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The truth-telling issue and changes in lifestyle in patients with cancer

V Kostopoulou, K Katsouyanni

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authors' affiliations
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Correspondence to:
V Kostopoulou, Papaflessa
14, Dafni 17234, Greece;
vaskos12@otenet.gr

Objective: To compare the attitudes of patients with cancer toward making changes in lifestyle, according to their awareness of the diagnosis.
Method: Personal interviews with 50 patients with breast cancer, 24 patients with prostate cancer and 50 patients with colorectal cancer were conducted in a cancer hospital in Athens, Greece.
Analysis: Multiple logistic regression models were used to estimate the odds ratio as a measure of the association of the characteristics of participants with changes in lifestyle.
Results: Overall, 22.6% of the patients were not aware of the diagnosis. Among the changes in lifestyle, 41.1% reported changing their diet to a healthier one, 22.6% of the smokers reduced or stopped smoking and 13.7% added new physical activity. Compared with uninformed patients, those who were aware of the diagnosis, after adjusting for the confounding effect of educational status (an index of socioeconomic status), were 2.5 times as likely to make dietary changes (p<0.1). Among the other characteristics under study, older patients were less likely to add new physical activity than younger ones (p<0.01), and newly diagnosed patients were more likely to stop or reduce smoking (p<0.1) than patients with a diagnosis made more than 12 months previously.
Conclusion: Patients with cancer are motivated to attempt changes in lifestyle and can benefit from more factual information about the diagnosis.

Although life-threatening health events can motivate patients to undertake health promotion activities,[1] there are few data regarding changes in lifestyle in response to a diagnosis of cancer. The increasing incidence of cancer suggests the necessity to prompt a range of initiatives to raise awareness of the problem and convince patients to adopt a healthy lifestyle that can positively influence outcome. Given the central role of oncologists and the trust placed on their advice, the delivery of health messages aimed at changing lifestyle towards a healthier way may be especially meaningful.[2] In such a context, disclosure of the true diagnosis is a prerequisite to transmit the medical information, present a practical and realistic message about lifestyle factors and elicit the collaboration of the patient in developing a strategic plan for the future.

Attitudes about the truth-telling issue are related to convictions about the benefit or harm to the patient caused by being informed, and are strongly connected to social, geographical and cultural factors,[3] varying from a paternalistic approach mostly encountered in the Mediterranean population, viewing the doctor as a powerful figure exercising unilateral decisions,[4] to the more autonomous American perspective based on providing thorough information and enabling the patient to make informed choices and plan health-promoting strategies.[5] The principles of informed consent and patient autonomy have created clear ethical and legal obligations to provide patients with as much information as they desire about their illness and their treatment. Disclosing the truth means that the patients get all the medical information they need to make decisions about their body and their life. Our study investigated the relationship between changes in lifestyle and awareness of the diagnosis among patients with cancer, in a population in which a substantial proportion of patients with cancer ignores the accurate diagnosis of their illness.

METHODS

In all, 124 patients with histologically confirmed prostate, breast and colorectal cancer were personally interviewed by the investigator (VK), an MD working at the hospital, while being treated as inpatients or during their follow-up visits as outpatients, in "Metaxa" Cancer Hospital of Piraeus-Athens, in 2004. Eligible patients were the first 124 Greek-speaking adults diagnosed 6–24 months before sampling, to obtain roughly equal numbers of men and women. All selected patients were in good performance status (performance status = 0 according to the Eastern Cooperative Oncology Group)[6] without any pre-existing cardiovascular diseases. Informed consent forms were signed by all the patients.

Each patient was asked to report on changes made in lifestyle after the diagnosis of the specific health problem they were being or had been treated for in that hospital. They were asked if they had made any changes in their dietary habits to improve their health. If yes, they were asked to specify the kind of change choosing from a list of options: (a) ate more fruits and vegetables; (b) ate less meat; (c) ate less fat; (d) fasted more often; (e) used dietary supplements; (f) followed a weight-reduction diet; (g) consumed less alcohol; and (h) other. This method of assessing changes in diet was used in other studies of trends in diet.[7] In a similar way, patients were asked if they had begun any physical activity aimed at improving their health. If yes, they were asked to specify by choosing among (a) worked out in a gym; (b) worked out at home; (c) walked more; (d) started any kind of sport; and (e) other. For the above questions, more than one answer was allowed. Patients were finally asked if they were smokers, ex-smokers or non-smokers. Smokers and ex-smokers were asked if they had given up or reduced smoking after the diagnosis of the health problem they were being or had been treated for in that hospital to improve their health. The information regarding the awareness of the patient of the diagnosis of cancer was either extracted cautiously from him or her or given by the patient's family member.

Table 1 Most common changes in lifestyle among patients with cancer (n = 124) diagnosed up to 24 months previously

	n (%)
Dietary changes*	51 (41.1)
More fruit and vegetables	19 (37.2)
Less meat	7 (13.7)
Less fat	25 (49.0)
Weight loss diet	8 (15.7)
Dietary supplements	9 (17.6)
Less alcohol	28 (54.9)
New physical activity*	17 (13.7)
Walked more	15 (88.2)
Other	2 (11.7)
Changes in smoking (n = 71)	28 (39.4)
Reduced smoking	13 (46.4)
Stopped smoking	15 (53.5)
Total number of changes	
None	23 (18.5)
One change	76 (61.2)
Two changes	22 (17.7)
Three changes	3 (2.4)

*More than one response was allowed.

Patients who had made at least one change in lifestyle were also asked to indicate their source of information for this change: (a) their doctor; (b) mass media; and (c) their relatives or friends.

Sociodemographic data on age, education and sex were collected. Data on the disease, such as type of cancer, stage of disease, number of treatments received (one, two, three or more different kinds of treatments), time since histological diagnosis and type of patient (inpatient or outpatient), were also collected using the hospital registries.

Statistical comparisons between the two groups of patients (informed and uninformed) were made with χ^2 tests or Fisher's exact tests (where needed). Logistic regression analysis was used to estimate odds ratios (ORs) as the measure of association of changes in lifestyle with awareness of the diagnosis, education (in years, $\leqslant 6$, >6), age (in years, $\leqslant 65$, >65), time from diagnosis (in months, $\leqslant 12$, >12), stage of disease (local or distant) and type of patient (inpatient or outpatient). Variables were divided into categories by using the median values. All ORs are adjusted for confounding factors (age, education, sex, stage, number of treatments, type of cancer and type of patient). It is important to note that because of the types of cancer selected for our study, sex and type of cancer are confounded, given that all patients with breast cancer were women and all patients with prostate cancer were men. To reduce the confounding effect, and to achieve a good interpretation of the results, a new variable was created containing diagnosis and sex, which divided patients into four groups: (1) men affected by colorectal cancer; (2) women affected by colorectal cancer; (3) breast cancer; and (4) prostate cancer. Interactions among independent variables were also checked for possible associations with changes in lifestyle.

RESULTS

The sample comprised 124 adult patients with cancer, of whom 50 had breast cancer, 50 had colorectal cancer and 24 had prostate cancer. A total of 55% of the patients were women, 55% were newly diagnosed (within the previous 12 months, the mean age was 62.3 (standard deviation 12.4) years, 60% had an elementary education and 22% of the patients were not informed about the diagnosis of cancer.

Table 1 shows the most common changes in lifestyle, defined as changes that at least 5% of the patients reported

Table 2 Association of awareness of the diagnosis with clinical characteristics among patients with breast cancer (n = 50), colorectal cancer (n = 50) and prostate cancer (n = 24)

	Total	Uninformed patients	Informed patients	
	n (%)	n (%)	n (%)	p Value
Dietary changes				
No	73 (58.87)	21 (28.77)	52 (71.23)	0.049
Yes	51 (41.13)	7 (13.73)	44 (86.27)	
New physical activity				
No	107 (86.29)	24 (22.43)	83 (77.57)	NS
Yes	17 (13.71)	4 (23.53)	13 (76.47)	
Changes in smoking				
No	43 (60.56)	8 (18.60)	35 (81.40)	NS
Yes	28 (39.44)	3 (10.71)	25 (89.29)	
Sex				
Male	56 (45.16)	14 (25.00)	42 (75.00)	NS
Female	68 (54.84)	14 (20.59)	54 (79.41)	
Age (years)				
$\leqslant 65$	65 (52.42)	4 (6.15)	61 (93.85)	<0.001
>65	59 (47.58)	24 (40.68)	35 (59.32)	
Education (years)				
$\leqslant 6$	75 (60.48)	25 (33.33)	50 (66.67)	<0.001
>6	49 (39.52)	3 (6.12)	46 (93.88)	
Stage of disease				
I/II (local)	73 (58.87)	15 (20.55)	58 (79.45)	NS
III/IV (distant)	51 (41.13)	13 (25.49)	38 (74.51)	
Diagnosis date (months)				
$\leqslant 12$	68 (54.84)	17 (25.00)	51 (75.00)	NS
>12	56 (45.16)	11 (19.64)	45 (80.36)	
Type of patient				
Inpatient	64 (51.61)	14 (21.88)	50 (78.13)	NS
Outpatient	60 (48.39)	14 (23.33)	46 (76.67)	
Medical treatment				
1	17 (13.71)	6 (35.29)	11 (64.71)	NS
2	57 (45.97)	15 (26.32)	42 (73.68)	
>3	50 (40.32)	7 (14.00)	43 (86.00)	

NS, not significant.

making. Overall, changes in lifestyle were common among patients with cancer, as about 80% of them reported making at least one change: about 40% made dietary changes, 15% added new physical activity and 25% reduced or stopped smoking. Among dietary changes, the most common were drinking less alcohol and eating less fat; for physical activity, the most common change was walking more; for changes in smoking activity, almost half the patients stopped smoking.

Table 2 shows the association between awareness of the true diagnosis and patients' characteristics (sociodemographic data and changes in lifestyle).

Table 3 shows the ORs of making changes in lifestyle by awareness of the diagnosis and other characteristics.

Table 4 shows the association between changes in lifestyle and source of information in the groups of informed and uninformed patients.

Among changes in lifestyle, dietary changes were associated with awareness of the true diagnosis (p = 0.049), whereas among other patients' characteristics, age (p<0.001) and education (p<0.001) were also strongly associated. Adjusted for other sociodemographic factors and for the confounding effect of education (an index of socioeconomic status), patients who were aware of the diagnosis of cancer were more than twice as likely to change dietary habits towards a healthier way as patients who were not informed (p<0.1). Compared with men affected by colorectal cancer, women with breast cancer were 65% less likely to make dietary changes after a diagnosis of cancer. Overall, older patients were 97% less likely to add new physical activity (p<0.01); among older patients, more educated ones were about 20 times as likely to add new physical activity (data not shown), whereas among younger patients, more educated ones were only 4% as likely to start exercising (data not shown). This implies an interaction between age and education. Compared with men affected by colorectal cancer, women affected by the same type of cancer and patients with breast cancer were, respectively, about 15 and 17 times as likely to change their smoking habit (p<0.05 and p<0.001, respectively). Compared with newly diagnosed patients, those diagnosed more than 12 months previously were 75% less likely to change their smoking habit (p<0.1).

Informed and uninformed patients were equally advised by their doctor, their relatives and friends or informed by mass media about dietary and exercise changes, although informed patients were more conscious on acquiring information from mass media about giving up their smoking habit (p = 0.014).

DISCUSSION

Our study indicates that most patients with cancer reported making changes in lifestyle to improve their health and well being after a diagnosis of cancer. These data are consistent with a survey of 536 cancer survivors, which also showed that about 70% of the patients reported making changes in lifestyle: 40% made dietary changes and 20% added physical activity.[7]

After controlling for sex, education, type of cancer, age, stage of disease, number of treatments, type of patient and time since diagnosis, patients to whom the diagnosis was disclosed were 2.5 times as likely to change their diet to a healthier one than patients from whom the truth was withheld. The trend to significance of this association implies a strong connection between awareness of the diagnosis of

Table 3 Association of changes in lifestyle with clinical characteristics among patients with breast cancer (n = 50), colorectal cancer (n = 50) and prostate cancer (n = 24)

Characteristic	n (%)	Adjusted OR† (95% CI) for dietary changes	Adjusted OR† (95% CI) for new physical activity	Adjusted OR† (95% CI) for smoking changes
Aware of diagnosis				
No	28 (22.5)	1.0	1.0	1.0
Yes	96 (77.4)	2.59* (0.81 to 8.32)	0.21 (0.03 to 1.28)	1.63 (0.20 to 13.33)
Diagnosis & sex				
Colorectal & male	32 (25.8)	1.0	1.0	1.0
Colorectal & female	18 (14.5)	0.91* (0.25 to 3.32)	0.31 (0.02 to 3.46)	15.57** (0.85 to 283.25)
Breast	50 (40.3)	0.37 (0.13 to 1.08)	0.46 (0.10 to 1.99)	17.62*** (2.29 to 135.51)
Prostate	24 (19.3)	0.62 (0.14 to 2.66)	0.31 (0.02 to 3.50)	1.03 (0.12 to 8.64)
Education (years)				
≤6	75 (60.4)	1.0	1.0	1.0
>6	49 (39.5)	1.66 (0.69 to 3.96)	1.04 (0.27 to 4.05)	0.42 (0.09 to 1.89)
Age (years)				
≤65	65 (52.4)	1.0	1.0	1.0
>65	59 (47.5)	0.71 (0.28 to 1.78)	0.03*** (0 to 0.44)	0.51 (0.11 to 2.42)
Stage of disease				
I/II (local)	73 (58.8)	1.0	1.0	1.0
III/IV (distant)	51 (41.1)	1.89 (0.81 to 4.44)	0.46 (0.12 to 1.65)	2.19 (0.57 to 8.37)
Medical treatment				
1	17 (13.7)	1.0	1.0	1.0
2	57 (45.9)	2.67 (0.56 to 12.67)	0.26 (0.02 to 3.08)	4.25 (0.26 to 68.14)
>3	50 (40.3)	1.59 (0.29 to 8.54)	0.36 (0.02 to 5.01)	1.32 (0.06 to 29.23)
Diagnosis date (months)				
≤12	68 (54.8)	1.0	1.0	1.0
>12	56 (45.1)	0.56 (0.24 to 1.30)	1.63 (0.45 to 5.94)	0.25* (0.40 to 1.23)
Type of patient				
Inpatient	68 (54.8)	1.0	1.0	1.0
Outpatient	56 (45.1)	0.68 (0.26 to 1.74)	1.39 (0.35 to 5.37)	1.93 (0.35 to 10.47)
Age (years) & education (years; interaction)				
≤65 & ≤6	30 (24.19)	—	1.0	NS
>65 & ≤6	45 (36.29)	—	0.03** (0 to 0.44)	NS
≤65 & >6	35 (28.23)	—	1.04 (0.27 to 4.05)	NS
>65 & >6	14 (11.29)	—	0.75 (0.12 to 4.62)	NS

*p≤0.1; **p≤0.05; ***p≤0.001.
†The model includes awareness of the diagnosis, age, sex, education, stage, medical treatments, diagnosis date and type of patient. Therefore, the ORs reported are adjusted for the other variables.

Table 4 Association between changes in lifestyle and source of information in the two groups of patients (informed and uninformed)

	Doctor n (%)	Mass media n (%)	Relatives and friends n (%)	p Value
Dietary changes (n = 51)				
Uninformed (n = 7)	5 (71.43)	2 (28.57)	0 (0)	NS
Informed (n = 44)	18 (40.91)	25 (56.82)	1 (2.27)	
Exercise changes (n = 17)				
Uninformed (n = 4)	3 (75.00)	1 (25.00)	—	NS
Informed (n = 13)	5 (38.46)	8 (61.54)	—	
Changes in smoking (n = 28)				
Uninformed (n = 3)	2 (66.67)	0 (0)	1 (33.33)	0.014
Informed (n = 25)	8 (32.00)	17 (68.00)	0 (0)	

NS, not significant.

cancer and dietary changes, given the small sample size. Although physical exercise is a particularly attractive option among interventions designed to improve survival in patients with cancer because of its other known health benefits and its positive influence on biological systems associated with anticancer defence,[8] those patients who were not likely to add new physical activity probably attributed it to their conviction of being more fragile and having to avoid exposure to potentially harmful environmental factors.

Older patients were less likely to adopt new lifestyle practices in response to a diagnosis of cancer, whereas women were more likely to make changes. These results are similar to findings from studies on prevalence of changes in lifestyle among patients with cancer.[7][9]

Newly diagnosed patients were more likely to change their smoking habit than patients diagnosed more than 12 months previously, which can be explained by the strong initial motivation offered by the seriousness of the diagnosis. It should, however, be noted that the selected cancer sites are not the ones primarily related to smoking, so the motivation may have been lower. Overall, changes in diet and smoking were more frequent among newly diagnosed patients, whereas physical activity was undertaken more often after 12 months of the diagnosis, given the poor physical status during cancer treatment.

In our study, more than 77% of patients with cancer seemed to be aware of the diagnosis, which is a high percentage considering the Mediterranean approach to the truth-telling issue. Data from a study on oncologists practising in North America, Europe, South America or Asia and their attitudes in giving bad news suggested that doctors from Western countries were less likely to withhold unfavourable information from the patient at the family's request or avoid the discussion entirely than doctors from other countries.[3] Other data from studies on different countries about attitudes towards informing patients suggest that in Italy opposition from relatives to disclosure of the diagnosis appears to be common,[10] whereas in Pakistan, crucial decisions are often made by family members or are left entirely up to the attending doctor.[11] Paternalistic attitudes favouring concealment of serious diagnoses prevail among doctors in Lebanon,[12] whereas healthcare workers from Taiwan recorded truth telling as one of their most frequent daily dilemmas in caring for patients.[13] In a survey conducted in Greece to assess the public attitudes to the disclosure of the diagnosis issue in patients with good prognosis, doctors themselves replied ''Yes'' less often (41.3%) than all other professionals (50.8%) to a highly significant level (p<0.001).[4] In the same study, the reasons given to justify truth telling could be described as emotional, such as the patient's motivation to follow the doctor's instructions accurately, to be more careful, to organise his or her life in a better way. Our study proposes one more reason: the possibility of deferring, through making changes in lifestyle, the time of death for as long as possible. Data from a study on American adults indicate that limited awareness of health problems has emerged as a greater barrier to their management.[14] As knowledge and information can influence control, the media can play a powerful part in influencing health behaviour. The application of social marketing principles to health promotion has proved effective in motivating people to make complex behaviour changes that can improve health. Data from a survey in New Zealand about the effect of an initiative to increase physical activity at a population level resulted in increases in message recognition and in the intention to become more active.[15]

Our study has several limitations. The prevalence estimates of changes in lifestyle calculated cannot be generalised to all patients with cancer because of collection of data from only one cancer institute and selection of cancer types with high survival rates. Because of good prognosis, motivation to make changes in lifestyle for these patients could be different. On the other hand, the gain in patients with good prognosis is proportionally larger. Additional studies would be needed to assess changes in lifestyle in more patients affected by various types of cancer treated in different cancer institutes all over the country. Finally, the data collected were based on self report and were in many cases gathered during hospitalisation for treatment. Therefore, it is possible that the answers given were somewhat affected by psychological factors. All patients, however, had the same motivation to report a healthier profile. Thus, the ORs should not be biased.

The results of these data suggest that patients with cancer are highly motivated to make changes in lifestyle and therefore represent a group that could benefit from counselling on diet, physical activity and smoking status. In this context, truth telling is an alternative to the practice usually followed of withholding the truth, an alternative with many difficulties, which requires particular professional and individual skills.

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Authors' affiliations
V Kostopoulou, Department of Internal Medicine, Alexandra Hospital, Athens, Greece
K Katsouyanni, Department of Hygiene and Epidemiology, University of Athens Medical School, Athens

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