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Factors affecting uptake of cervical and breast cancer screening among perimenopausal women in Hong Kong

影響香港更年期婦女接受子宮頸癌和乳癌檢查的因素

Objectives. To identify factors affecting cervical and breast cancer screening attendance among women aged 44 to 55 years by comparing self-reported uptake of cervical smear and clinical breast examination between patients and a population sample.

Design and setting. Telephone survey and audit of clinic records to confirm patients' self-report.

Participants. Two thousand and sixty-seven women identified through random telephone dialling from the residence directory and 319 patients ever-registered at a family practice teaching clinic.

Main outcome measures. Uptake of cervical smear and clinical breast examination.

Results. The proportion of women undergoing cervical smear tests and clinical breast examination in the previous 12 months were 35.4% and 22.6%, respectively, for randomly selected women, while the figures were 47.2% and 50.6%, respectively, for patients. Record audit confirmed high rates of screening for patients according to evidence-based protocols (85.1% had had a cervical smear within 3 years). For women in the random sample (mean age, 48.9 years; standard deviation, 3.3 years), those who were older, postmenopausal, not receiving hormone therapy, educated to primary level, and with no chronic diseases were least likely to have had screening. For clinic patients (mean age, 47.9 years; standard deviation, 2.8 years), lower education level was the only variable associated with no recent smears.

Conclusions. Healthy perimenopausal and postmenopausal women in the community with lower educational level and not receiving hormone therapy were more likely to be underscreened. Attendance of 44- to 55-year-old women at a family medicine clinic that actively promotes preventive medicine was associated with high screening uptake.

目的：比較病人和抽樣人口自述接受子宮抹片和乳房檢查的情況，以確定年齡介乎44至55歲的婦女接受子宮頸癌和乳癌普查的因素。

設計與安排：電話調查及利用病歷紀錄以確認病人自述的真確性。

參與者：隨機抽樣撥出登記住宅電話號碼以選出的2067名婦女，以及319名曾於家庭醫科教學診所登記的病人。

主要結果測量：接受子宮抹片和乳房檢查的情況。

結果：在過去12個月內曾作子宮頸抹片和乳房檢查的人數比例，在隨機選取的婦女中分別為35.4%和22.6%，而在登記病人中分別為47.2%和50.6%。紀錄查核的結果證實，病人按實證指引接受普查的比率較高(85.1%的病人在過去3年內曾作子宮頸抹片檢查)。隨機選取的婦女中(平均年齡為48.9歲；標準差為3.3歲)，較少接受檢查的婦女一般是年齡較大的、已停經的、沒有接受激素治療的、教育水平達小學程度的、及沒有慢性病的。而在病人組別中(平均年齡為47.9歲；標準差為2.8歲)，較低教育水平是唯一與近期沒有作抹片檢查相關的因素。

結論：社區內健康的更年期和停經後的婦女中，低教育水平和沒有接受激素治療的婦女有較大機會沒有作過子宮頸癌和乳癌的檢查。前往積極推廣預防醫學的家庭醫科診所求診的44至55歲婦女，接受檢查的比率較高。

Key words:
Breast neoplasms;
Cervix neoplasms;
Female;
Mass screening;
Vaginal smears

關鍵詞：
乳房腫瘤；
子宮頸癌；
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大眾普查；
陰道抹片

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Introduction

Papanicolaou (PAP) test is an excellent screening tool for the early detection of cancer of the cervix.[1] Mass screening programmes have greatly reduced the incidence and mortality of cervical cancer.[2]

In Hong Kong, cancer of the cervix is the fourth most common cause of female cancer and accounted for the deaths of 144 women in 1997.[3] The age-adjusted incidence rises substantially after the age of 45 years and peaks at the age of 75 years.[3] Despite the decreasing incidence of cervical cancer during the past 25 years,[4] the overall decline in mortality has only slowly decreased.[4,5] Nearly all women diagnosed with invasive cancer either have not been screened or were screened a long time previously.[6] Approximately 73% of cervical smears in Hong Kong are currently taken at government women's health centres, public hospitals, and family planning service centres. The total number of cervical smears taken is only 16% of the eligible population per year.[4,7,8]

Age-standardised incidence rates for breast cancer are lower for Chinese populations than for Caucasians.[3] In Hong Kong, however, breast cancer has now exceeded lung cancer as the most common female cancer.[3] The age-specific incidence greatly increases between the ages of 45 and 49 years and continues to rise into old age. Screening mammography is not widely available, with only a few government women's health centres having the capability, and private facilities are expensive. The benefits of self and clinical breast examinations (CBE) are controversial and there are doubts as to whether international recommendations for breast cancer screening are directly applicable to the local population.[7]

Regular telephone surveys of the screening uptake of the Family Planning Association focus mainly on women aged 15 to 49 years.[8] There is much less data available for older middle-aged women, who have the greatest risk of developing and dying from cancers of the cervix and breast[3,5] and may benefit the most from a regular screening programme. Overseas studies suggest that older women are less likely to attend for screening.[9-11] In Hong Kong, there are limited public screening services available[12] and many private doctors do not perform PAP tests. A survey of 146 private general practitioners found that only 40% of male and 66% of female doctors took cervical smears.[12] Up to 82.6% of male doctors found it difficult to recommend culturally sensitive examinations to women.[12]

In a study to explore perimenopausal symptoms of local Chinese women aged 44 to 55 years,[13] the opportunity to ascertain whether these women had received recent PAP tests and CBE screening was taken. Our clinic has a policy of recommending smears to patients at regular intervals. The computerised record system generates a reminder on a patient's record.[14,15] Both male and female doctors at the clinic perform breast and cervical cancer screening. After an audit in the early 1990s in which a 3-year screening uptake rate of only 62% for patients aged between 44 and 55 years was found, the nurse was asked to regularly remind patients overdue for PAP tests to attend for screening. In 1994, a nurse-operated well-woman clinic was started.[16] The screening rates at the clinic were compared with those of a random sample from the population who were identified in a telephone survey. Basic demographic factors and health status associated with screening uptake in the two populations were explored.

Methods

A telephone survey was conducted in 1996. Women were considered as non-contacts if they could not be reached after six attempts to telephone them at different times of the day on different days of the week. Eligible women who refused to be interviewed were regarded as non-respondents.

Random community population

Eligible women were identified by dialling random numbers listed from the residents' telephone directories. All Chinese women aged 44 to 55 years were eligible for interview.

Clinic population

Computerised records were searched and all women aged 44 to 55 years who had ever registered at the clinic were selected. A letter was sent inviting their participation and telephone interviews were performed. Women with incorrect addresses or telephone numbers listed were considered as non-contacts.

Study questionnaire

The list of questions included socio-demographic background, general health, and gynaecological history, as well as structured questions about PAP test, CBE, and self breast examination (SBE). The questionnaire was translated into Chinese and tested for its content and face validity as described in a previous paper.[13]

Record audit

Since self-report rates for PAP test may be an overestimate,[17] and international guidelines now recommend 3-yearly cervical screening,[18-20] a record audit of the interviewed patients who attended the clinic from January 1994 to December 1996 was performed to ascertain the true screening coverage according to an evidence-based protocol. Since many patients could not be contacted or did not respond to the request for interview, which could result in a systematic bias, the record audits of those who were interviewed and those who were not interviewed but attended the clinic during this period were also compared.

Statistical analysis

Results were coded and analysed using the Statistical Package for Social Science (Windows version 9.0; SPSS

Inc., Chicago, US). Women who had had a hysterectomy or who told the doctors or nurses that they had never had sexual intercourse were excluded from the denominator for PAP test coverage calculations because they have a low risk of developing cervical cancer. Categorical responses between groups were compared using Chi squared tests. A possible age difference was analysed using Student's *t* test. Multivariate logistic regression analysis was performed to determine the odds of not having had screening. All possible variables were tested for the effect on the outcome based on findings from other studies.[9-11,21] The variables included age, education level, employment status, health status (presence of chronic diseases such as hypertension, diabetes mellitus, asthma, ischaemic heart disease, peptic ulcer, cancer, and rheumatism), menopausal status, use of hormone therapy, and whether the women engaged in any of the other screening behaviours. The practice of SBE was used as a measure of the women's health consciousness that could affect their uptake of screening.[21]

Results

Of the 724 patients aged 44 to 55 years identified from the clinic register, 104 refused to partake in the study and 301 could not be contacted after being sent a letter and six telephone attempts made. Only 319 were successfully interviewed, giving a response rate of 75.4% (319/423). For the random population group, 2125 were successfully interviewed with a response rate of 40.4%. After exclusion of 58 respondents who only reported their age range or gave incomplete data, 2067 women from the random population group were included in this analysis. The characteristics of these two groups are listed in Table 1. Clinic patients (mean age, 47.9 years; standard deviation [SD], 2.8 years) were 1 year younger, less educated, more likely to be employed, to have had hysterectomy or other gynaecological operations, benign breast disease, or chronic disease, and to complain about rheumatism, or disclose that they had dyspareunia than randomly selected women (mean age, 48.9 years; SD, 3.3 years). They were also more likely to be taking hormones for birth control, for regulation of their periods, or as replacement therapy.

Clinic patients were significantly more likely to have had PAP tests or CBE, or to have performed SBE in the previous 12 months than women from the random sample—the corresponding percentages were 47.2%, 50.6%, and 51.1% for patients, and 35.4%, 22.6%, and 29.0% for randomly selected women (P<0.001, Table 2). Results of the multivariate analyses taking account of the potential confounding factors that could affect uptake of screening by the random sample and by clinic patients such as age, education level, employment status, hormonal status, health status, and screening status, are presented in Tables 3a and 3b.

Table 1. Characteristics of clinic patients and randomly selected women (n=2386)

	Clinic patients, n=319 No. (%)	Randomly selected women, n=2067 No. (%)	P value
Mean age (SD) [n=2156]*	47.88 (2.76)	48.85 (3.26)	<0.001
Marital status (n=2383)*			
Married	296 (92.8)	1950 (94.5)	NS†
Single/separated/divorced/widowed	23 (7.2)	114 (5.5)	
Education level (n=2362)*			
Below secondary	200 (64.5)	1176 (57.3)	0.016
Secondary or above	110 (35.5)	876 (42.7)	
Employment status			
Working	163 (51.1)	822 (39.8)	<0.001
Housewife	156 (48.9)	1245 (60.2)	
Menses (n=2380)*			
Premenopausal	207 (64.9)	1268 (61.5)	0.001
Perimenopausal	18 (5.6)	92 (4.5)	
Postmenopausal (natural)	49 (15.4)	525 (25.5)	
Postmenopausal (surgical)	44 (14.1)	177 (8.6)	
Taking hormone therapy‡ (n=2381)*	43 (13.5)	103 (5.0)	<0.001
Painful intercourse (n=1849)*	56 (21.4)	89 (6.1)	<0.001
No chronic disease	255 (79.9)	1845 (89.3)	<0.001
Disease/treatment			
Diabetes mellitus	3 (0.9)	55 (2.7)	NS
Rheumatism	39 (12.3)	40 (1.9)	<0.001
Ovariectomy	29 (9.1)	116 (5.6)	<0.02
Sterilisation	128 (40.1)	604 (29.2)	<0.001
Dilatation and curettage	104 (32.6)	528 (25.5)	<0.01
Breast surgery			
Benign disease	13 (4.1)	34 (1.6)	<0.01
Cancer	1 (0.3)	13 (0.6)	NS

* Data with missing values were excluded from the data analysis
† NS not significant
‡ Hormones include birth control pills, injections, hormones to regulate menstruation, and hormone replacement therapy

Table 2. Number of women who had had screening in the previous 12 months (n=2386)

	Total	Clinic patients, n=319	Randomly selected women, n=2067	P value
Papanicolaou test in the previous 12 months (n=2154)*	795 (36.9%)	127 (47.2%)	668 (35.4%)	<0.001
Clinical breast examination (n=2379)†	626 (26.3%)	160 (50.6%)	466 (22.6%)	<0.001
Self breast examination (n=2368)†	756 (31.9%)	162 (51.1%)	594 (29.0%)	<0.001

* Women who had had hysterectomy or with missing values were excluded from the data analysis
† Women with missing data were excluded from the data analysis

Table 3. Odds ratios of not having had screening in the past 12 months among (a) randomly selected women and (b) clinic attendees adjusting for subjects' social background and health status*

(a)	No Papanicolaou test	No clinical breast examination	No self breast examination
	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)
Number of patients	1890†	2067‡	2067‡
Education Below secondary versus secondary or above	1.30§ (1.07-1.59)	1.08 (0.82-1.43)	1.34§ (1.09-1.65)
Menopausal status Postmenopausal versus premenopausal	1.59§ (1.20-2.11)	1.28 (0.87-1.90)	1.14 (0.85-1.52)
Age (per year increases)	1.06§ (1.02-1.10)	0.98 (0.93-1.03)	1.0 (0.96-1.04)
Hormone therapy Not taking hormones versus taking hormones	4.70‖ (2.55-8.67)	2.95§ (1.50-5.77)	1.69 (0.98-2.91)
Health status No chronic disease versus has chronic disease	1.57§ (1.14-2.15)	1.15 (0.75-1.77)	0.83 (0.59-1.18)
Self breast examination Not performed versus performed	1.78§ (1.44-2.21)	5.70‖ (4.25-7.65)	NA¶
Papanicolaou test Not performed versus performed	NA	17.80‖ (13.07-24.24)	1.78‖ (1.44-2.21)
(b)	No Papanicolaou test	No clinical breast examination	No self breast examination
	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)
Number of patients	275†	319‡	319‡
Education Below secondary versus secondary or above	1.78** (1.06-3.01)	1.23 (0.65-2.35)	0.94 (0.56-1.58)
Menopausal status Postmenopausal versus premenopausal	0.96 (0.45-2.03)	2.06 (0.80-5.31)	0.62 (0.30-1.31)
Age (per year increases)	1.02 (0.92-1.12)	1.00 (0.86-1.13)	1.04 (0.94-1.15)
Hormone therapy Not taking hormone versus taking hormone	2.25 (0.86-5.91)	1.30 (0.39-4.31)	1.31 (0.52-3.28)
Health status No chronic disease versus has chronic disease	1.32 (0.71-2.45)	0.64 (0.29-1.39)	1.07 (0.58-1.97)
Self breast examination Not performed versus performed	1.54 (0.93-2.53)	1.58 (0.86-2.93)	NA
Papanicolaou test Not performed versus performed	NA	15.90‖ (8.42-30.01)	1.53 (0.93-2.53)

* Employment status was taken out of the model as it did not reach statistical significance
† Subjects who had had hysterectomy were excluded from data analysis for this outcome factor
‡ Missing data were excluded from data analysis
§ P≤0.01
‖ P≤0.001
¶ NA not applicable
** P≤0.05

Among the randomly selected women, postmenopausal women were more likely not to have had a PAP test in the previous 12 months (odds ratio [OR]=1.59; 95% confidence interval [CI], 1.20-2.11). Older age was an independent factor (OR=1.06; 95% CI, 1.02-1.10) in addition to menopause. Those without chronic diseases (OR=1.57; 95% CI, 1.14-2.15) were also at a greater chance of not having had a PAP test. Women not receiving hormone treatment were least likely to have undergone screening (for no PAP test and CBE, OR=4.70; 95% CI, 2.55-8.67 and OR=2.95; 95% CI, 1.50-5.77, respectively). Women educated to primary level or below were also less likely to have had a recent PAP test (OR=1.30; 95% CI, 1.07-1.59) and BSE (OR=1.34; 95% CI, 1.09-1.65).

Randomly selected women who did not perform SBE were also less likely to have undergone screening by health professionals for cervical cancer (OR=1.78; 95% CI,

1.44-2.21) or breast lumps (OR=5.70; 95% CI, 4.25-7.65). The OR for CBE for women who had had a PAP test during the previous 12 months was 17.80 (95% CI, 13.07-24.24).

Among the clinic sample, education was the only factor associated with no PAP test during the previous 12 months, with those educated to below secondary level being more likely not to be screened (OR=1.78; 95% CI, 1.06-3.01) than those educated to secondary level or above. The OR for CBE for those who had had a PAP test in the previous 12 months were also high at 15.90 (95% CI, 8.42-30.01). None of the other variables were significantly associated with PAP, CBE, or SBE screening.

Audits of clinic records

Table 4 compares the medical record audit results of the 319 women who were interviewed and the 405 who were not interviewed. Only 256 and 304 women from the two groups, respectively, had attended the clinic at least once between 1994 and 1996. Of these women, 35 had had hysterectomy and nine were never sexually active and therefore did not require a smear. Of the remaining 516 women, 474 (91.9%) had had a PAP test during this period—252 of these were performed by the clinic doctors, 125 by the nurse, and the remainder were performed at other clinics. Only two women refused the test. None of the women screened had cervical cancer. There were 24 (5.1%) women with inflammation and four (0.84%) with atypical cells, however. One woman had sarcoma of the uterus. Four hundred and ten women had a record of breast examination, meaning that 73.2% of clinic attendees had had CBE screening in the 3-year period. Sixteen (3.9%) of the screened women had a breast abnormality and another four (0.98%) had breast cancer. Using the interview and the audit data together, for the 319 women who were interviewed, 85.1% had had a PAP test during the 3-year study period.

Discussion

The self-reported cervical screening uptake of the 319 interviewed clinic attendees was 47.2% during the previous 12 months. Using the interview and the audit data together, 85.1% had had a PAP test during the 3-year study period. The overall PAP test coverage rate (91.9%) for the 560 patients who attended from 1994 to 1996 was better than an earlier audit result of 62%.

Patient characteristics were not associated with screening uptake for the clinic attendees, except for their education level. The OR for hormone therapy was 2.25 but was not statistically significant, probably due to the small number of women taking hormones (43). The practice reorganisation was effective at promoting screening among patients in the 44 to 55 years age range. This study demonstrates that, in Hong Kong, regular care at a family-practice clinic with practice organisation that promotes prevention (computerised medical record system with reminder systems for doctors, a patient recall system, and an additional nurse-run well-women clinic) provides high screening coverage for middle-aged women. More attention should be paid to patients who are less educated as they are less likely to attend for screening.

The situation for the randomly selected women is different. Their uptake of PAP tests is only 35.4% in the past 12 months, which is in line with previous local findings of 17% to 37% for women aged 15 to 49 years,[1,8,22] and is higher than the 20% reported for women older than 50 years.[5,8] It is not possible to know whether these women had PAP tests within the past 2 to 3 years as the question was not asked in the survey. There would be more memory errors for such a long period[17,23] and the general recommendation to the public at the time of the study was still to have annual PAP tests. For the randomly selected sample, a number of patient factors were associated with their uptake of screening. These include education level, age, menopausal status, hormone therapy, health status, and SBE (which may be regarded as a reflection of the woman's level of concern about her own health[21]), but not employment status.

In addition to the difference in patient demographic and health status, there are other plausible reasons for the differences in uptake rates between clinic attendees and randomly selected women. The reasons are that patients were more ready to accept and attend for screening because of their current or past illness experience (Table 1), the tests were accessible to the patients as there was no extra financial cost for doing the test at the public clinic (except for the indirect cost of time off from work and waiting time), the women had received more health education from the clinic staff, and the experience of the examinations performed by the clinic staff had been acceptable, positive, and non-traumatic.[21,24]

Although it is not surprising to find that clinic patients had a higher screening coverage than women randomly selected from the community, the general practice–based approach to women's health screening has not been strongly advocated or promoted in Hong Kong, due to time and

Table 4. Visit status of interviewed and non-interviewed patients by record audit (n=724)

	Interviewed, n=319	Not interviewed, n=405	χ^2 P value	Visited clinic, n=560
Clinic visit from 1994 to 1996				
No. who visited ≥1	256	304	χ^2=2.74	560
No visit	63	101*	NS†	

* 101 patients from the non-interviewed group had not visited the clinic for 4 to 11 years by 1996
† NS not significant

resource constraints in the public sector,[22] as well as the financial,[21] sexual, and cultural barriers[12,21,24] in the private sector. However, for a condition that requires long-term screening every 3 years for the major adult life span of most women, the government cannot possibly build up enough women's health centres for the whole population.

Having a regular source of care significantly predicted cervical cancer screening uptake for both elderly (older than 65 years) and non-elderly patients among Hispanic and black groups in New York, US, after controlling for ethnicity, socio-demographics, health status, access to care, and time spent in the US.[11] In a trial of three organisational approaches to cervical cancer screening, the total attendance for PAP tests and coverage rates were highest for the family practice–based approach compared with a community-based or combination approach.[25]

More women in Hong Kong would benefit from regular screening if the family practice–based approach is also promoted. Primary care doctors in Hong Kong should be given more incentive and be encouraged to enhance their communication skills. This would enable them to discuss this subject with eligible women in a culturally acceptable manner, and to perform PAP tests on an ongoing basis for patients receiving medical care from them, especially for those less educated menopausal women. Courses can be offered to those doctors who need to refresh such skills or those who need to learn how to organise their practice for more effective health promotion. Women, especially postmenopausal women, could be encouraged to make better use of the private primary care system for PAP tests. This can be achieved by improving public education and perhaps also by some form of subsidy, especially in view of the current economic depression that may deter some women from attending for screening. The government could save resources on creating many more women's health centres by redirecting the subsidy to the women themselves and addressing the present imbalance of the public-private health care system at the same time.

It is not surprising to find that women who are not receiving hormone therapy or women without chronic disease are less likely to have had screening. Women receiving hormone therapy should have PAP tests and CBE performed to check for contraindications, and to monitor for possible complications of therapy. Women with chronic disease would make more visits to doctors and hence have a greater likelihood of receiving opportunistic health maintenance as they are likely to be more concerned about their health. Other studies of the effect of chronic diseases, however, have been less clear. A record audit of women older than 42 years attending two US academic primary care practices showed that screening rates for cervical and breast cancer decreased as the number of co-existing chronic diseases increased.[26] In the New York study of multiethnic women, that was the case only for women older than 64 years, while the reverse was found for younger women, with poor health increasing the odds of cervical cancer screening.[11]

Better-educated women from both groups were more likely to attend for PAP tests, while better-educated randomly selected women were more likely to practise SBE. Educated women are generally more health conscious and usually have a better socio-economic status. They have been shown to have better uptake of screening than less educated women.[9,10,21,27,28] Older women have been found in other studies to be less likely to have had PAP tests and CBE.[11,27,28] Such an age difference was found even among the narrow age range of 44 to 55 years after adjusting for menopausal status among the randomly selected women. Older perimenopausal and postmenopausal women who are not receiving hormone therapy are at-risk groups who need special targeting in campaigns for PAP testing.

The high association between CBE and PAP tests for both the randomly selected women and clinic attendees indicates that these two procedures are often performed together. Some doctors practised both types of screening for women together and well-woman preventive programmes usually offer the two tests together. Yet it is interesting to note the disparity between PAP tests and CBE take-up rates.

Although patients reported similar rates, the chart audit showed a much higher coverage for PAP testing (91.9%) than for breast examination (73.2%). There was also a 12.8% difference in the proportion of randomly selected women who had PAP tests over those who had CBE. Some patients may present with a gynaecological problem that resulted only in a PAP test with no CBE. Patients were mainly advised or reminded about PAP testing but not CBE. Since there is strong evidence about the usefulness of PAP testing as a screening test, while controversies exist about the evidence for CBE,[19,20,29,30] doctors may be more eager to perform PAP tests than CBE.

Randomly selected women who practised SBE were more likely to have had CBE, either because they detected abnormalities and thus presented to doctors for examination, or because they were more aware of the risk of breast cancer and found it acceptable to have a breast examination when they were engaging in that practice themselves.

Limitations of the study

Six attempts were made to telephone women in the population to cover different times of the day on various days of the weeks, including weekends, to reach the potential interviewees. A call back system was also in place to give the greatest convenience to every potentially eligible respondent. Only female interviewers were hired to reduce any embarrassment that the women may have felt. Despite these efforts, the response rate to the telephone survey was only moderate, which was mainly due to the sensitive nature of the topic and questions. The socio-demographic

Table 5. Number of clinic patients who had had screening during the past 3 years—comparison between interviewed and non-interviewed women (n=724) and those who visited the clinic at least once during the study period

	Interviewed			Not interviewed but attended the clinic, n=304 No. (%)	Total attendees, n=560 No. (%)
	≥1 visit, n=256 No. (%)	No visit, n=63 No. (%)	Total, n=319 No. (%)		
Clinical breast examination within 3 years	191† (74.6)	32 (50.8)	223 (69.9)	219† (72.0)	410 (73.2)
Eligible for Papanicolaou test*	228	47	275	288	516
Papanicolaou test within 3 years	210‡ (92.1)	24 (38.1)	234 (85.1)	264‡ (91.7)	474 (91.9)

* Subjects who had had hysterectomy or who had not had sexual intercourse were not eligible for a Papanicolaou test

† No significant difference was found in clinical breast examination between the interviewed and non-interviewed patients who had visited the clinic during the study period (χ^2 =0.47; P>0.05)

‡ No significant difference was found in Papanicolaou test uptake rates between the interviewed and non-interviewed patients who had visited the clinic during the study period (χ^2 =0.03; P>0.05)

characteristics of the study population, however, were comparable with that of the Hong Kong population of a similar age, except for a slightly higher proportion of married women in the study. This could also be due to the unwillingness of single Chinese women to respond to telephone surveys on such issues.

For the telephone survey of the clinic patients, there was a high non-contact rate, reflecting either that the contact information of the patients was incomplete or inaccurate, or that the information changed quite frequently and some of the women may even have emigrated. The problem was partially overcome by doing the chart audit. There were no statistical differences between the interviewed and the non-interviewed women in the number visiting the clinic during the 3-year period and in their screening coverage rates (Tables 4 and 5). Of the 301 non-contactable women, 101 had not made a visit to the clinic for the previous 4 to 11 years. The screening coverage decreased to 75% if it is assumed that none of them had had PAP testing during this period. In Hong Kong, however, where patients are free to consult any doctor as they wish and are not restricted to a single primary care practice, 75% is still a relatively high rate.

Conclusions

Healthy older perimenopausal and postmenopausal women randomly selected from the community with lower educational levels, and who are not taking hormones are less likely to have had recent PAP testing. Attendance of 44- to 55-year-old women at a public family medicine teaching clinic that actively promotes preventive medicine was associated with high screening uptake in women.

More eligible women in the community may benefit from regular and ongoing screening if more general practitioners would offer advice, perform PAP tests, and structure their practice to promote screening for their female patients on a long-term basis.

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