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Research Article

Factors Associated with Low Participation of Cervical Cancer Screening Programmes among Ethnic Minority Women Living in Developed Countries: A Critical Literature Review

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Abstract

Background: Cervical cancer is the second commonest cancer affecting women around the world. However, despite several interventions put in place in developed countries, mortality remains high, especially among ethnic minority women. Notably, a limited number of ethnic minority women attend cervical cancer screening. Investigating the prohibitive factors influencing the attendance of ethnic minority women in cancer screening will contribute to the innovative strategies to be put in place to encourage participation, thereby increasing early detection of cervical cancer which will in-turn lead to reduced mortality.

Objective: The primary objective of this review is to determine the factors prohibiting ethnic minority women from attending cervical cancer screening in developed countries.

Methods: This was a critical literature review study involving a data search using key words and electronic databases that is; PubMed, CINAHL, MEDLINE and SOLO; hand-searching journals in the Oxford Brookes University Library; crosschecking reference lists of acquired articles and contacting authors of publications found. Following this, an inclusion and exclusion criteria was used to select appropriate articles for this study, which were critically appraised using critical appraisal skills programme tool. Data collected was then subjected to thematic analysis to obtain the results of this study.

Results: From the 417 articles identified from the data search, 12 met the inclusion criteria for this study. The critical appraisal and thematic analysis of these 12 selected articles was then performed with three key themes emerging as major factors prohibiting ethnic minority women from attending cervical cancer screening that is; psychological, demographic and behavioural factors. Under psychological factors, the distrust of the Pap smear tests contributed immensely to the reason why ethnic minority women did not attend cervical cancer screening in developed countries. Regarding demographic factors, length of residence was noted as one of the prohibitive factors whereas sexual inactivity was highlighted as a behavioural factor associated with low attendance of ethnic minority women in cervical cancer screening.

Conclusions: Numerous factors contribute to poor attendance of ethnic minority women in cervical cancer screening interventions. This shows the need to increase awareness of cervical cancer screening among ethnic minority women to highlight benefits and demystify misconceptions.

Keywords: Cervical Cancer; Developed Countries; Ethnic Minority; Screening; Women

Introduction

Cervical cancer is the second life threatening cancer affecting women worldwide accounting for 8.2% of cancer deaths in the year 2008 [1]. The CDC [2] supports these statistics stating that there is likelihood that every woman can contract this disease. According to World Health Organization (WHO), cervical cancer is reported to have been responsible for the deaths of 275,000 women around the world in 2008 [3]. Waggoner [4] points out that cervical cancer is responsible for most cancer related deaths in developing countries. 80% of new cancer cases emerging in developing countries have been associated with cervical cancer [4,5].

Nevertheless, in developed countries, cervical cancer mortality rates have greatly decreased. For instance, in the United States of America (USA), case fatalities resulting from cervical cancer have been reduced by over 75% annually. This success has been attributed to the effective implementation of screening interventions amongst the American population [5]. Likewise, in Canada, screening has contributed to the reduction of death rates among cervical cancer victims [6]. Screening enables early detection of cervical cancer [7] in women thereby allowing medical interventions to be applied to prevent morbidity and mortality associated with the disease [8]. Despite these achievements, studies show that there are still high mortality rates of cervical cancer among women in ethnic minority communities in some developed countries attributable to low participation in screening programmes [8]. Among immigrant women living in urban areas located in Ontario, Canada, a 53.1% cervical cancer screening rate was discovered, which was lower than expected [9].

Notwithstanding the reduction in the occurrence and death rate of cervical cancer in high income countries, there are various chronic discrepancies that remain [10]. High risk categories of the population in USA have been identified for example non-natives from countries that lack national cervical cancer screening programmes and women who have difficulty in accessing health care [11]. Paskett, et al. [12] reports that a considerable proportion of the cervical cancer problem are women belong to minority groups in developed countries. He further notes that minority women are underserved in the cervical cancer screening programs set up by developed countries [12].

Furthermore, it has been noted that women from ethnic minority groups have not attended screening before or if they have, they have not attended regular screening at the recommended intervals [13]. Fang, et al. [14] suggests that these discrepancies are probably due to variations in screening proportions across the board of ethnic groups found in developed countries. For example, in USA, older African American women and Hispanics are more prone to catching cervical cancer than any other race [10]. According to Miller and Roussi in Lederberg [10], Hispanics were twice more likely to be diagnosed with cervical cancer between 2000 and 2004 whereas African American women were one and half times of catching the disease [10]. In a study, the researcher found out that only 22% of African American women and 51% of Hispanic women who were eligible for screening had not attended the national screening program within the previous year [13].

Several factors inhibit women belonging to ethnic minority groups from attending cervical cancer screening in developed countries despite these services being made available. The non-attendance of ethnic minority women in cancer screening programs can be attributed to a larger number of barriers that these women particularly face as compared to native white women [12]. Firstly, awareness of HPV ethnic minority women is comparatively minimal [15]. These groups of women are ill informed about their susceptibility and the risk factors of cervical cancer. They henceforth develop misconceptions about the disease and thereby do not find a need to attend cervical cancer screening programs even after receiving invitations from the health care department of the developed country where they reside. Other barriers suspected to hinder ethnic minority women from attending cervical cancer screening are; prolonged waiting hours; absence of childcare; poverty; unaffordability of cervical cancer screening tests and treatment; absence of transportation; and misjudgements in cervical cancer susceptibility [10].

There is no available literature that confirms that the above factors contribute to the poor attendance of ethnic minority of women in cervical cancer screening programs set up by several governments in developed countries. The purpose of this study therefore is to discover the factors inhibiting ethnic minority women from accessing cervical cancer screening services in developed countries.

Materials and Methods

An electronic search of online databases using key words and Boolean operators was conducted to find published literature about the research topic. Databases used during this literature search included; MEDLINE, PubMed, CINAHL, and SOHO (Search Oxford Libraries Online). Several keywords were used to carry out the electronic search including; cervical or cervix; cancer or carcinoma; screening; participation or uptake or utilization; women or females; ethnic minorities or racial group; developed or first world or advanced or western or industrialized or more developed or economically stable; and countries or nation.

A hand search through journals found in the Oxford Brookes University Library was then carried out to find additional articles concerning the topic. Moreover, a further search of references included in journal papers found in the initial search was conducted

to locate more articles regarding the topic. Lastly, authors of articles found were contacted via email to request for any information of both unpublished and published papers about the topic.

The following selection criteria were applied to choose appropriate articles for this study;

Inclusion criteria

1. Primary studies about women
2. Primary studies about women belonging to ethnic minority groups
3. Primary studies about women living in developed countries
4. Primary studies about cervical cancer screening
5. Primary studies published in English
6. Primary studies published from 2000-2012

Exclusion criteria

1. Studies about cervical breast and colorectal cancer
2. Studies about Human Papillomavirus (HPV)
3. Studies about cervical cancer screening in developed countries
4. Studies about HPV vaccination
5. Studies in other languages
6. Studies that are not published

Articles that met the above inclusion and exclusion criteria were selected for this study. All selected articles were then critically appraised using a CASP (Critical Appraisal Skills Programme) tool to determine their quality and significance of each paper to this study. Thereafter, selected articles were analysed using thematic analysis.

Results

Overall, a total of 417 research articles about the topic were found after conducting the literature search (Figure. 1). Of these, 387 articles were found electronically from searching databases, 1 article from contacting authors, 25 from reviewing reference lists whereas 4 were obtained from conducting the hand search. Following initial assessment of the abstracts of the research articles that were identified, 21 articles were selected for review. Using the pre-set inclusion and exclusion criteria, the selected articles were further scrutinized. Twelve of these articles met the inclusion criteria.

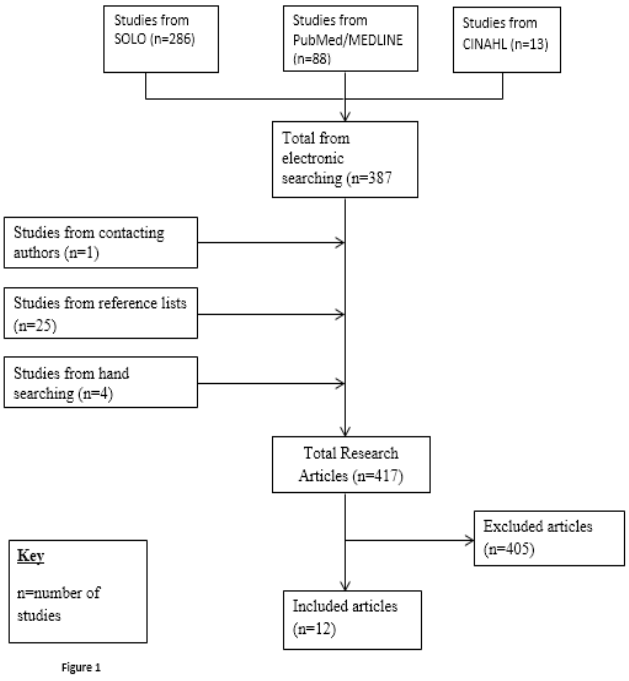

Figure 1: Flow chart showing studies found during literature search.

12 articles met the inclusion criteria for this study. Selected articles for this study included.

- Ackerson K and Gretebeck K (2007) Factors influencing cancer screening practices of underserved women. J Am Acad Nurse Pract 19: 591-601.
- Amankwah E, Ngwakongnwi E, Quan H (2009) Why many visible minority women in Canada do not participate in cervical cancer screening. Ethnicity & Health 14: 337-349.
- Do HH, Taylor VM, Jackson JC, Tu SP (2001) Cervical cancer screening among Chinese immigrants in Seattle, Washington. J Immigr. Health 3: 15-21.
- Drewry J, Garcés-Palacio IC, Scarinci I (2010) Awareness and Knowledge about Human Papillomavirus among Latina immigrants. Ethnicity & Disease 20: 327-333.
- Gao W, DeSouza R, Paterson J, Lu T (2008) Factors affecting uptake of cervical cancer screening among Chinese women in New Zealand. International Journal of Gynecology and Obstetrics 103: 76-82.
- Gao W, Paterson J, DeSouza R, Lu T (2008) Demographic predictors of cervical cancer screening in Chinese women living in New Zealand. NZMJ 21: 8-17.

- Green EH, Freund KM, Posner MA, David MM (2005) Pap smear rates among Haitian immigrant women in Eastern Massachusetts. Public Health Reports 120: 133-139.
- Hislop TG, Teh C, Lai A, Labo T, Taylor VM (2000) Cervical cancer screening in BC Chinese women. BCMJ 42: 456-460.
- Sarna L, Tae YS, Kim YH, Brecht ML, Maxwell AE (2001) Cancer screening among Korean Americans. Cancer Practice 9: 134-140.
- Taylor VM, Jackson CJ, Tu SP, Yasui Y, Schwartz S M, et al. (2002) Cervical cancer screening among Chinese Americans. Cancer Detect Prev. 26: 139-145.
- Waller J, Bartoszek M, Marlow L, Wardle J (2009) Barriers to Cervical cancer screening attendance in England: A population-based survey. J Med Screen 16: 199-204.
- Xiong H, Murphy M, Mathews M, Gozaq V, Wang PP (2010) Cervical cancer screening among Asian Canadian immigrant and non-immigrant women. Am J Health Behav 34:131-143.

Results of the CASP tool analysis showed that the research design employed in a majority of the included qualitative studies was a survey [16-26]. Six of the studies had applied community based surveys [18-21,24-25] whereas one study employed a population based survey [23]. In addition, two studies used the data derived from the National and Community Health Surveys of the countries of interest in the studies [16,26] whereas one study conducted a descriptive survey [22]. Nevertheless, one study did not mention the type of survey that had been used to obtain the results [17].

Different means of sampling were used to recruit participants in the included studies. Randomized sampling techniques were used in two studies [17,21] whereas one study used convenience sampling [22]. Another study used Stratified random probability sampling [23] while two other studies used probability estimates to determine the sample size [18,20]. One study [16] had stated that it had employed multistage and complex sampling to recruit participants whereas the rest of the studies did not clearly define the sampling techniques that had been used [19, 24-26].

Two studies [18,25] described the framework used to develop the questionnaire used for the survey. Gao, et al. [18] and Taylor, et al. [25] employed the PRECEDE model to draw up the categories of factors that the results can be grouped into that is; enabling, predisposing and reinforcing factors. Sarna, et al. [22] reported having used a 58-item instrument which had been formulated by Korean investigators to develop the survey questionnaire used in this study. The remainder of the studies did not mention the use of a framework to derive the survey questionnaire [16-17,19-20,23-24,26].

Several methods were used to obtain the required data within the included studies. Six studies used interviewer administered questionnaires [17,20-21,23-25]. However, only one study [23] described the interview administered questionnaire as being a face to face interview. Sarna, et al. [22] and Gao, et al. [19] employed self-administered interviews whereas Gao, et al. [18] applied focus group interview.

Most of the included studies sought ethical approval from various Ethical committees [18-20,22,24-25]. However, only one study mentioned having obtained consent from the participants whereas another stated that anonymous questionnaires were used during data collection. In the remaining four studies, the ethical considerations taken into account were not defined [16,21,23,26].

Three studies incorporated all the stated types of statistical analyses [17-19] whereas two studies employed descriptive and Bivariate comparison analyses. Additionally, four studies [17,20-21,25] applied bivariate comparison and logistic regression model analyses to the obtained data whereas three studies solely used logistic regression model analyses [16,23,26].

Three key themes emerged from carrying out thematic analysis on the selected articles. These themes included; psychological, demographic and behavioral factors (Figure 2).

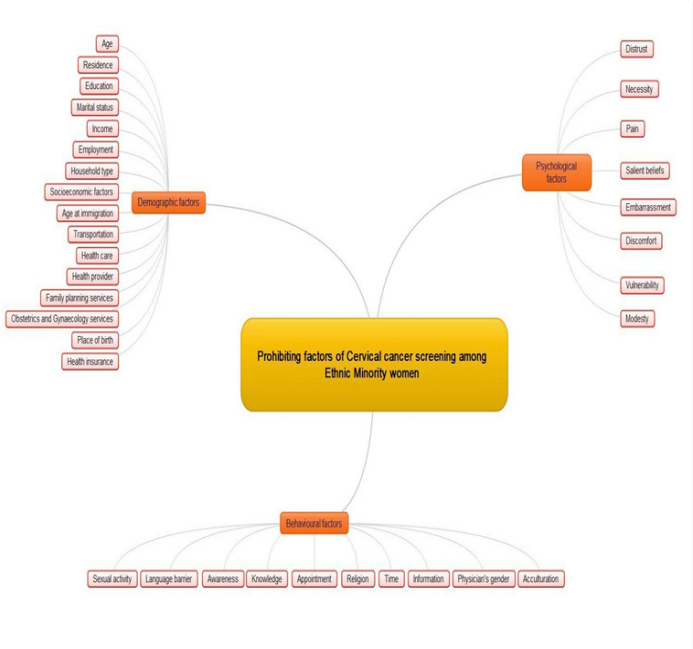

Figure 2: Factors associated with low uptake of cervical cancer screening among ethnic minority women in developed countries. Demographic, psychological and behavioural factors were found to prohibit ethnic minority women from attending cervical cancer screening after thematic analysis of selected studies.

Under psychological factors, two studies [18,23] discovered that the fear of pain prohibited ethnic minority women from attending screening. The study conducted by Waller, et al. [23] found out that a majority of non-white women did not attend cervical cancer screening because they thought that the procedure would be painful. Similarly, Gao, et al. [18] revealed that equally, Chinese women living in Auckland, New Zealand attributed their non-attendance of Pap smear tests to the fear of pain.

Waller, et al. [23] discovered that distrust of the Pap smear tests (P=0.007) further hindered non-white women from participating in cervical cancer screening tests in their population based study. This was the only study that associated distrust of Pap smear tests with non-attendance of Cervical cancer screening among ethnic minority women.

Four studies [16,18-19,26] ascertained the belief that Pap smear tests were not necessary as one of the hindrances of participation of Cervical cancer screening programmes among ethnic minority women despite having received invitations to attend screening. Xiong, et al. [26] reported that the lack of necessity was a significant barrier in Cervical cancer screening attendance among Asian immigrants living in Canada. Correspondingly, Amankwah, et al. [16] noted the same observation as a reason given by visible ethnic minority women for not participating in Cervical cancer screening programs in Canada. In addition, Gao, et al. [18] highlighted that Chinese women living in New Zealand thought that undertaking a Pap smear test was unnecessary. Gao, et al. [19] elaborated this factor further by stating that Chinese immigrant women in Auckland, New Zealand believed that Pap smear tests were solely necessary for asymptomatic and post-menopausal women.

Waller, et al. [23] recognized non-white women were worried about the outcome of the Cervical screening tests. It is for this reason that a majority of these ethnic minority women did not take part in the Cervical cancer screening programs. Most of them held the notion that it was better not to know the result of the test hence their non-attendance.

Ackerson and Gretebeck [27] discovered that Hispanic women in the US did not perceive themselves as vulnerable to cervical cancer. However, among those who believed that there was a possibility of being diagnosed with cervical cancer, the belief that there was nothing anyone could do to cure or prevent the disease was common. It was found that Hispanic women were unlikely to participate in cervical cancer screening if they did not perceive themselves as not being vulnerable to the disease [27].

Waller, et al. [23] and Taylor, et al. [25] identified the feeling of embarrassment as a hindrance factor of participation among ethnic minority women in their studies. Waller, et al. [23] highlighted that non-white women endorsed embarrassment as a factor that prohibited them from attending cervical cancer screening. In the study conducted by Taylor, et al. [25], Chinese American women living in Seattle, Washington, who were concerned about the possible embarrassment, were less likely to report having recently attended a Pap smear test.

Gao, et al. [18] and Sarna, et al. [22] linked discomfort to non-attendance of cervical cancer screening programs among ethnic minority women. Gao, et al. [18] noted Chinese immigrants in Auckland, New Zealand had concerns about possible discomfort of undertaking a Pap smear test whereas Korean Americans in the study conducted by Sarna, et al. [22] expressed discomfort in discussing sexual related information. Both the perspectives of discomfort were prohibiting factors in the participation of cervical cancer screening among the ethnic minority group of interest.

Ackerson and Gretebeck [27] identified salient beliefs as deterrents of cervical cancer screening among Hispanics and African American women living in USA. Among Hispanics, the belief that a positive diagnosis of cervical cancer is a consequence of bad luck hindered them from participating in cervical cancer screening [27]. Other hindering beliefs included; that the lack of knowledge about the existence of cervical cancer in one's body was better than finding out a positive diagnosis of a disease; and the thought that screening was not necessary unless symptoms developed [27].

Sarna, et al. [22] identified issues pertaining to modesty as one of the factors that hindered Korean Americans from taking part in Cervical cancer screening programmes in Los Angeles, California, USA. Modesty issues among Korean Americans led to delays in the early detection of Cervical cancer screening [22].

Concerning demographic factors, in the study conducted by Xiong, et al. [22], the length of residence was found to significantly influence the attendance of Asian immigrants living in Canada. If an Asian feminine immigrant was found to have had a short residence period in Canada, there were less likely chances of reported Cervical cancer screening attendance. Furthermore, three studies [20,21,24] reported a considerable association between age and non-attendance of Cervical cancer screening. Green, et al. [20] and Do, et al. [24] showed significant variations in Pap smear rates within different age groups. Hislop, et al. [21] pinpointed low attendance of cervical cancer screening among elderly Chinese women in British Columbia.

Green, et al. [20], Do, et al. [24], and Hislop, et al. [21] discovered that the level of education attained by ethnic minority women was significantly linked to non-participation of Cervical cancer screening programs. Green et al. [20] observed that found out that Haitian immigrants were most likely not to have graduated from high school therefore a low participation rate in Cervical cancer screening programs. In the study carried out by Do, et al.

[24], educational level was linked to the use of Pap smear tests among Chinese immigrants in Seattle, Washington, USA. Hislop, et al. [21] noted that Chinese immigrants with the least education had never undergone Pap smear testing in British Columbia.

Three studies [20,21,24] identified household income as a barrier to cervical cancer screening among ethnic minority women. Green, et al. [20] noted differences in Pap smear rates across annual household income groups of Haitian immigrants living in Eastern Massachusetts. Do, et al. [24] showed significant associations between Pap smear testing and income of Chinese immigrants in residing in Seattle, Washington, USA. In the study conducted by Hislop, et al. [21], Chinese immigrants with the least household income reportedly had the lowest rates of Pap smear testing.

Marital status was demonstrated to be significantly linked to cervical cancer screening among ethnic minority women in developed countries [20,21,24,25]. Green, et al. [20] observed that unmarried Haitian immigrants did not take part in cervical cancer screening programs. In the study undertaken by Do, et al. [24] , it was found that unmarried Chinese immigrant women were less likely to use Pap smear testing for cervical cancer. This finding has been attributed to the assumption that since single Chinese women are sexually inactive, they are not exposed to having gynaecological issues. This prevents Chinese immigrants from participating in cervical cancer screening. Hislop, et al. [21] justifies this finding adding that low participation rates of cervical cancer screening was observed in unmarried Chinese women in British Columbia.

Furthermore, Do, et al. (2001) in their study linked employment status with Pap smear use for the detection of cervical cancer among Chinese immigrants living in Seattle, Washington, USA. This is due to the fact that an individual's employment determines one's household income. In addition, the type of household was found to be associated with the participation of cervical cancer screening by ethnic minority women [21]. Hislop, et al. [21] revealed that housing type was significantly linked to Cervical cancer participation among Chinese immigrants in Seattle, Washington, USA.

Non-attendance of Cervical cancer screening was significantly related to socioeconomic factors in a study conducted by Ackerson and Gretebeck [27]. Ackerson and Gretebeck [27] recognized that the socioeconomic factors that were significantly related to reduced chances of cervical cancer screening among African American and Hispanic women were low education levels, cost of Pap smear testing, income and age. However, an unexpected finding was discovered by Ackerson and Gretebeck [27] where low Pap smear rates were observed for women who had attended college.

One other study [24] pointed out that the age of ethnic minority women at the time of immigration had a negative impact on the use of Pap smear tests for cervical cancer screening. Moreover, Gao, et al. [19] highlighted that Chinese immigrant women living in Auckland, New Zealand stated that the reasons for not attending Pap smear tests was because of difficulties of obtaining transportation in order to make the screening appointments. This hindered their participation in cervical cancer screening programmes.

Limited access to health care was discovered as a prohibiting factor of cervical cancer screening among ethnic minority women in developed countries [20, 22, 27]. Ackerson and Gretebeck [27] found that inaccessibility of a frequent health care source contributed to low Pap smear testing among Hispanic and African American women in the US. In the study conducted by Green, et al. [20], a strong association was revealed between non-attendance of Pap smear tests and primary care access. Similarly, Sarna, et al. [22] reported a significant link between the non-participation of cervical cancer screening and limited health care access among Korean American women living in USA.

Three studies [19,20,27] identified the lack of health insurance as one of the factors that inhibited ethnic minority women from participating in cervical cancer screening. Gao, et al. [19] recognized that not possessing health insurance hindered Chinese immigrant women from participating in cervical cancer screening. In the study conducted by Ackerson and Gretebeck [27], one of the extrinsic factors attributed to low uptake of cervical cancer screening was lack of health insurance among African American and Hispanic women residing in the US. Green, et al. [20] add that a significant association between the lack of health insurance and non-attendance of Haitian immigrants in Eastern Massachusetts, USA.

The lack of access to health providers further prohibited ethnic minority women from participating in cervical cancer screening [19,25]. Gao, et al. [19] stated that due to unavailable health providers, Chinese immigrants did not attend Pap smear testing in Auckland, New Zealand. For the study conducted by Taylor, et al. [25], Chinese American women without family doctors did not receive cervical cancer screening.

Two studies [19,25] showed that there was an association between receiving family planning services and participation in cervical cancer screening. Gao, et al. [19] recognized that Chinese immigrants who did not receive family planning services were less likely to have undergone cervical cancer screening. Similarly, Taylor, et al. [25] reported that Chinese American women never received a Pap smear before the study.

Another study revealed that the use of Pap smear testing among ethnic minority women was related to receiving Obstetrics and Gynaecological services [18]. Gao, et al. [18] discovered that Chinese immigrants who had not received regular Obstetrics and

Gynaecology services were less likely to participate in cervical cancer screening compared to those who received the service. This factor prohibited Chinese immigrants in New Zealand from attending Cervical cancer screening.

Finally, the place of birth of ethnic minority women inhibited participation in Cervical cancer screening programmes [21]. Hislop, et al. [21] showed an association between place of birth and low attendance of cervical cancer screening among Chinese immigrants in British Columbia.

Behavioural factors prohibiting ethnic minority women from participating in cervical cancer screening are numerous. A review of the behavioural factors retrieved from the included articles in this study is given below.

Sexual inactivity was found to be a hindering factor in the participation of ethnic minority women in developed countries [23,25]. Waller, et al. [23] pointed out that non-white women who were sexually inactive did not see the need to undergo Pap smear testing. Similarly, Taylor, et al. [25] noted that Chinese Americans living in Seattle, Washington admitted that they did not attend cervical screening because they were not sexually active.

In another study, it was discovered that the gender of the Physician determined whether ethnic minority women would take part in cervical cancer screening [20]. Green, et al. [20] found out that Haitian immigrants in Eastern Massachusetts rejected being screened by male physicians. Most of them cited this fact as a reason for not attending cervical cancer screening.

In addition, religion was revealed to be a prohibiting factor in cervical cancer screening among ethnic minority women [24]. Do, et al. [24] stated that the religion that Chinese immigrants ascribed was associated to non-attendance of Pap smear testing in Seattle, Washington.

Into the bargain, low levels of acculturation were identified as a barrier to cervical cancer screening among ethnic minority women living in developed countries [22,27]. Ackerson and Gretebeck [27] observed that low acculturation levels among Hispanic and African American women prevented them from undertaking Pap smear tests since problems in communication were likely to arise during the procedure. In the study conducted by Sarna, et al. [22], it was found that low acculturations were strongly associated with non-participation of cervical cancer screening among Korean Americans residing in Los Angeles, California.

Three studies discovered that having received a recommendation from a friend, relative or health provider determined whether ethnic minority women attended cervical cancer screening or not [18,25,27]. Gao, et al. [18] revealed that Chinese women who did not receive recommendations to obtain a Pap smear test did not participate in cervical cancer screening. Similarly, Ackerson and Gretebeck [27] found that among African American and Hispanic women who lacked recommendation from health providers, it was highly probable that they would not participate in cervical cancer screening. In the study conducted by Taylor, et al. [25], a strong link was found between not receiving a recommendation from a friend or relative and Cervical cancer non-attendance.

One study reported that English fluency was responsible for non-attendance of Cervical cancer screening among ethnic minority women [21]. Hislop, et al. [21] attributed low attendance of Pap smear testing to language barrier. However, in the study conducted by Do, et al. [24], there was no significant relationship between English fluency and Cervical cancer screening.

A low awareness of cervical cancer and the sites for carrying out Pap smear tests was also substantially associated with poor attendance of screening among ethnic minority women [17,19,26]. Drewry, et al. [17] pinpointed the lack of awareness of cervical cancer screening as an inhibitor of cervical cancer screening among Latina immigrants in Birmingham, Alabama, USA. Similarly, Xiong, et al. [26] attributed low participation of Cervical cancer screening among Asian immigrants to limited awareness about the preventative measure. For the study conducted by Gao, et al. [18], it was found that Chinese immigrant women did not attend screening because they did not know where to go.

Besides, the lack of knowledge about cervical cancer was linked to non-participation of cervical cancer screening among ethnic minority women [17]. Drewry, et al. [17] found out that knowledge deficiencies in cervical cancer and possible preventative measures was significantly associated with the low rates of participation in Pap smear testing among Latina immigrants on Birmingham, Alabama, USA.

It was reported in two studies that limited information about cervical cancer screening was one of the factors inhibiting participation of ethnic minority women [19,22]. Gao, et al. [19] identified that Chinese immigrant women who did not receive a Chinese or English pamphlet about cervical cancer were less likely to attend cervical cancer screening. Sarna, et al. [22] mentioned that the lack of information about recommendations for cervical cancer screening prevented participation of Cervical cancer screening among Korean Americans.

In another study, difficulties in making appointments were related to low cervical cancer screening levels among ethnic minority women [23]. Waller, et al. [23] noted that non-white women living in England did not attend cervical cancer screening because they found difficulties in making appointments for cervical cancer screening.

Lastly, lack of time was associated with poor cervical screening rates among ethnic minority women in developed

countries [16,23,26]. Xiong, et al. [26] highlighted lack of time as an important barrier to cervical cancer screening among Asian immigrants in Canada. Waller, et al. [23] found that a majority of non-white women living in England reported not getting round to undertaking Pap smear tests as the reason to why they had not attended cervical screening in spite of receiving invitations from the National Cancer Screening program. Similarly, Amankwah, et al. [16] discovered that low participation of cervical cancer screening among visible minority women residing in Canada was attributable to having busy work schedules therefore not having the time to attend screening.

Discussion

In this study, it has been discovered that psychological, demographic and behavioural factors contribute to non-participation of ethnic minority women in cervical cancer screening programmes implemented in developed countries. It is for this reason that there is a high mortality rate caused by cervical cancer among ethnic minority women living in developed countries in spite of the screening programmes put in place to mitigate this problem.

Firstly, several psychological factors were linked to the non-attendance of ethnic minority women in Cervical cancer screening programmes in many developed countries. These include; pain, discomfort, lack of necessity, embarrassment, worry, vulnerability, distrust, modesty issues and other salient beliefs [16,18-19,22-23,25-26].

Most ethnic minority women assume that undergoing Pap smear testing is a painful and an uncomfortable experience [18,23]. These findings are consistent with those of Miller and Roussi in Lederberg [10] who stated that some of the ethnic minority women perceived that Pap smear tests cause extreme pain. The fear of discomfort, bad outcome and pain have been cited as some of the barriers inhibiting immigrant women from attending cervical cancer screening [7,8,28]. The fear of pain therefore is an important barrier of cervical cancer screening among many ethnic minority women. Discomfort was reported as another barrier that prohibited women from attending cervical cancer screening [18,22]. For particular ethnic minority groups for example Korean Americans, sharing sexual related information was uncomfortable seeing that the prevalent belief among this category of women that matters concerning an individual's reproductive parts should be kept private.

Assumptions of invulnerability to cervical cancer and lack of necessity for screening were underlying beliefs of ethnic minority women who did not attend cervical cancer screening [16,18,26-27]. The lack of necessity has been highlighted as a barrier to cervical cancer screening among immigrant women in another study [8]. Ethnic minority women did not view themselves as being susceptible to contracting cervical cancer [27]. Because ethnic minority women did not perceive themselves as being at risk of catching Cervical cancer, they therefore felt that screening for the disease was unnecessary [16,18,26]. This is in line with the findings of various studies which concluded that many immigrant women had misconceptions about their susceptibility to Human Papillomavirus infections [28-30]. The misjudged beliefs of vulnerability might be attributed to lack of awareness about the risk factors of Cervical cancer.

Modesty issues, embarrassment, distrust and worries of the possible outcomes have been linked to the non-attendance of cervical cancer screening among ethnic minority women residing in developed countries [22-23, 25]. Anxiety or worries about the outcome of Pap smear tests was a hindrance for several ethnic minority women to attend Cervical cancer screening [6,23,25]. For instance, among immigrant Muslim women in Canada, the reference of a positive diagnosis of cervical cancer as a death sentence has prohibited their attendance of screening [6]. Other literature also point out that distrust of the healthcare system among ethnic minority women in developed countries significantly contributes to decreased uptake of cervical cancer screening [8]. Other studies [7,28] report embarrassment as one of the inhibitors to cervical cancer screening among ethnic minority women residing in some developed countries.

Modesty issues prevented specific groups of ethnic minority women from participating in cervical cancer screening [22]. These factors could be possible reasons for the development of the feeling of embarrassment that is related to taking part in Cervical cancer screening [10]. These findings agree with the association of embarrassment with cervical cancer screening utilization among ethnic minority women which was identified by Miller and Roussi in Lederberg [10]. Similarly, distrust of the test was raised by several immigrant women as a barrier to cervical cancer screening. However, Miller and Roussi in Lederberg [10] noted that some of the ethnic minority women lacked trust in the governments advocating for cervical cancer screening. There is need for further research to decide which of the two claims is true.

Secondly, a number of demographic factors have been linked to non-attendance of cervical cancer screening by ethnic minority women. These factors are; age; education level; marital status; duration of residence; lack of income; employment status; household type; age at immigration; transportation difficulties; lack of access to health care; Unavailability of health providers; lack of family planning services; lack of Obstetrics and Gynecological services; place of birth and lack of health insurance [20-22,24-27].

The findings of educational level, lack of income, lack of health insurance and lack of access to health care correspond to the connections made between these factors and the low uptake of cervical cancer screening among ethnic minority women in Miller

and Roussi in Lederberg [10] and Ferdous, et al. [7]. Additionally, it is important to note that those factors such as; lack of family planning and Obstetrics and Gynecological services; unavailability of health providers, lack of health care, transportation difficulties; and household type might be attributed to lack of income. Household income is in turn associated with employment status of ethnic minority women residing in developed countries.

Age at immigration and duration of residence in developed countries may be linked together. Lofters, et al. [9] noted that not being the age of 36 - 49 inhibited immigrant women from attending cervical cancer screening. Age, place of birth, marital status and education level were found to independently affect the cervical cancer screening rates among ethnic minority women living in developed countries. There is need for more research to assess the interconnections between demographic factors hindering ethnic minority women from participating in Cervical cancer screening.

Thirdly, varying behavioural factors were found to be negatively linked to participation of ethnic minority women in developed countries. These factors include; sexual activity; language barrier; lack of awareness, lack of knowledge; limited information; appointment difficulties; gender of physician; religion; recommendation; lack of time; and low acculturation levels [16-17,19,21,22,25-27]. These findings are comparable to those mentioned in other studies [6-8,28].

Limited availability of information about Cervical cancer led to the lack of awareness and knowledge of preventative measures among ethnic minority women. This in turn affected their Pap smear tests. The view that lack of awareness about Cervical cancer among ethnic minority women is supported by Gelman, et al. [15] who discovered that ethnic minority women did not know about HPV infections and the predisposing risk factors. In two other studies [10,30], ignorance about cervical cancer was an issue raised by majority of immigrant women who did not undertake cervical screening. This claim further supports the results of this literature review.

Appointment difficulties, sexual inactivity, gender of physician, religion, recommendation, lack of time, and low acculturation levels were found to be independently associated with poor cervical cancer screening rates among ethnic minority women in developing countries. Three studies [6,9,28] also identified having a male physician as an important barrier for immigrant women in attending cervical cancer screening. Miller and Roussi in Lederberg [10] pointed out that reduced acculturation levels among new immigrant women played a tremendous role in hindering ethnic minority women from attending cervical cancer screening. Moreover, because some of the ethnic minority women were of the view that since they were not sexually active, they were not exposed to the risk of catching cervical cancer, immigrant women did not perceive the need to receive Pap smear tests [30]. These opinions were in line with the findings of this study.

The findings of this critical literature view stipulate that psychological, demographic and behavioural factors influence the participation of Cervical cancer screening programmes among ethnic minority women living in developed countries. Nothing can be done to alter most of the demographic factors prohibiting ethnic minority women from being screened for Cervical cancer. However, by dealing with both psychological and behavioural factors, it is possible to increase the attendance of ethnic minority women in Cervical cancer screening programs organized by governments in developed countries. There is a necessity to adapt -interventions tackling Cervical cancer to the needs of ethnic minority women in order to increase participation in the screening of Cervical cancer.

Health professionals have a chance to shape the beliefs of immigrant women through providing assurance that the misconceptions held by this group of women are not true. This can be achieved via having regular interactions between Health professionals and ethnic minority women. Additionally, public health workers have a mandate to inform ethnic minority women about Cervical cancer and possible preventive measures. This can be achieved by disseminating information about Cervical cancer screening using different media forums such as television commercials and newspapers. This should be performed with the aim of creating awareness about Cervical cancer screening and its benefits to immigrant women.

The results of this study can be used as a basis to develop tailor made interventions aimed to increase participation of Cervical cancer screening among ethnic minority women residing in developed countries. These findings contribute to the knowledge that specific factors affect attendance of Cervical cancer screening among ethnic minority women around the world. The results can therefore be used to provide evidence for the basis of planning public health programs that tackle the global burden of Cervical cancer.

These results throw more light on the issues affecting the health of many ethnic minority women around the world. This study has revealed several health inequalities experienced by immigrant women in developed countries. The results of this literature review provide evidence to drive policy change and decision making towards the improvement of health care for immigrant women in developed countries. Specific interventions adapted to the needs of ethnic minority women will be developed for this population. These interventions will in turn reduce the incidence and mortality of Cervical cancer among ethnic minority women. For families, the cost of treatment of Cervical cancer will be removed while immigrant women will have improved quality of life. For governments running developed countries, a reduction of the overall burden of Cervical cancer will be achieved.

This study has highlighted the need for developed nations to adopt their cervical cancer screening programmes to better suit immigrant women to increase participation. It is assumed that increased attendance will greatly decrease the overall mortality rate of cervical cancer countrywide and globally. Low- and middle-income countries need to learn from developed countries and implement screening guidelines and programmes to reduce the global burden presented by cervical cancer.

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