

Increasing the uptake of cervical screening programmes

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Abstract

Successful cervical screening programmes depend on the degree of coverage and the rate of attendance. There are many demographic reasons why some women fail to attend for cervical screening, including lack of knowledge and education and socioeconomic status. Moreover, a woman's ethnicity and her age also play a role in screening uptake. Community and practice nurses are ideally positioned to identify women's information needs and provide appropriate information to overcome barriers to screening attendance. This article discusses the main predictors of participation in cervical screening programmes and interventions that can be used to increase cervical screening uptake.

Key words: Cervical screening ■ Cervical cancer ■ Health promotion ■ Human papillomavirus

Cervical cancer (*Figure 1*) is one type of cancer that can be prevented and cured if detected early enough (Arevian et al, 2006). Human papillomavirus (HPV) infection is the most common sexually transmitted disease and can result in cervical intraepithelial neoplasia (CIN) – a term proposed by Richart (1973), which refers only to a lesion that may progress to invasive carcinoma.

Primary prevention measures, such as prophylactic vaccines against high risk HPV, are now available (Bloomfield, 2007). However, the HPV vaccine is only effective if given before the commencement of (heterosexual) sexual activity and concerns have been raised regarding the efficacy and usefulness of vaccination programmes (Peckham and Hann, 2008). Moreover, parental consent is required for children receiving the vaccine, which may challenge practitioners when educating parents (Miller et al 2008). Over time, vaccination will decrease the prevalence of the disease among younger women but screening will still be needed (Sigurdsson and Sigvaldason, 2007).

Cervical screening using the Papanicolaou (Pap) test prevents the development of cervical cancer by recognizing a pre-cancer state in the cervix and allows 90% of cervical

cancers to be identified, treated and cured before it can spread (Horan, 2007). The incidence of cervical cancer in the UK decreased significantly after the introduction of a national screening programme (Horan, 2007). This programme focused on calling and recalling women between the ages of 20 and 64 years at 5-yearly intervals, saving more than 1000 lives each year (Fawcett, 2007). However, despite the strong evidence that cervical screening does save lives, it is reported that over 80% of women diagnosed with invasive squamous cervical cancer will not have had regular Pap test screening (Bloomfield, 2007).

This article discusses the main predictors of participation in cervical screening programmes and interventions that can be used to increase cervical screening uptake.

The success of a cervical screening programme depends on the degree of coverage and the attendance rates (Chang et al, 2007), and different recruitment strategies are needed for different groups (Byrnes, 2007). There are a number of factors attributed to cervical screening uptake. Education and knowledge about cervical screening is positively linked with screening attendance, whereas being old and economically disadvantaged is associated with poor uptake (Arevian et al, 2006). Moreover, women from socially deprived areas and areas with high ethnic minority populations have low uptake rates (Perry, 2001).

Interestingly, despite HPV being an extremely common infection of the first 10 years of sexual activity (Heley, 2007), the NHS in 2004 decided that women below the age of 25 years would not be invited for cervical screening (Bano et al, 2008). However, screening of women soon after the age of 20 is supported by a recent Icelandic study (Sigurdsson and Sigvaldason, 2007) and by Bano et al (2008) in the UK.

The articles used for this literature review were found through computerized literature searches using CINAHL, Science Direct (Elsevier), MEDLINE (Ovid) and Blackwell Synergy. The databases were searched from 1985 to 2008 using the search term 'cervical screening' together with key words: demographic factors, age, barriers, benefits and interventions.

Demographic factors affecting cervical screening uptake

Ethnicity

The higher incidence of cervical cancer among Korean-American women than in the general population prompted Kim et al (1999) to explore the cervical screening knowledge and practices among Korean-American women. The researchers used a structured interview on knowledge and cervical screening practices in the respondents' homes.

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Using random sampling, 159 Korean-American women aged 40–69 years, were interviewed; 31% of the study respondents reported Korean newspapers as a common source of health-related information, which is interesting in light of established conventional cancer education strategies. Moreover, Korean churches and community centres were identified by 45% and 30% respectively as preferred locations for obtaining health information, thereby prompting Kim et al (1999) to recommend that brochures using simple terms and written in Korean should be distributed at these venues. This study illustrates the opportunities available to community nurses in attempts to access women in ethnic minorities.

More recently, in the UK, Webb et al (2004) examined the cervical screening practices of South Asian women. Data were collected using the Manchester Health Authority Exeter system. The NHS call/recall system is known as the Exeter system. It invites women who have registered with a GP for screening and also keeps track of any follow-up investigation and recalls women for screening when appropriate at 3–5 year intervals (Blanks et al, 2007).

The screening records of 72 613 eligible women aged 30–64 were extracted and coded into four mutually exclusive groups. Webb et al (2004) reported that 11% of the eligible women had never attended for screening, and that a woman's birthplace overseas is the greatest independent predictor of non-attendance in women aged 60 years and over, with those of South Asian ethnicity more likely to have a history of not attending for cervical screening. Interestingly, South Asian women registered with female South Asian GPs had a less than 10% history of non-attendance. Non-attendance rates were highest for South Asian women registered with a non-South Asian female GP (16%) or with a male South Asian GP (18%) or with a male non-South Asian GP (14%) (Webb et al 2004).

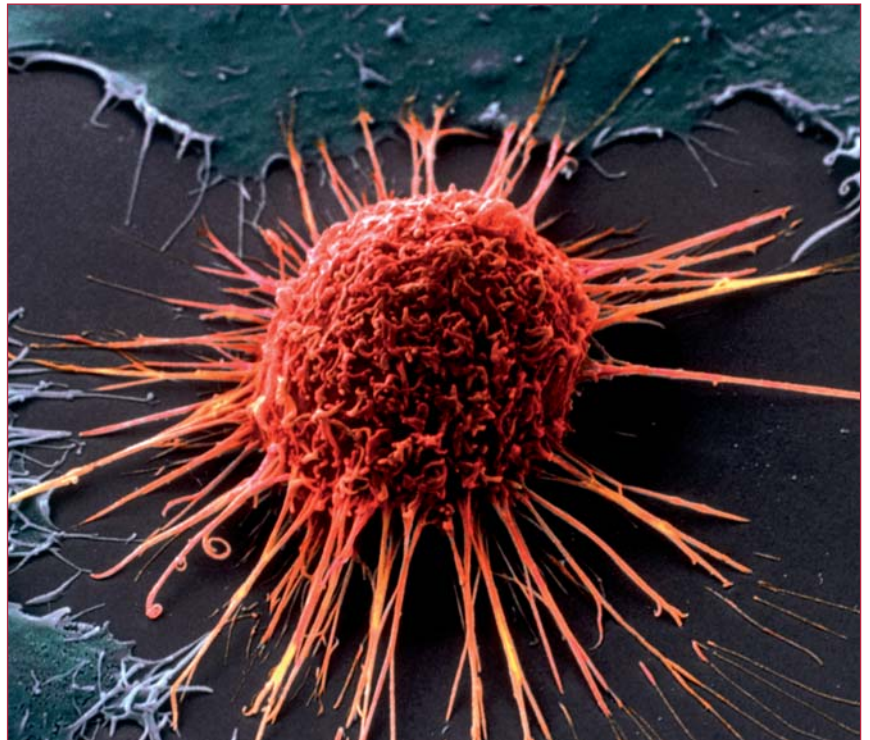
The link between ethnicity and cervical screening uptake, and also between GP gender and cervical screening, is revealed by Webb et al (2004). The results of their study suggest that women are more likely to attend for screening with GPs and practice nurses who are female and of the same ethnicity, and also that women living outside of their birth country are less likely to attend for screening than women native to the area. This finding has a practical application. A simple identification of a practitioner's female gender on letters inviting women for screening may encourage more women to attend.

The association between ethnicity and cervical screening has also been reported by Coronado et al (2004) in the US. This study comprised 1795 respondents aged 18–64 chosen from 20 communities of Hispanic and non-Hispanic white women. Coronado et al (2004) reported that less acculturated women are less likely to attend for screening than more acculturated women. Acculturation is the adoption of values of a different culture.

Age as a factor affecting screening uptake

A woman's age also has an effect on the uptake of cervical screening. This is revealed in a large population-based case-control study reported by Sasieni et al (2003). Between

Figure 1. Coloured scanning electron micrograph of a cervical cancer cell. This large rounded cell has an uneven surface with many cytoplasmic projections, which may enable it to be motile.



1990 and 2001, 1305 women with invasive cervical cancer diagnosed, and 2532 controls aged between 20 and 69 years were studied. It was found that 5-year screening offers considerable protection (83%) against cancer in those 55–56 years of age. In the 40–54 age group, 3-year screening offered 84% protection, and in women aged 20–39 years, the protection rate of 76% with annual screening was not as effective as 3-yearly screening in older women.

Sasieni et al (2003) recommend 3–5-yearly screening for those in the 25–49 year group; 5-yearly screening for those aged 50–64, and for women over 65, only those who have not been screened since age 50 should be screened.

Sasieni et al (2003) conclude that it is enough to begin cervical screening around age 25 as under the age of 25 invasive cancers is extremely rare but cytological abnormalities are common. Therefore, starting screening at 25 means those lesions that are destined to progress will still be detectable and those that would regress will no longer be a source of anxiety. They also recommend that more resources be allocated to ensure that a high proportion of older women continued to be screened, although less frequently, as cancer is more common in older women (Sasieni et al, 2003).

Two more recent studies, however, disagree with the conclusions on age and cervical screening reached by Sasieni et al (2003). Sigurdsson and Sigvaldason (2007) conclude that screening should be started soon after the age of 20. This Icelandic study aimed to evaluate the value of screening in the 20–34 year age group by analysing trends in pre-invasive and invasive diseases among a sample grouped into 5-year age classes. The results of this study are in agreement with other reports that shorter screening intervals are needed for the younger women, but contradict the assumption that these cases are difficult to diagnose at

screening. In the period 1989–2003, 68% of all cases in the age groups were micro-invasive cases and these had already started to accumulate within 3 years after the last normal screen. This can be regarded as a sign of the success of the reformed screening programme as the diagnosis of micro-invasive disease enables fertility-sparing treatment in these younger cases. In addition, the results indicate the benefit of starting organized screening soon after the age of 20 (Sigurdsson and Sigvaldason, 2007).

Similarly, Bano et al (2008) also support starting screening in younger sexually active women. They argue that HPV infection is the most common sexually transmitted disease and can be acquired shortly after beginning the first sexual relationship, the median time being only 3 months. Thus, young sexually active women are at risk of HPV infection and subsequent CIN.

Bano et al's (2008) study was conducted in Lewisham, an inner city area of London with one of the highest rates of under 18 conceptions. Over 1 year 2793 smears of women below the age of 25 were preformed (2617 aged 20–24 and 176 aged 16–20). All women under 25 years who had cervical screening either at their GP or at NHS community clinic area in Lewisham were included. Bano et al (2008) found that in the 16–24 year age group, 15% were found to have abnormal Pap smears. Of the 2793 cervical smears analysed, 182 women under the age of 25 were referred to a colposcopy clinic, and 34% of those showed histological evidence of high-grade precancerous lesions (CIN 2 or 3). Seven out of the 62 high-grade CIN lesions were diagnosed in women under the age of 20.

Interventions to increase cervical screening uptake

Sabates and Feinstein (2006) report on their longitudinal study examining the role of education in the uptake of cervical screening in the UK. The sample of 4274 were first interviewed in 1991 and re-interviewed in successive waves, and if they moved from their original household they were re-interviewed along with all the adult members of their new household. The sample criterion was then narrowed down to women 22–65 (women aged 20 and 21 were not included because many of them are not invited for screening immediately upon reaching 20 years of age), and had available information about historic screening. Sabates and Feinstein (2006) reported that being enrolled on courses or training was associated with a positive change in the uptake of smear tests.

However, the question of how much information should be provided to women is important. Therefore, Adab et al (2003) aimed to assess whether providing women with additional information on the pros and cons of screening, compared with information currently offered by the NHS, affects their intention to attend for screening.

This randomized controlled trial (RCT) was undertaken at three general practices in Birmingham. Two-hundred and twenty-six women (138 in each information leaflet group) between the ages of 20 and 64 attending the practices were invited to attend. Adab et al (2003) created two types of information leaflets to provide to participants: a control leaflet

and an intervention leaflet. A structured questionnaire was also developed and distributed randomly at the practices.

Adab et al (2003) reported that providing women with more information about the risks and uncertainties of screening, as well as the benefits, resulted in a small reduction in expressed willingness to attend for screening. However, the intended screening rates were nearly 80%, even among women who were given more information. They also found that decisions on screening were not just influenced by the information provided but were also affected by values, cultural beliefs and personal experiences (Adab et al, 2003).

A systematic review by Forbes et al (2002) examined the interventions used to encourage the uptake of cervical screening. They reported that invitation and educational interventions are the most effective methods of increasing cervical screening uptake. Moreover, there was some evidence, although not definite, to suggest that invitation letters with fixed appointments were more effective than invitations with open appointments. In addition, Forbes et al (2002) suggested that revealing the gender of the smear test taker in invitation letters and using a health promotion nurse may increase uptake. However, they also concluded that it was unclear which type of educational materials were the most effective.

The importance of suitable appointment times for women attending cervical screening is highlighted by Olowokure et al (2006), who conducted a postal survey among a random sample of 4057 women who had been for a cervical smear test between January 1st 2001 and 31st March 2001. They reported that one of the factors identified by women as a reason for non-compliance was that appointment times were not convenient and compatible with the lifestyle of women (Olowokure et al, 2006). A significant proportion of women found the appointment times given were inconvenient; 33.4% received late morning appointments but only 17% preferred an appointment at that time. Nineteen per cent of respondents wanted late evening appointments but only 4.4% were offered them. The results suggested that younger women and those from more affluent areas prefer late evening and Saturday appointments, while older women and those from deprived areas prefer late morning appointments. Olowokure et al (2006) suggest that there is a failure within the health service to accommodate the increasing number of women in employment who may be trying to accommodate work, child care and other commitments. They also conclude that there is a need to accommodate an increasing number of women in employment, and that a choice of appointment times be included on the invitation letter and the uptake of specific slots monitored (Olowokure et al, 2006).

The practitioner undertaking the procedure has an influence on the uptake of cervical screening. Fitch et al (1998) reveal the central role of the GP in a qualitative Canadian study of 110 women interviewed in 11 focus groups exploring barriers to cervical screening. Twenty-five per cent of the women had been born outside Canada and were recent immigrants and all were from low-income backgrounds. Following analysis of the interview transcripts, Fitch et al (1998) reported that women felt being able to talk with their doctors and being treated like a person was important. Moreover, women found it hard to ask questions due to lack of information in their

language, and reported that they did not know how the Pap test helped in early detection of cancer.

Such findings help in knowing what interventions can be employed to increase women's likelihood of attending for cervical screening. Twinn and Cheng (2000) investigated this phenomenon further using a case study approach to examine Hong Kong Chinese women's experiences and perceptions of having a Pap smear taken by a female doctor at one clinic, or a female nurse practitioner at another clinic. A convenience sample of 50 women from each case study was chosen. The participants were all over the age of 20 and routinely attended the clinics during a 5-month period. Data were collected in three phases. First, face-to-face structured confidential interviews were carried out after the Pap smear had been completed. Second, the women were invited to participate in focus groups to provide an in-depth examination of their experiences and perceptions of having a Pap smear, undertaken by either the doctor or nurse. Finally, all the smears were compared by being sent to the same regional laboratory where the same senior member of staff evaluated the entire smear.

Twinn and Cheng (2000) found three major themes emerged from the focus groups: the importance of the caring nature, communication skills, and experience and expertise of the practitioner. The caring nature of the practitioner was identified as important in contributing to women's experience of the procedure. It was highlighted as a strategy in overcoming women's fear and embarrassment about the procedures as well as minimizing their pain and discomfort. Communication skills of the practitioner were highlighted as an important influence on women's experience. Those practitioners who engaged in information giving were influential to the uptake of cervical screening. Confidence in the practitioner was also cited as an important influencing factor. The women identified expertise not in terms of technical skills but by characteristics such as teaching women, not causing pain or discomfort and being considerate.

Discussion and implications for practice

The studies discussed highlight the need for community and practice nurses to be aware of the various factors that influence women's decisions to attend for cervical screening. The role of education in influencing women's decisions to attend for screening emerges strongly. However, it is unclear which type of educational materials are the most effective. Nonetheless, the use of a health promotion theoretical framework to guide nurses in educating women is a suitable starting point. For instance, the health belief model (HBM) (Janz et al, 2002) proposes that a person must believe that their behaviour will result in personal benefit. This model has been used as a theoretical framework in a recent study exploring women's behaviour in seeking mammography (Ham, 2006), and is also relevant to cervical cancer screening. For instance, the HBM can be applied by nurses in their assessment and identification of a person's view about the threat of illness (in this case cervical cancer) and their behavioral reactions to that threat (attending or not attending for screening) (Browes, 2006).

Also noteworthy is the need for community nurses to appreciate the opportunities to reach women from various cultural groups through, for example, community centres.

Health-related information is often sourced from within ethnic groups and therefore conventional cancer education strategies are not always beneficial in ethnic minority groups. Moreover, the use of lay members of the community to assist community nurses in providing information to ethnic communities can be effective (Kim et al, 1999).

The suggestion that the practitioner undertaking the test has an influence on women's uptake and experience is particularly interesting. It appears that women are more likely to attend for screening with a female GP or nurse of the same ethnicity. Therefore, revealing the gender of the screen taker in invitation letters may increase uptake. Moreover, the appointment times must accommodate the many commitments faced by women in employment who have to deal with many competing commitments (Adab et al, 2003; Olowokure et al, 2006). A choice of appointment times should, therefore, be included on the invitation letter and the uptake of specific slots monitored by the use of computerized management databases.

Practitioners need to be considerate of the women's feelings and lifestyle factors that affect their ability to attend for screening. Practitioners who are caring, easy to talk to, provide information and an opportunity for women to ask questions are preferred by women and stated as making attending for screening easier. However, to promote women to attend for screening nurses need to identify women's information needs and provide them with appropriate information.

Conclusion

Cervical screening is central to the detection of precancerous and cancerous lesions of the uterine cervix (Bano et al, 2008). However, 80% of women who die from cervical cancer will never have been screened (Perry, 2001). An understanding of the factors that influence a women's decision to attend for cervical screening is essential for any attempts to increase uptake. Simple measures such as accommodating women with flexible appointment times, and sensitivity to women's feelings about screening can help increase uptake. BJN

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KEY POINTS

- Demographic factors identified as contributing to women's failure to attend for cervical screening include lack of knowledge and education, socioeconomic status, ethnicity, and age.
- Education for women from ethnic minorities on cervical screening should also be distributed through community centres, which are a preferred location for obtaining health information for many such women.
- Invitation letters for cervical screening should accommodate women's competing work and family commitments.
- Invitation letters for cervical screening should identify the gender of the healthcare practitioner who will undertake the procedure.
- Community and practice nurses play a central role in educating women and therefore in increasing screening invitation uptake.