskin, D. J., Thorpe, R. J., McGinty, E. E., et al. (2014). Disparities in diabetes: the nexus of race, poverty, and place. *American Journal Of Public Health*, 104, 2147–2155
  12. Zavala, V. A., Bracci, P. M., Carethers, J. M., et al. (2021). Cancer health disparities in racial/ethnic minorities in the United States. *British Journal Of Cancer*, 124, 315–332
  13. Brigham, E., Allbright, K., & Harris, D. (2020). Health Disparities in Environmental and Occupational Lung Disease. *Clinics in Chest Medicine*, 41, 623–639
  14. Grol-Prokopczyk, H. (2017). Sociodemographic disparities in chronic pain, based on 12-year longitudinal data. *Pain*, 158, 313–322
  15. Janevic, M. R., McLaughlin, S. J., Heapy, A. A., et al. (2017). Racial and Socioeconomic Disparities in Disabling Chronic Pain: Findings From the Health and Retirement Study. *The Journal of Pain*, 18, 1459–1467
  16. Bosworth, B. (2018). Increasing Disparities in Mortality by Socioeconomic Status. *Annual Review Of Public Health*, 39, 237–251
  17. Phelan, J. C., & Link, B. G. (2005). Controlling Disease and Creating Disparities: A Fundamental Cause Perspective. *The Journals of Gerontology: Series B*, 60, S27–S33
  18. Wong, M. D., Shapiro, M. F., Boscardin, W. J., & Ettner, S. L. (2002). Contribution of Major Diseases to Disparities in Mortality. *New England Journal Of Medicine*, 347, 1585–1592
  19. Linnan, L. A., D'Angelo, H., & Harrington, C. B. (2014). A Literature Synthesis of Health Promotion Research in Salons and Barbershops. *American Journal of Preventive Medicine*, 47, 77–85
  20. Releford, B. J., Frencher, S. K., & Yancey, A. K. (2010). Health promotion in barbershops: balancing outreach and research in African American communities. *Ethnicity And Disease*, 20, 185–188
  21. Hess, P. L., Reingold, J. S., Jones, J., et al. (2007). Barbershops as hypertension detection, referral, and follow-up centers for Black men. *Hypertension*, 49, 1040–1046
  22. Texas Department of State Health Services (2022). Texas Health Data - Behavioral Risk Factor Surveillance System (BRFSS). Accessed July 25 from <https://health-data.dshs.texas.gov/dashboard/surveys-and-profiles/behavioral-risk-factor-surveillance-system>
  23. Rana, J., Oldroyd, J., Islam, M. M., et al. (2020). Prevalence of hypertension and controlled hypertension among United States adults: Evidence from NHANES 2017-18 survey. *Int J Cardio Hypertens*, 7, 100061
  24. Wang, L., Li, X., Wang, Z., et al. (2021). Trends in Prevalence of Diabetes and Control of Risk Factors in Diabetes among US Adults, 1999–2018. *JAMA - Journal of the American Medical Association*, 326, 704–716

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.