RESEARCH COMMUNICATION

Can an Appointment-letter Intervention Increase Pap Smear Screening in Samliem, Khon Kaen, Thailand?

Bandit Chumworathayi[1]*, Pissamai Yuenyao[1], Sanguanchoke Luanratanakorn[1], Jeerichuda Pattamadilok[1], Wadwilai Chalapati[1], Chulaluk Na-Nhongkai[2]

Abstract

Our objective was to assess the efficiency of an appointment-letter intervention aimed to increase uptake of cervical cancer screening in women between 35 and 65 years of age. From January, 2007, we randomly recruited 320 women, not screened for at least 5 years, from the Samliem inner-city community, Khon Kaen, Northeast Thailand. A total of 150 women 35, 40, 45, 50, 55, 60 and 65 years of age were assigned to the intervention group according to Thai National Cancer Institute's (TNCI) strategy. A further 170 women between 36-39, 41-44, 46-49, 51-54, 56-59 and 61-64 years of age were assigned to the control group. Baseline interviews were conducted for all women in both groups by one of the researchers in January, who also provided culturally-sensitive health education emphasizing the need for screening. Then appointment letters were sent only to women in the intervention group in February, with the last date for an appointment being March 31st. In April of 2007, immediately post-intervention, screening-coverage interviews were performed in both groups for comparison. There was a significant increase in the Pap smear screening-coverage rate in the intervention group compared with the control group (44.67% vs. 25.88%, p=0.001). Therefore, the appointment-letter intervention produced a significant effect on increasing Pap smear coverage in this group of women.

Key Words: Pap smear - cervical cancer - screening coverage - appointment letter

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Introduction

In Thailand, cervical cancer is the most common female cancer, ~5,000 die annually and the number is increasing. A multi-province survey by the Thai National Cancer Institute found that coverage of the previous cervical cancer screening program (i.e., the opportunistic Pap smear) was only 5% (Srivatanakul, 2000) compared with the target of 80% set by the WHO (Sankaranarayanan et al., 2001).

What should be the frequency of screening and number of tests? An IARC working group (1986) determined that the annual screening smear provides a 93.5% reduction in the incidence of cervical cancer, while 5-year screening provides an 85% reduction (IARC working group, 1986). Due to limited resources, Thailand has a 5-year screening policy for women between 35 and 65 years of age.

Since 2005, the Department of Medical Service (DOMS) and the Thai National Cancer Institute (TNCI) have implemented a strategy to decrease cervical cancer incidence in Thai women by using Pap smear as a screening test followed by colposcopy when abnormal results are encountered. This strategy has been implemented in all 76 provinces of Thailand. In Khon Kaen in March, 2006, a 3-day colposcopy course for doctors was conducted by DOMS and TNCI in preparation for the caseload surge that will occur with mass screening. In April, 2006, a 1-day meeting for all health personnel from all health stations in Khon Kaen was conducted by its provincial health office aiming to inform them about the implemented strategy and its goal to achieved at least 50% of screening coverage in women 35, 40, 45, 50, 55, 60 and 65 years of age each year. That means, within 5 years, at least half of all women between 35 and 65 should have been screened if the goal set was achieved each year.

Although the goal was clearly described, still the way to achieve it remains unclear. Based on our previous study's results in a group of Khon Kaen inner city women (Chalapati and Chumworathayi, 2007), a home visit invitation intervention is not effective. The mobile unit strategy was shown effective in rural Thailand (Swaddiwudhipong et al., 1999) and was the most suggested strategy proposed by this group of women, but it is costly compared with an appointment-letter strategy, the second most suggested strategy (Chalapati and Chumworathayi, 2007). In Thailand, most health personnel usually think of using an appointment-letter intervention first. Likewise, health personnel in Samliem,

*[1]Department of Obstetrics and Gynecology, Faculty of Medicine, Khon Kaen University, Khon Kaen, 40002, Thailand. [2]Samliem Health Station, Samliem Community, Naimuang Subdistrict, Muang District, Khon Kaen, 40000, Thailand. *For Correspondence: Fax; 66-4334-8395, E-mail; bchumworathayi@gmail.com*

the inner-city community of Khon Kaen, used this strategy because it is practical, inexpensive and simple.

In order to reduce the incidence and mortality of cervical cancer among Thai women using the TNCI implemented strategy, we designed this study to assess the efficacy of the appointment-letter intervention in increasing uptake of cervical cancer screening, as a primary end-point, among women 35, 40, 45, 50, 55, 60 and 65 years of age in the Samliem inner-city community, Khon Kaen, Northeast Thailand.

Materials and Methods

Samliem community is a large community located near Khon Kaen University; ~1-1.5 km (10-15 min on foot) from Srinagarind (university) Hospital and not more than 500 m from a community health station where women can get a Pap smear.

We designed this study as a quasi-randomized trial to answer the question, "Can an appointment-letter intervention increase uptake of Pap smear screening?" We subdivided women in the community into an intervention or control group according to their age recorded in our database. Women 35, 40, 45, 50, 55, 60 and 65 years of age were assigned to the intervention group according to TNCI's strategy. Women between 36-39, 41-44, 46-49, 51-54, 56-59 and 61-64 years of age were assigned to the control group. Women, who (1) had undergone a Pap smear in the last five years or had had an abnormal Pap smear, (2) had no cervix or (3) were terminally ill, were excluded.

The sample size was calculated from our pilot study, which indicated that Pap smear coverage in our control group might increase to 30% during study period, and in the mean time, we expected to see an increase to 50% in the intervention group. With a power of 80%, $Z\beta=0.84$ and $Z\alpha=1.96$, we needed at least 93 women in each group. We were, however, able to provide intervention and interviews for 150 and 170 eligible women in the intervention and control groups, respectively (Figure 1).

Within the month of January, 2007, the study was explained to the women and then they provided informed consent as per the requirements of our institutional ethics review board. Baseline interviews were performed in both group by one of the researchers, who also provided culturally-sensitive health education that emphasized the need for screening. The appointment letters were sent to women in the intervention group within February, with the last date of appointment on 31st March, 2007. These letters offered an appointment to have Pap smear screening on specified dates in March. In April, 2007, immediately post-intervention, screening-coverage interviews were performed for both groups and compared. The Pearson's chi-square test and student t-test were used for the continuous data and the Fisher's exact test for categorical data.

Table 1. Comparison of Demographic Data between the Two Groups

Characteristics	Intervention group N=150 Mean or number	Control group N=170 Mean or number	P-value
Age(mean in years)	48.15	47.99	0.774
Parities (mean)	2.13	2.40	0.065
Marital Status			
Married	122	146	0.343
Single	28	24	
Educational Level			
Primary school	97	113	0.911
Secondary school	35	39	
Bacheler degree- or higher	18	18	
Employment Status			
Household worker	62	60	0.475
Private business-employee	23	28	
Private business owner	49	68	
Government officer	16	14	
Income/month (Thai Baht)			
<5,000	78	58	0.011*
5,001-10,000	34	49	
10,001-15,000	22	30	
15,001-20,000	10	14	
20,001-25,001	6	19	

Table 2. Initial and Final Coverage of Pap Smears in the Two Groups

Timing of Survey	Intervention N=150 n (%)	Control N=170 n (%)	P-value (χ^2 test)
1. Initial (Pre-intervention)	0	0	0.999
2. Final (Post-intervention)	67 (44.67)	44 (25.88)	0.001

Results

Samliem community has a total population of 12,942; of whom 6,694 are women; of these 2,105 are between 35 and 65 years of age. The coverage of Pap smear among women 35-65 years-old, according to the Thai national cervical cancer screening program (every 5 years), was 34.2%. Of the 320 women selected at random from the two age groups of this inner-city community, we successfully recruited 320 (15.2% of women aged 35- to 65-years-old).

Our randomization successfully yielded two comparable study groups. There was no significant difference between the two groups in the distribution of

Table 3. The Reasons why the Women in the Control Group had Pap Smears during Study Period

Reasons	Number (N=44)	%
Information from-health volunteers-and PCU nurses	42	95.45
Information from-home visit invitation	9	20.45
Fear of cancer	3	6.82
Voluntary wish	2	4.55

PCU = Primary Care Unit

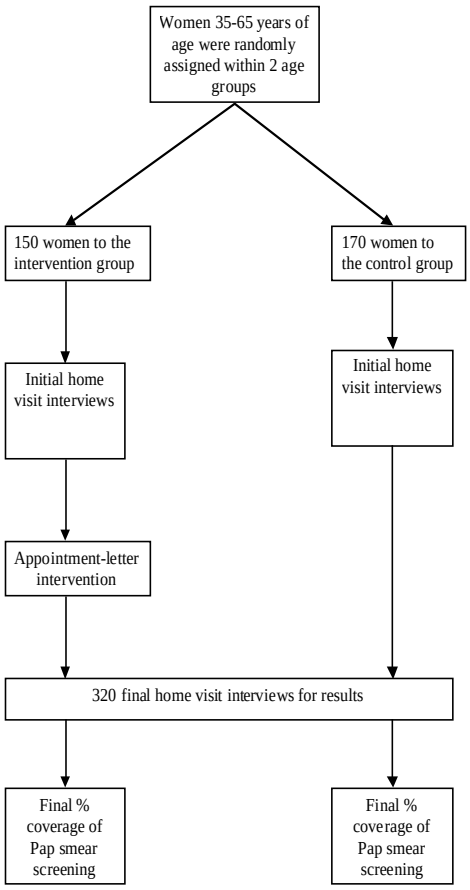

Figure 1. Participant Flow Chart

subjects by age, parities, marital status, educational level or employment status (Table 1). Women in the control group seemed to have higher income than those in the intervention group (p=0.011). 320 women in both groups (100%) received a home visit invitation and health educational session in January, 2007. According to our plan, 150 women (100%) in the intervention group received the appointment-letters (from one of the authors) and 320 women (100%) in both intervention and control group participated in the post-intervention interviews.

Despite the 320 women not obtaining recommended screening exams at baseline, there were substantial increases in Pap smear screening among both the intervention and control groups (Table 2). These improvements were different between groups [67 (44.67%) vs. 44 (25.68%), p=0.001]. The coverage rate in the intervention group was significantly higher. The reasons why women in the control group had Pap smear check up are also shown (Table 3).

Discussion

An appointment letter, as an intervention, could improve the cervical cancer screening-coverage rates among women between 35 and 65 years of age from the inner-city Samliem community of Khon Kaen, Northeast Thailand. We found that the rates for women in both groups substantially increased from baseline to follow-up interviews, but the rate of the intervention group was significantly higher (44.67% vs. 25.88%, p=0.001). The rate increase among the control group over the study period was higher than that in our previous report (25.9 vs. 11%) (Chalapati and Chumworathayi, 2007) and the difference might be the result of their higher income compared with those in our previous study and in this study's intervention group.

Given that women in the control group had a higher income than women in the intervention group, their screening coverage rate did not increase to a level comparable with that of the intervention group, which had received the appointment letter intervention. This finding further supports the efficacy of this strategy amongst this group of women. Although the coverage rate could not reach the 50% goal set by the TNCI, the results are reached 44.67%, which is remarkable considering the baseline Pap smear screening coverage rate among the general Thai female population is 5% (Srivatanakul, 2000). Certainly, if a rate of 44% could be sustained annually, the ultimate goal of an overall 50% coverage could be achieved.

A substantial increase in the cervical cancer screening coverage rate in the control group suggests that our home visit intervention have also had an impact. This was supported by the reasons given by women in control group why they had gone for Pap smears during the study period, namely: (1) "information from health volunteers and Primary Care Unit (PCU) nurses" (95.45%) and (2) "information from home visit invitation" (20.45%) of the 44 control women having Pap smears. The "Hawthorne effect" may also have played a role since the baseline interview might have stimulated some of the participants to obtain screening tests (Gehlbach, 1993).

Our results were similar to those of many studies done in developed countries. Current practice in the UK, Italy and a number of other countries involves sending invitation letters both from GPs and/or Health Authorities (Dept of Health, 1998, Segnan et al., 1998). Forbes et al. (2005) reviewed 3 studies, for a total of 4807 participating women, in order to compare the uptake of cervical cancer screening between the letter-with-fixed-appointment vs. the letter-with-an-open-appointment-invitation. They found that the relative risk (random, [95% CI]) was 1.49 [1.27, 1.75] (Forbes et al., 2005). Similarly, we used a letter with fixed appointment, which was effective.

We conclude that the use of an appointment-letter intervention in combination with health education is effective. Education by itself, however, is likely to be insufficient. Promoting health in developing countries, like Thailand, is particularly difficult because of the low priority given preventive services as people are more concerned with satisfying their immediate needs. Healthcare is, therefore, only a priority when illness strikes. Additional strategies are required, such as: (1) sending out a mobile unit; (2) making advanced appointments; (3) using special holidays; (4) mass-screening with friends; and/or (5) legislation. Our results show that making appointments in advance, with an appointment letter in combination with a health education program makes a significant impact, resulting in increased Pap smear screening.

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