

RESEARCH ARTICLE

Health Risk Behavior of Romanian Adults having Relatives with Cancer

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Abstract

This study aimed to assess body features, and alimentary and lifestyle behavior related to cancer prevention among Romanian adults having relatives with cancer. The study was performed in 2010/2011 in an oncological hospital in Cluj-Napoca, Romania. It involved 320 adults who had relatives with cancer. An anonymous questionnaire was filled in by each participants; their weights and heights were measured and body mass index (BMI) was calculated, 56.6% of the participants having a value higher than 24.9. Almost all subjects ate less than 400g of fruits and vegetables daily and 56% of the participants consumed more than 500 g of red meat weekly. One quarter of the study sample was performing less than 30 minutes of moderate physical activity daily. Some 28.1% of the subjects were smokers. These data call for comprehensive actions to help Romanian cancer patient relatives to respect the recommendations regarding healthy lifestyle promotion and cancer prevention. Health professionals should periodically assess body composition and lifestyle components of adults who have relatives with cancer in order to identify unhealthy behavior and offer them personalized education and counseling.

Keywords: Lifestyle - dietary behaviour - cancer prevention - relatives of cancer patients

Asian Pac J Cancer Prev, 14 (11), 6465-6468

Introduction

Cancer represents an important public health problem in Romania, where the cancer specific mortality is close to the average of the European Union (EU) (179.7 deaths per 100 000 inhabitants/year in Romania compared to 173 in the EU), but has an increasing trend, in contrast to the EU, where a reverse tendency is observed (National Institute of Public Health, 2011).

The international report Food, Nutrition, Physical Activity and the Prevention of Cancer: A Global Perspective underlines the correlation between body composition, alimentary and lifestyle behaviors and various types of cancers (American Institute for Cancer Research, 2009). Hence, the report makes clear recommendations about healthy lifestyle promotion and cancer prevention, some of them being as follows: *i*) Be as lean as possible within the normal range of body weight (as issued by national governments or World Health Organization). *ii*) Eat at least five portions/servings of around 80 g each (at least 400 g or 14 oz) of a variety of non-starchy vegetables and of fruits every day. *iii*) Limit intake of red meat (beef, pork, lamb, and goat from domesticated animals including that contained in processed food to consume) to less than 500 g (18 oz) a week, very little if any to be processed; processed meat refers to meat preserved by smoking, curing or salting, or addition of chemical preservatives, including that contained in processed food. *iv*) Be physically active

as part of everyday life, which means be moderately physically active, equivalent to brisk walking, for at least 30 minutes every day and; as fitness improves, aim for 60 minutes or more of moderate, or for 30 minutes or more of vigorous, physical activity every day. *v*) If alcoholic drinks are consumed, limit consumption to no more than two drinks a day for men and one drink a day for women (one 'drink' contains about 10-15 grams of ethanol).

On the other hand, the World Health Organization underlined the importance of smoking prevention for non-smokers and smoking cessation for smokers, in order to prevent several types of cancer (National Institute of Public Health, 2011).

In Romania, there are insufficient data showing to which extent the recommendations about the lifestyle and cancer prevention are respected by the Romanian adult population. Hence, the aim of this study is to assess body composition, several alimentary and lifestyle behaviors related to cancer prevention among Romanian adults, who have cancer patients in their family. This represents a first step in order to develop appropriate cancer prevention activities among this population group.

Materials and Methods

Design and sample

The study was performed between October 2010-February 2011 in the state oncology hospital „Ion

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Chiricuță” from Cluj-Napoca, a town with approximately 330 000 inhabitants from North-West Romania. It offers medical care to oncological patients from North-West Romania and, sometimes, also from other Romanian regions. Institutional approval for the study was obtained from the hospital directorate.

The study involved first degree relatives (parents, siblings, and offspring) of patients diagnosed with various types of cancer, who came to different departments of oncological hospital (Surgery, Radiotherapy, Chemotherapy, Oncological pediatry) for treatment or medical checks. The study subjects were contacted for participation in the study during their presence in the oncological hospital for accompanying or visiting their cancer relatives. Informed oral consent for participation was obtained from all participants. The refusal rate was 8.5% among female subjects and 11.5% among male subjects.

The cancer patients’ relatives were asked by a member of the research team to fill in a self-administered anonymous questionnaire (duration-approximately 20 minutes), which investigated several components of their lifestyle. Each participant filled in the questionnaire and the member of the research team collected these.

Height and weight of the participants were also measured by the research team and filled in on the questionnaire of each participant.

Measures

The study used anonymous questionnaires developed especially for this study, based on data from literature (World Health Organization, 2002; American Institute for Cancer Research, 2009; Bauman et al., 2009a; 2009b). Question content included items related to demographics, as well as a broad range of behaviors, which could have

impact on cancer prevention.

Body composition was also assessed by means of measurements of height and weight, in order to calculate the body mass index (BMI) for each participant.

For this analysis we included information regarding BMI (weight/height²) as well as several lifestyle components: eating fruits and vegetables (number of portions/day), consumption of red meat (number of portions/week), involvement in physical activity (number of minutes of moderate physical activity/day), consumption of alcohol (number of portions/day) and smoking behavior (smoking in the last week). Table 1 offers more detailed information about the items of the questionnaire and the variables included in the present paper.

Analytic strategy

Prevalence of the studied behaviors was calculated. In order to identify possible gender differences all the analyses were made separately for women and men; chi² tests were used to assess the statistical differences found between men and women.

Data analysis was performed with the SPSS-15 statistics program. Significant results are reported at p<0.05.

Results

The study sample consisted of 160 men and 160 women aged 18-70 years from both rural (93 participants) and urban areas (227 subjects) of Romania.

The results show that around 56% of the participants had higher than normal BMI and this situation was statistically significant more frequently among men than among women. Moreover, one fifth of the subjects were

Table 1. Information about the Questionnaire and the Study Variables

Behavior	Questions which assessed information about the investigated behaviors	Study variables related to the investigated behaviors	Formula used for computing the study variables
Consumption of fruits and vegetables	1. How many days (A) did they eat fruits and vegetables (without to include potatoes in this category) in the last week (the possibilities of answers ranging from never to 7 days)? 2. How many portions ^a of these products they eat in those days (B)?	The medium number of portions of fruits and vegetables consumed per day	(A×B)/7
Consumption of red meat (beef, pork, lamb, and goat from domesticated animals including that contained in processed food)	1 How many days (C) did they eat red meat in the last week (the possibilities of answers ranging from never to 7 days)? 2. How many portions ^b of these products they eat in those days (D)?	The medium number of portions of read meat consumed per week	(C×D)
Physical activity	1. Number of days when they were involved in vigorous physical activity (E), moderate activity, (F) walking (G) 2. How long (how many minutes) was the duration of vigorous activity (H), moderate activity (I) and walking (J)	The medium number of minutes per day of moderate physical activity	[2(E×H)+(F×I)+(G×J)]/7 ^c
Alcohol consumption	1. How many days in the last week they drank alcohol (K)? 2. How many portions ^d of alcoholic beverages they drank in those days (L)?	Medium number of portions of alcohol drank per day	(K×L)/7
Smoking behaviour	Have you smoked in the last week?	Smokers were considered persons who declared smoking in the last week	
Body composition	Body mass index ^e		weight/(height×height) ^f

^aOne portion represents the equivalent to approximately 80g; for fruit, a serving was defined as a whole fruit (e.g., medium apple), three-fourths cup (178mL) fruit juice, or one-half cup (120mL) cut-up fruit. For vegetables, a serving is defined as 1 cup (240mL) raw leafy vegetables (e.g. lettuce), one-half cup other vegetables, or three-fourths cup vegetable juice; ^bOne portion of red meat was defined as a piece of red meat having approximately the size of a deck of cards (around 90-100 g); ^cSimilar with other studies (American Institute for Cancer Research, 2009; Bauman et al., 2009), we considered that 30 minutes of vigorous physical activity were equivalent to 60 minutes of moderate physical activity; ^dOne portion was defined as one glass of beer (350ml), one glass of wine (150ml) or one glass of spirits (40ml), representing the equivalent of around 10-15 grams of ethanol; ^eCut-off values for body mass index were considered as follows (World Health Organization, 2000): Underweight (BMI<18.5), Normal (BMI 18.5-24.9), Overweight (BMI≥25), Obese (BMI≥30); ^fWeight was measured in kg and Height in m

Table 2. BMI and Lifestyle Behavior Among the Study Sample

Variables		Total	Women	Men
		(N=320) %	(N=160) %	(N=160) %
BMI	<18.5	7.8	13.8*	1.9
	18.5-24.9	35.6	38.1*	33.1
	25-29.9	35	28.1*	41.9
	>30	21.6	20	23.1
Portions of fruits and vegetables/day ^a	<1	42.5	36.3*	48.8
	1-2.9	45.3	50.6*	40
	3-4.9	10.6	11.2	10
	≥5	1.6	1.9	1.2
	Portions of red meat/week ^b	<1	11.5	20*
	1-5	32.5	39.4*	25.7
	6-9	32.3	26.9*	37.5
	10-14	10.6	10.6	10.6
	>14	13.1	3.1*	23.1
Minutes of moderate physical activity/day	<30	25.6	33.1*	18.1
	30-60	11.3	11.9	10.6
	>60	63.1	55*	71.3
	Portions of alcohol/day ^c	<1	83.7	98.1*
1-2		10.7	1.9*	19.4
>2		5.6	0*	11.2
Smoking in the last week		28.1	21.2*	35

*Statistically significant differences ($p < 0.05$) at chi² test between men and women; ^aOne portion represents the equivalent to approximately 80 g; for fruit, a serving was defined as a whole fruit (e.g., medium apple), three-fourths cup (178mL) fruit juice, or one-half cup (120mL) cut-up fruit. For vegetables, a serving is defined as 1 cup (240mL) raw leafy vegetables (e.g., lettuce), one-half cup other vegetables, or three-fourths cup vegetable juice; ^bOne portion of red meat was defined as a piece of red meat having approximately the size of a deck of cards (around 90-100g); ^cOne portion was defined as one glass of beer (350ml), one glass of wine (150ml) or one glass of spirits (40ml), representing the equivalent of around 10-15 grams of ethanol

obese, without having noticed statistically significant gender differences.

Almost all of the subjects ate less than 5 portions of fruits and vegetables a day. The majority ate less than three portions daily, while around 40% ate less than one portion each day. The main gender difference was that men were more likely to eat less than one portion daily than women.

A percentage of 56% of the study sample ate at least 6 portions of red meat weekly and one out of 8 subjects ate more than 14 portions a week; both behaviors were statistically significant more frequently among men.

Three quarters of the persons were involved in physical activity at least 30 minutes per day and around one out of three participants did this more than 60 minutes every day. The more than 30 minutes per day involvement in physical activity was more frequent among men than women.

Almost all of the female subjects declared drinking less than 1 portion of alcoholic beverages daily. The majority of men drank less than two portions of alcoholic drinks daily, but one out of ten male subjects drank more.

The percentage of subjects who were smokers was 28.1%, being noticed statistically significant differences between smoking among men (35%) and women (21.2%).

Discussion

This study has presented data on lifestyle behaviors and body composition among Romanian adults, who have cancer patients in their family. Which were the main findings?

First, with respect to body composition, 56.6% of participants had a higher BMI than normal. The results from a national representative study among Romanian adults showed lower prevalence of overweight (41.7%) (World Health Organization, 2000), but it reflected the situation from the year 2000, while no more recent published data are available.

Second, several unhealthy alimentary habits had quite high prevalence. Almost none of the subjects respected the recommendations of eating at least 5 portions of fruits and vegetables daily (American Institute for Cancer Research, 2009). The consumption of maximum 500g of red meat (around 5 portions of 100g) weekly represents one of the new recommendations for cancer prevention (American Institute for Cancer Research, 2009), but less than half of the study sample did so. Previous studies performed among Romanian children and adolescents also highlighted the insufficient consumption of fruits and vegetables as well the frequent consumption of red meat among Romanian population (Lotrean et al., 2005; 2007; Currie, 2008).

Third, insufficient involvement in physical activity was less frequent, but still one quarter of participants did not perform at least 30 minutes of moderate physical activity daily, as recommended (American Institute for Cancer Research, 2009).

Fourth, with respect to declared alcohol abuse, it has low prevalence among the study sample.

Fifth, a percentage of 28.1% of the subjects were smokers. These results are similar with those found at national level, where the prevalence of smoking was 30% (European Commission, 2010).

Sixth, the inappropriate body weight, as well as all the unhealthy behaviors, was more frequent among men than women, except the insufficient involvement in physical activity. Future research should study the factors which influence lifestyle components related to cancer prevention among Romanian men and women in order to better understand their behavior and develop appropriate gender sensitive health promotion activities.

This study is subject to limitations. It did not include a national representative sample and relied on participants' self-reports. Although some respondents may have not reported truthfully, the likelihood of honest responses is maximized in this survey by having it conducted anonymously.

In conclusion, the results of the study show that many Romanian adults, despite the fact that they have cancer patients in their family, do not respect the recommendations regarding the maintenance of an appropriate body weight and adoption of healthy lifestyle behaviors, which could contribute to cancer prevention and health promotion. Studies from other countries also pointed out similar findings (Humpel et al., 2007; Son et al., 2011).

Hence, comprehensive educational programs for this target group are urgently needed in Romania. These programs should focus on helping participants maintain an ideal body weight and to increase the consumption of fruits and vegetables (for both genders), while decreasing the consumption of red meat (especially among men) and improving their physical activity (especially among

women). Appropriate smoking cessation counseling should be also available for smokers in order to motivate and help them to quit smoking.

Hence, as studies from other countries also underline (Lopez et al., 2007; Falhon et al., 2012; Özkahraman et al., 2012), health professionals should periodically assess body composition and lifestyle components of adults who have relatives with cancer in order to identify unhealthy behaviors and offer them personalized education and counseling, since this approach proved to be efficient (López et al., 2007).

Acknowledgements

This work was funded by Executive Unit for funding research, higher education and innovation from Romania through grant PN-II-RU-TE-2011-3-0192.

References

- American Institute for Cancer Research (2009). Food, Nutrition, Physical Activity and the Prevention of Cancer: a Global Perspective. Washington: AICR.
- Bauman A, Ainsworth BE, Bull F, et al (2009). Progress and pitfalls in the use of the International Physical Activity Questionnaire (IPAQ) for adult physical activity surveillance. *J Physical Activity and Health*, **6**, 5-8.
- Bauman AB, Chey T, Craig CL (2009). The IPS Group The International Prevalence Study on Physical Activity: results from 20 countries. *Int J Behavioral Nutrition And Physical Activity*, **31**, 21.
- Currie C (2008). Inequalities in young people's health. Health behaviour in school-aged children international report from the 2005/2006 survey. Copenhagen: WHO Regional Office for Europe.
- European Comision (2010). Eurobarometru. Tobacco. Directorate General Health and Consumers.
- Falzon C, Chalabaev A, Schuft L, et al (2012). Beliefs about Physical Activity in Sedentary Cancer Patients: an In-depth Interview Study in France. *Asian Pac J Cancer Prev*, **13**, 6033-8.
- Humpel N, Magee C, Jones SC (2007). The impact of a cancer diagnosis on the health behaviors of cancer survivors and their family and friends. *Supp Care Cancer*, **6**, 621-630.
- López ML, Iglesias JM, del Valle MO, et al (2007). Impact of a primary care intervention on smoking, drinking, diet, weight, sun exposure, and work risk in families with cancer experience. *Cancer Cause Control*, **18**, 525-35.
- Lotrean LM, Laza V, Ionut C (2005). Factors which influence food choice and food habits of Romanian young people. In Consumer and Nutrition. Challenges and Chances for Research and Society. Karlsruhe: Berichte der Bundesforschungsanstalt für Ernährung und Lebensmittel .
- Lotrean L, Laza V, Ionut C (2007). The Interrelationship Existing Between Health Risk Alimentary Habits Among Romanian Young People. *Ann Nutri and Metbolism*, **51**, 88.
- National Institute of Public Health (2011). Report regarding health in Romania. National Institute of Public Health. Bucharest, Romania: National Institute of Public Health (in Romanian).
- Özkahraman S, Yildirim B (2012). Knowledge levels of Turkish nurses related to prevention and early diagnosis of cancer. *Asian Pac J Cancer Prev*, **13**, 6105-8
- Son KY, Park SM, Lee CH, et al (2011). Behavioral risk factors and use of preventive screening services among spousal caregivers of cancer patients. *Support Care Cancer*, **19**, 919-27.
- World Health Organization (2000). Eurostat. Geneva: WHO.
- World Health Organization (2002). World Health Assembly global strategy on diet, physical activity and health. Resolution WHA55.23. Geneva: WHO.