Prevalence and associated factors of use of tobacco, alcohol and drugs in a population sample of elderly individuals from Mexico City

Guilherme Luiz Guimaraes Borges,[1] Miguel Ángel Mendoza Meléndez,[2] Miguel Ángel López Brambila,[2] José Ángel García Pacheco,[1] Laura R. Velasco-Ángeles,[1] María Angélica Beltrán Silva,[2] Pedro Eduardo Valdez Corchado,[3] María Elena Medina-Mora,[4] Rafael Camacho Solís[2]

Artículo original

SUMMARY

There are no studies in Mexico estimating the use of psychoactive substances in the elderly (+69 years) and there is a lack of information about the risk factors determining the burden of disease for this age group. The goal of this study is to present prevalences of use of alcohol, tobacco, illicit drugs and medical drugs used without prescription in beneficiaries of the cash supplement program sponsored by the Institute for the Care of Elderly from Mexico City (Instituto para la Atención del Adulto Mayor del Distrito Federal, IAAM-DF). Furthermore, significant sociodemographic factors associated with substance use are reported. From a random sample of the 2 501 users census of cash supplement program of IAAM-DF, a total of 2 098 agreed to participate and were interviewed in their homes. The response rate was of 83.9%.

We found that 65.3% of all participants ever used alcohol, 45.4% ever used tobacco and 3.5% ever used any drugs. During the last 12 months, nearly one out of every two men and one out of every four women used alcohol; one out of every 10 older adults used tobacco; and only one out of every 100 used any kind of drug. Overall prevalence of substance use is higher in men, with the exception of medical drugs. Outstanding associated factors in substance use were gender and higher socioeconomic levels.

This is the first study conducted in Mexico on substance use in dwelling elderly people, not living in institutions. Alcohol use, even risky drinking, is not uncommon; smoking tobacco habits do not disappear with age; and medical drug use can be of concern for its effects on other diseases. Therefore, it becomes necessary to establish definitions of risky use for this population and develop appropriate intervention programs for this population group.

Key words: Alcohol, tobacco, drugs, elderly, prevalence and associated factors.

RESUMEN

No existen investigaciones en el país sobre uso de sustancias psico-activas en poblaciones de adultos mayores (+69 años) y se carece de información sobre los factores de riesgos que son determinantes para la carga de la enfermedad en este grupo. Este estudio tuvo como objetivo presentar las prevalencias de consumo de alcohol, tabaco, drogas ilícitas y drogas médicas usadas sin prescripción en los beneficiarios del programa de pensión alimentaria del Instituto para la Atención del Adulto Mayor del Distrito Federal (IAAM-DF). Adicionalmente, se reportaron factores sociodemográficos asociados al consumo de estas sustancias. De una muestra aleatoria del padrón de usuarios del programa del IAAM-DF de 2501 personas, un total de 2098 aceptaron participar y fueron entrevistadas en sus hogares, obteniéndose una tasa de respuesta de 83.9%.

Se encontró que 65.3% de la población consumió alcohol, 45.4% tabaco y 3.5% alguna droga alguna vez en la vida. En los últimos 12 meses, casi uno de cada dos varones y una de cada cuatro mujeres consumió alcohol; uno de cada 10 adultos mayores consumió tabaco; y sólo uno de cada 100 consumió alguna droga. La prevalencia de consumo de sustancias es mayor en hombres, con excepción de las drogas médicas. Los factores asociados que destacaron fueron el sexo y los mejores niveles económicos.

Éste es el primer estudio realizado en el país sobre uso de sustancias en población de adultos mayores con domicilio fijo, no institucionalizado. El consumo de alcohol, incluso el consumo riesgoso, no es infrecuente; el hábito tabáquico no ha desaparecido con la edad, y el uso de drogas médicas puede ser un motivo de preocupación por su efecto en otras patologías. Se hace necesario establecer definiciones de uso riesgoso para esta población y desarrollar programas de intervención adecuados para este grupo.

Palabras clave: Alcohol, tabaco, drogas, adultos mayores, prevalencia y factores asociados.

Translation of the original version published in: Salud Mental 2014, Vol. 37 Issue No. 1.

INTRODUCTION

Although for over 30 years in Mexico, and particularly in Mexico City,[1] there have been many investigations conducted to determine the use of alcohol and other substances such as tobacco, illicit drugs and nonprescription drugs both in adults and adolescents, none of them have included, in their sample population, persons over 69 years old, i.e., the elderly. Not even investigations that have been conducted to understand the impact that these substances cause on health have considered this population. Most of these studies, including the most recent National Addictions Survey,[2-4] have the upper age limit of 65 years old. Only recently, some general health surveys within the country[5,6] or in Mexico City[7] have included the older adults population in its sampling frame, reporting very general prevalences of alcohol or tobacco use. So far, none of the investigations conducted with older adults have reported or considered the prevalences of drug use, either illegal or medical without a prescription.

It is necessary, therefore, to make a diagnosis of the situation of substance use in the elderly. Especially if it is considered that a large part of the epidemiological profile and of the disease burden in our country is related to the use of alcohol, tobacco and other substances, as well as to health problems thereto that impact precisely in advanced ages (cancer, circulatory diseases, respiratory or neurodegenerative diseases, etc.).[8]

According to INEGI, in 2010 there were 496 567 older adults in Mexico City with ages equal to or greater than 69 years of age.[9] In October of that same year, the IAAM-DF estimated that a total of 458 775 people were beneficiaries of the cash supplement program. This estimate included the elderly population of all social strata, i.e., about 92.4% of the entire population of this age group.[10] According to CONAPO projections, by 2012 there were 526,230 adults in Mexico City's population with ages equal or greater than 69 years of age.[11] According to estimates of IAAM-DF, as of July 2012 a total of 480,000 people had been beneficiaries of the cash supplement program. These figures included the elderly population of all social strata, i.e., about 91.2% of the entire population of this age group.[12] The aging process that the national population is now experiencing,[13,14] especially the population concentrated in large urban centers such as Mexico City,[15] will represent —in the not too distant future— new challenges for health care in this population. The foregoing shows the need to know in detail the risk determining factors for the disease burden regarding the use of tobacco, alcohol and, to a lesser extent, of psychoactive substances in this population.

Thus, the goal of this study is to present prevalence of use of alcohol, tobacco, illicit drugs and medical drugs used without prescription in senior beneficiaries (aged 69 and above) of the cash supplement program sponsored by the Institute for the Care of Elderly from Mexico City (Instituto para la Atención del Adulto Mayor del Distrito Federal, IAAM-DF) Along with the prevalences of substance use, sociodemographic factors associated to the consumption.

METHOD

The target population of this study included older adults who as of July 2012 had been living in Mexico City and were beneficiaries of the cash supplement program for older adults, which was being implemented by the IAAM-DF.

Inclusion in this program was only voluntary and anyone who could prove residence in Mexico City for three years or more with at least 69 years of age was incorporated into the program. The IAAM-DF keeps records of those who are beneficiaries of this program; its website has published a beneficiary's register, pursuant to the Law of Transparency and Access to Public Information of the Federal District, which is open to the public and is updated in a monthly basis. This study, with the authorization and other benefits provided by the IAAM-DF, made use of such register.

All people registered as of July 2012 made up the sampling frame of this study. The Institute for Prevention and Treatment of Addictions (IAPA) in Mexico City conducted a random sampling among beneficiaries of the cash supplement program for older adults. The aspects of this sampling were: borough of residence, age group and gender. The estimated non-response rate was 20% and the estimated lowest prevalence was close to 0.08%.

Finally, from the 480 000 beneficiaries a random sample of 2 501 elderly men and women, living in one of the 16 boroughs of Mexico City who were part of the census of IAAM-DF, was selected. To all selected seniors two surveys were applied, for which community educators were trained who visited the elderly (only one per household) and carried out the implementation of the surveys. Community educators are people assigned to each of the health districts of the boroughs and whose function is to conduct regular home visits and periodically interviewing the elderly beneficiaries of any of these programs. For this research, IAPA staff trained in August 2012 to the community educators of each of the 16 boroughs of the Federal District in managing: 1. The *Survey on Psychoactive Substances in Older Adults in Mexico City*, and 2) the implementation of the *Risk Identification Card in Older Adults*. Since the questions of this survey can be regarded as a condensed version of the 2011 National Addictions Survey (ENA 2011), its results may be comparable.

Ethical issues

We interviewed all individuals resulting from the simple random sampling discussed above, but only after they read (or when necessary read to them) a letter of informed consent. Only those who agreed to participate were considered for this study. At all times there was an emphasis on the vol-

untary nature of their participation and on the confidential handling of information.

Definition of main variables

For purposes of this study, and according to the ENA-2011, the following variables were defined:

Alcohol

- *Teetotaler*: A person who never drank alcohol at some time in life.
- *Drinker*: A person who drank alcohol at some time in life.
- *Current drinker*: A person who has drunk alcohol in the past 12 months.
- *Risky drinking*: five or more drinks for men; four or more for women, at least once a year during the past year.
- *Alcohol abuse or dependence*: defined according to the classification criteria of the DSM-IV-TR Diagnostic and Statistical Manual of Mental Disorders.[16]

Tobacco

- *Tobacco smoker*: A person who smoked tobacco at some time in life.
- *Smoker of 100 or more cigarettes*: A person who smoked more than 100 cigarettes at some time in life, i.e., five packs.
- *Active smoker*: A person who smoked at least once a year in the past 12 months.

Drugs

- *Medical drugs without prescription*: Includes use of opiates, tranquilizers, sedatives, barbiturates, amphetamines and stimulants without a prescription or differently as prescribed by a doctor (in larger quantities, longer, or any situation different than the one indicated).
- *Illicit drugs*: Including marijuana, hashish, cocaine, crack, hallucinogens, inhalants, heroin, opium, amphetamine-type stimulants, other drugs.
- *Drugs*: Use of either medical or illicit drugs.

With regard to age, for purposes of this paper, the population of older adults was divided in elderly (69-79 years) and very elderly (80-106 years).

Data analysis

The prevalence of substance use (alcohol, tobacco and drugs) some time in life and in the last 12 months are reported for a number of sociodemographic variables; including Chi-square (χ^2) tests and the probability associated thereto. The results of multivariate models are also included to measure the association between major sociodemographic factors and prevalence of substance use,[17] via the *odds ratio*.

RESULTS

In the sample of 2,501 people from the listing of 480,000 beneficiaries of the cash supplement program for the Federal District no differences by age and gender groups were found between this sample and the population of beneficiaries. A total of 2,098 people agreed to participate and were interviewed. The response rate was 83.9% and ranged from 72.3%, in the Miguel Hidalgo borough, to 93.5% in the Xochimilco borough. No statistically significant differences by age or gender groups between the 2,098 participants and the target elderly population were found (data provided by the author).

Distribution of participants by gender and demographic variables is shown in Table 1. Almost two thirds of the sample is composed of women, while from the total sample 66.2% ranged between 69-79 years old. Slightly less than half were married or cohabitating, and only 41.3% had unfinished primary education or less. As can be observed, this is a low-income population, as just over 70% receive four minimum wages or less, although 80.9% have some kind of health insurance. While 79.2% report not needing or having a caregiver, only 23.7% report "excellent" health and 60.2% have at least one disease diagnosed by a physician.

Table 2 presents the prevalence of substance use at some time in life and in the last 12 months, by gender. As can be seen, except for the use of medical drugs at least once in life and drug use for the last 12 months, in all other prevalence men drink more alcohol, tobacco and drugs than women. 65.3% of the population drank alcohol, 45.4% smoked tobacco and 3.5% used any drugs ever in life. The current consumption of these substances is much less common, but still significant. Nearly one out of every two men and one out of every four women used alcohol during the 12 previous months; one out of every 10 older adults used tobacco; and only one out of every 100 used any kind of drug. While 8.7% of the population (15.8% of men and 4.4% of women) reported risky alcohol drinking in the past 12 months, the prevalence of clinical pictures of alcohol abuse/dependence only was reported by 1.2% in the past 12 months.

Table 3 presents the main variables associated with alcohol consumption in the last 12 months, during which the analysis has been concentrated for reasons of space and to show similarities with alcohol use sometime in life. The only variable that was consistently associated with increases in the odds ratio (OR) for drinking, risky drinking and abuse/dependence on alcohol was the male gender. People with more than four minimum wages reported increases in OR for drinking and risky drinking in the past 12 months and those who reported the presence of one or more diagnostic diseases reported increases in OR for drinking and risky drinking in the past 12 months. Other variables associated only with such consumption in the last 12 months were the following: people who finished high school or more, respon-

Table 1. Sociodemographic and health descriptive information by gender sampling - Substance Use in Older Adults of Mexico City (USAMDF-2012) Survey n = 2098

	Male (n=799)	Female (n=1299)	Total (n=2098)	
Gender	38.10	61.90	100.00	
Age group				$\chi^2(1)=2.93$ Pr=0.087
• Elderly	68.50	64.80	66.20	
• Very elderly	31.50	35.20	33.80	
Marital status				$\chi^2(1)=302.63$ Pr=0.000
• Other	32.00	70.90	56.10	
• Married/cohabitating	68.00	29.10	43.90	
School grade				$\chi^2(2)=40.20$ Pr=0.000
• Incomplete elementary school or lower	35.50	45.00	41.30	
• Elementary or junior high school (finished or unfinished)	37.60	39.30	38.70	
• High school or higher	26.90	15.70	20.00	
Income				$\chi^2(3)=40.87$ Pr=0.000
• Less than or equal to the MW	36.20	48.90	44.00	
• 2 MWs	30.20	26.50	27.90	
• From 2 to 4 MWs	19.00	16.60	17.50	
• Over 4 MWs	14.50	8.00	10.50	
Insurance				$\chi^2(1)=26.91$ Pr=0.000
• No	13.40	22.70	19.10	
• Yes	86.60	77.30	80.90	
Caregiver				$\chi^2(3)=11.20$ Pr=0.011
• No need and does not have one	82.60	77.10	79.20	
• No need but has one	5.50	5.50	5.50	
• Needs but does not have one	2.40	3.70	3.20	
• Needs and has one	9.60	13.70	12.10	
Health perception				$\chi^2(2)=14.10$ Pr=0.001
• Excellent	26.50	22.00	23.70	
• Very good	63.30	62.40	62.70	
• Good	10.30	15.70	13.60	
At least one diagnosed disease				$\chi^2(1)=14.45$ Pr=0.000
• No diagnosed disease	44.90	36.60	39.80	
• At least one diagnosed disease	55.10	63.40	60.20	
Region				$\chi^2(3)=3.21$ Pr=0.360
• North	29.16	28.71	28.88	
• East	38.17	36.95	37.42	
• West	18.27	21.32	20.16	
• South	14.39	13.01	13.54	

Regions are listed by: North: Azcapotzalco, Cuauhtémoc and Gustavo A. Madero; East: Coyoacán, Iztacalco, Iztapalapa; West: Álvaro Obregón, Benito Juárez, Cuajimalpa, Magdalena Contreras, Miguel Hidalgo; South: Milpa Alta, Tláhuac, Tlalpan and Xochimilco.
*** Including: Mental and behavioral disorders: bipolar disorder, schizophrenia, depression and Alzheimer.
Chronic degenerative diseases: diabetes mellitus, metabolic syndrome, erectile dysfunction, osteoporosis, amyotrophic lateral sclerosis, duodenal ulcer, blindness, cataracts, glaucoma, breast cancer, prostate cancer, gastric cancer and bladder cancer.
Infectious/respiratory diseases: pneumonia, influenza, common cold, otitis media and human papillomavirus.
MW – Minimum wage.

dents in the western and southern regions of the City, and people who reported poor health had OR lower than those in excellent health. Only male gender was associated in alcohol abuse or dependence in the past 12 months, after controlling through the health and sociodemographic variables.

For tobacco consumption (Table 4) the only variables that were consistently associated with increases in OR were male gender and higher levels of education (high school or more). Those who reported the presence of one or more diagnostic diseases reported increases in OR for tobacco use

once and for consumption of 100 or more cigarettes in life. People with two minimum wages reported lower consumption OR for tobacco use in the past 12 months.

Table 5 shows the factors associated with the use of any drug at some time in life and in the last 12 months. The only variable that was consistently associated with OR increases for consumption was the male gender. In turn, those earning 2-4 minimum wages reported OR increases for *sometime* consumption, and those "not cohabitating" had lower OR for *sometime* in life consumption (non-significant OR).

Table 2. Substance use descriptive information in older adults of Mexico City by gender, USAMDF-2012

	Male (n=799)	Female (n=1299)	Total (n=2098)	
Alcohol consumption at some time in life				$x^2(1)=275.00$ Pr=0.000
• No	12.8	48.3	34.7	
• Yes	87.2	51.7	65.3	
Alcohol consumption in the past 12 months				$\chi^2(1)=83.77$ Pr=0.000
• No	55.8	75.1	67.7	
• Yes	44.2	24.9	32.3	
Risky consumption at some time in life				$\chi^2(1)=165.73$ Pr=0.000
• No	56.9	82.7	72.9	
• Yes	43.1	17.3	27.1	
Annual risky consumption				$\chi^2(1)=148.92$ Pr=0.000
• No	71.8	91.8	84.2	
• Yes	28.2	8.2	15.8	
Monthly risky consumption				$\chi^2(1)=80.49$ Pr=0.000
• No	84.2	95.6	91.3	
• Yes	15.8	4.4	8.7	
Alcohol abuse or dependence at some time in life				$\chi^2(1)=193.64$ Pr=0.000
• No	80.0	97.8	91.0	
• Yes	20.0	2.2	9.0	
Alcohol abuse or dependence in the past 12 months				$\chi^2(1)=28.33$ Pr=0.000
• No	97.1	99.8	98.8	
• Yes	2.9	0.2	1.2	
Consumption of tabaco at some time in life				$\chi^2(1)=337.53$ Pr=0.000
• No	29.2	70.3	54.6	
• Yes	70.8	29.7	45.4	
Consumption of 100 cigarettes or more in life				$\chi^2(1)=259.44$ Pr=0.000
• No	50.6	83.4	70.9	
• Yes	49.4	16.6	29.1	
Tobacco consumption in the past 12 months				$\chi^2(1)=52.48$ Pr=0.000
• No	84.6	94.1	90.5	
• Yes	15.4	5.9	9.5	
Any drug consumption at some time in life				$\chi^2(1)=6.95$ Pr=0.008
• No	95.1	97.3	96.5	
• Yes	4.9	2.7	3.5	
Any medical drug consumption at some time in life				$\chi^2(1)=3.06$ Pr=0.080
• No	99.4	98.5	98.9	
• Yes	0.6	1.5	1.1	
Any illegal drug consumption at some time in life				$\chi^2(1)=19.44$ Pr=0.000
• No	95.7	98.8	97.6	
• Yes	4.3	1.2	2.4	
Any drug consumption in the past 12 months				$\chi^2(1)=0.03$ Pr=0.867
• No	99.0	98.9	99.0	
• Yes	1.0	1.1	1.0	

Risky consumption at some time in life is defined as having consumed five or more drinks for men or four or more in women at some time in life.

DISCUSSION

Through this paper we found that 65.3% of the population used alcohol, 45.4% used tobacco and 3.5% used any drug at some time in life. Nearly one out of every two men and one out of every four women used alcohol during the 12 previous months; one out of every 10 older adults used tobacco; and only one out of every 100 used any kind of drug. This consumption does not seem to vary between elderly and very elderly groups. Generally, the prevalence of substance use is higher in men, with the exception of medical drugs, which is higher among women. Few factors, other than sex, were associated with these prevalences. Finally, in people of higher socioeconomic status a slight trend to consume more substances was found.

The elderly population surveys are not common within the country or abroad. Many previous estimates that have been made on substance use in older adults are based on populations of seniors who consulted some clinician[18,19] or who are under special care, in nursing homes or shelters.[20,21]

In Mexico, based on information from the National Study on Health and Aging in Mexico (ENASEM-2001), a prevalence of alcohol and tobacco was estimated at some time in life regarding the population of 50 years of age and older of 61.4 and 42.7%,[22] respectively.[23]

Table 3. Multivariate analysis of sociodemographic variables associated with alcohol consumption in the Past 12 months, USAMDF-2012

	Consumption		Risky consumption		Abuse or dependence	
	OR	95 CI	OR	95 CI	OR	95 CI
Gender						
• Female	1.00	-	1.00	-	1.00	-
• Male	2.18	(1.72-2.76)	4.70	(3.43-6.45)	11.31	(3.06-41.72)
Age groups						
• Elderly	1.00	-	1.00	-	1.00	-
• Very elderly	0.88	(0.69-1.12)	1.03	(0.76-1.41)	0.61	(0.20-1.82)
Marital status						
• Cohabitating	1.00	-	1.00	-	1.00	-
• Not cohabitating	0.99	(0.78-1.26)	1.06	(0.78-1.45)	0.89	(0.33-2.38)
School grade						
• Incomplete elementary school or lower	1.00	-	1.00	-	1.00	-
• Elementary or junior high school (finished or unfinished)	1.19	(0.93-1.52)	0.99	(0.72-1.35)	1.69	(0.62-4.66)
• High school or higher	1.56	(1.15-2.13)	0.71	(0.47-1.09)	0.87	(0.20-3.83)
Income						
• Less than or equal to the MW	1.00	-	1.00	-	1.00	-
• 2 MWs	1.41	(1.09-1.84)	1.26	(0.89-1.77)	0.52	(0.17-1.6)
• From 2 to 4 MWs	1.72	(1.27-2.33)	1.41	(0.94-2.12)	0.70	(0.20-2.43)
• Over 4 MWs	2.24	(1.54-3.24)	1.64	(1.01-2.65)	0.50	(0.10-2.65)
Insurance						
• No	1.00	-	1.00	-	1.00	-
• Yes	1.33	(0.99-1.78)	1.04	(0.71-1.53)	4.14	(0.54-31.93)
Caregiver						
• No need and does not have one	1.00	-	1.00	-	1.00	-
• No need but has one	1.21	(0.77-1.91)	5.69	(3.56-9.11)	1.66	(0.35-7.82)
• Needs but does not have one	0.84	(0.42-1.65)	0.91	(0.36-2.26)	1.49	(0.17-13.14)
• Needs and has one	0.72	(0.49-1.05)	0.72	(0.42-1.23)	0.97	(0.19-4.89)
Health perception						
• Excellent	1.00	-	1.00	-	1.00	-
• Good	1.00	(0.78-1.28)	1.30	(0.93-1.83)	1.19	(0.37-3.8)
• Bad	0.64	(0.42-0.97)	0.87	(0.50-1.52)	1.99	(0.44-9.08)
Any disease						
• No disease	1.00	-	1.00	-	1.00	-
• At least one disease*	1.31	(1.05-1.64)	1.31	(0.98-1.76)	1.54	(0.59-4.07)
Region						
• North	1.00	-	1.00	-	1.00	-
• East	0.97	(0.74-1.26)	0.90	(0.64-1.28)	1.01	(0.34-2.96)
• West	1.56	(1.15-2.11)	1.27	(0.86-1.88)	0.29	(0.03-2.47)
• South	1.72	(1.22-2.42)	0.94	(0.60-1.48)	1.67	(0.49-5.73)

The elderly group includes people with an age of 68-74 years and the very elderly group includes people being 75 years or older.
Regions are listed by: North: Azcapotzalco, Cuauhtémoc and Gustavo A. Madero; East: Coyoacán, Iztacalco, Iztapalapa; West: Álvaro Obregón, Benito Juárez, Cuajimalpa, Magdalena Contreras, Miguel Hidalgo; South: Milpa Alta, Tláhuac, Tlalpan and Xochimilco.
* This includes: Mental and behavioral disorders: bipolar disorder, schizophrenia, depression and Alzheimer;
Chronic degenerative diseases: diabetes mellitus, metabolic syndrome, erectile dysfunction, osteoporosis, amyotrophic lateral sclerosis, duodenal ulcer, blindness, cataracts, glaucoma, breast cancer, prostate cancer, gastric cancer and bladder cancer;
Infectious/respiratory diseases: pneumonia, influenza, common cold, otitis media and human papillomavirus.
OR - Odds ratio; MW – Minimum wage.

For those who are currently drinking and smoking, these authors reported, in the same order, consumption of 30.7 and 17.3%.[23] Another study of ENASEM (2001) estimated for older adults over 65 years of age a prevalence of alcohol consumption in 34.7% and tobacco some time in life in 46.3%.[6]

On the other hand, based on information from the National Survey of Health and Nutrition (ENSANUT-2006), the prevalence of 100 cigarettes consumption in life in population over 60 years and over in men (50.4%) and women (13.1%) was estimated; as well as daily alcohol consumption in men (11.9%) and women (0.6%).[5] As for the problems related to alcohol consumption, a prevalence of 2.8% was found in adults over 65 years based on the use of the CAGE instrument.[6] Other research has shown a prevalence of risky alcohol drinking in 9.6%.[24]

International research has identified variations in the prevalence of drinkers younger than 65 years of age and of

Table 4. Multivariate analysis of sociodemographic variables associated with tobacco consumption at some time in life and in the past 12 months, USAMDF-2012

	Tobacco consumption at some time in life		100 cigarettes consumption in life		Smoking during the last 12 months	
	OR	95 CI	OR	95 CI	OR	95 CI
Gender						
• Female	1.00	-	1.00	-	1.00	-
• Male	5.81	(4.58-7.36)	5.04	(3.93-6.45)	2.88	(2.00-4.15)
Age groups						
• Elderly	1.00	-	1.00	-	1.00	-
• Very elderly	0.87	(0.69-1.10)	0.88	(0.69-1.14)	0.43	(0.28-0.66)
Marital status						
• Cohabitating	1.00	-	1.00	-	1.00	-
• No cohabitating	0.97	(0.77-1.22)	1.04	(0.81-1.33)	0.74	(0.52-1.07)
School grade						
• Lower or elementary school equivalent	1.00	-	1.00	-	1.00	-
• Elementary or junior high school (finished or unfinished)	1.16	(0.92-1.47)	1.35	(1.05-1.75)	1.15	(0.78-1.70)
• High school or higher	1.46	(1.06-2.00)	1.41	(1.01-1.96)	1.75	(1.10-2.79)
Income						
• Less than or equal to the MW	1.00	-	1.00	-	1.00	-
• 2 MWs	1.28	(0.99-1.65)	1.05	(0.79-1.38)	0.64	(0.42-0.98)
• From 2 to 4 MWs	1.23	(0.91-1.68)	1.05	(0.76-1.46)	0.80	(0.50-1.28)
• Over 4 MWs	1.27	(0.87-1.87)	1.09	(0.73-1.63)	0.84	(0.48-1.47)
Insurance						
• No	1.00	-	1.00	-	1.00	-
• Yes	1.04	(0.79-1.36)	1.05	(0.77-1.42)	1.27	(0.80-2.03)
Caregiver						
• No need and does not have one	1.00	-	1.00	-	1.00	-
• No need but has one	1.37	(0.87-2.15)	1.16	(0.72-1.87)	1.04	(0.51-2.09)
• Needs but does not have one	1.41	(0.77-2.57)	0.69	(0.34-1.40)	0.57	(0.17-1.90)
• Needs and has one	0.81	(0.56-1.17)	0.78	(0.52-1.17)	0.45	(0.20-1.00)
Health perception						
• Excellent	1.00	-	1.00	-	1.00	-
• Good	1.13	(0.88-1.46)	1.24	(0.94-1.62)	1.09	(0.74-1.60)
• Bad	1.28	(0.88-1.88)	1.23	(0.81-1.87)	1.02	(0.54-1.93)
Any disease						
• No disease	1.00	-	1.00	-	1.00	-
• A least one disease*	1.27	(1.02-1.59)	1.54	(1.22-1.95)	0.91	(0.65-1.28)
Region						
• North	1.00	-	1.00	-	1.00	-
• East	1.03	(0.79-1.33)	0.95	(0.72-1.25)	1.09	(0.73-1.64)
• West	1.29	(0.95-1.75)	1.11	(0.80-1.54)	1.08	(0.67-1.74)
• South	1.13	(0.80-1.59)	0.86	(0.59-1.24)	1.07	(0.63-1.82)

The elderly group includes people with an age of 68-74 years and the very elderly group includes people being 75 years or older.
Regions are listed by: North: Azcapotzalco, Cuauhtémoc and Gustavo A. Madero; East: Coyoacán, Iztacalco, Iztapalapa; West: Álvaro Obregón, Benito Juárez, Cuajimalpa, Magdalena Contreras, Miguel Hidalgo; South: Milpa Alta, Tláhuac, Tlalpan and Xochimilco.
* This includes: Mental and behavioral disorders: bipolar disorder, schizophrenia, depression and Alzheimer;
Chronic degenerative diseases: diabetes mellitus, metabolic syndrome, erectile dysfunction, osteoporosis, amyotrophic lateral sclerosis, duodenal ulcer, blindness, cataracts, glaucoma, breast cancer, prostate cancer, gastric cancer and bladder cancer;
Infectious/respiratory diseases: pneumonia, influenza, common cold, otitis media and human papillomavirus.
OR - Odds ratio. MW – Minimum wage.

risky drinking; consumption in the following countries varied greatly: Cuba (18.2%; 7.4%), Dominican Republic (39.3%; 30.1%), Peru (8.2%; 1.8%), Venezuela (45.6%; 4.5%), China (11.0%; 4.6%) and India (17.2%; 0.8%).[24] Changes were also evident among countries with regard to the consumption of tobacco at some time in life for Cuba (44.8%), Dominican Republic (47.7%), Peru (16.8%), Venezuela (42.6%), China (28.3%) and India (39.8%). Meta-analyzes of 48 studies showed that the prevalence of tobacco use in adults over 60 years of age and older was even lower in 13.5%. However, the ratio is still being higher in men (22.5%) than women (8.7%).[25] Other estimates conducted in seven urban centers of Latin America regarding current consumption of tobacco reported an average prevalence of 16.3%.[7] On drug use there

Table 5. Multivariate analysis of sociodemographic variables associated with drug consumption at some time in life and in the past 12 months, USAMDF-2012v

	Drug consumption			
	Some time in life		In the past 12 months	
	RM	95 CI	RM	95 CI
Gender				
• Female	1.00	-	1.00	-
• Male	2.70	(1.51-4.81)	1.50	(0.56-4.03)
Age groups				
• Elderly	1.00	-	1.00	-
• Very elderly	0.79	(0.44-1.42)	0.69	(0.25-1.89)
Marital status				
• Cohabitating	1.00	-	1.00	-
• Not cohabitating	0.56	(0.31-1.01)	0.39	(0.14-1.15)
School grade				
• Incomplete elementary school or lower	1.00	-	1.00	-
• Elementary or junior high school (finished or unfinished)	0.64	(0.35-1.17)	0.55	(0.20-1.54)
• High school or higher	0.68	(0.32-1.48)	0.64	(0.17-2.34)
Income				
• Less than or equal to the MW	1.00	-	1.00	-
• 2 MWs	1.71	(0.90-3.28)	0.58	(0.18-1.91)
• From 2 to 4 MWs	2.16	(1.03-4.54)	1.12	(0.33-3.86)
• Over 4 MWs	1.02	(0.34-3.05)	1.38	(0.32-5.93)
Insurance				
• No	1.00	-	1.00	-
• Yes	1.30	(0.60-2.81)	1.43	(0.41-5.03)
Caregiver				
• No need and does not have one	1.00	-	1.00	-
• No need but has one	1.81	(0.73-4.47)	0.75	(0.10-5.85)
• Needs but does not have one	0.65	(0.09-5.00)	0.83	(0.10-7.12)
• Needs and has one	1.37	(0.59-3.15)	0.29	(0.04-2.39)
Health perception				
• Excellent	1.00	-	1.00	-
• Good	1.21	(0.63-2.32)	0.62	(0.22-1.76)
• Bad	0.83	(0.29-2.34)	1.55	(0.43-5.66)
Any disease				
• No disease	1.00	-	1.00	-
• At least one disease*	1.59	(0.89-2.83)	2.17	(0.77-6.10)
Region				
• North	1.00	-	1.00	-
• East	1.12	(0.58-2.15)	0.43	(0.14-1.31)
• West	1.46	(0.7-3.04)	0.67	(0.20-2.24)
• South	0.80	(0.31-2.10)	0.77	(0.20-2.93)

The elderly group includes people with an age of 68-74 years and the very elderly group includes people being 75 years or older.
Regions are listed by: North: Azcapotzalco, Cuauhtémoc and Gustavo A. Madero; East: Coyoacán, Iztacalco, Iztapalapa; West: Álvaro Obregón, Benito Juárez, Cuajimalpa, Magdalena Contreras, Miguel Hidalgo; South: Milpa Alta, Tláhuac, Tlalpan and Xochimilco.
* This includes: Mental and behavioral disorders: bipolar disorder, schizophrenia, depression and Alzheimer; Chronic degenerative diseases: diabetes mellitus, metabolic syndrome, erectile dysfunction, osteoporosis, amyotrophic lateral sclerosis, duodenal ulcer, blindness, cataracts, glaucoma, breast cancer, prostate cancer, gastric cancer and bladder cancer; Infectious/respiratory diseases: pneumonia, influenza, common cold, otitis media and human papillomavirus.
OR - Odds ratio. MW – Minimum wage.

is no nationwide record of prevalences in the elderly population. In the United States, drug use showed variations in the consumption of non-prescription medicines among communities of adults over 65 years of age (between 31 and 96%)[20] and a very low prevalence of illicit drugs use such as marijuana (0.7%) and cocaine (0.04%) in the last 12 months.

Overall, inhalants, hallucinogens, methamphetamines and heroin consumption accounted for under 0.2%.[21,26]

Substance use in older adults in Mexico City is less when compared to the results for the adult population (18 and 65 years of age) of the last National Addictions Survey (ENA-2011) (Appendix 1). Alcohol consumption some time in life

in the ENA in adult population (77.1%)[2] was 11.8% higher compared to the estimate obtained in the present study. For alcohol consumption in the last twelve months prevalence was 23.4% higher among adults of the ENA (55.7%) than in our study, while alcohol abuse or dependence at some time in life (8.6%)[2] was lower in the ENA in only 0.4% compared to the estimates from this study. On the consumption of tobacco, its consumption at some time in life (53.43%) and in the last twelve months (23.6%)[3] was greater compared with the estimates in this study (45.4 and 9.5%, respectively). Drug use in the last 12 months was nearly three times more common in adults (2.8%)[4] than in older adults according to the present study (1.0%).

With regard to factors associated with substance use, there is higher alcohol consumption in men (16.41% men *vs.* 3.31% women), tobacco (64.8% men vs. 20.2% women),[27] and illicit drugs both in national and international literature.[20,28,29] In a study there were projections of substance use through the year 2020, finding that in general older adult males are more likely to present substance abuse disorders in particularly in the age range of 50 to 64 years. In non-institutionalized civilian population, older adults between 50-59 years of age are who most likely tend to use illicit or non-medical drugs than those older. Marijuana and cocaine are among the most widely consumed illicit drugs, and opioid analgesics among prescription drugs used mostly for medical reasons.[29] Other factors related to substance abuse in older adults are associated with female gender, present social isolation, history of substance abuse, history of mental illness, and/or medical exposure to medical prescription drugs with potential abuse.[30]

The use of medical drugs prevails in women, especially in adult women.[20,31] It is thought that female use disorders and substance abuse may be related to increased use of services and access of women to prescription psychotropic drugs. In particular, to non-medical narcotic analgesics and to tranquilizers.[32] Women over 65 with cognitive impairment, panic disorders and suicidal ideation are more likely to develop dependence to benzodiazepines. Research in the United States has found that white women with high purchasing power, impairment in physical function, stroke or heart attack background, whose visits to health centers was increasing and presented obesity were mostly associated with use of pain relievers. Other factors, such as the higher availability of financial resources that can be used to the purchase of alcohol and tobacco, are more controversial in women because there is little evidence for this population. It bears mentioning, however, the comorbidity between illicit or out-of-prescription substance use and alcohol.[32]

The research presented herein has important limitations. First, it is limited to old adults of only one entity of the Republic. This research only considered participants of the cash supplement program for the Federal District. As this program does not have 100% coverage, it is possible that those who are in socio-economic ends are underrepresented in our research universe. Second, it is considered that although the final sample is of adequate size, the prevalence of some substances was uncommon, especially that of illicit drugs, which prevented more detailed consumption analysis of these substances within this population. Third, special factors should be considered due to population segment. Since our research was based on self-reported substance use of older adults, and since in this population the factors related to cognitive losses are common, the prevalence rates reported herein may be affected and most likely to be underestimated. In fact, as our study population presents many of the diseases associated with the aging process, to avoid fatigue in this population our questionnaire had to be limited in the number of variables related to substance use. Fourth, it is important to consider the structure of the questionnaire. Although our instrument used definitions of risky use of common substances in the area suitable for general population, these definitions may use cut-off points unsuitable for the elderly population as well as underestimating the risky drinking in this group.

Finally, it is also important to consider that this research —as it is cross-sectional and is conducted with older population— favors those with high survival, and gives rise to the possibility that reverse causality may be a latent danger. Therefore, the results were presented conservatively, avoiding —as far as possible— expressions of causality when reporting our associations.

Despite the limitations mentioned above, the contributions of this research are considerable. This is the first population-based study carried out in the country with the elderly population, with a non-institutionalized fixed address in order to know the use of psychoactive substances. It was found that alcohol use, even risky drinking, was not uncommon; smoking tobacco habits do not disappear with age; and medical drug use can be of concern for its effects on other diseases. This reveals the need for setting definitions of risky substance use in this population and developing appropriate intervention programs for the characteristics and needs of this age group.

Addictions in Mexico City. The full report of this study can be seen in the website: www.iapa.df.gob.mx. If the reader wants to know the questions of the survey please direct your request to the investigator in charge, to the contact address cited in the beginning of this article.

REFERENCES

1. Medina-Mora Icaza ME, De la Parra A, Terroba G. The consumption of alcohol in the population of the Federal District. Salud Publica Mex 1980;22281-22288.

2. INPRFM, INSP, SSa. Encuesta Nacional de Adicciones 2011: Reporte de alcohol. México, DF: 2012.

3. INPRFM, INSP, SSa. Encuesta Nacional de Adicciones 2011: Reporte de Tabaco. México, DF: 2012.

4. INPRFM, INSP, SSa. Encuesta Nacional de Adicciones 2011: Reporte de Drogas. México, DF: INPRFM; 2012.

5. Shamah-Levy T, Cuevas-Nasu L, Mundo-Rosas V et al. Health and nutrition status of older adults in Mexico: results of national probabilistic survey. Salud Publica Mex 2008;50(5):383-389.

6. Aguilar-Navarro SG, Reyes-Guerrero J, Borges G. Cognitive impairment and alcohol and cigarette consumption in Mexican adults older than 65 years. Salud Publica Mex 2007;49s467-s474.

7. Kim S, De la Rosa M, Rice C, Delva J. Prevalence of smoking and drinking among older adults in seven urban cities in Latin America and the Caribbean. Subst Use Misuse 2007;42(9):1455-1475.

8. Lim SS, Vos T, Flaxman AD et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. The Lancet 2013;380(9859):2224-2260.

9. INEGI, página web; 2010. Available at: http://www.inegi.org.mx/sistemas/olap/proyectos/bd/consulta.asp?p=17118&c=27769&s=est# (Access date: September 1, 2013).

10. Portal ciudadano del Gobierno del Distrito Federal, página web; 2013. Available at: http://www.adultomayor.df.gob.mx/transparencia/padron.html (Access date: March 14, 2013).

11. CONAPO, página web; 2013. Available at: http://www.conapo.gob.mx/es/CONAPO/De_las_Entidades_Federativas_2010-2050. (Access date: September 1, 2013).

12. Portal ciudadano del Gobierno del Distrito Federal, página web; 2010. Available at: http://www.adultomayor.df.gob.mx/transparencia/padronjul2012.html (Access date: March 14, 2013).

13. Ham Chande R. Un siglo de cambios rumbo al envejecimiento. En: Ham Chande R (eds). El envejecimiento en México: el siguiente reto de la transición demográfica. México: Porrua;2003.

14. CONAPO. Dinámica y prospectivas del envejecimiento sociodemográfico. En: CONAPO (eds). Diagnóstico sociodemográfico del envejecimiento en México. Serie de documentos técnicos. México, DF: 2011.

15. Wong R. Envejecimiento en áreas urbanas marginales de México: condiciones mixtas de privilegio y desventaja. En: Salgado de Snyder VN, Wong R (eds). Envejecimiento, pobreza y salud en población urbana: un estudio en cuatro ciudades de México. Cuernavaca, Mor: INSP; 2006.

16. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorder (DSM-IV-TR). Washington, DC: 2000.

17. Hosmer DW, Lemeshow S. Applied logistic regression. 2nd. New York, NY: Wiley & Sons; 2000.

18. Solís LR, Vélez A, Berumen D. Prevalencia del consumo de bebidas alcohólicas y problemas asociados en personas de la tercera edad que acuden a los servicios de atención primaria de la Ciudad de México. Salud Mental 2000;23(3):38-45.

19. Contribuciones a las ciencias sociales, página web; 2010. Available at: http://www.eumed.net/rev/cccss/07/ggvmsp.htm (Access date: April 25, 2013).

20. Hanlon JT, Fillenbaum GG, Ruby CM, Gray S et al. Epidemiology of over-the-counter drug use in community dwelling elderly. Drug Aging 2001;18(2):123-131.

21. Blazer DG, Wu LT. The epidemiology of substance use and disorders among middle age and elderly community adults: National Survey on Drug Use and Health (NSDUH). Am J Geriatr Psychiatry 2009;17(3):237-245.

22. Wong R, Espinoza M, Palloni A. Adultos mayores mexicanos en contexto socioeconómico amplio: salud y envejecimiento. Salud Publica Mex 2007;49(4):436-447.

23. Wong R, Espinoza M, Palloni A. Adultos mayores mexicanos en contexto socioeconómico amplio: salud y envejecimiento. Salud Publica Mex 2007;49(436):447.

24. Ferri CP, West R, Moriyama TS et al. Tobacco use and dementia: evidence from the 1066 dementia population based serveys in Latin America, China and India. Int J Geriatr Psychiatry 2011;26(11):1177-1185.

25. Marinho V, Laks J, Coutunho ESF, Blay SL. Tobacco use among the elderly: a systematic review and meta-analysis. Cad Saude Publica 2010;26(12):2213-2233.

26. Blazer DG, Wu LT. The epidemiology of at-risk and binge drinking among middle-age elderly community adults national survey on drug use and health. Am J Psychiatry 2000;166(10):1162-1169.

27. Gallegos-Carrillo K, García-Peña C, Duran-Muñoz C, Reyes H et al. Autopercepción del estado de salud: una aproximación a los ancianos en México. Cad Saude Publica 2006;40(4):792-801.

28. Galvan EH, Caetano R. Alcohol use and related problems among ethnic minorities in the United States. Alcohol Res Health 2003;27(1):87-94.

29. Wu LT, Blazer DG. Illicit and nonmedical drug use among older adults: a review. J Aging Health 2011;23(3):481-504.

30. Culberson JW, Ziska M. Prescription drug misuse/abuse in the elderly. Geriatrics 2008;63(9):22-31.

31. Blow FC, Barry KL. Use and misuse of alcohol among older women. Alcohol Res Health 2002;4(308):315.

32. Simoni-Wastila L, Ritter G, Strickles G. Gender and other factors associated with the nonmedical use of abusable prescription drugs. Subst Use Misuse 2004;39(1):1-23.

Declaration of conflict interest: None

APPENDIX 1
Prevalence of substance use and associated problems, at some time in life.
Comparison table between the USAM-DF and the 2011 National Addictions Survey (ENA)

	n	Alcohol				Tobacco		Drugs		
		Drinking at some time in life % (IC)	Drinking during the last 12 months % (IC)	Risky drinking at least at some time in life* % (IC)	Abuse or dependence at some time in life % (IC)	Smoking at some time in life % (IC)	Smoking during the last 12 months % (IC)	Illegal drug use in the past 12 months % (IC)	Any drug use in the past 12 months % (IC)	Marijuana use in the past 12 months % (IC)
USAM-DF	2098	65.3 (63.2-67.3)	32.3 (30.3-34.3)	27.1 (25.2-29.1)	9.0 (7.8-10.3)	45.4 (43.2-47.5)	9.5 (8.3-10.8)	0.2 (0.1-0.5)	1.0 (0.7-1.6)	0.1 (0.0-0.3)
ENA 2011[2,3,4]	16249	77.1 (75.9-78.4)	55.7 (54.3-57.2)	35 (33.6-36.5)	8.6 (NIC)	53.3 (51.1-55.7)	23.6 (22.5-24.8)	2.3 (1.7-2.9)	2.8 (2.2-3.5)	1.9 (1.3-2.4)

USAM-DF indicators represent population between 68-105 years of age of the Federal District
ENA-2011 indicators represent nationwide population between 18-65 years of age
* in ENA is defined as high consumption
NCI - No confidence interval.
CI - confidence intervals at 95%

Translation of the original version published in spanish in:
Salud Mental 2014, Vol. 37 Issue No. 1.