



香港中文大學
The Chinese University of Hong Kong



香港中文大學醫學院
Faculty of Medicine
The Chinese University of Hong Kong

A community health worker-led multimedia intervention to increase cervical cancer screening uptake among South Asian women: a randomized controlled trial

Project No.: 01170958

Wong CL, So WKW, Chan DNS

The Nethersole School of Nursing

Faculty of Medicine

The Chinese University of Hong Kong

Acknowledgements

- We thank the Health and Medical Research Fund, Health Bureau, Hong Kong SAR Government, for funding this project (ref.: 01170958).



Cervical cancer

- Cervical cancer is one of the most common cancer that affects women in HK.¹
- In 2021, 596 new cases of cervical cancer were diagnosed with a crude incidence rate of 14.8/100,000 of the female population.¹
- A total of 167 women died from this cancer in 2022.¹

<https://www.chp.gov.hk/en/healthtopics/content/25/56.html>



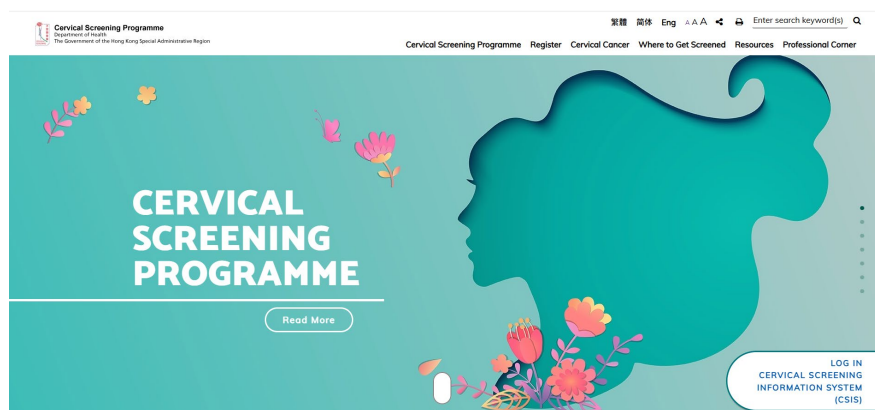
Cervical cancer

- Cervical cancer is usually asymptomatic in its early stages.
- Regular utilization of cervical cancer screening is recommended, enabling pre-cancerous lesions as well as early-stage malignant disease to be detected.^{2,3}
- Screening also increased treatment options for early detection thereby improving survival rates & reducing healthcare costs.



Cervical cancer screening

- The Papanicolaou test, or Pap test, is widely used for cervical cancer screening.
- In HK, women between the ages of 25 and 64 with sexual experiences are recommended to undergo a Pap test every three years.⁴



<https://www.cervicalscreening.gov.hk/en/index.html>



South Asians in Hong Kong

- The population of ethnic minorities living in HK increased by **37.3%** from 2011 to 2021.⁵
- South Asians (from India, Nepal, and Pakistan) are the **largest** (16.5%) & one of the **fastest-growing** ethnic minority groups in HK.⁵



South Asians in Hong Kong

**>50% have resided
in the HK for ≤ 7
years**

**Most engaged in
either elementary
occupations such
as cleaners &
helpers (30%)**



South China Morning Post, 2019

**Only 20.4% can
read and speak
Cantonese**

**Most (67%) only
have a secondary
school education**

Census and Statistics Department, 2021



香港中文大學
The Chinese University of Hong Kong



香港中文大學醫學院
Faculty of Medicine
The Chinese University of Hong Kong

Ethnic disparities on cancer screening

- Local study showed that >50% of SA women in HK aged 40 or older never had a Pap test.⁶
- Their screening rate was also significantly lower than that of the general population of HK.⁶

Screening rate
among SA women



Screening rate among
general HK women



Barriers contribute to low screening uptake



Health
Illiteracy ⁸

Misconceptions
about cancers
and screening ⁸

Language
barriers ⁸

Lack of
knowledge
about
cancers and
early
detection

Limited
access to
health
services ⁸

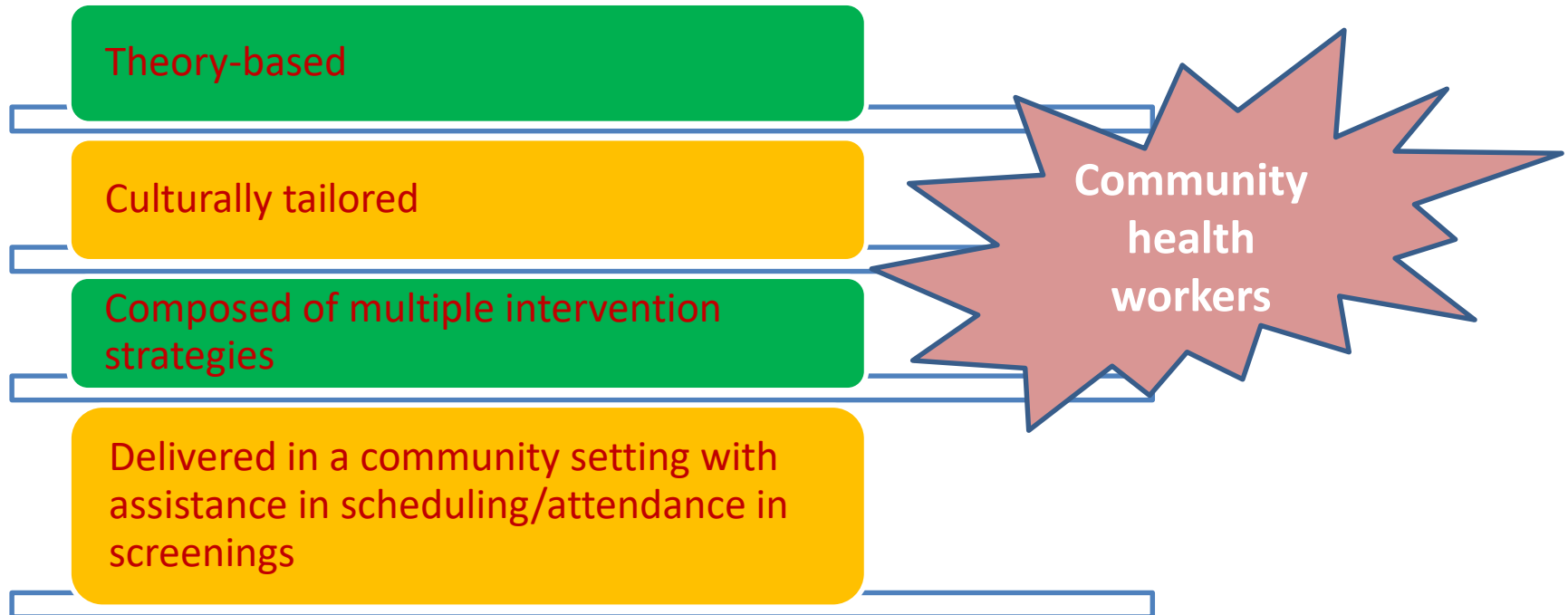


Strategies?



Characteristics of effective strategies to promote cervical cancer screening

Several systematic reviews & meta-analyses suggested that effective interventions share a number of common characteristics.⁸



Interventions lead by community health workers

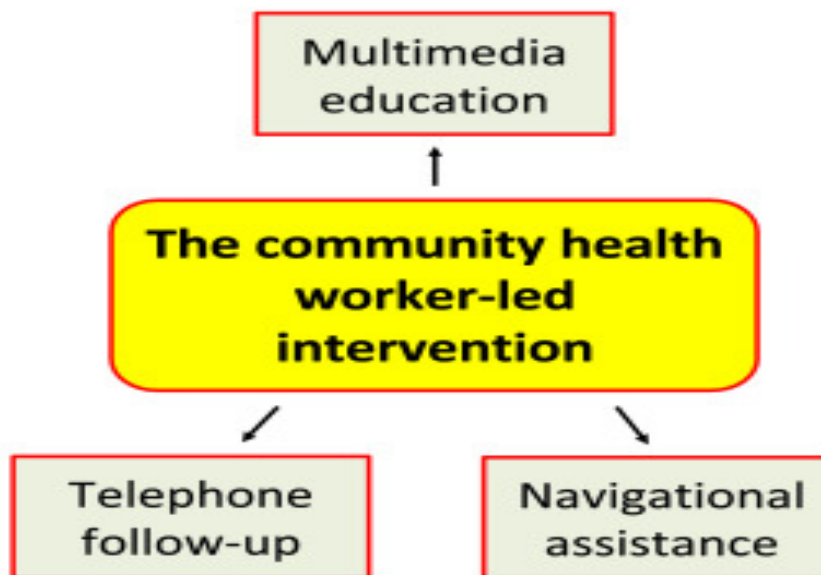
- Community health workers are **lay individuals** from the concerned community who are trained as participants and who link the members of their communities with healthcare providers to facilitate intervention.⁹



Community health worker-led multimedia intervention

- Our team developed an evidence-based multimedia educational intervention to promote cervical cancer screening among SA in HK

1) Culturally and linguistically appropriate

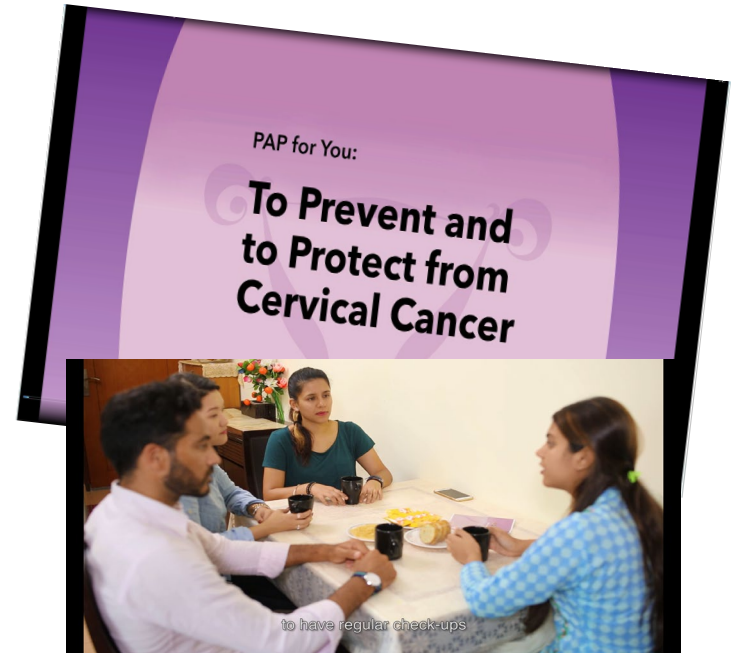
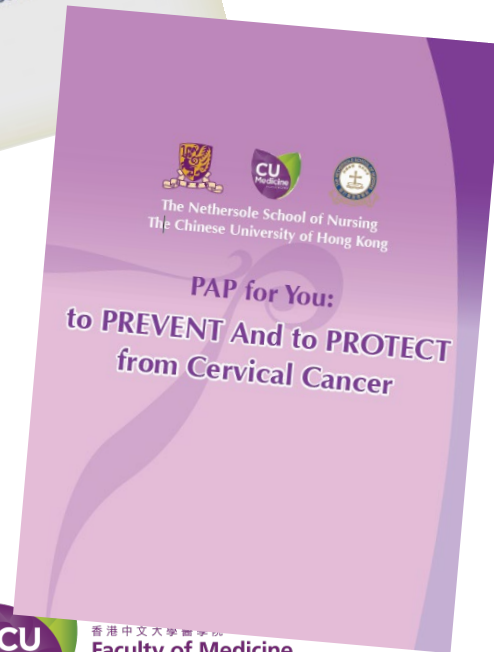


2) Monthly telephone follow up for 3 months

3) Navigational assistance by community health workers



Multimedia interventions lead by community health workers



Community health worker-led multimedia intervention



- To examine the effects of a community health worker-led multimedia intervention on cervical cancer screening uptake among South Asian women in Hong Kong.
- The study consisted of two phases.



Phase I – Training of community health workers

6 CHWs (2 Indians, 2 Nepali, 2 Pakistani) are recruited from 6 different ethnic minority associations.

The training of CHWs by the research team requires 14 hours

- ✓ cervical cancer and screening;
- ✓ resources and access to screening tests;
- ✓ beliefs, myths, and misconceptions about cancer and cancer screening;
- ✓ to cancer screening; facilitators and strategies to overcome such possible barriers;
- ✓ communication and problem-solving skills;
- ✓ and navigation support.



Phase I – Training of community health workers



Phase II – Cluster-randomized wait-list controlled trial

- This study was a prospective, assessor-blind, two-arm, cluster-randomized wait-list controlled trial, with a three-month follow-up.



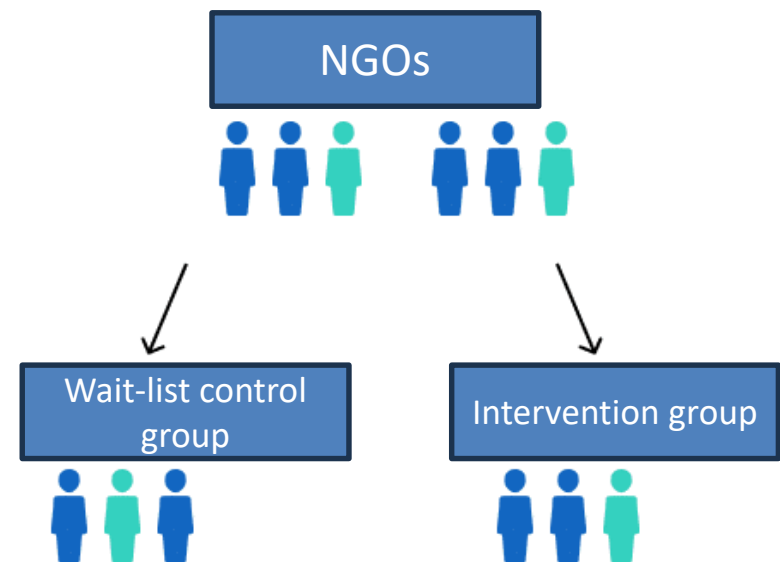
Phase II - Participants

- Participants were recruited from 6 NGOs.
- Eligibility criteria were:
 - identifying as an Indian, Pakistani or Nepali, the three largest South Asian populations in Hong Kong;
 - aged at least 25 years and with sexual experience;
 - not having undertaken a Pap test previously or in the past five years;
 - without a history of cancer diagnosis;
 - can understand English, Urdu, Nepali, Hindi, or Punjabi.
- Each organization was considered as a cluster.



Phase II - Randomization and masking

- 6 NGOs in HK were randomized into either the intervention group (n=3) or the wait-list control group (n=3).
- One female South Asian was recruited from each organization to act as a CHW.



Outcomes

Outcomes were measured at baseline (T0), immediately after (T1) and three months after (T2) the intervention.

- Primary outcome: Uptake of cervical cancer screening.
- Secondary outcomes: Cervical cancer screening beliefs – assess participants' perceived susceptibility, perceived seriousness, perceived benefits, perceived barriers and self-efficacy of undergoing cervical cancer screening.



Data analyses

- The generalized estimating equations (GEE) approach in conjunction with a small-sample correction for sandwich variance estimate was used to compare the primary and secondary outcomes between the two groups.



Results – Sociodemographics

Characteristics	Intervention (n=201)	Control (n=201)	p-value
Age (years) ^c	41.63 (8.5)	40.05 (8.6)	0.066 ^a
Ethnicity			1.000 ^b
Pakistani	67 (33.3%)	67 (33.3%)	
Nepali	67 (33.3%)	67 (33.3%)	
Indian	67 (33.3%)	67 (33.3%)	
Education			0.600 ^b
Primary school or below	65 (32.3%)	55 (27.4%)	
Secondary school	58 (28.9%)	59 (29.4%)	
College	43 (21.4%)	43 (21.4%)	
University or above	35 (17.4%)	44 (21.9%)	
Employment status			0.287 ^b
Full-time	52 (25.9%)	42 (20.9%)	
Part-time	14 (7.0%)	21 (10.4%)	
Housewife	135 (67.2%)	138 (68.7%)	
Marital Status			0.487 ^b
Single	0	1 (0.5%)	
Married/ cohabiting	189 (94.0%)	191 (95.0%)	
Separated /divorced / widowed	12 (6.0%)	9 (4.5%)	

Results – screening uptake

Outcomes	Control (n=192)	Intervention (n=195)	Effect estimate	p-value
<u>Screening uptake</u>				
Undergone a Pap test after intervention				
T1	73 (38.0%)	110 (56.4%)	2.09 (0.34 – 12.82) ^a	0.424
T2	101 (52.6%)	191 (97.9%)	42.73 (3.09 – 591.82) ^a	0.005**



Results – Cervical cancer screening belief

Outcomes – Cervical cancer screening belief	Control (n=192)	Intervention (n=195)	Effect estimate	p-value
Perceived susceptibility ^{c,d}				
T0	2.20 (0.97)	2.12 (0.94)		
T1	2.14 (0.95)	2.01 (0.91)	-0.06 (-0.42 , 0.30) ^b	0.749
T2	2.39 (1.66)	2.13 (0.93)	-0.19 (-1.80 , 1.42) ^b	0.818
Perceived severity ^{c,d}				
T0	3.10 (0.84)	3.16 (0.90)		
T1	3.45 (0.84)	3.27 (0.94)	-0.24 (-1.41 , 0.93) ^b	0.684
T2	3.34 (1.04)	2.67 (0.92)	-0.74 (-2.17 , 0.70) ^b	0.315
Perceived benefits ^{c,d}				
T0	3.75 (0.62)	3.73 (0.65)		
T1	3.95 (0.57)	4.03 (0.51)	0.10 (-0.28 , 0.48) ^b	0.605
T2	4.01 (0.68)	4.20 (0.38)	0.21 (-0.25 , 0.67) ^b	0.367
Perceived barriers ^{c,d}				
T0	2.58 (0.59)	2.90 (0.69)		
T1	2.50 (0.61)	2.14 (0.46)	-0.68 (-1.35 , -0.01) ^b	0.047*
T2	2.66 (0.87)	2.11 (0.46)	-0.86 (-1.69 , -0.04) ^b	0.041*
Self-efficacy ^{c,d}				
T0	3.36 (0.91)	2.68 (1.15)		

Discussion and conclusion

- A **culturally and linguistically appropriate, multimedia**, CHW-led intervention is effective in enhancing cervical cancer screening uptake and reducing perceived barriers to cervical cancer screening among the South Asian female population in HK.
- This intervention strategy could help to lower ethnic disparities in cervical cancer screening uptake.
- The implementation of such CHW-led interventions for the promotion of cervical cancer screening uptake among other ethnic minority groups is recommended.



Impact



The IMPACT (Integrative Multicomponent Programme for promoting south Asians' Cancer screening upTake) programme

Cancer screening can be effective in reducing cancer burden. However, ethnic minorities are typically less likely to access such preventive services.

The IMPACT (Integrative Multicomponent Programme for promoting south Asians' Cancer screening upTake) project team, led by Prof. Winnie SO, Prof. Dorothy CHAN and Prof. Jojo WONG, has identified and addressed barriers encountered by South Asians - the largest ethnic minority group in Hong Kong - in accessing cancer screening services. The team has also translated their research findings into various evidence-based interventions to facilitate decision-making among South Asians to undergo cancer screening, improve their access to screening services, and implement a training programme that empowers community health workers to facilitate South Asians to take various cancer screening tests.

All of these interventions have successfully empowered local South Asians and community partners to engage in healthy behaviours. The research team's ongoing efforts include a scale-up programme to train more South Asian community health workers and expand their outreach efforts, reaching more South Asian women and encouraging them to undergo cervical cancer screening tests.

Since 2014, the research team has developed a community health worker training programme and several multicomponent interventions for improving the uptake of breast, cervical and colorectal cancer screenings. The health booklet has been translated into Urdu, Nepali and Punjabi languages.

The scale-up programme successfully trained more than 50 South Asian women as community health workers and reached out to over 1,000 of their peers. This programme significantly boosted cervical cancer screening uptake among the outreached South Asian women to more than 75%.



Appreciation ceremony celebrating the interim success of the training programme

This IMPACT programme has been disseminated through various invited presentations and publications. The project team was invited to serve as one of the panellists on a National Comprehensive Cancer Network webinar to share their experience and suggest strategies to ensure cancer screening tools are utilised at the international level.

The IMPACT programme was recognised by the World Health Organization's (WHO) Western Pacific Innovative Challenges as an innovative solution for various health challenges in the Western Pacific Region.



STUDY PROTOCOL

Open Access

A community health worker-led multimedia intervention to increase cervical cancer screening uptake among South Asian women: study protocol for a cluster randomized wait-list controlled trial



Cho Lee Wong, Winnie Kwok Wei So , Dorothy Ngo Sheung Chan, Kai Chow Cl

Abstract

Background: Marked ethnic disparities on cervical cancer screening have been observed among South Asian women. Multiple barriers, such as language difficulties, poor access to screening services, and low health literacy, have been identified. Multimedia interventions led by community health workers (CHWs) could potentially increase cervical cancer screening uptake among South Asian women. This study aims to evaluate the effects of a CHW-led multimedia intervention on the uptake of cervical cancer screening among South Asian women.

Methods: This study is a cluster randomized wait-list controlled trial. A total of 408 South Asian women from Pakistan, India or Nepal will be recruited from six ethnic minority associations. Each association will be randomized to either an intervention arm ($n = 3$) that will undergo immediate intervention or a wait-list control arm ($n = 3$) that will receive delayed treatment. The intervention arm will receive a multimedia intervention comprising two components: multimedia education, and monthly navigation assistance. Participants in the control arm ($n = 3$) will be offered the CHW-led intervention after the intervention arm has completed the intervention. The primary outcome measure is the uptake of cervical cancer screening. Secondary outcomes include readiness to undergo screening and cancer screening. Outcomes assessments will be performed at baseline, immediate post-intervention, and 3 months post-intervention.

Discussion: The results of this study will potentially provide significant practical implications for increasing the uptake of cervical cancer screening among South Asian women.

Trial registration: Chinese Clinical Trial Registry, ChiCTR1800017227. Registered on 18 July 2018.

Keywords: Cervical cancer, Community health worker, Screening, Multimedia

ARTICLE IN PRESS

American Journal of Preventive Medicine

RESEARCH ARTICLE

A Community Health Worker—Led Multicomponent Program to Promote Cervical Cancer Screening in South Asian Women: A Cluster RCT

Cho Lee Wong, RN, PhD, Kai Chow Choi, PhD, Jieling Chen, PhD, Bernard M.H. Law, PhD, Dorothy N.S. Chan, RN, PhD, Winnie K.W. So, RN, PhD

Introduction: South Asian women in Hong Kong have low cervical cancer screening uptake because of multiple barriers to utilizing health resources. Interventions that effectively modify the cancer screening behaviors of this population are warranted. This study evaluates the effects of a community health worker—led multicomponent intervention on improving cervical cancer screening uptake among South Asian women in Hong Kong.

Study Design: This study was an assessor-blind, cluster RCT that included a waitlist control group.

Setting/participants: Recruitment of eligible subjects took place in 6 nongovernmental organizations; these organizations were randomized into intervention and control groups with a 1:1 allocation ratio.

Intervention: Participants in the intervention group received a 3-month multicomponent intervention comprising health education, monthly telephone follow-ups, and navigation assistance.

Main outcome measures: Participants' cervical cancer screening utilization and beliefs were assessed at baseline, after intervention, and 3 months after intervention. A longitudinal outcome comparison between the 2 groups was performed with generalized estimating equation analysis. Data were collected between September 2018 and January 2020 and were analyzed in 2019–2020.

Results: A total of 387 participants completed the intervention. A significantly higher cervical cancer screening uptake was observed among participants in the intervention group (97.9%, 191 of 195) than among participants in the control group (52.6%, 101 of 192) at 3 months after intervention ($p = 0.005$). Significantly greater decrements in perceived barriers to cervical cancer screening were found in the intervention group after intervention (-0.68 , 95% CI = -1.35 , -0.01 , $p = 0.047$) and 3 months after intervention (-0.86 , 95% CI = -1.69 , -0.04 , $p = 0.041$).

Conclusions: A community health worker—led multicomponent intervention is effective in promoting cervical cancer screening uptake and in reducing barriers to cancer screening utilization among South Asian women in Hong Kong. Combining a community health worker—led intervention with multiple intervention components could be an effective strategy for developing interventions to increase cervical cancer screening in underserved populations.

Trial registration: This study was registered at the Chinese Clinical Trial Registry (<http://www.clinicaltrials.gov>) ChiCTR1800017227 on July 18, 2018.

Am J Prev Med 2021;000(000):1–10. © 2021 American Journal of Preventive Medicine. Published by Elsevier Inc. All rights reserved.

Article

Effects of a Community Health Worker-Led Multimedia Intervention on the Uptake of Cervical Cancer Screening among South Asian Women: A Cluster Randomized Controlled Trial

Wong et al., *International Journal of Environmental Research and Public Health* 2019, 18(16):270

Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong
hk.edu.hk; +85239431072

21 August 2019; Published: 23 August 2019

The effects of cervical cancer screening services among South Asian women in Hong Kong, conducted by community health workers (CHWs) could potentially increase screening uptake among these individuals. This study aimed to evaluate the preliminary effects of a CHW-led multimedia intervention on cervical cancer screening uptake among this underprivileged group. This pilot study utilized a cluster randomized controlled trial design. Forty-two South Asian women were recruited at six ethnic minority organizations into either the intervention arm or wait-list control arm. The intervention was conducted by the CHWs from the organizations. Participants were recruited. Outcome measures, were assessed and analyzed immediately post-intervention. We demonstrated that the intervention significantly increased the high consent rate and low withdrawal and attrition rates. The statistically significant improvement in perceived benefits ($p = 0.001$) and readiness to undergo screening (2). However, no significant difference was noted in screening uptake between the two arms. Our findings support the feasibility of CHW-led multimedia interventions and preliminary evidence of its effectiveness on enhancing the cervical cancer screening uptake among South Asian women.

Keywords: cervical cancer screening; community health worker; South Asians





References

1. Hong Kong Cancer Registry (2024). <https://www.chp.gov.hk/en/healthtopics/content/25/56.html>. Accessed 11 November 2024.
2. Cohen PA, Jhingran A, Oaknin A, Denny L. Cervical cancer. *Lancet*. 2019;393(10167):169-182. [http://dx.doi.org/10.1016/S0140-6736\(18\)32470-X](http://dx.doi.org/10.1016/S0140-6736(18)32470-X).
3. Landy R, Pesola F, Castañón A, Sasieni P. Impact of cervical screening on cervical cancer mortality: estimation using stage-specific results from a nested case-control study. *Br J Cancer*. 2016;115(9):1140-1146. <http://dx.doi.org/10.1038/bjc.2016.290>.
4. Cervical cancer screening programme. <https://www.cervicalscreening.gov.hk/en/index.html>. Accessed 11 November 2024.
5. Census and Statistics Department, The Government of the Hong Kong Special Administrative Region: Hong Kong 2011 Population Census Thematic Report: Ethnic Minorities. <http://www.censtatd.gov.hk/hkstat/sub/sp170.jsp?productCode=B1120062> (2013). Accessed 23 July 2018.
6. So WKW, Wong CL, Chow KM, et al. The uptake of cervical cancer screening among South Asians and the general population in Hong Kong: A comparative study. *J Cancer Policy*. 2017;12:90-96. <https://doi.org/10.1016/j.jcpo.2017.03.015>
7. Marlow LA, Waller J, Wardle J. Barriers to cervical cancer screening among ethnic minority women: a qualitative study. *J Fam Plann Reprod Health Care*. 2015;41(4):248-254. <https://doi.org/10.1136/jfprhc-2014-101082>.
8. Chan DNS, So WKW. A Systematic Review of the Factors Influencing Ethnic Minority Women's Cervical Cancer Screening Behavior: From Intrapersonal to Policy Level. *Cancer Nurs*. 2017;40(6):E1-E30. <https://doi.org/10.1097/NCC.0000000000000436>.
9. O'Brien MJ, Squires AP, Bixby RA, Larson SC. Role development of community health workers: an examination of selection and training processes in the intervention literature. *Am J Prev Med*. 2009;37:S262-9.

