National Risk Factor Survey 2005: Main Results.
Prevalence of Cardiovascular Risk Factors in Argentina

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SUMMARY

Until present, we had no information available at a national level regarding the main risk factors affecting morbidity and mortality due to cardiovascular diseases that would allow undertaking a strategy of health promotion and primary prevention. With the goal of developing public health policies, the Ministry of Health has started to work on the first "National Risk Factor Survey".

Objectives
To describe the prevalence of the main cardiovascular risk factors in Argentina and their association with sociodemographic characteristics.

Material and Methods
The first National Risk Factor Survey was conducted from March 12 until June 17, 2005, using a questionnaire proposed by PAHO and the WHO, which was previously validated for Argentina. Homes were surveyed to obtain a probabilistic sample, which was representative at national and provincial levels. The survey included adults, aged 18 years and older. The main prevalence indicators were obtained according to CDC recommendations; the associations between sociodemographic parameters were assessed as well as the rate of control of blood pressure and cholesterol levels.

Results
A total of 41.392 surveys were performed, with a response rate of 86.7%. The main national indicators were: a low level of physical activity (46.2%), tobacco consumption, which was 33.4% in subjects aged 18 to 64 years and 29.7% in adults of all ages, high blood pressure (33.4%) in people in whom it was measured, overweight-obesity was 49.1%, low consumption of fruits and vegetables: 35.3%, diabetes in 11.9% (in people in whom it was measured), high cholesterol: 27.8% (in people in whom it was measured), while alcohol intake considered "of risk" was 9.6%. For almost all risk factors assessed, the prevalence was higher in lower income populations, with unmet basic needs and lower educational level. Prevalence was also significant in the northeastern and northwestern provinces of our country. As to the reported control of risk factors, for blood pressure it was 78.7% in the last two years and for cholesterol levels it was 56.8% in subjects older than 20 years old. The prevalence observed for moderate to high risk of cardiovascular events was 28.4%.

Conclusions
This first National Risk Factor Survey will be useful in developing public policies for the prevention and control of cardiovascular diseases and will provide the basis for an epidemiologic surveillance system that will allow adequate public health decisions.

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Key words > Epidemiological surveillance - Risk factors - Non-transmissible diseases

Abbreviations >

CDC	Centers for Disease Control and Prevention	**ANE**	Argentinean Northeastern
NRFS	National Risk Factor Survey	**ANW**	Argentinean Northwestern
NCD	Non Communicable Diseases	**WHO**	World Health Organization
RF	Risk Factors	**PAHO**	Pan American Health Organization
INDEC	National Institute of Statistics and Census		

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INTRODUCTION

The burden of morbidity and mortality attributed to non communicable diseases – NCD – (cardiovascular diseases, tumors and lesions) is increasing. (1) In 2020, NCD will account for 75% of all the deaths in the world, particularly in developing countries (2, 3) In Argentina, during 2003, over a total of 302.064 deaths, 95.090 were due to cardiovascular causes and 54.949 due to cancer. Both causes account for 52% of the deaths. (4)

However, NCD can be prevented and there is consistent evidence on the efficacy of interventions both of promotion as well as prevention and therapy that justify the implementationof public policy actions (5-8). A strategy for health promotion and primary prevention in the population, that is based on social determinants and risk factors (RF) (3,4) is considered to be the strategy with the best cost-effectiveness relation and is most sustainable and financially viable to confront this global epidemic.

Hence, it is necessary to have relevant information related to the RF of NCD (9). In order to know the prevalence and trends of these factors throughout time, it is necessary to have an adequate epidemiology surveillance system. Epidemiology surveillance is defined as the systematic and continuous collection of information to be used in the design, monitoring and evaluation of interventions in public health (information for action). (10)

To accomplish this goal, as from the year 2003, the Ministry of Health dictated that Argentina should have national data on RF distribution, and thus initiated the activities for carrying out the first "National Risk Factors Survey".

The results of risk factors in cardiovascular diseases and their association with socio-economic variables are introduced here, considering as hypothesis that populations with the worse socio-economic indicators show increased prevalences. This hypothesis is aligned with recent developments on the impact of social determinants of health in the occurrence of diseases. (11)

MATERIAL AND METHODS

The implementation of the National Risk Factors Survey underwent different stages:

– Selection of the instrument, cross-cultural adaptation and validation.
– Performance of the survey at a national level.

1. Selection of the instrument, cross-cultural adaptation and validation

Aimed at obtaining a standardized instrument, valid and trustworthy to implement the surveillance on NCD and their RF, in 2003 the National Ministry of Health carried out the validation process of the NCD Surveillance questionnaire proposed by the Pan American Health Organization (PAHO). (12)

This questionnaire is formed by the following 14 modules:

1. Personal data and housing
2. Working status
3. Accessibility and health insurance
4. General health
5. Body weight
6. Diet
7. Tobacco consumption
8. Alcohol consumption
9. Diabetes
10. Physical activity
11. Arterial blood pressure
12. Cholesterol
13. Preventive measures
14. Risk of suffering lesions

Validation of the instruments to be used is of vital importance in this type of initiatives and the experience in Latin America shows that it is one of the aspects that present major flaws. (13)

The process underwent two different fundamental stages or phases: cross-cultural adaptation and validation. (14) Validation allowed evaluating and confirming a high correspondence between self-reference and objective measurements.

All the data are obtained by self-reference, i.e. no physical or biochemical measurements are performed (first step suggested by the World Health Organization (WHO) in *Stepwise Approach*). (15)

As a result of this stage the methodology validated in Argentina (16) to carry out the first National Risk Factor Survey was achieved.

2. Implementation of the National Risk Factor Survey at a national level [(i)]

General objectives of the NRFS

1. To obtain the first national based line of the distribution of the main risk factors of NCD in the general population of the Argentine Republic.
2. To establish the methodology bases for the implementation of a risk factors surveillance system.

Objective of the present analysis

To describe the prevalence of the main risk factors in cardiovascular disease in Argentina, and their association with socio-demographic characteristics.

Design

The NRFS is a prevalence study or transversal cut that allows estimating the prevalence of the assessed RF and evaluating – through periodic surveys – their evolution throughout time. The theme areas were included to comply with those suggested by the WHO and taking into account primary aspects in promotion, prevention and NCD control.

Enrolled population: inclusion criteria

The target population for this survey included subjects aged 18 years and older, living in private houses located in urban

[(i)] A complete description of the validation process, methodology design and implementation of the survey can be found in the web page of the National Risk Factors Survey: http://www.msal.gov.ar/htm/Site/enfr/index.asp

areas of the Argentine Republic (cities with 5,000 inhabitants and more).

Definition of indicators

For the definition of RF indicators, definitions proposed by the PHO in the document entitled "Tools for Surveillance of Non Transmissible Diseases" and those suggested by CDC (17) were used. For the socio-demographic characteristics (sex, age, marital status, housing, working condition, education and incomes) the same definitions used by the INDEC in the Permanent Household Survey (Encuesta Permanente de Hogares) (18) and other national surveys were adopted

Sampling design

The sampling was probabilistic, multistage and stratified (four sampling stages: urban agglomerate, censal radius, housing, subject), taken from the Urban Sampling Framework (Marco Muestral Urbano) from INDEC. In each selected house, households were identified and the family head was interviewed for data regarding the family group and housing, and thereafter, from each household a subject older than 18 years was randomly selected to answer the individual questionnaire.

Considering that one subject would be selected per household, the sample size for each province was 2,000 houses, considering 5% as one of the lower prevalences with an absolute error lower than 2%, a confidence interval of 95% and a design effect (DEFF) of 2. This implied a sample of 51,162 houses.

Statistical analysis

In the present analysis, only risk factors of cardiovascular diseases were considered, excluding the analysis of other sections or the presentation of provincial data.

For the statistical analysis, the sample design type was used for the point estimates (prevalences), confidence intervals and hypothesis testing.

The sampling values were expanded by applying the expansion factors corresponding to each selection stage, correction due to no response within each stratum, and calibration of the expansion factors with auxiliary information corresponding to the projection of the sampling population.

To facilitate interpretation, sampling values are shown, i.e. the unexpanded number of subjects surveyed, although prevalences are estimated with expanded or weighted data.

Prevalences were estimated for the total country by sex, age groups, region, incomes and education, highlighting the main statistical associations that were epidemiologically significant among the risk factors and socio-demographic characteristics, to reduce alpha error, P values lower than 0.01 were considered significant due to the large size of the sampling. Only the confidence intervals of the main national indicators are reported here, considering variance increase originated by complex sample designs. (19)

Tentatively, the cardiovascular events risk for 10 years is presented for the whole country and for each of the regions, using an adaptation of the ATP III criteria.

RESULTS

Participants

The survey, which was carried out by INDEC and the Provincial Statistics Offices (Direcciones Provinciales de Estadística), started on March 12, 2005 and finalized on June 17, 2005. Forty six thousand, three hundred and eight houses (46,308) were surveyed out of the 51,162 selected (i.e. excluding shops, vacant houses, etc) which represent 90.5% of the total selected households. Responses were obtained in 41,485 houses (89.5% effective yield, including 42,694 households). For the individual questionnaire, in each house one subject was randomly selected among those who were 18 years or older. Answers were obtained in 41,392 households (out of 40,165 houses). Of the total of surveyed houses from the source sampling (46,308) 86.7% of the houses sampling specific yield was obtained, and 96.9% of individual response (Figure 1).

The 41.392 surveyed subjects (after applying the corresponding expansion factors) represent 22,935,297 subjects (96% of the urban population of the country).

The average field work duration in each province was of 42 days. Ten percent of the surveys were supervised.

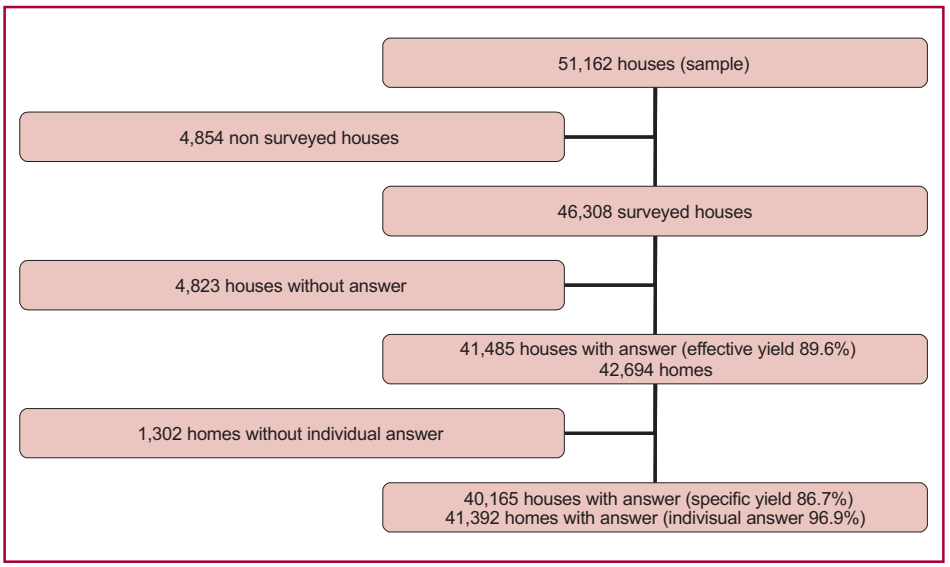

Fig. 1. Participants flow chart.

Sociodemographic characteristics

Sex and age distribution of the population nationwide is shown in Table 1. Distribution of education was: illiterate 1,8%, incomplete Primary school 10.9%, complete Primary school 26.2%, incomplete Secondary school 16.8%, complete Secondary school 20.1%, incomplete tertiary or University studies 11.8% and finally, with complete postgraduate studies (tertiary or University) 12.1%. Nationwide, 37.6% of the households showed income lower than U$S 200 and U$S 500, 14.6% higher than U$S 500, and 13.5% did not answer (Table 1). These results were consistent with those obtained from the Permanent Households Survey from INDEC during the same time period.

Main indicators nationwide

1. Health related quality of life

At national leve, 19.9% reported their health as poor or bad (quality of life indicator of the SF-36 questionnaire) (Table 2). It was in the Northwestern and Northeastern regions where more prevalence of self-reported poor or bad health was observed (ANW 28.7%, ANE 22.6%, p< 0.01) compared to other regions

Self reported poorer health was observed at older ages and lower income levels (p < 0.01). Other quality of life aspects are shown in Table 2.

2. Physical activity

Forty six point two percent (42%) of the population does not perform the minimum recommended level of physical exercise [ii] nationwide.

Men showed more intense physical activity and in women it was more moderate, with similar prevalence of a low level of activity. An inverse relation was also observed between the level of physical activity and age. The Pampas and Patagonia regions

Table 1. Sociodemographic characteristics

	n	%
Sex		
Male	17.827	47,5%
Female	23.565	52,5%
Age groups (years)		
18 to 24	5.957	18,1%
25 to 34	9.059	20,2%
35 to 49	11.714	25,9%
50 to 64	8.267	21,0%
65 and older	6.395	14,8%
Level of education		
Illiterate	847	1,8%
Incomplete Primary school	4.972	10,9%
Complete Primary school	9.672	26,2%
Incomplete Secondary school	6.904	16,8%
Complete Secondary school	8.098	20,1%
Incomplete Tertiary/University school	5.249	11,8%
Complete Tertiary/University school	5.593	12,1%
Special Education	57	0,2%
Income		
Between U$S 0 and 200	18.903	37,6%
Between U$S 201 and 500	13.854	34,3%
U$S 501 and over	5.466	14,6%
Unk/No answer	3.169	13,5%
TOTAL	**41.392**	**100,0%**

Note: Prevalences estimated as from pondered values, not sampling values.

Tabla 2. Main indicators at national level

Indicator	Prevalence (IC 95%)
Only public healthcare	34,9% (33,3-36,4%)
Quality of life related to health (poor or bad)	19,9% (19,0-20,7%)
Motility problems	10,9% (10,1-11,4%)
Anxiety and/or depression	22,8% (21,8-23,7%)
Low physical activity	46,2% (44,7-47,5%)
Overweight and Obesity	49,1% (47,9-50,2%)
Obesity	14,6% (13,8-15,4%)
Low fruit and vegetables consumption	35,3% (34,0-36,5%)
Added salt to food	45,2% (43,9-46,4%)
Control of arterial blood pressure within the last year	68,4% (67,2-69,4%)
Elevated blood pressure (one or more times) in subjects that reported having it measured	34,4% (33,3-35,5%)
Cholesterol control (men older than 35 years, women older than 45 years)	72,8% (71,3-74,4%)
Elevated cholesterol in subjects that were measured	27,8% (26,5-29,0%)
Glycemia control	69,3% (68,0-70,5%)
Diabetes or elevated glycemia in subjects that reported having it measured	11,9% (10,9-12,8%)
Tobacco consumption (18 years and older)	29,7% (28,6-30,8%)
Tobacco consumption (18 to 64 years)	33,4% (32,1-34,5%)
Alcohol regular risk consumption	9,6% (8,9-10,2%)
Alcohol episodic excessive consumption	10,1% (9,3-10,8%)

[ii] Equivalent to 3 days of 20 minutes of intense physical activity, 5 days of 30 minutes of moderate activity or walking , IPAQ questionnaires indicators

showed increased prevalence of low physical activity (Table 3).

3. Body weight

Of the people that reported weight and height (92% of the total), 34.5% showed overweight and 14.6% obesity, i.e. that 49.1% of the subjects showed overweight and/or obesity nationwide. A more elevated prevalence of overweight and obesity was observed in men, in subjects between 50 and 64 years, it was similar in all the regions, and increased at lower incomes and education. (Table 3).

4. Diet

Nationwide, 45.2% of the population adds salt to their meals after cooking or at the table. This ratio is inversely related to age and reaches 56.9% in the group between 18 and 24 years (33.5% of them add salt always). 93.6% uses oil as the most frequently used cooking fat. 35.3% did not eat fruits and/or vegetables in 5 or more days within the last week. Less fruits and vegetables consumption was observed in men, at a lower age, in the regions of Greater Buenos Aires and the Pampas, at lower incomes and lower education (Table 3).

5. Arterial hypertension

In all the country, 68, 4% of the subjects referred having had their arterial hypertension controlled in the last year by a healthcare professional, more so in women than in men. Decreased values were observed in the last year in the Northeastern and Northwest-

Table 3. Prevalences of low level of physical activity, fruit and vegetables intake and obesity, total and by sex, age groups, region, education, and income

	Low level of physical activity		Fruits and vegetables at least 5 days a week		Obesity*	
	n	%	n	%	n	%
Sex						
Male	7.742	45,3%	11.102	59,1%	2.883	15,4%
Female	11.646	47,0%	16.902	69,9%	3.135	13,9%
Groups of age (years)						
18 to 24	2.278	39,8%	3.459	56,5%	248	3,9%
25 to 34	3.717	41,5%	5.609	57,9%	924	10,4%
35 to 49	5.331	44,5%	7.745	62,9%	2.111	16,9%
50 to 64	4.014	48,6%	6.055	71,3%	1.746	22,8%
65 and older	4.048	59,9%	5.136	78,0%	989	17,7%
Region						
Great Buenos Aires	1.296	42,6%	1.914	62,4%	337	13,4%
Pampas	4.757	53,9%	5.865	64,6%	1.155	15,0%
ANW	4.266	40,9%	7.040	69,8%	1.527	16,0%
ANE	2.902	39,4%	4.858	66,6%	940	14,7%
Cuyo	2.412	42,1%	3.492	69,9%	767	16,5%
Patagonia	3.755	48,6%	4.835	64,8%	1.292	17,4%
Education						
Up to incomplete Primary school	3.084	48,4%	3.846	64,4%	1.004	21,4%
Up to incomplete Secondary school	7.579	44,6%	10.926	60,9%	2.732	17,1%
Complete Secondary school and further	8.725	47,1%	13.232	68,5%	2.282	10,8%
Income						
Between U$S 0 and 200	8.573	44,7%	12.348	61,9%	2.704	16,3%
Between U$S 201 and 500	6.393	46,9%	9.566	64,9%	2.097	14,5%
U$S 501 and over	2.782	47,7%	3.941	72,9%	831	13,1%
Unk/No answer	1.640	47,0%	2.149	63,2%	386	12,4%
TOTAL	**19.388**	**46,2%**	**28.004**	**64,7%**	**6.018**	**14,6%**

* Percentage on estimates (total = 41.219).
Significant associations (p < 0,01) and relevant:
– Low level of physical activity: age, region.
– Fruits and vegetables: sex, age, education, income.
– Obesity: sex, age, education, income.
Note: Prevalence estimated as from pondered values, not sampling values.

ern regions of Argentina and at lower incomes. In subjects with health insurance the frequency of the control was 74.2% versus 57.4% in subjects that were covered by the social welfare system only. The prevalence of increased arterial hypertension diagnosed by a health professional in subjects that referred having had their arterial blood pressure controlled was 34.4%, 10.7% only once, and 23.7% more than once. Of the subjects with elevated arterial blood pressure on more than one occasion, only 63.5% were undergoing treatment. Women showed more prevalence of increased arterial blood pressure. Prevalence increased with age and was similar among regions. There is an inverse relation between income level and prevalence of elevated arterial blood pressure: the lower the income, the higher the prevalence (Table 4A).

6. High cholesterol

56.8% of the people reports having measured their cholesterol at some time (72.8% in men > 35 years and women > 45 years). Increased cholesterol control was observed in relation with higher income. A decreased control was observed in the Argentine Northeastern and Northwestern regions compared with the rest of the regions. The prevalence of high cholesterol diagnosed by a health professional in subjects that were controlled was 27.8%. Prevalence was higher in women of older age in the Argentine Northwestern region, and was similar per income group (Table 4 B).

7. Diabetes

Prevalence of diabetes or increased glycemia in subjects that refer having measured their glycemia was

Table 4 A. Prevalence of blood pressure control within the last year, and elevated blood pressure (number of visits) total and by sex, age groups, region, education and income.

	BP Control last year		Elevated BP once*		Elevated BP 2 or more times*	
	n	%	n	%	n	%
Sex						
Male	10.885	61,5%	1.534	9,8%	3.237	21,8%
Female	17.697	74,6%	2.479	11,5%	6.113	25,3%
Age groups (years)						
18 to 24	2.954	49,1%	376	6,7%	371	7,0%
25 to 34	5.276	58,6%	801	10,7%	931	10,5%
35 to 49	7.975	68,4%	1.138	11,0%	2.081	19,0%
50 to 64	6.666	79,1%	931	12,4%	2.910	34,8%
65 and older	5.711	90,0%	767	11,7%	3.057	47,0%
Region						
Great Buenos Aires	2.152	69,1%	268	11,3%	601	22,3%
Pampas	6.303	70,0%	783	10,0%	2.063	24,7%
ANW	6.822	63,7%	1.071	11,3%	2.211	23,4%
ANE	4.580	63,8%	631	10,2%	1.604	26,3%
Cuyo	3.544	68,9%	496	10,3%	1.193	25,6%
Patagonia	5.181	65,8%	764	11,6%	1.678	23,2%
Education						
Up to incomplete Primary school	4.249	73,4%	646	13,2%	2.076	39,7%
Up to incomplete Secondary school	11.123	65,9%	1.692	11,4%	4.139	26,3%
Complete Secondary school or further	13.210	69,3%	1.675	9,5%	3.135	16,8%
Income						
Between U$S 0 and 200	12.539	66,0%	1.900	11,7%	4.785	27,7%
Between U$S 201 and 500	9.659	68,0%	1.337	10,8%	2.889	23,0%
U$S 501 and over	4.099	74,1%	503	8,4%	1.019	19,1%
Unk/No answer	2.285	69,5%	273	10,7%	657	20,0%
TOTAL	**28.582**	**68,4%**	**4.013**	**10,7%**	**9.350**	**23,7%**

* Percentage on subjects with BP measured (total = 36.935).
BP: Blood pressure.
Significant associations ($p < 0,01$) and relevant:
– BP Control: sex, age, region, education, income.
– Elevated BP: sex, age, region, education, income.
Note: Prevalences estimated as from pondered values, not sampling values

of 11.9%. A prevalence of diabetes or increased glycemia was observed in older women, in the Pampas and Patagonia regions, and in subjects whose household incomes ranged between $0 and US$ 200 (Table AB).

8. Tabaquism

The prevalence of smoking is of 29.7% at a national level, higher in men than in women. Prevalence between 18 and 64 years was 33.4%.

Increased prevalence was observed between 18 and 50 years in the Patagonia and Cuyo regions. Decreased tobacco consumption was not observed in the lower income groups (Table 5).

9. Alcohol

Regular risk consumption[iii] at a national level was 9.6%. It was higher in men, in the age groups between 50 and 64 years, in the Pampas and Patagonia regions

Table 4 B. Prevalences of cholesterol control, elevated cholesterol, glycemia and diabetes control/ elevated glycemia, total and by sex, age groups, region, education, and income

	Cholesterol control		Elevated cholesterol*		Glycemia control		Elevated diabetes/ glycemia#	
	n	%	n	%	n	%	n	%
Sex								
Male	8.929	52,4%	2.709	27,7%	11.294	62,6%	1.392	12,4%
Female	14.130	60,7%	4.206	27,8%	17.981	75,4%	2.208	11,5%
Age groups (years)								
18 to 24	1.373	27,5%	169	11,8%	2.893	47,5%	152	4,6%
25 to 34	3.392	40,5%	527	15,3%	5.493	59,5%	389	6,7%
35 to 49	6.719	58,7%	1.710	21,8%	8.411	71,2%	806	7,8%
50 to 64	6.274	76,5%	2.481	37,0%	6.812	81,6%	1.160	17,1%
65 and older	5.301	83,3%	2.028	37,8%	5.666	88,5%	1.093	20,4%
Region								
Great Buenos Aires	2.036	62,2%	587	25,9%	2.243	70,6%	230	11,4%
Pampas	5.463	58,4%	1.530	28,9%	6.490	71,7%	747	12,6%
ANW	4.925	42,5%	1.647	33,1%	6.676	60,1%	808	10,6%
ANE	3.412	44,1%	958	27,9%	4.454	58,7%	594	13,7%
Cuyo	2.758	52,6%	766	26,7%	3.789	73,9%	458	10,5%
Patagonia	4.465	53,4%	1.427	30,6%	5.623	69,9%	763	13,1%
Education								
Up to incomplete Primary school	3.216	54,9%	1.235	37,1%	3.957	69,6%	808	20,8%
Up to incomplete Secondary school	8.409	50,8%	2.770	29,6%	11.032	64,0%	1.567	14,3%
Complete Secondary school and further	11.434	63,0%	2.910	24,1%	14.286	74,4%	1.225	7,5%
Income								
Between U$S 0 and 200	8.767	46,1%	2.810	29,3%	12.050	62,9%	1.794	14,9%
Between U$S 201 and 500	8.212	59,2%	2.375	27,5%	10.278	71,3%	1.150	10,8%
U$S 501 and over	4.078	75,2%	1.173	28,0%	4.573	81,7%	408	8,4%
Unk/No answer	2.002	60,3%	557	25,0%	2.374	68,9%	248	11,8%
TOTAL	**23.059**	**56,8%**	**6.915**	**27,8%**	**29.275**	**69,3%**	**3.600**	**11,9%**

* Percentage over subjects with measured cholesterol (total = 23.059).
# Over subjects with measured glycemia (total = 29.275).
Significant associations ($p < 0,01$) and relevant:
– Cholesterol measurement: sex, age, region, education, income.
– Elevated cholesterol: age, region, education.
– Glycemia control: sex, age, region, education, income.
– Diabetes: age, education, income.
Note: Prevalences estimated as from pondered values, not sampling values.

[iii] Regular risk consumption: more than an average of two drinks per day in men and one drink in women in the last 30 days.

Tabla 5. Prevalences of tobacco consumption, and regular risk alcohol consumption and cardiovascular risk, total and by sex, age groups, region, education and income.

	Tobacco consumption*		Risk alcohol consumption#		Moderate-high cardiovascular risk	
	n	%	n	%	n	% de fila
Sex						
Male	6.638	35,10%	2.450	13,60%	4.066	21,74%
Female	5.955	24,90%	1.330	6,10%	8.584	34,48%
Age groups (years)						
18 to 24	2.282	36,10%	502	8,50%	542	8,15%
25 to 34	3.226	34,60%	614	6,30%	1.221	12,36%
35 to 49	4.123	35,80%	1.060	9,60%	2.715	22,16%
50 to 64	2.309	26,80%	978	13,30%	4.134	47,67%
65 and older	653	8,90%	626	10,50%	4.038	58,82%
Region						
Great Buenos Aires	805	28,60%	262	8,30%	915	28,33%
Pampas	2.529	29,70%	994	12,00%	2.806	30,00%
ANW	3.180	31,80%	663	6,60%	2.954	24,98%
ANE	1.782	27,50%	549	9,00%	1.872	24,53%
Cuyo	1.558	32,00%	482	10,10%	1.622	29,69%
Patagonia	2.739	35,40%	830	10,70%	2.481	29,38%
Education						
Up to incomplete Primary school	1.378	23,80%	541	9,30%	2.658	43,87%
Up to incomplete Secondary school	5.450	31,50%	1.601	10,30%	5.498	30,52%
Complete Secondary school and further	5.765	29,80%	1.638	9,10%	4.494	21,95%
Income						
Between U$S 0 and 200	5.620	29,80%	1.463	8,60%	6.112	30,43%
Between U$S 201 and 500	4.341	32,00%	1.343	10,10%	4.044	28,77%
U$S 501 and over	1.728	26,40%	650	11,30%	1.554	24,99%
Unk/No answer	904	27,30%	324	9,60%	940	25,67%
TOTAL	**12.593**	**29,70%**	**3.780**	**9,60%**	**12.650**	**28,43%**

* Percentage over the total (18 years and older).
# Percentage over the total of possible evaluations (total = 41.150).
Significant associations (p < 0,01) and relevant:
– Tobacco: sex, age, region, education, income.
– Alcohol: sex, age, region, income.
– Cardiovascular risk: sex, age, region, education, income.
Note: Prevalence estimated as from pondered values, not sampling values.

and with higher incomes (Table 5) In regards to excessive episodic consumption[iv] it was 10.1% and higher in the group of age between 18 to 24 years (not included in the Table).

10. Other analysis

To assess the global cardiovascular risk, an adaptation of the ATP III (20) was used.

The prevalence of moderate to high risk, [v] defined here as the presence of two or more risk factors (age and sex, smoker, arterial hypertension and high cholesterol) or equivalent to coronary disease (diabetes) was 28.4%. Risk was higher in the Pampas and Cuyo regions, proportioned to lower educational level and lower income (Table 5).

[iv] Excessive episodic consumption: five drinks or more in more than one occasion in the last 30 days..

[v] Moderate-high risk (> 10% of events in 10 years) ATP III: two or more major risk factors (present smoker , arterial hypertension, high cholesterol, age > 45 in men and > 55 in women) or coronary disease equivalents (vascular disease, diabetes or multiple risk factors).

DISCUSSION

The first National Risk Factor Survey is the first survey on risk factors at a national level. The prevalences observed highlight the relevance of epidemic in our country and allow us targeting more vulnerable populations such as those of low income and inferior educational level. It is in these subgroups where risk factors are concentrated, which destroys one of the NCD myths: "NCD are diseases of the wealthy" (21, 22). In all the regions prevalences were similar, which highlights the burden of the problem throughout the country.

Some risk factors are present more frequently or in higher proportions in the young population (tobacco, alcohol, salt consumption), which could anticipate increased risk of events at earlier ages if no control measurements are taken.

Prevalences of some risk factors were higher than in some countries of the region. For example, the prevalence observed in arterial hypertension was of 34.4 % compared to 30% in Brazil and 33% in Chile. (23) Our prevalence of smokers was of 33.4% compared to 17% in Brazil, though in Chile it was 42%.

Physical inactivity was 46% compared to 42% in Brazil. Obesity was similar to other countries of the region, but still lower than the prevalence in the U.S.A. (29.5%). The observed prevalence of moderate-high cardiovascular risk was probably underestimated as this survey did not assess cardiovascular morbidity or family history, and also, as shown in other studies, there are subjects who do not know the level of their risk factors.

To fulfill their purpose, (24) these results should be used by decision makers and different actors in society as a launching point for the implementation of effective policies (25) and for a public health that is based on evidences. (26). Sanitary policies that should be prioritized for the prevention of cardiovascular diseases based on their good cost-efficacy relation are those that impact on the population risk factors. (27).

As from this survey, future assessments should be formulated to build a true surveillance system of RF and NCD (28) that would allow continuous course of action evaluation.

Although the absence of physical and biochemical measurements could be a limitation, some aspects reinforce the value of the obtained indicators by self-reference: 1) high cost and logistic difficulty of measurements at a national level, 2) previous validation of the questionnaire with objective assessments (29) and 3) increased importance given to the temporal trend than to accuracy in the epidemiology surveillance estimates.

In conclusion, the completion of the first National Risk Factors Survey is a foundational fact in the prevention of NCD in our country. To communicate its results does not imply the end of an important clinical study, but the beginning of a new stage. The most important aspect is still pending: that this knowledge proves to be beneficial for the community.

RESUMEN

Encuesta Nacional de Factores de Riesgo 2005: resultados principales. Prevalencia de factores de riesgo de enfermedades cardiovasculares en la Argentina

Hasta el momento no contábamos con estimaciones a nivel nacional de los principales factores de riesgo de morbimortalidad por enfermedades cardiovasculares que permitieran una estrategia de promoción y prevención primaria. En el marco del desarrollo de políticas de salud pública, el Ministerio de Salud de la Nación inició las actividades para la realización de la primera "Encuesta Nacional de Factores de Riesgo".

Objetivos

Describir la prevalencia de los principales factores de riesgo de enfermedades cardiovasculares en la Argentina y su asociación con características sociodemográficas.

Material y métodos

Desde el 12 marzo y hasta el 17 de junio de 2005 se llevó a cabo la primera Encuesta Nacional de Factores de Riesgo. Se utilizó un cuestionario validado previamente para la Argentina, propuesto por la OPS y la OMS. La muestra fue probabilística, a nivel de viviendas, con representatividad nacional y provincial. *Criterio de inclusión*: población adulta (18 años y más). Se obtuvieron los principales indicadores de prevalencia de acuerdo con las recomendaciones de los CDC, se evaluaron asociaciones entre características sociodemográficas y se estimó la frecuencia de control de presión arterial y colesterol.

Resultados

Se realizaron 41.392 encuestas, con una tasa de respuesta del 86,7%. Los principales indicadores a nivel nacional fueron: baja actividad física 46,2%, consumo de tabaco 33,4% 18 a 64 años y 29,7% en adultos, presión arterial elevada 34,4% (en personas que se controlaron), sobrepeso-obesidad 49,1%, bajo consumo de frutas y verduras 35,3%, diabetes 11,9% (en personas que se controlaron), colesterol elevado 27,8% (en personas que se controlaron), consumo de alcohol de riesgo 9,6%. Para casi todos los factores de riesgo evaluados se observó mayor prevalencia en la población de menores ingresos, con necesidades básicas insatisfechas y menor nivel educativo. Se observaron prevalencias significativas también en provincias del ANE y el ANW. Control referido de factores de riesgo: de presión arterial en últimos 2 años 78,7%, de colesterol en mayores de 20 años 56,8%. Prevalencia de riesgo moderado-alto de eventos cardiovasculares observada: 28,4%.

Conclusiones

Esta primera Encuesta Nacional de Factores de Riesgo será de utilidad para el desarrollo de políticas públicas de prevención y control de enfermedades cardiovasculares y será la base de un sistema de vigilancia epidemiológica que permita la toma de decisiones en salud pública.

Palabras clave > Vigilancia epidemiológica - Factores de riesgo - Enfermedades no transmisibles

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