



Cervical Cancer Screening Behaviors Among Post-Menopausal Women

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Abstract

Background: Cervical cancer is known as a preventable cancer, which this concept has been proposed since cervical cancer screening protocols have been conducted in many countries. Regardless of this prominent advance, rate of cervical cancer screening in many societies is still low.

Objectives: The aim of this study was to assess post-menopausal women behavior regarding cervical cancer screening.

Methods: This study was a cross-sectional population-based telephone survey, conducted among women in the post-menopausal period in Tabriz, Iran in November 2016. A structured questionnaire consisted of 4 sections, including sociodemographic information, family and past medical history, observed vulnerability to cancer, and other health-related insights, and utilization of cervical cancer screening was used. The main outcome of the study was having a cervical Pap smear test. P value less than 0.05 was considered statistically significant.

Results: Of all 2 586 included respondents, 1 098 (42.45%) individuals never had undergone Pap smear test. Also, 2 015 women (77.91%) had not been recommended by health professional staff to perform a Pap smear test so far. The mean age of the participants was 56.51 ± 12.87 years. Low age, marriage, high education, employment, not smoking, and not having a chronic disease were associated with high uptake rate among respondents.

Conclusions: Demographic characteristics and misconceptions have an outstanding role in the commitment of people in cancer screening programs. These results can be used by authorities to modify behaviors toward cervical cancer screening programs.

Keywords: Cervical Cancer, Behavior, Menopause, Screening

1. Background

While prevention of cancers, the first cancer that comes to mind is cervical cancer (1). This cancer is mostly diagnosed among middle-aged and menopause women (2). Since cervical cancer screenings begun in many countries, there has been a significant reduction in cervical cancer mortality and a significant increase in diagnosis of cervical cancers in early stage (3). In Iran, crude cervical cancer rate is 2.2% and 5-year survival rate ranges from 75% to 85% based on histology (4, 5). Pap smear is the most frequent method used for cervical cancer screening; this method is suggested to be started among all 21-year-old females (6). For women above 65 years old, this test is not recommended if their previous tests have been normal during the past 10 years (6). The recommendations not to screen women over 65 may lead to lack of screen-

ing among this population, considering high risk of cervical cancer among them (50 - 65 years old), who should be screened based on a regular schedule (7). The diagnostic performance of Pap smear has been different in the literature, but the sensitivity is 57%, specificity is about 76%, and false negative rate is 22 in 1000 cases (8). So, false negative results, whose malignancy is not detected and missed, are inevitable.

The protection motivation theory is a theory generally used to illuminate health behavior by considering risk perception (threat appraisal) and trying to prevent it (coping appraisal)(9-11). This theory is mostly used by public health researchers to enhance health services (12). Fortunately, recent studies about cervical cancer screening have provided sufficient evidence about cervical cancer and its risk factors (13, 14). This increase in evidences has led to an in-

creased motivation among women to prevent cervical cancer by undergoing screening programs (15, 16).

However, based on the studies, the knowledge about the cervical cancer and risk are inadequate (17-19). A study conducted in Hamedan, Iran found that about 84% of the participants underestimated the risk of cervical cancer; so, after an adequate course of education in this field for the sample population, practice observed among women significantly increased (20). In Iran, many factors such as cultural and socioeconomic factors may be considered as a barrier between knowledge (threat perception) and preventive behaviors (coping appraisal), which might be considered as a consequence of knowledge (21). Although many studies have been conducted among young women about attitude, practice and perception toward cervical cancer, older women especially those undergoing menopausal period underestimate the risk of cancer incidence and consequently decrease practices regarding screening (22, 23).

2. Objectives

In the present study, we aimed at conducting a population-based study to assess the behaviors regarding the screening of cervical cancer among post-menopausal women to recognize predictors leading this population to undergo Pap smear.

3. Methods

3.1. Study Design

This study was basically a cross sectional population-based telephone survey, conducted among women in post-menopausal period in Tabriz, Iran in November 2016. In each 27 health care centers in Tabriz, 100 women in post-menopausal period with no history of cervical cancer were selected, using a computer-assisted randomization from a database held in each health care centers consisting of people they covered. The telephone interviews were performed at 4:30 to 10:30 P.M. to avoid presenting only the housekeeping women. In the case of not responding the phone calls or picking the phone by another person, which informed us of participant's absence, phone calls were made 3 more times (in the morning, afternoon, and evening). The member with birthday date closest to the interview date was included in the study, in case more than one eligible woman was present. Each respondent was briefed about the study; then, a verbal consent was obtained. Although there are many guidelines for starting or discontinuing Pap smear of American Society of Cancer Prevention (24).

3.2. Questionnaire

A structured questionnaire developed from the 2005 National Health Interview Survey cancer module was used (25). This structured questionnaire consisted of 4 sections, including sociodemographic information (age, educational level, marital status, employment status, and monthly income), past medical and family history (e.g. chronic diseases and cancer), perceived vulnerability to cancer and other insights related to health, and utilization of cervical cancer screening. The final part was composed of items examining the uptake of Pap smear test and an open-ended question asking the reason for taking part in screening test of cervical cancer. The main outcome of the study was undergoing a cervical smear test. The validity and reliability of this questionnaire were already proven (25).

3.3. Ethics

The study protocol was approved by the Ethics Committee of Tabriz University of Medical Sciences (TUMS), which was in compliance with the Declaration of Helsinki. The study was explained briefly for each respondent; then, a verbal consent was obtained. Interviewees were told they could have terminated the conversation either at start or any point of the interview.

3.4. Statistical Analysis

The data were expressed as mean \pm standard deviation and frequency. Binary logistic regression was used to examine the association of cervical cancer screening behaviors and possible risk factors. Univariate analysis of the association between outcome variable and each explanatory factor was carried out by means of binary logistic regression. Those factors with P values $<$ 0.25 in the univariate analyses were chosen as candidate variables for backward stepwise multivariable logistic regression to explore explanatory factors independently associated with screening behavior outcome. All regression analyses included an examination of interaction effects and an assessment of possible multicollinearity among the independent variables. All statistical analyses were performed, using SPSS 19.0 (SPSS Inc., Chicago, IL, USA). P value less than 0.05 was considered statistically significant.

4. Results

Of all 2 700 women in post-menopausal period, 2 586 women (95.77%) managed to complete the interview; so, their information were included in the study.

The information regarding sociodemographic characteristics and medical and family history of the respondents

are shown in Table 1; to present income status the income amount, IRR was converted to USD (1 USD = 37000 IRR). The mean age of the people include in the study was 56.51 ± 12.87 years.

Table 1. The Demographic Characteristics, Medical and Family History of Respondents Included in the Present Study (N = 2586)

Subcategory	Count (%)
Demographic Information	
Age, y	
40 - 50	624 (24.12)
50 - 60	1082 (41.84)
60 - 70	543 (20.99)
> 70	337 (13.31)
Education level	
Primary and secondary	2374 (91.80)
Matriculation or above	212 (8.19)
Marital status	
Single/divorced/widowed	428 (16.55)
Married	2158 (83.44)
Employment status	
Employed	369 (14.26)
Unemployed	2217 (85.73)
Monthly income	
Less than 1000 \$	836 (32.32)
1000 - 2000 \$	705 (27.26)
More than 2000 \$	189 (7.30)
Not answered	856 (33.10)
Past Medical or Family History	
Medical history	
Chronic diseases	1178 (45.55)
Malignancy	346 (13.37)
Smoking	
No	2509 (97.02)
Yes	77 (2.97)
Family history of cancer	
No	601 (23.24)
Yes	1985 (76.75)

Table 2 presents the beliefs regarding health-related issues; in this section, 0 to 10 grading score was used to assess perceived health status and susceptibility to cancer. Most of the respondents graded their health stats to be less than average.

Among all 2 586 women, 1 098 (42.45%) individuals never had undergone Pap smear test and 1 475 (57.03%) in-

Table 2. Health-Related Perceptions Among Respondents (N = 2586)

Subgroup	Count (%)
Perceived health status^a	
≤ 5	1882 (72.77)
> 5	704 (27.22)
Believing that following practices toward cancer screening is good for health	
Regular exercise	1975 (76.37)
Healthy diet	1828 (70.68)
Visiting doctor regularly	625 (24.16)
Taking dietary supplements	49 (18.52)
Perceived susceptibility to cancer^a	
≤ 5	1762 (68.13)
> 5	481 (18.60)
Not sure	343 (13.26)

^a A 0 - 10 grading score was used.

dividuals had undergone. Also, 2 015 women (77.91%) had not been recommended by health professional staff to perform a Pap smear test so far. The cervical screening behaviors among respondents are shown in Table 3; most of the patients undergoing Pap smear test had never had an abnormal Pap smear test (93.89% percent) and most of the Pap smear tests were conducted due to the routine check-up program of women (69.49%).

The association of the possible factors have been shown in Table 4; women in higher age groups were less likely to have had a Pap smear test. Also, well-educated women were more likely to have had cervical screening test (OR = 4.12, 95% CI = 4.44 - 3.80, P < 0.001). Based on the income rates, as the family income rises, the likelihood of undergoing Pap smear test increases. Unemployed women were less likely to have undergone pap smear test (OR = 0.44, 95% CI = 0.67 - 0.21, P < 0.001). A positive history of smoking (OR = 0.27, 95% CI = 0.39 - 0.15, P < 0.001) and chronic diseases (OR = 0.69, 95% CI = 0.84 - 0.54, P = 0.003) decreased the likelihood of undergoing cervical screening test.

5. Discussion

Previous studies about screening-related beliefs and knowledge affect individuals' behavior toward cancer screening (26-28). In the present study, about half of the population had undergone cervical smear test. Also, most of the women (68.13%) assumed their susceptibility to cancer is low, although this presumption among those with high susceptibility to cancer was not associated with inten-

Table 3. Cervical Cancer Screening Behaviors Among Respondents - Pap Smear Test

Subcategory	Count (%)
Those Who Had Undergone Pap Smear, N = 1475	
Had an abnormal test once	
Yes	84 (5.69)
No	1385 (93.89)
Unsure	4 (0.40)
Reason for recent Pap smear test	
Routine check-up	1025 (69.49)
Due to symptoms or signs	273 (18.50)
Professional recommendation	177 (12)
Time since the most recent test	
In past 5 years	1209 (81.96)
More than 5 years ago	112 (7.59)
Unsure	154 (10.44)
Those Who Had Not Had a Cervical Smear Test, N = 1098	
Reason for not having Pap smear test	
Not necessary	591 (53.82)
Healthy so far	227 (20.67)
Not heard of it	78 (7.10)
Others	50 (4.55)

tion to do cervical cancer screening. This might be due to the lack of the knowledge not about the risk of cancer but about the benefits of screening programs. So, it might be proposed that besides educating cancer risks to the public, screening programs must be explained.

In the present study, a higher uptake rate was seen among married women, which was consistent with other studies conducted in this field (29, 30). This might reflect the importance of health-related issues not only for women themselves, but also for the benefit of the social and family health. Women with favorable insights of health-seeking behaviors (such as visiting a doctor, avoiding smoke) were more likely to take part in cervical cancer screening. In the present study, some single and sexually active respondents might have undervalued their risk of cervical cancer by their low uptake rate in cervical cancer screening test. Most of the participants had cervical smear as part of a routine medical check-up program; indicates that obliging people to take part in screening programs as a part of socially accepted health check-up routines has been the most successful strategy to expand cervical cancer screening programs. On other hand, recommendation by a health professional had a small proportion compared to other motivations for cervical cancer screening; also with their medical knowledge and authority, it is

expected that health care system staff plays their outmost role to enhance peoples' behavior toward cancer screening programs (31-34).

Based on protection motivation theory, decisions are affected by coping and risk appraisal factors. The coping appraisal factors include health beliefs and practices toward maintaining a favorable level of health. The risk assessment factors include sexual status, age, manifestation of symptoms, family history of cancer, and educational level. In the present study, with increasing age, the probability of having a screening test decreased. About half of the women (53.82%) believed that screening was not necessary (66%) as the reason for not undergoing cervical cancer screening test. It has already been proved that such misconceptions are of the most important factors in decreasing uptake rate (35). Based on the results, women with chronic diseases were less likely to undergo screening programs. This might be due to the nature of chronic diseases, which exposes the affected people to more health care-related procedures. In most cases, these procedures are not as much effective as patients' expectations, which leads to less desire to take part in other health care-related services such as cancer screening programs.

Health consciousness has always been an important component of screening behaviors (36-38). In the present study, having family history of cancer and having a high educational status was accompanied by a higher uptake rate. This suggests that well-educated women incline to have a more heightened awareness and thorough understanding of cancer risk and other diseases. Critical thinking to understand and correctly interpret disease-related issues, including symptoms and signs and health literacy (39) might be the factor playing the main role in higher education levels, which promotes women's cervical screening uptake (31, 40). This might be the main reason why most people do not usually take part in screening programs until a symptom or a sign is appeared.

As a limitation of the current study, screening experiences were examined retrospectively, which may have caused a recall bias. Also, in such cross sectional studies, association of knowledge and risk perception with long-term screening patterns could not be investigated. Unfortunately, due to some cultural issues, no questionnaire items focused on sexual activity.

5.1. Conclusions

Based on the present study, misunderstandings about cervical cancer screening test and health-related behaviors are important factors in decreased tendency for routine check-ups. This low uptake rate indicates a necessity to improve health education about cervical cancer in public. Mistaken beliefs concerned with older age and menopause

may lead to a decreased women's perceived susceptibility to cervical cancer and affect their screening behaviors. Health care system are suggested to have a more prominent effect on this high-risk group of people.

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Footnotes

Authors' Contribution: Study concept and design: Hosein Jabbari Bairami, Reza Piri, and Mohammad Naghavi-Behzad. Analysis and interpretation of data: Sahar Mohammadi, Reza Piri, and Mohammad Naghavi-Behzad. Drafting the manuscript: all of the authors. Critical revision of the manuscript for important intellectual content: all of the authors. Statistical analysis: Reza Piri and Mohammad Naghavi-Behzad.

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Table 4. Factors Associated with Having Cervical Screening Test

Subcategory	Undergone Pap Smear Test Count (%)		Odds Ratio (95% CI)	P Value
	No, N = 1098	Yes, N = 1475		
Demographic Information				
Age, y				
40 - 50	212 (33.97)	412 (66.02)	1	-
50 - 60	582 (53.78)	500 (46.21)	0.49 (0.60 - 0.38)	< 0.001
60 - 70	392 (72.19)	151 (27.80)	0.18 (0.25 - 0.11)	< 0.001
> 70	298 (88.42)	39 (11.57)	0.06	< 0.001
Education level				
High school and below	1330 (56.02)	1044 (43.97)	1	-
Matriculation or above	40 (18.86)	172 (81.13)	4.12 (4.44 - 3.80)	< 0.001
Marital status				
Single/Divorced/Widowed	294 (68.69)	134 (31.30)	1	-
Married	978 (45.31)	1180 (54.68)	2.48 (2.72 - 2.24)	< 0.001
Employment status				
Employed	129 (34.95)	240 (65.04)	1	-
Unemployed	1240 (55.93)	977 (44.06)	0.44 (0.67 - 0.21)	< 0.001
Monthly income				
Less than 1000 \$	519 (62.08)	317 (37.91)	1	-
1000 - 2000 \$	281 (39.85)	424 (60.14)	2.65 (3.26 - 2.04)	< 0.001
More than 2000 \$	49 (25.92)	140 (74.07)	5.43 (6.18 - 4.68)	< 0.001
Not answered	451 (52.68)	405 (47.31)	1.51 (1.94 - 1.08)	0.048
Past Medical or Family History				
Malignancy				
No	1172 (52.32)	1068 (47.67)	1	-
Yes	161 (46.53)	185 (53.46)	1.26 (1.61 - 0.91)	0.248
Chronic diseases				
No	676 (48.01)	732 (51.98)	1	-
Yes	674 (57.21)	504 (42.78)	0.69 (0.84 - 0.54)	0.003
Smoking				
No	1205 (48.02)	1304 (51.97)	1	-
Yes	61 (79.22)	16 (20.77)	0.27 (0.39 - 0.15)	< 0.001
Family history of cancer				
No	345 (57.40)	256 (42.59)	1	-
Yes	648 (32.64)	1337 (67.35)	2.58 (3.01 - 2.15)	< 0.001
Health professional recommended pap smear				
Health-related perceptions				
No	994 (49.33)	1021 (50.66)	1	-
Yes	302 (52.88)	269 (47.11)	0.82 (1.18 - 0.46)	0.215
Perceived health status				

≥ 5	977 (51.91)	905 (48.08)	1	-
< 5	369 (52.41)	335 (47.58)	0.78 (1.34 - 0.22)	0.485
Exercise is good for health				
No	323 (52.86)	288 (47.13)	1	-
Yes	1028 (52)	948 (48)	1.04 (1.37 - 0.71)	0.57
Healthy diet is good for health				
No	459 (60.55)	299 (39.44)	1	-
Yes	898 (49.12)	930 (50.87)	1.71 (2.15 - 1.27)	0.003
Visiting doctor regularly is good for health				
No	1180 (60.17)	781 (39.82)	1	-
Yes	271 (43.36)	354 (56.64)	1.89 (2.28 - 1.50)	< 0.001
Taking dietary supplements are good for health				
No	1415 (55.62)	1129 (44.37)	1	-
Yes	18 (42.85)	24 (57.14)	1.72 (1.91 - 1.53)	< 0.001
Susceptible to cancer				
≥ 5	885 (50.22)	877 (49.77)	1	-
< 5	217 (45.11)	264 (54.88)	1.25 (1.62 - 0.88)	0.241
Not sure	194 (56.55)	149 (43.44)	0.75 (1.24 - 0.26)	0.321