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Knowledge of People about Cancer Prevention in Brazil

O Conhecimento da População sobre Prevenção do Câncer no Brasil

Uilho Antonio Gomes[1], Edmundo Mauad Carvalho[2]

Sumário

Várias associações entre o câncer e alguns dos fatores que o causam, especialmente os relacionados ao estilo de vida, são bem conhecidos do meio científico. Em vista da importância de se transmitir este conhecimento à população, visando uma prevenção eficiente do câncer, conduziu-se esta pesquisa para avaliar o nível de informação da população de uma área rural do Brasil. Uma inquérito, sob a forma de entrevista domiciliar, foi feito por uma amostragem probabilística em quatro cidades, para se obter dados relativos ao conhecimento das pessoas sobre a associação entre tabaco, álcool, certos tipos de alimentos, luz do sol e a ocorrência de câncer. A amostragem foi obtida por um processo de duas fases (quarteirões e casas) e todas as pessoas acima de 20 anos moradoras em uma casa selecionada eram entrevistadas. Foram entrevistadas 1084 pessoas, e o seu nível de conhecimento sobre a associação entre câncer e fatores de risco foi baixo (60% para tabaco, 45% for álcool, 39% for certos tipos de alimentos e 67% para radiação solar). Este nível aumentou conforme o nível educacional e socioeconômico, e reduziu com a idade, para pessoas acima de 60 anos. Isto não ocorreu quanto ao álcool, para o qual a tendência foi na direção oposta quanto ao nível educacional d de classe social. O nível de conhecimento sobre essas associações foi maior em mulheres. Esses dados permitiram que identificássemos grupos populacionais que poderiam se beneficiar de programas voltados para a mudança do seu estilo de vida.

PALAVRAS-CHAVE: conhecimento sobre o câncer; fatores de risco, prevenção de câncer.

Abstract

Several associations between cancer and some risk factors mainly concerning lifestyle, are well established. In view of the importance to convey this knowledge to the population for effective cancer prevention, this research was carried out to assess the level of information in a

1. Departamento de Medicina Social - Faculdade de Medicina de Ribeirão Preto-USP
2. Hospital São Judas Tadeu da Fundação Pio XII - Barretos, SP
Endereço de correspondência:
Depto de Medicina Social
Faculdade de Medicina de Ribeirão Preto - USP
Av. Bandeirantes, 3900 - Ribeirão Preto - SP

population in the countryside of Brazil. A survey by household interview was carried out in a probabilistic sample of four towns in order to obtain data on the knowledge of people about the association between tobacco, alcohol, certain types of food and sunlight, and the occurrence of cancer. The sample was obtained in a two phases process (blocks and houses) and every person older than 20 years was interviewed in the selected house. A total of 1084 persons were interviewed and their level of knowledge about the association between cancer and the risk factors was low (60% for tobacco, 45% for alcohol, 39% for certain foods and 67% for solar irradiation). This level increased with schooling and socioeconomic level and decreased with age for people older than 60 years. This did not occur for alcohol, for which the trend went in the opposite direction regarding schooling and social class. The level of knowledge about these associations was higher for women. These data permitted us to identify population groups which could benefit from programs aimed to change their style of life.

KEY WORDS: cancer knowledge, risk factors, cancer prevention.

Introduction

It is known that the reduction in cancer incidence and mortality rates is only possible by effective primary prevention and by an early diagnosis, mainly in individuals who are still asymptomatic, so that the treatment can be effective.

Regarding primary prevention, lifestyle plays an important role, since some habits introduced in the population are known to be associated with cancer. Thus, in developed countries, about 30% of deaths caused by this disease are attributed to tobacco [1,2]; excessive exposure to sunlight is responsible for the majority of skin cancers [3,4,5], and diet is one of major determining factors of cancer in different parts os the body [6,7,8,9].

In relation to early diagnosis, several factors are involved, such as the availability of and access to health care facilities, interest of people in being examined etc. Difficulties related to these different factors usually lead to a delay in diagnosis. In Brazil, for example, it was estimated for 1999 that approximately 261,900 new cases of cancer would be diagnosed [10]. In a recent study, the Ministry of Health made it clear that less than 8% of Brazilian women older than 20 years had been submitted to a Pap test [11].

Despite great advances in the knowledge of different aspects of prevention of cancer related to people behaviour and to the existence of medical services of sufficient quality and quantity to determine the diagnosis at appropriate time, there is a need for the population to internalize this knowlwdge so that they can actually take part in the entire process of prevention and benefit from it.

Some studies in developed countries have estimated the degree of knowledge that the population has about the subject [12,13,14] but no such studies have been carried out in the interior of Brazil.

In view of the importance of expanding this knowledge to the population so that practices and attitudes may be modified, the authors decided to determine the degree of knowledge in our environment, in an attempt to identify factors related to it as well as groups at risk, i.e.,people who are more likely to be excluded from the process of prevention. In particular, the objective was to determine the degree of population knowledge about the association between different factors such as tobacco, alcohol, certain types of food, solar irradiation and the occurrence of cancer.

Material and Methods

Necessary data for the study were collected in Barretos, Guaraci, Colina and Terra Roxa, towns located in the northern area of São Paulo State. According to estimates of the resident population by the Brazilian Institute of Geography and Statistics, approximately

90% of the municipalities in the state are of the same size as these [15]. In each town, a sample was selected, in two stages (a previous drawing of blocks followed by a drawing of the houses located in these blocks). All the residents present at the time of the visit, older than twenty years of age were interviewed. The interviews were conducted on Saturdays and Sundays, from December 1988 to June 1989 by a team of previously trained nurses, using a standardized questionnaire. When a member of the household was absent during the first visit up to two visits were tried again in order to contact this person.

The following variables about the interviewes were registered: age, sex, skin color, schooling,socioeconomic level, medical history, and knowledge about the association between cancer and tobacco, sunlight, diet and alcohol. The questions were asked in a standardized way. When an interviewee had any difficulty with a question, the question was explained to clarify its meaning. The associations presented to the interviewees did not refer to a particular type of cancer but to any the person could think of. There were three possible answers concerning the association between a given factor and cancer:

-No: when the respondent denied the association.

-Yes: when the answer was positive.

-I don´t know: when the interviewee had no idea about the possibility of the association.

The classification of each interviewee in terms of socioeconomic level was made using the table of the Brazilian Society of Market Inquiry [16].

The data collected were coded and digitized and later analised with a microcomputer.

Results

Of a total of 1,084 people interviewed, 730 (67.3%) were females and 354 (32.6%) were males, 835 (76.9%) were white, 172 (15.9%) were brown, 70 (6.5%) were black and 8 (0.7%) oriental.

As to previous medical history, 71.4% reported at least one medical visit during the year before the interview and 2.6% had never had a medical visit. Eighty-four point five percent of these visits were at municipal health facility or in hospitals which render services to the Government. Social status was not recorded for 7 persons so that the analisys of this variable refers to the remaining 1,077 persons. For the same reason, analisys of schooling refers to 1.066 persons.

Data concerning knowledge about the association of smoking with cancer according to schooling and age are presented in Table 1 and subject distribution by age and social class in terms of knowledge of this association are presented in Table 2. As it can be seen from the two tables, 64.6% of the interviewees had up to 5 years of education, although 11.2% of them were functional illiterates, and only 17.2% had more than 8 years of education, indicating a low educational level. Most subjects belonged to classes C, D and E wich are those of lowest socioeconomic level.

Table 1. Distribution of people interwied according to schooling, age and knowledge about association betwen smoking and cancer*

Schooling	Up to 5 years				5 |-8 years				≥ 9 years				Total			
Knowledge	Yes	No	Ign		Yes	No	Ign		Yes	No	Ign		Yes	No	Ign	
Age	%			N	%			N	%			N	%			N
20|-30	59	32	9	112	58	35	7	107	72	22	6	81	62	31	7	300
30|-40	55	35	10	154	66	30	4	50	70	28	2	61	61	32	7	265
40|-50	59	30	11	151	67	29	4	21	69	23	7	26	61	29	10	198
50|-60	61	28	11	131	73	18	9	11	70	20	10	10	62	27	11	152
60|-+	47	39	14	137	57	14	29	7	86	14	0	7	50	36	14	151
Total N	385	225	75	685	121	62	13	196	132	44	9	185	638	331	97	1066
%	56	33	11		62	32	6		71	24	5		60	31	9	

*Question: Do you believe that tobacco causes cancer?

Table 2. Distribuition of people interviwed according to social class, age and knowlwdge about the association betwen smoking habit and cancer

Social Class	A + B				C				D				E				Total			
Knowledge	Yes	No	Ign		Yes	No	Ign		Yes	No	Ign		Yes	No	Ign		Yes	No	Ign	
Age		%		N		%		N		%		N		%		N		%		N
20 | - 30	70	21	9	34	65	28	6	99	58	35	7	139	52	38	10	29	62	31	7	301
30 | - 40	71	26	3	35	68	31	1	84	55	34	11	127	50	40	10	20	61	32	7	266
40 | - 50	68	29	3	31	60	26	14	57	61	31	8	95	53	27	20	15	61	29	10	198
50 | - 60	70	20	10	10	71	21	8	48	58	34	8	79	63	11	26	19	63	26	10	156
60 | - +	63	25	12	8	43	48	9	35	49	35	16	89	63	25	12	24	51	36	13	156
Total N	82	29	7	118	205	96	22	323	299	178	52	529	60	31	16	107	646	334	97	1,007
	70	24	6		63	30	7		56	34	10		56	29	15		60	31	9	

The answers "no" and "I don´t know" were considered to be "inadequate" in terms of knowledge about the etiology of cancer, and the two tables show that the proportion of these responses decreased with the increase of the educational level, a tendency observed for the different age groups ($p<0.05$). Similarly, the proportion of inadequate responses decreased with the increase of social class for the various groups. In both cases, the decrease in the proportion of inadequate responses was due to the decrease of their two componentes (responses of the "no" and "I don´t know" type). The older of age group presented the highest proportion of inadequate responses, and the other groups did not differ significantly, one from another.

Among those who were aware of the associatin between smoking and the occurrence of cancer, 40% of men and 24% of women were smokers, whereas among those who responded "no" or "I don´t know" the proportions were 64% and 32%, respectively, the differences being statistically significant for each sex.

The distribution by age, educational level and social class of the data concerning the association between alcoholism and the occurrence of cancer is presented in Tables 3 and 4. Curiously, interviewees with more

Table 3. Distribuition of people interviewed according to level of schooling, age and knowledge of association betwen alcohol ingestion and cancer*

Schooling	Up to 5 Years				5 | - 8 years				≥ 8 years				Total			
Knowledge	Yes	No	Ign		Yes	No	Ign		Yes	No	Ign		Yes	No	Ign	
Age		%		N		%		N		%		N		%		N
20 | - 30	43	49	8	112	41	50	9	107	37	52	11	81	41	50	9	300
30 | - 40	46	44	10	154	56	42	2	50	41	56	3	61	47	46	7	265
40 | - 50	48	39	13	151	37	38	5	21	38	58	4	26	48	41	11	198
50 | - 60	45	44	11	131	36	36	28	11	20	60	20	10	43	45	12	152
60 | - +	50	36	14	137	57	29	14	7	29	57	14	7	49	37	14	151
Total N	318	289	78	685	92	88	16	196	69	101	15	185	479	478	109	1,066
%	46	42	11		47	45	8		37	54	8		45	45	10	

*Question: Do you believe that there is some relationship betwen alcohol ingestion and cancer?

Table 4. Distribuition of people interviwed according to social class, age and knowledge about the association betwen alcohol ingestion and cancer

Social Class	A + B				C				D				E				Total			
Knowledge	Yes	No	Ign		Yes	No	Ign		Yes	No	Ign		Yes	No	Ign		Yes	No	Ign	
Age		%		N		%		N		%		N		%		N		%		N
20 | - 30	41	47	12	34	40	49	10	99	42	52	6	139	34	52	14	29	62	31	7	301
30 | - 40	46	51	3	35	44	51	5	84	48	43	9	127	50	35	15	20	61	32	7	266
40 | - 50	42	52	6	31	40	46	13	57	52	38	10	95	60	27	13	15	61	29	10	198
50 | - 60	20	60	20	10	33	52	15	48	44	46	10	79	50	21	29	19	63	26	10	156
60 | - +	25	50	25	8	40	49	11	35	54	31	15	89	50	42	8	24	51	36	13	156
Total N	47	60	11	118	130	160	33	323	251	227	51	529	50	40	17	107	478	487	112	1,007
	40	51	9		40	50	10		47	43	10		50	38	12		44	45	10	

than 8 years of education presented a greater proportion of inadequate responses than interviewees with lower educational level. This difference is basically due to denial of the association, since the proportion of "I don´t know" responses remained practically constant with the increase of educationl level.The trend was similar for all age groups ($p<0.05$). The frequency of "yes" responses increased for lower social class and the proportion of "no" responses decreased in the same direction, whereas the proportion of "I don´t know" responses remained practically unchanged.The proportion of those who responded affirmatively with respect to the existence of an association between alcoholism and cancer was 47% among women and 41% among men, the difference being statistically significant ($p<0.05$).

Table 5 shows the distribution of interviewees by educational level, age and knowledge about association between the ingestion of certain foods and the occurrence of cancer, and Table 6 shows distribution by social class, age and knowledge about the same association. It should be pointed out that no type of food or type of cancer was specified. The two tables show that the proportions of "no" answers remained constant with increasing educational level and higher social class. On the other hand, the proportion of "I don´t know" answers decreased with the increase of educational level and from higher social class. However, the mean proportion of "yes" answers was low (36.3%).

Data about the association between solar irradiation and skin cancer is presented in Tables 7 and 8, according to age, educational level and social class. Table 7 shows that the proportion of "inadequate" responses decreased with the increase of educational level, as decreased both "no" and "I don´t know" responses. The same tendency was observed for the different age groups. It can also be seen that the proportions of each type of response ("yes", "no" and "I don´t know") did not change with age.

Table 8 shows that the proportion of "yes" responses decreased for lower socioeconomic class, while the proportion of the other responses increased. It can also be seen that

Table 5. Distribuition of people interviewed according to schooling, age and knowledge about the association betwen ingestion of certain foods and occurrence of cancer*

Schooling	Up to 5 years				5	-8 years			≥ 9 years				Total			
Knowledge	Yes	No	Ign		Yes	No	Ign		Yes	No	Ign		Yes	No	Ign	
Age		%		N		%		N		%		N		%		N
20 | -30	26	62	12	112	33	61	6	107	35	59	6	81	31	61	8	300
30 | -40	32	56	12	154	48	38	14	50	59	39	2	61	41	49	10	265
40 | -50	36	51	13	151	57	38	5	21	54	42	4	26	41	48	11	198
50 | -60	45	38	17	131	70	30	10	11	50	30	20	10	47	37	16	152
60 | -+	40	39	21	137	43	43	14	7	14	72	14	7	39	40	21	151
Total N	247	337	101	685	81	98	16	196	84	91	10	185	412	527	127	1,066
%	36	49	15		41	51	8	8	45	49	5		39	49	12	

*Question: Do you believe that some kinds of food cause cancer?

Table 6. Distribuition of people interviwed according to social class, age and knowledge about the association betwen ingestion of certain foods and occurrence of cancer

Social Class	A +B				C				D				E				Total			
Knowledge	Yes	No	Ign		Yes	No	Ign		Yes	No	Ign		Yes	No	Ign		Yes	No	Ign	
Age		%		N		%		N		%		N		%		N		%		N
20 | -30	29	62	9	34	35	40	5	99	28	62	10	139	21	69	10	29	62	31	7	301
30 | -40	60	37	3	35	44	49	7	84	34	54	12	127	40	45	10	20	61	32	7	266
40 | -50	48	48	4	31	44	47	9	57	36	51	13	95	47	40	13	15	61	29	10	198
50 | -60	50	30	20	10	50	42	8	48	39	40	21	79	68	16	16	19	63	26	10	156
60 | -+	25	72	13	8	49	43	8	35	37	38	25	89	37	42	21	24	51	36	13	156
Total N	53	57	8	118	138	162	23	323	180	268	81	529	43	48	16	107	414	535	128	1,077
%	45	48	7		43	50	7		34	51	15		40	45	15		38	50	12	

Tabela7. Distribuition of people interviewed according to knowledge about the association betwen solar irradiation and skin cancer and according to age and schooling*

Schooling	Up to 5 years				5	- 8 years			≥ 9 years				Total			
Knowledge	Yes	No	Ign		Yes	No	Ign		Yes	No	Ign		Yes	No	Ign	
Age		%		N		%		N		%		N		%		N
20 I- 30	59	29	12	112	69	29	2	107	78	15	7	81	68	25	7	300
30 I- 40	63	23	14	154	72	24	4	50	87	10	3	61	70	20	10	265
40 I- 50	61	24	15	151	90	10	0	21	77	19	4	26	66	22	12	198
50 I- 60	63	27	10	131	55	27	18	11	100	0	0	10	64	25	11	152
60 I- +	61	27	12	137	72	14	14	7	86	14	0	7	63	26	11	151
Total N	421	176	176	685	140	49	7	196	152	24	9	185	713	249	104	1,066
%	61	26	26		71	25	4		82	13	5		67	23	10	

* Do you believe that solar irradiation causes cancer?

Tabela8. Distribuition of people interviewed according to knowledge about the association betwen solar irradiation and skin cancer and according to age and social class.

Social Class	A +B				C				D				E				Total			
Knowledge	Yes	No	Ign		Yes	No	Ign		Yes	No	Ign		Yes	No	Ign		Yes	No	Ign	
Age		%		N		%		N		%		N		%		N		%		N
20 I- 30	76	17	7	34	79	18	3	99	63	29	8	139	45	41	14	29	68	25	7	301
30 I- 40	88	12	0	35	75	18	7	84	63	24	13	127	65	25	10	20	70	20	10	266
40 I- 50	74	18	8	31	81	11	8	57	59	26	15	95	33	47	20	15	66	22	12	198
50 I- 60	100	0	0	10	67	23	10	48	63	27	10	79	47	32	21	19	65	24	11	156
60 I- +	100	0	0	8	54	40	6	35	63	24	13	89	58	29	13	24	62	27	11	156
Total N	89	15	14	118	238	64	21	323	329	137	63	529	54	37	16	107	710	253	114	1,077
	75	13	12		74	20	6		62	26	12		50	35	15		66	23	11	

the proportion of women who answered "yes" was higher (68.8%), as compared to men (62.7) ($p<0.05$).

Among the interviewees who had a medical visit during the year preceding the interview, the propotion of "yes" answers for the association between smoking and cancer was 60%, and among those who had more than one visit the proportion was 59%; for alcoholism, the proportions were 38% and 38%; for certain types of foods they were 69% and 64%; and for exposure to sunlight, they were 69% and 64%, respectively.

Discussion

As infectious and parasitic diseases are controlled, the epidemiologic picture of a country changes, with chronic diseases becoming increasingly important. In this respect, Brazil is in a transition phase in which both types of disease coexist due to only partial control of the former. Furthermore, there are marked regional discrepancies: in the South and Southeast regions,where approximately 58% of the Brazilian population lives, the most important endemic diseases have been controlled and there is a marked predominance of chronic diseases and accidents. This explain why the major causes of death are diseases of the cardiovascular system, followed by malignant neoplasm. This high frequency of neoplasms, taken together with the real possibility of prevention, indicates the need for activities aimed at the reduction of the morbidity and mortality of these diseases.

Many neoplasms occur in association with certain habits that are introduced into society by different interests and by different means. Thus prevention of these disease should be based on awareness of the population about these associations, leading to modificatios in these habits. On this basis, denial of, or lack of knowledge about these associations can be considered to be a "risk factor" for acquiring these diseases. Using simple interview techniques, it is possible to identify groups exposed to such "risks". Obviously, the characteristics of these groups will permit the elaboration of strategies aiming at the prevention of these diseases.

This project, as a whole, was planned and carried out with the objective of evaluating

the level of knowledge about cancer prevention on the part of the population, how this knowledge is acquired by the population, the role of health services with respect to this knowledge, awareness of the availability of preventive tests and the frequency such tests should be taken. In this first study, we analized some aspects of the knowledge of the population about the association of the occurrence of cancer with certain life habits according to certain characteristics of the population.

It should be pointed out that the number of men in the sample was much smaller than the number of women, which can be explained by the fact that the interviews were held in the respondent´s home during the weekend, when men are usually out practicing sports, frequenting bars, fishing etc. Although the proportion of men and women is very similar, in the population, the smaller number of men in the sample was not due to some sort of selection, i.e., for them, some characteristics as age, schooling and social class had the same distribution in the sample as in the population.

As to the data itself, it can be seen that the level of knowledge of the population about primary cancer prevention is low. In addition, and even worse, large part of the population denied the existence of an association between cancer and life habits. The association between smoking and cancer in different parts of the organism is well known [17-23] and this fact has led to government campaigns and to pertinent legislation, with a consequent fall in cigarette consumption in the United States and in some European countries, where measures were taken to disseminate information about the risk involved in these habits. Thus, a study carried out in the North American population, in 1974, has demonstrated that only 20% of the population was unaware of the risk posed by smoking [24,25,26].

Brasil is already the second largest cigarette market in the capitalist world, a market growing at a rate of 3.5-4.0% a year [27,30]. This is due to several factors, among them inadequate legislation, massive publicity [31] and public ignorance about the malignant effect of tobacco. In the present study we observed that approximately 40% of the population deny or are unaware of these effects.

An extensive review by Doll and Peto [32] of studies on the risk of developing cancer conducted in the North American population has suggested that 30% to 70% of all cancers may be related to diet. Thus, obesity, ingestion of fats and of foods preserved in nitrates or smoked and of low-fiber foods may be important risk factors for cancer. On this basis, foods rich in fiber, fruit and vegetables are recommended, while the former foods should be avoided.

Considerable lack of awareness about these recommendations was detected in the present investigation (approximately 60% of the interviewees ignored or denied them) and among those who recognized the association between certain foods and the occurrence of cancer, the great majority referred to pesticides, preserving salts or chemical additives, less than 4% referred to diets rich in fat, and only one person mentioned a fiber-rich diet. Obviously, we cannot talk about an effect of publicity as in the case of smoking, but the large number of responses mentioning pesticides were certainly caused by the space recently given by the press to the dissemination of the deleterious effects of these substances.

Although excessive alcohol intake is a well known risk for the development of cancer, more than half the interviewees ignored or denied this fact. In parallel, the proportion of "no" answers increased with higher educational level and with higher social class of the respondents, an unusual effect that is difficult to explain. Perhaps, later investigations on alcoholism may clarify this fact.

The most common malignant neoplasia is skin cancer [33,34], wich is associated with excessive exposure to sunlight [35,36,37]. Although the present data indicate that this is the best known association amog the interviewees (66.8% responded "yes"), the proportion of inadequate responses decreased with the increase of educational

level and higher social class of the individuals in the sample.

Generally speaking, the present data led us to conclude that, in the region studied, the association between the occurrence of cancer and certain life habits is very little known, and large part of the population denies the existence of such an association. Women seems to show more concern about the problem since the proportion of women who knew something about the subject was higher than the proportion of men, a fact deserving further investigation for elucidation.

With respect to the risk factors studied (cigarette smoking, ingestion of certain foods and exposure to sunlight), the pattern of the response was quite regular, i.e., the level of knowledge increased with the increase of educational level and with higher social class, permitting the identification of social groups who should be targeted with priority in regular campaigns and/or activities of information about the topic. The specific case of alcoholism definitely needs further investigation to clarify behavioral aspects that were not elucidates in the present investigation.

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