RESEARCH ARTICLE

Determinants of Cervical Cancer Screening Uptake in Kurdish Women Living in Western Iran, 2014

N Aminisani[1], R Fattahpour[1], L Abedi[2], SM Shamshirgaran[1,3]*

Abstract

Background: Cervical cancer is the second most common cancer among females across the world. It is a preventable cancer and early detection is very feasible. This study aimed to identify which women characteristics are potentially associated with and may have an important in uence on the uptake of cervical cancer screening in Kurdish women living in the west of Iran.. Materials and Methods: A cross sectional study was conducted in late 2014. A random sample of women aged 40 years and above without history of cervical cancer and identi ed as Kurdish background were selected and interviewed by two trained interviewers. Information about sociodemographic and reproductive factors, history of diseases, and cervical screening was collected using a questionnaire and women who had undergone a hysterectomy were excluded. Univariate analyses were used to describe the general characteristics of the study population. Multivariable logistic regression models with self-reported screening history were used to estimate odds ratios (ORs) with 95% con dence intervals (CI). Signi cance was considered at the 5% level. Results: A total of 561 women were included in this study (mean age 43.6± 5.17 years) participation in cervical screening at least once was about 32%. Cervical screening uptake percentage was signi cantly lower among people over 60 years of age (adjusted OR= 0.26, 95% CI: 0.11-0.64), and those who were illiterate (OR= 0.41 95% CI: 0.23-0.73) and post-menopausal (OR= 0.56, 95% CI: 0.35-0.91). Women with ≤1 child were less likely to report a Pap test (adjusted OR=0.43 95%CI: 0.13-1.37) Cervical screening uptake was higher among women with health insurance (OR= 2.31, 95% CI: 1.50- 3.56). Conclusions: Cervical screening participation in this study was low compared to other studies in developed countries. The screening uptake was different based on age, education, parity, insurance coverage and menopausal status. It is recommended to target these groups of women in cervical screening program.

Keywords: Cervical cancer screening - socioeconomic status - minority - pap smear - Kurdish - Iran

Asian Pac J Cancer Prev, **17 (8)**, 3763-3767

Introduction

Cervical cancer is the fourth common cause of cancer morbidity and mortality among women worldwide. In 2012 there have been 5,280,000 new cases and about two-third of new cased reported from less developed regions. There is a large variability in the incidence and mortality of this cancer as the incidence in Sub-Saharan Africa is 34.8 per 100,000 women annually, and mortality is 22.5 per 100,000 women whilst it is 6.6 and 2.5 per 100,000 women, respectively, in North America (Ferlay et al., 2015).

Cervical cancer incidence and mortality have fallen considerably after introduction of cervical screening by George Papanicolaou in 1940's (Michalas, 2000) in countries with an organized screening program (Peirson et al., 2013). For instance in Sweden, Finland, Denmark, Iceland where the national screening program where introduced in 1960s, the incidence of cervical cancer has halved (Kitchener et al., 2006), the same has been reported from Australia (Downs et al., 2008; Aminisani et al., 2012c).

However screening is not available or less utilized in developing countries where the majority of cervical cancer deaths are occurred. Results of previous studies showed that cervical screening uptake is different among women, women from socioeconomic disadvantaged group, those belong to ethnic or minority groups, disabled women and those living in borders has been reported to be have the least participation rates in the program (Palencia et al., 2010; Akinyemiju, 2012; Aminisani et al., 2012a; Aminisani et al., 2012b).

In Iran compared to other developing countries, cervical cancer is not included in the top ten frequent cancer among females and there were 558 new cases of cervical cancer and 286 deaths in Iran in 2009 . Recent estimates for 2012 indicated that there were 947 women are diagnosed with cervical cancer and 370 die from the disease (Ferlay et al., 2015). The age standardized incidence rate (ASR) has been reported to be 2.5 per

*[1]Epidemiology and Statistics Department, Faculty of Health Sciences, [3]Injury Epidemiology Prevention Research Centre, Tabriz University of Medical Siences, Tabriz, [2]Kerman University of Medical Siences, Kerman, Iran *For correspondence: m.shamshirgaran@hotmail.com*

100,000 women based on pathology-based registries, and 6 per 100,000 women based on population based registries (Khorasanizadeh et al., 2013).

The National and organized cervical cancer screening program is not available in Iran, however it is done upon request by women or health providers and its cost partially is covered by health insurance system. Despite the potential benefits of cervical cancer screening and availability of screening, the finding of previous studies revealed that the regular uptake of cervical screening among Iranian women is low (Yazd 14.5%, 31% Jahrom, 27% Kerman) (Enjezab et al., 2004; Soltan Ahmadi et al., 2010; Zareai, 2014).

Recent evidence shows an increase in abnormal Pap and in the prevalence of HPV in normal cytology (Esmaeili et al., 2008; Bruni et al., 2015). These two along with an increase in the incidence of cervical cancer in 2013 compared to the previous reports. Recently, based on a comprehensive literature review a group of experts emphasized a need for a national screening program and proposed a new cervical screening program for low risk Iranian women (Khodakarami et al., 2012). Therefore, it is important to identify which women characteristics are potentially associated with and may have an important influence on the uptake of breast cancer screening in different minority groups in Iran. It helps the health policy makers to improve the program in order to achieve the goal of equity in health services. People living in borders usually face different challenges in health care, Baneh is a city located in West of Iran with share border to Iraq. The aim of this study was to assess the utilization of cervical cancer screening among women aged 40 years and older in order to identify mainly socio-demographic and health related determinants of cervical cancer screening in this population.

Materials and Methods

This cross sectional study was conducted in Baneh, West of Iran with a total population of about 150,000 people. A total of 561 women aged 40 and up were selected from six health centers using stratified random sampling. They received a telephone invitation to attend the center in order to be interviewed and if they were not being able to come, they were interviewed at home. Inclusion criteria were aged 40 and up, being Iranian and with no history of cervical cancer in the past. Information was collected using a structured questionnaire which had three parts; 1- demographics characteristics, socioeconomic status 2- clinical and lifestyle information including reproductive factors (parity, HRT, menopause status), comorbidities and smoking 3- cervical cancer screening (Pap test).

Age was classified into four categories: 40- 49, 50-59, and 60+ years. Marital status was considered as married and living with the spouse, and not married, divorced or widow in one category. Variables related to Socioeconomic Status (SES) included educational qualification and work status was assessed using different variables including education in three categories; illiterate, primary school, secondary school and higher, occupation as housewife, currently employed or retired. Comorbidities was based on history of frequent diseases, Body Mass Index (BMI) was classified into three categories: healthy weight (BMI<25 kg/m2), overweight (BMI≥25 kg/m2<30 kg/m2) and obese (BMI≥30 kg/m2). Parity was categorized as one, two and three and more children.

The main outcome measures were ever having had a cervical screening. Women aged 40 years and older were asked a question regarding screening: "Have you ever had a Pap test?" Having a smear (yes = 1 no = 0) were the dependent variables.

Univariate analyses were used to describe the general characteristics of the study population. Multivariable logistic regression models with self-reported screening history (Pap smear) as the dependent variable were used to estimate odds ratios (ORs) with 95% confidence intervals (CI). Two models were built: adjusted for age, and measures of socioeconomic status (educational, work status, marital status, insurance, and self-reported family welfare); and adjusted for age, insurance, and a range of related factors (BMI, comorbidities, parity, oral contraceptive (OCP) use, and menopause status). Analysis was performed using the SPSS statistical package Version 22. Significance was considered at the 5% level.

Results

A total of 561 women aged 40 and up were included in this study. After exclusion of women who had

Table 1. Sociodemographic Characteristics and Selected Factors of Women 40-69 Years of Age, Baneh, 2014

Variables	Number	Percent
Age group		
40-49	306	54.6
50-59	148	26.4
≥60	106	19.0
Marital Status		
Living with spouse	454	81.1
Living alone	106	18.9
Education		
Illiterate	229	58.6
Primary	166	30.2
Secondary and Higher	155	11.2
Insurance		
Yes	325	59.4
No	222	40.6
Co- morbidities		
Yes	309	55.7
No	247	44.3
Oral Contraceptive Use		
Yes	154	28.0
No	396	72
Menopause		
Yes	252	45.2
No	305	54.8
Parity		
≤1	29	1.0
2-3	128	23.2
≥4	395	75.8
Body Mass Index		
≤25	101	18.8
25-29.9	229	42.6
≥30	208	36.8

Table 2. Determinates of Cervical Screening Uptake in Kurdish Women 40-69 Years of Age, Baneh, 2014

Variable	Pap smear-Yes Number (%)	OR (CI 95%) Crude	*OR (CI 95%) Adjusted
Age group			
40-49	112(37%)	Ref group	Ref group
50-59	50(34%)	0.87(0.48-1.33)	0.99(0.54-1.84)
60+	16(15.09%)	0.24(0.12-0.45)	0.26(0.11-0.64)
P-Value		0.001	0.002
Education			
Illiterate	43(18.78)	0.26(0.16-0.41)	0.41(0.23-0.73)
Primary	60(36.14)	0.63(0.41-0.99)	0.86(0.51-1.46)
Secondary and higher	73(47.09)	Ref group	Ref group
P-Value		0.001	0.004
Comorbidities			
yes	98(31.7%)	0.97(0.68-1.38)	1.52(0.98-2.37)
No	80(32.4%)	Ref group	Ref group
P-Value		0.87	0.06
Menopause			
Yes	67(26.59%)	0.59(0.41-0.85)	0.86(0.46-1.59)
No	110(36.06%)	Ref group	Ref group
P-Value		0.005	0.62
Parity			
≤1	6(21%)	0.57(0.21-1.54)	0.43(0.13-1.37)
2-3	59(46.1%)	2.25(1.49-3.4)	1.94(1.18-3.19)
≥4	112(28.35%)	Ref group	Ref group
P-Value		0.001	0.005
Body Mass Index			
≤25	26(25.7%)	Ref group	Ref group
25-29.9	74(32.31%)	1.42(0.83-2.44)	1.19(0.66-2.15)
≥30	74(35.57%)	1.64(0.96-2.84)	1.39(0.76-2.54)
P-Value		0.09	0.53
Insurance			
Yes	121(37.2%)	2.16(1.45-3.23)	2.31(1.50-3.56)
No	47(21.17%)	Ref group	Ref group
P-Value		0.001	0.001
Oral Contraceptive Use			
Yes	54(35.06%)	1.16(0.78-1.74)	1.24(0.78-1.97)
No	123(31.06%)	Ref group	Ref group
P-Value		0.46	0.35

*Adjusted OR: Adjusted for Age, Education, Oral Contraceptive Use, Menopause, Parity, Body Mass Index, Comorbidities, and Insurance

undergone hysterectomy (16 women, 2.9%) there were 545 women for the further analysis. Mean age of women was (43.64±5.17). The majority (55%) were in age range of 40-49 years and two-third were married and currently live with their spouse, about 60% were illiterate and only 7% were involved in in-paid work. About 40% had no health insurance, the majority was overweight/obese, and 55.7% had at least one disease comorbid, more frequently hypertension and diabetes. Less than 30% reported that they were OCP users and 45% were in postmenopausal status (Table 1).

Cervical screening uptake was reported by 31.7% (n=178) of women, only 41 women reported two or more Pap smear in their lifetime. The uptake was lower in older women, adjusted ORs for having cervical screening relative to younger women (40-49) was were 0.26 (95% confidence interval (CI: 0.11–0.64) for women aged 60 years and older. Women who were illiterate were less likely to undergo a Pap smear in their lifetime compared to higher education level (Adjusted OR= 0.41 95% CI: 0.23-0.73). The odds of cervical cancer screening were highest in those of with three and more children compared with women who had one child (OR= 1.94 95% CI: 1.18-3.19). Relative to women without health insurance, frequency of having cervical screening were higher among women who had health insurance, adjusted OR was 2.31 (95% CI: 1.50-3.56). Among women with comorbidities OR were higher relative to women

Discussion

This study aimed to examine cervical cancer screening uptake and its determinants in a minority group; Kurdish women who live in Baneh West of Iran.

The overall uptake of cervical screening in this study was about 32% which is lower than developed countries (Kitchener et al., 2006; Palencia et al., 2010), it is similar to some studies conducted in Iran and developing countries (Enjezab et al., 2004; Soltan Ahmadi et al., 2010; Al-nsour et al., 2012; Zareai, 2014), but it is lower than some other studies conducted in Iran (Jalilian and Emdadi, 2011; Akbari et al., 2013; Ghahramani-Nasab et al., 2013).

This study found that women in younger age had the higher percentage of screening uptake, and it was less utilized by older women. It is similar to findings of other studies in different countries and in Iran (Jalilian and Emdadi, 2011; Aminisani et al., 2012b). Whilst, older women are more likely to develop cervical cancer and

should be targeted for health promotion program.

Many previous studies have found that socioeconomic status, ethnicity and access to health care, are significant determinants of cervical screening uptake (Palencia et al., 2010; Akinyemiju, 2012; Al-nsour et al., 2012; Aminisani et al., 2012a; Aminisani et al., 2012b; Kahesa et al., 2012). We also found the uptake of cervical screening was lower among illiterate women and those who had no insurance were less likely to undergo a Pap smear.

The results showed that women with comorbidities had higher screening uptake compared those without comorbidities, there is evidence of effects of co-morbidities on cervical screening rates. Some researchers have found that in older women co-morbidities or "poor health" is associated with increased screening participation (Mandelblatt et al., 1993; Meissner et al., 2008). There is also evidence that older female patients may be more likely to accept cervical cytology testing in clinical settings (Mandelblatt and Phillips, 1996).

We found that women with 2 or 3 children were more likely to report Pap smear and women with no child or uniparous less likely to report Pap smear but it was not statistically significant. It is similar to other studies which reported women with more children less likely to have Pap smear (Kahesa et al., 2012), another study in Australia also found that relative to Australian-born uniparous women, multiparous Australian-born women and migrants from the Middle East and Asian countries had a reduced OR of being screened (Aminisani et al., 2012a) the low participation among women with more children might be explained by some barriers such as daily activities. The lower uptake of cervical screening in women with no child or uniparous might be explained by low attendance of clinical/health setting that is the main source of information or advice for Pap smear.

This study has some strengths and weakness. The main strength was this is the first population–based study reported the uptake of cervical screening from Baneh in West border of Iran, it is important to identify the cervical screening participation and its determinants in minority groups and in deprived areas since for any plan for the future organized program, all this information would be needed.

The main limitation of our study was self-report method of data collection. It may cause misreporting of cancer screening behavior or other related factors towards a socially desirable responses. However self-report extensively has been used as a tool for assessment of such research questions in different population and could provide valuable results.

In conclusion, we found that only 32% (178) women had at least one Pap smear in their lifetime and age, education, parity, comorbidities and having health insurance were important factors of cervical screening uptake among Kuridsh women living in borders. This calls for actions; special attention should be paid to priorities and facilitate cancer control program.

References

Akbari H, Jaddi Arani TS, Gilasi HR, et al (2013). Study of motivational factors and causes of nonparticipation to breast and cervical cancer screening tests among women attending health centers in Kashan city. *Ilam Uni Med Sci J*, **20**, 137-47.

Akinyemiju TF (2012). Socio-economic and health access determinants of breast and cervical cancer screening in low-income countries: analysis of the World Health Survey. *PLoS One*, **7**, 48834.

Al-nsour M, Brown D, Tarawneh M, et al (2012). Breast and cervical cancer screening among women in Jordan. *Open Breast Cancer J*, **4**, 1-7.

Aminisani N, Armstrong BK, Canfell K (2012a). Cervical cancer screening in Middle Eastern and Asian migrants to Australia: a record linkage study. Cancer Epidemiol, 36, e394-400.

Aminisani N, Armstrong BK, Canfell K (2012b). Participation in cervical screening by older asian and middle eastern migrants in new South wales, australia. *Health Promot Perspect*, **2**, 274-86.

Aminisani N, Armstrong BK, Egger S, et al (2012c). Impact of organised cervical screening on cervical cancer incidence and mortality in migrant women in Australia. *BMC Cancer*, **12**, 491.

Downs LS, Smith JS, Scarinci I, et al (2008). The disparity of cervical cancer in diverse populations. *Gynecol Oncol*, **109**, 22-30.

Enjezab B, Mojahed S, Bokaee M (2004). Barriers and motivators related to cervical and breast cancer screening. *SSU Journals*, **12**, 78-84.

Esmaeili M, Bonyadi M, Dastranj A, et al (2008). HPV typing in women with cervical precancerous and cancerous lesions in northwestern Iran. *Gynecol Obstet Invest*, **66**, 68-72.

Ferlay J, Soerjomataram I, Dikshit R, et al (2015). Cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012. *Int J Cancer*, **136**, 359-86.

Ghahramani-Nasab P, Shahnazi M, Farshbaf Khalili A, et al (2013). Factors assiciated with cervical cancer screening among women refering to the Tabriz health centres, 2012-2013. *IJOGI*, **16**, 15-24.

Jalilian F, Emdadi S (2011). Factors related to regular undergoing Pap-smear test: application of theory of planned behavior. *J Res Health Sci*, **11**, 103-8.

Kahesa C, Kjaer S, Mwaiselage J, et al (2012). Determinants of acceptance of cervical cancer screening in Dar es Salaam, Tanzania. *BMC Public Health*, **12**, 1093.

Khodakarami N, Clifford GM, Yavari P, et al (2012). Human papillomavirus infection in women with and without cervical cancer in Tehran, Iran. *Int J Cancer*, **131**, 156-61.

Khorasanizadeh F, Hassanloo J, Khaksar N, et al (2013). Epidemiology of cervical cancer and human papilloma virus infection among Iranian women - analyses of national data and systematic review of the literature. *Gynecol Oncol*, **128**, 277-81.

Kitchener HC, Castle PE, Cox JT (2006). Chapter 7: Achievements and limitations of cervical cytology screening. *Vaccine*, **24**, S3/63-70.

Mandelblatt J, Traxler M, Lakin P, et al (1993). Targeting breast and cervical cancer screening to elderly poor black women: who will participate? The Harlem Study Team. *Prev Med*, **22**, 20-33.

Mandelblatt JS, Phillips RN (1996). Cervical cancer: how often--and why--to screen older women. *Geriatrics*, **51**, 45-9.

Meissner HI, Tiro JA, Haggstrom D, et al (2008). Does patient health and hysterectomy status influence cervical cancer screening in older women? *J General Int Med*, **23**, 1822-8.

Michalas SP (2000). The Pap test: George N. Papanicolaou (1883-1962). A screening test for the prevention of cancer of uterine cervix. *Eur J Obstet Gynecol Reprod Biol*, **90**, 135-8.

Palencia L, Espelt A, Rodriguez-Sanz M, et al (2010). Socio-economic inequalities in breast and cervical cancer screening practices in Europe: influence of the type of screening program. *Int J Epidemiol*, **39**, 757-65.

Peirson L, Fitzpatrick-Lewis D, Ciliska D, et al (2013). Screening for cervical cancer: a systematic review and meta-analysis. *Syst Rev*, **2**, 35.

Soltan Ahmadi J, Abaszadeh A (2010). A survey on the rate and causes of women's participation or nonparticipation in breast and cervical cancers screening programs. *IR J Obstet Gynecol Infertil*, **13**, 37-46.

Zareai M (2014). Women's knowledge and practice about Pap smear test and it's barriers in Jahrom city. *Pars Uni Med Sci J*, **12**.