

RESEARCH ARTICLE

Turkish Social Attitudes towards to Cancer Prevention: a Health Belief Model Study

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Abstract

This research was planned to reveal society's attitude towards cancer and early diagnosis using the health belief model. This study was planned as descriptive research in Isparta. A random sample of n=256 individuals of both genders was recruited at the largest shopping center. As a means of collection tool, a survey consisted of two forms, the first designed for sociodemographic information and the second covering 29 questions suitable for the content of Health Belief Model. Of the participants, 66.8% were female and 33.2% were male, and the average age was 33.3±11.0 years. Some 46.1% partly thought that they may develop cancer, and 49.6% were afraid of this possibility. As many as 50% indicated that cancer is an issue that comes from Allah. A significant difference was found between not going for control unless feeling bad, and blood analysis for cancer screening ($\chi^2=3.780$ p= 0.03). It was seen that in an area with a high rate of cancer, people's awareness of cancer prevention and early diagnosis and attitudes towards these are insufficient.

Keywords: Cancer - early diagnosis - health belief model - prevention - protection - Turkey

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Introduction

Cancer is a leading cause of death worldwide and accounted for 8.2 million deaths (around 13% of all deaths) in 2012 (WHO, 2014). According to some estimates; approximately 80% of these types of cancer are environmental in origin and are potentially avoidable. The basic principle in the struggle towards getting protection against cancer should be early diagnosis as well as avoiding carcinogens, because in many types of cancer the earlier the cancer is diagnosed and the treatment is started, the higher the chance for healing (Carey et al., 1995; Birol et al., 1997).

National and international communities have recommended that fecal occult blood test, blood analysis Breast Self Examination (BSE), clinical breast examination, flexible sigmoidoscopy, colonoscopy, mammography, Testicular Self-Examination (TSE), the Prostate-Specific Antigen (PSA) screening, rectal examination, pap test screening for cancer screening (National Cancer Advisory Board of Turkey, 2010; American Cancer Society, 2011). Knowledge, beliefs about cancer have been shown to be important in determining behaviors related to cancer prevention (Phipps et al., 1999).

Patterns of health behaviors (prevention of cancer, early diagnosis behaviors etc.) also differ by social and cultural factors (Airhihenbuwa et al., 2000; Williams and Rucker, 2000; World Health Organization, 2002). As well, health behaviors of Turkish individuals are

affected by a variety of factors (Birol, 2007). In addition, in Turkey, individuals' health behaviors, perception of health and disease are affected by economic factors (income level, employment status, and health insurance, etc.), environmental factors (shelter, transportation, region where one lives, etc.), and many other factors. In our country, which has a very dominating culture, the cultural characteristics vary by region and province and these differences are reflected in healthcare behaviors (Fisek, 2011).

According to T.R. Ministry of Health, Isparta, where the research is carried out, has 90% of cancer risk. In the year of 2010, 573 people were diagnosed for cancer in Isparta. Out of these patients, 322 of them were men, and 251 were women. Cancer Early Detection and Education Center serves as admission free service in Isparta. However, the ratio of the people to benefit from this center is not sufficient (KETEM, 2011). Informed persons face many barriers hampering them from using screening; there are also many people who are not aware of the merits of these screening tools.

It is critical to understand why people fail to use screening. The understanding of the reason behind people's not having a positive attitude towards cancer prevention and early diagnosis is important in cancer prevention research. There are many scientific researches to prevent breast cancer, cervical cancer and colorectal cancer by using health belief model (Gozum et al., 2004; Gercek et al., 2008; Kilic et al., 2009; Gozum et al.,

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2010; Aydogdu and Bahar, 2011; Ersin and Bahar, 2011; Tasci-Duran, 2011; Fouladi et al., 2013; Tsunematsu et al., 2013; Kharameh et al., 2014). Nevertheless, in general, there are no research related to cancer prevention and early diagnosis using health belief model. This study was planned to reveal society's attitude towards cancer and early diagnosis using health belief model.

Theoretical framework

Many theories have been developed to explain health-related behaviors, and one of the most prominent is the health belief model (Wackerbarth et al., 2005). The Health Belief Model (HBM) addresses the individual's perceptions of the threat posed by a health problem (susceptibility, severity), the benefits of avoiding the threat, and factors influencing the decision to act (barriers, cues to action, and self-efficacy). HBM was one of the first theories of health behavior, and remains one of the most widely recognized in the field (Theory at a Glance, 2005). The model assumes an individual will adopt a preventive behavior if a combination of levels of perceived susceptibility and seriousness of the condition is produced, provided the individual has the power or energy to act as well as a preferred course of action (Agurto et al., 2004). When applying the HBM to planning health programs, practitioners should ground their efforts in an understanding of how susceptible the target population feels to the health, whether they believe, it is serious, and whether they believe action can reduce the threat at an acceptable cost. Attempting to effect changes in these factors is rarely as simple as it may appear (Theory at a Glance, 2005).

Materials and Methods

Design

This study was planned as descriptive research.

Participants and procedures

The present study was carried out in Isparta, Isparta is a small city located in the South of Turkey. Isparta's population is approximately 220.000. An Oncology Hospital was built in 2002 in order to serve the people since the rate of cancer is too high in the region. Random sample of (n=256) individuals was recruited from July 2010 through March 2011 in the largest shopping center. Shopping center was chosen because they are visited by individuals from every socioeconomic level. The inclusion criteria were being older than 18 years, not having had cancer, and having physical and mental competence to answer the questions. Verbal consent was obtained from the participants after the purpose of the study was explained to them. Participation in this study was voluntary. The sample group was chosen among men and women from the age of 18 to 65, who have accepted the research and who are relaxed in communication. The people who did not have these criteria were not accepted. In social sciences, it was stated that the ideal size has to be around 250 to 300 samples for a normal distribution (Karasar, 1999). For this reason, it was seen sufficient to have 256 people to join this survey.

Ethical approval

Also for conducting the study, a permit has been taken from the shopping center. Verbal consent was obtained from all participants stating that they were willing to participate in the study.

Instruments and data collection

The study was a descriptive type. As a means of collection tool, a survey consisted of two forms. First form was designed for sociodemographic information, and contains risk factors for cancer and cancer-related questions (33 questions). The second form was consisted of 29 questions suitable for the content of Health Belief Model. Perceived sensitivity, perceived seriousness, perceived benefits and perceived barriers were appropriate for the steps of cues to action. The questions were prepared in accordance with the literature as open and closed-ended (Phipps et al., 1999; Agurto et al., 2004; Theory at a Glance, 2005; Aydogdu and Bahar, 2011).

Validity of the questionnaire was evaluated and confirmed by experts in nursing, medical sciences. After the questionnaire was prepared, it was shown to five members of the teaching staff for expert opinions regarding its validity. The majority of the questionnaire was found to have reasonable validity based on the expert reviews. Then the questionnaire was tested for comprehensibility by giving it to 15 people who were not included in the study, and changes were made based on their recommendations. The instrument was applied by face-to-face interview technique. The instrument took about 20 minutes to complete.

Data analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS version 16.00 for Windows). The obtained data were analyzed for the numerical and percentage distribution, average, standard deviation, and chi-square tests. $p < 0.05$ was accepted as the criterion for statistical significance.

Results

Demographic characteristics

Out of the individuals (n=256), included in the study, 66.8% were female, 33.2% were male, and the average age was 33.3 ± 11.0 years old. The 8.6% of the individuals were health professionals (Table 1). The 64.5% of the individuals were married.

Experience about cancer

One relative of 40.2% was diagnosed with cancer. Forty-eight point four percent of the individual thinks that the information about preventing from cancer is partly enough, and 43.7% of them think that it is partly possible to prevent from cancer (Table 1). There was a significant difference between genders by means of cancer prevention ($\chi^2=6.100$ $p=0.04$).

Cancer prevention behaviors and early diagnosis

The 74.8% of the female, and 81.1% of the male did not take blood analyze for cancer screening. The

Table 1. Individuals of Knowledge and Attitudes Related to Cancer- Sociodemographic Characteristics

Variables	No.	%
Gender		
Female	171	66.8
Male	85	33.2
Education		
Not literate	15	5.9
Literate-primary school education	53	20.7
Secondary-school graduates	62	24.2
High School-university graduates	126	49.2
Work*		
Yes	114	44.5
No	142	55.5
Work type		
Workers	27	10.5
Officers	39	15.2
Self-employed	26	10.2
Health professional	22	8.6
Incomes		
650 \$ ↓ (1 dollar=1.52 TL (Turkish lira)	148	56.4
650 \$	24	10.8
650 \$ and ↑	84	32.8
Level of information about the protection against cancer		
Yes	62	24.3
No	70	27.3
Partially	124	48.4
Knowledge sources*		
Not answer	15	5.9
Mass-media	146	57.0
Health workers	185	72.2
Books-magazines	195	76.1
Newspaper	159	62.1
Thinking that be able to protection from cancer		
Yes	69	27.0
No	75	29.3
Partially	112	43.7
Smoke cigarette		
Yes	62	24.2
No	194	75.8
The knowledge that smoking can cause cancer		
Yes	236	92.2
No	20	7.8
Drink alcohol		
Yes	58	22.7
No	198	77.3
The knowledge that alcohol can cause cancer		
Not answer	27	10.5
Yes	180	70.3
No	49	19.2
Total	256	100.0

*Percentage of employees were taken; **Marked more than one option

65.7% of female did not take the breast examination made by the specialist. The 49.7% of the female have indicated that they have never heard about the Pap test before. The 44.2% of the female was made Pap test. The 71.9% of the female have indicated that they never did vulva examination on their own. The 22% of the female who are forty and above have indicated that they had a mammography. The 36.5% of the male knew about the testicular examination and the 5.9% of them had taken the Prostate Specific Antigen (PSA) test (Table 2). A significant relation was found between the individual's knowledge on level of cancer prevention and blood analyze application for cancer screening ($\chi^2=11.651$ $p=0.00$). A significant difference was found between the genders in the means of cancer prevention and blood analyze for cancer screening ($\chi^2=7.731$ $p=0.02$). A significant difference was found between the knowledge of cancer prevention and fecal blood examination ($\chi^2=11.651$ $p=0.00$). The 72.7% of the health care workers indicated that they did not take the blood analyze for cancer screening. The 86.4% of the female health care workers indicated that they had taken the Papanicolaou (Pap) test.

Health belief model

Perceived susceptibility: the 46.1% of the individual partly think that they may develop cancer, and 49.6% of them are afraid of being cancer (Table 3). The 59.1% of the health care workers are partly afraid of being cancer.

Table 2. Behaviors of Individuals Related to Early Diagnosis of Cancer

Variables	No.		%	
	Female	Male	Female	Male
Behaviors related to early diagnosis				
To make blood analysis for cancer screening				
Yes	43	16	25.2	18.9
No	128	69	74.8	81.1
To make fecal blood examination				
Yes	26	5	15.3	6.9
No	145	80	84.7	94.1
Total	171	85	100.0	100.0
Female				
Knowledge of BSE*				
Yes	111		64.9	
No	60		35.1	
To take the breast examination made by the specialist				
Yes	59		34.3	
No	112		65.7	
To heard about the Pap test				
Yes	86		50.3	
No	85		49.7	
To make vulva examination on their own				
Yes	48		28.1	
No	123		71.9	
Toplam	171		100.0	
To have an annual gynecological examination**				
Yes	45		39.8	
No	68		60.2	
To take the Pap test*				
Yes	50		44.2	
No	63		55.8	
Total	113		100.0	
To take the mammography***				
Yes	9		22.0	
No	32		78.0	
Total	41		100.0	
Male				
Knowing the TSE***				
Yes	31		36.5	
No	54		63.5	
To make the rectal examination				
Yes	9		10.8	
No	76		89.2	
To make PSA****				
Yes	5		5.9	
No	80		94.1	
Total	85		100.0	

*The percentage of those who were married was taken; **Breast Self Examination (BSE); ***Percentage of women over age 40 was taken; ****Testicular Self-Examination (TSE); *****Prostate-specific antigen (PSA)

Perceived seriousness

The 45.3% of the individual indicated that they are aware of the problems that the people with cancer are facing, and 53.9% of them think that cancer ends up with death (Table 3).

Perceived benefits

To the open-ended question of behaviors that should be considered for the cancer prevention was about 41% unanswered, and 38.8% of the individuals indicated that more attention should be paid for nutrition. When looking to the effective behaviors for cancer prevention, the most important option is "I pay attention to nutrition" with 77%, together with the "I will pray" option with 53.9%. 55.5% of the individuals believe that some precaution prevent from cancer. 64.3% of the female think that regular gynecological examination would positively affect the early diagnosis, while 72.7% of them think that Breast Self Examination (BSE) would positively affect the early diagnosis of cancer. The 42.4% of the male think that Testicular Self-Examination (TSE) would positively affect the early diagnosis of cancer (Table 3).

Perceived barriers

The 89.5% of the individuals think that it is not a sin in the Islam religion to be physically examined, or to be tested for early diagnosis for cancer. The 77.7% of the individual indicated that they have health assurance to take cancer examination/test (Table 3). The 50% of the

Table 3. Cancer Prevention Behaviors of Individuals based on Health Belief Model

Variables		Yes		No		Partially	
		No.	%	No.	%	No.	%
Perceived sensitivity	Thinking of cancer caught	96	37.5	42	16.4	118	46.1
	Fear of cancer being	127	49.6	64	25.0	65	25.4
	Knowing that cancer can affect people of all ages	227	88.7	29	11.3	-	-
Perceived seriousness	Be aware of possible health problems in people with cancer	116	45.3	46	18.0	94	36.7
	If being cancer, thinking of die	138	53.9	43	16.8	75	29.3
Perceived benefits	Behaviors are thought to be effective in the prevention of cancer ^a						
	I pay attention only to my sexual partner.	165	64.5	-	-	-	-
	I do things to strengthen my immune system	189	73.8	-	-	-	-
	If I smoke, I leave it.	183	71.5	-	-	-	-
	If I drink alcohol, I leave it	173	67.6	-	-	-	-
	I pay attention my nutrition	197	77.0	-	-	-	-
	I try to be physically active	170	66.4	-	-	-	-
	When I see any changes in my body go to a doctor immediately.	178	69.5	-	-	-	-
	I protection of sunlight	123	48.0	-	-	-	-
	I will pray	138	53.9	-	-	-	-
	To believe that take some precaution to protect from cancer	142	55.5	16	6.2	98	38.3
	Status of the importance of early detection of cancer	218	85.2	17	6.6	21	8.2
	To know that some tests is important to diagnose of cancer early	170	66.4	49	19.1	37	14.5
	Effectiveness of early diagnosis of a regular gynecological examination ^b	110	64.3	22	12.9	39	22.8
	Effectiveness of early diagnosis of BSE ^b	124	72.5	12	8.2	35	20.5
Effectiveness of early diagnosis of mammography ^b	112	65.5	32	18.7	27	15.8	
Effectiveness of early diagnosis of TSE ^c	36	42.4	33	38.8	16	18.8	
Effectiveness of early diagnosis of fecal blood examination	122	47.7	52	20.3	82	2.5	
Perceived barriers	It is or not a sin in the Islam religion to be examined /test	27	10.5	229	89.5	-	-
	It is or not to have health insurance for test / examined	199	77.7	57	22.3	-	-
	Situation of difficult to reach health facilities for test / examined	44	17.2	212	82.8	-	-
	Fear of a bad result, keep away test/ examined	54	21.1	130	50.8	72	28.1
	State of effect for the sex of the physician in examination	57	22.3	199	77.7	-	-
Cues to action			Yes	No		Don't Know	
	Would you take the examinations and tests for cancer if the information for early diagnoses were titled in the media?	106	41.4	44	17.2	106	41.4

^aMarked more than one option; ^bFemale participant; ^cMale participant

health care workers indicated that cancer is an issue that comes from Allah (God in Islam) The 90.9% of the health care workers indicated that they do not go for medical control when they feel fine. A significant difference was found between not going for control unless feeling bad, and blood analyze for cancer screening ($\chi^2=3.780$ $p=0.03$). A significant difference was found between not going for control unless feeling bad and gynecological examinations within female ($\chi^2=10.041$ $p=0.07$).

Cues to action

To the question of "Would you take the examinations and tests for cancer if the information for early diagnoses were titled in the media?" 41.4% of the individuals answered yes, while 41.4% answered no (Table 3).

Discussion

This research was planned to reveal society's attitude towards cancer and early diagnosis using health belief model. It is important for individuals to know about the attitudes and behaviors towards cancer for cancer prevention. In our study, it was seen that some factors were barriers for cancer prevention and early diagnosis. In general, it was indicated that individuals think that it was impossible to prevent from cancer, those who had the knowledge of cancer prevention act effectively for early diagnosis, and individuals were not afraid of the case of cancer.

It is indicated that individuals are insufficient of the knowledge of cancer prevention, they are not sure if the tests would be enough for early diagnosis, and they do not go to doctor for control unless they do not feel fine. Only the half of the individual believes that their knowledge

of cancer prevention is partly sufficient. It is seen that those who have the knowledge act effectively towards early diagnosis. Cenesiz and Atak indicated that a positive relation was found between the level of knowledge of breast cancer with BSE and mammography. Some studies have reported that knowledge influence cancer screening practices (Davis et al., 2002; Chiu et al., 2005; Elmubarak et al., 2005; Markovic et al., 2005; Kwon et al., 2006).

Half of the individuals think that is partly possible to prevent from cancer. It is thought that it may be a barrier for the individuals who think in this way to show effective behaviors for cancer prevention. There are differences between genders for cancer prevention. In the comparison of female and male thought of cancer prevention, female's belief in cancer screening is much higher. In addition, it appears that, when compared to males, females are more active for early diagnosis. Kwon et al. reported that almost all respondents (95%) reported that routine Pap tests were "very important" in the early detection of cervical cancer. Sirin et al. reported that only 29.2% of the women knew the importance of regular pap screening for protection against cancer. Carlos et al. reported that the lower prevalence of self-examination in men might reflect a more general deficit in health knowledge and perceived susceptibility. Women appear to being more aware of breast self-examination than men were of testicular self-examination, and more women report practicing self-examination (Carlos et al., 2005).

It can be considered as a barrier for the attitudes towards early diagnosis if they think they could be cancer with a low rate, and if they are not afraid of being cancer. These rates are also important within the health care workers. The same idea has been expressed in the other studies. Hay et al. reported that a positive relationship

between cancer worry and screening behavior. In the study of Cox et al., (2008) it was indicated that 88% of the participants were afraid of being cancer. Perceived cancer risk, defined as the subjective estimation of the likelihood that one might be diagnosed with cancer in the future has played a pivotal role in understanding the processes that predict adherence to a diverse range of cancer screening behaviors. Arguably, lack of awareness and knowledge about established risk factors may influence one's personal risk perception and comprehension (Honda and Neugut, 2004). Lemal and Van den Bulck, (2010) reported that onethird of the respondents (33.3%) said they were moderately afraid and 26.9% reported to being very afraid of getting cervical cancer. Keeney et al (2010) reported that participants were stated that was "my risk of getting cancer was low". Because of these reasons, people might be late for showing effective behaviors and for applying to health care providers.

It is a reality that cancer could end up with death. In our study, it was found that the rate of people's thought on cancer ending up with death is rather low. Therefore, this is evidence that shows that individual's awareness is quite low. By means of cancer prevention, the most signified theme was "attention to nutrition". In general, information about nutrition is made by the media general in Turkey. This situation could be effective for this evidence. The highly signed option of "I will pray" shows that the Turkish society is spiritually remarkable. Cultural and religion factors can affect the case of cancer, as it is seen. Only the half of the individual believes that some precaution could cancer prevention. It is important to believe that to take precaution is very important as an affective behavior for cancer prevention. It is thought that people, who think that taking preventions would not be enough for cancer prevention, would not take any precautions.

To take physical examinations and test for cancer prevention is accepted as a sin in the Islam, by some people. Certain Islamic texts state that women should not be examined by a male doctor except in circumstances of necessity. However, it is encouraging that peoples in this study did not show this attitude. In our study, it is glad to see that the rate of people with the thought of taking physical examination and tests are not a sin is quite high for a country like Turkey, which is an Islamic one. Other studies found that women preferred to be examined by female doctors (Boyer et al., 2001; Austin et al., 2002; Wackerbarth et al., 2005; Johnson et al., 2008). The half of the people stated that cancer is a case that comes from Allah. To have a fatalistic view can be a barrier for the people to take an effective role in health behaviors. Some studies indicate among some population subgroups, fatalism has been described as the belief that cancer "is unpreventable, untreatable, inevitable and ultimately leads to death" (Davis et al., 2002; Young et al., 2002; Elmubarak et al., 2005). Not go to the doctors for control unless people do not feel fine, negatively affect the early diagnosis. The same idea has been expressed in other studies (Boyer et al., 2001; Wackerbarth et al., 2005, Johnson et al., 2008).

It is seen that programs on early diagnosis and cancer prevention, consistently stressed in media, could be

effective on some people. In some situations, different information that is given in media could gain people's distrust. Marike et al reported that such efforts might increase the effectiveness of television news as a means for health education. Research indicates that news media play an important role in disseminating health information (Lemal and Van den Bulck, 2010). In another study, it was found that it was more important to obtain information from a doctor, and that written material could be used as motivation (Austin et al., 2002).

This study had several limitations. This study was not about a specific cancer. The main objective was how to prevent from all types of cancers and to have early diagnosis. The sample size and data collection dates are limited by the people coming to the shopping center. In addition, the study included only women and men in one Turkish region. Further work would be needed to investigate other regions and sectors of the Turkish society. Length of the questionnaire influenced participates to the study. Despite limitations of the study, our findings may be useful to healthcare professionals.

It was seen that an area with a high rate of cancer rate, people's awareness of cancer prevention and early diagnosis and attitudes towards these were insufficient. Furthermore, it was indicated that there were barriers effecting people's attitudes towards cancer prevention and early diagnosis.

It is clear that there is a need for a sufficient information study in order to spread the issues of cancer, cancer prevention, and early diagnosis. By taking people's misinformation about cancer prevention and early diagnosis into consideration, the information study could be in this direction. It is needed for injecting the idea of the possibility of cancer prevention into people's minds. We think that written materials are more effective, informative brochures can be made and given to each individual in places like KETEM (in Turkish, Kanser ErkenTeshis, Tarama ve Egitim Merkezi) (Cancer Early Diagnosis, Screening and Education Center) and polyclinics in oncology hospitals. In information works, this study, which is appropriate for health belief model, can be offered to be used.

It is thought that people's opinions could be changed only when they think that they can be cancer and only when they get afraid of cancer. It is thought that it is important to create awareness on people about the cancer's risk factors. It is thought that it is appropriate for the planned educational programs, by the centers like National Cancer Advisory Board, to be given in media. Information works can be made especially in the area that the study was made, by using local mass communication tools/media.

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