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Cardiovascular Disease Risk Factors Among Latino Migrant and Seasonal Farmworkers

Sheila F. Castañeda[1], **René P. Rosenbaum**[2], **Jessica T. Holscher**[1], **Hala Madanat**[1], and **Gregory A. Talavera**[1]

[1]Institute for Behavioral and Community Health, Graduate School of Public Health, San Diego State University, San Diego, California, USA

[2]Department of Community, Agriculture, Recreation and Resource Studies, Michigan State University, East Lansing, Michigan, USA

Abstract

Migrant and seasonal (MS) farmworkers are an important component of the US economy. Their unique occupational health concerns have garnered research, but chronic disease research in this population is lacking. It is unclear whether health differences exist between migrant (those who migrate to and travel a distance from the home environment and thus live in temporary housing for the purpose of employment) and seasonal workers (those who work in the agricultural industry on a seasonal basis, whose long-term home environments are often near work locations and thus may be considered more "settled"), since most research presents MS farmworkers as a homogenous group. This study explored potential differences in cardiovascular disease risk factors, (i.e., diabetes, current smoking, obesity, hypertension, and hypercholesterolemia) by sex and MS status among a sample of 282 English- and Spanish- speaking Latino MS farmworkers in the Midwest using cross–sectional survey and clinical laboratory data. Results showed that in multivariate logistic regression analyses, migrant workers (odds ratio [OR] = 2.15) had a higher likelihood of being obese compared with seasonal workers ($P < .05$). MS farmworkers did not differ in likelihood of smoking, diabetes, hypertension, or hypercholesterolemia. In adjusted analyses, females were more likely to be obese (OR = 3.29) and have diabetes (OR = 4.74) compared with males ($P < .05$); and males were more likely to be current smokers (OR = 7.50) as compared with females ($P < .05$). This study provides insight into chronic health concerns among this predominantly Latino farmworker population and suggests that future prevention and intervention research may need to focus on sex differences rather than MS farmworker status.

Keywords

Cardiovascular disease risk factors; chronic disease; migrant farmworkers; seasonal farmworkers

Address correspondence to: Sheila F. Castañeda, Institute for Behavioral and Community Health, Graduate School of Public Health, San Diego State University, 9245 Sky Park Center, Suite 110, San Diego, CA 92123, USA (scastaneda@mail.sdsu.edu)..

ORCID

Sheila F. Castañeda http://orcid.org/0000-0002-1975-0544

INTRODUCTION

Within the past century, migrant and seasonal farmworkers (MSFWs) have come to represent an important component of the US economy, with an especially valuable role in the agricultural sector.[1] These workers, the majority of whom are Hispanic/Latino and travel from Mexico and Central America to the United States (US), or from state to state within the US, for work, have historically followed one of three migration streams: up the western coastal states, through the eastern seaboard from Florida, or up through Texas to the midwestern states,[2] although these migration streams have become less relevant,[3] as an increasing number of workers are setting in specific areas. The demographic makeup of the workers usually has included young, single males traveling individually or in groups to families with small children establishing roots in specific areas; recent data, however, suggest a demographic shift is taking place in which the general MSFW population is aging.[4] Despite the important role they play in the US economy, MSFWs continue to be an economically and socially disadvantaged group[5,6] due to unstable working and living conditions and various barriers to obtaining health and social services.[7,8] They must navigate the health care system with often limited access to care, language and cultural barriers, worries of job loss, and resource barriers, such as a lack of transportation or child care due to inconvenient work hours.[2,7,9,10] Historically, MSFWs have lower health care utilization rates compared with the general US population[11] because of these issues.

Definitions of migrant and seasonal farmworkers are frequently used interchangeably, and different federal programs often use varying definitions and qualifications to describe these workers. The definition of migrant workers that originates from the US Department of Labor includes individuals working in the agricultural sector who must travel a distance from the home environment and thus live in temporary housing for the purpose of employment. Seasonal workers are categorized as individuals working in the agricultural industry on a seasonal basis,[12] whose long-term home environments are often near work locations and thus may be considered more “settled.” Although federal guidelines draw a distinction between the definitions of migrant and seasonal workers, very rarely has the separation been applied for research purposes, as the two groups are often classified as a homogenous group. This may present several potential problems. For instance, the ability to observe potential differences between the two groups—both in regards to specific health behaviors and subsequent health outcomes—is removed when migrant and seasonal workers are combined. Another concern lies in the apparent shifting demographics among MSFWs. Whereas historically migrant workers have been the primary focus of federal funding and research efforts due to their especially vulnerable position, the most recent report from the National Agricultural Workers Study (NAWS; 2005) suggests that seasonal workers now constitute the majority of farmworkers in the US.[13] Therefore, the prospect of better understanding potential differences between the two groups is desirable—and needed—to inform research.

Because of the paucity of previous research, it is unclear whether these two groups have differences in lifestyle behaviors that may affect health status. However, it may be possible that the more unstable transient nature of the migrant lifestyle and the associated stress needed to navigate new and often unfamiliar areas means migrant workers may have poorer health than seasonal workers, as seen in high levels of depression and anxiety reported

among a previous sample of migrant workers in the Midwest.[14,15] Conversely, it may be possible that acculturation and the subsequent deleterious effects of the assimilation process[16–19] may lead to more negative health outcomes in seasonal workers, since they may adapt to and follow the culture of their long-term residence in the US. This uncertainty presents an opportunity to explore the health of MSFWs as a whole while still examining possible differences between the two groups to inform future research directions. Likewise, this knowledge has practical implications for health professionals, who may be more equipped to tailor intervention efforts based on the potential unique needs related to migrancy status, thus ensuring proper and effective care can be provided to both groups.

Farm and agricultural work is consistently ranked among the most dangerous occupations in the US, with an estimated 243 injuries reported per day.[20] There are a variety of health issues resulting from agricultural labor that can affect the MSFW population, such as exposure to pesticides and other pollutants, causing various respiratory, ocular, and dermal health issues,[21,22] and many have chronic musculoskeletal pain and injuries from prolonged bending and heavy lifting.[23,24] As a result, occupational hazards remain the primary research focus of the farmworker population, with little to no attention given to chronic disease prevention and management. However, recent research efforts have pointed to the increasing concerns of chronic disease in virtually all ethnic and racial populations in the US,[25] including the MSFW population.[1,26]

At the forefront of this concern is cardiovascular disease (CVD), one of the leading causes of morbidity and mortality in the US[27] and throughout much of the world.[28,29] Primary risks and comorbidities of CVD, including type 2 diabetes, hypertension, cigarette smoking, obesity, and hypercholesterolemia, have been shown to have especially high rates in racially and ethnically diverse populations, including Hispanic/Latinos,[30,31] of which the vast majority of farmworkers identify as.[13] Recent data from the Hispanic Community Health Study/Study of Latinos showed that prevalence of diabetes among Hispanic/Latino males and females in the US was 17%, nearly double the national average; prevalence of hypercholestermia among males and females respectively was 52% and 37%, whereas the prevalence of hypertension was 25% and 24%; 37% and 43% of males and females, respectively, were obese; and 26% of males and 15% of females were smokers.[32] Despite this increasing occurrence of chronic illness in the Hispanic/Latino population, very little research is available on chronic illness in the primarily Hispanic/Latino MSFW population. A recent study found that among a sample of 298 farmworkers in the southwest US, 21.5% and 16.1% reported having received a diagnosis of hypertension and diabetes, respectively.[33] Although providing a foundation for chronic disease concerns among the MSFW population, this study relied on self-reported data and did not stratify by migrancy status. To bridge this research gap, this current study was designed to explore CVD risk profiles in the MSFW population in the Midwest and to determine whether there are potential CVD risk differences by migrant or seasonal status.

METHODS

Participants and Setting

The data were collected as part of the Oceana Farmworker Health Survey (OFHS), a cross-sectional study funded by the Centers for Medicare and Medicaid Services from 2002 to 2004 in Oceana County, Michigan.[34] Michigan has become a prime destination for MSFWs due to a variety of year-around agricultural opportunities within the state,[6] including asparagus, peaches, and cherry crop production and canning during the summer months and apple and Christmas tree harvesting during the fall months. According to the United States Department of Agriculture's 2007 Census of Agriculture, approximately 1,600 farms employ MSFWs throughout Michigan,[35] additional estimates place the state as the fourth largest source of employment for the MSFW population in the US.[36] Oceana County is estimated to house nearly 5,000 farmworkers annually, making it the second largest source of MSFWs in the state of Michigan.[37] The general aim of this funded project was to understand the health needs of the MSFW population in the county—both through the use of self-report and clinical laboratory data—to help develop a snapshot of the population throughout the state and to inform national research on MSFWs. This study was approved by San Diego State University and Michigan State University institutional review boards (IRBs).

Local migrant and seasonal workers were recruited using various strategies, including postcard mailings to individuals living "off-camp" and a selection of households chosen at random within each of the state-licensed migrant camps in the county. Individuals were eligible to participate if they were at least 18 years old, self-identified as a migrant or seasonal farmworker, and resided in either a licensed migrant camp or a dwelling outside a labor camp. This latter category was intended to capture both migrant workers unable to reside in a licensed camp and seasonal workers who had previously settled in the area and thus lived in other housing options. Final recruitment totaled 300 farmworkers (180 migrant and 120 seasonal; 183 females and 117 males).[34] Detailed recruitment information is published elsewhere.[5]

The participants were surveyed in English or Spanish, depending on individual preference; all surveys were verbally administered by trained interviewers to address the variability in literacy levels of the participants. As part of the recruitment process, interviewers, most of whom were former farmworkers themselves, were trained to define farmworker status for potential participants. To align with current Department of Labor definitions of farmworker status, seasonal status was designated for those who resided locally year-round, whereas migrant status was assigned to those individuals who were considered mobile and not long-term residents of the area. Following successful completion of the structured interview, a clinical examination at the local Migrant Health Center was scheduled. Clinical laboratory data, including anthropometric information and a full blood panel and screening, were collected at each examination appointment. For their time, each participant received a $20.00 cash incentive and a $10.00 gas card. Analyses for this study included participants with complete survey (n = 282) and laboratory data (n = 244).

Measures

All survey measures were based on the Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System (BRFSS) survey[38] and the California Agricultural Workers Health Survey (CAWHS).[39] For the purposes of this study, specific questions from each survey were chosen with input from local key informants who then assisted in pilot testing the final questionnaire in the same county where data collection commenced. Self-reported health measures assessing access to health, dental, and vision care; health care utilization; migrancy status; health risks; and psychological well-being were collected in person, usually in the participant's residence.

Sociodemographics

Final sociodemographic variables used for this analysis included age, sex, self-reported ethnicity, educational attainment (<high school versus ≥high school), income level (< $20,000 versus ≥$20,000), insurance status ("Do you currently have some form of health insurance?"), and migrancy status. Additional analyses included perceived health status (a continuous item that ranges from 1 "poor" to 4 "excellent" health status); mental health/life satisfaction ("How would you describe your level of satisfaction with life in general at the present time?"), which was treated as a continuous item that ranges from 1 "very unsatisfied" to 4 "very satisfied"; and a 4-item composite acculturation variable based on language preference over a variety of settings, including preferred language to use in general, at work, at home, and for reading (possible choices included Spanish, Spanish and English equally, English). The composite variable, a derivative of Cuellar and colleagues' Acculturation Rating Scale for Mexican Americans (ARMSA)-II,[40] showed good internal reliability (α = .82), and higher scores indicate greater English language–based acculturation.

Cardiovascular Disease Risk Factors

The dependent variables used for this analysis included five cardiovascular disease risk factors that were measured as part of the fasting blood panel and clinical examination. Definitions for cutoff scores stem from the Centers for Disease Control and Prevention and include self-reported current smoking status (yes versus no); obesity (body mass index [BMI] ≥30); and self-reported diabetes diagnosis, hypertension (blood pressure ≥140/90 or on medications), and hypercholesterolemia (total cholesterol ≥240 or on medications).

Statistical Analyses

All data analyses were completed with SPSS/PASW 18 (SPSS, Chicago, IL). A series of adjusted and unadjusted analyses were conducted to examine the association between sex, MS status, and sociodemographics and CVD risks. Associations between CVD risk factors (i.e., hypercholesterolemia, obesity, current cigarette smoking, diabetes, and hypertension) and sociodemographics were assessed using multivariate logistic regression models with CVD risk factors (model 1: obesity, model 2: current smoking, model 3: hypercholesterolemia, model 4: diabetes, and model 5: hypertension) as dependent variables, controlling for sociodemographic covariates. In the five regression models, all covariates were entered simultaneously. Effect modification by sex was assessed by including the sex ×

MS status interaction terms on each of the CVD risk outcome variables adjusting for covariates. There were no significant sex × MS status interactions. A $P < .05$ statistical significance criterion was used for all relationships (see Table 2).

RESULTS

Sample Characteristics

Sociodemographic information is presented in Table 1. A majority of the MSFWs interviewed were female ($n = 163$, 58%), including 54.6% of migrant workers and 63.6% of seasonal workers. The mean age of migrant and seasonal workers was 35.0 ($SD = 11.6$) and 34.2 ($SD = 10.6$), respectively. Over half ($n = 162$, 57.4%) of participants self-identified as Mexican, 35.5% ($n = 100$) as Hispanic, and 6.4% ($n = 18$) as Mexican American. Around two thirds (77.5%) had less than a high school education. The majority of respondents (82.7%) had no form of health insurance. Although 82.7% of the same earned an annual household income of <$20,000, migrant workers (87.3%) were significantly more likely to earn less than $20,000 a year than seasonal workers (75.2%) ($P < .01$) and males (88%) were significantly more likely to earn less than $20,000 a year than females (78.8%) ($P < .01$). With a potential range of 0–2, the average acculturation composite score among the sample was .50 ($SD = .39$). The sample reported a moderate perceived health status level ($M = 2.90$, $SD = .63$) and a high reported life satisfaction ($M = 3.57$, $SD = .65$). Around one fifth (12.7%) of the sample had hypertension and 8.5% had hypercholesterolemia. Over one third (39.5%) were characterized as obese, with migrant workers (45.2%) significantly more likely than seasonal workers (31.6%) and females (47.4%) significantly more likely than males (28.3%) to be characterized as obese ($P < .05$). Males (34.3%) were significantly more likely than females (7.8%) to report smoking ($P < .01$). Finally, females (12%) were significantly more likely than males (4.3%) to report a having diabetes ($P < .05$) (Table 1).

Cardiovascular Disease Risks

After adjusting for covariates, factors associated with a decreased likelihood of being obese were being male (odds ratio [OR] = .304) and being a seasonal worker (OR = .465) ($P < .01$). After adjusting for covariates, factors associated with in increased risk of current smoking were being male (OR = 7.498) and being more acculturated (OR = 3.270); being insured was associated with a decreased likelihood of smoking (OR = .325) ($P < .01$). After adjusting for other variables, a greater age (OR = 1.088) was associated with a greater likelihood of having hypercholesterolemia ($P < .01$). After adjusting for other factors, a greater age (OR = 1.104) was associated with a greater likelihood of having diabetes; males (OR = .211) and having a lower health status (OR = .282) were associated with a decreased risk of having diabetes ($P < .01$). Finally, a greater age was associated with an increased risk of having hypertension ($P < .01$) (Table 2).

DISCUSSION

Migrant and seasonal farmworkers remain a vulnerable and disadvantaged group despite their invaluable role to the US economy. Historically these workers have been combined into one homogenous group for research and policy purposes. Our study is unique in its

separation of migrant and seasonal farmworkers for the purpose of determining potential health differences, especially as they pertain to chronic disease. As far back at the early 1990s, it has been acknowledged that far too little information exists on chronic illness in the MSFW population.[41] Despite this early call for further investigation, there is a paucity of research on commonly occurring chronic diseases that have been shown to have high prevalence in virtually all racial and ethnic groups in the US, including cardiovascular risk factors such as diabetes, hypertension, obesity, hypercholesterolemia, and smoking.

Our results indicate that in unadjusted and adjusted analyses, migrant workers had a higher likelihood of being obese compared with seasonal workers ($P < .05$). The majority of our sample was female (58%), which provided a unique opportunity to explore the health of female farmworkers, especially given that male farmworkers have been the subject of research efforts historically. In addition, in unadjusted and adjusted analyses, females were more likely to be obesity and have diabetes compared with males ($P < .05$), and males were more likely to be current smokers as compared with females ($P < .05$). Finally, a greater age was a consistent factor associated with hypercholesterolemia, diabetes, and hypertension in adjusted analyses ($P < .05$) (see Tables 1 and 2).

Previous research has pointed to psychological stress and subsequent deleterious physical health in Hispanic/Latino-origin adults who are more acculturated.[42] This decreased health seems to contradict the well-documented notion of the Hispanic Paradox, which finds Hispanic/Latino immigrants having a more positive overall health status than non-Hispanic white Americans despite lower socioeconomic status and fewer health-promoting resources available.[43] However, support of the paradox as it pertains to cardiovascular health in Hispanic/Latinos has been met with mixed results.[30] In the current study, only current smoking was associated with acculturation in adjusted analyses ($P < .05$). It is possible that the absence of measures targeting nativity or generational status, both of which are often used as proxies for acculturation,[44] could be inaccurately portraying acculturation levels of the participants across either migrancy group. Our proxy for acculturation in this particular population, therefore, may not be appropriate. Future research should utilize a multidimensional approach when studying effects of acculturation on immigrant populations to minimize this issue, and care should be taken when classifying migrant and seasonal workers.

To our knowledge, this study is one of few to use both clinical laboratory data and a comprehensive, self-reported health history in the MSFW population. A general lack of epidemiological data in the past has hindered the formation of definitive evidence for health differences within the MSFW population. Because of the inherent element of mobility within this population, past data collection issues have been addressed, as pointed out in reviews of the literature.[45] On one hand, relying on self-reported data from the farmworkers has its advantages, especially in understanding the role of cultural values to the population[46]; however, the lack of epidemiological data, like that found through a general physical examination administered at a health clinic, to support the self-reported behaviors of the MSFW population makes it more difficult to establish the need for increased funding and appropriate intervention efforts at local, state, and national levels.[47] When possible,

future studies should utilize self-reported survey measures and clinical data within the same research framework to address this issue.

Another aspect of the current study that potentially sets it apart from previous research is the availability of health care services in and around the study area. With the creation of the 1962 Migrant Health Act, funding for the health needs of migrant and seasonal workers became a priority for both economic and social reasons, with grant money given for the establishment of Migrant Health Centers (MHCs) in key agriculturally laden areas of the US.[48] With funding from the federal government, MHCs are available for individuals employed as either migrant or seasonal workers within the past 2 years and are estimated to serve over 850,000 MSFWs annually.[49] In this specific region of Michigan, a full-service bilingual clinic is available for the farmworkers on a year-around basis. Due to the availability of health services for the majority of workers in our study, it is likely that both migrant and seasonal workers have health care utilization practices significantly different than MSFWs living and working in areas not represented by the presence of a MHC. This discrepancy could skew results of either subgroup of workers.

Despite the new chronic disease information gained, our study is not without limitations. The acculturative experiences of the MSFWs in our sample may vary considerably compared with those MSFWs in other regions of the US, especially in agriculturally dense locales such as California and Florida. In addition, the convenient sampling strategy utilized and the fact that data are limited to individuals who were willing to complete the survey and clinical examination may introduce biases that may impact the generalizability of this study. Thus, the cross-sectional nature of the data collected makes it difficult to generalize results to the migrant and seasonal work force in the US as a whole. However, this exploratory study provides a foundation for further examination of health differences among these two groups. Another important potential barrier is the seasonal nature of farm and agricultural labor. As the majority of crop and production activities taking place in Michigan can be dependent on external factors such as weather patterns, the number of agricultural workers of either group employed at any given time will vary.

In sum, our study found migrant and seasonal farmworkers in the Midwest exhibit no differences in smoking, diabetes, hypertension, and hypercholesterolemia, but did differ significantly in the likelihood of being obese. Although minimal research currently exists on potential differences among these groups, future research should consider additional possible dissimilarities among migrant and seasonal workers when developing intervention and outreach efforts for this population. Given historically low health care utilization rates among MSFWs and many barriers to proper care, chronic disease burden among this group may be potentially high; despite this, research on chronic disease concerns in this population is sparse. Future studies on migrant and seasonal workers should consider tailored chronic disease research and intervention strategies.

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TABLE 1

Distribution of Respondents According to Select Demographic Variables by Migrancy Status and Sex (*N* = 282)

Variable	Migrant FW	Seasonal FW	Male	Female	Total
Age					
$\bar{x}$ (*SD*)	35.0 (11.6)	34.2 (10.6)	34.4 (11.1)	35.0 (11.29)	34.69 (11.25)
(*n*)	(171)	(107)	(116)	(161)	(266)
Sex					
n (%) Male	79 (45.4%)	39 (36.4%)	116 (100.0%)	0 (0.0%)	118 (42%)
n (%) Female	95 (54.6%)	68 (63.6%)	0 (0.0%)	161 (100.0%)	163 (58%)
Ethnicity					
n (%) Mexican	91 (52.0%)	71 (66.4%)#	71 (60.2%)	91 (55.8%)	162 (57.4%)
n (%) Mexican American	14 (8.0%)	4 (3.7%)	10 (8.5%)	8 (4.9%)	18 (6.4%)
n (%) Hispanic/Latino	69 (39.4%)	31 (29.0%)	36 (30.5%)	63 (38.7%)	100 (35.5%)
n (%) Other	1 (0.6%)	1 (0.9%)	1 (.8%)	1 (.6%)	2 (0.7%)
Migrancy status					
n (%) Migrant	175 (100.0%)	0 (0.0%)	79 (66.9%)	95 (58.3%)	175 (62.1%)
n (%) Seasonal	0 (0.0%)	107 (100.0%)	39 (33.1%)	68 (41.7%)	107 (37.9%)
Education					
n (%) <high school	135 (77.1%)	84 (78.5%)	98 (83.1%)	120 (73.9%)#	219 (77.7%)
n (%) ≥high school	40 (22.9%)	23 (21.5%)	20 (16.9%)	43 (26.4%)	63 (22.3%)
Health insurance					
n (%) Yes	68 (39.5%)	46 (43.0%)	44 (37.9%)	69 (42.6%)	114 (40.9%)
Income (annual)					
n (%) <$20,000	151 (87.3%)	79 (75.2%)*	103 (88.0%)	126 (78.8%)*	230 (82.7%)
n (%) ≥ $20,000	22 (12.7%)	26 (24.8%)	14 (12.0%)	34 (41.3%)	48 (17.3%)
Acculturation[a]					
$\bar{x}$ (*SD*)	.43 (.53)	.32 (.43)#	.26 (.44)	.40 (.54)	.50 (.39)
(*n*)	(165)	(101)	(111)	(154)	(266)
Perceived health status[b]					
$\bar{x}$ (*SD*)	2.86 (.65)	2.95 (.58)	2.96 (.59)	2.85 (.65)	2.90 (.63)
(*n*)	(175)	(103)	(114)	(161)	(276)
Life satisfaction[c]					
$\bar{x}$ (*SD*)	3.51 (.70)	3.67 (.53)	3.63 (.60)	3.52 (.68)	3.57 (.65)
(*n*)	(174)	(106)	(117)	(162)	(280)
Hypertension[d]					
n (%) Yes	22 (15.8%)	8 (8.2%)#	10 (10.0%)	20 (14.7%)	30 (12.7%)
Obesity[d]					
n (%) Yes	61 (45.2%)	31 (31.6%)**	28 (28.3%)	63 (47.4%)*	92 (39.5%)

Variable	Migrant FW	Seasonal FW	Male	Female	Total
Hypercholesterolemia[d]					
n (%) Yes	14 (10.3%)	6 (6.1%)	10 (10.0%)	10 (7.5%)	20 (8.5%)
Current smoking[d]					
n (%) Yes	28 (17.3%)	19 (22.4%)	36 (34.3%)	11 (7.8%)*	47 (19.0%)
Self-reported diabetes[d]					
n (%) Yes	12 (7.0%)	12 (11.5%)	5 (4.3%)	19 (12.0%)**	24 (8.7%)

Note. Between-group differences (Migrant versus Seasonal and Males versus Females) was assessed using *t* tests and chi-square tests.

[#]Approaching significance at the .05 level (.05 > *P* < .10);

[*]*P* ≤ .01;

[**]*P* ≤ .05.

[a]Ranging from 0 to 2, with greater scores indicating greater English language-based acculturation.

[b]Ranges from 1 to 4, with greater scores indicating better perceived health status.

[c]Ranges from 1 to 4, with greater scores indicating greater life satisfaction.

[d]Hypercholesterolemia was defined as having a total cholesterol of ≥240 or currently on cholesterol-lowering drugs. Obesity was defined as having a body mass index (BMI) of ≥30. Diabetes was ascertained via having a previous diagnosis of diabetes. Hypertension was defined as having a blood pressure of ≥140/90 or currently taking medication. Current smoking was ascertained via self-report.

TABLE 2

Sociodemographics, Health Status, and CVD Risk Factors

Characteristic	Model 1 Obesity OR (CI)	Model 2 Current smoking OR (CI)	Model 3 Hypercholesterolemia OR (CI)	Model 4 a Diabetes OR (CI)	Model 5 Hypertension OR (CI)
Age	1.019 (.990, 1.048)	1.018 (.985, 1.053)	1.088 (1.038, 1.140)*	1.104 (1.055, 1.155)*	1.085 (1.041, 1.131)*
Sex					
Males	.304 (.157, .585)*	7.498 (3.108, 18.626)*	2.117 (.715, 6.270)	.211 (.055, .809)*	.454 (.158, 1.304)
Females[a]	1.00	1.00	1.00	1.00	1.00
FW status					
Seasonal	.465 (.243, .889)*	1.382 (.588, 3.249)	.633 (.207, 1.939)	2.552 (.885, 7.359)#	.459 (.155, 1.361)
Migrant[a]	1.00	1.00	1.00	1.00	.160
Education					
≥High school	.641 (.299, 1.375)	.597 (.211, 1.692)	1.021 (.267, 3.901)	1.193 (.346, 4.109)	.573 (.146, 2.250)
<High school[a]	1.00	1.00	1.00	1.00	1.00
Annual household income					
≥20,000	1.264 (.556, 2.870)	.589 (.162, 2.127)	2.064 (.591, 7.209)	1.027 (.294, 3.590)	2.069 (.632, 6.778)
<20,000[a]	1.00	1.00	1.00	1.00	1.00
Insurance					
Yes	1.685 (.906, 3.135)#	.325 (.130, .815)*	2.476 (.779, 7.868)	1.753 (.596, 5.151)	392 (.128, 1.196)#
No[a]	1.00	1.00	1.00	1.00	1.00
Acculturation	1.143 (.581, 2.248)	3.270 (1.463, 7.305)*	1.960 (.727, 5.281)	2.519 (.966, 6.568)	1.662 (.633, 4.364)
Life satisfaction	.759 (.426, 1.354)	.749 (.374, 1.501)	3.180 (.772, 13.103)#	1.736 (.621, 4.857)	.448 (1.94, 1.032)#
Health status	1.042 (.597, 1.818)	.536 (.272, 1.057)#	1.223 (.448, 3.340)	.282 (.108, .738)*	1.189 (.512, 2.759)
Nagelkerge R^2	.165	.305	.229	.341	.286

Note. FW = farmworker; OR = odds ratio; CI = confidence interval.

Model 1: $N = 205$; Model 2: $N = 217$; Model 3: $N = 207$; Model 4: $N = 244$; Model 5: $N = 209$.

** $P \leq .05$.

Approaching significance at the .05 level ($.05 > P < .10$);

* $P \leq .01$;

[a] Reference category.