



Narrative Persuasion: Effects of Narrative Message Frame on Intention to Screening for Cervical Cancer among Women in Agricultural Sector, Kiambu County, Kenya

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Summary

INTRODUCTION

One of the most notable interventions in the increasing uptake of cervical screening is the use of efficient communication. There is evidence that use of narrative messages is effective in the context of health. There is, however, no explanation as to what aspect of narrative leads to high level of persuasion. The objective of this study was to evaluate the effects of message frame on intention to screen for cervical cancer.

MATERIALS AND METHODS

A quasi experimental design was used in this study. A sample of 378 participants was used. The intervention involved watching a short narrative video on cervical cancer and cervical screening in two different frames (gain frame vs. loss frame). Uniform pre-test and post-test questionnaire on cervical cancer and cervical cancer screening (T1 and T2) were completed before and after watching a narrative video respectively

RESULTS

Introducing message frame variable into multiple hierarchical regression models at step 2 explained 12% of variation in intention to screen for cervical cancer. Tukey HSD test indicated loss framed narrative was more effective than gain framed narrative messages.

CONCLUSION

The study, therefore, concluded that using loss framed cervical cancer screen messages in health campaigns may help in increasing the uptake of cervical cancer.

Keywords: Narratives Cervical Cancer Screening, Message Frame

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Introduction

Cervical cancer is one of the most frequently diagnosed type of cancers in women. In 2018, approximately 570,000 cases and 311,000 deaths were reported [1]. Majority of this occurred in developing countries [2]. With increased awareness on prevention, effective screening, timely diagnosis and treatment, most of these deaths could be prevented. According to a study conducted by Deny [3], 60 to 90% reduction of cervical cancer mortality rates could be experienced if cervical cancer screening programs were introduced in rural populations within three years of implementation.

In Kenya cervical cancer screening tests are offered for free and are available at most health facilities [4]. However, in spite of this, the uptake of the services is generally low. In 2018, cervical cancer screening coverage in Kenya was estimated to be at 3.2% for all women, 4.0% for women in urban areas, and 2.6% for women in rural areas [5-6]. A number of reasons have been given for low uptake of cervical cancer screening services. These include user fees, time required to effectively consume a service, danger associated, stigma, embarrassment, poor knowledge, among others [7].

The implication of this low uptake of cervical cancer screening services is that most of the patients do not get to know their cervical cancer status early, and consequently present at health facilities when the disease has progressed to advanced stages, when it is difficult to manage. Patients with advanced cancer usually have poor treatment outcomes and more than half of these women die [8].

One of the most notable interventions in the up scaling uptake of cervical screening is the use of efficient communication strategies [9]. Moreover, a study [10] has shown that

communicating messages in a manner that is friendly and in a format the message recipients can relate to, often leads to a higher adoption and maintenance of health behavior.

There is evidence that use of narrative messages is effective in the context of health, for example, a study [11] showed narrative to be effective in decreasing turning bed use, [12-15], promoting blood donation [16], in increasing donation of organs [17], encouraging the consumption of fruit and vegetables [18], and avoiding tendency for drunk driving [19]. The use of narrative to communicate cervical cancer screening to rural population in the current study may be effective given that most of them have low education attainment.

While the recent studies have it that narratives are effective in promoting health behavior, it is not entirely known what precise parts of narrative message type influence higher perception of threat, effectiveness and ultimately lead to intention to engage in the recommended health behavior[20].

Green and Brock [21] have suggested that persuasion is a function of transportation in to the narrative world. The mechanism of transportation, the study suggests, is through several pathways including creation of emotional responses, connection with character through character identification, and by making narrative look more similar to the real world experience. They, however, do not offer any explanation as to what elements of narrative message construction leads to transportation in the first place and consequently leading to persuasion. Following this discussion therefore, the important problem of what particular element of narrative messages leads to persuading an individual to adopt a health behavior remains unexplored. In this regard, the current study suggests that exploring the role of



narrative message frame may help answer the question.

This study, therefore, explored how manipulating narrative message frame influence participants perceived threat and perceived susceptibility to cervical cancer, and ultimately its effects on intentions for cervical screening service. The main objective of the study was to determine the effects of narrative message frame on intention to screening for cervical cancer among women in agricultural sector in Kiambu, Kenya. The null hypothesis for the study was stated as below

Ho₁: Message frame has no significant effects on intention to screening for cervical cancer among women in agricultural sector in Kiambu County, Kenya.

Materials and Methods

A randomized experimental design was used in this study. Narrative Message frame (gain frame vs. loss frame) was manipulated. The messages were presented via a medium of a brief narrative video on cervical cancer and cervical screening. A uniform pretested questionnaire on cervical cancer and cervical cancer screening (T1) was completed by respondents before watching a narrative video. After watching a narrative video on cervical cancer screening participants responded to the post test questionnaire (T2). The posttest questionnaire had similar items as in the pretest questionnaire but in addition, had items evaluating the believability of the narrative [22] and identification with the character in the story [23].

This study had four arms 1) loss framed narrative message arm in the first person perspective, 2) loss framed narrative message arm in the third person perspective ; 3) gain framed narrative message arm in the first person perspective ; and 4) gain framed narrative

message arm in the third person perspective. Loss framed messages described the negative experiences of a victim of cervical cancer and gain framed message emphasized the positive experiences of a person who had cervical cancer detected early through screening and therefore positive treatment outcomes with little adverse experiences.

Message video in the first-person video utilized first-person pronouns (i.e., I and me) and messages video in the third-person utilized third-person pronouns (i.e., she and her). A uniform pretest questionnaire (T1) was administered to all the participants in the four groups. Participants were randomly assigned to one of the four experimental conditions.

This study was carried out in Tea farms in Kiambu County. For an estate to be included in the study, it needed to meet the eligibility criteria which included having an average of 30 employees, having a well-established Human Resource Department, and express authorization for the study to be carried out from the management. This population was selected for the study due to the fact that the uptake of cervical cancer screening is very low in rural areas compared to urban settings.

In rural areas of Kenya cervical cancer screening coverage is estimated to be at 2.6% against urban setting of 4%. The government's target coverage is 70% [24]. Kiambu was selected due to the fact that cervical cancer is one of the leading causes of morbidity and mortality among women in their reproductive age [25]. In spite of this, the uptake of cervical cancer in the county is among the lowest.

According to the County Annual Development plan (2019), the population of women between 20 to 64 years of age in Kiambu was estimated to be 614,412. Out of these, less than 22000 (3.5%) have been screened for cervical cancer [26].



Furthermore, this study targeted women aged 20 to 64 years working in Tea and Coffee estates in Kiambu County. This age interval was targeted out of two reasons. First, it is the age interval in which cervical cancer screening is most cost effective, and it is the age interval which individuals are most sexually active, and therefore at high risk of infection with Human Papilloma Virus, a necessary factor for the development of cervical cancer [27].

Moreover, the high prevalence of cervical cancer risk factors among women in Agricultural sector makes them more vulnerable to cervical cancer compared to their urban counterparts. For instance studies have shown that women in agriculture are more likely to be poor [28], have less access to reproductive health services [29], have low education enrollment [30], have less time at their disposal to use preventive services[31], are likely to initiate sex early [32], get into marriage earlier [33], are more likely to be exposed to carcinogenic substances(e.g. organochlorine

pesticides) in the course of their work [34], among other risk factors associated with cancers.

Four Tea farms were included in the study. These included Gakoe tea estate, Karirana tea estate, Matara tea factory and Gachege tea factory. The four tea farms were randomly picked from a list of tea farms obtained from crop officer, Kiambu County.

The sampling frame comprised of a list of women working in these farms obtained from Human Resource departments in the estates. A further filtering was done on the list so that only females who met the inclusion criteria (female aged 20-64years) were identified for further sampling to participate in the study. Women in all cadres in the industry were included as long as they meet the inclusion criteria. A sample of 377 respondents was used in the study.

Sample Allocation

The sample was allocated in such a way that each of the four study arms had 94 respondents. Table 1 shows the distribution of the sample in the study arms.

Table 1: Distribution of the Sample in the Study Arms.

Site	Gain frame 1 st Person perspective	Gain frame 2 nd person perspective	Loss Frame 1 st person perspective	Loss Frame 2 nd Person perspective	Total
Gakoe	24	23	24	23	94
Karirana	24	23	24	23	94
Gachege	24	24	24	24	96
Mataara	24	23	24	23	94
Total	96	93	96	93	378

Allocation to Study Arms

Upon receipt of the list of employees from the human resource departments, it was vetted to ensure that only women who met the inclusion criteria

were selected for random allocation into the study arms. Individuals in the list were given serial numbers. Using the serial numbers, random numbers were generated using SPSS and participants assigned to the four study arms.



Each of the study sites had participants in all of the study arms as indicated in the table 1 above.

Sampling Techniques

The study used purposive technique to select Kiambu County because it has a high mortality rate related to cervical cancer [35], low cervical cancer screening coverage (below 2.6%) and due to the County's agricultural orientation. Simple random sampling was used in the selection of tea farms and study participants. A list of all tea estates was obtained from the County crop officer to act as sampling frame. Finally, respondents were randomly selected and randomly allocated in the study arms. A list of eligible female employees was obtained from the HR departments of each of the Estate and used sampling frame.

Study Intervention

The messages were presented via the medium of a brief information video clip on cervical cancer and cervical screening. The intervention arm consisted of narrative video clips depicting personal stories of cervical cancer survivors. Four narrative video formats were created. The first one was created with a message emphasizing on the benefits that the survivor had as a result of taking up a cervical screening services (gain framed message). The second video emphasized on the negative experiences the narrator had as result of discovering cancer late (loss framed message).

The third video's message emphasized on the benefits that the survivor had as a result of taking up a screening service. However this was in the third person narrative format (gain - framed message third person narrative). The fourth video emphasized on the negative experiences the narrator had as result of discovering cancer late, but in the third person narrative (loss -framed message third person narrative).

The narrator in the loss framed message video clip was a real cancer survivor who successfully underwent cancer treatment at the AMPATH oncology institute cancer program (Moi University). The cancer survivor in the loss framed video clip was picked purposively based on her willingness to participate in the study.

On the other hand the Gain framed video clip was enacted with messages emphasizing on the benefits of early cervical cancer screening. Moreover, both third person gain and loss framed video clips were based on the first person gain and loss video clips.

Data Collection Instruments

Two types of questionnaires were administered. A uniform pretest questionnaire with items on cervical cancer and cervical cancer screening (T1) were completed by respondents before watching any of the narrative video clips. The pretest questionnaire had items on socio-demographic characteristic, items on knowledge on cervical cancer, items on cervical cancer risk perception, and items on intention to screen for cervical cancer.

The post test (T2) questionnaire had all the above items but in addition it had items on narrative rationality and character identification. Apart from items on socio-demographic characteristics, all other items were Likert scale items with a scale of 1 to 5 where 1 represented 'strongly disagreed' and 5 represented 'strongly agreed'

Items on knowledge on cervical cancer and cervical cancer screening, perceived risk and perceived threat susceptibility, perceived self-efficacy and perceived response efficacy were measured using an adaptation of item scale from several authors including [36], 5-item scale, [37], and [38]. Intention to engage in the recommended cervical cancer screening



behavior change was measured using a 7-item scale adopted and modified from work by [39].

The posttest (T2) questionnaire sought to measure change in respondents' response in all of the above pretest questionnaire content after watching any one of the video clips. In addition two additional variables were measured including character identification and narrative rationality.

Identification with characters was measured using an adaptation of Igartua and Paez's [40]. Participants were asked to indicate the degree to which they agreed or disagreed with statements such as, "I thought I was like the character or very similar to her" and "I understood the characters' feelings or emotions" on a 5-point Likert-type scale (1 = strongly disagree to 5 = strongly agree).

Finally, Narrative rationality was measured by adaptation of [41], narrative believability scale. The scale has 12 items covering six aspects of narrative rationality including, Coherence, fidelity, plausibility, completeness, consistency, and coverage. Participants were asked to indicate the degree to which they agreed or disagreed with the specific assertions in the scale on a 5-point Likert-type scale (1 = strongly disagree to 5 = strongly agree).

Pilot Test

The main purpose of the pilot study was to identify potential gaps that may exist in the research tools as well as measure the internal consistency of the study tool. Further the tool reliability and validity was measured during the pilot test.

Piloting was done in two tea estates of in Kericho, Kenya (Kaisugu and James Finlay) in the Month of December 2019. Based on Connelly (2008) recommendation that 10% of the sample projected for the larger parent study

is sufficient for pilot study, the study included 37 respondents for the pilot study [42]. These were equally distributed in the two pilot study sites.

Both types of questionnaires were administered. Loss frame first person video clip was used for pilot study. A uniform pretest questionnaire on cervical cancer and cervical cancer screening (T1) was completed by the respondents before watching the video clips. Then after watching the video clip, participants responded to a brief posttest questionnaire (T2). Items found to be problematic were adjusted.

Reliability and Validity of Study Tools

In this study a reliability analysis was done to ensure the possibility of valid decisions that will be made based on the test scores. The most commonly and widely used measure of reliability analysis is Cronbach's alpha [43]. Moreover, given that both of the research tools used in this study were of Likert scale, Cronbach's alpha was found to be the most appropriate to test reliability analysis of the study instruments [44]. The acceptable Cronbach's alpha value was above 0.6 [28].

For the variable Narrative rationality, there were 12 items which were under scrutiny. For the variable the alpha coefficient recorded was 0.84 which was above the 0.6 required. All items had alpha coefficients above 0.6. Consequently no items were removed from the series.

Regarding character identification the alpha coefficient was 0.74 and again no item was expunged from the list. In respect to items on knowledge on cervical cancer and cervical cancer screening the alpha coefficient was 0.82. All the items were retained. Finally, in regard to behavioral intention variable, the Cronbach's



alpha coefficient was 0.74 with all the items being retained.

Data Processing and Analysis

The data was cleaned, coded and entered into Statistical Package for Social Sciences (IBM.SPSS version 21). Both descriptive and inferential statistics were used to analyse the data. The initial stage of descriptive statistics consisting of frequencies, percentages and means were used to summarize observations on variables measuring socio-demographic characteristics, knowledge in regard to cervical cancer and cervical cancer screening, risk perception on cervical cancer, and the intention to screen for cervical cancer. Chi Square test, ANOVA, ANCOVA, and Hierarchical Multiple Regression were used with inferential statistics.

Results

The calculated sample size for the study was 339 but after providing for 11.5% non-response the sample increased to 378 respondents. These were randomly allocated to the four arms of the study as indicated in table 1 above. At the same time, the sample was then distributed to each of the four study sites. All the sites had respondents participating in each of the four arms of the study. The structured questionnaire was interviewer administered.

A 100% response rate was achieved for the baseline study. However there were some few items with non-response resulting to some missing data. This was addressed substituting the missing data with series means [46]. In the post test, 34 respondents were lost to follow up resulting to a response rate of 91% (344). Consequently, data from 378 (100%) respondents for the pretest and 344 (91%) for posttest, was analyzed and included in the study findings for the baseline and posttest respectively.

Majority of the respondents were above 41 years of age at 32%. This was followed by respondents aged between 31 to 35 and 36 to 45 years of age, at 27.5% and 20.5%. Combined together, these two groups accounted for 48% of all the respondents. Regarding whether there was a statistically significant difference among the age groups in respect to cervical cancer screening status across the age, Chisquare test had no statistically significant results $X^2(4, N = 378) = 3.886, p = 0.442$.

Two hundred and forty nine (65.9%) of the respondents were married. Chi square test to determine if there existed statistically significant difference in regard to screening status of the respondents across marital status returned a no significant Chi test result $X^2(5, N = 378) = 5.88, p = 0.432$. Only a small proportion of respondents (70; 18.4%) had attained secondary and tertiary education. Chi square test to find if the number of women who had screened for cervical cancer had a statistically significant difference across the level of education returned a no significant Chi test results $X^2(5, N = 378) = 5.88, p = 0.432$

Majority of the respondents (227; 60.1%) in the study were protestants followed by Catholics at 137 (36 %). Only 5(1.3%) respondents declared that they did not belong to any religion. Chi square test to determine whether there was statistically significant difference in respect to having screened for cervical cancer across religions returned a no significant Chi test $X^2(1, N = 378) = 10.26, p = 0.001$.

Majority (210; 55%) of the respondents had 1 to 3 children followed by 4 to 5 at 91(24%). Together, these two groups accounted for over 75% of all the respondents. On similarity of study participants across all the study arms in regard to their socio-demographic characteristics; a chi square test was used. The



test turned out to have no statistically significant difference with age being, $X^2(16, N = 378) = 14.96, p = .53$ religion, $X^2(12, N = 378) = 17.24, p = 0.12$ education $X^2(20, N = 378) = 16.7, p = 0.67$, and marital status being $X^2(20, N = 378) = 16.3, p = 0.65$. The implication is that the sample was relatively homogeneous in regard to social demographic characteristics.

Knowledge on Cervical Cancer and Cervical Cancer Screening

To determine the respondent's knowledge on cervical cancer and cervical cancer screening, a series of Likert scale items testing on the knowledge on cervical cancer and cervical screening were given. Respondents were first asked if they had heard about cervical cancer. On this, 86.2% had heard about the disease and 13.8% had not heard about it. The 86.2% who had heard about the disease were then asked questions that related to knowledge about the disease in a series of questions presented in a Likert scale. To determine the level of knowledge on cervical cancer and cervical cancer screening across the study arms at baseline, the data was recoded based on respondents scoring on items testing on knowledge of cervical cancer and cervical cancer screening.

Further to see if there existed a statistically significant difference on knowledge across the study arms, Chi square test was run. The test returned a no statistically significance difference in knowledge across all the arms $X^2(4, N = 378) = 2.1, p = 0.704$. The implication of this result from this test is that all respondents had a fairly equal level of knowledge on cervical cancer and cervical cancer screening at the baseline.

Risk Perception and Screening Status

Most of the respondents had a low cervical cancer risk perception. Only 32.5% of the respondent felt that they were at risk of the disease at baseline and only 39.1% felt that they were at a risk of contracting HPV.

In regard to cervical cancer screening status, only 4 % indicated that they had undergone a cervical cancer screening. This rate is extremely low given that the government's targeted cervical cancer screening coverage is 70% [47].

Except for religion, $X^2(1, N = 378) = 10.526, p = 0.01$, the rest of the socio demographic characteristics returned a no statistically significant difference regarding screening status with age Chi test being $X^2(1, N = 378) = 0.497, p = 0.481$, education being $X^2(1, N = 378) = 0.71, p = 0.791$ and marital status being $X^2(1, N = 378) = 3.354, p = 0.063$. Further, there was no statistically significant difference among the respondents allocated in the various study arms in regard to screening status of the respondents $X^2(16, N = 378) = 12.09, p = 0.708$.

Intention to Screen for Cervical Cancer

At the baseline 63 (43.1%) of the respondents were categorized as "having intention" to screen for cervical cancer, while the rest (215; 56.9%) of the respondents were categorized as "having no intention" to screen for cervical cancer at baseline.

At posttest, of the 344 respondents who participated, 230 (66.9%) of the respondents were categorized as "having intention" to screen for cervical cancer, While the rest (114; 33.1%) to screen for cervical cancer.



Effect of Message Frame on Intention to Screening for Cervical

In order to see the effects of message frames on intention to screen for cervical cancer, it was important to confirm that there existed no difference among the respondents randomly

allocated to the four arms of the study in respect to their intention to screen for cervical cancer. To this end, ANOVA test was run with message frame as the factor and intention to screen for cervical cancer at pre-test (baseline) as the dependent variable. The results were as indicated in the table 2 presented below.

Table 2: ANOVA Test on Knowledge, Risk Perception and Intention to Screen for Cervical Cancer at Baseline ANOVA of Narrative Message Frames on Intention to Screen for Cervical Cancer at Pre Test

		Sum of squares	df	mean square	f	sig
Intention to Screen for cervical Cancer at post test	Between groups	84.2	3	28.1	1.462	0.26
	Within groups	6587.4		342	19.3	
	Total	6671.6		343		

The test returned a no significant results for respondents' intention to screen for cervical cancer. The implication of this tests finding is that respondents were at equal levels in respect to future intention to screen for cervical cancer. This made it possible to compare the groups after the intervention. Further ANOVA was run to determine if there existed any difference in regard to screening for cervical cancer at pre-test across the study sites. The test returned a no statistically significant difference for intention to screen for cervical cancer being $F(3, 375) = 0.134, p = 0.940$. This meant that respondents across the site had equal level of intention to screen for cervical cancer.

After two weeks elapsed respondents were followed up and given intervention in form of watching a one of the four narrative video clip (gain frame 1st person perspective, gain frame second person perspective, loss frame 1st person perspective and loss frame 2nd person perspective). All of the narrative video clips had factual equivalent information on cervical cancer and cervical cancer screening but framed

differently as gain frame (emphasizing favorable consequences that may happen due to complying with a target behavior) and loss frame (emphasizing unfavorable consequences that may happen due to non-compliance, respectively). Moreover, each was presented in the form of first person narrative perspective and third person narrative perspective narratives.

Immediately after watching the video clip they responded to a post-test questionnaire with similar items as the pretest questionnaire, but which, in addition, had items that measured respondent's identification with the character in the story as well as the respondents' evaluation of the rationality of the story. The items were presented in a Likert scale of 5, in a continuum in which strongly disagree had a score of 1 and strongly agree had a score of 5. The data was analyzed by summing up the scores on all of the items measuring intention to screen for cervical cancer to obtain a single score. The post test results were aggregated in the four study arms.as shown in Table 3



Table 3: Distribution of Scores on Intention to Screen for Cervical Cancer by Study Arms.

Study Arm	Pretest		Post Test	
	Mean	SD	Mean	SD
Gain frame 1 st person perspective narrative	18.1	10.9	21.6	8.9
Gain frame 2 nd person perspective narrative	19.1	10.7	20.3	6.7
Loss frame 1 st person perspective narrative	18.8	4.3	29.7	7.1
Loss frame 2 nd person perspective. Narrative	20.8	9.3	28.7	7.03

From the table, there was a general increase in the mean score on intention to screen for cervical cancer mean score among respondents in all the message frames after the intervention. However respondents who watched any of the loss framed video clip had a larger increase in their intention to screen for cervical cancer mean score compared to those who watched either of the gain framed narrative

video clips.

Analysis of Covariance (ANCOVA) was conducted to compare the effect of message frames on intention to screen for cervical cancer, the message frame was entered as the factor and intention to screen for cervical cancer at post-test as dependant variables, while controlling for intention to screen for cervical cancer at pre-test. The test results were as indicate in the table 4

Table 4: ANCOVA of Narrative Message Frames on Intention to Screen for Cervical Cancer at Post Test

	Type III Sum of squares	df	mean square	f	sig
Corrected model	8753.197 ^a	5	1750.639	33.644	0.00
Intercept	13574.462	1	13574.462	260.875	0.00
Intention at baseline	2.898	1	2.898	.056	0.81
Message frame	8725.596	4	2181.399	41.922	0.00
Error	15922.483	339	52.034		
Total	199904.000	344			
Corrected total	24675.679	343			

From the table 4 above the ANCOVA test returned a significant test result implying that the message frame had a significant effect on intention to screen for cervical cancer.

To control for effects of social demographic variables on the intention to screen

for cervical cancer given the message frame, a hierarchical multiple regression was run with all the socio-demographic factors entered in the first block and study arm entered in the second block. The results were as presented in table 5 below



Table 5: Hierarchical Multiple Regression of Message Frame Covariates

Variable	β	t	sr ²	R	R ²	ΔR^2
Step 1				0.134	0.018	0.018
Marital status,	-.075	-1.382	0.075			
Religion of the respondent	.093	1.705	0.092			
Highest Level of Education	.011	.205	0.011			
Age of the respondents	-.046	-.830	0.045			
Step 2				0.339	0.115	0.097
Marital status,	-.081	-1.570	0.085			
Religion of the respondent	.096	1.870	0.101			
Highest Level of Education	-.025	-.467	0.025			
Age of the respondents	-.029	-.559	0.030			
Message frame	-.314	6.079	0.314			

The hierarchical multiple regression revealed that at Stage 1, social demographic variables did not contribute significantly to the regression model, $F(4,343) = 1.534$, $p = 0.192$) and accounted for only 1.83% of the variation in intention to screen for cervical cancer. Introducing message frame variable to the model at step 2 explained 12% of variation in intention to screen for cervical cancer and this change in R^2 was significant, $F(4,343) = 8.749$, $p = 0.00$). When the socio demographic variables and message frame were added together in the model in the second stage, only the message frame significantly predicted intention to screen for cervical cancer $F(4,343) = 8.749$, $p = 0.00$).

After the effects of the socio-demographic variables had been removed, message frame explained 10% of the variation on intention to screen for cervical cancer which was statistically significant. This meant that in this study, message frame (predictor variable of interest in the case) explains 10% of the variation on intention to screen for cervical cancer among the women in agricultural sector,

after controlling for the socio demographic factors.

Test of Hypothesis

The null hypothesis for this study was that message frame had no significant effect on intention to screening for cervical cancer among women in agricultural sector in Kiambu County, Kenya. To test this, General Linear univariate model was used. The null hypothesis of the model was that there was no difference in mean in respect to scoring on intention to screen for cervical cancer across the message frames at posttest. Intention to screen for cervical cancer at posttest was entered as a dependent variable and the message frame as the fixed factor. Additionally, Laverne test of homogeneity of variance and Tukey post Hoc test was carried out. The Lavene's test of homogeneity met the assumption of homogeneity, $F(4, 340) = 3.01$, $p = 0.38$. The result for the General Linear univariate model was as indicated in table 6 below.



Table 6: Tests of Between-Subjects Effects

Source	Type III Sum of squares	df	mean square	f	sig
Corrected Model	9357.937	4	2339.484	45.061	0.000
Intercept	189507.384	1	189507.384	3650.124	0.000
Message Frame	9357.937	4	2339.484	45.061	0.000
Error	17600.223	339	51.918		
Total	225919.000	344			
Corrected total	26958.160	343			

From the table above there was a significant effect of message frame on the intention to screen for cervical cancer at posttest [F (4, 343) = 45.06, p = 0.000]. Based on the findings the null hypothesis was rejected. The study finds that message frame had a significant effect on intention to screen for cervical cancer among women in agricultural sector in Kiambu County, Kenya

Further, a post hoc comparison using the Tukey HSD test indicated that the mean score for the loss message frame first person perspective narrative (M=29.7, SD=7.1) was significantly different from gain message frame first person perspective narrative (M=21.6, SD=8.9), and Gain message frame second person perspective narrative (M=20.3, SD=6.7). However the loss frame first person perspective (M=29.7, SD=7.1) did not differ significantly from loss frame second person perspective (M=28.7, SD=7.03). Taken together, these results suggest that loss framed narrative message is more effective in increasing the intention to screen for cervical among women in agricultural sector in Kiambu County, Kenya.

Discussion

This study sought to determine whether narrative message frames had any effect on the uptake of cervical cancer screening among women in agricultural sector in Kiambu County. Particularly, the study buttressed message framing with message perspective (first person or second person).

The findings were that loss framed narrative messages had the biggest effect on intention to screen for cervical cancer among women in agricultural sector in Kiambu County. These findings are consistent with results of other studies. For example a study by Gallagher, [48] found that women with average and higher levels of perceived susceptibility for breast cancer were significantly more likely to report screening after viewing a loss-framed message compared to a gain-framed message.

Similarly, a study by Lee-Won [49], found that loss framing, relative to gain framing, led to greater message-evoked fear when the message was presented with high-virality metrics, and led to an increased intention to screen among the respondents.

Moreover, the results in the current study, concurs with the findings of studies in other subfields of preventive health. For example, a study by Macapagal[50], found out that the intentions to have sex with high-risk partners significantly decreased after the loss-framed message, but not after the gain-framed message, and intentions to have sex increased for participants who received the gain-framed message first.

Another study by Mccullocks, [51], revealed that both highly credible sources and negatively framed messages (loss framed) influenced behavioral intentions to screen for STIs.

Similarly, a study by Godinho, [52], suggests that the success of framed messages for health intervention uptake depends upon the recipient's characteristics, such as motivational orientation, baseline intentions, and cultural background, with implications for health communication interventions.



Some studies have found contradictory findings to this study's findings. For example, in a study by [53], found no main effects for message framing. Moreover, in another study by Mavandadi [54] found out that participants who received the gain-framed message after being referred to specialty mental health care were significantly more likely to attend their appointment than those who received a neutral letter. In the study, no statistically significant differences were noted among those receiving a loss-framed message compared with the other two arms.

Conclusion

This study found that manipulating message frames resulted in change on intention to screen for cervical cancer. There was a general increase in the mean score on intention to screen for cervical cancer across all the study arms. Analysis of Covariance (ANCOVA) showed that there was significant difference in mean score across the group.

Post hoc analysis showed that respondents who watched loss framed video clip tended to have a change in mean score on intention to screen for cervical cancer compared to respondents who watched gain framed narrative video clip. The study therefore concluded that using loss framed cervical cancer screen messages in health campaign may help in increasing the uptake of cervical cancer.

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