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Original Article

Evaluation of Preventive Health Practices in Turkey

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Abstract

Background: Although preventive health practices are extremely effective in preventing diseases and mortality, there is still a need to determine the frequency of these practices in different countries and improve these rates. The aim of this study was to evaluate preventive health practices in Turkey.

Methods: The study was designed as a cross-sectional research. The study was conducted by utilizing the "Turkey Health Survey 2019" microdata set from the Turkish Statistical Institute. The data of 17,084 people aged 15 years and over were evaluated.

Results: Approximately 54.4% of the participants were women, 24.5% were 15–29 years old, and 21.0% were 60 years of age or older. Approximately 51.2% of the participants stated that their general health status as good. 2.3% of the participants had taken the flu vaccine in the last year, 38% of people aged 50–70 years had undergone a fecal occult blood test in the last 5 years, 32% of women aged 40–69 years had undergone mammography/breast X-ray in the last 2 years, and 44% of women aged 30–65 years had undergone a cervical swab test in the last 5 years.

Conclusion: Although the rate of public participation in cancer screenings in Turkey is considerable, the data show that the rates should be further increased. In contrast, flu vaccination frequency is considerably low. To increase the frequency of preventive health practices, Turkish public should be informed about these practices, where they can be performed, and their importance.

Keywords: Cancer screening; Vaccination; Prevention; Turkey

Introduction

There were an estimated 19.3 million new cancer cases and 10 million cancer-related deaths in 2020 globally. Of these, 11.7% (2.2 million) were breast cancer cases, 6.0% (1.1 million) were colon cancer cases, 3.8% (732,000) were rectal cancer cases, and 3.1% (604,000) were cervical cancer cases. Approximately 6.9% (684,000) of cancer-related deaths were caused by breast cancer, 5.8% (576,000) by colon cancer, 3.4% (339,000) by rectal cancer, and 3.4% (341,000) by cervical cancer (1). As of the end of 2020, there were 7.8 million women worldwide diagnosed with breast cancer in the last 5 years (2). Breast cancer is a major cause of illness, death, and concern for women (3).

Advances in cancer screening increase the chance of early diagnosis when treatments are the most effective (4). As of 2020, cervical cancer is the fourth most common type of cancer among women. Vaccination against human papilloma-

virus (HPV) and cancer screening are effective and relatively cheap ways to prevent cervical cancer (5). For many cancer types, early diagnosis and treatment results in good prognosis. The aim of cancer screening efforts is to identify individuals with signs suggestive of any cancer or precancerous condition before symptoms begin (6).

Hypertension is a serious disease that considerably increases the risk of heart, brain, kidney and other diseases. An estimated 1.28 billion adults between the ages of 30 and 79 years live with hypertension worldwide. An estimated 46% of adults with hypertension are unaware of their condition, whereas only 42% receive treatment. Approximately one in five adults with hypertension have their blood pressure under control. Hypertension is a major cause of premature death (7). Seasonal flu is an acute respiratory infection caused by influenza viruses around the world. Worldwide, it is estimated that approximately 3–5 million cases of serious illnesses and 290,000–650,000 deaths occur because of the flu each year.

The most effective way to prevent this disease is vaccination (8). Annual vaccination programs are one of the most effective prevention methods against the serious consequences of influenza (9). Vaccination against influenza reduces the risk of serious illnesses that require by hospitalization or evaluation by a physician by 40%–60% (10). The Centers for Disease Control and Prevention (CDC) estimates that during the 2017–2018 flu season, the flu vaccine prevented 6.2 million illnesses, 3.2 million medical visits, 91,000 hospitalizations, and 5,700 flu-related deaths (11). Although studies have repeatedly shown that preventive health practices are extremely effective in preventing diseases and mortality, there is still a need to determine the frequency of these practices in different countries and to increase these rates.

Therefore, the aim of the present study was to evaluate preventive health practices in Turkey using the Turkish Health Survey 2019 data conducted by the Turkish Statistical Institute.

Materials and Methods

The study was designed as a cross-sectional research. The study was conducted using the "Turkey Health Survey 2019" microdata set from the Turkish Statistical Institute (TUIK) (12). This survey was conducted in 9,470 households representing the overall population in Turkey. The data of 17,084 people aged 15 years and over were evaluated. A stratified two-stage cluster sampling method was used. Rural vs. urban distinction was used as the external stratification criterion. (Settlements with a population of 20,000 and below were considered rural, and settlements with a population of 20,001 and above were considered urban centers). The first sampling unit was blocks containing an average of 100 household addresses randomly selected with respect to the size of the blocks, whereas the final sampling unit was individual households that were systematically randomly selected from each selected cluster. The framework used for sample selection was the "National Address Database," which constitutes the basis of the "Address Based Population Registration System" established in 2007 and was later updated in August 2019. The first sampling unit was blocks containing an average of 100 household addresses, whereas the final sampling unit contained individual households. A total of 9,470 households were selected from 947 blocks selected in Turkey (10 households from each block).

Statistical analyses of the study were conducted using the statistical package program SPSS 22.0. Categorical variables were presented as numbers and percentages. A chi-squared test was used to compare categorical variables. $P < 0.05$ was accepted as statistically significant in all analyses.

Results

The data of 17,084 people aged 15 years and over, surveyed by TUIK, were evaluated.

Approximately 54.4% of the participants were women, 21.0% were 60 years of age or older. Approximately 68.6% were married, 22.3% had a

body mass index (BMI) of 30 and above, and 51.2% stated that their general health status was good (Table 1).

Table 1: Distribution of Socio-Demographical Characteristics of the Participants

Variable	*n (%)*
Gender (n=17084)	
Male	7784 (45.6)
Female	9300 (54.4)
Age group (n=17084)	
15-29	4192 (24.5)
30-39	3367 (19.7)
40-49	3178 (18.6)
50-59	2752 (16.1)
60 yaş ve üzeri	3595 (21.0)
Marital status (n=17084)	
Single, that is, never married	3610 (21.1)
Married	11726 (68.6)
Divorced/ Widowed	1748 (10.2)
Education (n=17084)	
Primary school or lower	7806 (45.7)
Secondary school	2965 (17.4)
High school	3246 (19.0)
College/University and above	3067 (18.0)
Body Mass Index (BMI) (n=17084)	
< 18.5	587 (3.4)
18.5-24.9	6540 (38.3)
25-29.9	6146 (36.0)
≥ 30	3811 (22.3)
General health status (n=17084)	
Very good	1247 (7.3)
Good	8741 (51.2)
Fair	5214 (30.5)
Bad	1655 (9.7)
Very bad	227 (1.3)

9.7% of the participants had asthma, 8.0% had chronic obstructive pulmonary disease (COPD)/chronic bronchitis/emphysema, 7.8% had coronary heart disease (angina, chest pain, and spasm), 18.5% had hypertension, 31.9% had lumbar problems (low back pain, lumbar hernia and other lumbar defects), 22.4% had neck region problems (neck pain, cervical hernia, and other neck defects), 11.5% had diabetes, 6.2% had kidney problems, 10.0% had depression, and 11.5% had high blood lipid content (high cholesterol or triglycerides) within the last year.

2.3% of the participants received the flu vaccine, 53.6% had their blood pressure measured by a health personnel, 44.5% had their cholesterol measured by a health personnel, and 47.9% had their blood glucose measured by a health personnel in the last year (Table 2).

Table 2: Distribution of Preventive Health Practices Performed by Study Participants

Vraible	*n (%)*
Latest flu vaccination (n=17084)	
In the last year	396 (2.3)
Further back (More than 12 months ago)	2572 (15.1)
Never	14116 (82.6)
The last time blood pressure was measured by healthcare professionals (n=17084)	
In the last 12 months	9160 (53.6)
More than 1 year, less than 3 years ago	3862 (22.6)
More than 3 years, less than 5 years ago	1053 (6.2)
More than 5 years ago	742 (4.3)
Never	2267 (13.3)
The last time cholesterol was measured by healthcare professionals (n=17084)	
In the last 12 months	7601 (44.5)
More than 1 year, less than 3 years ago	3492 (20.4)
More than 3 years, less than 5 years ago	1017 (6.0)
More than 5 years ago	659 (3.9)
Never	4315 (25.3)
The last time blood glucose was measured by healthcare professionals (n=17084)	
In the last 12 months	8177 (47.9)
More than 1 year, less than 3 years ago	3597 (21.1)
More than 3 years, less than 5 years ago	1023 (6.0)
More than 5 years ago	687 (4.0)
Never	3600 (21.1)

Furthermore, 5.6% of those with diabetes, 5.5% of those with asthma, 5.1% of those with COPD/chronic bronchitis/emphysema, 4.9% of those with coronary heart disease (angina, chest pain, and spasm), 4.8% of those with hypertension, and 4.5% of those with high blood lipids stated that they took the flu vaccine in the last year. 5.9% of those aged 65 years and over stated that they got the flu vaccine in the last year.

Of the participants between the ages of 50 and 70 years, 18.8% had had a fecal occult blood test in the last year. Similarly, 4.0% (n = 201) had a colonoscopy in the last year, 7.6% in the last 1–5 years. It was determined that 28.1% of women between the ages of 40 and 69 years performed breast self-examination once a month, 18.4% underwent mammography/breast X-ray in the last year. It was found that 17.2% of women aged 30–65 years had a cervical swab test (cervical smear or Pap test) in the last year (Table 3).

The general health status of men was very good ($P < 0.001$). The ratio of those with good/very good general health status decreased with increasing age ($P < 0.001$). The ratio of those with good/very good general health status was higher among single individuals ($P < 0.001$). In the study, the ratio of people with good/very good general health status increased with the increase in education level ($P < 0.001$).

Table 3: Distribution of Cancer Screening Practices Performed by Study Participants

Variable	*n (%)*
Latest fecal occult blood test (50–70 years) (n=4995)	
Within the last 12 months	937 (18.8)
More than 1 year, less than 2 years ago	542 (10.9)
More than 2 years, less than 3 years ago	237 (4.7)
More than 3 years, less than 5 years ago	185 (3.7)
More than 5 years ago	491 (9.8)
Never	2603 (52.1)
Latest colonoscopy (50-70 years) (n=4995)	
Within the last 12 months	201 (4.0)
More than 1 year, less than 5 years ago	380 (7.6)
More than 5 year, less than 10 years ago	159 (3.2)
More than 10 years ago	121 (2.4)
Never	4134 (82.8)
Frequency of breast self-examination (40–69 years old woman) (n=4363)	
Once a month	1228 (28.1)
Once every 3 months	422 (9.7)
Less than once every 3 months	799 (18.3)
Never	1914 (43.9)
Latest mammography/breast X-ray (40-69 years old woman) (n=4363)	
Within the last 12 months	802 (18.4)
More than 1 year, less than 2 years ago	601 (13.8)
More than 2 years, less than 3 years ago	376 (8.6)
More than 3 years, less than 5 years ago	293 (6.7)
More than 5 years ago	431 (9.9)
Never	1860 (42.6)
Latest cervical swab test (cervical smear, pap test) (30-65 years old woman) (n=5868)	
Within the last 12 months	1011 (17.2)
More than 1 year, less than 2 years ago	786 (13.4)
More than 2 years, less than 3 years ago	480 (8.2)
More than 3 years, less than 5 years ago	360 (6.1)
More than 5 years ago	579 (9.9)
Never	2652 (45.2)

A negative relationship was found between increasing BMI and general health status ($P < 0.001$). The ratio of people with good/very good general health status decreased with increasing BMI (Table 4).

42.7% of those who took the flu vaccine in the last year, 58.3% of those who took the flu vaccine more than 1 year ago, and 58.9% of those who never took the flu vaccine stated that their general health status was very good/good. The ratio of people with very good/good general health status was low among people who took the flu vaccine in the last year ($P < 0.001$). 46.3% of those who had their blood pressure measured by a health personnel in the last year and 82.1% of those who never had their blood pressure measured by a health personnel stated that their general health status was very good/good. The ratio of people with very good/good general health status was low among people who had their blood pressure measured by a healthcare personnel in the last year ($P < 0.001$).

Table 4: Distribution of the General Health Status of the Participants According to the Socio-Demographic Characteristics

Variable	***General health status***			
	Very good/good n (%)*	Fair n (%)*	Bad/Very bad n (%)	*P*
Gender				<0.001
Male	5124(65.8)	2019(25.9)	641(8.2)	
Female	4864(52.3)	3195(34.4)	1241(13.3)	
Age group				<0.001
15-29	3528(84.2)	589(14.1)	75(1.8)	
30-39	2448(72.7)	793(23.6)	126(3.7)	
40-49	1861(58.6)	1051(33.1)	266(8.4)	
50-59	1172(42.6)	1198(43.5)	382(13.9)	
60 yaş ve üzeri	979(27.2)	1583(44.0)	1033(28.7)	
Marital status				<0.001
Single, that is, never married	2984(82.7)	529(14.7)	97(2.7)	
Married	6475(55.2)	3942(33.6)	1309(11.2)	
Divorced/ Widowed	529(30.3)	743(42.5)	476(27.2)	
Education				<0.001
Primary school or lower	3094(39.6)	3182(40.8)	1530(19.6)	
Secondary school	2129(71.8)	697(23.5)	139(4.7)	
High school	2381(73.4)	734(22.6)	131(4.0)	
College/University and above	2384(77.7)	601(19.6)	82(2.7)	
Body Mass Index (BMI)				<0.001
< 18.5	419(71.4)	120(20.4)	48(8.2)	
18.5-24.9	4491(68.7)	1539(23.5)	510(7.8)	
25-29.9	3521(57.3)	1956(31.8)	669(10.9)	
≥ 30	1557(40.9)	1599(42.0)	655(17.2)	

The ratio of people with very good/good general health status was low among people who had their cholesterol measured by a healthcare personnel in the last year (*P*<0.001). The ratio of people with very good/good general health status was low among people who had their blood glucose measured by a healthcare personnel in the last year (*P* < 0.001) (Table 5).

Table 5: Distribution of the General Health Status of the Participants According to Preventive Health Practices

Variable	*General health status*			
	Very good/good n (%)*	Very good/good n (%)*	Very good/good n (%)	*P*
Latest flu vaccination				<0.001
In the last year	169(42.7)	154(38.9)	73(18.4)	
Further back (More than 12 months ago)	1500(58.3)	819(31.8)	253(9.8)	
Never	8319(58.9)	4241(30.0)	1556(11.0)	
The last time blood pressure was measured by healthcare professionals				<0.001
In the last 12 months	4237(46.3)	3457(37.7)	1466(16.0)	
More than 1 year, less than 3 years ago	2556(66.2)	1056(27.3)	250(6.5)	
More than 3 years, less than 5 years ago	771(73.2)	223(21.2)	59(5.6)	
More than 5 years ago	563(75.9)	160(21.6)	19(2.6)	
Never	1861(82.1)	318(14.0)	88(3.9)	
The last time cholesterol was measured by healthcare professionals				<0.001
In the last 12 months	3277(43.1)	2998(39.4)	1326(17.4)	
More than 1 year, less than 3 years ago	2246(64.3)	975(27.9)	271(7.8)	
More than 3 years, less than 5 years ago	706(69.4)	243(23.9)	68(6.7)	
More than 5 years ago	475(72.1)	154(23.4)	30(4.6)	
Never	3284(76.1)	844(19.6)	187(4.3)	
The last time blood glucose was measured by healthcare professionals				<0.001
In the last 12 months	3631(44.4)	3190(39.0)	1356(16.6)	
More than 1 year, less than 3 years ago	2350(65.3)	970(27.0)	277(7.7)	
More than 3 years, less than 5 years ago	723(70.7)	236(23.1)	64(6.3)	
More than 5 years ago	515(75.0)	147(21.4)	25(3.6)	
Never	2769(76.9)	671(18.6)	160(4.4)	

Discussion

In this study, 2.3% of the participants took the flu vaccine in the last year, and 82.6% never did. It was also determined that 5.9% of those aged 65 years and over, 5.6% of those with diabetes, 5.5% of those with asthma, and 5.1% of those with COPD/chronic bronchitis/emphysema got

the flu vaccine in the last year. In patients with type 2 diabetes, 43.5% of the patients took the seasonal flu vaccine (13). In the U.S., 37.1% of adults took the flu vaccine during the 2017–2018 flu season (14). The frequency of flu vaccination in Turkey was lower in those aged 65 years and over, those with chronic diseases. Considering the prevalence of influenza, influenza-related hospitalization, and mortality, efforts should be made to increase the frequency of influenza vaccination both in Turkey and in the world.

Approximately 53.6% of the participants in the study had blood pressure, 44.5% had cholesterol, and 47.9% had blood glucose measured by a health personnel in the last year. In the present study, approximately half of the participants used these preventive practices in the last year. The fact that young people were also included in this group shows that the participation in these practices is at significant rates.

Approximately 38% of the people aged 50–70 years who participated in the study underwent a fecal occult blood test in the last 5 years. In a study, 15.7% of men over the age of 50 years had previously undergone a fecal occult blood test (15). 4.3% of the participants aged 50 years and over had a colon cancer screening in the last year, 2.9% in 2–5 years, and 92.8% had no colon cancer screening (16). In the UK, a guaiac fecal occult blood test is performed every 2 years between the ages of 60 and 74 years and the participation rate is 56%. In Spain, a fecal immunochemical test is performed every 2 years between the ages of 50 and 69 and the participation rate is 8%–9%. In Slovenia, a fecal immunochemical test is performed every 2 years between the ages of 50 and 74 and the participation rate is 43%–52%. In Ireland, the test is performed every 2 years between the ages of 60 and 69 years and the participation rate is 12% (17). Within the scope of colorectal cancer screening in Turkey, men and women between the ages of 50 and 70 undergo fecal occult blood tests every 2 years (18). Colorectal cancer screening frequencies are different between countries.

In the present study, 14% of the participants aged 50–70 years had a colonoscopy in the last 10 years. In a stusy, 45.1% of men over the age of 50 years had previously undergone a colonoscopy (15). Within the scope of colorectal cancer screening in Turkey, colonoscopy screening is performed every 10 years in men and women between the ages of 50 and 70 years (18). The frequency of colonoscopy as part of colorectal cancer screening is low in Turkey and interventions are required to increase this rate.

Approximately 28% of the women aged 40–69 years who participated in the study performed breast self-examination once a month, and 32% had a mammography/breast X-ray in the last 2 years. 10.6% of women aged 40 years and over had had a mammogram in the last 2 years, whereas 87.2% had never had one (16). In Austria, mammography/ultrasonography screening is performed every 2 years between the ages of 45 and 69 years and the frequency of participation is 57% in the target population. In France, mammography/clinical breast examination screening is performed every 2 years between the ages of 50 and74 years and participation rate is 53%. In Germany, mammography screening is performed every 2 years between the ages of 50 and 69 years and participation rate is 53%. In the Netherlands, mammography screening is performed every 2 years between the ages of 50 and 75 years and participation rate is 80%. In Malta, mammography screening is performed every 3 years between the ages of 50 and 69 years and participation rate is 36%. In Slovenia, mammography screening is performed every 2 years between the ages of 50 and 69 years and participation rate is 19%. In England, mammography screening is performed every 3 years between the ages of 50 and 70 years and participation rate is 84% (17). Within the scope of the breast cancer screening program in Turkey, counseling for self-examination once a month, clinical breast examination once a year, and mammography screening every 2 years are performed for women between the ages of 40 and 69 years (18). Breast cancer screening is different in all countries around the world and participation rates are considerable; however, there is a need to increase the frequency of screening.

In this study, 44% of women aged 30–65 years had a cervical swab test (cervical smear or pap test) in the last 5 years. 4.4% of women aged 21 years and over had a pap test in the last 3 years (16). In Germany, cytology/HPV screening is conducted annually for those aged 20 years and above and the participation rate is 53%. In Hungary, cytology screening is carried out every 3 years between the ages of 25 and 65 years and the participation rate is 15%. In Malta, screening is performed every 3 years between the ages of 25 and 35 and the participation rate is 49%. In the Netherlands, screening is performed every 5 years between the ages of 30 and 64 years and the participation rate is 95%. In Spain, screening is performed every 3 years between the ages of 25 and 64 years and the participation rate is 73% (17). Within the scope of the cervical cancer screening program in Turkey, women between the ages of 30 and 65 years are screened using smear tests and HPV-DNA tests every 5 years (18). Cervical cancer screening frequency is higher than that for other cancer screenings.

In the study, 58.5% of the participants stated that their general health status was very good/good, whereas 11% stated that their general health status was bad/very bad. Increasing age, decreasing education level, and increasing BMI reduced the ratio of people with very good/good general health. In the United States, 9.2% of participants stated that their health status was excellent, 33% as very good, 42.7% as good, and 1.9% as bad (19). 13.4% of the participants had poor, 67.7% had moderate, 18.3% had very good, and 6% had excellent general health in another study (16). Although most participants tended to state their own health as being good, a considerable ratio of people also stated that their health was bad.

Conclusion

Although the rate of participation of the public in cancer screenings in Turkey is significant, the data show that the rates should increase. In contrast, flu vaccination frequency is considerably low. To improve vaccination rates, physicians and health personnel in primary centers should be trained and informed first, and the general public should then be informed about preventive practices, where these practices can be performed, and their importance; furthermore, awareness of the public should be increased.

Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

Conflict of Interest

The authors declare that there is no conflict of interests.

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