ORIGINAL ARTICLE

Preventive health services utilization in patients treated by family physicians

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ABSTRACT

Aim To explore preventive health service utilization in patients treated by family physicians and the factors associated with their use**.**

Methods This cross-sectional study was carried out in family medicine outpatient departments of the Primary Health Care Canter of Canton Sarajevo, Bosnia and Herzegovina. The study included 300 patients (150 males and 150 females). A questionnaire for the evaluation of patients' socio-demographic characteristics, health profile and use of preventive health services was used.

Results Females visited family physicians significantly more often than males (p=0.001). About 51.2% of males reported undergoing a prostate examination within the past 2 years, 77% of females had an examination of the breast within the past 2 years, 9.8% of males and 10.5% of females had received influenza immunization in past 12 months. A number of visits to family physicians in the last twelve months was significantly associated with having had a prostate examination (digital rectal examination and/or prostate-specific antigen testing) (B=1.413, SE=0.171; p=0.043) and an examination of the breast (clinical breast examination and/or mammography) (B=1.817, SE=0.307; p=0.041). Advancement in age was positively associated with influenza immunization (B=2.901, SE=0.026; p=0.000).

Conclusion A visit to family physicians was an important step along the causal pathway to receiving preventive services (a prostate examination, an examination of breast). Adults aged 18–64 years were not well protected against influenza and comprehensive strategies are needed.

Key words: early detection of cancer, family practice, immunization, office visits

INTRODUCTION

The classic categories of prevention include primary, secondary and tertiary prevention. Primary prevention is an action to avoid or remove the cause of a health problem in an individual or population before its onset (1). Immunization against influenza is one example of primary prevention (2). Secondary prevention is an action to detect a health problem at an early stage in an individual or population and thus facilitate its cure or reduce or prevent its dissemination or effect in the long term. Secondary prevention does not necessarily prevent a disease from occurring but rather detects it early enough to allow effective treatment (1). Regular exams and screening tests to detect disease in its earliest stages (e.g. prostate-specific antigen testing to detect prostate cancer, mammograms to detect breast cancer) fall in the category of secondary prevention (3). Tertiary prevention is an action to reduce morbidity and disability in people diagnosed with, and being treated for a disease (4). Prevention of progression or recurrence in patients with prostate cancer is an example of tertiary prevention (5).

Preventive care is an important component of primary care medicine (6). Family physicians and their practice teams have a crucial role in preventing disease. Physician's message can make a powerful and unique opportunity to deliver preventive care (7).

People with certain characteristics are more likely to use preventive health care services even though the characteristics are not directly responsible for health service use (7). Previous studies demonstrated that significant factors influencing the utilization of adult preventive health care services included socio-demographic characteristics (age, sex, marital status, and education level), risk behaviours and health status (8-10). Sex, for example, among the demographic variables, is intimately related to 'female excess' in consulting, which has led to the assumption that women are more willing to utilise health services in all circumstances (11). Increased age predicts more responsibility for own health, thus older individuals were more likely to utilize preventive care services (12). Absence of a partner and family who encourage cancer screening or who participate in cancer screening is associa-

ted with non-attendance or irregular attendance (13) and protection of family members motivates influenza immunization (14). Characteristics such as education and occupation suggest a type of life style of an individual and associated behaviour patterns, which may be related to the use of preventive health services (15).

Many studies have used specific subpopulations to investigate utilization of preventive health services and factors affecting such rates. Schülein et al. investigated participation in preventive health check-ups of German women and found about 53.4% women participating in the preventive health check-up; participation was higher among women who were older, married and of higher socio-economic status. (16). Yen et al. investigated the utilization of preventive health services in adults with intellectual disabilities in Taiwan and found about 16.65% people with intellectual disabilities who used the preventive health services; utilization of preventive health services was higher among females, those who were married and aged 60–64 years (17).

The aim of this study was to explore of preventive health service utilization in patients treated by family physicians in Sarajevo Canton and the factors associated with their use.

PATIENTS AND METHODS

Study design

This cross-sectional study was carried out in family medicine outpatient departments of the Public Institution Primary Health Care Centre of Canton Sarajevo, Bosnia and Herzegovina (B&H) in the period March – July 2018.

A total of 300 respondents (150 males and 150 females) were selected from patients who used health care services at the Primary Health Care Centre during the course of the study period, through random sampling.

The inclusion criteria were persons aged 18-64 years who had a medical record in the Primary Health Care Centre of the Sarajevo Canton. The exclusion criteria were persons younger than 18 or older than 64 years, persons who did not have medical records at the Primary Health Care Centre of the Sarajevo Canton, pregnant women, patients with previous can-

cer diagnoses, patients with recurrent urinary tract infections.

The Ethics Committee of the School of Medicine, University of Sarajevo, approved the study. For this investigation, a written consent of the General Director of the Primary Health Care Centre of the Sarajevo Canton was obtained. An informed consent for participation in the study was taken from all patients.

Methods

The patients were supposed to fill out a questionnaire that included questions about their socio-demographic characteristics, health profile and use of preventive health care services.

Socio-demographic characteristics were included: gender, age, marital status, and education. Marital status was categorized as married (living with a spouse/co-habiting subject), single, divorced and widowed. Education was measured by the highest self-reported level of education completed. Education level was categorized as incomplete elementary school, completed elementary school, completed secondary school, completed high school/university.

Health profile questions included self-reported current health status, whether currently smoked, daily cigarette consumption, number of visits to family physicians in the last twelve months. Self-reported health status was measured by one question: "In general, how would you rate your physical health?" with five response categories: poor, fair, good, very good and excellent. Data on tobacco use were obtained from questions about current smoking habits. To measure smoking intensity, current smokers were asked, "On the average, how many cigarettes do you now smoke a day?" In the present study, smoking status was defined based on regular smoking habits, that is, current smokers were individuals who smoked on most or all days. All respondents were asked the following question: 'In the last 12 months, how often did you visit family physicians yourself?'

As an indicator of preventive health care utilization a prostate examination (for male), an examination of the breast (for female) and influenza immunization were observed. Self-reported prostate examination (digital rectal examination and/or prostate-specific antigen testing)

was assessed through a question asking when a male individual had undergone his last examination. Time of the most recent prostate examination was recorded as within the past year (≤12 months), over 1 year but within the past 2 years, over 2 years but within the past 5 years, and over 5 years. Self-reported examination of the breast (clinical breast examination and/or mammography) was assessed through a question asking when a woman had undergone her last examination. The time of the most recent examination of the breast was recorded as within the past year (≤12 months), over 1 year but within the past 2 years, over 2 years but within the past 5 years, and over 5 years. Influenza immunization was assessed by asking participants if they had received an influenza immunization in past 12 months.

Statistical analysis

Testing of differences in the age distribution of respondents between males and females was performed by Mann-Whitney test. Testing of the difference in socio-demographic characteristics between males and females was performed by χ2 test.

Linear regression analysis was used to assess the association of the use of preventive health care services (prostate examination, examination of the breast and influenza immunization) with gender, age, marital status, education level, self-reported health status, tobacco smoking and a number of visits to family physicians in the last twelve months. The level of significance was set at $p < 0.05$, and or the confidence level of 95%.

RESULTS

This study evaluated 300 patients in two groups of 150 (i.e. males and females).

Mean age of males and females was 46.2±9.6 years and 46.8±10.4 years, respectively (p=0.589). Majority of the respondents were within 46-64 age group. The age distribution of the two groups was similar and there was no significant difference (p=0.544).

There was no significant difference between two groups in marital status (p=0.127). The vast majority of respondents (72.3% males and 74.3% females) were married.

Formal education level in males and females was significantly different (p=0.0001). The most

frequent educational level was secondary education. Higher secondary education rate of males, 68.4% (103 out of 150) than females, 45.4% (76 out of 150) was noticed.

There was no significant difference between males and females in the assessment of their health status (p=0.795). The vast majority of respondents (70.3% males and 71.7% females) reported good health status.

There were not significant differences in sex according to cigarette smoking status (p=0.909). Daily cigarette consumption was significantly lower in females than in males (p=0.036). The mean consumption of cigarettes per day was 23.9±6.4 in males and 21.8±5.5 in females.

Females visited family physicians significantly more often than males (p=0.001) (Table 1).

Table 1. Socio-demographic and health profile characteristics of the respondents

Characteristics	No (%) of respondents		p
	Males	Females	
Age group (years)			
18-35	15 (10.3)	17 (11.2)	
36-45	59 (39.4)	57 (38.8)	0.544
46-64	76 (50.3)	76 (51.3)	
Marital status			
Married	108 (72.3)	111 (74.3)	
Single	34 (22.6)	24 (15.8)	0.127
Divorced	6 (3.9)	7 (4.8)	
Widowed	2 (1.3)	8 (5.3)	
Education level			
Incomplete elementary school	1 (0.6)	3 (2.0)	
Completed elementary school	0	16 (9.9)	0.0001
Completed secondary school	103 (68.4)	76 (45.4)	
Completed high school /university	46 (30.9)	55 (32.9)	
Self - reported health status			
Excellent	0	0	
Very good	30 (20.0)	29 (19.7)	
Good	106 (70.3)	108 (71.7)	
Fair	13 (9.0)	13 (8.6)	0.795
Poor	1 (0.6)	0 (0)	
Current smoker			
Yes	75 (50.3)	74 (49.3)	0.909
No	75 (49.7)	76 (50.7)	
Number of visits to family physicians in the last twelve months			
0	106 (67.1)	76 (50.7)	
1-2	21 (19.1)	55 (36.8)	
3-4	14 (9.0)	17 (11.2)	
5-10	3 (1.9)	0	0.001
> 10	0	1 (0.7)	
Don't know	6 (3.9)	1 (0.7)	

A total of 79 (out of 150; 51.2%) males reported undergoing a prostate examination within the past 2 years, 115 (out of 150; 77%) females had an examination of the breast within the past 2 years. Influenza immunization in past 12 months was noticed in 15 (9.8%) and 16 (10.5%) males and females, respectively (Table 2).

Table 2. Use of preventive health care services

Males/Females	No (%)
Males	
Years since last prostate examination	
≤1	22 (14.2)
>1, ≤2	55 (37.0)
>2, ≤5	60 (40.3)
>5	8 (5.2)
Never	5 (3.2)
Influenza immunization within the past 12 months	
Yes	15 (9.8)
No	135 (90.2)
Females	
Years since last examination of the breast	
≤1	46 (30.9)
>1, ≤2	69 (46.1)
>2, ≤5	28 (18.4)
>5	5 (3.3)
Never	2 (1.3)
Influenza immunization within the past 12 months	
Yes	16 (10.5)
No	134 (86.5)

The number of visits to family physicians in the last twelve months was significantly associated with having had a prostate examination (p=0.043). Socio-demographic characteristics such as age (p=0.774), marital status (p=0.395) and education level (p=0.236) were not significantly associated with having had a prostate examination. Self-reported health status (p=0.262) and tobacco smoking (p=0.600) were not significantly associated with having had a prostate examination.

The number of visits to family physicians in the last twelve months was significantly associated with having had an examination of the breast (p=0.041). Socio-demographic characteristics such as age (p=0.328), marital status (p=0.636) and education level (p=0.093) were not significantly associated with having had an examination of the breast. Self-reported health status (p=0.907) and tobacco smoking (0.534) were not significantly associated with having had an examination of the breast.

Advancement in age was positively associated with influenza immunization (p=0.000). Socio-demographic characteristics such as gender (p=0.741), marital status (p=0.639 and education level (p=0.305) were not significantly associated with influenza immunization. Self-reported

health status (p=0.626) and tobacco smoking (p=0.130) were not significantly associated with influenza immunization. The number of visits to family physicians in the last twelve months was not significantly associated with influenza immunization (p=0.720) (Table 3).

Table 3. Linear regression model of the use of preventive health care services

Use of preventive health care services	B	SE	95%CI	p
Prostate examination				
Age	1.006	0.020	0.967-1.046	0.774
Marital status	0.784	0.287	0.447-1.375	0.395
Education level	0.790	0.199	0.534-1.167	0.236
Self - reported health status	0.662	0.368	0.322-1.367	0.262
Tobacco smoking	0.838	0.339	0.431-1.626	0.600
Number of visits to family physicians in the last twelve months	1.413	0.171	1.010-1.976	0.043
Examination of the breast				
Age	1.022	0.022	0.979-1.067	0.328
Marital status	0.892	0.243	0.554-1.434	0.636
Education level	1.434	0.215	0.942-2.184	0.093
Self - reported health status	0.948	0.463	0.942-2.184	0.907
Tobacco smoking	1.282	0.400	0.382-2.348	0.534
Number of visits to family physicians in the last twelve months	1.817	0.307	0.586-2.807	0.041
Influenza immunization				
Gender	1.147	0.417	0.507-2.597	0.741
Age	2.901	0.026	1.856-2.948	0.000
Marital status	0.896	0.233	0.568-1.416	0.639
Education level	1.261	0.226	0.810-1.962	0.305
Self - reported health status	0.804	0.447	0.335-1.931	0.626
Tobacco smoking	0.522	0.430	0.225-1.212	0.130
Number of visits to family physicians in the last twelve months	1.092	0.246	0.674-1.770	0.720

B, regression coefficient; SE, standard error; CI, confidence interval

DISCUSSION

This study investigated the preventive health service utilization among patients aged 18-64 years treated by family physicians and factors associated with their use. The preventive health services that were chosen concerned prostate examination, breast examination and influenza immunization.

Digital rectal examination and prostate-specific antigen testing form two of the key components of the assessment of the prostate gland (18). In this study 51.2% of males reported undergoing a prostate examination within the past 2 years. A study of more than 4 000 men from seven cities in Latin America found between 22% (Havana) and 52% (Bridgetown) of men reported undergoing a prostate examination in the past 2 years (19). In the study conducted in Italy, only 29.6% of men had undergone prostate-specific antigen testing (20).

Clinical breast examination by a health care provider and mammography is a common and valuable screening method for breast cancer (21). In this study, 77% of females had an examination of the breast within the past 2 years. The prevalence of mammography screening across the US in 2006 was 65% among whites, and 59% among blacks (22).

Influenza immunization is one of the most effective methods for preventing influenza and its complications (23). A survey carried in several European countries confirmed that the coverage rates were generally low, ranging from the lowest rate of 6.4% in Poland to 26.3% in the Czech Republic (24); in this study, the immunization coverage rate was 9.8% among males and 10.5% among females. Lower immunization rates in this study might suggest that adults between 18 and 64 years do not feel the need to be immunized because they are less prone to severe complications. Health authorities of most countries do not consider healthy adults to be a priority group requiring annual immunization against seasonal influenza (25).

The results of this study showed that the number of visits to family physicians in the last twelve months was significantly associated with having had a prostate examination (digital rectal examination and/or prostate-specific antigen testing). This result agrees with previous studies. Flahavan et al. observed positive associations between PSA testing and more primary care visits (26). The results of this study showed that the number of visits to family physicians in the last twelve months was significantly associated with having had an examination of the breast (clinical breast examination and/or mammography). Volesky et al. found that having a regular physical check-up in the past year was strongly related to whether women participated in screening mammography (27). Poole et al. found that seeing a family doctor in the past 12 months doubled the odds of having had a screening mammogram in the past 2 years (28). A recommendation from a primary care physician is consistently one of the strongest predictors of cancer screening (29-31). The results of this study showed that advancement in age was positively associated with influenza immunization in adults aged 18–64. Increasing age was an important factor associated with uptake of influenza immunization in studies in European and Asian populations (24,32).

In this study, marital status was not statistically significantly associated with use of the above preventive services. Contrary to our findings, Blumberg et al. found that being married was associated with a higher probability of using preventive services than all other statuses, indicating that generally marriage acts increase utilisation rates of preventive health services, particularly for men (33). Research on relationship between education and the use of preventive health care services has not provided a definite answer. Some studies, as well as this one, have not found a statistically significant relationship (16), some have found a positive relationship (34,35), while others have found a statistically significant relationship only for certain types of preventive services. Fiscella et al. found that screening tests were provided at lower rates among less educated patients, but there were no differences in rates of immunization (36).

There are contradicting findings on the effect of poor health status on the uptake of health check-ups. Labeit et al. found no significant influence of poor health status on utilization rates concerning breast cancer screening (37). Similar results were obtained in this study. Another study showed that individuals that were in poorer health were more likely to get flu shots, but less likely to have mammograms, breast examinations, and prostate checks (38). Psychological factors such as fear about receiving a cancer diagnosis may deter some individuals from attending one of these health check-ups. In this study, tobacco smoking was not statistically significantly associated with use of the above preventive services. A small number of studies have reported lower use of preventive health care services by current smokers. Jorm et al found that current smokers were 15-20% less likely than never smokers to use immunizations, and prostate specific antigen tests (39).

Therefore, the present study adds to the existing research by attempting to determine socio-demographic and health profile factors that affect the use of preventive health care services in order to promote an international health policy on cancer prevention and influenza immunization. In order to increase the use of preventive health services, future research should explicate the motivating factors behind adults' decisions to visit family physicians and get flu shots.

In conclusion, our findings indicate that respondents more likely to have had a prostate examination, an examination of breast were those who visited family physicians most frequently in the last twelve months. A visit to family physicians is a necessary step along the causal pathway to receiving preventive services. The results showed that older adults had a higher likelihood of obtaining a preventive flu shot than younger individuals. However, influenza immunization is important for adults of all ages. Increasing influenza immunization coverage among the younger adults is likely to result in a large increase in the number of averted cases.

Primary health reform initiatives that support a model whereby adults are encouraged to have regular care from family physicians could result in a greater proportion of the adults aged 18-64 years receiving recommended preventive care.

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TRANSPARENCY DECLARATION

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