Cervical Cancer Screening's Predictors in European Countries: A Systematic Review
Quach Ha Linh, BPH
School of Public Health, University of Hong Kong
sylquachsc@gmail.com

Abstract

Objectives: The study aim to explore the socio-demographics factors influencing women's decision of cervical screening uptake in European countries.

Methods: Systematic review was used with Health Belief Models analysis.

Results: The study identified 15 studies about cervical screening uptake's predictors. Perceived risks and barriers are predictors of screening practices, and heavily influenced by socio-demographic characteristics of women with organizational factors from public health systems.

Conclusion: Screening behaviors of women in European countries are influenced by various factors, and can be predicted by HBM. This review summarizes these driving factors to foster understanding of cervical cancer screening in population. To increase screening uptake, healthcare staffs should integrate these factors into cervical screening programs along with education and services improvement.

INTRODUCTION

Despite remarkable advances in treatments, cervical cancer has remained a great burden of health in European countries [1, 2]. As a sound prevention measure, cervical screening is highly recommended for women aged 25-65 [3].

Many factors such as socio-demographics [4, 5] can impact cervical screening's uptake. Many studies in USA showed that screening practices are impacted by socio-demographic factors [6]. To explore these factors roles in women's decision about cervical screening, this review aims to apply Health Belief Model (HBM) [7] - a recommended tool for prediction of screening uptake [8, 9] - to analyze cervical screening practices and its predictors in European countries.

Understanding how socio- demographics factors influencing attitudes and beliefs in cervical screening, health care providers and policy makers can develop better accessible screening programs.

METHODS

Data Sources

A systematic review is conducted to assess cervical cancer screening's predictors in European countries. The study utilized electronic databases including PubMed, MEDLINE, health journals from 2000 to 2018 under terms: “cervical cancer screening”, “European countries”, “health belief model”, “perceived risk”, “predictors”, “socio-demographics factors”. A supplementary search in references of relevant articles provided additional input. The process was illustrated in Figure 1.
Cervical Cancer Screening’s Predictors in European Countries: A Systematic Review

**Study Selection**

The study examined all qualitative and quantitative study designs including multiple research methodologies. The inclusion criteria included English language, European countries research of socio-demographic factors roles in cervical cancer screening practices; preferably HBM’s application. The exclusion criteria were studies not involved cervical cancer screening and socio-demographic factors; not conducted in European countries; inaccessible data; not in English.

![Study selection process diagram]

**Results**

**Data Outcomes**

The initial database search identified 2462 articles. After reviewed by inclusion criteria, 15 studies were identified. While sample size of these studies ranged from 46 to 1890, research population was determined by either randomization, convenience or purposive sampling. Subjects in these studies were women within 14-65 years old. Cross-sectional descriptive design was used most frequently, followed by 2 qualitative reviews [10, 11], 2 prospective studies [12, 13], 1 randomize control trial [14], 1 case-control study [15]. While most studies were involved socio-demographics factors, 1 study focused on smoking [16], 3 studies focused on minorities [17-19]. Applied methods were varied: interview, survey and focus groups. Language barriers were reported in 2 studies with minorities [18, 19]. 2 reviews featured HBM [15, 20], all studies covered perceived risk, barriers and attendance to screening.

---

*American Research Journal of Public Health*
Further details are illustrated in Table 1.

**Table 1. Summarize of studies review**

| Authors                  | Study design                  | Sample size | Outcomes measures                      | Results                                                                                                                                                                                                                                                                                                                                                     | Discussion                                                                                                                                                                                                 |
|--------------------------|-------------------------------|-------------|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sonja Eaker et. al. (2001) Sweden [15] | Case-control study Population-based Screened and non-screened women aged 25-60 years | 944         | HBM models Attitudes and beliefs' affect on women's participation in cervical screening | Attendance was positively associated with perceived severity (OR = 1.9) and satisfactory benefits (OR = 0.7), but negatively associated with barriers (time-consuming and economical - OR = 1.2 and OR = 1.7 respectively), anxiety [15] Nonattenders need their preferences to be met to change behaviors. | Differences between nonattenders and attenders are based on their attitude and beliefs. Main barriers are emotion, misunderstandings and lack of relevant information. The study had access to national database but low response rate in nonattenders responses. |
| Theresa M Mateau et. al. (2002) United Kingdom [16] | Cross-sectional descriptive study Women aged 20 - 64 | 722         | Smokers' and non-smokers' perceptions of risks of cervical cancer and attitudes towards cervical screening. | Smokers perceived higher risk of cervical cancer but less positive attitude towards cervical screening than non-smokers. Intention to attend cervical screening in both groups were high. Attitudes towards cervical screening (OR = 1.9), perceived relative risk of developing cervical cancer (OR 1.5), educational level (OR = 3.8) and marital status (OR = 0.6) were predictive of attendance for screening. [16] | Having a positive attitude towards cervical screening and a higher perception of the relative chances of developing cervical cancer each predicted intention to attend for cervical screening. Smokers are unaware of their increased risk of cervical cancer and benefit of cervical cancer screening. Limitations are not directly assessed screening behaviors. |
| Rachel M Holloway et. al. (2003) United Kingdom [14] | Pragmatic, practice-based cluster randomized controlled trial. Women were recruited while attending for cervical screening | 1890        | Stated preferences for screening interval and actual screening behavior. | Intervventional women was less likely to attend a shorter than recommended interval (OR = 0.51; \( p < 0.0001 \)) and less likely to attend for screening sooner than their recommended recall. [14] Intervention have demonstrated better knowledge and perceived risk, screening practices and anxiety relief. The impact of perceived risk on actual screening behavior was equivocal. [14] | Perceived risk contributed greatly to determine screening intervals and practices. Individualized risk communication by primary care can affect women's stated preferences for tests and perceived risk. Different samples in control and intervention groups can affect the comparison although large sample size and longitudinal experimental study are strengths. |
# Cervical Cancer Screening’s Predictors in European Countries: A Systematic Review

| Study                          | Design Type            | Sample Size | Women with Negative Results | Predictors of Attendance of Repeat Test | Attendance of Women with One Sexual Partner Lifelong |
|-------------------------------|------------------------|-------------|-----------------------------|-----------------------------------------|--------------------------------------------------|
| DP French et al. (2004)       | Prospective questionnaire design | 406         | Perceived risk and perceived barriers among attenders and nonattenders of cervical screening | Woman with negative results have higher risk perception ($P = 0.016$), higher anxiety state ($P = 0.025$), higher concern ($P < 0.001$). [13] Predictors of attendance of repeat test was anxiety ($P = 0.001$) [13] Perceived risks are predictive with higher state anxiety ($P = 0.042$), lower satisfaction with given information ($P < 0.001$), high concern. [13] | Attendance was not associated with any demographic variables but was predicted by state anxiety, expectation and satisfaction with given information. Satisfaction with information was best predictor of anxiety and concern about the tests. The study’s limitation is generalizability due to sample and observational design (not infer the causal associations). |
| United Kingdom [13]           |                        |             |                             |                                         |                                                   |
| Jane C. Walsh (2006) Ireland [12] | Prospective quantitative design | 1114        | Impact of knowledge, perceived risk, past experience and perceived barriers on attendance for a routine cervical screening | Poor levels of knowledge about cervical cancer and screening. Unpleasant past experience of smear test were associated with nonattenders ($P < 0.001$) [12] Screening attenders’ behavior predictors included increased perception of risk ($P < 0.05$), level of understanding about cervical screening ($P = 0.001$), and perceived barriers (time consuming ($P < 0.01$); distressful ($P < 0.01$) and fear-provoking ($P < 0.05$). [12] Male smear taker, commitments and unsuitable appointment times also barriers. [12] Married/retired women are more likely to attend screening -> more social support and more time. | Barriers play a crucial role on attendance rates. Highlighting benefits of cervical screening, provision of more flexible services to accommodate more women, media campaigns on acknowledging discomfort of the test can enhance attendance rates. |
| Margot Tacken et al. (2006) Netherlands [21] | Cross-sectional descriptive research design | 1392        | Impact of women’s characteristics (demographics, risk behavior, and beliefs) and services characteristics on cervical cancer screening. | Beliefs about cervical screening and attendance especially personal moral obligation and normative beliefs of others are good predictors of uptake. ($p<0.05$) Organizational factors such as invitation and reminders in general practice also contributed. [9] Screening attendance of women with one sexual partner lifelong is significantly greater than that of women with none or more than one partner lifelong. [9] | Woman’s belief is better predictor of uptake of cervical screening than organizational aspects. A balance relationship influences on the screening attendance. Demographics do not play significant roles. Poor perceived risk and lack of information are reasons of non attenders |
## Cervical Cancer Screening’s Predictors in European Countries: A Systematic Review

| Study Authors and Location | Study Design | Sample Size | Outcome Measures | Findings | Implications |
|---------------------------|--------------|-------------|------------------|----------|--------------|
| Laura AV Marlow et. al. (2009) United Kingdom [22] | Cross-sectional quantitative design (interview) | 965 | Perceived risk of cervical cancer and cervical screening practices | HPV information did not have an effect on perceived risk of cervical cancer ($p=0.396$), but have increased perceived risk ($p<0.001$) in the youngest age group and decreased in the oldest age group. [22] Perceived risk have positive correlation with attendance in cervical screening in high-risk age groups ($p=0.022$) Barriers: long-term relationship (older women), fear (younger women) [22] | Health information has more effect on perceived risk of younger women than older women. Perceived risks are main driver in cervical screening behaviors for younger women. |
| Kati Kuitto et. al. (2010) Germany [23] | Cross-sectional descriptive research design | 760 | Determinant of attendant to cervical cancer preventive measures | Regular screening attendance was best predicted by attitude; also by socio-structural characteristic and subjective risk. Screening attendance was significantly higher among respondents of higher socioeconomic status and higher educational attainment. Lack of willingness to invest in a healthy lifestyle was predictive of irregular screening attendance. Knowledge of cervical cancer/prevention was not predictive of screening practices. [23] Attendance at screening was associated with positive connotation of cancer prevention and expectations (role models, confidence gains, fear and high risk perception. (OR 1.77) [23] | Cervical cancer screening behaviors are positive related to perceived benefit of regular screening. Low respondent rate for younger age groups (14-26 years old) Low level of knowledge about cervical cancer and its risk factors |
| J Waller et. al. (2011) United Kingdom [11] | Qualitative review (focus group, interview) | 58 | Barriers to attendance at cervical screening. | Barriers (by health professionals): poorly informed of services, mobility, poor service provision, time pressure, low perceived risk and poor attitude, psychological barriers and paternalistic attitudes. [11] Barriers (by women themselves): disinclined abstainers (sexually inactive, potential harm), inclined abstainers (service provision issue, negative emotion, time demand, low-risk perceptions) [11] Older women tend to make an active decision not to take part and younger women intended to be screened but did not attend. | Services provision and health education play crucial role in cervical cancer screening practices. Time demand and perceived risks are main drivers of nonattendance in cervical screening. Age differences are barriers to screening. |
Cervical Cancer Screening's Predictors in European Countries: A Systematic Review

| Study | Design | Country | Sample Size | Population Characteristics | Predictors of Cervical Cancer Screening | Barriers to Cervical Cancer Screening |
|-------|--------|---------|-------------|-----------------------------|----------------------------------------|--------------------------------------|
| Alice Kivistik et al. (2011) Estonia [18] | Cross-sectional population based survey design | Women aged 30 to 55 | 1054 | Awareness of cervical cancer risk factors, reasons why women do not want to participate in cervical screening program. | Perceived barriers are a recent visit to a gynecologist (42.3%), fear-provoking (14.3%), long appointment queues (12.9%) and unsuitable reception hours (11.8%), language differences in minority groups. Fear was higher among women aged 30 and 35 than 50 and 55 (RR 1.46) and women with one or no children (RR 1.56). [18] Awareness of cervical cancer risk factors is poor and not depend on socio-demographic factors. Awareness is lower in minorities groups. | Lack of information sharing about cervical cancer risk factors and screening. Individualized and delicate information sharing can encourage women to uptake the screening. Minorities, older women or women with small or no children are at higher risk. Low response rates, potential biased due to the interest of cervical cancer. |
| Christine Ekechi et al. (2014) United Kingdom [17] | Cross-sectional study using questionnaire | Black women aged 18 - 78 | 937 | Socio-demographic and ethnicity-related predictors of cervical cancer knowledge, cervical screening attendance and barriers in black women | Perceived barriers of poor attendance for screening are procrastination (28%), fear of the procedure (18%) and low risk perception (18%). Most nonattenders are young (p<0.05), single (p<0.05), and higher education level (p<0.005). [17] Ethnicity, birthplace and religiosity are listed as barriers for screening attendance. Young age (p<0.005), single, African (p<0.05), migrated (P<0.005), religious services attendance (P<0.05) were associated with poor screening practices. [17] | Ethnicity, migration and religiosity play a role in predicting cervical screening attendance among Black women. Those who attend religious service on a frequent basis were more likely to delay cervical screening. The study took a novel approaches to recruit and target a specific ethnic group resulting in larger sample size. Although lower response rate, limited diversity in socio-cultural factors in recruitment and language barriers can be limitation. |
| Gokce B. Acar et al. (2015) Turkey [20] | Cross-sectional descriptive research design | Women 15 -49 years old | 267 | HBM models Socio-demographic and cultural features, socioeconomic conditions, health perspectives, the knowledge about cervical cancer and Pap smear test | Lack of any health complaints (28.3%) and not having adequate information about the test (21.0%) were barriers for not undergoing a Pap smear test. Education level, employment status and pregnancy status have positive correlation with screening behaviors and knowledge of cervical cancer (p < 0.05). [20] | Awareness, susceptibility and motivation perception towards screening was low. Socio-demographic properties of women are influential on their Pap smear test taking attitude. Informed women are more willing to take the test. |
| Author(s) | Methodology | Sample | Perception | Perceived Barriers | Findings |
|-----------|-------------|--------|-------------|--------------------|----------|
| Fatima Azerkan et al. (2015) Sweden | Focus group discussions | Denmark and Norwegian immigrant women (27-66 years old) | 800 | Perception of cervical cancer screening and driven factors of nonattenders for cervical cancer screening | Barriers: competing needs, organizational and structural factors, immigration-related perceptions, past experiences, psychological and individual factors, childbearing-related factors, social support, social network, risk perception. | Immigration factors may influence cervical cancer screening behavior, including self-perception and experiences, along with other social and individual factors. Many immigrants are unaware of being non-attendance. |
| Mihaela Grigore et al. (2017) Romania | Cross-sectional study | Women from rural and urban areas | 454 | Perception and awareness of pap smear tests | Good awareness of pap smears, lack of knowledge and acceptance of screening showed in lower socio-economic status and rural women. | Socio-demographic characteristics of individuals have significant effects on knowledge and benefit of Pap smear and acceptance. The study have large sample from different socioeconomic statuses. |
| Hersha Patel et al. (2018) United Kingdom | Qualitative review (interview) | 25-65-year-old UK women | 46 | Awareness and attitudes towards HPV screening | Knowledge: Lack of information about cervical cancer screening program content and follow-up assessment necessary. Attitude: not motivated to participate after HPV information provided Perceived risks: not motivated to have follow-up test after negative results, negative emotion after positive results. | Educational methodology might not be deliverable to women for motivation and information about cervical screening. Lack of risk and health communication between nurses/doctors and patients. Perceived risk and participation affected by cultural, religious and lifestyle background. Lack of/negative partner support may worsen adverse psychological effects experienced. Small sample size and lack of cultural and religious factors assessment are limitations. |
Awareness and Knowledge

Overall women’s awareness of cervical screening services were high (75%-95%) [5, 18, 20, 24]. Studies found significant association between awareness and socio-economical factors and minorities status indicating socioeconomic disparities of healthcare accessibility [18, 24]. Two studies in UK stated that women were only aware of the test after receiving positive results [10].

On the other hand, lack of knowledge about cervical screening and cervical cancer risk were notable in many studies (48%-70%) [12, 17, 18, 20, 24]. Better knowledge were observed in screening attenders [12], dominant ethnic groups [17, 18], child-bearing [18], higher education, older age [17, 20, 22]. Knowing someone with cervical cancer [20, 24] and visiting healthcare [24] were also predictors for knowledge. While some studies observed significant relationship between marriage status, income and knowledge [20, 24], the opposite was true to Kivistik [18] and Ekechi [17]. Two studies did not observe knowledge as a predictors of screening attendance [12, 23].

Perceived Susceptibility

Susceptibility as women’s perception of the likelihood of experiencing cervical cancer was relatively low [20]. Lack of knowledge of cervical cancer and its risk factors [20, 24], having no symptoms [20, 24], low-risk perception [15, 17, 24], monogamous lifestyle, belief in partner’s sexual health, religious belief [10] or not sexually active [11], young age [11, 19] were common low susceptibility beliefs observed. While no different of perceived risk was shown between smokers and nonsmokers [16], younger and older [11]; sexually active and inactive women [10] and women had experienced positive smear test versus negative [13, 20] had different view of their vulnerability of cervical cancer. Such disparities between age and lifestyle showed the socio-cultural influences on women’s misconceptions of cervical cancer, resulting in low screening attendant rates. Presentation of HPV information are suggested to improve perceived risk in younger women [14, 22].

On the other hand, women with chronic diseases [20] and who regular attended screening services [12, 22] perceived themselves as higher susceptibility. Greater perceived risk of developing cervical cancer was predictor of attention/attendance to screening services [12-16, 22]

Perceived Severity

As women with higher education, higher income, chronic diseases [20], sexually active [10], regular attend cervical cancer [12] perceived higher severity of cervical cancer, non attenders tended to see cervical cancer as less severe compared to other cancer and not worth treated [15].

One study suggested that women were likely to perceive cervical cancer much more common and severed than reality because of media coverage [11]; while another stated women’s risk perception seemed to be connected to the health problems of people in their social circles [19]. Perceived risk of developing cervical cancer was also higher in women with uninformative results [13]. Overall, perceived severities are influenced by socio-economic factors and lifestyle. Higher perceived severity was a moderate predictor of screening practices [10, 12].
Perceived Benefit

Women's belief in cervical screening's benefit score was recorded high in Turkey's study [20]. Perceived benefit was higher in high educated, employed women with better knowledge and practices of screening [20]. Kuitto also stated that as women perceived cervical screening as a sound cancer prevention and positive health promotion, such benefits can improve screening practices [23]. Additionally, studies in United Kingdom showed women acknowledged primary HPV screening as beneficial to their reproductive health and cancer prevention.
Cervical Cancer Screening’s Predictors in European Countries: A Systematic Review

especially in sexually active groups, then consequently attend screening more often [10, 11, 16]. In contrary, perceived benefits were not acknowledged as a predictor for screening behaviors [15, 20]. However, as cervical screening demonstrated fewer immediate benefits [11], perceived benefits in younger women were low [20]. Lower perceived of benefits were also consistent in 2 studies in Sweden [15, 19], as both found nonattenders’ negative feeling towards quality and accuracy of the screening as well as healthcare system. It is possible that perceived benefits of cervical cancer are influenced by women’s attitude towards health system.

Perceived Barriers

Perceived barriers in cervical screening included: fear of procedure [12, 13, 15, 18, 20, 24], low risk perception [19, 20, 24], time [11, 15, 24] and financial pressure [15, 24], embarrassment [11, 24], services provision issues [11–13, 18], social norms from religious, relationship and sexual implication [10, 11], negative partners support [10, 19], other commitments [11, 12, 20], negative past experience [11, 15], stress [12]. More barriers were recorded in younger and single women [17]. Higher barriers perception was associated with lower cancer screening practices [12, 15]. While Swedish immigrants’ barriers also included competing needs, organizational and structural factors and mentality differences, which related to immigration status [19], other studies on minorities groups did not detect these differences [17, 18].

According to one study, while higher educated, employed women with better knowledge and screening practices perceived less barriers, women who had family gynecological cancer history tended to feel more barriers towards cervical screening [20]. The result was not consistent with one study in UK showing higher educated employed women were more likely to provide barriers of nonattendance [17].

Cues to Action

Children, partners and health care providers are source of social support for women to attend screening [15]. If family and friends are supportive force [11, 12, 19, 23], health care providers [11, 19, 21] were perceived as opposing source that discourage women to seek cervical screening. Mass media also plays important role in this stage [11, 24]. Immigration groups reported to experience less cue to actions [19].

Self-Efficacy

Willingness to engage in health promotion behaviors [23], self-confidence gains [10, 23] and normative belief [21] are strongly associated with higher attendance of cervical screening.

Discussion

This review provided an insight look into cervical screening’s practices and its predictors among European women. Perceived susceptibility, severity and barriers are most predictive of screening practices; as well as women’s awareness and knowledge of cervical cancer, its risk factors and prevention measures. This outcome is consistent with previous findings [25, 26]. The influence of demographic factors such as ages, religious and ethnicity were presented most in knowledge and awareness of women, perceived susceptibility, benefits and barriers. Socio-economics’ impacts were varied among awareness, knowledge and perceived severity, barriers. Considerations into these factors are crucial in implementation and improvement of current cervical screening in European countries.
Cervical Cancer Screening’s Predictors in European Countries: A Systematic Review

Regarding perceived barriers, benefits, and cue to actions; organizational and structural factors play a big part in determinant of women’s screening practices. As healthcare providers and healthcare quality were associated with screening attendance, public health should consider relevant strategies to enhance service provision such as individualized invitation letters [10, 11, 18], GP recommendations [11, 13, 18, 24] and desexualized screening [10].

Along with social norms and lack of partner’s support, lack of knowledge and awareness of cervical screening effects heavily on women’s perceived perceptions. An outreach intervention, especially for younger women [10] is needed to improve public understanding of cervical cancer.

The review encountered some limitations. Most studies are cross-sectional studies with quantitative measures so the causal impact on screening behaviors is not fully exposed. Many studies was carried out in United Kingdom hence the lack of diversity for other countries. Applied HBM also met some challenges and limitation to interpret the results due to inconsistency in usage of the model, inclusion of different components across studies. Moreover, small sample size and low response rate were commonly reported, emphasized on potential bias. From the review, current available approaches were insufficient to explain the perception and behavior of cervical cancer; research with alternative designs and more diverse contexts are needed [26].

**CONCLUSION**

Screening behaviors of women in European countries are influenced by various factors, and can be predicted by HBM. This review summarizes these driving factors to foster understanding of cervical cancer screening in population. To increase screening uptake, healthcare staffs should integrate these factors into cervical screening programs along with education and services improvement.

**REFERENCES**

1. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA: A Cancer Journal for Clinicians. 2018;0(0).

2. Ferlay J, Colombet M, Soerjomataram I, Dyba T, Randi G, Bettio M, et al. Cancer incidence and mortality patterns in Europe: Estimates for 40 countries and 25 major cancers in 2018. European Journal of Cancer. 2018;103:356-87.

3. Basu P, Ponti A, Anttila A, Ronco G, Senore C, Vale DB, et al. Status of implementation and organization of cancer screening in The European Union Member States—Summary results from the second European screening report. International Journal of Cancer. 2017;142(1):44-56.

4. Palència L, Espelt A, Rodriguez-Sanz M, Puigpinós R, Pons-Vigués M, Pasarín MI, et al. Socio-economic inequalities in breast and cervical cancer screening practices in Europe: influence of the type of screening program. International Journal of Epidemiology. 2010;39(3):757-65.

5. Walsh B, Silles M, O’Neill C. The importance of socio-economic variables in cancer screening participation: A comparison between population-based and opportunistic screening in the EU-15. Health Policy. 2011;101(3):269-76.

6. Fylan F. Screening for cervical cancer: a review of women’s attitudes, knowledge, and behaviour. British Journal of General Practice. 1998;48(433):1509.
Cervical Cancer Screening’s Predictors in European Countries: A Systematic Review

7. Rosenstock IM. The Health Belief Model and Preventive Health Behavior. Health Education Monographs. 1974;2(4):354-86.

8. Gillam SJ. Understanding the uptake of cervical cancer screening: the contribution of the health belief model. British Journal of General Practice. 1991;41(353):510.

9. Tanner-Smith EE, Brown TN. Evaluating the Health Belief Model: A critical review of studies predicting mammographic and pap screening. Social Theory & Health. 2010; 8 (1):95-125.

10. Patel H, Moss EL, Sherman SM. HPV primary cervical screening in England: Women’s awareness and attitudes. Journal of Psycho-oncology. 2018.

11. Waller J, Jackowska M, Marlow L, Wardle J. Exploring age differences in reasons for nonattendance for cervical screening: a qualitative study. BJOG: An International Journal of Obstetrics and Gynaecology. 2012; 119 (1):26-32.

12. Walsh JC. The impact of knowledge, perceived barriers and perceptions of risk on attendance for a routine cervical smear. The European Journal of Contraception Reproductive Health Care. 2006;11(4):291-6.

13. French DP, Maissi E, Marteau TM. The psychological costs of inadequate cervical smear test results: three-month follow-up. 2006;15(6):498-508.

14. Holloway RM, Wilkinson C, Peters TJ, Russell I, Cohen D, Hale J, et al. Cluster-randomised trial of risk communication to enhance informed uptake of cervical screening. British Journal of General Practice. 2003;53(493):620-5.

15. Eaker S, Adami H-O, Sparén P. Attitudes to screening for cervical cancer: a population-based study in Sweden. Journal of Cancer Causes and Control. 2001;12(6):519-28.

16. Marteau TM, Hankins M, Collins B. Perceptions of risk of cervical cancer and attitudes towards cervical screening: a comparison of smokers and non-smokers. Journal of Family Practice. 2002;19(1):18-22.

17. Ekechi C, Olaitan A, Ellis R, Koris J, Amajuoyi A, Marlow LA. Knowledge of cervical cancer and attendance at cervical cancer screening: a survey of Black women in London. BMC Journal of Public Health. 2014;14(1):1096.

18. Kivistik A, Lang K, Baili P, Anttila A, Veerus P. Women's knowledge about cervical cancer risk factors, screening, and reasons for non-participation in cervical cancer screening programme in Estonia. BMC Journal of women's health. 2011;11(1):43.

19. Azerkan F, Widmark C, Sparén P, Weiderpass E, Tillgren P, Faxelid E. When Life Got in the Way: How Danish and Norwegian Immigrant Women in Sweden Reason about Cervical Screening and Why They Postpone Attendance. PLOS ONE. 2015;10(7):e0107624.

20. Acar GB, Pinar G. Perspectives of women during reproductive years for cervical cancer scans and influencing factors. Asian Pacific Journal of Cancer Prevention. 2015;16:7171-8.

21. Tacken MAJB, Brasperning ICC, Hermens RPMG, Spreeuwenberg PMM, van den Hoogen HJM, de Bakker DH, et al. Uptake of cervical cancer screening in The Netherlands is mainly influenced by women’s beliefs about the screening and by the inviting organization. European Journal of Public Health. 2007;17(2):178-85.
Cervical Cancer Screening’s Predictors in European Countries: A Systematic Review

22. Marlow LA, Waller J, Wardle J. The impact of human papillomavirus information on perceived risk of cervical cancer. Cancer Epidemiology and Prevention Biomarkers. 2009;18(2):373-6.

23. Kuitto K, Pickel S, Neumann H, Jahn D, Metelmann H-R. Attitudinal and socio-structural determinants of cervical cancer screening and HPV vaccination uptake: a quantitative multivariate analysis. Journal of Public Health. 2010;18(2):179-88.

24. Grigore M, Popovici R, Pristavu A, Grigore AM, Matei M, Gafitanu D. Perception and use of Pap smear screening among rural and urban women in Romania. The European Journal of Public Health. 2017;27(6):1084-8.

25. Johnson CE, Mues KE, Mayne SL, Kiblawi AN. Cervical Cancer Screening Among Immigrants and Ethnic Minorities: A Systematic Review Using the Health Belief Model. 2008;12(3):232-41.

26. Chan CWH, Yang S-B, Gu C, Wang X, Tao L. Perception of Cervical Cancer Risk and Screening Behavior: A Literature Review. International Journal of Nursing Knowledge. 2014;26(1):2-18.

Citation: Quach Ha Linh, “Cervical Cancer Screening’s Predictors in European Countries: A Systematic Review”. American Research Journal of Public Health; 1(1): 1-13.

Copyright © Quach Ha Linh, This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.