EFFECTIVENESS OF CERVICAL CANCER STIGMA REDUCTION INTERVENTION ON CANCER STIGMA SCORE AND CERVICAL CANCER SCREENING UPTAKE IN NEPAL

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IN 2020
90% OF NEW CERVICAL CANCER CASES IN LOW- AND MIDDLE-INCOME COUNTRIES

Fourth most common cancer among women globally

604 000 new cases and 342 000 deaths

WHO. Cervical cancer factsheet Geneva: World Health Organization; 2020.

INTRODUCTION: CERVICAL CANCER BURDEN IN NEPAL

Second most common cancer among women in Nepal[1]
(2169 cases and 1313 deaths occurring annually)

Cervical cancer is preventable[2,3]

- HPV vaccination
- Screening
- Treatment

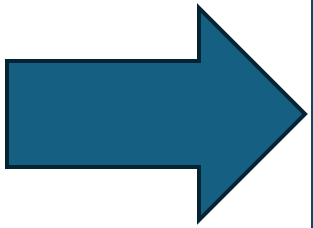
Contributing factors for high cervical cancer burden[4,5]

- Low access to preventive measures
- Lack of knowledge
- Stigma

1. Ferlay J, Ervik M, Lam F, Laversanne M, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2024). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. [cited 7 Mar 2024]
2. Comprehensive Cervical Cancer Control: A Guide to Essential Practice 2nd ed. Geneva: World Health Organization; 2014
3. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA A Cancer J Clin. 2021 May;71(3):209–49.
4. . WHO. Comprehensive Cervical Cancer Control: A Guide to Essential Practice. 2nd ed. World Health Organization; 2014.

Stigma

- Cancer as an ultimate death result
- Transmitted via contact
- Fear of social exclusion, religious and cultural beliefs
- Women going for screening might have multiple sexual partners
- Privacy issues



Outcomes

- Low screening uptake
- High treatment dropouts
- Low quality of life

Greibe Andersen J, Shrestha AD, Gyawali B, Neupane D, Kallestrup P. Barriers and facilitators to cervical cancer screening uptake among women in Nepal - a qualitative study. Women Health. 2020 Oct;60(9):963–74.
Vrinten C, Gallagher A, Waller J, Marlow LAV. Cancer stigma and cancer screening attendance: a population based survey in England. BMC Cancer [Internet]. 2019 Jun 1
Weiss MG, Ramakrishna J. Stigma interventions and research for international health. The Lancet [Internet]. 2006 Feb 11

Educational interventions alone are insufficient to reduce stigma[1]

Combination approach using educational, para social contact based and participatory approach is recommended in reducing stigma[2]

1. Nkwonta CA, Hilfinger Messias DK, Felder T, Luchok K. Intervention to Reduce Stigma and Improve Knowledge of HPV and Cervical Cancer in Nigeria: A Community-Based Assessment. Family & Community Health. 2021 Oct;44(4):245–56.
2. Rao D, Elshafei A, Nguyen M, Hatzenbuehler ML, Frey S, Go VF. A systematic review of multi-level stigma interventions: state of the science and future directions. BMC Med. 2019 Dec;17(1):41.

RATIONALE

Prioritization of screening [1,2]
- National Guideline for Cervical Cancer Screening
- PEN Package

Screening coverage is very low in Nepal(8.2%) [3]

Cancer stigma negatively associated with screening [4,5]

Help stakeholders in developing programs to increase cervical cancer screening uptake

1. MOHP, DOHS. National Guideline for Cervical Cancer Screening and Prevention in Nepal. Ministry of Health and Population and Department of Health Services; 2010.
2. PHCRD. Package of Essential Non Communicable Diseases in Nepal: Concept Note. Primary Health Cre Research and Development; 2017.
3. Dhimal M, Bista B, Bhattarai S, Dixit L, Hyder M, Agrawal M, et al. Report of Non Communicable Diseases Risk Factors: Steps Survey Nepal 2019. Nepal Health Research Council; 2020.
4. Vrinten C, Gallagher A, Waller J, Marlow LAV. Cancer stigma and cancer screening attendance: a population based survey in England. BMC Cancer. 2019 Dec;19:566.
5. Bandana P. Factors associated with cervical cancer stigma among women in semi urban Nepal. Unpublished. 2020

GENERAL OBJECTIVE

To assess the effectiveness of the stigma reduction intervention on cancer stigma score and cervical cancer screening uptake in Budanilkantha Municipality.

SPECIFIC OBJECTIVES

- To assess the cervical cancer stigma prevalence among women of 30-60 years age group in Budanilkantha municipality.
- To assess the effectiveness of stigma reduction intervention in reducing cancer stigma score.
- To assess the effectiveness of stigma reduction intervention in increasing cervical cancer screening uptake.

STUDY DESIGN

Intervention Study

Simple randomization using STATA-14

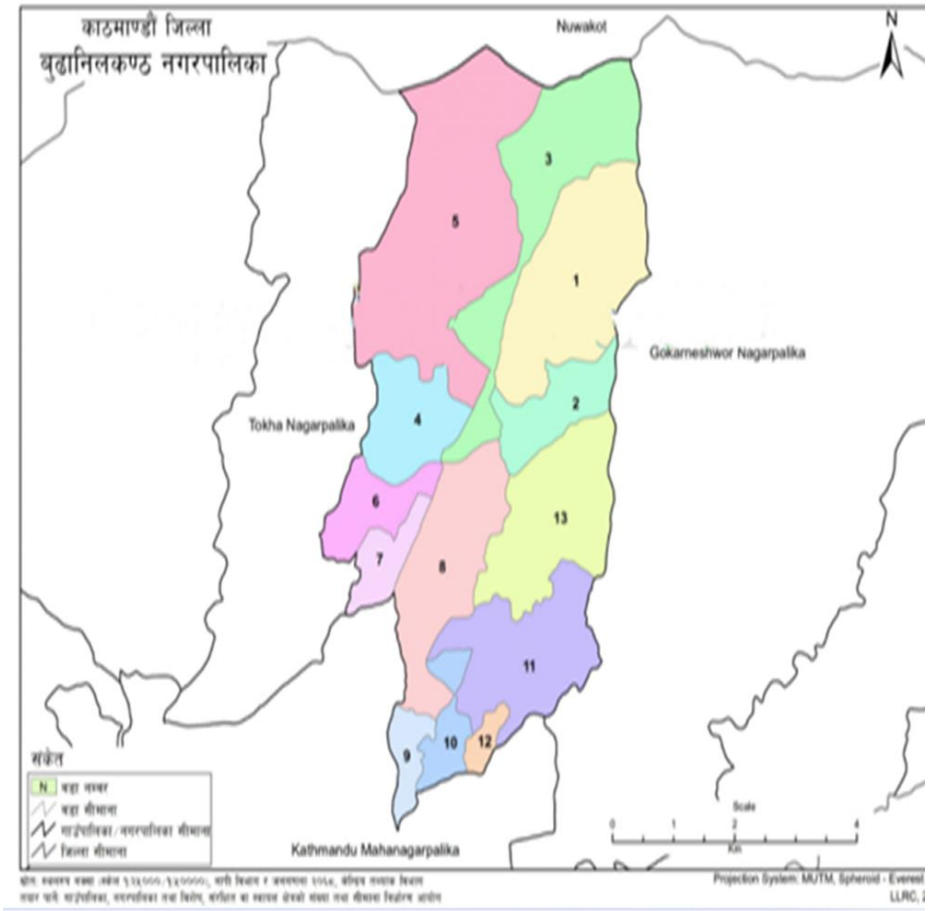
Allocation ratio 1:1

6 wards in each in each arm (n= 155 in each arm)

Cluster size 25

STUDY SITE

- Budanilkhantha Municipality
- Total female population aged 30-60 years :180,10
- Total wards:13
- Ward 3 was excluded as there was already an ongoing cervical cancer screening program



STUDY POPULATION

Women aged 30–60 years (as recommended by National Guideline for Cervical Cancer Screening and Prevention in Nepal for cervical cancer screening)

Inclusion Criteria

- Women aged 30-60 years
- Married
- Residents of Budanilkantha Municipality
- Women who had not undergone cervical cancer screening in 5 years

Exclusion Criteria

- Women with hearing or mental disorders
- Pregnant women or less than 6 weeks postpartum
- Women who had lived in Budanilkantha for less than 6 months
- Women who are already diagnosed with cervical pre-cancer and cancer and have undergone hysterectomy

SAMPLE SIZE

2-sample Mean, 2-sided Test, Equal sizes ($n_1 = n_2 = n$):

$$n = \frac{\left(\sigma_1^2 + \sigma_2^2\right)\left(z_{1-\beta} + z_{1-\alpha/2}\right)^2}{\left(\mu_0 - \mu_A\right)^2}$$

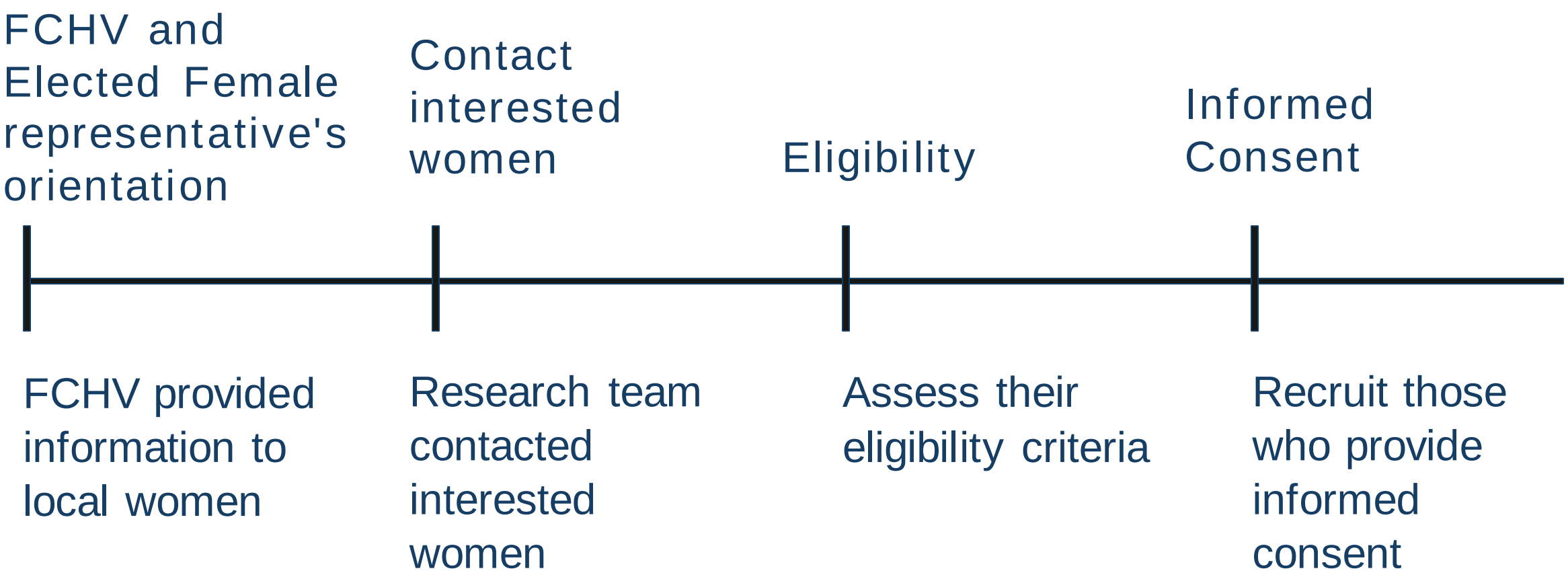
- Alpha =0.05
- Mean stigma score among women in Dhulikhel Municipality=2.6(SD-0.6)[1]
- We assume 10% reduction in the intervention group.
- Intra cluster correlation coef =0.01[2]
- Power= 90%
- Design effect=1.11
- Loss to follow up: 20%

155 each arm

Source

1. . Bandana P. Factors associated with cervical cancer stigma among women in semi urban Nepal. Unpublished. 2020

2. van Breukelen GJP, Candel MJJM. Calculating sample sizes for cluster randomized trials: We can keep it simple and efficient! Journal of Clinical Epidemiology. 2012 Nov;65(11):1212–8



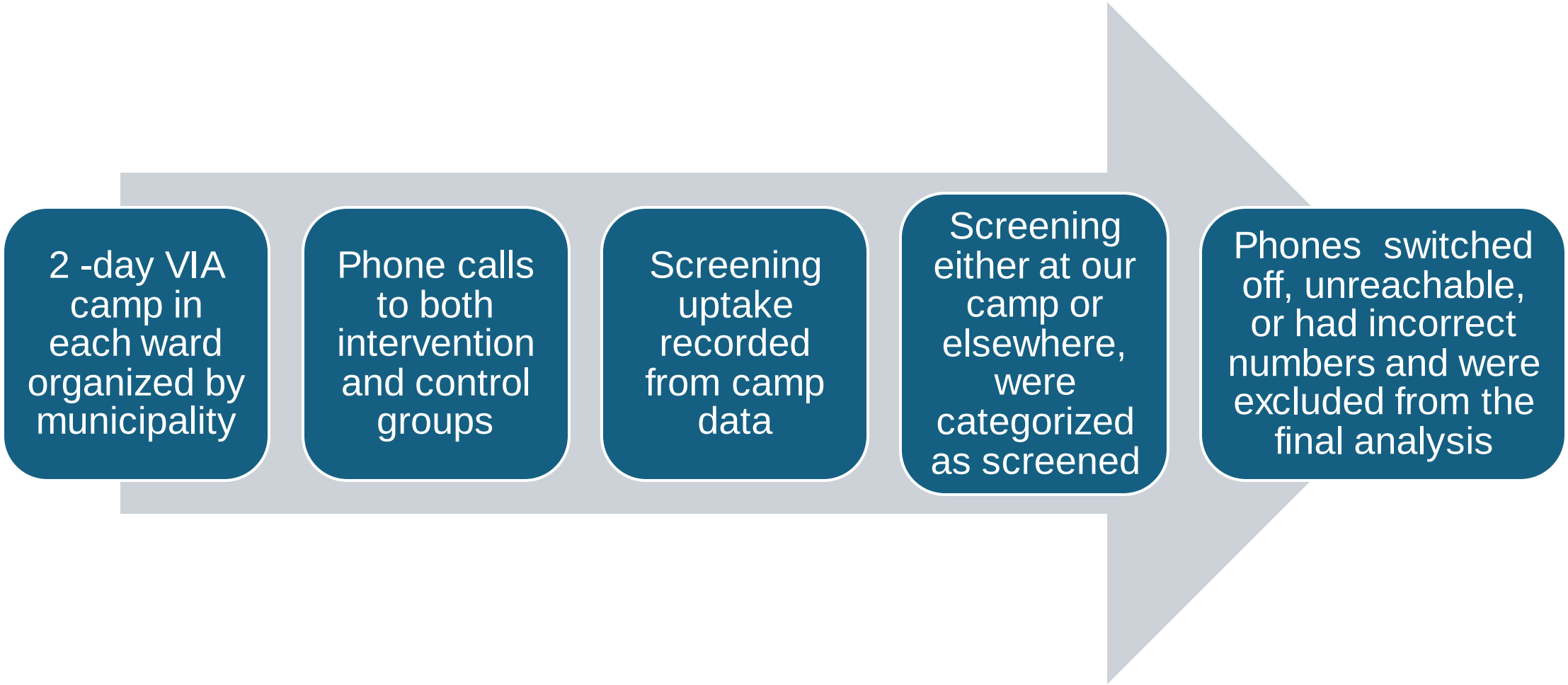
RECRUITMENT PLAN

STUDY TIMELINE

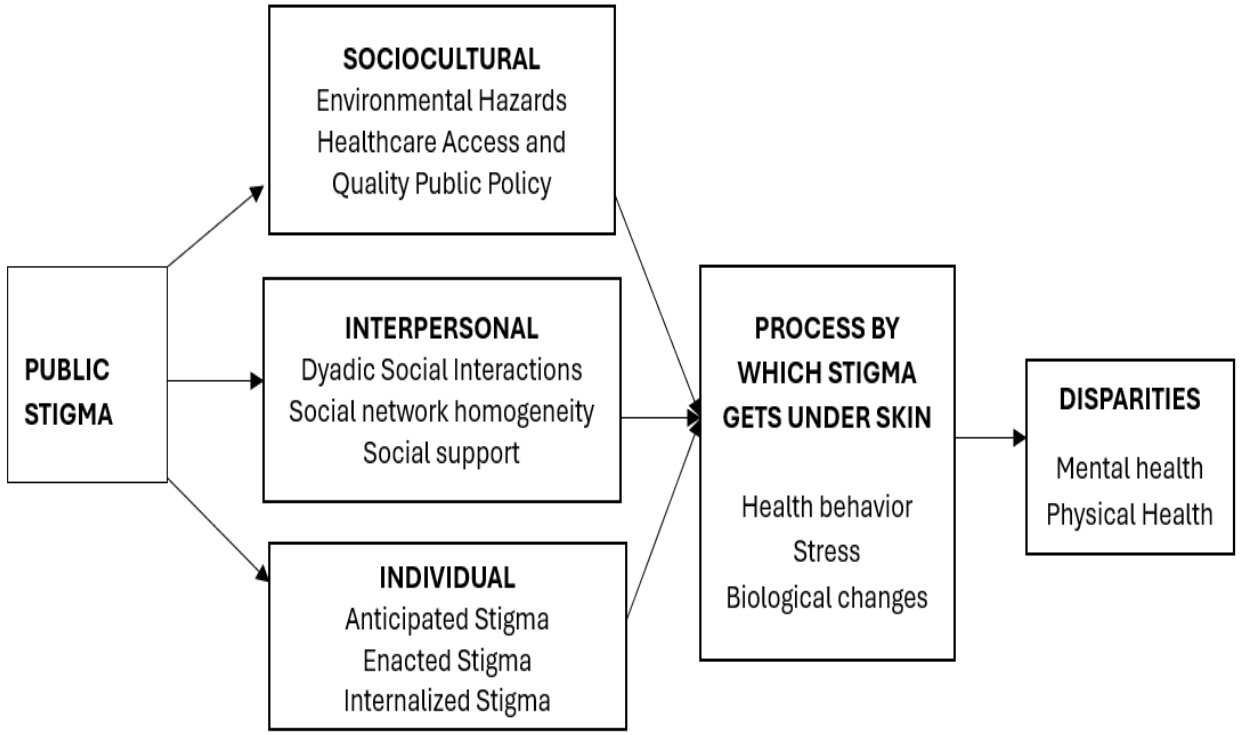
Follow-up data collection occurred two months post-intervention, chosen due to studies suggesting that stigma reduction interventions may show weaker effects over longer periods[1].

1. Rao D, Desmond M, Andrasik M, Rasberry T, Lambert N, Cohn SE, et al. Feasibility, Acceptability, and Preliminary Efficacy of the Unity Workshop: An Internalized Stigma Reduction Intervention for African American Women Living with HIV. AIDS Patient Care STDS. 2012;26: 614–620. doi:10.1089/apc.2012.0106

SCREENING PROGRAM PROCEDURE



STIGMA REDUCTION INTERVENTION



One-day, 4-hour session involving 12 participants from each ward

Individual

1. Presentation
2. Para social contact(Video)

Interpersonal

3. Participatory discussion

Socio-cultural

4. Myths vs Facts

Stigma Mechanisms in Health Disparities Framework[1]

1. Chaudoir SR, Earnshaw VA, Andel S. "Discredited" Versus "Discreditable": Understanding How Shared and Unique Stigma Mechanisms Affect Psychological and Physical Health Disparities. Basic Appl Soc Psychol, 2013 Jan 1

INTERVENTION 1: PRESENTATION

Target: Knowledge and facts on cervical cancer
Time: 40 mins

- Burden in Nepal
- Signs and symptoms
- Preventive measures: HPV vaccination, early diagnosis, screening
- Financial determinants
- Treatment services available in Nepal

Note: Photos shared with consent

INTERVENTION 2: PARASOCIAL CONTACT

Target: Individual-level public stigma
Cancer stigma domains: Severity, avoidance, and personal responsibility, awkwardness
Time: 40 mins

- A video featuring a cervical cancer survivor was shown, narrating the survivor's life experiences.
- Supported and personalized the information by relating it to their own life experiences by changing their attitude and behavior.

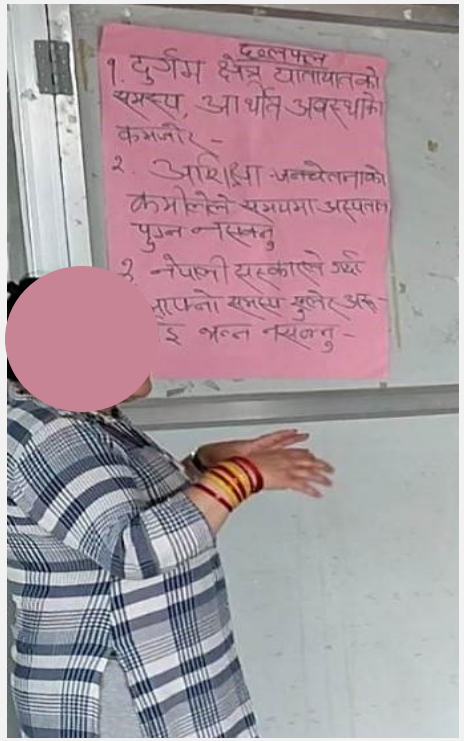
INTERVENTION 3: PARTICIPATORY LEARNING TECHNIQUE

Target: Sociocultural stigma, Interpersonal stigma

Cancer stigma domains: Avoidance and awkwardness

Time: 1 hour 30 minutes

- Group discussion on the drivers of stigma, facilitators of sigma, types of stigma prevalent in your community, consequences of stigma and present it by themselves.
- Enhance social network, social interaction and social support



Note: Photos shared with consent

INTERVENTION 4: MYTH VS FACT

Target: Individual, Socio-cultural stigma
Cancer Stigma Domains: Severity, financial discrimination, and policy opposition
Time: 30 mins

- Flash cards were used to correct myths and misconceptions and to challenge negative perceptions by the factual information on cervical cancer.

DATA COLLECTION TECHINQUE

Face to face interview using REDCAP

BASELINE ASSESSMENT

- Cancer stigma
- Sociodemographic variables

ENDLINE ASSESSMENT

- Cancer stigma
- Screening uptake

DATA COLLECTION TOOL

- Cancer Stigma Scale
- Six-point Likert scale have 25 items
- Mean stigma>3= Stigma

Domains	25	Stigma
Severity	5	Severity of situation after having cancer (cannot be normal again, mentally prepare oneself for death, ruins personal career, ruins personal relationships, devasts life)
Awkwardness	5	Ease and comfort around people with cancer
Avoidance	5	Cancer being a communicable disease, anger and hatred for people with cancer
Personal Responsibility	4	People are liable, accountable and to be blamed for having cancer
Policy Opposition	3	Government policies and programs for cancer
Financial discrimination	3	Insurance policies and banks provision on loans for cancer patients

VALIDITY AND RELIABILITY

TOOLS VALIDATED IN NEPAL

Nepali CASS questionnaire had Cronbach's alpha of the overall scale and six components was 0.88 and 0.70–0.89, respectively.

Internal consistency sufficient for assessing cancer stigma among Nepali people.

Shrestha A, Stangl A, Paneru B, Poudel L, Karmacharya A, Makaju S, et al. Validation of the Cancer Stigma Scale in Nepalese Women. Asian Pac J Cancer Prev. 2023 Jan 1;24(1):207-14.

ETHICAL CONSIDERATIONS

The research was approved by the Institutional Review Committee (IRC) of Kathmandu University School of Medical Sciences (IRC reference number: 42/ 22).

Written informed consent and voluntary participation

DATA ANALYSIS

DESCRIPTIVE

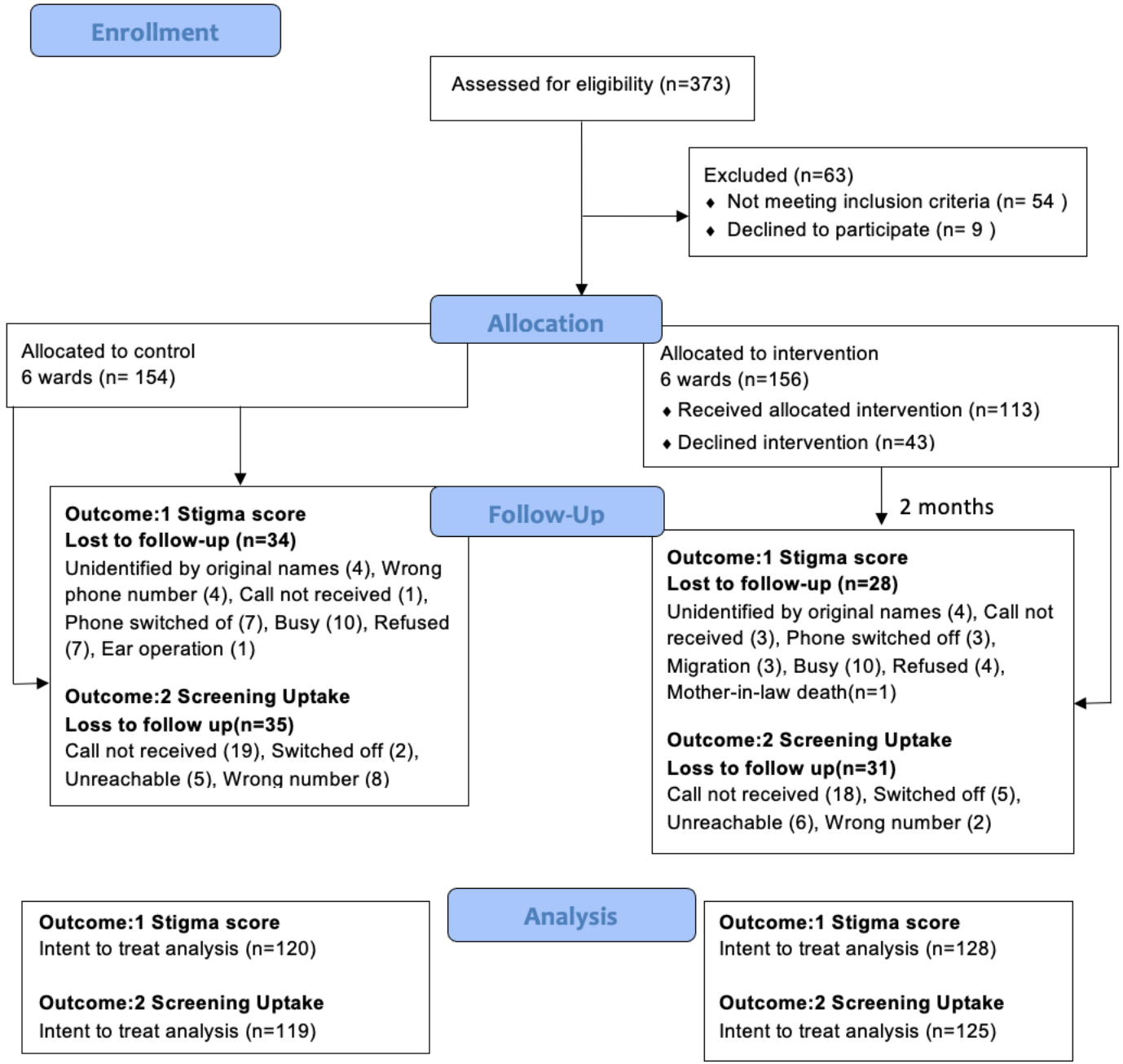
Frequencies (%) for categorical variables

Means (S.D) for continuous variables.

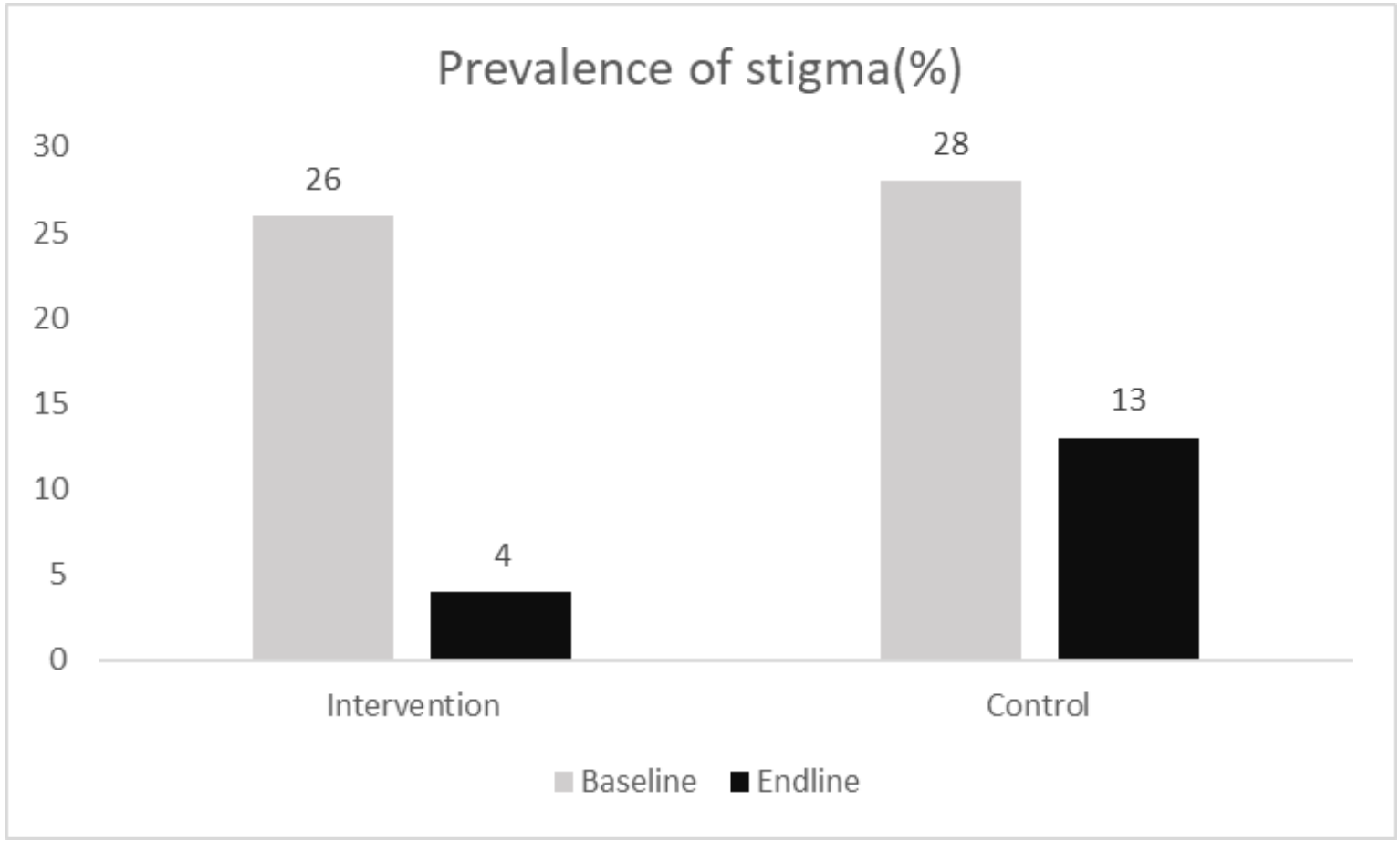
ANALYTICAL

Generalized estimating equations logistic regression with intervention status (yes/no) as independent variable and cancer stigma (yes/no) as the outcome.

CONSORT FLOW DIAGRAM



Prevalence of Stigma



Baseline information of study participants between the intervention and control group

Variables	Total (n=310)	Intervention (n=156)	Control (n=154)	P-value
Age(years)Mean (SD)	41.5(7.8)	40.5(7.5)	42.4(8.04)	0.029
Ethnicity				
Janjati	168(54.2)	81(51.9)	87(56.4)	0.131
Brahmin/Chettri	129(41.6)	65(41.7)	64(41.6)	
Others	13(4.2)	10(6.4)	3(2)	
Religion				
Hindu	250(80.6)	119(76.3)	131(85.1)	0.063
Non-Hindu	60(19.5)	37(23.7)	23(14.9)	
Educational status				
No formal education (0)	87(28.06)	47(30.1)	40(25.9)	0.377
Formal education (1 and above)	223(71.9)	109(69.8)	114(74.1)	
Occupation				
Home maker	197(63.5)	97(62.2)	100(64.9)	0.370
Job	31(10)	21(13.4)	10(6.4)	
Daily waged labor	10(3.2)	5(3.2)	5(3.2)	
Self employed	56(18.1)	27(17.3)	29(18.9)	
Others	16(5.2)	6(3.9)	10(6.4)	
Personal income per year (NRs) (Median)	0(120000)	0(120000)	0(120000)	0.983
Family income per year(NRs) (Median)	360000(360000)	400000(360000)	360000(360000)	0.525

Intent to treat analysis to show effect of stigma reduction intervention in cancer stigma score across various subdomains in intervention arm (n=120) and control arm (n=128) during endline using GEE logistic regression

Stigma domains	Odds ratio	95% CI	P-value
Severity			
Control	Ref		
Intervention	0.31	0.1-0.9	0.048
Awkwardness			
Control	Ref		
Intervention	0.21	0.08-0.53	0.001
Personal Responsibility			
Control	Ref		
Intervention	0.74	0.29-1.93	0.549
Avoidance			
Control	Ref		
Intervention	0.44	0.12-1.59	0.213
Financial discrimination			
Control	Ref		
Intervention	0.54	0.11-2.57	0.443
Total stigma			
Control	Ref		
Intervention	0.25	0.08-0.8	0.022

Intent to treat analysis to show effect of stigma reduction intervention in cancer stigma score across various subdomains in intervention arm (n=125) and control arm (n=119) during endline using GEE logistic regression

Screening uptake	OR	95% CI	P-value
Control	Ref		
Intervention	3.9	1.1-13.2	0.028

STRENGTHS

First study to assess the effectiveness of cervical cancer stigma reduction intervention in reducing cancer stigma.

Standardized and validated tool in Nepal with Cronbach alpha 0.85

LIMITATIONS

Nepalese festivals, elections for loss to follow up of participants

Voluntary participation in each cluster may not be a representative of general women population.

Change in stigma score in a longer run, which might directly affect screening uptake, has not been measured.

CONCLUSION

- Cervical cancer stigma reduction intervention is effective in reducing cancer stigma among women of 30-60 years old in Nepal.
- Cervical cancer stigma reduction intervention is effective in increasing cervical cancer screening uptake in Nepal.

RECOMMENDATIONS

- Stigma reduction interventions should be scaled up in LMICs to increase cervical cancer screening rates.
- Budanilkantha municipality is the urban municipality in Nepal. Thus, effectiveness is to be further tested in rural areas of Nepal.

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Project Coordinator
AMPATH Breast and Cervical Cancer Control Program
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- With the objective of contributing to the health field of Nepal, Priyanka joined Public Health in 2014.
- Her interest areas surrounds SRH, safe abortion, cervical cancer and postpartum depression.
- She aims to lead policy, advocacy, and research works addressing gender disparity in access to healthcare.