



Socioeconomic and lifestyle factors associated with chronic conditions among older adults in Ecuador

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ABSTRACT

Objective. To explore socioeconomic and lifestyle factors associated with the prevalence of self-reported chronic conditions among older adults in Ecuador.

Methods. The sample was drawn from the nationally representative observational cross-sectional data of the Health, Well-Being, and Aging survey conducted in Ecuador in 2009. Logistic regression models were used to explore the association between socioeconomic and lifestyle factors and the prevalence of selected chronic conditions.

Results. Older women in Ecuador are more likely than men to have been previously diagnosed with diabetes, heart disease, high blood pressure, and arthritis. Results suggest no difference by education or health insurance on number and type of self-reported chronic conditions. However, older adults who resided in the coastal area were more likely to report having diabetes, heart disease, high blood pressure, and stroke than those in the highlands. Living in rural areas was associated with lower odds of having diabetes and high blood pressure. Compared to white older adults, indigenous older adults were less likely to report having high blood pressure, but more likely to report having arthritis.

Conclusions. Older age in Ecuador is marked by low educational levels and poverty. Female gender and living in coastal areas were associated with higher risks of self-reported chronic conditions.

Key words

Aging; health of the elderly; chronic disease; socioeconomic factors; health surveys; Ecuador.

Ecuador is undergoing rapid demographic, epidemiological, and nutrition transitions. The proportion of the population 60 years of age and over increased from 6.3% in 1990 to 8.7% in 2010 (1). Life expectancy at birth has increased from 73.7 years of age in 2001 to 75.4 in 2010

(2). Non-communicable diseases are gaining ground, coexisting with the formerly more prevalent infectious diseases (3). Today, diabetes mellitus, stroke, and hypertension are the main causes of death among women in Ecuador, whereas traffic accidents, homicide, and stroke are the top causes among men (4). These transitions have played out against the backdrop of an aging population. In Ecuador, the percentage of older adults is expected to increase from 9% in 2010 to

13% by 2025, and then double to 26% by 2060 (5). Furthermore, chronic degenerative diseases, including osteoporosis, diabetes, and heart disease are the most frequently reported diseases among the country's older adults today (6).

On the nutrition front in Ecuador, widespread problems of infant and child nutrition, health, and survival have receded concomitant to the rise in obesity and related chronic conditions, most notably hypertension and diabetes (7). In

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Ecuador, overweight and obesity affect about 30% of children and adolescents (5–19 years of age) and 70% of middle-aged adults (30–59 years) (8). It is well established that overweight and obesity increase the risk of developing chronic diseases and disabilities that manifest markedly at older ages (9).

Access to health care has improved in Ecuador, particularly over the past decade (4); however, a recent study reported that among 35 developing countries, Ecuador had one of the highest risks (26%) of catastrophic medical spending, defined as medical expenses that equal 40% or more of an individual's ability to pay (10).

These transformations did not occur evenly across Ecuadorian society (11). In fact, inequalities are particularly severe among older adults. Freire and colleagues (6) estimated that in 2010, approximately 23% of older adults in Ecuador were living in good social conditions, 54% in regular or bad social conditions, and 23% in conditions of indigence (6).

Few studies have examined the health and well-being of older adults in Ecuador (12, 13). Since 2001, a large body of literature (14) based on survey and panel studies has evaluated the health status of older adults in seven cities of Latin America and the Caribbean (LAC). However, prior to 2009, Ecuador did not have available, population-level data on the health of older adults, and so comparisons with other LAC countries could not be drawn. The *Salud, Bienestar y Envejecimiento* survey (Health, Well-Being, and Aging survey; SABE) was carried out at the national level in Ecuador in 2009 and 2010 (SABE Ecuador I and II) (6). Based on this data, two studies examined the prevalence of falls and hip fractures (15, 16), and three studies offered general descriptive analyses of the SABE study's findings (3, 6, 17).

Given the impact of chronic diseases among the population of Ecuador, the present study explores socioeconomic and lifestyle factors associated with the prevalence of self-reported chronic conditions among the country's older adults.

MATERIALS AND METHODS

Sample size and data

This study used observational cross-sectional data from the SABE Ecuador I study for June–August 2009 provided by

respondents 60 years of age and over in the highlands and coastal areas of Ecuador (excluding the Amazon and Galápagos areas) (6).

The interview guide and anthropometric measurements questionnaire used in this study were revised versions of previous SABE studies for Latin America and the Caribbean, and were validated through a pilot test (6). The sample was obtained using a probability and population proportionate sample of households with at least one adult 60 years of age or older residing in urban or rural areas (6). A total of 5 100 households in the highlands and 5 268 in the coastal area were identified in sectors randomly selected based on the 2001 national census cartography. Information was collected for 5 235 subjects, with a 97% response rate (6).

From the original sample of 5 235 subjects, data for selected variables was missing in 224 cases. In further analysis (not shown), no age, sex, marital status, exercise, or smoking differences were found between those with complete and those with missing data. When compared to those with missing data, those with complete data on selected variables were more likely to be overweight or obese, to live in either urban or coastal areas, to be more educated (i.e., primary school or higher), to have health insurance, to not receive the monthly income subsidy, and to be white ($P < 0.05$). Those with complete data were less likely to have been previously diagnosed with heart disease than those with missing data ($P < 0.05$). The final sample is composed by 5 011 individuals with complete data on selected variables.

Prior to data collection, participants provided informed consent to use their data for research purposes (6). The Ministry of Social and Economic Inclusion of Ecuador provided the funding. The Institutional Review Board of the *Universidad San Francisco de Quito* (Quito, Ecuador) approved the study (6). The SABE dataset is publicly available; the data does not contain subject identifiers, such as names.

Data analysis

Logistic regressions were used to assess socioeconomic and lifestyle differences in the prevalence of self-reported chronic diseases. Data management and analyses were performed using Stata®

13.1 (StataCorp LP, College Station, Texas, United States). Survey design was accounted for when reporting descriptive statistics and regression results.

Measures

Table 1 provides a description of dependent, independent, and control variables. Dependent variables consisted of five self-reported chronic conditions surveyed in the SABE Ecuador I study: diabetes, heart disease, high blood pressure, stroke, and arthritis. Each chronic condition was dichotomized: a score of 0 indicated the respondent *had never* been told by a nurse or a physician that he or she had the condition; a score of 1 indicated the respondent had been told of the condition.

Independent variables were categorized as demographic characteristics or socioeconomic conditions. Demographic characteristics were age, gender, marital status, and ethnicity. Socioeconomic conditions were assessed through respondents' education level, residence in rural or urban areas, residence in coastal or highland areas, and health insurance coverage, as well as whether respondents received a government subsidy through the Human Development Bonus (HDB) program, a monthly income benefit granted to older adults in the first and second poorest quintiles.

The control variables were physical exercise, smoking, and body mass index (BMI).

RESULTS

Table 2 shows the descriptive statistics for the final sample composed of 5 011 older adults. Among selected chronic conditions, high blood pressure was the most frequently reported (46%), followed by arthritis (32.2%), diabetes (13.4%), heart disease (13.1%), and stroke (6.4%).

Table 3 presents the results of five regression models that assess the associations between sociodemographic indicators and self-reported chronic conditions. Older age was associated with higher odds of being diagnosed with heart disease. Women were more likely than men to have been previously diagnosed with diabetes (Odds ratio [OR] = 1.91), heart disease (OR = 1.79), high blood pressure (OR = 1.79), and arthritis (OR = 2.92), but not stroke. White older adults were less

TABLE 1. Classification of variables in a study of socioeconomic and lifestyle factors associated with chronic conditions among older adults in Ecuador, 2009

Variable	Description
Independent variables	
Demographics	
Age	Age aggregated by six categories: 60–64 years of age (reference category), 65–69, 70–74, 75–79, 80–102, and undeclared.
Gender	Male = 0; Female = 1
Marital status	Married = 0; Unmarried = 1
Ethnicity	
Indigenous	Defined as native of the country.
Afro-descendant	Defined as having black or brown skin, presenting Afro-Ecuadorian traits, or having black ancestry.
Mestizo, other	Defined as mixed or born from parents of different races, or belonging to other ethnic groups.
White	Defined as having European or Caucasian ancestry.
Not reported	
Socioeconomic conditions	
Education and literacy	
Illiterate	Illiterate or less than primary education.
Primary	Completed primary school (6 th grade) (reference category).
Secondary or higher	Completed secondary school (12 th grade) or higher levels of formal education.
Residential area	Urban area (2 000+ residents) = 0; Rural area = 1
Geographic area	Highlands = 0; Coastal = 1
Health insurance coverage	Insured = 0; Uninsured = 1
Income subsidy	Does not receive subsidy = 0; Receives subsidy = 1 A government-funded, monthly income supplement for older adults in the first and second poorest quintiles.
Control variables	
Physical exercise	
	No = 0; Yes = 1 Dichotomized according to answers to question, “Did you exercise regularly or perform rigorous physical activity such as sports, jogging, dancing, or heavy work at least three times a week over the past year?”
Smoking	
Body Mass Index (BMI)	Smoking status aggregated into three groups: Currently smokes, previously smoked, and never smoked (reference category). kg/m ² (weight in kilograms divided by height in meters squared)
Underweight	BMI < 18.5
Normal weight	BMI = 18.5 – 24.9 (reference category)
Overweight	BMI = 25 – 29.9
Obese	BMI ≥ 30
Missing	

Source: Data from the Instituto Ecuatoriano de Estadística y Censos – Encuesta de Salud Bienestar y Envejecimiento (SABE), 2009.

likely than their indigenous counterparts to report being previously diagnosed with high blood pressure (OR = 0.54), but more likely to report having arthritis (OR = 1.76). There were no significant statistical differences by education or health insurance coverage. However, participants who received the government income subsidy were 45% more likely to have been diagnosed with high blood pressure. Participants living in rural areas were less likely to have been diagnosed with diabetes (OR = 0.63) and high blood pressure (OR = 0.78) than their counterparts living in urban areas. Participants who resided in the coastal area were more likely to report being previously diagnosed with diabetes (OR = 1.54), heart disease (OR = 1.49), high blood pressure (OR = 1.32), and stroke (OR = 1.50) than those who resided in the highlands.

Compared to older adults of normal weight, those who were overweight or obese were more likely to report having diabetes, heart disease, and high blood

pressure. Obese older adults were also more likely to report having arthritis compared to those of normal weight. Respondents who reported themselves as former smokers were more likely to have been previously diagnosed with diabetes, heart disease, and high blood pressure than those who had never smoked. However, older adults who identified as current smokers were less likely to have been previously diagnosed with heart disease, high blood pressure, stroke, or arthritis. Finally, older adults who had not exercised regularly over the past year were more than twice as likely to have been diagnosed with stroke than those who had exercised.

DISCUSSION

This study of socioeconomic and lifestyle factors associated prevalence of self-reported chronic conditions among older adults in Ecuador found that almost half had been previously diagnosed with high blood pressure. This

proportion is within the range found among older adults in several countries in Latin America (18). Also, approximately 1 of 3 older Ecuadorians reported having arthritis, which also falls within the range found in LAC, e.g., 23.8% in Mexico City, Mexico, and 55.6% in Havana, Cuba (19, 20). Diabetes was self-reported by about 13% of older adults in Ecuador, similar to other LAC countries with lower self-reported prevalence (21). In terms of heart disease, approximately 13% of older Ecuadorians self-reported having this condition. A previous study based on SABE data in other countries found an overall 21% prevalence of self-reported heart disease, ranging from 10% in Mexico City to 34% in Santiago, Chile (22).

The current study shows that low education levels are widespread among older adults in Ecuador—30% are illiterate and another 50% have only primary education. Nonetheless, in multivariate analyses, results did not indicate educational differences in chronic disease

TABLE 2. Demographic, socioeconomic, and health conditions of older respondents (n = 5 011) to the survey, Salud Bienestar y Envejecimiento (SABE) Ecuador I, 2009

Variable	%
Independent variables	
Demographics	
Age (in years)	
60–64	23.9
65–69	20.8
70–74	17.1
75–79	13.9
80–102	16.2
Undeclared	8.0
Gender	
Male	46.1
Female	53.9
Marital status	
Married	59.2
Unmarried	41.0
Ethnicity	
Indigenous	8.8
Afro-descendant	6.5
Mestizo, other	66.1
White	14.3
Not reported	4.3
Socioeconomic conditions	
Education and literacy	
Illiterate	29.8
Primary	50.2
Secondary and over	20.0
Residential area	
Urban	67.7
Rural	32.3
Geographic area	
Highlands	49.5
Coastal	50.5
Health insurance coverage	
Insured	32.5
Uninsured	67.5
Income subsidy	
Does not receive subsidy	77.7
Receives income subsidy	22.3
Control variables	
Physical exercise	
Does not exercise	68.8
Exercises	31.2
Smoking	
Currently smokes	9.9
Previously smoked	30.9
Never smoked	59.2
Body Mass Index	
Underweight	2.5
Normal weight	35.6
Overweight	38.2
Obese	18.7
Missing	5.0
Dependent variables	
Diabetes	13.4
Heart disease	13.1
Stroke	6.4
Arthritis	32.2
High blood pressure	46.0

Note: Weighted percentages were calculated by the authors based on data from the Instituto Ecuatoriano de Estadística y Censos – SABE, 2009.

self-reporting. In fact, several studies in Latin America obtained mixed results in terms of education as a potential predictor of health status differences in older age (23). These results may be due in part

to the mixed socioeconomic gradient in health risk behaviors, such as smoking, lack of exercise, or high calorie diets. For instance, in 2009, Bixby and Dow (24) found no association between diabetes and high cholesterol and socioeconomic factors (place of residence, education, and household wealth), while finding that obesity was more prevalent among elderly Costa Ricans of high socioeconomic status (24). Future studies should consider other markers of socioeconomic status, such as earnings/income and occupation, to explain health disparities among older adults in Ecuador and Latin America.

Study results show that only one-third of the older adult population of Ecuador has health insurance coverage based on social security benefits. Traditionally, social security coverage has been low and restricted to middle- and upper-class individuals that participated in the formal labor market, to retired military and police officers, and to farmers and fishermen in rural areas, and to individuals who can afford private insurance carriers (25). However, the 2008 Constitution of Ecuador renewed a commitment to universal health care access and stated that insurance should be mandatory. As a result, enrollments in health insurance increased from 22.9% in 2006 to 36.3% in 2012 (4). Despite these improvements, the current study found no association between having health insurance and prevalence of chronic conditions among older adults in Ecuador.

Study analyses indicate that living in urban and coastal areas were risk factors strongly associated with diabetes and high blood pressure among older Ecuadorians. Those living on the coast also had an increased risk of heart disease and stroke compared to those in the highlands.

The higher risk for hypertension and diabetes in developing countries has been attributed to urbanization and its accompanying risk factors, such as obesity (26). As in other Latin American countries, obesity in Ecuador is more common among older urban adults (data not shown/available upon request).

Differences by ethnicity were found between the indigenous and white population groups. Indigenous older adults in Ecuador live predominantly in rural areas. They are disproportionately situated in indigent conditions and extreme poverty, with less access to health

care and basic services, such as sanitation; they also achieve lower levels of education and literacy (6). The current study found that indigenous older adults reported higher levels of arthritis, but lower levels of high blood pressure, than their white counterparts.

Previous studies in Latin America and elsewhere have identified ethnicity as a risk factor associated with rheumatoid arthritis (19). A follow-up, complementary, qualitative study of SABE Ecuador I revealed a generalized negative self-perception of aging among indigenous older adults of the Ecuadorian highlands (27). These perceptions were tied to their loss of physical capacity to perform strenuous agricultural work, which is crucial to social worth in their communities (27). Walking every day and for long distances is another routine activity of indigenous peoples in rural areas. Being unable to work or walk due to lessened functional ability and gradual loss of strength severely affected their self-esteem and mental well-being (27). In light of this data, the results of higher arthritis prevalence among indigenous older adults may reflect the differential impact of their strenuous agricultural labor and lifestyle on their health, as well socioeconomic conditions that are less secure than those of other ethnic groups.

Given that most indigenous older adults live in rural areas (approximately 80%), geographic variations in diet and lifestyle patterns may account for some of the health differences. Several studies conducted among native populations in the Americas conclude that traditional lifestyles and diet in rural areas protect these populations from the cardiovascular risks observed among urban and white counterparts (26, 28). For example, a study among Aymara and Mapuche populations in the Andes found that the diet and lifestyles changes of urbanization explain why, regardless of ethnicity, rural-residing populations showed lower rates of cardiovascular disease risk factors, such as hypertension, diabetes, obesity, and hyperlipidemia (28). In light of this literature, the current study's findings contribute to the understanding of the complex intersection among ethnicity, socioeconomic status, and environmental factors implicated in the epidemiology of chronic conditions in Latin America.

TABLE 3. Logistic regression models evaluating the association of sociodemographic characteristics with prevalence of chronic conditions among older adults (n = 5 011), Ecuador, 2009

Variable (reference)	Diabetes		Heart disease		High blood pressure		Stroke		Arthritis	
	Odds ratio	95%CI ^a	Odds ratio	95%CI	Odds ratio	95%CI	Odds ratio	95%CI	Odds ratio	95%CI
Independent variables										
Demographics										
Age (60–64 years)										
65–69 years	1.05	(0.82 – 1.35)	1.47	(0.93 – 2.34)	1.16	(0.86 – 1.58)	0.95	(0.50 – 1.80)	1.15	(0.82 – 1.62)
70–74 years	0.94	(0.72 – 1.24)	1.43	(0.93 – 2.20)	1.23	(0.97 – 1.56)	0.85	(0.50 – 1.45)	1.46 ^c	(1.12 – 1.91)
75–79 years	0.76	(0.57 – 1.02)	1.85 ^b	(1.26 – 2.72)	1.10	(0.78 – 1.56)	0.93	(0.54 – 1.59)	1.17	(0.81 – 1.68)
80–102 years	0.88	(0.62 – 1.25)	2.00 ^c	(1.20 – 3.35)	1.51 ^b	(1.08 – 2.11)	0.98	(0.62 – 1.55)	1.30	(0.91 – 1.84)
Undeclared	0.89	(0.49 – 1.61)	2.10 ^d	(1.37 – 3.21)	1.36	(0.94 – 1.97)	0.74	(0.45 – 1.24)	1.02	(0.70 – 1.48)
Gender (male)										
Female	1.91 ^d	(1.39 – 2.62)	1.78 ^c	(1.27 – 2.52)	1.79 ^d	(1.44 – 2.23)	0.78	(0.55 – 1.12)	2.92 ^d	(2.45 – 3.49)
Marital status (married)										
Unmarried	0.69 ^c	(0.54 – 0.90)	0.78	(0.60 – 1.02)	0.98	(0.83 – 1.17)	1.08	(0.78 – 1.50)	1.02	(0.82 – 1.26)
Ethnicity (white)										
Indigenous	0.76	(0.45 – 1.30)	1.02	(0.52 – 2.01)	0.54 ^c	(0.36 – 0.79)	0.55	(0.22 – 1.39)	1.76 ^b	(1.15 – 2.69)
Afro-descendant	0.93	(0.52 – 1.65)	1.23	(0.71 – 2.13)	1.35	(0.98 – 1.86)	0.94	(0.44 – 2.02)	1.03	(0.62 – 1.73)
Mestizo – other	0.82	(0.60 – 1.10)	1.4	(0.96 – 2.04)	0.92	(0.72 – 1.17)	0.92	(0.59 – 1.44)	1.2	(0.92 – 1.57)
Not reported	0.57	(0.32 – 1.03)	0.63	(0.32 – 1.25)	0.83	(0.52 – 1.31)	0.54	(0.23 – 1.26)	0.94	(0.57 – 1.54)
Socioeconomic conditions										
Education and literacy (primary)										
Illiterate	0.94	(0.74 – 1.20)	0.83	(0.62 – 1.10)	0.92	(0.78 – 1.08)	1.29	(0.77 – 2.17)	0.86	(0.69 – 1.07)
Secondary or higher	0.98	(0.68 – 1.41)	1.08	(0.83 – 1.41)	0.96	(0.80 – 1.16)	0.99	(0.53 – 1.87)	1.02	(0.81 – 1.30)
Residential area (urban)										
Rural	0.63 ^c	(0.47 – 0.84)	0.89	(0.65 – 1.21)	0.78 ^d	(0.68 – 0.90)	0.78	(0.58 – 1.03)	1.17	(0.98 – 1.39)
Geographic area (highland)										
Coastal	1.54 ^c	(1.13 – 2.10)	1.49 ^d	(1.26 – 1.77)	1.32 ^c	(1.09 – 1.59)	1.50 ^b	(1.07 – 2.09)	1.01	(0.83 – 1.23)
Access to healthcare (insured)										
Uninsured	0.9	(0.73 – 1.11)	0.88	(0.73 – 1.06)	0.87	(0.71 – 1.07)	1.38	(1.00 – 1.90)	0.88	(0.72 – 1.07)
Income subsidy (does not receive)										
Receives subsidy	0.95	(0.70 – 1.30)	1.23	(0.86 – 1.76)	1.45 ^c	(1.16 – 1.82)	1.27	(0.92 – 1.76)	0.89	(0.71 – 1.12)
Control variables										
Physical exercise (exercised)										
Did not exercise	1.01	(0.77 – 1.33)	0.89	(0.58 – 1.35)	1.16	(0.94 – 1.43)	2.25 ^c	(1.37 – 3.69)	1.1	(0.89 – 1.37)
Smoking (never smoked)										
Currently smokes	1.02	(0.64 – 1.64)	0.51 ^b	(0.29 – 0.88)	0.70 ^c	(0.55 – 0.90)	0.36 ^c	(0.18 – 0.73)	0.68 ^b	(0.49 – 0.96)
Previously smoked	1.65 ^c	(1.23 – 2.22)	1.56 ^c	(1.16 – 2.10)	1.23	(0.98 – 1.54)	0.83	(0.65 – 1.07)	0.99	(0.79 – 1.25)
BMI (normal weight)										
Underweight	0.43	(0.17 – 1.09)	1.02	(0.57 – 1.83)	1.27	(0.72 – 2.24)	0.46	(0.11 – 1.93)	1.10	(0.65 – 1.85)
Overweight	1.44 ^c	(1.11 – 1.88)	1.38 ^c	(1.12 – 1.70)	1.79 ^d	(1.48 – 2.17)	1.32	(0.90 – 1.91)	1.13	(0.87 – 1.46)
Obese	1.49 ^b	(1.03 – 2.16)	1.53 ^c	(1.18 – 1.99)	2.65 ^d	(2.18 – 3.22)	1.07	(0.56 – 2.06)	1.41 ^b	(1.03 – 1.93)
Missing	1.43	(0.86 – 2.39)	1.92 ^b	(1.06 – 3.47)	1.58 ^b	(1.10 – 2.28)	4.44 ^d	(2.96 – 6.66)	1.62 ^c	(1.13 – 2.33)

Note: Estimates were calculated by the authors based on data from the Instituto Ecuatoriano de Estadística y Censos – Encuesta de Salud Bienestar y Envejecimiento (SABE), 2009.

^a 95% confidence interval.

^b $P < 0.05$.

^c $P < 0.01$.

^d $P < 0.001$.

This study's results also show that the majority of Ecuadorian older adults are overweight or obese (57%). According to recent studies, older adults and adolescents in Ecuador, especially those living in urban and coastal areas, are the subgroups most vulnerable to overweight and obesity (7, 8, 29). This study confirms previous findings that obesity is an important risk factor associated with cardiovascular diseases in Latin America (30, 31). This study also shows that being obese was significantly associated with having been diagnosed with arthritis. Considering that recent studies have drawn attention to the associations

between rheumatoid arthritis and cardiovascular disease (19), this study provides evidence supporting further examination of the aggravating or mediating effects of obesity on cardiovascular disease among subjects with arthritis in Latin America.

Analyses show that physical activity reduces the odds of reporting a stroke. Previous studies show that physical activity helps prevent stroke (32). However, given the cross-sectional nature of the data, we cannot assert whether physical activity decreased the odds of having a stroke or whether having a stroke limited the amount of physical activity for

older adults in Ecuador. Results for tobacco consumption were less clear. Those who were former smokers were more likely to report having diabetes, high blood pressure, and heart disease than those who never smoked. However, current smokers were less likely to report having chronic conditions, with the exception of diabetes, than those who never smoked. These results are unexpected given previous studies associating tobacco with higher risks of various chronic diseases and mortality in Latin America (33).

Previous studies have shown that even though women live longer than men,

they live more of the additional years with disabilities (34). Findings of the current study confirm the regional trend of older women's greater vulnerability to highly disabling chronic diseases that severely affect their quality of life in later years (34).

Limitations

This study has a few limitations. First, data from SABE Ecuador I is cross-sectional, which does not allow for making causal inferences. Second, data on chronic disease prevalence are self-reported; as such, prevalence may be underestimated. Therefore, because of the likelihood of undiagnosed chronic conditions among study subjects, the values presented in this paper are conservative estimates of the real disease burden. However, it is important to note that awareness of chronic disease status increases with age. This is consistent with the fact that older people have more time to develop the disease and to present complications that may trigger medical diagnosis and treatment. Thus, the self-reporting bias may be smaller than in younger age groups. Third, given that 5.1% of older adults in the SABE Ecuador I sample were screened positive for cognitive impairment, self-reported

data might be biased as proxy respondents provided the answers for chronic conditions. Fourth, data from SABE Ecuador I focused on the population not residing in institutions. Because institutionalized populations, particularly those residing in nursing homes, are more likely to have poor health than non-institutionalized populations, the non-institution focus might result in an underestimation of chronic disease prevalence. However, the institutionalized population in LAC countries is relatively small; thus, so is the likely bias. Finally, data analyzed were collected in 2009–2010, and therefore, may not reflect current social and demographic conditions.

Conclusions

Older age in Ecuador is marked by low educational levels and poverty. Socioeconomic and lifestyle factors play an important role in explaining differences in chronic health conditions among older adults in Ecuador. Female gender and living in urban and coastal areas were associated with higher risks of self-reported chronic conditions. Obesity, smoking and lack of physical activity were associated with chronic conditions, particularly arthritis, diabetes, and cardiovascular disease.

According to this study's findings, prevention and treatment programs and plans should target women, coastal residents, and those exposed to sedentary environments. Important efforts have been recently implemented by the Ministry of Health of Ecuador addressing chronic non-communicable diseases with a focus on preventable and modifiable risk behaviors, including smoking, physical activity, and nutrition (35). Additional interventions should address access to prevention and health care in areas marked by low socioeconomic living conditions, particularly in urban areas and among indigenous populations in rural areas.

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RESUMEN

Factores socioeconómicos y de estilo de vida asociados con las afecciones crónicas en los adultos mayores del Ecuador

Objetivo. Explorar los factores socioeconómicos y de estilo de vida asociados con la prevalencia de afecciones crónicas autonotificadas en adultos mayores del Ecuador.

Métodos. La muestra se obtuvo de los datos transversales de observación, representativos a escala nacional, de la *Encuesta de Salud, Bienestar y Envejecimiento*, llevada a cabo en el Ecuador el año 2009. Se utilizaron modelos de regresión logística para explorar la asociación entre los factores socioeconómicos y de estilo de vida y la prevalencia de las afecciones crónicas seleccionadas.

Resultados. Las mujeres mayores del Ecuador presentan mayores probabilidades que los hombres de haber sido diagnosticadas previamente de diabetes, cardiopatía, hipertensión y artritis. Los resultados indican que no hay diferencias según el nivel de formación o la cobertura por seguro de enfermedad en cuanto al número y tipo de afecciones crónicas autonotificadas. Sin embargo, la notificación de antecedentes de diabetes, cardiopatía, hipertensión y accidente cerebrovascular era más probable en los adultos mayores residentes en la zona costera que en los que vivían en los altiplanos. La residencia en zonas rurales se asociaba con menores probabilidades de padecer diabetes e hipertensión. En comparación con los adultos mayores blancos, era menos probable que los adultos mayores indígenas notificaran antecedentes de hipertensión, pero era más probable que notificaran antecedentes de artritis.

Conclusiones. En el Ecuador, en las personas mayores se observa pobreza y un escaso nivel de formación. Pertenecer al sexo femenino y residir en las zonas costeras se asociaban con mayores riesgos de autonotificación de afecciones crónicas.

Palabras clave

Envejecimiento; salud del anciano; enfermedad crónica; factores socioeconómicos; encuestas epidemiológicas; Ecuador.