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Association of psychoactive substance use with the care and health of older adults

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Original article

ABSTRACT

Background

The use of alcohol, tobacco, and other drugs has a significant impact on the daily lives of older adults. In order to study the relationship between substance use, health, and care variables in older adults.

Method

Information was collected in a random sample of registered users of the DF IAAM program; 2,098 people agreed to participate and were interviewed in their homes, and the response rate obtained was 83.9%.

Results and discussion

It was found that 13.1% receive support in basic and instrumental activities of daily living, 81.4% perceived little social support, 82.2% perceived belonging to a dysfunctional family, and 45.5% had been diagnosed with a chronic degenerative illness. Using odds ratios, it was shown that at-risk drinking and alcohol dependence increased the risk of chronic degenerative illnesses, infectious and mental disorders, and also affects the need for support in basic and instrumental activities of daily living and perception of family dysfunction. Smoking increased the risk of chronic degenerative and infectious illnesses and was also associated with perceived health and family support. The use of any illegal or prescribed drugs was not significantly associated with care variables, but did affect chronic degenerative illnesses and mental disorders. The results of this study showed that use of alcohol, tobacco and other drugs affects the health and care of older adults in Mexico City, so it is important to address these problems in order to improve their quality of life.

Key words: Alcohol, smoking, drugs, older adults, care, health.

RESUMEN

Antecedentes

El consumo de alcohol, tabaco y otras drogas tiene repercusiones importantes en la vida diaria de los adultos mayores. Con el objeto de conocer la asociación entre consumo de sustancias psicoactivas y variables de cuidado y salud en adultos mayores.

Método

Se recopiló información de una muestra aleatoria del padrón de usuarios del IAAM-DF. 2098 personas aceptaron participar y fueron entrevistadas en sus hogares, su tasa de respuesta fue de 83.9%.

Resultados y discusión

Se encontró que 13.1% requiere de ayuda en actividades básicas e instrumentales de la vida diaria; 81.4% percibe poco apoyo social; 82.2% señala pertenecer a una familia disfuncional, y a 45.5% le ha sido diagnosticada una enfermedad crónico-degenerativa.

Mediante razón de momios se determinó que el consumo riesgoso de alcohol y la dependencia de éste por adultos mayores incrementan en ellos el riesgo de padecer enfermedades crónico-degenerativas, infecciosas y trastornos mentales, e influyen en su necesidad de recibir apoyo en actividades básicas e instrumentales de la vida diaria , así como en su percepción de disfunción familiar. El consumo de tabaco aumentó el riesgo de padecer enfermedades crónico-degenerativas e infecciosas, y se asocia con la percepción de salud y apoyo familiar.

La ingestión de alguna droga, ilegal o prescrita, no se asoció significativamente con variables de cuidado, pero sí impacta en la aparición de enfermedades crónico-degenerativas y de trastornos mentales. Los resultados muestran que el consumo de alcohol, tabaco y otras drogas influye en la salud y el cuidado de los adultos mayores en la Ciudad de México, por lo cual constituye una tarea urgente atender estas problemáticas para mejorar la calidad de vida de éstos.

Palabras clave: Alcohol, tabaco, drogas, adultos mayores, cuidado, salud.

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BACKGROUND

The consumption of alcohol, tobacco, and other drugs by older adults is a little-known problem in Mexico,[1] given that National Addiction Surveys usually only include people below the age of 65.[2-4] Some general health surveys have recently approached this segment of the population,[1,5] and they offer some general information on the subject: some 23% of older adults in Mexico consume alcohol, and 2.8% have alcoholism. Some 23% also consume tobacco.[1] Until very recently,[6] there were no estimations available of illegal drug consumption, and as such this was prescribed for this demographic group. It is known that chronic alcohol[7] and tobacco[8] consumption is associated with the development of various chronic-degenerative and infectious illnesses,[7,9-11] and even some mental illnesses.[12,13]

The main causes of mortality in older adults are chronic illnesses such as diabetes mellitus, hypertensive cardiac conditions, cerebro-vascular illnesses, and malignant neoplasms.[14] It has also been reported that 37.9% of older adults show depressive symptoms[15] or other mental disorders.

The high prevalence of illness in this population also leads to a raised consumption of therapeutic drugs (polypharmacy), which can in turn lead to unwanted pharmacological interactions, as well as greater frequency and intensity of side effects.[16,17] Of course, the presence of these illnesses and conditions does not lead to immediate death in seniors, but it does imply repercussions in their physical, mental, social, and economic functioning, and can even lead to certain disabilities[18] when needs arise that must be met by their family or social circle, or by a professional carer.[16]

Substance consumption and its health consequences may exacerbate the difficult landscape of health already present for older adults. The Mexican population is aging; currently in Mexico City, 7% of the population is over 65 years old (approximately 500,000 people), and this percentage will increase to 28% in 2050.[19] It is therefore vitally important to consider that the demand for healthcare services and the burden of illnesses will therefore increase.

In terms of alcohol, tobacco, and other drug consumption, this also impacts on variables of care, such as the need for a carer, the ability to carry out basic and instrumental activities in daily life,[20,21] and the perception of health, social,[22] and family support[23,24] among the older population. It should be noted that perceived support has an even greater influence than received support,[25] and is closely related to physical and mental health.[26]

Given that little is known about the impact that legal and illegal substance consumption has on health and care variables in older adults, the aim of this paper was to assess whether the consumption of alcohol, tobacco, or other drugs was associated with diverse variables of care, such as the need for a carer, basic activities in daily life, perceived social and family support, perception of health and polypharmacy, and health (adverse reactions, chronic-degenerative illnesses, infectious illnesses, and mental illnesses), in a representative population of older adults who were members of the pension program of the Institute for the Care of Older Adults in Mexico City (IAAM-DF).

METHOD

The population for this study was made up of older adults who until July 2012 lived in the Federal District and were beneficiaries of the pension maintenance program implemented by IAAM-DF (approximately 92% of this age group). A sample of 2501 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. A total of 2,098 agreed to participate and were interviewed in their homes, with a response rate of 83.9%. More details of the methodology and sample can be found in a previous paper.[6]

Ethical issues

All the resulting individuals from this simple random sample were interviewed, after having read (or been read, if applicable) an informed consent letter. Only those who agreed to participate were considered for this study. At all times there was an emphasis on the voluntary nature of their participation and on the confidential handling of information.

Definition of main variables

For the purposes of this study, and according to the National Addictions Survey 2011, the following variables were defined:

Alcohol

- *Teetotaler*: A person who never drank alcohol in their life.
- *Drinker*: A person who drank alcohol at some time in life.
- *Current drinker*: A person who drank alcohol within the past year.
- *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*).[27]

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 a prescription*: Includes the use of opiates, tranquilizers, sedatives, barbiturates, amphetamines, and stimulants without a prescription or differently to that 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, and other drugs.
- *Drugs*: Use of either medical or illicit drugs.

Assessment of care and health

The questionnaire identified whether the interviewee needed the support of a carer, and if they had it, what type of activities were supported: basic or instrumental activities in daily life (BIADL). Basic life activities are understood to be those which assist the senior to eat, move around, bathe, use the toilet, and others. Instrumental activities refer to support offered by the carer to manage finances, purchase medications, do housework, make phone calls, or leave the house. The survey also measured both perceived family support (PFS) and perceived social support (PSS) using the APGAR[18] and the DUKE-UNC instruments,[22,28] respectively.

In terms of the state of health, the questionnaire considered polypharmacy (PP) to be the consumption of more than three different medications per day. It also identified whether the use of these drugs produced an adverse reaction to medication (ARM). Finally, the older adults advised if they had ever been diagnosed with any of the following illnesses, which for the purposes of this paper, were recorded as follows:

- MBD - Mental and behavioral disorders: including bipolar disorder, schizophrenia, depression, and Alzheimer's.
- CDI - Chronic degenerative illnesses which include diabetes mellitus, metabolic syndrome, erectile dysfunction, osteoporosis, amyotrophic lateral sclerosis, duodenal ulcers, blindness, cataracts, glaucoma, breast cancer, prostate cancer, gastric cancer, and bladder cancer, among others.
- IRI - Infectious respiratory illnesses such as pneumonia, influenza, the common cold, otitis media, and human papilloma virus.

Data analysis

Data analysis was carried out with version 12 of the STATA program. It reported prevalences for consumption of substances (alcohol, tobacco, and drugs) at some time in their lives and during the past 12 months, broken down by variables of care and health. *Odds ratio* was used as a measure of association. All estimations were adjusted by sex, age, civil status, education, income, social security, and borough of the Federal District in which the older adult lived.

RESULTS

Distribution of participants by sex and by demographic variables is shown in Table 1. Almost two thirds of the sample was women, 66.2% of whom were between 69-79 years of age. Slightly fewer than half were married or cohabitating, and 41.3% had incomplete primary or lower education. As can be observed, this is a low-income population, and just over 70% receive two minimum wages or less, although 80.9% have some kind of health insurance.

Some 84.6% reported not needing a carer. Some 13.1% of interviewees received some kind of support for basic and instrumental activities in daily life. The majority of older adults considered that they had no social support (81.4%), even if they considered that they had a high perceived level of family support (82.2%). A little over a third of the interviewees (35.2%) consumed more than three different drugs per day, and only 3.0% advised that they had had some adverse reaction to medication at some time in their lives. Some 23.7% reported "excellent" health, and 10.8% considered that at some time in their life they had been diagnosed with a mental or behavioral disorder by a doctor; 45.8% suffered a chronic-degenerative illness, and 26.5% had an infectious/contagious illness.

Table 2 shows prevalences of substance use at some time in their lives and during the past 12 months, according to variables of type of care and health. For example, among those who had never consumed alcohol, 18.1% needed a carer, while of those who did drink, 13.8% needed one. One way of viewing this table is to read it horizontally, i.e. for one variable. For example, in risky annual alcohol consumption, it can be seen that the greatest impact is generated upon increasing the care of the older adult in basic and instrumental activities (BIA), perception of family dysfunction (PFD), and when they have been medically diagnosed at some time in life with CDI or IRI.

The table can also be read vertically, therefore analyzing which substances affect a problem the most. For example, it can be seen that the prevalence of IRI is greater when subjects report alcohol dependence or abuse in the past 12 months (38.5%). The report of CDI shows an apex in prevalence among those who reported drug consumption in the past year (63.6%).

Table 3 shows the odds ratio of variables of care for the older adult associated with alcohol, tobacco, and drug consumption, whether at any time of life or in the past 12 months. Alcohol consumption at some time in life was only significantly associated with PP (OR=1.26, IC95%=1.01-

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Table 1. Sociodemographic and health descriptive information by gender sampling - substance use in older adults of Mexico City (USAMDF-2012) Survey, n = 2,098

	Male (n=799)	Female (n=1299)	Total (n=2098)		
Sex	38.1	61.9	100.0		
Age group				$\chi_2(1)=2.93$	Pr=0.087
• Elderly	68.5	64.8	66.2		
• Very elderly	31.5	35.2	33.8		
Marital status				$\chi_2(1)=302.63$	Pr=0.000
• Other	32.0	70.9	56.1		
• Married/cohabitating	68.0	29.1	43.9		
School grade				$\chi_2(2)=40.20$	Pr=0.000
• Incomplete elementary school or lower	35.5	45.0	41.3		
• Elementary or junior high school (finished or unfinished)	37.6	39.3	38.7		
• High school or higher	26.9	15.7	20.0		
Income				$\chi_2(3)=40.87$	Pr=0.000
• Less than or equal to the MW	36.2	48.9	44.0		
• 2 MWs	30.2	26.5	27.9		
• From 2 to 4 MWs	19.0	16.6	17.5		
• Over 4 MWs	14.5	8.0	10.5		
Insurance				$\chi_2(1)=26.91$	Pr=0.000
• No	13.4	22.7	19.1		
• Yes	86.6	77.3	80.9		
Region				$\chi_2(3)= 3.21$	Pr=0.360
• North	29.2	28.7	28.9		
• East	38.2	37.0	37.4		
• West	18.3	21.3	20.2		
• South	14.4	13.0	13.5		
Needs a carer				$\chi_2(1)=10.02$	Pr=0.002
• No	87.9	82.6	84.6		
• Yes	12.1	17.4	15.4		
Type of care provided (TCP)				$\chi_2(1)=2.96$	Pr=0.086
• No care received	88.6	85.9	86.9		
• Basic or instrumental activities*	11.5	14.1	13.1		
Perceived social support** (PSS)				$\chi_2(1)=1.12$	Pr=0.289
• No support	82.6	80.7	81.4		
• Support	17.4	19.3	18.6		
Perceived family support*** (PFS)				$\chi_2(1)=0.18$	Pr=0.675
• Not dysfunctional	82.6	81.9	82.2		
• Dysfunctional	17.4	18.1	17.8		
Consumption of more than 3 different drugs per day (PP)				$\chi_2(1)=16.43$	Pr=0.000
• No	70.2	61.5	64.8		
• Yes	29.8	38.5	35.2		
Adverse reactions to medication (ARM)				$\chi_2(1)=6.51$	Pr=0.011
• No	98.2	96.3	97.0		
• Yes	1.8	3.7	3.0		
Health perception				$\chi_2(2)=14.10$	Pr=0.001
• Excellent	26.5	22.0	23.7		
• Very good	63.3	62.4	62.7		
• Good	10.3	15.7	13.6		

Table 1. Continued

	Male (n=799	Female (n=1299)	Total (n=2098)		
Mental and behavioral disorders (MBD)				$\chi_2(1)=19.42$	Pr=0.000
• No	93.0	86.8	89.2		
• Yes	7.0	13.2	10.8		
Chronic degenerative illnesses (CDI)				$\chi_2(1)=17.22$	Pr=0.000
• No	59.9	50.7	54.2		
• Yes	40.1	49.3	45.8		
Infectious/respiratory illnesses (IRI)				$\chi_2(1)=0.39$	Pr=0.533
• No	74.2	73.0	73.5		
• Yes	25.8	27.0	26.5		

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, Tlahuac, Tlalpan, and Xochimilco.
MW – Minimum wage.
* Examples of basic activities are eating, dressing, washing, toileting, or moving around unaided. Examples of instrumental activities are doing housework, managing money, taking medications, going shopping, talking on the phone, or leaving the house.
** Perceived family support is based on the APGAR instrument designed by Smikstein.
*** SBased on the DUKE-UNC measurement instrument.
Mental and behavioral disorders include: bipolar disorder, schizophrenia, depression, and Alzheimer's.
Chronic-degenerative disorders include: diabetes mellitus, metabolic syndrome, erectile dysfunction, osteoporosis, amyotrophic lateral sclerosis, duodenal ulcers, blindness, cataracts, glaucoma, breast cancer, prostate cancer, gastric cancer, and bladder cancer.
Infectious/respiratory illnesses include: pneumonia, influenza, the common cold, otitis media, and the human papilloma virus.

1.57). For alcohol consumption, the strongest and most significant associations were found in high or chronic consumption (abuse and dependency). Excessive tobacco consumption (more than 100 cigarettes at some time in life) was associated with PFS (OR=1.45, IC95%=1.09-1.91) and also with a good perception of health (OR=1.31, IC95%=1.01-1.71). Drug consumption at some time in life or within the past 12 months increased the odds ratio on various occasions, but never statistically significantly.

Finally, Table 4 shows the odds ratio for health variables in older adults associated with alcohol, tobacco, and drug consumption at some time in life and within the past 12 months. Generally speaking, it can be seen that this table shows the most consistent relationships between substance consumption and increases in health problems, which are not only greater than those described in the previous table, but also stronger, with confidence intervals that often do not include the null value.

Excessive consumption of drugs and alcohol was found to be especially related to MBD (including bipolar disorder, schizophrenia, depression, and Alzheimer's), while consumption of alcohol, tobacco, and other drugs was especially related to CDI (including diabetes mellitus, metabolic syndrome, erectile dysfunction, osteoporosis, amyotrophic lateral sclerosis, duodenal ulcers, blindness, cataracts, glaucoma, and cancer of the breast, prostate, stomach, and bladder). Furthermore, alcohol and tobacco consumption was associated with IRI (including pneumonia, influenza, the common cold, otitis media, and human papilloma virus or HPV).

DISCUSSION

Substance consumption and variables of care

Variables of care may include: the need for a carer, BIADL, perceived family and social support, perception of health, and polypharmacy. BIADL[20,21] have been related to state of health,[29] and can be a predictor of mortality.[30]

In this study, it was found that risky alcohol consumption at some time in life and in the past year was related to a greater risk of requiring help with BIADL. The relationship between functioning and alcohol consumption is controversial,[9] as there are studies where reduction of functioning is associated with alcohol consumption; however, once adjusted for demographic variables, this indicator loses statistical significance.[31] It has been reported that alcohol consumption is associated with a reduction in mobility,[32] and it has even been argued that low or moderate alcohol consumption is a protective factor against functional reduction in comparison with abstention. However, this effect is only observed in an age range of 50-64 years and loses importance in over 65s.[10]

On the other hand, a high frequency of polypharmacy and alcohol consumption has been observed in older adults,[11,33,34] which, added to the reduced renal function natural to the aging process,[17] brings with it various dangers such as greater adverse effects, including interaction between drugs, reduced quality of life, cognitive deterioration, and unnecessary expenditure.[16,17,34] There may be some people who drink alcohol to reduce the effects of medications; however, polypharmacy can also be the result of treatment

Table 2. Prevalence of care and health variables in terms of alcohol, tobacco, and drug consumption at some time in life and in the past 12 months in older adults of Mexico City

	Needs a carer	BIA	PSS	PFS	Perception of health		PP	ARM	MBD	CDI	IRI
	Yes	Basic or instrumental activities*	Support	Dysfunctional	Good	Bad	Yes	Yes	Yes	Yes	Yes
Alcohol consumption at some time in life											
• No	18.1	13.7	21.2	18.3	61.2	14.5	34.2	2.7	11.8	42.4	21.5
• Yes	13.8	12.5	17.2	17.6	63.5	13.2	35.7	3.1	10.3	47.6	29.2
Risky consumption at some time in life											
• No	16.5	11.4	19.3	17.0	61.3	14.8	34.9	3.0	11.1	45.1	25.5
• Yes	12.1	16.9	16.5	20.2	66.5	10.5	35.9	2.8	10.2	47.8	29.3
Alcohol abuse or dependence at some time in life											
• No	15.3	12.7	17.8	17.5	62.0	13.5	35.5	3.0	10.6	45.4	26.4
• Yes	15.1	14.9	26.1	20.7	70.2	14.6	31.4	2.1	13.3	50.0	28.2
Alcohol consumption in the past 12 months											
• No	17.0	13.2	20.5	18.5	61.6	15.4	35.5	2.8	11.8	45.2	23.9
• Yes	11.8	12.3	14.6	16.5	65.0	9.8	34.6	3.2	8.9	47.1	32.1
Annual risky consumption											
• No	16.3	11.4	19.0	17.1	61.4	14.5	36.2	2.9	10.9	45.0	26.0
• Yes	10.2	20.8	16.0	21.6	69.8	9.0	29.9	3.0	10.6	49.8	29.6
Alcohol abuse or dependency in the past 12 months											
• No	15.3	12.8	18.4	17.7	62.7	13.5	35.1	3.0	10.6	45.8	26.4
• Yes	16.7	19.2	30.8	30.8	65.4	19.2	42.3	0.0	26.9	46.2	38.5
Risky tobacco consumption at some time in life											
• No	16.5	13.4	18.0	16.3	61.9	14.0	34.6	3.5	12.2	44.2	24.1
• Yes	13.8	12.3	19.3	19.6	63.7	13.1	35.8	2.3	9.1	47.8	29.5
Consumption of 100 cigarettes or more in life											
• No	16.3	13.2	18.8	17.2	61.3	14.4	35.2	3.4	11.0	43.8	25.0
• Yes	13.0	12.3	18.1	19.5	66.1	11.8	35.1	1.8	10.5	50.7	30.3
Tobacco consumption in the past 12 months											
• No	16.2	13.7	19.0	17.7	62.4	14.1	35.8	3.2	11.3	46.3	26.5
• Yes	6.4	5.0	14.6	19.0	65.3	9.5	29.1	1.0	6.5	41.2	27.1
Any drug consumption at some time in life											
• No	15.3	12.7	18.3	17.6	62.6	13.6	35.0	3.0	10.5	45.4	26.5
• Yes	15.7	17.6	27.0	24.7	65.7	12.9	39.2	2.7	18.9	56.8	28.4
Any drug use in the past 12 months											
• No	15.3	12.9	18.4	17.8	62.9	13.5	35.0	2.9	10.6	45.6	26.6
• Yes	13.6	13.6	31.8	18.2	45.5	27.3	50.0	9.1	27.3	63.6	18.2

BIA - Type of care provided to the older adult by the carer: Examples of basic activities are eating, dressing, washing, toileting, or moving around unaided. Examples of instrumental activities are doing housework, managing money, taking medications, going shopping, talking on the phone, or leaving the house.
PFS - Perceived family support. This is based on the APGAR instrument designed by Smikstein.
PSS - Perceived social support. Based on the DUKE-UNC measurement instrument.
PP - Polypharmacy. Consumption of more than 3 different drugs per day.
ARM - Adverse reaction to medication.
MBD - Mental and behavioral disorders, including: bipolar disorder, schizophrenia, depression, and Alzheimer's.
CDI - Chronic-degenerative illnesses, including: diabetes mellitus, metabolic syndrome, erectile dysfunction, osteoporosis, amyotrophic lateral sclerosis, duodenal ulcers, blindness, cataracts, glaucoma, breast cancer, prostate cancer, gastric cancer, and bladder cancer.
IRI - Infectious/respiratory illnesses, including: pneumonia, influenza, the common cold, otitis media, and the human papilloma virus.

Table 3. *Odds ratio* of variables of care for older adults associated with alcohol, tobacco, and drug consumption at some time in life and in the past 12 months, controlled by sociodemographic variables in older adults of Mexico City

	Needs a carer		BIA		PFS		PSS		Health perception			PP	
	No	Yes	Does not receive support	Basic or instrumental activ.*	No dysfunctional	Dysfunctional	No support	Support	Excellent	Good	Bad	No	Yes
Alcohol consumption at some time in life													
• OR	1.00	0.75	1.00	0.86	1.00	1.22	1.00	0.88	1.00	1.16	1.17	1.00	1.26*
• IC95%	–	(0.55-1.01)	–	(0.63-1.19)	–	(0.92-1.62)	–	(0.67-1.16)	–	(0.90-1.51)	(0.81-1.69)	–	(1.01-1.57)
Risky consumption at some time in life													
• OR	1.00	0.73	1.00	1.95*	1.00	1.54*	1.00	0.96	1.00	1.18	0.92	1.00	1.12
• IC95%	–	(0.52-1.03)	–	(1.41-2.68)	–	(1.17-2.04)	–	(0.72-1.28)	–	(0.91-1.54)	(0.62-1.36)	–	(0.89-1.40)
Alcohol abuse or dependence at some time in life													
• OR	1.00	1.21	1.00	1.37	1.00	1.47	1.00	1.90*	1.00	1.99*	2.35*	1.00	1.07
• IC95%	–	(0.71-2.08)	–	(0.82-2.30)	–	(0.96-2.26)	–	(1.25-2.88)	–	(1.23-3.21)	(1.24-4.46)	–	(0.74-1.55)
Alcohol consumption in the past 12 months													
• OR	1.00	0.70*	1.00	1.00	1.00	1.10	1.00	0.80	1.00	1.01	0.67*	1.00	0.99
• IC95%	–	(0.50-0.96)	–	(0.73-1.39)	–	(0.84-1.45)	–	(0.61-1.06)	–	(0.79-1.30)	(0.46-0.99)	–	(0.80-1.23)
Annual risky consumption													
• OR	1.00	0.58*	1.00	2.75*	1.00	1.59*	1.00	0.90	1.00	1.38*	0.96	1.00	0.79
• IC95%	–	(0.37-0.91)	–	(1.92-3.94)	–	(1.15-2.20)	–	(0.63-1.28)	–	(1.00-1.92)	(0.58-1.59)	–	(0.60-1.05)
Alcohol abuse or dependency in the past 12 months													
• OR	1.00	1.39	1.00	1.66	1.00	2.77*	1.00	1.72	1.00	1.40	2.79	1.00	1.54
• IC95%	–	(0.38-5.12)	–	(0.52-5.32)	–	(1.11-6.90)	–	(0.65-4.55)	–	(0.45-4.35)	(0.71-10.96)	–	(0.64-3.67)
Risky tobacco consumption at some time in life													
• OR	1.00	1.06	1.00	1.08	1.00	1.67*	1.00	1.29	1.00	1.17	1.38	1.00	1.24*
• IC95%	–	(0.79-1.44)	–	(0.79-1.48)	–	(1.28-2.19)	–	(0.99-1.68)	–	(0.92-1.51)	(0.97-1.97)	–	(1.01-1.54)
Consumption of 100 cigarettes or more in life													
• OR	1.00	0.94	1.00	1.13	1.00	1.45*	1.00	1.08	1.00	1.31*	1.25	1.00	1.11
• IC95%	–	(0.67-1.31)	–	(0.81-1.59)	–	(1.09-1.91)	–	(0.82-1.44)	–	(1.01-1.71)	(0.85-1.84)	–	(0.89-1.39)
Tobacco consumption in the past 12 months													
• OR	1.00	0.55	1.00	0.48*	1.00	1.16	1.00	0.70	1.00	1.03	0.89	1.00	0.79
• IC95%	–	(0.30-1.03)	–	(0.24-0.93)	–	(0.77-1.73)	–	(0.44-1.09)	–	(0.71-1.50)	(0.49-1.60)	–	(0.56-1.11)
Any drug consumption at some time in life													
• OR	1.00	1.09	1.00	1.18	1.00	1.60	1.00	1.59	1.00	1.33	1.15	1.00	1.30
• IC95%	–	(0.52-2.31)	–	(0.56-2.50)	–	(0.88-2.91)	–	(0.88-2.89)	–	(0.70-2.52)	(0.45-2.98)	–	(0.78-2.18)
Any drug use in the past 12 months													
• OR	1.00	0.66	1.00	0.87	1.00	0.98	1.00	2.10	1.00	0.65	1.61	1.00	2.24
• IC95%	–	(0.15-2.97)	–	(0.19-3.94)	–	(0.32-3.00)	–	(0.81-5.45)	–	(0.23-1.83)	(0.47-5.51)	–	(0.91-5.49)

BIA - Type of care provided to the older adult by the carer: Examples of basic activities are eating, dressing, washing, toileting, or moving around unaided. Examples of instrumental activities are doing housework, managing money, taking medications, going shopping, talking on the phone, or leaving the house. PFS - Perceived family support. This is based on the APGAR instrument designed by Smikstein. PSS - Perceived social support. Based on the DUKE-UNC measurement instrument. PP - Polypharmacy. Consumption of more than 3 different drugs per day.
*Significant association.

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Table 4. *Odds ratio* of variables of care for older adults associated with alcohol, tobacco, and drug consumption at some time in life and in the past 12 months, controlled by sociodemographic variables in older adults of Mexico City

	ARM		MBD		CDI		IRI	
	No	Yes	No	Yes	No	Yes	No	Yes
Alcohol consumption at some time in life								
• OR	1.00	1.46	1.00	1.23	1.00	1.43*	1.00	1.51*
• IC95%	–	(0.78-2.73)	–	(0.88-1.71)	–	(1.16-1.78)	–	(1.18-1.93)
Risky consumption at some time in life								
• OR	1.00	1.30	1.00	1.14	1.00	1.28*	1.00	1.28*
• IC95%	–	(0.69-2.47)	–	(0.80-1.62)	–	(1.03-1.59)	–	(1.01-1.63)
Alcohol abuse or dependence at some time in life								
• OR	1.00	0.82	1.00	2.23*	1.00	1.66*	1.00	1.39
• IC95%	–	(0.23-2.90)	–	(1.28-3.89)	–	(1.18-2.35)	–	(0.95-2.04)
Alcohol consumption in the past 12 months								
• OR	1.00	1.55	1.00	0.84	1.00	1.14	1.00	1.36*
• IC95%	–	(0.86-2.78)	–	(0.60-1.19)	–	(0.93-1.39)	–	(1.09-1.70)
Annual risky consumption								
• OR	1.00	1.62	1.00	1.24	1.00	1.42*	1.00	1.30
• IC95%	–	(0.77-3.39)	–	(0.81-1.91)	–	(1.09-1.83)	–	(0.98-1.73)
Alcohol abuse or dependency in the past 12 months								
• OR	1.00	1.00	1.00	4.13*	1.00	1.11	1.00	2.20
• IC95%	–	(1.00-1.00)	–	(1.43-11.95)	–	(0.48-2.59)	–	(0.92-5.28)
Risky tobacco consumption at some time in life								
• OR	1.00	0.90	1.00	0.92	1.00	1.45*	1.00	1.40*
• IC95%	–	(0.49-1.65)	–	(0.66-1.27)	–	(1.18-1.78)	–	(1.12-1.76)
Consumption of 100 cigarettes or more in life								
• OR	1.00	0.67	1.00	1.26	1.00	1.69*	1.00	1.34*
• IC95%	–	(0.32-1.41)	–	(0.89-1.79)	–	(1.36-2.10)	–	(1.05-1.70)
Tobacco consumption in the past 12 months								
• OR	1.00	0.44	1.00	0.63	1.00	0.94	1.00	0.94
• IC95%	–	(0.10-1.87)	–	(0.34-1.17)	–	(0.69-1.29)	–	(0.66-1.34)
Any drug consumption at some time in life								
• OR	1.00	1.12	1.00	2.75*	1.00	1.67*	1.00	1.16
• IC95%	–	(0.26-4.76)	–	(1.47-5.16)	–	(1.01-2.76)	–	(0.66-2.01)
Any drug use in the past 12 months								
• OR	1.00	4.31	1.00	3.46*	1.00	2.55*	1.00	0.67
• IC95%	–	(0.92-20.18)	–	(1.29-9.29)	–	(1.00-6.47)	–	(0.22-2.01)

ARM - Adverse reaction to medication.
MBD - Mental and behavioral disorders, including: bipolar disorder, schizophrenia, depression, and Alzheimer's.
CDI - Chronic-degenerative illnesses, including: diabetes mellitus, metabolic syndrome, erectile dysfunction, osteoporosis, amyotrophic lateral sclerosis, duodenal ulcers, blindness, cataracts, glaucoma, breast cancer, prostate cancer, gastric cancer, and bladder cancer.
IRI - Infectious/respiratory illnesses, including: pneumonia, influenza, the common cold, otitis media, and the human papilloma virus.
OR - *Odds Ratio*.
*Significant association.

to reduce adverse effects, as well as for illnesses resulting from alcohol consumption.

Furthermore, tobacco consumption at some time in life was related with greater risk of polypharmacy. This is similar to what was obtained in another study with older adults,[35] in which being an ex-smoker was associated with the number of medications consumed.

Moderate and risky alcohol consumption in the past 12 months was associated with appearing to have a lower risk of needing a carer and of having poor health. Contrary to that reported in the bibliography,[36] an association was observed between perceived good health and risky annual consumption. However, this data should be approached with caution, as alcohol dependency at some time in life has been related with a contradictory perception of both good and poor health at the same time.

It is important to note that perception of health refers to *self-reporting* by the older adult, but which may not be related to their actual state of health. Perception of health (good or bad) also depends on other factors such as how satisfied they feel with life, as well as economic or social factors.[37]

On the other hand, consuming more than 100 cigarettes in a lifetime was related to the perception of good health, probably due to many interviewees being ex-smokers and having a better state of health, given that older adult smokers mention deficient health.[38] Furthermore, smoking affects BIADL and brings with it a greater risk of reduced functional skills in later life.[39]

In our study, tobacco consumption within the past year was related with a reduced requirement for assistance in BIADL, which probably originated because older adults perceived dysfunction but acted to the contrary. However, further investigation would be required around this particular result.

Families are one of the main social support networks for older adults. The Family APGAR scale[23] has reliability and construct validity in the Mexican population,[24] and it found that alcohol consumption (risky annually or at any time in life, and abuse or dependence in the past year) was associated with the perception of having a dysfunctional family. Previous studies have reported a relation between alcohol dependency and family dysfunction.[40]

In the case of tobacco, 17.8% of people who have consumed it (at some time, or more than 100 cigarettes in a lifetime) had a higher risk of family dysfunction. These results are consistent with those found[41] in older adult smoker patients who suffered COPD, in whom perceived family dysfunction was 20.3%. Although in some studies,[40,42] the family dynamic was not significantly altered, it is possible that the patient does not consciously perceive dysfunction in their family environment, and therefore does not express it, or that they perceive dysfunction but adjust their responses to what they believe is expected of them. It would be interesting to contrast the family perception of other members of the family.

Abuse of, or dependence on, alcohol at some time in life was related to greater perceived social support measured with the Duke-UNC Perceived Social Support Questionnaire,[28] the Spanish version of which is validated.[22,43] In older adults, it is known that social isolation and perceived lack of social support are risk factors for both physical and mental health.[26] Previously, it was reported that 19.3% of people who perceived little social support had a history of problematic alcohol consumption.[44] Social support involves all social networks with which the individual interacts, and may include friends, family members, workmates, and even people who they drink with, due to which the high social support perceived in our study needs to be further analyzed in order to delve into the cause of this fact, given that there are not many studies on that aspect.[43,44]

Substance consumption and health variables

According to this study, alcohol consumption at some time in life, in terms of risk, abuse, and dependency, is related with a higher risk of having CDI, including diabetes mellitus, metabolic syndrome, erectile dysfunction, osteoporosis, amyotrophic lateral sclerosis, duodenal ulcers, blindness, cataracts, glaucoma, and various cancers.

Morbidity and the burden of illness related to alcohol has been widely reported.[7,45,46] The relationship between alcohol consumption and alterations in the cardiovascular system such as cardiomyopathy, increased blood pressure and LDL cholesterol,[47] cancer,[46,48] diabetes,[49] and liver damage has also been reported, and our study on the older adult population confirms this.

Having smoked at some time, or more often 100 cigarettes in a lifetime has also been related to a greater risk of developing CDI. Tobacco consumption has been related to a greater risk of contracting diabetes, affecting resistance to insulin,[50] metabolic syndrome,[51] erectile dysfunction,[52] and more than 20 types of cancer in areas such as the lungs, mouth, larynx, esophagus, stomach, kidney, bladder, pancreas, and cervix,[53,54] as well as other conditions.

In terms of alcohol consumption, this has a negative impact on IRI,[55] HIV,[56] and pneumonia.[57] In fact, risky consumption could severely affect the immune system, as it produces functional alterations in the T cells; reduction of CD3+, CD4+, and CD8+, of B lymphocytes, NK cells, and macrophages.[58]

In accordance with this study, alcohol consumption (at some time in life, risky drinking at some time in life, or annually) was related to a greater risk of IRI such as pneumonia, influenza, the common cold, otitis, and HPV, although determining the causal mechanisms in adults would require more research, as the immunological system in older adults naturally tends to decline. However, this decline is not only due to age, but also to other associated factors.[59]

Tobacco consumption at some time, or more than 100 cigarettes in a lifetime, was also related to the development of IRI. This result aligns with that reported previously, which identifies tobacco smoking as the major etiological factor for developing chronic obstructive pulmonary disease, asthma, pneumonia, and tuberculosis,[60] as well as the risk of cervical-uterine cancer[61] associated with HPV. Smoking also has repercussions on the immune system, as nicotine has an immunosuppressant effect, in increasing the leukocytes and reducing immunoglobulins.[62]

Alcohol consumption (abuse or dependency annually or at some time in life) has also been related with a greater risk of MBD including bipolar disorder, schizophrenia, depression, and Alzheimer's. Approximately 25% of adults over 65 who have dementia, and 20% of those who have a diagnosis of depression, have a disorder related to alcohol.[46]

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Some 37.9% of older adults in Mexico showed depressive symptoms[15] and presented greater dependency on IADL. It was noted that in some studies, moderate wine consumption has been associated with a lower risk of suffering Alzheimer's; however, this happens only with moderation. When elevated to risky consumption or dependence, this becomes a risk factor instead.[12]

In terms of the consumption of legal and illegal drugs by older adults, it is worth noting that this has increased and is expected to continue increasing over the next decade.[63] This phenomenon has been called an invisible epidemic, as in this population, alcohol consumption disorders are generally underestimated or underdiagnosed, and very few receive treatment.[64]

Studies referring to seniors have generally been focused on alcohol and tobacco consumption, while illegal drugs[65] have been left to one side. However, this constitutes a public health problem which has forcefully emerged.

This investigation found that 3.5% of the population studied reported having consumed some drug at some time in their lives, primarily illicit drugs (2.4%) such as marijuana (2.1%). Consumption of any drug during a lifetime or in the past year was not related to any care variable, but it was associated with a greater risk of suffering MAD and CDI.

It is known that drug consumption can worsen various medical and psychological conditions.[66] In terms of chronic marijuana consumption, it has been linked with the development of respiratory problems, psychotic symptoms (especially in people with genetic predisposition), and cognitive damage, as well as cancer, depression, mania, and suicide attempts.[67]

Reciprocally, having suffered depression during the past year increases the possibility of marijuana use.[63] During a study on older adults who attended emergency psychiatric services, it was found that one in four patients had taken some sort of drug (benzodiazepines, cocaine, opiates, etc.) which suggests an important relationship between psychiatric conditions and substance use.[13]

Within the limitations of this study, it is important to emphasize that the analysis of the odds ratio indicates an association between both variables, but it has not been possible to determine causality. Given that this is a cross-sectional study, it would be convenient to carry out another more longitudinal investigation, and thereby take other variables into account, with the aim of understanding a possible causality such as that mentioned.

Another limitation of this investigation lies in the data obtained around illnesses and the consumption patterns being communicated by the older adults themselves, but neither confirmed through a professional diagnosis, nor by the patients' family members. Future investigations on this subject would be well advised to carry out studies on substance consumption in older adults which focus on other substances, both legal and illegal, as well as to broaden the sample.

In conclusion, in spite of these limitations, it was found that consumption of alcohol, tobacco, and other drugs by older adults significantly affects variables such as BIADL, perception of family, social circles, and health, as well as increasing the risk of suffering chronic-degenerative or infectious illnesses, and mental and behavioral disorders. As such, it is vitally important to develop instruments for diagnosis and treatment specifically for older adults who consume psychoactive substances.[63]

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Conflict of interest

The authors do not declare any conflicts of interest.

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