



A Systematic Review of Intervention on Improving Cervical Cancer Screening Rates

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Abstract. Cervical cancer is a disease that can be prevented through early detection. However, cervical cancer is the fourth leading cause of death for women globally due to the low coverage of cervical cancer screening. An intervention is needed to increase the coverage of cervical cancer screening. This study aimed to provide current evidence of effective interventions to improve cervical cancer screening coverage, especially with low socio-economic conditions. This study uses a systematic design review to review the literature that has been evaluated in a structured, classified, and categorized based on evidence-based previously. The study's inclusion characteristics are as follows: all article searches are limited to those in English or Indonesian only, and scan bibliography to identify relevant articles, method design is RCT studies, or quasi-experiments. The study results found the characteristics of the article as follows: the majority of studies were conducted in the Americas, two studies in Asia, and one in Europe. The respondents' age varied from > 18 years to 75 years; the number of samples ranged from 102 to 12,061 respondents. Interventions were grouped into three types, namely: health education, self-testing, and reminders of the screening schedule. Among the three types of interventions most recommended is counseling with video media, because providing information with exciting media will increase knowledge which will increase women's interest in screening. Independent screening interventions can also increase the coverage of cervical cancer screening in women with low socio-economic conditions because this method allows more savings in funding.

Keyword: cervical cancer, cervical screening, a systematic review



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INTRODUCTION

Cervical cancer is the fourth leading cause of death in women globally; as many as 528,000 cases were diagnosed in 2012. About 87% of all cases and 90% of all deaths from cervical cancer occur in developing countries (1). Cervical cancer is a disease that can be prevented by early detection with a Pap smear. Early detection using a Pap smear has been used worldwide to detect and treat dysplasia before it develops into cancer (2). Early detection has been recognized to reduce cervical cancer rates in developed countries with high incomes, especially states that have implemented early detection programs nationally (3). It has been accepted that cervical cancer screening as a public health intervention to reduce the incidence and death from this disease (4).

Women's socio-economic conditions can influence women's involvement in cervical cancer screening. This study will examine the effect of interventions to increase cervical cancer screening coverage in the low socio-economic population. Based on reviews (5) found that interventions to increase the coverage of cervical and breast cancer screening would be useful by combining knowledge with theoretical models. The results of his research suggest that economic and geographical problems must be addressed. In addition, health workers play a significant role in promoting women's awareness about cervical cancer. Another thing is that the invitation for cervical cancer screening by mail should be avoided because this method can reduce the interest in screening women with high incomes and prevent women with low economies from participating in cervical cancer screening.

OBJECTIVE

This study aims to provide current evidence of interventions to improve cervical cancer screening rates, especially in the low socio-economic population.

METHOD

This type of research is a systematic review. This reviews the literature that was evaluated in a structured, classified, and categorized manner based on previous evidence-based (6).

This study is fit to be used as a preliminary study and to provide direction on nursing interventions. This study's reporting follows the recommendations of PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). The first stage of PRISMA is the identification of articles based on keywords. Then articles are screened based on titles, abstracts, and keywords. The next article is filtered based on criteria. At this stage, the article is viewed as worthy by reading the contents of the article to ensure that the article is suitable for review. The next step is data extraction, which is poured into the PRISMA checklist (7).

Data based, which is used to search literature, is MEDLINE and CINAHL. This strategy's procedure starts from searching for articles in each data based beginning from January 2005 to May 2020.

The keywords were used: "cervical cancer," "cervical cancer screening," "cervical screening," "perceived risk," and "risk perception." To identify search keywords using PICO where, P (Population): women of age range who have to screen for cancer cervical; I (Intervention): Interventions were grouped into three types namely: health education, self-testing, and reminders of the screening schedule; C (Comparison): -; O (Outcome): an increase in cervical cancer screening rate. The keywords were used: "cervical cancer," "cervical cancer screening," "cervical screening," "health education," "self-testing," and "reminders of the screening schedule."

In addition, the literature search strategy uses inclusion criteria. The inclusion criteria for article search are as follows: all article searches are limited to those in English or Indonesian only, and scan bibliography to identify relevant articles, design RCT studies or quasi-experiments, populations in studies of women of age range who have to screen for cancer cervical, research is carried out in developing or underdeveloped countries, and the outcome of the study is an increase in cervical cancer screening coverage.

The division makes an article selection of tasks between the primary author and the members. The main author is tasked with selecting and reviewing all titles and abstracts obtained from the database to determine eligibility. The member's task is to get the full text and determine the eligibility of each article.

The lead author carried out data extraction using the inclusion and exclusion criteria format, the intervention and control groups, and the research outcomes. The contents of the form in each article include the respondent's age and the location of the study. Rating the quality of articles was used Jaddad's score. Jaddad's rating independently assesses methodological quality. The components evaluated are randomization, double-blinding, and withdrawals and dropouts (8). How to give a scoring to Jaddad 's score, the first question is whether the study was conducted randomly, if yes, then given a value of 1, if not given a value of 0. The second question whether the method used to generate the randomization sequence, if explained and accordingly, was given a value of 1 and if not given a value of 0. The third question is whether the study was conducted double-blind, if yes then it was given a value of 1, and if not given value 0. The fourth question is whether the double-blinding method is explained and appropriate (use of identical placebo, active placebo, dummy, etc.), if yes, given a value of 1, if not given a value of 0. The fifth question explained the description of withdrawal and dropped out of the sample. If yes, then assigned a value of 1 and if not given a value of 0 (9).

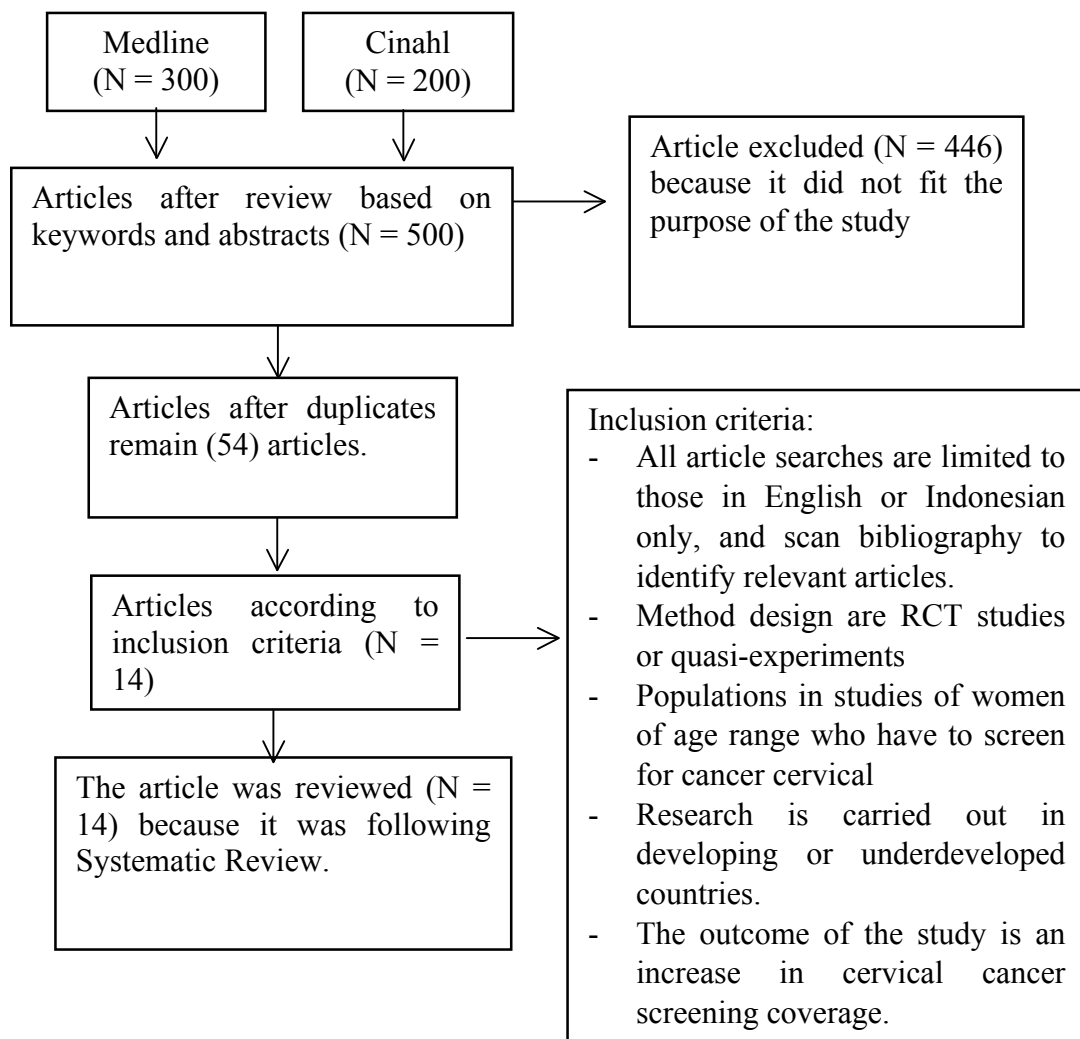
RESULTS

The total of articles searches through the data based article to produce 500 articles. After going through the duplication, title, and abstract selection by the

primary author, 40 articles are left. Of these, only 14 articles met the inclusion criteria. The 14 articles are then analyzed (Figure 1).

The characteristics of the 14 articles reviewed are as follows: 11 studies were conducted in the American continent, two studies were carried out in the Asian continent, and 1 in the European continent, no research was conducted in Indonesia. Age in this study varies significantly from the youngest age > 18 years to the oldest 75 years, while the number of samples at least amounted to 102 respondents to the most numbered 25,061 respondents. The duration of intervention also varies but generally starts from a few months to several years.

Figure 1. Prism Flow Diagram



From these 14 articles, the intervention grouping is carried out into three intervention groups. The division is 1) Health education (10-19). 2) Self-testing (HPV sampling by yourself) (20;3), and 3) Remind to conduct screening (20-21)

1. Health education

Health education is divided into two methods: those that provide information directly (face to face) and through the media.

a. *Providing Direct Health Education*

Health education is carried out by cadres, with the consideration that cadres are closer to women. The study was conducted in America for his health education regarding cervical and breast cancer screening. Health education in this study is carried out individually and in groups. The P-value in this group is significant, which is <0.001 .

Other research was conducted by using cadres as educators about screening and facilitating screening examinations. The analysis showed that the two were not very significant between the health education group and those combined with reminders. This study has the potential for contamination in the control group (13).

Research also uses cadres as providers of education, combined with the procurement of community screening activities. The analysis showed a significant difference between the intervention and control groups of 14% (18).

A study then uses cadres as providers of education by comparing education to individuals or small groups that are more effective. The results of the analysis showed post educational intervention individually experienced a higher increase (45.5%) than in the group (39.4%) (15)

Three articles provide health education in packages based on cadres' health promotion (12; 16;17). Research by Chalapati and Chumworathayi (11) includes information about Pap smear screening using leaflet media as reading. While a study Mishra (16) conducted on American Samoa women by using the concept of healthy behavior to influence knowledge, communication of patients with health professionals, individual trust, and self-efficacy (16). The study using cadres to provide health education to Hispanic women based on a social cognitive theory with the hypothesis that knowledge of the benefits and risks of screening will make women screen (17)

Research in this group also seeks to help women overcome obstacles in obtaining health (17) and skills for making contracts for screening (16). All three studies show a significant increase in screening coverage.

b. *Provision of Health Education with video media*

The four studies in this review provide health education using video as a teaching medium. Health professionals give the two studies' interventions as education providers on cervical cancer screening (10, 12). Both of these studies showed significant improvement in cervical cancer screening. Whereas two other studies by cadres as educators about screening (14, 19).

A study used cadres as providers of educational material to increase awareness of the benefits of screening. The analysis showed

that more intervention groups participated in cervical cancer screening (15%) (14).

Other researchers use cadres as providers of education about cervical cancer and screening through audiovisuals at respondents' homes. Cadres also recommend doing sports (19). The analysis showed that the intervention only affected women who had had Pap smears twice during their lives.

2. Self-screening

Two studies in this review used a tool to take HPV samples themselves (self-screening) to increase cervical cancer screening coverage (3,22). Both of these studies showed a significant increase in cervical cancer screening coverage.

A study in France on 18,730 women who had never been screened as an intervention group while the control group received an invitation to screen for cervical cancer, the results of the analysis showed that more intervention groups participated in cervical cancer screening (18.3%) than in the control group (2%) (3).

A study was conducted in Mexico on 25,061 respondents. The intervention group increased by 98%, which is due to nurses visit their homes to be given their sampling equipment. Then nurses brought the results compared to the control group, which only increased by as much as 87% where respondents were visited at home to be invited to screen for cervical cancer in the clinic the closest (22).

3. Screening schedule reminders

In this review, two studies use a screening schedule reminder to remind women of cervical cancer screening (20,21). Both of these studies showed a significant increase in cervical screening schedule.

A study was conducted in America in 1,413 women aged 40 to 69 years. At the same time, the control group made three telephone calls and an additional two phone calls to recommend discussions with health workers. The analysis showed that the intervention group more participated in the cervical cancer screening schedule (19.4%) than the control group (13%) (21).

A study in Thailand on 320 respondents. There was an increase in the intervention group (44.67%) where the respondent sent a letter containing the date of examination by health workers to take a screening test then the results were brought by health workers compared to the control group which only increased by (25.68%) where the respondent was not given an intervention (20)

Discussion

This study reinforces the previous intervention findings to increase the coverage of cervical cancer screening in low socio-economic groups. The new thing in this review is the existence of cervical cancer screening using HPV

sampling methods independently. This study also reinforces cadres' use in providing health education about cervical cancer and screening to women.

Two experimental studies found that independent screening can increase cervical cancer screening coverage in women with low socio-economic status. This can reduce the need for health workers to screen for Pap smears or IVA tests. And this seems acceptable to women, with women twice as likely to do screening if offered this method (23). This method allows more savings also in financing (22). However, the disadvantage of this independent test is that there are many false positives compared to the Pap smear test (22). Therefore, it can cause anxiety in women who use the test with this method and the high number of colposcopy referral rates, raising other challenges related to follow-up on women who get positive screening results.

In addition, this group intervention uses the theory of behavior change by empowering women by increasing their knowledge and skills related to cervical cancer screening. Various studies suggest that the factor that causes women not to screen is the level of knowledge. This is in line with the research conducted (24) in Tuban, which states that there is a significant relationship between women's knowledge and interest in screening, in this case, the IVA test. In this group, it was also found that the intervention would be more effective if added with assistance to women to access screening services such as face-to-face, or telephone communication, or cadres accompanying women to do the screening.

In addition to the method of HPV sampling independently, other interventions that can increase the coverage of cervical cancer screening in women with low socio-economic, namely the method of providing health education/counseling with the help of video media that has been proven from the three experimental studies examined. As previously stated, knowledge is a factor that can influence a woman's interest in screening (24). One effort to increase public awareness is by using counseling or health promotion. According to (25), counseling methods are considered more effective than other methods to improve community knowledge and maintain and improve health.

The information provided at the time of counseling certainly needs to be conveyed interestingly so that students easily understand it. Interesting advice can be done by adding interactive discussions and using media tools. The media can represent what is not able to be said by the giver of information. Through certain words or sentences, even the abstractness of the material can be concretized with the presence of the media. Visual media for concretizing health promotion material is audiovisual aid (AVA) or known as video. The advantages of using video in counseling include information delivered to be more realistic. There are features in the video that can add a more attractive appearance so that the interest of students to receive information increases (26).

In addition to video, the media that is often used in providing health education is leaflets. But in fact, video media is more effective than brochures. This is evident from research (26), which shows that video administration in the control group was 2.13 times more influential during IVA examination visits compared to leaflet administration. The research is in line with the previous study (27), which states that health education uses effective audiovisual media (p-value = 0.007) in improving the behavior of respondents in conducting IVA screening.

The provision of health education is indeed considered effective in increasing knowledge. However, differences in age, level of education, and experience can affect individual perceptions in receiving information. We cannot generalize all individuals who are given health education interventions to understand all the material presented. This is the weakness of the health education intervention. Therefore, a personal approach is needed to provide health education interventions.

From the various studies discussed, the majority of interventions were carried out by cadres. Interventions using cadres as health education providers show significant results to increase cervical cancer screening coverage. That is because the material presented is related to culture and is very sensitive for women. Thus, cadres need to be equipped with proper knowledge so that they can transfer their knowledge to women within their reach. This can be seen in research conducted (25) in Bantul, which mentioned an increase in women's desire to undergo screening after previously being given health education.

The two studies with intervening reminders of the screening schedule for cervical cancer screening were carried out (20,21). Both studies showed a significant increase in the cervical cancer screening schedule. A previous study (28) shows that the visit of facility users will double by simple notification (reminder), both by mail and by telephone. Thus, the goal of detecting pre-cancerous lesions can be achieved. But in Indonesia itself, it seems complicated to apply a reminder by mail or phone, but the approach should be made even though it is differently (29).

Limitations on the number of articles reviewed as many as 14 articles with different research locations. The majority of research is conducted in America with nine articles. The rest are in France, Thailand, Mexico, London, and Samoa (USA). The weakness in this review literature is the limited area of research in which the USA region is more numerous than other areas. 7 of the 14 articles that have been reviewed there are several articles that use respondents more than women of productive age, namely 20-35 year.

REFERENCES

- (1) Ferlay J, Soerjomataram I, Dikshit R, Eser S, Mathers C, Rebelo M, et al. Cancer incidence and mortality worldwide: sources, methods, and major patterns in GLOBOCAN 2012. *Int J Cancer*. 2015;136(5): E359–86.
- (2) Everett T, Bryant A, Griffin MF, Martin-Hirsch PPL, Forbes CA, Jepson RG. Interventions targeted at women to encourage the uptake of cervical screening. *Cochrane Database Syst Rev*. 2011;(5).
- (3) Sancho-Garnier H, Tamalet C, Halfon P, Leandri FX, Retraite L Le, Djoufelkit K, et al. HPV self-sampling Pap-smear: A randomized study among cervical screening non-attenders from lower socio-economic groups in France. *Int J Cancer*. 2013;133(11):2681–7.
- (4) Peirson L, Fitzpatrick-Lewis D, Ciliska D, Warren R. Screening for cervical cancer: a systematic review and meta-analysis. *Syst Rev*. 2013;2(1):35.
- (5) Spadea T, Bellini S, Kunst A, Stirbu I, Costa G. The impact of interventions to improve attendance in female cancer screening among lower socio-economic groups: a review. *Prev Med (Baltim)*. 2010;50(4):159–64.
- (6) Hariyati RTS. Mengenal systematic review theory dan studi kasus. *J Keperawatan Indones*. 2010;13(2):124–32.
- (7) Liberati A, Altman DG, Tetzlaff J, Mulrow C, Gøtzsche PC, Ioannidis JPA, et al. The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *Ann Intern Med*. 2009;151(4): W-65.
- (8) Zheng J, Wang J, Feng X, Li Y. A systematic review and meta-analysis of the efficacy and safety of long-acting release somatostatin analogs in patients with advanced neuroendocrine neoplasms. *Transl Cancer Res*. 2016;5(5):504–+.
- (9) Rintelen B, Neumann K, Leeb BF. A meta-analysis of controlled clinical studies with diacerein in the treatment of osteoarthritis. *Arch Intern Med*. 2006;166(17):1899–906.
- (10) Byrd TL, Wilson KM, Smith JL, Coronado G, Vernon SW, Fernandez-Esquer ME, et al. AMIGAS: a multicity, multicomponent cervical cancer prevention trial among Mexican American women. *Cancer*. 2013;119(7):1365–72.
- (11) Chalapati W, Chumworathayi B. Can a home-visit invitation increase Pap smear screening in Samliem, Khon Kaen, Thailand? *Asian Pacific J Cancer Prev*. 2007;8(1):119.
- (12) Fang CY, Ma GX, Tan Y, Chi N. A multifaceted intervention to increase cervical cancer screening among underserved Korean women. *Cancer Epidemiol Prev Biomarkers*. 2007;16(6):1298–302.
- (13) Hiatt RA, Pasick RJ, Stewart S, Bloom J, Davis P, Gardiner P, et al. Cancer screening for underserved women: the Breast and Cervical Cancer Intervention Study. *Cancer Epidemiol Prev Biomarkers*. 2008;17(8):1945–9.
- (14) Katz ML, Tatum CM, Degraffinreid CR, Dickinson S, Paskett ED. Do cervical cancer screening rates increase in association with an intervention designed to increase mammography usage? *J Women's Heal*. 2007;16(1):24–35.
- (15) Larkey LK, Herman PM, Roe DJ, Garcia F, Lopez AM, Gonzalez J, et al. A cancer screening intervention for underserved Latina women by lay educators. *J women's Heal*. 2012;21(5):557–66.

- (16) Mishra SI, Luce PH, Baquet CR. Increasing Pap smear utilization among Samoan Women: Results from a community based participatory randomized trial. *J Health Care Poor Underserved*. 2009;20(2 Suppl):85.
- (17) Nuño T, Martinez ME, Harris R, García F. A promotora-administered group education intervention to promote breast and cervical cancer screening in a rural community along the US–Mexico border: a randomized controlled trial. *Cancer Causes Control*. 2011;22(3):367–74.
- (18) Paskett ED, McLaughlin JM, Lehman AM, Katz ML, Tatum CM, Oliveri JM. Evaluating the efficacy of lay health advisors for increasing risk-appropriate Pap test screening: a randomized controlled trial among Ohio Appalachian women. *Cancer Epidemiol Prev Biomarkers*. 2011;20(5):835–43.
- (19) Taylor VM, Jackson JC, Yasui Y, Nguyen TT, Woodall E, Acorda E, et al. Evaluation of a cervical cancer control intervention using lay health workers for Vietnamese American women. *Am J Public Health*. 2010;100(10):1924–9.
- (20) Chumworathayi B, Yuenyao P, Luanratanakorn S, Pattamadilok J, Chalapati W, Na-Nhongkai C. Can an appointment-letter intervention increase pap smear screening in Samliem, Khon Kaen, Thailand? *Asian Pacific J Cancer Prev*. 2007;8(3):353.
- (21) Dietrich AJ, Tobin JN, Cassells A, Robinson CM, Greene MA, Sox CH, et al. Telephone care management to improve cancer screening among low-income women: a randomized, controlled trial. *Ann Intern, Med*. 2006;144(8):563–71.
- (22) Lazcano-Ponce E, Lorincz AT, Cruz-Valdez A, Salmerón J, Uribe P, Velasco-Mondragón E, et al. Self-collection of vaginal specimens for human papillomavirus testing in cervical cancer prevention (MARCH): a community-based randomised controlled trial. *Lancet*. 2011;378(9806):1868–73.
- (23) Racey CS, Withrow DR, Gesink D. Self-collected HPV testing improves participation in cervical cancer screening: a systematic review and meta-analysis. *Can J Public Heal*. 2013;104(2):e159–66.
- (24) Widyasari Y. Hubungan pengetahuan dan minat wanita usia subur (WUS) dalam melakukan pemeriksaan IVA di Desa Mander Kecamatan Tambakboyo, Kabupaten Tuban. 2010;
- (25) Aprilyta FN, Dwihestie LK, Salmiyati S. Pengaruh Penyuluhan Kanker Serviks Terhadap Tingkat Minat Pemeriksaan IVA Pada Wanita Usia Subur Di Dusun Jadan Tamantirto Bantul. 2017;
- (26) Herlinadiyaningsih H, Syaripahnoor S. Perbedaan media video dan leaflet terhadap kunjungan pemeriksaan iva di wilayah kerja puskesmas baamang i. *J Kebidanan Indones J Indones Midwifery*. 2020;11(1):1–6.
- (27) Silalahi V. Efektifitas pendidikan kesehatan menggunakan media audiovisual dan booklet terhadap perilaku wanita dalam melakukan skrining inspeksi visual dengan asam asetat (iva) untuk deteksi dini kanker serviks. Universitas Gadjah Mada; 2017.
- (28) Eaker S, Adami H-O, Granath F, Wilander E, Sparén P. A large population-based randomized controlled trial to increase attendance at screening for cervical cancer. *Cancer Epidemiol Prev Biomarkers*. 2004;13(3):346–54.
- (29) Dwipoyono B. Kebijakan pengendalian penyakit kanker (serviks) di Indonesia. *Indones J Cancer*. 2009;3(3).

Table 1. Characteristics of Intervention Research On Screening for Prevention of Cervical Cancer

No	Researcher and year	Location	Number of samples	Population	Intervention	Follow up	Outcome Measurement	Results
1	Sancho-Garnier et al., 2013	France	18,730	Women who live in areas with low socio-economic conditions do not respond when invited to screening, aged 35-69	Intervention: information about sampling independently, and samples that must be returned. All items are sent by post,	There is no follow up.	Respondents send samples via post.	a. 18.3% (Women who returned a self-sample for HPV testing) b. 2.0% (Women who attending for a Pap-smear) p <0.001
2	Fang., 2007	Cheltenham, USA	102	Korean women who do not use English, do not screen for at least six months and are ≥ 18 years old	The intervention group received information about cervical cancer using roleplay and videos. Control group: general information about cancer, including smoking, nutrition, medical check-ups, and cancer screening. both interventions were carried out face-to-face for 2 hours in small groups	Six months	Self-report	Pre-intervention & post-intervention a. 12% & 83%, 71% b. 22% & 22%, 0% P=0.001
3	Hiatt et al., 2008	San Francisco Strait, America	3215	Women with low income, multi-ethnic, aged between	Intervention 1: providing information about the needs of screening by cadres. Education is carried out individually and in small groups with prolonged interactions.	Three years	<i>Self-report</i>	a. Outreach vs control OR 0.9 (0.9 (0.6,1.3) b. Inreach vs control

				40 to 75 years)	Intervention 2: women in reach and control: Update information for health workers on screening guidelines, use patients as models to improve pelvic examination capabilities, and use reminders with institutional computers. Intervention 3: Interventions 1 & 2 vs Control group.			OR 0.7 (0.5,1.1) c. Both vs control, OR 1.2 (0.8,1.9)
4	Larkey et al., 2012	Arizona, USA	A total of 1006 consisted of 604 Gp SS and 402 Gp IND	Latin woman, age <18 years	Intervention 1: individual education includes topics including definitions and descriptions of cancer, detailed information on dietary recommendations, tobacco, and physical activity to reduce cancer risk; and screening for breast, cervical and colorectal cancers, including screening procedures. Intervention 2: Intervention added the process of group teaching exercises, discussions, and the provision of creative material that requires participant interaction. The intervention was delivered in six sessions every 80 minutes.	Three months 15 months	To report in	Three months a. 44.8% b. B.39.6% (p = 0.315) 15 months a. 48.8% b. 49.1% (p = 0.971)
5	Nuño et al., 2011	Arizona, United States	381	Hispanic woman with age ≥ 50 years	Intervention: education by cadres in Spanish focusing on breast and cervical cancer screening, the role of nutrition, and self-esteem and information about sources owned by the community, for 1-2 hours in a group conducted at the home of the respondent. Control group: usual care, namely	1 to 2 years	self-report	First-year a. 52% - 67%, 15% b. 43% - 58.15% (95% CI 0.9-2.6, p = 0.15) Second year a. 52% - 67%, 15% b. 43% -75%, 15

					reminding respondents of the screening schedule by mail and telephone			c. OR 2.8 (95% CI 1.3-6.0) p = 0.007)
6	Byrd et al., 2013	Houston & El Paso, Texas, Yakima Valley, Washington USA	A total of 613 consisted of 460 intervention groups in the control group, 153 people	Mexican women who have not been screened in the last three years with age ≥ 18 years	Intervention 1: AMIGAS intervention that is a video using role models discussing obstacles, giving flipcharts, card games containing their readiness to make changes. This intervention is carried out in small groups. For the difference in intervention two without video, triple intervention without flipchart, and the control group was not given intervention	Six months	Self-report	a. 52.3% b. 41.3% 45.5% d. 24.8% p < 0.001 between intervention and control groups
7	Paskett et al., 2011	Ohio, America	286 consisted of 145 intervention groups and 141	Appalachian women who need screening based on screening guidelines	Intervention 1: health care about cervical cancer, pap smears, and cadre follow up. Followed by face to face for 40-60 minutes for counseling obstacles, for unreachable respondents carried out by telephone calls as much as two times and four times the sending of letters. Intervention 2: Control: letters from doctors and brochures from the local government	12 months	Self-report and medrek	Self-report a. 71.3% b. 52.4% OR 2.1 (95% CI 1.22-3.61 Medrek a. 51.1% b. 42.0% OR 1.44 (95% CI 0.89, 2.33 P = 0.135
8	Katz et al., 2015	North Carolina	892	Ethnic Chinese women, not screened for two years, ages 20-69 years	Intervention: Education Education by cadres about using video, pamphlets. Then face to face in each respondent's home notifying them of insurance, free of charge	There is no follow up	Self-report	Before intervention - Post-intervention c. 51.6% -66.6%, 15% d. 52.9% -63.2%, 10.3%

					for screening			Women at low risk: OR 1.25 (CI 0.87-1.79, p = 221) Women at high risk: OR 1.88 (CI 1.54, 2.28 p <0.001)
9	Lazcano-Ponce E, 2011	Mexico, London, England	25,061	Latin / Hispanic women, unlimited age	Intervention group: home visits by nurses to be sampled using HPV sampling independently. While the Control group: invited to do pap tests at home and scheduled for pap tests at the local clinic	There is no follow up	Returns the sample by the nurse	a. 98% (Women found at home participated) b. 87% (Women randomized to cytology attended the local clinic for a Pap smear) p = 0.001
10	Taylor et al., 2010	Washington, America	234 consisted of the experimental group (n = 118) and the control group (n = 116)	Vietnamese-American woman, ages 20 to 79	Intervention: firsthand health education about cervical cancer and pap smears through DVDs, leaflets, and telephone follow-ups to ask what can be helped. Control group: primary education material sent by mail	Six months	Medrek.	Before -Paska intervention All women e. 15% -21%, 6% f. B. 14% -18%, 4% Women who are screened in a year a. 20% -28%, 8% b. B. 13% -16%, 3% OR 4.59 (1.28,16.48) A meeting that was never screened a. 9% -14%, 6% b. 8% -10%, 2%

								OR 1.17 (0.26, 5.30)
11	Mishra et al., 2009.	American territorial area, Samoa	398	American Samoa woman, not screened in 2 years, age \geq 20 years	Intervention group: the Educationeducation focuses on cervical cancer given in the booklet, the education is carried out for three weeks face to face in a small group. Control group: receive the same intervention after the study is finished	Six months	Self-report	a. 61.7% (Women in the intervention group) b. 38.3% (Control group) OR 2.8 (95% CI 1.3 - 6.0)
12	Dietrich et al., 2006.	New York, America	1413	Women with low and moderate opinions aged 40 to 69 years.	Intervention 1: 3 telephone calls to remind mammogram schedules and delivery of health material by post, assessment of barriers and interventions, help scheduling mammograms, cervical cancer, and colorectal screening Intervention 2: receive the same intervention and an additional two telephone calls to recommend discussions with health workers	One year	Self-report	Before intervention - post-intervention a. 57.8% -77.2%, 19.4% b. 59% -72%, 13% OR = 0.95 (0.67- 1.36)
13	Chumworath ayi, 2007	Thailand	320	Women who have lived in the city for at least five years	a. Intervention 1: send a letter containing the inspection date b. Control: no intervention was given	Two months	Self-report	Before intervention - Post-intervention c. 0% -44.67%, 44.67% d. 0% -25.68%, 25.68% (p = 0001)
14	Chalapati, Chunworath ayi, 2007	Thailand	304	Women who live in cities and do not	a. Intervention: providing direct information to respondents by local health workers through a list of	Four months	Self Report	The increased in the intervention zone a. 36.7 to 43.6%, 6.9% (p = 0.07)

				<p>have a screening in 5 years, aged 35 to 65 years</p>	<p>treatments through leaflets b. Control group: without intervention.</p>			<p>The increased in the control zone b. 31.5 to 34.9%, 3.4% (p = 0.37) c. p = 0.119.</p>
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