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# CANCER RISK FACTORS AND PREVENTION IN TURKEY

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**Abstract***: All over the world, the prevalence of cancer is increasing day by day with the increasing incidence of cancers and cancer-related mortality rates in Turkey. Cancer is one of the most important health problems due to frequent occurrence, high cost of treatment with mortality and morbidity, side effects that it creates. Taking precaution responsibilities against cancer is important among the health professionals, especially nurses. It is known that many well-known risk factors such as smoking, infections, avoidance of exposure to radiation, as well as healthy lifestyle behaviors such as healthy eating and physical exercise are effective in protecting from many types of cancer. Therefore, cancer risk factors and ways of protection should be known and publicized by health professionals.*

**Key words***: Cancer, Risk, Nurse, Cancer Prevention*

## 1. Cancer Risk Factors in Turkey

Cancer is a disease that develops through the alteration of the cells in the body, is independent of environmental factors and can multiply uncontrollably and metastasize at different times. There are more than 100 different types of cancer that have different names depending on the organ and the cell type they are from. Cancer is a disease caused by uncontrolled proliferation of cells in the body. With the increasing frequency of cancers and cancer-related death rates all over the world, the importance of cancer is increasing day by day [1].

The distribution of cancer cases around the world occurs in more than 60% of Africa, Asia and Central-South America, which account for about 70% of cancer deaths. Lung, breast, prostate and colorectal cancers are the major cancers in high or very high income countries. In 2012, 14 million people have cancer and 8 million people have lost their lives because of cancer. The five most common malignancies among males worldwide in 2012 are lung, prostate, colorectal, stomach, and liver cancers [2]. In Turkey, lung cancer was the most common cancer in men and 52.5% according to the 2016 annual health statistics. Lung cancer is followed by prostate, colorectal, bladder and stomach cancer respectively. In women, the most common cancer with 43% was breast cancer. Breast cancer is followed by thyroid, colorectal, uterine corpus and lung cancer respectively [3]. Cancer is one of the most

important health problems due to high mortality and morbidity as well as cost of treatment, duration and side effects [4]. Many types of cancer can be safeguarded from common risk factors such as smoking, infections, avoidance of exposure to radiation [5]. Therefore, protection from cancer is a priority issue. The risk factors should be considered in the primer prevention [6]. Risk factors can be grouped into four groups:

### 1.1. Behavioral Risk Factors

Insufficiency in physical activity, obesity, unbalanced nutrition, alcohol and tobacco use are interchangeable factors and are risky behaviors for all cancers. It is stated that these factors cause more than half of all cancers [7]. Erdem et al. (2017) conducted a study conducted by the most important cause of cancer is cigarettes [8].

**Alcohol:** Boffetha and Hashibe (2006) reported that 3.6% of all cancer cases were alcohol-related. This situation changes in populations due to the consumption frequency [9]. For example, in Canada, a population-based, case-control study found that the relative risk of various types of cancer (esophagus, stomach, colon, liver, pancreas, lung, prostate) was higher in alcohol consumers than in those who did not or occasionally consume alcohol [10].

**Diet:** Overfeeding with fatty foods, alcohol use, post-menopausal weight gain increase breast cancer risk [11]. Breast cancer is more common in the postmenopausal period in overweight or obese women. However, the risk in premenopausal overweight women, is lower than those without [12].

### 1.2. Biological Risk Factors

Physical characteristics such as age, sex and race. Whether physical and biological properties are risk factors for cancer depends on the type of cancer.

**Gender:** Some types of cancer are associated with gender. For example, because prostate gland is only in men, prostate cancer is seen in men. Breast cancer can be seen in both men and women, but women are at higher risk of developing breast cancer [13]. According to the Health Statistics Yearbook (2016), breast cancer is the most common cancer among women, while men are much lower in rate. In males, breast cancer is usually seen after 60 years of age. However, men are late diagnosed because they are later aware of this condition. For this reason, the disease progresses and the treatment becomes difficult [14].

**Age:** Older age is the most important risk factor for many types of individual cancers. According to the current data from the National Cancer Institute's Surveillance, Epidemiology and End Results program, the median age of cancer is 66 years. 25% of the cancer cases are diagnosed in people aged 65 to 74 years [15]. The likelihood of breast cancer is 65 years old, six times more likely to be 35 years old [16]. The study conducted by Aydoğan et al. (2013) found that the average age of the patients in the breast cancer group was 47.99 [17].

**Race:** Certain types of cancers are more common in some races. For example, in Afro-Americans prostate cancer is more common when compared to individuals with white race. It is stated that the mortality rates due to prostate cancer are 2-3 times higher than those of black race to white race [18].

**Skin:** Skin cancer is more common in blondes [19]. Adele et al. (1998) reported that a large proportion of the skin cancer type Actinic keratosis was seen in blond individuals [20]. Frost et al. (1998) reported that blond individuals had a higher incidence of skin cancer in their study in Queensland Australia [21].

### 1.3. Environmental Risk Factors

**Asbestos:** Places or working environment can be a risk factor for cancer development. Some substances found at home or at work such as asbestos, radon, UV radiation, cigarette exposure increase cancer risk. One of the most important environmental risk factors is the exposure to asbestos gas used in the industrialized world of developing countries, despite its being stopped in developed countries [22]. According to World Health Organization data, 125 million individuals are exposed in this gas workplace. In 2004, 107,000 deaths from asbestos-related lung cancer (mesothelioma) and exposure to asbestos in the workplace, along with this 1,523,000 Disability Adjusted Life Years were detected. In addition, exposure to asbestos outside the workplace may be associated with many deaths [23].

Another environmental risk factor is the diet. Some foods taken with the diet increase the risk of developing cancer, while others can be protective [13]. Studies by Chao et al. Have shown that long-term consumption of red meat may increase the risk of large bowel cancer, while consumption of chicken and fish may reduce the risk of large bowel cancer [24]. In addition, intaking dietary genetically modified organisms (GMOs) are among the causes of cancer formation. As a result of the fact that GMO feeding cannot be fully evaluated on humans in terms of ethics for the growth of cancer, rats are used differently from humans in studies [25]. When the results obtained from them are considered; GMOs have been reported to be damaging to many systems in the organism such as adversely affecting RNA synthesis, causing hyperplasia in the digestive system, impairing the immune system and reproductive genes [26–28].

Merdin et al. (2013) in terms of environmental factors may cause cancer in the study: From the perspective of consumer products; cigarettes (31%), hormone foods (27%), nutrition with burned foods (14%), alcohol (16%), and cola drinks (7%); in terms of lifestyle; stress (32%), mobile phone use (19%), environmental pollution (16%), skin overexposure to sun (15%) and obesity (12%) [29].

### 1.4. Genetic Risk Factors

Genetic risk factors are associated with genes inherited from the family. Individuals whose family members are diagnosed with cancer at a young age are at higher risk than others in the community when they have the same type of cancer story in three or more generations. Individuals with three or more cancer cases by their parents or those with different types of cancer in one or both family members are at a higher risk of developing cancer than the other individuals. In the presence of these conditions, genetic screening tests should be performed if cancer is suspected to be hereditary [13].

**Hormones:** Estrogen hormone in women increases breast cancer risk. The removal of the estrogen hormone reduces the growth of the tumor. Early menstruation (before 12 years of age), late menopause (after 55 years of age) and giving birth reduce the risk of breast cancer. Nevertheless, having no birth or giving first birth after 35 years increases the risk of breast cancer [11].

**Obesity:** A study by Oxman et al. (2005) reported that 14% of cancer deaths in men and 20% of women are associated with overweight and obesity. In men, obesity causes increased mortality from prostate and stomach cancers. Obesity increases deaths from breast (postmenopausal), endometrium, cervix, uterus and ovarian cancers in women. In males and females, kidney (renal cell), colon, esophagus (adenocarcinoma), pancreas, gall bladder and liver cancer are increased by obesity [30].

**Immunosuppression:** After any organ transplantation, it is important to use immunosuppressive treatment to resist graft rejection, decrease the graft rejection process, and reduce the effect of the organism's immune mechanism against foreign substances [31]. Silverberg et al. (2018) reported that the rate of cervical cancer was higher in women with HIV who had previously undergone solid organ transplantation and immunosuppressive therapy compared to other groups [32].

**Infectious agents:** Some infectious agents, including viruses, bacteria and parasites, can cause cancer or increase the risk of cancer. Some viruses can disrupt signals that normally regulate cell growth and proliferation. In addition, some infections weaken the immune system and cause the body to be less able to fight other cancers [33].

**Radiation:** The radiation emitted by a particular wavelengths, called ionizing radiation, has energy that damages DNA and causes cancer. It has been found that low energies from mobile phones and electromagnetic fields do not damage DNA and cause cancer [34]. Exposure to radiation increases the risk of breast cancer, especially during the period when the breast is actively developing, between 10 and 14 years of age. However, radiation or radiotherapy after forty-five years does not affect the risk of breast cancer [11].

## 2. Protection From Cancer Risk Factors

It is important to raise public awareness in order to prevent cancer risks. Precautions are provided under the following headings.

### 2.1. Nutrition

Nutrition is reported that effective in 70% of all cancers and 40% in cancer-related deaths [35]. In the study conducted by Sinha et al., meat cooking methods and consumption of red meat has been examined in relation to colorectal cancer. As a result of the study, it was reported that the consumption of 80 g meat per week, colorectal cancer risk 11.0%, very cooked meat 29.0%, high-temperature meat cooking 26.0% for every 10 g meat consumption per day, and cooking of red meat grill or barbecue by 15.0% increased [36]. In some studies it has been shown that red meat exacerbation increases the risk of breast cancer 5 times a week [37,38]. A meta-analysis found that individuals who regularly drink coffee have a 18% lower risk of pancreatic cancer and 14% lower rates of drinkers with low and moderate drinking, compared to those who drink no coffee or rarely drink coffee per day. In the subgroup

analyzes, coffee drinking was associated with decreasing pancreatic cancer in men, but women did not have such a relationship. This meta-analysis reveals that there is an inverse relationship between coffee drinking and pancreatic cancer [39].

### 2.2. Screening methods

Early recognition of cancer is important in reducing mortality. In Turkey since 2008, "National Cancer Control Program 'is implemented. Within this program, breast, cervix and colorectal cancer screenings are performed. Breast and cervical cancer screenings are performed only on women, while colorectal cancer screenings are performed on both genders [35]. Although breast cancer is the second most common cause of cancer among all cancers, it occurs at an earlier age than other cancers. The National Turkish Manual recommends first screening at the age of 40 and mammography every two years until the age of 69. Coverage rate of breast cancer screening in Turkey is at 20-30%. The etiopathogenesis of cervical cancer is the only cancer that can be diagnosed and prevented. Cervical cancer screening differs from country to country. However, the final recommendation is; a woman, at least once in her life, 30-65 years of age in a suitable way to have cancer screening. Cervical cancer; it is important to be screened because it is a preventable disease, 100% can be treated if it is diagnosed early, 10-20 years carcinogenesis process and treatment of cases that will turn into cancer at this stage. If colorectal cancer is diagnosed at an early stage, it can be treated to a great extent. Early diagnosis of colorectal cancer reduces mortality and morbidity as well as treatment costs. colorectal cancer screening in Turkey are between the ages of 50 and 70 [40]. The execution of cancer screening in Turkey CEDSEC (Cancer Early Diagnosis, Screening and Education Center)'s are the main institutions. Knowing CEDSECs by the individuals to be scanned is the most important step in the success of the screening programs. In the study conducted by Pirinççi et al., it was stated that 82.4% of the patients who applied to a health institution did not know KETEM [41]. In study conducted by Şeker et al., it was determined that approximately one out of five of the nurses (19,2%) did not know KETEM [42]. It is conjectured that the lack of information on cancer screening by health care professionals is not negligible. This group, which enables people to become aware of cancer, needs to be awared and informed first.

### 2.3. Smoking and Alcohol

90% of lung cancer due to smoking in Turkey is emerging. Depending on the use of tobacco products, one out of every three children under the age of 10 is exposed to passive smoking, and 300 individuals lose their lives generated by illness due to cigarettes every day. With effective tobacco control, approximately 110,000 people would survive each year. Smoking is responsible for 3 to 15% of lung cancers [40]. Alcohol causes cancers of the esophagus, larynx and liver [43]. In an individual who consumes alcohol and tobacco together, the risk of esophageal cancer is 100 times higher than that of a person who consumes alcohol or cigarettes alone [44].

## Conclusion

Cancer is complex and the disease is increasing in frequency. Nurses have important duties in the prevention and treatment of cancer, which has behavioral and environmental etiologic factors. Nurses provide comprehensive, co-ordinated and comprehensive health services to individuals, families and society in various cultures. These key features enable nurses to play a key role in protecting and improving health, as it gives them the ability to become health professionals who have frequent, close and long-term relationships with individuals. For these reasons, the knowledge of healthy life style changes of nurses should be increased. They should know the risk of cancer develop and should suggest healthy lifestyle behaviors that are important to protect from cancer.

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