



Knowledge, attitudes and behavior towards cancer screening: municipal employees example

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Abstract

Cancer is one of the most important public health problems all over the world and in Turkey. This situation continues to grow globally every day, placing serious physical, emotional and financial pressure on individuals, families, society and the healthcare system. Studies to be carried out to increase social awareness in terms of cancer are crucial. The aim of this study is to determine the knowledge, attitudes and behaviors of Ankara's central district municipality employees towards community-based cancer screenings within the scope of cancer control programs. This cross-sectional study was conducted with 254 people who worked in a central district municipality in Ankara and agreed to participate. 16.9% of the participants stated that they had cancer screening. Of those who had cancer screening, 63.6% stated that they had it done in the hospital, 29.6% in KETEMs (Kanser Erken Teşhis, Tarama ve Eğitim Merkezi, Cancer Early Diagnosis, Screening and Education Centers), 6.8% in a doctor's office, and 1.6% stated that they were diagnosed with cancer. The median of the scores the participants received from the attitude scale is 92.0 (52.0-120.0). 30.3% of the participants stated that they had previously received training on cancer and 23.6% on cancer screening methods. Although the attitudes of participants towards cancer screenings were positive, the level of participation in screenings was found to be quite low. Education is essential in gaining positive attitudes and behaviors towards cancer and cancer screenings. It is extremely important that healthcare professionals provide training on cancer to create positive changes in screening behavior. In order to create positive changes in screening behavior, those who provide cancer education must be healthcare professionals.

Keywords: attitude, behavior, cancer, cancer screenings

1. Introduction

Cancer is one of the most important health problems all over the world and in Turkey (1). It continues to grow globally every day and places a heavy physical, emotional and financial burden on individuals, families, society and the healthcare system (2). Cancer is the second leading cause of death worldwide. Approximately one in every six deaths is caused by cancer or cancer-related complications (3). The WHO predicts that the incidence of cancer will double by 2030 and become the leading cause of death (1). According to statistics from The WHO International Agency for Research on Cancer (IARC), there will be approximately 19.3 million new cancer cases and 10.0 million cancer-related deaths worldwide in 2020 (3). According to the Turkish Statistical Institute (TUIK) data for 2022, deaths caused by cancer are in the second place after circulatory system diseases in our country, as in the rest of the world (4, 5). The most common cancers are; lung, prostate, colon, stomach and liver cancer in men, and breast, colon, lung, cervical and thyroid cancer in women (2).

Early diagnosis of cancer reduces cancer-related morbidity and mortality (6) and ensures the preservation of the quality of

life of cancer patients (7). Safe, cost-effective, early diagnosis and treatment are possible with cancer screening methods for some types of cancer. Therefore, screening methods are valuable in cancer control (8). Looking at the Ministry of Health's reports, we can see that cancer screening is not reaching the 70% target for a number of reasons (5). Participation in screening programmes is influenced by many factors, including individuals' socio-demographic characteristics, beliefs about cancer, knowledge levels, attitudes, health behaviours and access to health services (9, 10). Information and awareness studies to be carried out in accordance with these identified factors will increase the effectiveness of screening programmes. Knowledge and awareness about cancer and cancer screening procedures will help to increase early diagnosis, treatment success, survival rate and quality of life of cancer patients (8).

The aim of this study is to determine the knowledge, attitudes and behaviours of employees of a central district municipality in Ankara towards community-based cancer screening within the scope of cancer control programmes.

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2. Methods

This cross-sectional study was conducted with 254 people who worked in a central district municipality in Ankara and agreed to participate. Permission for the study was received from local Clinical Research Ethics Committee (Ethics Committee Approval No: 2012-KAEK-15/2536).

For the research data, the survey form, which included questions on socio-demographic characteristics in the first part, questions on determining knowledge, attitudes and behaviors towards cancer screenings in the second part, and an attitude scale in the third part, was applied face to face.

For statistical analysis, variables were evaluated using the test for conformity of normal distribution (Kolmogorov-Smirnov/Shapiro-Wilk tests). Categorical variables were expressed as numbers and percentages, and continuous variables were expressed as median values (highest, lowest). Nominal variables were evaluated using the Chi Square Test, and ordinal variables were evaluated using the Mann Whitney U Test. In the multivariate analysis, independent predictors of participation in cancer screening programmes were examined using logistic regression analysis. Hosmer Lemeshow Test was used for model adjustment. A p-value of <0.05 was considered statistically significant.

3. Results

The median age of the participants is 38.0 (22.0-64.0). 16% of the participants are 30 years and younger, 2% are 41 years old and over, 55% are men, 72% are married, 66% are workers. 16.5% of the participants are secondary school graduates, 23.6% are high school graduates, 9.8% are associate degree graduates, 41.7% are university graduates, and 8.3% are postgraduate/doctorate graduates. The perceived income level was described as low by 19.3% and as medium by 64.6% of the participants.

46.5% of the participants were smokers, and 21.3% of them consumed alcohol. 50.8% of the participants stated that they did not exercise regularly, 25.2% of them did not think they had been a healthy diet, 40.2% think they sometimes eat healthy, and 33.9% stated that they had been diagnosed with a chronic disease. The frequency of having a health check-ups without any complaints is 19.7%.

There were no statistically significant differences between age groups, gender, marital status, level of education, occupation, income level, attending a health check-up without any complaints, having had cancer screening before, recommending screening tests, wanting to be screened regularly, smoking, drinking alcohol, doing regular physical activity, thinking about a healthy diet, having a chronic disease, having cancer, having a relative diagnosed with cancer, having received education about on cancer and screening methods, and thinking about the possibility of getting cancer ($p > 0.05$).



Fig.1. Distribution of participants' opinions regarding the possibility of getting cancer

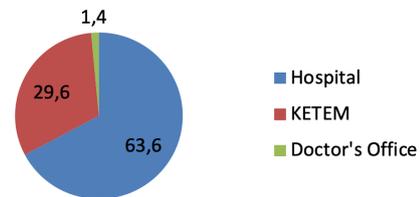


Fig. 2. Distribution of participants who had cancer screening according to the place of screening

It was found that 83.1% of the participants had not been screened for cancer at any point in their lives. Of these, 37.9% said that they did not have cancer screening because they thought they were healthy, 26.5% did not have time, 18.0% stated that screening was not easy and accessible, 9% because there is no one with cancer in their family, 8.1% because they are afraid of the results and 0.5% did not believe in screening tests.

16.9% of the participants reported that they had been screened for cancer, of which 63.6% had been screened in a hospital, 29.6% in KETEMs and 6.8% in a doctor's surgery (Fig. 2.). 1.6% of the participants who had cancer screening stated that they were diagnosed with cancer (two of them had breast cancer, one had thyroid cancer and one had prostate cancer), and 27.6% stated that their relatives were diagnosed with cancer (first degree relatives of 58.6%, second degree relatives of 32.9%, first and second degree relatives of 8.5%). Of the relatives diagnosed with cancer, 20.5% had lung cancer, 19.3% had breast cancer, 10.9% had hematological malignancies, 10.9% had stomach cancer, 8.4% had pancreatic cancer, 7.2% had kidney cancer, 6.0% had prostate cancer, 4.8% had colorectal cancer, 3.6% had cervical cancer, and 2.4% had bladder cancer.

While there was no statistically significant difference between the status of having cancer screening according to marital status, education level, perceived income, smoking and alcohol consumption, regular physical activity, presence of a diagnosed chronic disease, and thinking about the possibility of getting cancer ($p > 0.05$), a difference was found according to age groups, gender, occupation, believing that they had a healthy diet, going to a health check-up without any complaints, having a relative diagnosed with cancer, and having received training on cancer and screening methods ($p \leq 0.05$). The frequency of cancer screening increases as the

participants get older. The rate of cancer screening in the group aged 41 and over is 25.8%. The frequency of cancer screening is higher among women (88.4%), workers (79.1%), those who think they eat healthy (51.2%), those whose relatives have been diagnosed with cancer (25.7%), those who received training on cancer (53.5%), those who received training on cancer screening methods (31.7%), and those who wanted to have regular cancer screening (81.4%). Being a woman increases the frequency of cancer screening by a factor of times, and being a

worker by a factor of 3.8 (Table 1).

Table 1: Logistic regression analysis of factors affecting participation in cancer screening programs

Risk Factor	RR (%95 GA)*	p
Female gender	13,3 (4,3-41,1)	≤0,0001
Being a laborer	3,8 (1,4-10,3)	0,008

* : Age groups, gender, profession, thinking about eating healthy, going for a health check-up without any complaints, having been diagnosed with cancer before, having a relative diagnosed with cancer, and having previously received training on cancer and screening methods were included in the model.

Table 2. Distribution of attitude scale propositions towards cancer screening

	I do not agree		I neither agree nor disagree		I agree		χ^2 p
	n	%	n	%	n	%	
1. I would like to have regular cancer screenings.	39	15.4	47	18.5	168	66.1	$\chi^2=0,406$ ≤0,0001
2. I would like to have a cancer screening soon.	43	16.9	48	18.9	163	64.2	$\chi^2=0,396$ ≤0,0001
3. I would like to get information about cancer screening tests.	35	13.8	39	15.4	180	70.9	$\chi^2=0,432$ ≤0,0001
4. If there's something I'm curious about about cancer screenings, I research to find out.	28	11.0	42	16.5	184	72.4	$\chi^2=0,440$ ≤0,0001
5. I keep track of the results when I have a cancer screening test.	20	7.9	24	9.4	210	82.7	$\chi^2=0,492$ ≤0,0001
6. I encourage people around me to get cancer screenings.	35	13.8	52	20.5	167	65.7	$\chi^2=0,403$ ≤0,0001
7. Providing information about cancer screenings on television, on the internet and in newspapers will positively affect my probability to get screened.	30	11.8	40	15.7	184	72.4	$\chi^2=0,440$ ≤0,0001
8. If a healthcare professional recommends that I get screened for cancer, it increases my chances of getting screened.	25	9.8	30	11.8	199	78.3	$\chi^2=0,471$ ≤0,0001
9. If someone close to me gets cancer, it does not increase my chances of getting a cancer screening.	124	48.8	59	23.2	71	28.0	$\chi^2=0,312$ ≤0,0001
10. I think I'm doing something good for myself when I get a cancer screening.	27	10.6	32	12.6	195	76.8	$\chi^2=0,463$ ≤0,0001
11. I only get cancer screening tests because I want to.	49	19.3	48	18.9	157	61.8	$\chi^2=0,383$ ≤0,0001
12. I don't want to have a cancer screening because I'm afraid the test results will be bad.	152	59.8	47	18.5	55	21.7	$\chi^2=0,373$ ≤0,0001
13. I would have a cancer screening even if I had no complaints.	84	33.1	50	19.7	120	47.2	$\chi^2=0,306$ ≤0,0001
14. I do not get screened when the place where the cancer screening is conducted is too far for me to go.	128	50.4	57	22.4	69	27.2	$\chi^2=0,320$ ≤0,0001
15. I can't find time to get a cancer screening.	127	50.0	59	23.2	68	26.8	$\chi^2=0,318$ ≤0,0001
16. I forget to go for a cancer screening.	137	53.9	62	24.4	55	21.7	$\chi^2=0,338$ ≤0,0001
17. I think it is unnecessary to have cancer screening.	15	5.9	33	13.0	206	81.1	$\chi^2=0,484$ ≤0,0001
18. I think I am not old enough to have a cancer screening.	28	11.0	38	15.0	188	74.0	$\chi^2=0,448$ ≤0,0001
19. I'm afraid that cancer screening tests will hurt me.	46	18.1	36	14.2	172	67.7	$\chi^2=0,417$ ≤0,0001
20. I am worried about the side effects of cancer screening tests.	49	19.3	44	17.3	161	63.4	$\chi^2=0,392$ ≤0,0001
21. I find the procedures for cancer screening embarrassing.	30	11.8	20	7.9	204	80.3	$\chi^2=0,483$ ≤0,0001
22. I do not trust the results of cancer screening tests.	19	7.5	31	12.2	204	80.3	$\chi^2=0,480$ ≤0,0001

23. I don't feel the need to have a cancer screening because I don't think it will happen to me.	22	8.7	35	13.8	197	77.6	$\chi^2=0.467$ $\leq 0,0001$
24. I have more important things to do than get cancer screenings.	26	10.2	30	11.8	198	78.0	$\chi^2=0.469$ $\leq 0,0001$

The median of the scores received by the participants on from the attitude scale is 92.0 (52.0-120.0). While there was no statistically significant difference between the scores of the participants' on the attitude scale according to age, gender, marital status, education level, occupation, income level, smoking and alcohol consumption, doing regular physical activity, healthy diet, going for a health check-up without any complaints, having a diagnosed chronic disease, previous cancer screening, having relatives diagnosed with cancer, and previous education about cancer ($p>0.05$), there was a difference according to whether they had previously received training on cancer screening methods, wanted to have cancer screening at regular intervals, or recommended cancer screening tests ($p\leq 0.05$). The frequency of thinking that there is a high probability of getting cancer is higher in those who score below the average on the attitude scale (77.3%). The frequency of previously receiving training on screening methods is higher in those who score average or above on the attitude scale (27.9%). The frequency of wanting to have cancer screening at regular intervals is 32.0% for those who score below the average on the attitude scale, while it is 88.3% for those who score at the average or above. The frequency of recommending cancer screening tests is 74.0% for those who score below the average on the attitude scale, while it is 91.6% for those who score at the average or above.

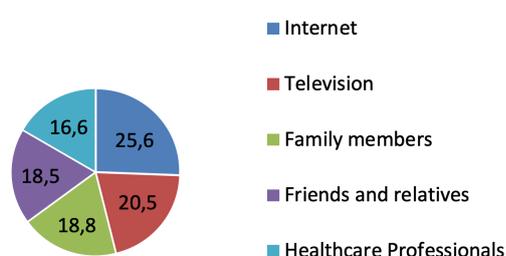


Fig. 3. Distribution of the sources regarding cancer information

84.6% of respondents recommend having cancer screening tests. 30.3% of the participants reported having received education about cancer and 23.6% about cancer screening. There was no statistically significant difference between age, level of education, occupation, income level, smoking, alcohol consumption, regular physical activity, thinking about healthy diet, presence of a diagnosed chronic disease, thinking about the possibility of getting cancer, presence of diagnosed cancer, and presence of a relative diagnosed with cancer, and previous education about cancer and screening methods ($p>0,05$). On the other hand, a statistically significant difference was found between previous education on cancer and screening methods and gender, marital status, going for a check-up without any

complaints, having a cancer screening before, recommending screening tests, and requesting cancer screening at regular intervals ($p\leq 0,05$). The frequency of having previously received cancer-related education is higher among women (59.7%), married people (62.3%), people who go for health checks without any complaints (48.0%), those who had cancer screening before (53.5%), who recommend screening tests (92.2%), and those who want to have cancer screening at regular intervals (83.1%). The frequency of receiving education on cancer screening methods is higher among women (65.0%), married people (60.0%), people who go to the health check-ups without any complaints (38.0%), who had cancer screening before (44.2%), people who recommend screening tests (93.3%), and people who want to have cancer screening at regular intervals (83.3%).

In the section that asked for some information about cancer and cancer screenings were questioned, the participants indicated that the first disease that caused people to lose their lives was heart attack with 48.8%, cancer with 37.0%, stroke with 14.2%, chronic obstructive pulmonary disease (COPD), hypertension, diabetes mellitus and old age. The most commonly diagnosed type of cancer was stated as follows: lung cancer (43.3%), breast cancer (30.1%), haematological malignancies (6.7%), colon (5.7%), stomach (4.6%), cervix (9.6%), prostate, liver, skin, and larynx cancer. The answers to the question of the three main factors that cause cancer were determined as stress (23.6), unhealthy diet (23.0%), smoking (18.8%), alcohol (10.0%), genetics (10.4%), irregular lifestyle (5.2%), environmental pollution such as radiation and air pollution (4.6%), sedentary life (2.8%), and diseases and viruses that weaken the immune system (1.5%). The distribution of the answers to the question of the three most effective methods for protecting against cancer is as follows: eating healthy (28.5%), staying away from sadness and stress (21.8%), doing regular physical activity (14.2%), having regular health screenings (11.3%), a healthy lifestyle (9.6%), not smoking (8.1%), not consuming alcohol (4.8%), and staying away from harmful environmental factors (1.7%). When the cancers included in the national cancer screening program are questioned, the participant responses are lung (19.5%), breast (19.5%), cervix (10.6%), liver (9.6%), stomach (9.5%), prostate (8.3%), colon (7.8%), kidney (6.4), larynx (4.5%), and skin cancer (4.3%). When the tests applied in the national cancer screening program are questioned, the answers given are: chest x-ray (15.3%), computered tomography (13.5%), breast examination (13.4%), mammography (13.1%), colonoscopy (10.8%), blood tumour markers (8.5%), ultrasonography (8.3%), faecal occult blood test (6.3%), endoscopy (5.4%), and HPV-DNA/Pap-smear (5.3%).

Table 3. Distribution of places where the education regarding cancer and screening methods was received

Places of Education	Cancer Education (n/%)	Cancer Screening (n/%)
KETEM	22/ 28.6	25/ 41.7
Workplace	18/ 23.4	12/ 20.0
Hospital	14/ 18.2	11/ 18.3
Family Health Center	12/ 15.5	6/ 10.0
School/Course	6/ 7.8	2/ 3.3
Doctor's Office	5/ 6.5	4/ 6.7

4. Discussion

As human life expectancy has increased, the incidence of some diseases has increased. A significant proportion of these diseases are cancers (1). Even when countries have well-designed screening programmes to reduce the incidence and burden of cancer, there are many factors that prevent the target population from taking up the screening. The first of these is awareness about screenings. Another important factor in uptake is people's attitude to screening (3).

When the literature is examined, it is seen that a wide variety of studies have been conducted examining gender-specific cancer types as well as individuals' knowledge, attitudes and behaviors towards cancer screenings. In the study of Yıldırım-Öztürk and his colleagues, the score obtained from the scale was 60.51 ± 27.80 , and in the study of Yeğenler and his colleagues, the score obtained from the scale was 101.6 ± 12.85 (11, 12). In the study where Uysal and Toprak used the short form of the scale, the score obtained from the scale was found to be 65.19 ± 8.45 (13). In this study, which was conducted to determine and evaluate the knowledge, attitude and behaviours of employees of a central district municipality in Ankara towards cancer screenings, the scores the participants received from the attitude scale (median 92.0 (52.0-120.0)) were found to be higher than in the studies conducted by Öztürk and Uysal & Toprak (11, 13) and similar to those in the study conducted by Yeğenler and colleagues (12). This study showed that participants' attitudes towards cancer screening were positive, but the majority of them did not have cancer screening

The main factors influencing knowledge, attitude and behaviour towards cancer and its screening are age, gender, education level, smoking status, history of chronic diseases, family history of cancer, frequency of health checks and lifestyle habits. In this study, although there was no statistically significant difference between age, gender, education level, family history of cancer and attitudes towards cancer screening, there was a significant difference between receiving training on cancer screening methods, wanting to have cancer screening at regular intervals, and recommending cancer screening tests and attitudes towards cancer screening. Contrary to our study, Yıldırım and colleagues suggested that age, gender, education level, smoking status, and the presence of cancer in the individual positively affects the attitude

towards cancer screening, and Yeğenler and colleagues suggested that the presence of chronic diseases, family history of cancer, and previous cancer screening were factors that positively affected attitudes towards cancer screening. In this study, positive attitudes towards cancer screenings were higher among those who had previously received training on screening methods, those who wanted to have cancer screenings at regular intervals, and those who recommended cancer screening tests, while negative attitudes were higher among those who thought they had a high probability of developing cancer. Like his study, a study conducted by Tekpınar's colleagues also showed that receiving training on cancer screening methods increased the desire for cancer screening. (11, 12, 14).

In this study, similar to Erdem's study (81.4%), it was found that the majority of participants (83.1%) did not have cancer screening (15). A significant difference was found between age, gender, occupation, thinking about a healthy diet, going for a health check-up without any complaints, having a relative diagnosed with cancer, having received education about cancer and screening methods, and having cancer screening. The frequency of having cancer screening increases with age increases, and the frequency of cancer screening is higher in the age group of 41 years and above (25.8%). Similar to previous studies, it was found that the frequency of cancer screening was higher in individuals aged 40 years and above, and the sensitivity to cancer screening increased with increasing age (11, 14, 15). This can be explained by the fact that individuals aged 40 and over likely to assume a higher risk of getting cancer as they get older. As in the study conducted by Tekpınar, Özen & Aşık, in this study, the majority (83.1%) of those who had cancer screening were women. This may be due to the fact that women are more likely to receive education on cancer screening methods beforehand. Similar to the study conducted by Tekpınar, Özen & Aşık, we found that those who thought they had a healthy diet and went for a health check-up without any complaints had more cancer screening. This can be explained by the fact that people with a healthy lifestyle have higher levels of awareness regarding their health. The study found that people with a history of cancer in their relatives had more cancer screenings. Similar results were found in the study conducted by Tekpınar, Özen & Aşık (14).

According to our research, although the participants' attitudes towards cancer screening were positive, the level of

participation in screening was found to be quite low. Education is the key to creating positive attitudes toward cancer screenings. The role of family physicians is important to create positive attitudes towards cancer screenings. It would be valuable to conduct educational seminars and to track attitudes towards cancer screening regularly by primary healthcare professionals especially in places where screening rates are low.

Conflict of interest

The authors have declared that no conflict of interest exists.

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Authors' contributions

Concept: H.H.B., A.A., T.Ö., Design: H.H.B., A.A., T.Ö. Data Collection or Processing: H.H.B. Analysis or Interpretation: A.A., T.Ö., Literature Search: H.H.B., A.A., T.Ö., Writing: H.H.B., A.A., T.Ö.

Ethical statement

Permission for the study was received from local Clinical Research Ethics Committee (Ethics Committee Approval No: 2012-KAEK-15/2536).

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