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Article

Prospective Survey on Sociodemographics and Lifestyle Cancer Risk Factors among a Population of Caribbean Immigrants Living in the USA

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Abstract: Aim: The aim in this study was to conduct a prospective survey regarding the sociodemographics and lifestyle risk factors for cancer of a population of Caribbean immigrants living in the U.S. **Materials and Methods:** The data were processed and analysed using SPSS software 27 and Excel. Crosstabulations were performed. The chi-square test was used to evaluate different hypotheses. Statistical significance was defined as $p < 0.05$. **Results:** Statistically significant differences in the country of birth of the Caribbean immigrants were found for sex ($p = 0.038$) and the cleanness of their neighbourhoods ($p = 0.045$). We found differences in occupations between men and women ($p = 0.001$). Men were less unemployed than women ($p = 0.011$). Sex also showed statistically significant differences in how easily the immigrants balanced their work and personal life ($p = 0.044$). Age groups depicted differences in the physical health of the immigrants ($p = 0.001$). The use of alcohol and tobacco was not an important risk factor among participants ($p = 0.529$). **Conclusions:** These findings suggest that the sociodemographics risk factors for cancer among a population of Caribbean immigrants were significantly different between the sexes. However, the use of tobacco and alcohol showed insignificant differences among the immigrants.

Keywords: Caribbean; Hispanic; West Indians; hypothesis; biostatistics; immigrants; cancer risk factors

1. Introduction

"Cancer is the second leading cause of death in the Caribbean and has created tremendous challenges for healthcare services and expenditures throughout the region. According to the World Health Organization (WHO), cancer in the Caribbean will increase by 58%, from 84,703 cases in 2015 to 133,937 cases in 2035. Cancer mortality will increase by 67% during this period, from 52,282 to 87,430 deaths". "Nationals of African ancestry exhibited the highest rates of the cancer incidence rate of 243 per 100,000 per year and mortality rate of 156 per 100,000 per year compared to their counterparts of Indian ancestry (incidence rate of 125 per 100,000 per year; and mortality rate of 66 per 100,000 per year) or mixed ancestry (incidence of 119 per 100,000 per year; and mortality: 66 per 100,000 per year) [1]".

Pinheiro et al. (2016) analysed 185,113 cancer deaths from 2008 to 2012 in the USA, of which 20,312 occurred in Black populations. The authors computed the cancer mortality rates of U.S.- and Caribbean-born residents of Florida, specifically focusing on Black populations, and compared them using age-adjusted mortality ratios obtained from Poisson regression models. The overall risk of death from cancer was 2.1 (95% CI: 1.97–2.17) and 1.6 (95% CI: 1.55–1.71) times higher for USA-born Blacks than Black Caribbean men and women, respectively ($p < 0.001$) [2].

Siegel et al. (2012) reported that, in 2009, cancer surpassed heart disease as a leading cause of death. In 2010, the American Cancer Society (ACS) updated the previous report on cancer statistics of the 50.5 million Latinos living in the USA using data from the Centers for Disease Control and

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Prevention (CDC), the National Cancer Institute (NCI), and the North American Association of Central Cancer Registries (NAACCR), and using mortality data from National Center for Health Statistics (NCHS) [3].

Islami et al. (2018) estimated the proportion and number of invasive cancer cases and deaths for 26 cancer types in adults aged 30 years and older in the United States in 2014. They found that these cancers were attributable to modifiable risk factors such as cigarette smoking and alcohol intake [4].

In this study, we aimed to prospectively survey the sociodemographics and lifestyle cancer risk factors among a population of Caribbean immigrants living in the U.S.

2. Materials and Methods

2.1. Hypotheses

Hypotheses 1. *Differences exist in country of origin between men and women.*

Hypotheses 2. *Overall, sex influences the cleanliness of the neighbourhoods of the participants.*

Hypotheses 3. *Sex influences the ease with which work and the personal life of the immigrants are balanced.*

Hypotheses 4. *Differences exist in occupation between men and women.*

Hypotheses 5. *Men are less unemployed than women.*

Hypotheses 6. *Difference exists in physical activity between men and women.*

Hypotheses 7. *Age group is associated with participants' physical health.*

Hypotheses 8. *The use of alcohol and tobacco is an important risk factor for cancer.*

2.2. Ethical Considerations

The Campus Ethical Committee of the University of the West Indies, St. Augustine, Trinidad and Tobago, approved this study.

2.3. Location and Time Frame of the Study

The location was in the USA region. The project started in August 2021 and was completed in August 2022. The study was conducted online, and a SurveyMonkey link was sent to the participants through a social media network by SurveyMonkey Co., Ltd. (San Mateo, CA, USA).

2.4. Inclusion/Exclusion Criteria

2.4.1. Inclusion Criteria

Immigrants with no personal history of cancer living in the USA and older than 18 years old were included in the study.

2.4.2. Exclusion Criteria

The exclusion criteria included Caribbean subjects who had cancer and were not immigrants as well as those under the age of 18 years.

2.5. Justification of Sample Size

We used simple random sampling. In this way, each questionnaire had an equal chance of being included in the sample, which would allow for an adequate representation. So, the final sample size was calculated by using the formula:

$$N = Z\alpha//2^2 \; x \; (1\text{-}p)/d^2$$

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where N is the required sample size, Z $\alpha/2$ is the standard normal deviation corresponding to the specified total population at the 95% confidence level of 1.96, p is the prevalence of cancer = 0.487 (1-p = 0.513), and d is the desired degree of accuracy = 0.05.

A total of 388 participants with no history of cancer, who were 18 years of age or older, and were living in the U.S. were enrolled.

2.6. Recruitment of Subjects

Participants were recruited through the distribution of an online questionnaire link, included in a database of SurveyMonkey Co., Ltd., along with a letter explaining the importance of this study via social media by SurveyMonkey Co., Ltd.

2.7. Statistical Methods of Data Analysis

The data were processed and analysed using SPSS 27 software. Crosstabulations were conducted. The chi-square test was used to evaluate hypotheses related to the difference in frequencies between groups. Statistical significance was defined as $p < 0.05$.

Hypotheses were developed to test whether the observed frequency was significantly different from what was expected via crosstabulation.

The null hypothesis was that sex and age group *significantly differed in terms of* country of birth of the participants, the cleanliness of their neighbourhoods, current occupation, balancing of work and personal life, employment status (employed, unemployed, or student), physical health, drinking and smoking habits, and engagement in physical activities.

These hypotheses were tested via crosstabulations that generated the Pearson chi-square.

2.8. Confidentiality

2.8.1. Methods for Storing and Securing Study/Biological Data

All collected data were stored in a password-protected SurveyMonkey account. Data will be stored securely for two years in an SPSS file, after which they will be discarded.

2.8.2. Methods for Protecting Participants' Confidentiality

A disclaimer was placed at the beginning of the survey to inform the participants how their information would be handled. Respondents provided their consent to participate. Participants were not asked to disclose their names, addresses, or contact information during or after the online survey. Therefore, the study was anonymous.

2.9. Risk/Benefit

2.9.1. Level of Risk Associated with This Study

This level of risk of this study is minimal risk. Minimal risk to subjects means that the probability and magnitude of harm or discomfort anticipated in the study are not greater than those ordinarily encountered in daily life or during the performance of routine physical and psychological examinations or tests and that confidentiality is adequately protected.

2.9.2. Risk, Discomfort (Physical/Psychological), Inconvenience, Side Effects, and Financial Costs to Participants (Including Measures to Mitigate These Risks/Discomforts)

A mild level of psychological risk was associated with this study. No physical or invasive procedure was performed. We asked about the family history of cancer and a few screening procedures, among other questions, which may have been challenging for some participants. However, they had the benefit of not answering or withdrawing from the survey. In this survey, no people withdrew, but some did not answer some questions.

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2.9.3. Direct Benefits to Participants

From participants, we obtained information about the importance of mitigating the use of tobacco and alcohol to prevent malignancies. The participants were informed of the importance of physical activity.

2.10. Compensation, Rewards, or Other Incentives for Participants

Participants were thanked for their participation in the questionnaire.

2.11. Process for Informed Consent

Because this study involved an online survey, a consent form was provided at the beginning of the online questionnaire to ratify the true willingness of the respondent to participate in the online study.

2.12. Survey Standardisation

SurveyMonkey Co. provided the questions to carry out this study, except question one (Caribbean countries where the participants were born).

3. Results and Discussion

3.1. Association between Country of Birth and Sex

We found statistically significant differences between men and women in their country of origin (p = 0.038), as shown in Table 1. Men were mainly from the U.S. Virgin Islands (32.1%), Puerto Rico (21.4%), Haiti (6.9%), and Cuba and the Dominican Republic (6.3%). Women were mainly from the U.S. Virgin Islands (48.0%), Puerto Rico (11.4%), Cuba (7.0%) and the Dominican Republic (6.6%), as shown in Table 2. Conversely, men were less frequently from Barbados, Antigua, and Barbuda (0.3%); women were less frequently from Anguilla and Antigua and Barbuda (0.3%).

Table 1. Chi-square test results of the association between country of origin and sex.

	Value	df	Asymptotic Significance (2-Sided)
Pearson Chi-Square	24.622 [a]	14	0.038
Likelihood Ratio	25.679	14	0.028
Linear-by-Linear Association	5.142	1	0.023
N of Valid Cases	388		

a. 13 cells (43.3%) had an expected count less than 5. The minimum expected count was 0.41.

Table 2. Chi-square test of percentages of men and women from Caribbean countries.

Which Caribbean country are you from originally?	Cuba	Count	16	10	26
		% of Total	7.0%	6.3%	6.7%
	Haiti	Count	10	11	21
		% of Total	4.4%	6.9%	5.7%
	Dominican Republic	Count	15	10	25
		% of Total	6.6%	6.3%	6.4%
	Puerto Rico	Count	26	34	60

 doi:10.20944/preprints202309.0736.v1

		% of Total	11.4%	21.4%	16.3%
	Jamaica	Count	14	12	26
		% of Total	6.1%	7.5%	6.8%
	Trinidad and Tobago	Count	6	2	8
		% of Total	2.6%	1.3%	2.0%
	Bahamas	Count	15	7	22
		% of Total	6.6%	4.4%	5.4%
	Belize	Count	3	7	10
		% of Total	1.3%	4.4%	2.9%
	Barbados	Count	2	1	3
		% of Total	0.9%	0.6%	0.8%
	Saint Lucia	Count	0	2	2
		% of Total	0.0%	1.3%	0.7%
	United States Virgin Islands (USA)	Count	110	51	161
		% of Total	48.0%	32.1%	40.0%
	Grenada	Count	3	6	9
		% of Total	1.3%	3.8%	2.6%
	Antigua and Barbuda	Count	1	1	2
		% of Total	0.3%	0.6%	0.5%
	Caribbean Netherlands (the Netherlands)	Count	7	5	12
		% of Total	3.1%	3.1%	3.0%
	Anguilla (U.K.)	Count	1	0	1
		% of Total	0.4%	0.0%	0.2%
Total		Count	229	159	388
		% of Total	100.0%	100.0%	100.0%

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3.2. Association between Cleanliness of Neighbourhood and Sex

We found a statistically significant difference between men and women in the cleanliness of their neighbourhood (p = 0.045), as shown in Table 3. A total of 20.1% of women lived in extremely clean, 44.9% lived in very clean, 31.9% in somewhat clean, and 3.1% not so clean neighbourhoods. A total of 22.7% of men lived in extremely clean, 44.7% in very clean, 23.8% in somewhat clean, 6.9% in not so clean, and 1.9% in not at all clean (1.9%) neighbourhoods. Women tended to live in cleaner neighbourhoods, as shown in Table 4.

Table 3. Chi-square test examining association between cleanliness of neighbourhood and sex.

	Value	df	Asymptotic Significance (2-Sided)
Pearson Chi-Square	9.717 [a]	4	0.045
Likelihood Ratio	10.725	4	0.030
Linear-by-Linear Association	0.106	1	0.744
N of Valid Cases	388		

a. Two cells (20.0%) had expected count less than five. The minimum expected count was 1.23.

Table 4. Percentages of participants by neighbourhood cleanliness and sex.

			Sex		
			Female	Male	Total
Overall, how clean is your neighbourhood?	Extremely clean	Count	46	36	82
		% of Total	20.1%	22.7%	21.4%
	Very clean	Count	103	71	174
		% of Total	44.9%	44.7%	44.8%
	Somewhat clean	Count	73	38	111
		% of Total	31.9%	23.8%	27.9%
	Not so clean	Count	7	11	18
		% of Total	3.1%	6.9%	5.0%
	Not at all clean	Count	0	3	3
		% of Total	0.0%	1.9%	0.9%
Total		Count	229	159	388
		% of Total	100.0%	100.0%	100.0%

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3.3. Association between Current Occupation and Sex

We found a statistically significant difference between women and men in terms of their current occupation ($p < 0.001$), as shown in Table 5. More women were employed in the life, physical, and social fields (3.9%); legal (2.2%); education, training, and library (11.0%); healthcare practitioners and technical occupations (9.2%); healthcare support (7.8%); personal care and service (7.4%); office and administrative support (5.2%); and food preparation and serving-related occupations (6.1%). These percentages were higher for women than for men. Men surpassed women in occupations such as transportation and materials-moving (9.4%), management (5.7%), and production and installation, maintenance, and repair (4.4%) as depicted in Table 6.

Table 5. Chi-square test results of the association between current occupation and sex.

	Value	df	Asymptotic Significance (2-Sided)
Pearson Chi-Square	69.338 [a]	22	<0.001
Likelihood Ratio	77.413	22	0.000
Linear-by-Linear Association	4.123	1	0.042
N of Valid Cases	388		

a. Note that 12 cells (26.1%) had an expected count less than 5. The minimum expected count was 1.64.

Table 6. Percentages of the participants by occupations and sex.

			Sex		Total
			Female	Male	
Which of the following best describes your current occupation?	Other (please specify)	Count	31	8	39
		% of Total	13.5%	5.0%	8.4%
	Management Occupations	Count	5	9	14
		% of Total	2.2%	5.7%	4.0%
	Business and Financial Operations Occupations	Count	10	12	22
		% of Total	4.4%	7.5%	6.0%
	Computer and Mathematical Occupations	Count	10	14	24
		% of Total	4.4%	8.8%	6.9%
	Architecture and Engineering Occupations	Count	8	9	17
		% of Total	3.5%	5.7%	4.6%
	Life, Physical, and Social Science Occupations	Count	9	1	10
		% of Total	3.9%	0.6%	2.3%
	Community and Social Service Occupations	Count	4	5	9
		% of Total	1.7%	3.1%	2.4%
	Legal Occupations	Count	5	0	5
		% of Total	2.2%	0.0%	1.1%

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Education, Training, and Library Occupations	Count	25	10	35
	% of Total	11.0%	6.2%	7.6%
Arts, Design, Entertainment, Sports, and Media Occupations	Count	7	8	15
	% of Total	3.1%	5.3%	4.2%
Healthcare Practitioners and Technical Occupations	Count	21	2	23
	% of Total	9.2%	1.3%	5.6%
Healthcare Support Occupations	Count	18	11	29
	% of Total	7.8%	6.9%	7.4%
Protective Service Occupations	Count	0	5	5
	% of Total	0.0%	3.1%	1.6%
Food Preparation and Serving Related Occupations	Count	14	9	23
	% of Total	6.1%	5.6%	5.9%
Building and Grounds Cleaning and Maintenance Occupations	Count	7	6	13
	% of Total	3.1%	3.8%	3.5%
Personal Care and Service Occupations	Count	17	3	20
	% of Total	7.4%	1.9%	5.0%
Sales and Related Occupations	Count	8	5	13
	% of Total	3.5%	3.1%	3.3%
Office and Administrative Support Occupations	Count	12	6	18
	% of Total	5.2%	3.8%	4.5%
Farming, Fishing, and Forestry Occupations	Count	2	2	4
	% of Total	0.9%	1.3%	1.1%
Construction and Extraction Occupations	Count	6	5	11
	% of Total	2.6%	3.1%	2.9%
Installation, Maintenance, and Repair Occupations	Count	3	7	10
	% of Total	1.3%	4.4%	2.9%
Production Occupations	Count	1	7	8
	% of Total	0.4%	4.4%	4.8%
	Count	6	15	21

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	Transportation and Materials Moving Occupations	% of Total	2.6%	9.4%	5.0%
Total		Count	229	159	388
		% of Total	100.0%	100.0%	100.0%

3.4. Association between Work and Personal Life Balance and Sex

We noted a statistically significant difference between men and women in balancing their work and personal life (p = 0.044), as shown in Table 7. Women reported that finding this balance was "extremely easy" (18.8%), "very easy" (24.0%), "somewhat easy" (40.2%), "not so easy" (15.3%), and "not at all easy" (1.7%). Conversely, for men, these values were 11.3%, 32.1%, 43.4%, 9.4%, and 3.8%, respectively, as shown in Table 8.

Table 7. Chi-square test results of the association between participants' work and personal life balance and sex.

	Value	df	Asymptotic Significance (2-Sided)
Pearson Chi-Square	9.772 [a]	4	0.044
Likelihood Ratio	9.935	4	0.042
Linear-by-Linear Association	0.247	1	0.619
N of Valid Cases	388		

a. 1 cell (10.0%) had an expected count less than 5. The minimum expected count was 4.10.

Table 8. Percentages of participants regarding balancing their work and personal life by sex.

			Sex		Total
			Female	Male	
How easy is it to balance your work life and personal life?	Extremely easy	Count	43	18	61
		% of Total	18.8%	11.3%	15.0%
	Very easy	Count	55	51	106
		% of Total	24.0%	32.1%	28.0%
	Somewhat easy	Count	92	69	161
		% of Total	40.2%	43.4%	41.8%
	Not so easy	Count	35	15	50
		% of Total	15.3%	9.4%	12.4%
	Not at all easy	Count	4	6	10
		% of Total	1.7%	3.8%	2.8%
Total		Count	229	159	388
		% of Total	100.0%	100.0%	100.0%

3.5. Association between Current Occupation Status and Sex

We found a statistically significant difference between men and women in terms of their current occupation status (p = 0.011), as shown in Table 9. For women, 63.7% were employed. 26.4% were

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unemployed, and 9.9% were students. For men, these values were 70.8%, 13.9%, and 15.3%, respectively. The rate of unemployment was far higher in women, as shown in Table 10.

Table 9. Chi-square test results of the association between participants' current occupation status and sex.

	Value	df	Asymptotic Significance (2-Sided)
Pearson Chi-Square	9.011 [a]	2	0.011
Likelihood Ratio	9.320	2	0.009
Linear-by-Linear Association	.055	1	0.814
N of Valid Cases	356		

a. No cells (0.0%) had an expected count of less than 5. The minimum expected count was 17.39.

Table 10. Percentages of participants by current occupation status and sex.

			Sex		Total
			Female	Male	
Which of the following best describes your current occupation?	Employed	Count	135	102	237
		% of Total	63.7%	70.8%	67.3%
	Unemployed	Count	56	20	76
		% of Total	26.4%	13.9%	20.1%
	Student	Count	21	22	43
		% of Total	9.9%	15.3	12.6%
Total		Count	212	144	356
		% of Total	100.0%	100.0%	100.0%

3.6. Association between Engagement in Physical Activity and Sex

Table 11 shows that we found a statistically significant difference between men and women in terms of engagement in physical activity ($p = 0.025$). As shown in Table 12, the percentage of women that engaged in physical activity every day was 27.6%, a few times a week was 33.3%, approximately once per week was 15.8%, a few times a month was 13.2%, once per month was 4.4%, and less than once per month was 5.7%. For men, these percentages were 30.8%, 44.0%, 14.5%, 5.0%, 1.3%, and 4.4%, respectively.

Table 11. Chi-square test results of engagement in physical activity and sex.

	Value	df	Asymptotic Significance (2-Sided)
Pearson Chi-Square	12.837 [a]	5	0.025
Likelihood Ratio	13.737	5	0.017
Linear-by-Linear Association	6.443	1	0.011
N of Valid Cases	387		

a. Note that 1 cell (8.3%) had an expected count less than 5. The minimum expected count was 4.93.

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Table 12. Percentages of participants' engagement in physical activity and sex.

			Sex		Total
			Female	Male	
How often do you engage in physical activity?	Every day	Count	63	49	112
		% of Total	27.6%	30.8%	29.2%
	A few times a week	Count	76	70	146
		% of Total	33.3%	44.0%	38.7%
	About once a week	Count	36	23	59
		% of Total	15.8%	14.5%	15.2%
	A few times a month	Count	30	8	38
		% of Total	13.2%	5.0%	9.0%
	Once a month	Count	10	2	12
		% of Total	4.4%	1.3%	2.9%
	Less than once a month	Count	13	7	20
		% of Total	5.7%	4.4%	5.0%
Total		Count	228	159	387
		% of Total	100.0%	100.0%	100.0%

3.7. Association between Alcohol and Tobacco Use and Sex

Table 13 shows that we found no statistically significant difference between alcohol and tobacco use between the sexes (p = 0.529). As shown in Table 13, the percentages of women who engaged in drinking and smoking almost every day were 6.1% and 2.6%, respectively. The percentages of women who engaged in drinking and smoking more than once a week were 11.0% and 4.8%, respectively; the percentages of women that neither drank nor smoked was 36.4%. Conversely, the percentages of men that engaged in drinking and smoking almost every day were 9.4% and 4.4%, respectively. The percentages of men that engaged in drinking and smoking more than once a week were 9.4% and 3.8%, respectively; and the percentage of men that neither drank nor smoked was 28.3%, as shown in Table 14.

Table 13. Chi-square test results of the association between drinking and smoking and sex.

	Chi-Square Tests		
	Value	Df	Asymptotic Significance (2-Sided)
Pearson Chi-Square	9.033 [a]	10	0.529
Likelihood Ratio	9.417	10	0.493
Linear-by-Linear Association	1.528	1	0.216
N of Valid Cases	387		

a. Note that 4 cells (18.2%) had an expected count less than 5. The minimum expected count was 0.41.

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Table 14. Percentages of participants who drank and smoked by sex.

			Sex		Total
			Female	Male	
Do you drink alcohol or smoke cigarettes? Tick all that apply.	I drink alcohol once a week	Count	36	28	64
		% of Total	15.8%	17.6%	16.7%
	I drink alcohol more than once per week	Count	25	15	40
		% of Total	11.0%	9.4%	10.2%
	I drink almost every day	Count	14	15	29
		% of Total	6.1%	9.4%	7.8%
	I do not drink alcohol	Count	15	14	29
		% of Total	6.6%	8.8%	7.8%
	I do not smoke	Count	22	20	42
		% of Total	9.7%	12.6%	11.1%
	I smoke sometimes	Count	11	6	17
		% of Total	4.8%	3.8%	4.3%
	I often smoke	Count	6	7	13
		% of Total	2.6%	4.4%	3.5%
	I smoke every day	Count	13	5	18
		% of Total	5.7%	3.2%	4.4%
	I do not drink nor smoke	Count	83	45	128
		% of Total	36.4%	28.3%	32.3%
	I do not smoke marijuana	Count	0	1	1
		% of Total	0%	0.6%	0.3%
	I do not drink, nor do I smoke cigarettes or marijuana	Count	3	3	6
		% of Total	1.3%	1.9%	1.6%
Total		Count	228	159	387
		% of Total	100.0%	100.0%	100.0%

3.8. Association between Physical Health and Age Group

We found a statistically significant difference between the participant's age group and their physical health (p = 0.005), as shown in Table 15. Approximately 2.8% of the participants aged 18 to 24 years were "extremely healthy", 10.6% were "very healthy", 9.0% were "somewhat healthy", and 1.0% were "not so healthy". A total of 6.4% of the immigrants aged 25 to 34 years were extremely healthy, 7.2% were very healthy, 10.8% were somewhat healthy, 1.0% were not so healthy and 0.5%

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were "not at all healthy". Approximately 2.1% of the participants aged 35 to 44 years were extremely healthy, 6.4% were very healthy, 6.7% were somewhat healthy, and 0.8% were not so healthy. A total of 1.5% of the immigrants aged 45 to 54 years were extremely healthy, 5.7% were very healthy, 10.3% were somewhat healthy, and 1.0% were not so healthy. Approximately 0.8% of the participants aged 55 to 64 years were extremely healthy, 3.1% were very healthy, 6.4% were somewhat healthy, and 1.3% were not so healthy, as shown in Table 16.

Table 15. Chi-square test results of the association between the physical health and age group.

Chi-Square Tests			
	Value	**df**	**Asymptotic Significance (2-Sided)**
Pearson Chi-Square	45.693 [a]	24	0.005
Likelihood Ratio	40.134	24	0.021
Linear-by-Linear Association	9.180	1	0.002
N of Valid Cases	388		

a. Note that 16 cells (45.7%) had an expected count less than 5. The minimum expected count was 0.01.

Table 16. Percentages of participants by physical health and age group.

			How Physically Healthy Are You?					**Total**
			Extremely	**Very**	**Somewhat**	**Not So**	**Not at All**	
What is your age? (years)	18 to 24	Count	11	41	35	4	0	91
		% of Total	2.8%	10.6%	9.0%	1.0%	0.0%	23.5%
	25 to 34	Count	25	28	42	4	2	101
		% of Total	6.4%	7.2%	10.8%	1.0%	0.5%	26.0%
	35 to 44	Count	8	25	26	3	0	62
		% of Total	2.1%	6.4%	6.7%	0.8%	0.0%	16.0%
	45 to 54	Count	6	22	40	4	0	72
		% of Total	1.5%	5.7%	10.3%	1.0%	0.0%	18.6%
	55 to 64	Count	3	12	25	5	0	45
		% of Total	0.8%	3.1%	6.4%	1.3%	0.0%	11.6%
	65 to 74	Count	2	4	5	4	0	15
		% of Total	0.5%	1.0%	1.3%	1.0%	0.0%	3.9%
	75 or older	Count	0	2	0	0	0	2
		% of Total	0.0%	0.5%	0.0%	0.0%	0.0%	0.5%
Total		Count	55	134	173	24	2	388
		% of Total	14.2%	34.5%	44.6%	6.2%	0.5%	100.0%

Tao et al. examined the differences between foreign-born Hispanics settling in lower-status neighbourhoods and USA-born Hispanics [5]. Foreign-born Hispanics showed a health advantage in terms of survival after a diagnosis of breast, prostate, and lung cancer compared with those U.S.-born [6–8].

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In 2010, 30.7% of Hispanics were uninsured and 26.6% lived in poverty, compared to 11.7% and 9.9% of non-Hispanic Whites (NHW), respectively. Heterogeneity was found within the Hispanic/Latino population. For instance, the socioeconomic profile of Cuban Americans was more similar to that of NHW than to Dominican Americans and Haitian Americans. Hispanic had a lower rate for the most common cancers (breast, lung, prostate, and colorectal) and higher rates of cancer of the liver, uterine cervix, and stomach than NHW, which may be due to the poor access to screening programmes in the immigrant population and low social status. In 2012, an estimated 113,000 new cases of cancer and 33,000 deaths among Hispanics/Latinos were predicted. Strategies to attenuate the cancer explosion among this leading minority in the USA have been effective interventions to decrease alcohol consumption, tobacco use, and obesity [3].

The Latino population in the U.S. will triple in size by 2050. It will account for half of the nation's population growth if current migration trends continue, including the Caribbean Hispanic population [9]. The same authors studied preimmigration family cohesion. Family cohesion is a buffer against alcohol abuse and a protective factor against psychological distress among U.S. Latinos from Cuba and the Dominican Republic. In this study some respondents answered that they drank once per week (16.5%), more than once per week (10.3%) and almost every day (7.5%). In addition, in this study, regarding tobacco use, 17 of 388 smoked sometimes (4.4%), 13 (3.4%) often smoked, 18 (4.6%) smoked every day, and 42 (10.8%) did not smoke but drank alcohol. However, the chi-square result was $p = 0.529$, which is not significant [9].

Taylor et al. (1997) conducted a survey sampling 165 Haitian-born, 354 Caribbean-born, and 402 U.S.-born Blacks settled in New York City in 1992. Haitian-born and Caribbean-born respondents were more likely to smoke preferentially than their female counterparts. As well, both sexes that were USA-born were more likely to smoke than those who were Haitian-born and Caribbean-born. Alcohol consumption was combined with the act of smoking across the groups. Community education is essential in tackling this problem because participants believed that smoking was not related to cancer [10].

Vega et al. (1993) demonstrated that Cuban-American adolescents who were foreign-born were less likely to have ever smoked or consumed alcohol than Cuban Americans who were USA-born. The latter were more likely to undergo an acculturation process [11]. Lucas et al. (2005) found that over 87% of the foreign-born Black community in the USA believed that their health was excellent or very good, which was significantly higher than foreign-born white individuals and the same USA-born individuals. The foreign Black population had lower smoking rates, especially among women [12].

Nelson et al. (2016) examined the screening impact on breast cancer survival. Inequalities remain in breast cancer screening realisation related to socioeconomic deprivation, even with universal screening programmes in many European countries [13–15].

Household air pollution (HAP) arises from domestic activities such as heating, cooking, and lighting, and is usually measured indoors. It is a socioeconomic factor that causes respiratory cancers, especially in low- and middle-income countries; it is associated with poor neighbourhoods and could be found elsewhere. Three billion people worldwide are exposed to toxic amounts of HAP every day. Indoor air pollution deaths per million population is 0 to 10 in the U.S., Canada, and Australia. HAP is considered to be a modifiable exposure. Reducing HAP can improve human health with interventions such as the use of cookstoves, heaters, and improved fuels [16–19].

Plants have the capacity to absorb and catabolize various environmental toxic substances by a process called phytoremediation. In countries such as Indonesia, plants have been implemented in this capacity. However, plants are still not optimally utilized as a

medium for room air purification. Different plants have been used including English ivy (*Hedera helix*), bamboo palm (*Chamaedorea seifrizii*), Aloe vera (*Aloe vera*), and banana (*Musa oriana*) [20–23].

"In 2018, 1,735,350 new cancer cases and 609,640 cancer deaths are projected to occur in the United States. An estimated one in three Americans will be diagnosed with an invasive cancer over their lifetimes" [3]. Lifestyle changes provide an opportunity for cancer prevention [24–27]. They include abstinence from alcohol and tobacco [28–31], consumption of various serves of fruits and

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vegetables daily [32–39], prevention of viral infections such as HIV/AIDS and hepatitis viruses B and C by using adequate protection and safe sexual practices [40–42], and avoidance of obesity [43,44]. Physical activity is a protective factor against several cancers including colorectal cancer, bladder, breast, endometrial, and oesophageal adenocarcinoma. However, sedentary behaviour, independent of physical activity, predisposes one to the risk of endometrial, colon, and lung cancers owing to the effect on endogenous sex steroids and insulin sensitivity, metabolic hormones, and chronic inflammation [45,46].

3.9. Summary

Table 17 summarises the statistics study. The use of alcohol and tobacco is an important known risk factor for cancer; the participants in this survey drank and smoked but not in any significant way, as judged by the result of the chi-square test, which showed no significant associations between alcohol and tobacco use with sex ($p > 0.05$). We found a significant association between sex and overall cleanliness of the neighbourhoods of the immigrants, supported by the results of the chi-square test ($p = 0.045$). We found a significant association between sex and how easy it was to balance the work and personal life of the immigrants, as judged by the result of the chi-square test ($p = 0.044$). We noted differences in occupations between men and women. This was supported by the results of the Chi-square test, which showed significant results ($p < 0.001$). We noted significant associations between the country of birth and sex, as supported by the results of the chi-square test ($p = 0.038$). We identified an association between sex and current occupation status: men were less unemployed than women. The result was supported by the chi-square test, which showed $p = 0.011$. An association was found between age group and participants' physical health, as judged by the result of the chi-square test, which showed significant association ($p = 0.005$).

Table 17. Hypotheses demonstrated by crosstabulation.

Hypotheses	Statistical Test	Supported/ Not Supported	Statistical Significance
The use of alcohol and tobacco is an important risk factor for cancer	Chi-square test	Not supported	$p = 0.529$
Sex influences overall cleanliness of neighbourhoods of the immigrants	Chi-square test	Supported	$p = 0.045$
Sex influences how easy is to balance the work and personal life	Chi-square test	Supported	$p = 0.044$
Differences exist in occupation between men and women	Chi-square test	Supported	$p < 0.001$
Association exists between the country of born and sex	Chi-square test	Supported	$p = 0.038$
Men are less unemployed than women	Chi-square test	Supported	$p = 0.011$
Age group is associated with participants' physical health	Chi-square test	Supported	$p = 0.005$
Association exists between participants' engagement in physical activity and sex	Chi-square test	Supported	$p = 0.025$

4. Conclusions

The biostatistics were clear regarding accepting the association of socioeconomics/ lifestyle cancer risk factors with sex or age group among 388 immigrants living in the U.S. Several modifiable risk factors are attributed to the onset of many cancers, not limited to those discussed in this study. An agreement was found in the data, whereby distinct factors such as smoking, and alcohol consumption were not implicated in developing many cancer types. However, a low risk was found.

The limitations of this study are the low participation of the elderly aged 75 years or older, which could have been due to low proficiency with social networks and internet management in general and lower accessibility to different device types. Cross-sectional studies have limitations regarding the lack of follow-up work; the inability to draw causal inferences; presence of prevalence-incidence bias, also called Neyman bias; and the different results that may be obtained if another time frame is chosen [47].

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