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Self-Perceived Health and its Determinants in Cancer Survivors: A Population-Based Study in Albania

Fatjona Kraja[1*], Eqerem Hasani[1*], Adrian Hoti[1], Edite Sadiku[1,2], Bledi Kreka[1], Bledar Kraja[1,2], Genc Burazeri[2,3*]

[1] University Hospital Center "Mother Teresa", Tirana, Albania;
[2] Faculty of Medicine, University of Medicine, Tirana, Albania
[3] Department of International Health, School CAPHRI (Care and Public Health Research Institute), Maastricht University, Maastricht, Netherlands.

* These authors have contributed equally.

Abstract

Background: Self-perceived health is one of the most frequently used indicators in health and social research. It expresses subjective assessment of responder's health and it is a multidimensional indicator for the overall assessment of health associated with mortality and morbidity.

The aim of our study was to evaluate the sociodemographic and lifestyle factors determining the self-perceived health in cancer patients in Albania.

Methods: This is a population based cross sectional study. Data from 12554 individuals aged >35 years in the framework of Albanian Living Measurement Survey (LSMS), were included in the analysis. In order for the sample estimates from the Albania LSMS to be representative of the population, the data were multiplied by a sampling weight. The study participants rated their health in five categories: very good, good, average, poor and very poor, which in the analyses were dichotomized into "not poor" and "poor health". All participants that reported the presence of cancer as the chronic disease that affects them the most, were selected. Information on socio-demographic characteristics (age, gender, education, employment status, residence) and lifestyle factors (smoking and alcohol intake) were collected. Statistical analysis was done using SPSS version 26 (SPSS, Chicago, IL).

Results: The data showed that 1.5% of the standardized population reported cancer as a chronic disease that causes them disability. The

Address for correspondence: Fatjona Kraja*, University Hospital Center "Mother Teresa"; Rr. "Dibres", No. 371, Tirana, Albania; Email: fatjonapupuleku@live.com

male female rate was 1:2.7. Upon multivariable adjustment for all covariates, factor affecting self-perceived health in cancer patients were

In the age adjusted analysis a strong positive correlation of self-perceived health in participant with cancer as chronic disease was found between employment and poor self-perceived health {OR (employed vs. unemployed) = 8.69, 95% CI = 8.39}. There was not a statistically significant relationship with the gender of the subjects included in the study.

After adjusting for all the variables included in the study, important "predictors" of poor self-perceived health status in participant with cancer as perceived chronic disease were: age (OR (≥66 years vs. 35-50 years old) = 2.59, 95% CI = 2.47-2.72), unemployment (OR = 11.78, 95% CI = 10.00-12.61), university level of education (OR = 1.83, 95% CI = 1.76-1.91) and alcohol intake (OR = 1.85, 95% CI = 1.79-1.92). Interestingly, in multivariate- adjusted models, the association of current smoking and poor self-perceived health in cancer changed direction

current smoking (OR = 1.76, 95% CI = 1.7-1.82).

Conclusion: Our findings represent the only report on SPH in cancer patients in Albania and indicate a significant relationship of self-perceived health in cancer patients with demographic, socioeconomic and lifestyle factors. Further population-based studies are needed to have more comparable results in order to promote an improvement in these factors and in self perceived health in cancer patients as an indicator of life quality.

Keywords: cancer, determinants, epidemiology, population-based study, self-perceived health.

INTRODUCTION

Self-perceived health is one of the most frequently used indicators in health and social research.

SPH expresses subjective assessment of responder's health and indicators based on this concept can be used to evaluate the general health status, health inequalities and health care needs at the population level (1). It is one of the components of health-related quality of life, as multidimensional measurement (2) and it measures the subjective health thru aggregated information regarding the individual's health, such as the physical functioning, lifestyle, specific disease characteristics and cultural background 2. The main determinants of SPH are considered socio-economic factors, biological and psychosocial factors (3).

SRH has proven to be a strong independent predictor of mortality, disease-specific mortality and the incidence of a number of chronic diseases such as diabetes and cardiovascular diseases. There are different studies of self-rating of health as a predictor of mortality, but the first clear demonstration came from Mossey and Shapiro's in 1982, which showed that self-rating of health in elderly Canadians where better predictor of 7 years survival than their medical record (4). At the same time, other studies on health perception explored the so-called bottom of the "iceberg" of unreported and un treated symptoms in medical records. (Verbruggeand Ascione 1987).

So, the self-reported health provides a simple, direct and global way of health as the responding individual choose to make it.

Thanks to the new development in treatment therapy of cancer, the life expectancy of cancer patients and survivors has increased over the past decade and cancer survivors are living longer with their cancer as a chronic illness (5, 11). These changes have been followed by challenges for cancer patients, according the social and financial support, also the way they perceive their health depending by socio demographic and social economic factors.

Psychological distress is common in cancer patients. Negative affect and depressive symptoms may contribute to reduced quality of life (6,7).

The Zutphen Study suggested that poor SRH may reflect subclinical disease and underlying biological and psychological changes (8).

Although the perceived health and quality of life of cancer survivors are important public health issues, knowledge in this area is still lacking.

Cancer survivors had worse self-perceived health than non-cancer patients, supporting the previous findings showing a higher prevalence of chronic lifestyle or treatment related diseases in cancer survivors compared with the general population (9-10).

The current study analyzed a nationally representative data to examine demographic and socioeconomic characteristics that determine the self-perceived health in cancer patients and patients and survivors in Albania.

MATERIALS AND METHODS

Design and Participants

This was a transversal (cross-sectional) study.

Transversal studies are the only studies that measure the prevalence of different health characteristics or events in the population. As such, transversal studies have very wide application in bio-medical sciences as they manage to assess the burden of morbidity in the population. In the current study, exactly through a point (transversal) approach was achieved the assessment of the prevalence of self-perception of health status in cancer survivors, as well as the correlation with social demographic and life style factors in the adult population of our country. This study was conducted in 2012 in all districts of Albania.

The study population consisted of the selection of a nationwide representative sample of adult individuals (male and female) in our country. In fact, this study was undertaken in the framework of the Living Standard Measurement Survey (LSMS), a transversal study which was conducted nationwide including a probabilistic sample (representative) from all districts (n = 36). In short, the Living Standards Measurement Survey (LSMS 2012) is a multi-purpose household survey conducted in the context of ongoing poverty monitoring and the establishment of a policy evaluation system in the context of the National Development Strategy and Integration (NSDI). It is one of the main sources of information to measure living conditions, the poverty situation and to provide a reliable and statistical information needed to assist policy makers in monitoring, evaluating and designing economic and social programs.

More specifically, this study, conducted in September 2012, included a sample of 6671 households, selected by lot using the two-space selection: in the first step, the census zones (843 zones) called Primary Units were selected. The PSU (Primary Selection Units) representing the entire territory of the country and then, in the second step, the families that will be surveyed within each area (8 families for each area) were selected. The response rate in the survey (participation in the study) was 99.98% (only one family did not respond). The data of the Population and Housing Census, October 2011 served as the basis for the election.

The geographical component of obtaining the sample consisted of dividing the territory of our country into four zones (Central Region, Coastal Region, Mountainous Region and Tirana Region), as well as stratification (stratification) by place of residence (urban areas versus rural areas) being based on maps and census lists (Census 2011).

In order for the study data to be representative of the Albanian population as a whole, a weighting coefficient was applied to the study sample.

Weighing the results

The probability weight of the sample is calculated as the inverse of the probability of its selection. It is always calculated when the selection of a probabilistic sample is done. This statistical procedure is in order to produce the most

representative results which reflect the structure of the population in terms of place of residence, gender and age groups.

Responding families were divided according to prefectures, counties and number of family members according to age groups. The calibration process was performed with the GENESES program. Each family and each individual have a unique weight that when aggregated at family level gives the number of families at prefecture level, region and national level, and when aggregated at individual level gives the total number of individuals at prefecture level, region and national level.

The aim of our study was to assess the prevalence and determinants (socio-demographic and lifestyle) of cancer survivors in Albanian with the final aim to obtain the evidence needed in order to design effective programs for improvement of the health determinants in the self-perceived health in this population subgroup.

The study participants rated their health in five categories: very good, good, average, poor and very poor, which in the analyses were dichotomized into “not poor” and “poor health”. All participants that reported the presence of cancer as the chronic disease that affects them the most, were selected. Information on socio-demographic characteristics (age, gender, education, employment status, residence) and lifestyle factors (smoking and alcohol intake) were collected.

Statistical analysis was done using SPSS version 26 (SPSS, Chicago, IL).

RESULTS

The weighted data showed that only 1.5% of the standardized population reported cancer as a chronic disease that causes them disability. The male female rate was 1:2.7. Mean age of the study sample was 56± 10.8 years, while the mean age by gender of males and females was 60.9 ± 9.6 years and 54 ± 10.6 years, respectively.

The distribution of demographic and socio-economic characteristics of male and female self-reported cancer participants included in this study are presented in table 1.

In total, about 41.9 % of the study sample belonged to the age group 35-50 years, about 36.6 % belonged to the age group 51-65 years, while the percentage of elderly subjects (+66) was about 21.5 %, of these 21.4% male and 21.6% female. Overall, almost 57.9% of participants lived in urban areas and about 42.1% in rural areas. About 40.4% of the self-reported cancer as chronic disease population lived in the Central region of Albania, about 32.2% in the Coastal region, and 8% in the Mountain regions, while almost 19.3% live in Tirana, the capital of Albania.

The level of employment was found to be significantly higher among women compared to men (77.6% vs. 54%, respectively). The overall prevalence of self-perceived poverty resulted in about 10.9% and finally, about 15% of men and 15.8% of women had received a university degree.

Table 1. Distribution of socio-demographic characteristics among study participants with (self-reported) cancer

Variable	Males	Females	Total
	Standardized percentage	**Standardized percentage**	**Standardized percentage**
Age-group:			
35-50 years	40.8	42.9	41.9
51-65 years	37.7	35.5	36.6
≥66 years	21.4	21.6	21.5
Total	*100.0*	*100.0*	*100.0*
Residency:			
Urban	58.0	57.9	57.9
Rural	42.0	42.1	42.1
Region:			
Central	40.0	40.8	40.4
Costal	32.3	32.2	32.2
Mountain	8.2	7.8	8.0
Tirana	19.6	19.1	19.3
Employment:			
No	54.0	77.6	66.1
Yes	46.0	22.4	33.9
Poverty level:			
Poor	11.2	10.7	10.9
Not poor	88.8	89.3	89.1
Education level:			
Primary	49.8	55.4	52.7
High school	35.2	28.8	31.9
University	15.0	15.8	15.4

Table 2. Distribution of lifestyle characteristics and self-perceived health status among participants with (self-reported) cancer

Variable	Males	Females	Total
	Standardized percentage	**Standardized percentage**	**Standardized percentage**
Current smoker:			
Yes	4.1	0.0	4.1
No	95.9	0.0	95.9
Total	100.0	0.0	100.0
Alcohol intake:			
Yes	30.4	0.0	8.3
No	69.6	100.0	91.7
Self-perceived health:			
Very good	0.0	0.0	0.0
Good	12.1	12.2	12.2
Average	0.0	28.3	20.6
Poor	46.4	50.1	49.1
Very poor	41.5	9.4	18.2
Self-perceived health:			
Not poor	12.0	40.5	32.7
Poor health	88.0	59.5	67.3

Table 2 presents the distribution of lifestyle characteristics and self-perceived health status among participants with (self-reported) cancer.

The prevalence of current smoking in self-reported cancer population was 4.1% in males and 0 % in females.

While the proportion of male ex-smokers was 95.9 % and females 0%. About 30.4% of men and 0% of women reported being alcoholics, quite different results from the overall population study.

The self-reported prevalence of poor health resulted in 46.4% in men and 50.1% in women, while very poor health was reported by 41.5% in men and 9.4%, very high percentage compared with the overall population study. On the other

Table 3. Association of self-perceived poor health with socio-demographic characteristics and lifestyle factors

Variable	Left panel: age-adjusted models		Right panel: multivariable-adjusted models	
	OR*	95%CI*	OR	95%CI
Age-group:	-	-		
35-50 years			1.00	Reference
51-65 years			2.07	1.97-2.17
≥66 years			2.59	2.47-2.72
Sex:				
Female	1.00	Reference	1.00	Reference
Male	0.85	0.84-0.87	0.65	0.61-0.69
Residency:				
Urban	1.00	Reference	1.00	Reference
Rural	1.39	1.37-1.41	1.21	1.17-1.26
Region:				
Central	1.00	Reference	1.00	Reference
Costal	1.09	1.07-1.11	1.99	1.88-2.10
Mountain	1.24	1.21-1.27	2.09	1.98-2.21
Tirana	0.67	0.65-0.68	2.00	1.86-2.14
Employment:				
Yes	1.00	Reference	1.00	Reference
No	8.69	8.39-9.00	11.78	10.99-12.61
Poverty level:				
Not poor	1.00	Reference	1.00	Reference
Poor	1.36	1.33-1.39	1.76	1.69-1.84
Education level:				
Primary	1.00	Reference	1.00	Reference
High school	0.66	0.65-0.68	0.76	0.73-0.80
University	1.22	1.20-1.25	1.83	1.76-1.91
Current smoking:				
No	1.00	Reference	1.00	Reference
Yes	1.47	1.43-1.52	1.76	1.70-1.82
Alcohol intake:				
No	1.00	Reference	1.00	Reference
Yes	0.56	1.54-1.61	1.85	1.79-1.92

*Odds ratios (OR: poor health vs. not poor health) and 95% confidence intervals (95% CI) from binary logistic regression. All variables presented in the table were included simultaneously in the logistic regression models.

hand, none of men and women with cancer as chronic disease rated their health as very good (Table 2).

The association of sociodemographic characteristics factors and lifestyle factors with poor health in cancer self-perceived participants is presented in table 3.

In the age adjusted analysis (table 3, left arm], a strong positive correlation of self-perceived health in participant with cancer as chronic disease was found between employment and poor self-perceived health {OR (employed vs. unemployed) = 8.69, 95% CI = 8.39}.

The analysis of the data did not show a statistically significant relationship with the gender of the subjects included in the study, but showed a positive relationship with the rural residence of the study subjects (OR = 1.39, 95% CI = 1.37-1.41). Participants in the study, with cancer as chronic disease residents in Tirana had the lowest chances of poorly self-perceived health.

There was evidence of statistically significant association with educational level {OR (High school vs. university) = 1.2, 95% CI = 1.2-1.25 Similarly, a statistically significant association was found between poor health and tobacco intake {OR (ex-smokers versus non-smokers) = 1.47, 95% CI = 1,43-1.52. On the other hand, alcohol consumers vs non-alcohol consumers had a lower level of poor self-reported health (OR = 0.56, 95% CI = 1.54-1.61) [Table 3, left arm].

After adjusting for all the variables included in the study, through the step-by-step elimination procedure (Tables 3 right arm), strong and important "predictors" of poor self-perceived health status in participant with cancer as perceived chronic disease resulted with the age (OR (≥66 years vs. 35-50 years old) = 2.59, 95% CI = 2.47-2.72), unemployment (OR = 11.78, 95% CI = 10.00-12.61), university level of education (OR = 1.83, 95% CI = 1.76-1.91) and alcohol intake (OR = 1.85, 95% CI = 1.79-1.92). Interestingly, in multivariate- adjusted models, the association of current smoking and poor self-perceived health in cancer changed direction (OR = 1.76, 95% CI = 1.7-1.82). Interestingly, in the multivariate adjusted model according to binary logistic regression, alcohol intake correlation became stronger, with alcohol intake exposed to a higher risk of poor health self-reporting compared to non-alcohol intake.

DISCUSSION

This study provided interesting information from a research and scientific point of view regarding the self-perception of health by cancer survivors based on socio-demographic characteristics and their way of life. About 1.5% of the standardized population reported cancer as a chronic disease that causes them disability.

Our results were in the same line with the literature where was found that cancer survivors had a worse self-perceived health compared with the non-cancer patients, because of depression and chronic non-malignant conditions were more frequent in this group. This finding confirmed that a higher prevalence of chronic disease and

treatment-related diseases in cancer survivors. (12, 13).

In the age and multivariate adjusted model our results showed a correlation between age and poor self-perceived health in cancer survivors as in the study of Taheril et al, where women have a poor health compared to men (14). Also, the same as in overall population study on self-perceived health in Albanian population, risk for poor perceived health increased with the age (15).

Also, age was found as a potent determinant of self-perceived health than health condition even in the cross-sectional study in Nepal. Regarding the lifestyle factors and psychological factors, current smoking, no exercise and being unhappy were all related to poor self-perceived health (16). According to the alcohol intake, the relationship with the SPH was found non-significant after controlling for the other factor. This study suggested that, self-perceived health is more affected by health behaviors and psychological factors than socio-demographic factors (16).

Various studies showed that with age more and more people perceive their health poor, confirming the association of aging with poor SPH (17,18). However, our results highlight >66 aged disadvantage in self-perceived health and this disadvantage persisted even after adjusting for other variables, although from several studies on the correlation of age and self-perceived it was suggested that with aging people perceived their health better than the middle-aged.

This was explained by the fact that physical symptoms and psychosocial factors affect differently the age groups and the elderly have lower expectations regarding health than do the young (19) and these expectations may result in more positive self-perceived health among the elderly and in more negative self-perceived health in the young people (20).

On the other hand, our results were in line with the study of Joseph SU et al on the association of income and self-perceive health status found that regardless of cancer site, the income level was inversely associated among cancer survivors (21).

The rate of poor SPH in cancer survivors was higher compared with the overall population study 67.3% vs 5.4%. In the multivariate model, the determinant of poor self-perceived health resulted the same as in cancer as chronic disease population and overall population. The strongest positive correlation in cancer survivor population was unemployment OR= 11.78 vs OR=5.56 in overall population.

According to current smoking the study in cancer survivors showed quite the same results as in overall population study OR 1.74 and OR=1.7.

In regards to alcohol intake, in the cancer survival population study was found a positive correlation between alcohol intake and poor SPH, OR= 1.85 compared with the finding in the overall population which showed an inverse correlation between alcohol intake and poor SPH (15).

This study has its limitations. The one choice question on chronic disease allowed the responders to select the chronic disease that cause more disability, so real prevalence of cancer in

this transactional study may be under reported and the lack of other important covariates such as physical activity, obesity and psychological destress.

However, these findings deserve further analysis future studies. This is the first report providing evidence on the socio-demographic and lifestyle determinants of SPH status in Albania after adjustment for a range of confounders. Also, our research provides baseline data for the monitoring of future changes of health status in our transitional population.

CONCLUSION

Regardless of its potential limitations, this study represents the only report on SPH in cancer patients in Albania and indicate a significant relationship of self-perceived health in cancer patients with demographic, socioeconomic and lifestyle factors. Employment, age and alcohol intake were a significant "determinant" of poor self-perceived health in cancer survivors' population, which is in line with previous reports. Further population-based studies are needed to have more comparable results in order to promote an improvement in these factors and in self perceived health in cancer patients as an indicator of life quality.

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