

THE EFFICACY OF AN EDUCATIONAL INTERVENTION ON LATINAS' CERVICAL
CANCER SCREENING KNOWLEDGE

by

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ABSTRACT

AMBER ROSE HARPER. The Efficacy of An Educational Intervention on Latinas' Cervical Cancer Screening Knowledge. (Under the direction of DR. FLORENCE OKORO and DR. KATIE SHUE-MCGUFFIN)

Latinas' lack of knowledge regarding cervical cancer screening (CCS) guidelines has a significant impact on CCS adherence and ultimately impacts their health outcomes related to cervical cancer. Studies have demonstrated that small media, culturally relevant educational interventions are highly effective in improving Latinas' knowledge of CCS (Moran et al., 2016; Thompson et al., 2019; Warner et al., 2018). The purpose of this scholarly project was to implement and evaluate the efficacy of a small media educational intervention on Latinas' knowledge of CCS and human papillomavirus (HPV) and evaluate the participants' satisfaction with the intervention. A convenience sample of 50 Hispanic female patients between the ages of 21-65 was obtained from a community health center in the Southeast region of the United States. The fotonovela utilized in the Thompson et al. (2019) study was the intervention used for this project; it was offered in Spanish and English and included information on CCS and HPV. A pre- and post-test questionnaire assessing the participants' CCS and HPV knowledge was administered. In addition, the post-questionnaire included questions that evaluated the participants' satisfaction with the fotonovela. Following implementation of the fotonovela, participants significantly increased their average post-test CCS and HPV knowledge scores (Pre: 50.6; Post: 83.6, $p < .000$). All 50 participants (100%) reported overall satisfaction with the fotonovela. The findings of this project were both statistically and clinically significant indicating that the fotonovela is an effective and favorable educational intervention, thus its implementation is warranted in healthcare settings that provide care to Latinas.

Keywords: Cervical cancer screening, HPV, Latinas, Hispanic, fotonovela

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CHAPTER 1: INTRODUCTION

In the United States (U.S.), the incidence of cervical cancer has decreased significantly over the past four decades due to the implementation of cervical cancer screening (CCS), which involves the utilization of cervical cytology such as a Papanicolaou (Pap) smear and/or human papillomavirus (HPV) testing to detect the presence of high-risk HPV types in cervical cells and cervical cell changes (Allgood-Percoco & Kesterson, 2015; Centers for Disease Control and Prevention [CDC], 2019; Larkey et al., 2012). However, Latinas' mortality rates related to invasive cervical cancer have not declined significantly, and Latinas have the highest rate of cervical cancer in the U.S. (Allgood-Percoco & Kesterson, 2015; CDC, 2019; Larkey et al., 2012). In addition, Latinas are 60% more likely to be diagnosed with cervical cancer in comparison to non-Hispanic white women (CDC, 2019; Office of Minority Health [OMH], 2018). Adhering to preventative health care recommendations such as CCS and/or human papillomavirus (HPV) vaccinations are the best way for women to decrease their risk of developing cervical cancer (CDC, 2019; Miller et al., 2014). However, numerous studies have indicated that Latinas' lack of knowledge and/or awareness regarding CCS and HPV is one of the main barriers to CCS adherence (Allgood-Percoco & Kesterson, 2015; Larkey et al., 2012; Thompson et al., 2019). Thus, healthcare providers must attempt to improve Latinas' knowledge of CCS and HPV to potentially impact future CCS adherence, and ultimately reduce cervical cancer-related deaths.

One of the ways providers can improve Latinas' knowledge of CCS and HPV is by developing and implementing evidence-based practice projects (Veeramah, 2016). Evidenced-based practice projects can be used to improve quality of care, clinical practice, and patients' outcomes (Veeramah, 2016). Prior to adopting an evidence-based practice change throughout an

entire health care organization, it is important to evaluate the effectiveness of the desired evidenced based practice via a scholarly project, quality improvement initiative, or pilot study. Currently, the evidence suggests that culturally relevant educational interventions in the form of small media interventions or lay health workers/advisors are the best way to improve Latinas' knowledge of CCS and HPV (Bernard et al., 2014; Larkey et al., 2012; Thompson et al., 2019; Warner et al., 2018). Implementing a scholarly project that aims to evaluate the effectiveness of a culturally relevant and evidenced-based CCS and HPV educational intervention may help to inform clinical practice, and determine if the suggested practice change can improve the patients' outcomes within the health care organization. Furthermore, this scholarly project evaluated the efficacy of a small media CCS and HPV educational intervention in terms of improving Latinas' CCS and HPV knowledge.

Background

As previously mentioned, Latinas in the U.S. have the highest rate of cervical cancer, which is likely due to their lower rates of CCS (Thompson et al., 2019). It is estimated that about 71% of Latinas in the U.S. recently received CCS, and that percentage varies based on the Latinas' country of origin, acculturation, and socioeconomic status (Thompson et al., 2019). Also, Latinas that are born outside of the U.S., have low health literacy, and lack knowledge of CCS and HPV are less likely to participate in CCS (Thompson et al., 2019; Valdez et al., 2016). Studies have indicated that educational interventions that are culturally relevant, bilingual in English and Spanish, and at an appropriate literacy level, are effective in improving CCS amongst underserved Latinas (Thompson et al., 2019; Valdez et al., 2016). Therefore, it is important that health care organizations providing care to a predominantly Hispanic patient

population incorporate educational interventions that meet all the criteria said to be effective in improving the patients' knowledge and understanding.

This scholarly project took place at Cabarrus Rowan Community Health Center (CRCHC), a federally qualified health center (FQHC) in North Carolina. CRCHC primarily serves Spanish-speaking patients. Several Hispanic female patients at CRCHC lack knowledge regarding the purpose of CCS and/or about the current CCS guidelines. Often, the Hispanic female patients equate pelvic exams to CCS, even though pelvic exams are performed for many different reasons besides pap smears. In addition, many of the Hispanic female patients' CCS histories vary, with some patients getting overly screened by requesting/receiving pap smears annually, while other patients have never had CCS or had their last CCS over three years ago. This scholarly project sought to implement an effective, bilingual, and culturally relevant CCS educational intervention amongst the Hispanic female patients at CRCHC to improve their CCS and HPV knowledge and ultimately the patients' adherence to the CCS guidelines.

Purpose of the Project

Evidence suggests that small media (i.e. pamphlets/brochures, radionovelas, videos, kiosks) are effective educational interventions in improving Latinas' knowledge of CCS, and feasible to implement in busy FQHCs or community health centers (Bernard et al., 2014; Larkey et al., 2012; Thompson et al., 2019; Warner et al., 2018). CRCHC only allows 15 minutes per office visit, so implementing an efficient and minimal effort educational intervention may be of great benefit if the intervention proves efficacious. The purpose of this scholarly project was to implement a CCS and HPV educational intervention in a busy FQHC, and to evaluate the efficacy of the intervention on Latinas' knowledge of CCS and HPV in hopes of improving

Latinas' CCS and HPV knowledge, future adherence to CCS, and health outcomes related to cervical cancer.

Clinical Question

Latinas' lack of knowledge regarding CCS guidelines has a significant impact on CCS adherence and ultimately impacts their health outcomes related to cervical cancer. One of the best ways to address this issue was to implement a CCS educational intervention to improve Latinas' CCS and HPV knowledge. This scholarly project sought to answer the following question: Do adult Hispanic female patients (P), who receive an educational intervention on cervical cancer screening (I), demonstrate an increase in knowledge and understanding of cervical cancer screening and human papillomavirus (O)?

Project Objectives and Goals

Prior to implementation of the scholarly project, it was important to determine the appropriate objectives and outcomes based on the purpose of the project. As previously mentioned, the purpose of this scholarly project was to implement a CCS education intervention and evaluate the effectiveness of the intervention on Latinas' CCS knowledge. Therefore, it was appropriate to assess the Latinas' knowledge before and after the intervention.

The first objective was to evaluate Latinas' baseline CCS knowledge. The desired outcome was that the scholarly project leader would administer a pre-intervention survey that asked questions regarding the recommended CCS guidelines, purpose of screening, causes of cervical cancer, and HPV to determine the Latinas' baseline CCS knowledge in order to effectively compare their pre- and post-intervention CCS knowledge.

The second objective was to implement a CCS educational intervention, which included a fotonovela (i.e. narrative pamphlet). The desired outcome was that the scholarly project leader

would implement the fotonovela to a minimum of 30 Latina patients within three months in order to obtain an appropriate effect size and ultimately evaluate the clinical relevance and significance of the fotonovela.

The third objective was to evaluate the efficacy of the CCS interventions on Latinas' knowledge. The desired outcome was an improvement in Latinas' CCS and HPV knowledge, which will be measured by a post-test questionnaire that asks questions regarding the recommended CCS guidelines, HPV in relation to CCS and cervical cancer, and purpose of screening. If the Latinas' had higher test scores with the post-test questionnaire versus the pre-test questionnaire, then that could indicate that the CCS and HPV educational intervention was efficacious.

The fourth objective of this scholarly project was to evaluate the Latinas' opinions of the CCS educational intervention. The desired outcome was the verification that the educational intervention is culturally relevant and favorable to Hispanic female patients. To evaluate that desired outcome, a post-intervention survey was administered to the patients to ascertain that information.

In conclusion, if the objectives and desired short-term outcomes were met, then the long-term desired outcome will be well supported by the project findings, and thus feasible to providers and administration. The long-term desired outcome is the implementation of a culturally relevant and preferred CCS educational intervention within all the CRCHC clinics. If the fotonovela is implemented throughout all CRCHC clinics, the Hispanic female patients' CCS and HPV knowledge may improve, ultimately resulting in increased adherence to CCS and improved patient outcomes related to cervical cancer.

CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

A literature review was performed to obtain current literature on the scholarly project topic and synthesize relevant information. Electronic databases that were utilized for the search included the following: Cumulative Index of Nursing and Allied Health Literature (CINAHL), Cochrane Library, and PubMed of the National Library of Medicine. The following search terms and key words were used: *Hispanic women, Latinas, education, educational interventions, cervical cancer, cervical cancer screening, and knowledge*. The search yielded 56 articles. The inclusion criteria were set to include articles in the English language, published between the years of 2000-2019, peer-reviewed journal articles, and quantitative or qualitative reviews. Exclusion criteria included articles that did not focus on cervical cancer screening and Hispanic women. Twenty-one articles were chosen for further analysis based on their relevance to the PICOT question. Sixteen articles were chosen for critical review.

Literature Review

Barriers to Cervical Cancer Screening

Several studies have indicated that Hispanic females experience barriers to CCS (Alligood-Percoco & Kesterson, 2015; Corcoran & Crowley, 2014; Mojica et al., 2017; Nardi et al., 2016; Szalacha et al., 2017; Torres et al., 2013). The literature reviews performed by Alligood-Percoco et al. (2015) and Nardi et al. (2016) revealed that CCS knowledge deficits, language barriers, and/or lack of culturally relevant educational interventions are barriers to CCS amongst Hispanic female patients. Also, qualitative studies performed by Corcoran & Crowley (2014), Szalacha et al. (2017), Torres et al. (2013) examined factors or influences hindering CCS amongst Latinas. Corcoran & Crowley (2014) and Szalacha et al. (2017) identified the following themes as barriers to CCS: lack of culturally relevant interventions, lack of knowledge about

CCS, lack of knowledge about cancer causes and risks, and cervical cancer beliefs. Torres et al. (2013) found that language differences and distrust in Spanish interpreters were major barriers to CCS amongst Latina patients. The findings from all five studies explain the scholarly project's phenomenon of interest, justify the need for this scholarly project in addressing or eliminating Hispanic female patients' barriers to CCS, and provide further support for the utilization of culturally relevant educational interventions to improve Hispanic female patients' CCS knowledge (Alligood-Percoco & Kesterson, 2015; Nardi et al., 2016; Torres et al., 2013).

Mojica et al. (2017) performed a cross-sectional, descriptive study that examined the relationship between health care access, health care utilization, and cancer screening behavior among low-income Latinas. Only 28% of the participants in the study by Mojica et al. (2017) received at least one cancer screening test, which further supports the need for this scholarly project and highlights the importance of FQHCs in providing health care access and CCS to Hispanic female patients.

Small Media Educational Interventions

As previously mentioned, Latinas' lack of CCS knowledge is a major factor contributing to lower rates of CCS adherence (Alligood-Percoco & Kesterson, 2015). Numerous studies have indicated that small media educational interventions are effective in improving Latinas' CCS knowledge and/or HPV knowledge (Foley et al., 2015; Lamb et al., 2018; Roland et al., 2016; Thompson et al., 2017; Thompson et al., 2019; Valdez et al., 2016). Thompson et al. (2017; 2019) and Valdez et al. (2016) performed randomized controlled studies, whereas Lamb et al. (2018) and Roland et al. (2016) performed non-randomized controlled studies to evaluate the efficacy of culturally relevant, small media educational interventions on Latinas' knowledge of cervical cancer and/or human papillomavirus (HPV). In contrast, Foley et al. (2015) conducted a

descriptive study with random sampling to evaluate the efficacy of educational interventions on Latinas' knowledge of CCS and HPV.

Thompson et al. (2019) utilized three small media educational interventions (radionovela, fotonovela, and digital story). Roland et al. (2016) and Lamb et al. (2017) utilized two small media educational interventions; a brochure and bookmark were used in the former study and a testimonial video and fotonovela were used in the later study. However, Foley et al. (2015), Valdez et al. (2016), and Thompson et al. (2017) only utilized one small media educational intervention, a mailed pamphlet, a multimedia touchscreen kiosk, and a home-based informational CCS video, respectively. All six studies administered pre- and post-intervention survey tests to measure CCS and/or HPV knowledge among Latina patients at FQHCs, and the educational interventions were associated with higher knowledge scores (Foley et al., 2015; Lamb et al., 2017; Roland et al., 2016; Thompson et al., 2017; Thompson et al., 2019; Valdez et al., 2016). Also, the educational interventions implemented by Thompson et al., (2017; 2019) and Valdez et al. (2016) were proven to be statistically significant in improvement in the Latinas' knowledge scores, which further supports the use of small media educational interventions to potentially increase Latinas' CCS knowledge.

Lay Health Worker-Patient Discussion Educational Interventions

Research has indicated that educational discussions led by lay health advisors (LHAs) or community health workers (CHWs) are an effective educational intervention in improving Latinas' CCS and/or HPV knowledge (Fleming et al., 2018; Foley et al., 2015; Larkey et al., 2012; Mann et al., 2015; Thompson et al., 2017; Sudarsan et al., 2011; Warner et al., 2018). In addition to the small media educational interventions, Foley et al. (2015) held monthly education sessions, and Thompson et al. (2017) held promotora- (i.e. Hispanic LHA) facilitated educational

discussions, to potentially improve Latinas' knowledge of HPV and CCS. Fleming et al. (2018) and Warner et al. (2018) performed a single-arm pilot study to evaluate the feasibility of implementing a promotora or LHA guided cervical cancer educational intervention amongst Latina manual labor employees and Latina farmworkers, respectively. All four studies indicated improvement in Latinas' knowledge scores via the post-intervention survey tests (Fleming et al., 2018; Foley et al., 2015; Thompson et al., 2017; Warner et al., 2018). The promotora-led educational intervention conducted by Fleming et al. (2018) and Warner et al. (2018) studies were proven to be statistically significant.

Mann et al. (2015) performed a qualitative systematic review to explore existing interventions that have increased CCS and identify characteristics of effective CCS interventions among Hispanic female patients. The findings of the Mann et al. (2015) study indicate that there were significant increases in CCS rates after Hispanic female patients received LHA or promotora-led educational interventions. The study performed by Sudarsan et al. (2011) discussed the importance of implementing health care programs that reflect the unique characteristics of the patient population that is to receive the intervention. Thus, Sudarsan et al. (2011) further supports the need for implementing culturally relevant and tailored educational interventions for Latinas as it relates to CCS.

While the results of the aforementioned studies suggest that LHAs have great potential to improve CCS among Latinas, the promotora- or LHA-led educational intervention was not utilized for this scholarly project. LFM does not currently have the space to host a group discussion nor the budget to hire an additional Spanish interpreter to assist in the facilitation of CCS group discussions after regular office hours. The providers at LFM only have access to a

Spanish interpreter during regular clinic hours, thus the promotora-led intervention was not feasible.

Provider-Patient Discussion Educational Intervention

Besides small media and lay health worker educational interventions, literature suggests that provider-patient discussion should be considered as a future educational intervention. In a qualitative study performed by Szalacha et al. (2017), knowledge and beliefs regarding CCS among Latinas were examined via focus groups, and two of the major themes identified were “facilitators and barriers...to cervical screening” and “desired information about cancer and screening” (p. 422). Szalacha et al. (2017) suggested that communication between medical staff and patients was a barrier, since patients reported that CCS was not adequately explained by medical staff (i.e. nurse, provider, medical assistant) and questions regarding gynecologic health were not answered and/or were disregarded by the healthcare provider. Nardi et al. (2016) reported similar findings and suggested that educational interventions for CCS should include provider-patient discussion with translation services (if the provider is non-Spanish speaking) to ensure effective communication and increase patients’ confidence in the provider-patient relationship.

There appears to be a gap in the literature evaluating the efficacy of provider-patient discussion as an educational intervention to improve Latinas’ CCS knowledge. However, the scholarly project leader did not implement provider-patient CCS discussion as one of the educational interventions. Currently, LFM did not have the budget to hire an additional Spanish interpreter to assist with the provider-patient discussions. However, evaluating the efficacy of a provider-patient discussion intervention should be considered for a future scholarly project at LFM.

Theoretical Framework

Leininger's Culture of Care Theory

The two theoretical frameworks that were utilized in this scholarly project are Leininger's Culture of Care Theory (CCT) and the Health Belief Model (HBM). The focus of the CCT theory is to guide the translation of research to practice by incorporating patients' cultural beliefs, values, and practices (Leininger, 2002; McFarland & Eipperle, 2008). As the U.S. patient population becomes increasingly diverse in terms of race, ethnicity, and culture, it is important for providers to consider how cultural beliefs, values, and practices impact patient care (Leininger, 2002; McFarland & Eipperle, 2008). Providing culturally competent patient care ultimately assists in mitigating barriers to preventative health services that exist within the Hispanic population (Foley et al., 2015). Therefore, this scholarly project will only include a culturally relevant educational intervention that was informed by Latina patients and provider focus groups, since the literature suggests that the efficacy of the educational interventions is strongly influenced by cultural relevance (Nardi et al., 2016; Thompson et al., 2016, Thompson et al., 2019, Valdez et al., 2016). The educational intervention that will be utilized in this scholarly project is meant to address CCS barriers and facilitators that were identified by the Latina patients and provider focus groups (Thompson et al., 2019). Thus, the educational intervention will be offered in both English and Spanish, since the literature indicates that having the intervention in the Latinas' native language can increase the patients' knowledge and ultimately act as a CCS facilitator (Nardi et al., 2016; Thompson et al., 2019). Lastly, the scholarly project leader will administer a post-intervention survey to examine the Latinas' satisfaction with the educational intervention and if the Latinas found the interventions culturally relevant to inform future practice and research implications.

Health Belief Model

The HBM can be used to evaluate why Hispanic female patients do not use preventative services such as CCS and guide the development of educational interventions (Austin et al., 2002; Moore de Peralta, 2015). Typically, the HBM includes six concepts: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Austin et al., 2002). However, this scholarly project will exclude the self-efficacy concept based on the project's purpose and objectives. The Hispanic female patients' answers to pre- and post-test questionnaires may provide insight into their perceived susceptibility, perceived severity, and perceived benefits related to cervical cancer and CCS. For instance, if the Hispanic female patients incorrectly respond that an HPV infection is rare and HPV cannot lead to cervical cancer, then it may indicate they perceive the likelihood of experiencing an HPV infection and serious consequence of cervical cancer as low (Austin et al., 2002; Moore de Peralta, 2015). Also, if the Hispanic female patients incorrectly respond that they should not have a Pap test and co-test, then it may indicate they do not perceive CCS as beneficial. Regarding the perceived barriers to CCS, they were identified and discussed during the development of the fotonovela by the Latina focus groups (Thompson et al., 2019). Lastly, the cue to action concept was fulfilled through the implementation of the fotonovela, which may prove effective in improving the Hispanic female patients' CCS knowledge and awareness.

Conclusion

Based on the results of the literature review, the need for a CCS educational intervention amongst Latinas is well supported. However, the application of relevant theoretical frameworks is needed to effectively implement the CCS educational intervention. Theories guide practice by providing a foundation for the desired action. The CCT and HBM were used to guide the

educational intervention in hopes of further improving the Hispanic female patients' outcomes related to the CCS knowledge and understanding.

CHAPTER 3: METHODOLOGY

Project Design

Setting

This project took place at Logan Family Medicine (LFM), one of the six clinics within CRCHC, an FQHC in North Carolina. LFM is a primary care clinic in Concord, a primarily urban city located in Cabarrus county, and the second-largest city in the Charlotte metropolitan area (Nousaine et al., 2016). Concord has a community need index (CNI) score between 3.4 to 3.5, indicating there are moderate health disparities within the community (Nousaine et al., 2016).

Subjects/Population

The racial distribution of the Concord population is 17.6% Black and 10.1% Hispanic or Latinx in origin (Nousaine et al., 2016). However, 70% of the patients at LFM are Hispanic or Latinx, indicating that Concord's health disparities are more pronounced amongst racial and ethnic minorities. Thus, Hispanic female patients at LFM were the population of interest for this scholarly project. As previously mentioned, this project sought to implement the fotonovela to a minimum of 30 Hispanic female patients at LFM.

Inclusion and Exclusion Criteria. CCS is recommended for women between ages 21-65 years old (Thompson et al., 2019). Thus, Hispanic female patients at LFM between the ages of 21-65 years old that were able complete the pre- and post-test questionnaires in English or Spanish were included in the project. The project leader used a convenience sample, without comparison group, of Hispanic female patients that meet the inclusion criteria. The exclusion criteria were as follows: identify as non-Hispanic/Latina, identify as male, younger than 21 years

old, older than 65 years old, inability to complete the pre- and post-test questionnaires, and/or refusal to sign the consent form.

Intervention

The CCS educational intervention that was implemented in this scholarly project is the fotonovela (Thompson et al., 2019). The fotonovela is an illustrated pamphlet written in both Spanish and English, which will allow Hispanic female patients to receive the CCS educational intervention in their preferred language (Thompson et al., 2019). The fotonovela illustrates the interaction between a family of three Latinas (two sisters and their mother) and a female physician. The female physician in the fotonovela answered the Latinas' questions about pap smears and HPV co-testing, and explained the purpose of and facts about CCS to the family (Thompson et al., 2019). After the conclusion, the fotonovela included a summary of facts about CCS and HPV vaccination for both girls and boys (Thompson et al., 2019).

The author/creator of the fotonovela was contacted via email by the project leader, and permission was granted to use the fotonovela in the project. A portable document format (PDF) of the fotonovela was obtained, and the fotonovela will be printed by the project leader. Copies of the fotonovela were distributed to the quality improvement director, Spanish interpreter, and bilingual medical assistant, and details on the information covered in the fotonovela was discussed with the project team members.

At the conclusion of the eligible Hispanic female participants regularly scheduled office visit, the project participants completed a baseline questionnaire to assess their knowledge of CCS pre-intervention. Next, the Spanish interpreter or bilingual medical assistant administered the fotonovela. After the reading the fotonovela, the project participants were administered a post-intervention questionnaire. Upon completion of the project, the participants were entered

into a random drawing to receive a \$25 gift card. Enrollment and implementation of the scholarly project was conducted from September 2020 to December 2020.

Measurement Tool

This scholarly project utilized a quasi-experimental, pre- and post-test design based on the project's purpose, which was to evaluate the effectiveness of the fotonovela in improving Hispanic female patients' CCS and HPV knowledge. Thus, the pre- and post-test design assessed the patients' CCS and HPV knowledge at baseline and post-intervention. To assess the Hispanic female patients' CCS and HPV knowledge, a CCS and HPV questionnaire was administered to the project participants before and after the implementation of the fotonovela (Thompson et al., 2019). The CCS and HPV questionnaire was created and used in the Thompson et al. (2019) pilot study, but it was modified for this project. Permission was granted by Thompson et al. (2019) to use the CCS and HPV knowledge pre- and post-intervention questionnaires with the desired modifications of the project leader. Questions regarding HPV vaccination were not included since the focus of this scholarly project is CCS. However, questions regarding HPV co-testing and HPV in relation to cervical cancer were included from the initial questionnaires. Demographic data (i.e. age, education, and marital status) were collected from the participants. However, detailed patient demographic questions were not included due to the current political climate and fear that those questions might have induced amongst the Hispanic female patients. In addition, questions about influenza were not included, since this scholarly project did not have an experimental, randomized control group design like the Thompson et al. (2019) pilot study.

The baseline questionnaire contained 11 questions and took about 5-10 minutes to complete. The cervical cancer knowledge included the following topics: cervical cancer risk, HPV risk, HPV co-testing, and pap testing (Thompson et al., 2019). The post-intervention

questionnaire included 23 questions, and the 11 cervical cancer knowledge questions were repeated. However, 12 out of the 23 questions included in the post-intervention questionnaire evaluated the Hispanic female patients' overall satisfaction/favorability of the fotonovela as an educational intervention, and thus it evaluated the fotonovela's consistency with Leininger's Culture of Care Theory (Leininger, 2002; McFarland & Eipperle, 2008; Thompson et al., 2019). The post-intervention questionnaire took about 10-15 minutes to complete. Both the modified baseline and post-intervention questionnaires (see Appendix A and Appendix B) were offered to the project participants in their preferred language of English or Spanish.

Data Collection Plan

After the end of the patients' regularly scheduled office visits, the bilingual medical assistant and project leader confirmed that the potential participants met the eligibility criteria while the patients were still in their assigned exam rooms. The project's purpose and procedures were explained by the bilingual medical assistant and consent was obtained by the bilingual medical assistant and project leader, if the patient desired to participate in the project. All project participants had the informed consent read aloud to them, and then they were given an informed consent form to sign. The signed consent forms were returned to the project leader prior to administration and completion of the baseline CCS knowledge questionnaire. The patients remained in their assigned exam rooms for the duration of the study participation to maintain social distancing and privacy.

The project leader and bilingual medical assistant briefly described the baseline and post-intervention questionnaires to the participants. Next, the participants were asked to complete the baseline questionnaire via paper and pencil in their preferred language (English or Spanish) and return the questionnaire to the project leader and bilingual medical assistant within 5-10 minutes.

Once the baseline CCS knowledge questionnaire was completed, it was collected by the project leader and bilingual medical assistant. Next, the participants received laminated, hard copies of the fotonovela in their preferred language.

The participants were given at least 10 minutes to read the fotonovela. After implementation of the fotonovela, the project leader and medical assistant collected the fotonovela and administered the post-intervention questionnaire. The project leader and bilingual medical assistant gave the participants at least 15 minutes to complete the post-intervention questionnaire. Upon submitting their completed questionnaires, participants were entered into a random drawing to receive a \$25 gift card as compensation for their participation.

The project participants completed the pre- and post-intervention CCS knowledge questionnaires and received the fotonovela on the same day due to the likelihood of patient not returning for follow-up, which is a common issue amongst this patient population. Also, due to coronavirus disease 2019 (COVID-19) and the need to maintain social distancing recommendations and safety precautions, same day participation and completion of the project was desired. There is no institutional review board (IRB) in place at CRCHC, so there was no formal IRB approval process to complete at CRCHC and LFM. However, permission was granted by CRCHC's Chief Medical Officer and quality improvement director to implement the scholarly project at LFM. The University of North Carolina at Charlotte IRB approval was granted in August 2020. Data collection for this project began in September 2020 and ended in December 2020.

Project Analysis

Data Analysis

The collected data was managed using a Microsoft Excel spreadsheet. The data from the Spanish speaking participants was translated from Spanish into English by the bilingual medical assistant and recorded in the Microsoft Excel spreadsheet. The CCS knowledge pre- and post-intervention data was transcribed into a data set using StataCorp version 16 software. All descriptive and inferential statistics were calculated using StataCorp. Descriptive statistics were performed to evaluate the patients' demographics and overall satisfaction with the fotonovela. The statistician performed match-paired t-tests to compare the CCS and HPV knowledge scores before and after the implementation of the fotonovela, and subgroup analysis on CCS and HPV knowledge score differences was performed by education levels and age groups.

To assess if education and/or age predicted post-test CCS and HPV knowledge score, individual bivariate linear regression was performed. The dependent variable was post-test CCS and HPV knowledge score and the independent variable was age "Over 50 years old" or "Having a high school education." Multivariate linear regression was performed to control for these two independent variables. Coefficients, standard errors, and confidence intervals were reported. Statistical significance was set at $p \leq .05$.

SWOT Analysis

Prior to the implementation of this scholarly project, an analysis evaluating the project's strengths, weaknesses, opportunities, and threats (SWOT) was performed. Strengths of the project included professional skills and experienced clinical staff in educating and performing CCS. Another strength was the previous positive acknowledgement from the American Cancer Society (ACS) regarding CRCHC's CCS rates amongst all eligible female patients. The rates of

CCS among Latinas have increased over time at LFM due to the QI initiative that was executed in partnership with the ACS. The successful pilot implementation of the fotonovela at LFM could further the CCS accomplishments praised by ACS, which may help maintain a buy-in from stakeholders within CRCHC to implement the fotonovela at all clinics within the organization.

In contrast, one of the potential weaknesses of the project was a lack of knowledge amongst some of the medical assistants regarding CCS and HPV. Thus, the medical assistants were provided with adequate knowledge about CCS and HPV to help reinforce the new CCS and HPV educational information. Another potential weakness was ineffective communication between the medical assistants, Spanish interpreter, and provider. Thus, daily reminders of the scholarly project's implementation process were discussed by the project leader/provider after the morning huddle.

The successful implementation of this scholarly project could lead to potential opportunities. If the CCS and HPV educational intervention is proven effective in improving Hispanic female patients' knowledge of CCS, then it may reduce the costs of inappropriate examinations and avoidable hospitalizations related to cervical cancer. Also, this project can lead to the permanent implementation of a culturally relevant CCS and HPV educational intervention for Latinas across CRCHC. However, there were potential threats to this scholarly project, such as the high clinical staff turnover amongst the medical assistants and the need for financial support to print copies of the fotonovela. Therefore, it will be important for the project leader to perform a cost-effective analysis in the near-future to demonstrate to stakeholders that the fotonovela is a cost-effective CCS and HPV educational intervention, and thus should be implemented at CRCHC clinic sites.

Conclusion

In conclusion, the project's pre- and post-test design was meant to evaluate the efficacy of the CCS educational intervention in improving Latina patients' CCS and HPV knowledge. Favorable project findings may indicate to the stakeholders that the fotonovela is effective in improving Latinas' CCS knowledge. Ultimately, favorable findings could provide justification for the widespread implementation of the fotonovela within all of CRCHC.

CHAPTER 4: PROJECT RESULTS

Project Findings

Participant Characteristics

A total of 51 participants were recruited at LFM. All participants identified as female and Latina/Hispanic during the recruitment process. Of 51 participants, 50 participants completed the intervention and one participant did not (completion rate of 98%). Among those that completed the intervention, the majority were ages 30-49 (56%), spoke only Spanish (68%), were married (58%), and had a high school education or higher (60%) (Table 1).

Table 1

Participant Demographics

Baseline Characteristics	Count (n) N=50	%
Age		
21-29	10	20.0
30-49	28	56.0
50+	12	24.0
Primary language spoken		
English	5	10.0
Spanish	34	68.0
English and/or Spanish	11	22.0
Education level		
8 th grade or less	10	20.0
9 th – 12 th grade	10	20.0
H.S. diploma or higher	30	60.0
Marital status		
Married	29	58.0
Single	21	42.0

Pre- and Post-test CCS Scores

The pre- and post-test means and standard deviations for CCS and HPV knowledge are presented in Table 2. When the pre- and post-test CCS and HPV knowledge scores were examined, the fotonovela was associated with higher knowledge scores. Normality was evaluated on CCS and HPV scores, visualized in Figure 1. Overall, participants significantly

increased their average post-test CCS and HPV knowledge scores (Pre: 50.6; Post: 83.6, $p < .000$). When examined by subgroups, statistically significant increases were observed in post-test scores regardless of if participants reported a high school education (Pre: 54.0; Post: 88.6, $p < .000$) or did not report a high school education (Pre: 45.6; Post: 76.0, $p < .000$). Similarly, when analyzed by specific educational level, all participants showed significant increases in post-test scores. Also, the ages of the participants were examined and strong statistically significant increases in post-test scores were noted in all age categories.

Table 2

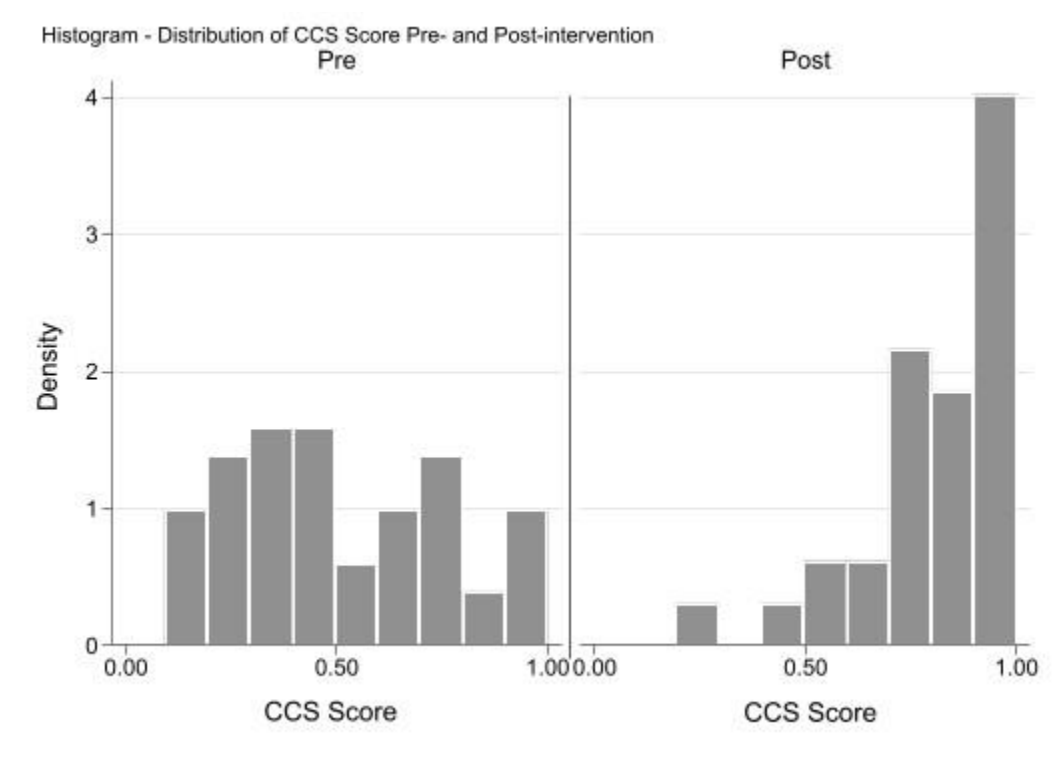
Pre- and Post-Test CCS and HPV Knowledge Scores

	Pre-Intervention Mean (SD)	Post-Intervention Mean (SD)	p- value
Overall	50.6 (23.4)	83.6 (16.3)	.000*
High School Education			
Yes	54.0 (24.7)	88.6 (12.3)	.000*
No	45.6 (20.9)	76.0 (18.9)	.000*
Educational Level			
8 th grade or less	50.5 (16.2)	67.9 (18.9)	.023*
9 th – 12 th grade	40.6 (24.6)	84.2 (15.7)	.000*
H.S. diploma or higher	54.0 (24.7)	88.6 (12.3)	.000*
Age			
Below 50 years	50.9 (24.7)	85.9 (13.5)	.000*
Over 50 years	49.7 (19.6)	76.3 (22.3)	.003*
Age Category			
21-29	51.6 (26.4)	90.7 (12.4)	.000*
30-49	50.6 (24.6)	84.2 (13.7)	.000*
50+	49.7 (19.6)	76.3 (22.3)	.003*

* $p < .05$

Figure 1

Histogram of Pre- and Post-test CCS and HPV Knowledge Scores



When the post-test scores were examined, a difference in scores was identified based on the participants' age and education level. Therefore, a bivariate linear regression was performed and indicated that compared to being under 50 years old, participants over 50 years old would have an estimated .10 units lower CCS and HPV knowledge score (β -.096, p =.075) (Table 3). In addition, the bivariate linear regression indicated that having a high school education improved CCS and HPV knowledge post-test scores by .13 units as compared to participants who did not have a high school education (β .126, p =.006) (Table 3). Furthermore, multivariate analysis revealed that when age was held constant, having a high school education increased a participant's post-test score by .110 units (β .110, p =.027), though when education was held constant, age did not have an impact on post-test CCS score, visualized in Table 4. The overall model was significant (F =4.39, p =.018).

Table 3*Does level of education and/or age predict post-test scores?*

Dependent Variable	β Coefficient (SE)	Confidence Interval	p-value
Age			
Over 50 years old	-.096 (.053)	-.202 .010	.075*
Education			
Having a high school education	.126 (.044)	.037 .214	.006*

* $p < .05$.**Table 4***What is the effect of education and age on post-test scores?*

	β Coefficient (SE)	Confidence interval	p-value
Over 50 years old	-0.0455 (0.055)	-.157 .066	.415
Having a high school education	0.110 (0.0482)	.013 .207	.027*
Model $p = .018$, $F(2, 47) = 4.39$			

* $p < .05$.***Participant Satisfaction with the Fotonovela***

The participants' satisfaction with the fotonovela was examined via the post-test questionnaire, and all 50 participants reported overall satisfaction with the intervention. Of the 50 participants, 100% of the participants reported satisfaction with the fotonovela regarding the topic, narrative format, storyline, educational material, imagery, ability to understand/follow, and relatability. Furthermore, 100% of the participants agreed that the fotonovela was a good way to learn about cervical cancer and HPV. These findings were further supported by the qualitative data that was obtained from the one of the post-test questions seeking the participants' additional comments and/or suggestions regarding the fotonovela.

There were two major themes that emerged via the inductive coding: satisfaction with the fotonovela and relevancy/importance of the fotonovela for Latinas. In regard to satisfaction with the fotonovela, many participants reported that the fotonovela was interesting and a good way to learn about cervical cancer and HPV prevention. Several participants stated that the fotonovela

was “es muy interesante” (“it is very interesting”) and “es forma muy interesante aprender para la prevención” (“It is a very interesting way to learn about prevention”). Another participant explicitly shared her satisfaction with the fotonovela, stating, “es estuvo muy interesante la fotonovela porque nos es inform sobre la cancer cervical y el vph” (“The fotonovela was very interesting because it informed us about cervical cancer and HPV”). One participant reported satisfaction with the fotonovela’s educational material and topic: “Reading the fotonovela has taught me more about cervical cancer than I knew before. It’s a great way to learn something quick.” Another participant reported satisfaction with the narrative format and storyline of the fotonovela, “It will definitely help a lot of women. I liked the use of the older women and the experience with talking about the subject and it being taboo.”

In addition, many participants expressed gratitude for sharing the fotonovela. A few participants also mentioned that the fotonovela should be used to learn about other diseases and preventive screenings, sharing, “que haiga mas fotonovelas para aprender sobre nuestra salud” (“there needs to be more fotonovelas to learn about our health”). Regarding the relevancy and/or importance of the fotonovela, many participants expressed that the information was beneficial and thus needs to be shared with all Latinas and the Latinx community. A few participants stated that “information given was beneficial and will be helpful to many Latina women” and “es algo muy interesante y importante. Todas las Latinas deveriamos de informaciones” (It is very interesting and important. All Latinas should get this information”). Another participant shared similar feelings and suggested that information be disseminated to the Latinx community, saying, “Definitely get this information out more to our community.” The sum of the qualitative data obtained from the post-test questionnaire, indicates that the project participants were highly

satisfied with the fotonovela as an educational intervention and considered the fotonovela beneficial and culturally relevant.

Conclusion

Based on the project findings, the effectiveness of the fotonovela in improving Latinas' CCS and HPV knowledge is well-supported. The findings demonstrate that the fotonovela is both clinically and statistically significant. Given these significant findings, there should be a widespread implementation of the fotonovela throughout CRCHC in order to improve the Latina patients' knowledge of CCS and HPV, and potentially improve the Latinas' CCS adherence and cervical cancer outcomes.

CHAPTER 5: DISCUSSION

Summary

The aims of the scholarly project were to implement and evaluate the efficacy of the fotonovela in improving Latinas' CCS and HPV knowledge. The project was successfully implemented. Successfully recruiting 50 participants for this project is considered a strength and contributed to the statistically significant findings. Another strength of this project was the selection of the fotonovela as the educational intervention. The fotonovela is practical to implement in a busy clinic setting due to its pamphlet format. Patients can read the fotonovela while waiting in their exam rooms to be seen by their medical providers. Also, the narrative form of the fotonovela is another strength since the narrative format is reported to be effective amongst the Latinx population. Latinas in all age and education attainment groups participating in this project experienced a significant improvement in their CCS and HPV knowledge after reading the fotonovela. In addition, all the participants expressed satisfaction with the fotonovela as an educational intervention, and some participants reported that the fotonovela shared information that was relevant and beneficial to Latinas and the Latinx community. Thus, this scholarly project substantiates the effectiveness of small media educational interventions like the fotonovela in improving Latinas' CCS and HPV knowledge, and it verifies the cultural relevance of the fotonovela. Ultimately, the results of this project indicate that the fotonovela is both statistically and clinically significant as an educational intervention.

Interpretation of Findings

As previously mentioned, the fotonovela is an effective educational intervention in improving Latinas' CCS and HPV knowledge, which is similar to the findings from the Thompson et al. (2019) study. Research has shown that implementing culturally relevant educational interventions is one of the best ways to improve patients' health literacy (Moran et

al., 2016; Thompson et al., 2019, Valdez et al., 2016). In addition, research has suggested that educational interventions provided in a narrative format are typically more effective than non-narrative formats in improving cervical cancer knowledge amongst the Latinx population (Moran et al., 2016; Murphy et al., 2013; Thompson et al., 2019). Thus, the narrative format of the fotonovela in combination with its cultural relevance and being offered in Spanish and English likely contributed to its effectiveness as an educational intervention.

Implications

Clinical practice

Given the proven effectiveness of the fotonovela in improving Latinas' CCS and HPV knowledge, there are numerous implications to consider for clinical practice. Since the fotonovela was successfully implemented at LFM, widespread implementation of the fotonovela within CRCHC is warranted. Improving the Latinas' knowledge of CCS and HPV may result in improved adherence to the current CCS and HPV guidelines, and result in improved quality measures. In addition, improved adherence to the CCS guidelines could have a financial impact on CRCHC's LabCorp costs, since patients may be less likely to request unnecessary pap smears. Considering the clinical and statistical findings of this project, dissemination of the findings in a peer-reviewed journal is an important step to potentially encourage the utilization of the fotonovela in other clinics primarily serving Latinas. Improved adherence to CCS and HPV vaccination could ultimately improve the health outcomes of Latinas and healthcare costs related to cervical cancer in the future.

Future Research

Given the proven efficacy of the fotonovela as an educational intervention in improving Latinas' CCS and HPV knowledge, future research should evaluate Latinas' intention to adhere

to the CCS guidelines post-intervention and document the changed behavior related to CCS. In addition, future research should explore the effectiveness of the digital story in improving Latinas' CCS and HPV knowledge, which may be beneficial amongst Latinas with lower literacy levels. Another potential area of study should be on the development and implementation of fotonovelas for other health topics of concern amongst the Latinx population. For instance, some project participants suggested that fotonovelas be used for educating patients on other preventative screenings such as breast cancer, colorectal cancer, and sexually transmitted infection (STI), to name a few. The health outcomes of the Latinx population may improve if more fotonovelas are developed and implemented for relevant health topics/preventative screenings.

Limitations

Although the findings were both statistically and clinically significant, the small sample size for this project was a limitation. The smaller sample size could be a result of less patients seeking medical care during the coronavirus disease 2019 (COVID-19) pandemic. Patients were recruited at the conclusion of their designated office or nurse visits, and most patients were hesitant to remain in the clinic due to potential exposure to COVID-19.

Another limitation of the project is the generalizability to all Latinas/Hispanic females. The Latinx population in the U.S. represents numerous countries, which vary culturally. Moreover, even within a Hispanic country there are several nuances that exist within certain regions. Therefore, this project may not be culturally generalizable and relevant to all Latinas. Also, a limitation of this project relates to exclusivity of the fotonovela as it relates to participants' literacy levels. Some of the participants reported an education level less than 8th grade, thus the fotonovela may not be the best small media option in improving their CCS and

HPV knowledge. Therefore, an alternative small media educational intervention such as the digital story or radionovela that were utilized in the Thompson et al. (2019) study should have been available for participants with an education level less than 8th grade or without literacy.

Conclusion and Recommendations

The findings from the project indicate that the fotonovela is an effective educational intervention in improving Latinas' CCS and HPV knowledge. Improved CCS and HPV knowledge scores were shown post-intervention, and both quantitative and qualitative data analysis indicated that the Latinas were satisfied with the fotonovela as an CCS educational intervention. Most importantly, the Latinas confirmed that the fotonovela was a culturally relevant educational intervention that would be beneficial to the Latinx community. The pamphlet format of the fotonovela is practical to implement in busy clinic settings and affordable to print and store in each medical exam room within CRCHC. To improve the longevity of the pamphlet and maintain infection control, laminated copies identical to the ones used for the project are recommended. Ultimately, the findings of this project were both statistically and clinically significant, and implementation of the fotonovela is feasible. Therefore, the widespread implementation and dissemination of the fotonovela is warranted in clinic settings or health care organizations that provide care to Hispanic females. Future research should evaluate the patients' intention to participate in CCS and documented CCS behavior after reading the fotonovela.

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Appendix A**Modified Cervical Cancer Screening and HPV Baseline Questionnaire**

(Thompson et al., 2019)

1. Have you heard of cervical cancer?
 - Yes
 - No
 - Don't know
2. Have you heard of HPV? HPV stands for Human papillomavirus. It is not HIV, HSV, or herpes.
 - Yes
 - No
 - Don't know
3. Do you think that a HPV infection is rare?
 - Yes
 - No
 - Don't know
4. Do you think you can get HPV through sexual contact?
 - Yes
 - No
 - Don't know
5. Do you think HPV can cause cervical cancer?
 - Yes
 - No
 - Don't know
6. HPV is a very common infection. Most people who are sexually active will be infected with HPV some time in their life.
 - True
 - False
 - Don't know

7. A woman will know if she has HPV because she will have symptoms
- True
 - False
 - Don't know
8. Do you think HPV requires medical treatment, or do you think it will usually go away on its own without treatment?
- Requires medical treatment
 - Will usually go away on its own
 - Don't know
9. Have you heard about any recent changes in the cervical cancer screening guidelines?
- Yes
 - No
 - Don't know
10. How often do you think a woman your age should have a Pap test? _____
11. When should a woman start having co-tests? Co-test means a woman has a Pap test and HPV test at the same time.
- Never
 - Between ages 18-20
 - Between ages 21-29
 - Ages 30 and older
 - Every time they get a Pap test, no matter their age
 - Don't know
12. How many years old are you? _____
13. What is your current relationship status?
- Single or dating
 - Married
 - Widowed
14. What is your highest level of education you have completed? _____

Appendix B**Modified Cervical Cancer Screening and HPV Post-Intervention Questionnaire**

(Thompson et al., 2019)

1. Have you heard of cervical cancer?
 - Yes
 - No
 - Don't know
2. Have you heard of HPV? HPV stands for Human papillomavirus. It is not HIV, HSV, or herpes.
 - Yes
 - No
 - Don't know
3. Do you think that a HPV infection is rare?
 - Yes
 - No
 - Don't know
4. Do you think you can get HPV through sexual contact?
 - Yes
 - No
 - Don't know
5. Do you think HPV can cause cervical cancer?
 - Yes
 - No
 - Don't know
6. HPV is a very common infection. Most people who are sexually active will be infected with HPV some time in their life.
 - True
 - False
 - Don't know

7. A woman will know if she has HPV because she will have symptoms
- True
 - False
 - Don't know
8. Do you think HPV requires medical treatment, or do you think it will usually go away on its own without treatment?
- Requires medical treatment
 - Will usually go away on its own
 - Don't know
9. Have you heard about any recent changes in the cervical cancer screening guidelines?
- Yes
 - No
 - Don't know
10. How often do you think a woman your age should have a Pap test? _____
11. When should a woman start having co-tests? Co-test means a woman has a Pap test and HPV test at the same time.
- Never
 - Between ages 18-20
 - Between ages 21-29
 - Ages 30 and older
 - Every time they get a Pap test, no matter their age
 - Don't know
12. What was the most surprising or interesting information you learned from the fotonovela? _____
- _____
13. The fotonovela was:
- Too short
 - Just the right length
 - Too long

14. The fotonovela was about a topic important to me and my community.

- Agree
- Disagree
- Undecided

15. The fotonovela was easy to read.

- Agree
- Disagree
- Undecided

16. The fotonovela was understandable.

- Agree
- Disagree
- Undecided

17. The layout of the fotonovela made it easy to follow the story.

- Agree
- Disagree
- Undecided

18. The fotonovela helped me learn new information.

- Agree
- Disagree
- Undecided

19. The fotonovela left me with more questions.

- Agree → What questions(s) do you have after reading the fotonovela? _____

- Disagree
- Undecided

20. The fotonovela was interesting to read.

- Agree
- Disagree
- Undecided

21. I identified with the pictures in the fotonovela.

- Agree
- Disagree
- Undecided

22. The fotonovela was a good way to learn about cervical cancer and HPV.

- Agree
- Disagree
- Undecided

23. Do you have any comments or suggestions? (Please write them below.)
