HISPANIC PARENTS’ KNOWLEDGE, ATTITUDES AND BELIEFS TOWARD
HUMAN PAPILLOMAVIRUS AND HUMAN PAPILLOMAVIRUS VACCINATION IN
ARIZONA

by

Sarah E. Raleigh

A DNP Project Submitted to the Faculty of the

COLLEGE OF NURSING

In Partial Fulfillment of the Requirements
For the Degree of

DOCTOR OF NURSING PRACTICE

In the Graduate College

THE UNIVERSITY OF ARIZONA

2016
THE UNIVERSITY OF ARIZONA
GRADUATE COLLEGE

As members of the DNP Project Committee, we certify that we have read the DNP Project prepared by Sarah E. Raleigh, entitled Hispanic Parents’ Knowledge, Attitudes and Beliefs Toward Human Papillomavirus and Human Papillomavirus Vaccination in Arizona and recommend that it be accepted as fulfilling the DNP Project requirement for the Degree of Doctor of Nursing Practice.

Judith A. Berg
______________________________ Date: 4/15/2016
Judith A. Berg, PhD, WHNP-BC, FAAN, FAANP

Christy L. Pacheco
______________________________ Date: 4/15/2016
Christy L. Pacheco, DNP, FNP-BC

Melissa M. Goldsmith
______________________________ Date: 4/15/2016
Melissa M. Goldsmith, PhD, RND

Final approval and acceptance of this practice inquiry is contingent upon the candidate’s submission of the final copies of the practice inquiry to the Graduate College.

I hereby certify that I have read this practice inquiry prepared under my direction and recommend that it be accepted as fulfilling the practice inquiry requirement.

Judith A. Berg
______________________________ Date: 4/15/2016
DNP Project Director: Judith A. Berg, PhD, WHNP-BC, FAAN, FAANP
STATEMENT BY AUTHOR

This DNP Project has been submitted in partial fulfillment of requirements for an advanced degree at The University of Arizona and is deposited in the University Library to be made available to borrowers under rules of the Library.

Brief quotations from this DNP Project are allowable without special permission, provided that accurate acknowledgment of source is made. Requests for permission for extended quotation from or reproduction of this manuscript in whole or in part may be granted by the head of the major department or the Dean of the Graduate College when in his or her judgment the proposed use of the material is in the interests of scholarship. In all other instances, however, permission must be obtained from the author.

SIGNED: Sarah E. Raleigh
ACKNOWLEDGEMENTS

My deepest gratitude goes first to my DNP Project Committee; not only for their time and patience but for their invaluable intellectual contributions and feedback during the past four years. To Judy Berg, you have set an admirable example as an advanced practice nurse, researcher, mentor and role model. I thank you for agreeing to chair my committee despite debating retirement as well as a full professional and personal schedule.

I wish to thank my parents, Carl and Terry Raleigh, both the first in their families not only to attend college but also graduate school. Their educational aspirations inspired my own and my success is due to their love and support.

I also would like to thank Bruce Kinnin who has been an unwavering source of strength during this endeavor.
DEDICATION

I would like to dedicate this to all the women who have suffered, are suffering, or have died from the consequences of human papillomavirus as well as Hispanic women; may we one day eliminate the disparity.
TABLE OF CONTENTS

LIST OF FIGURES .................................................................................................................. 8
LIST OF TABLES .................................................................................................................... 9
ABSTRACT .................................................................................................................................. 10

CHAPTER ONE: INTRODUCTION ......................................................................................... 11
Background and Significance ................................................................................................. 11
Statement of the Problem ....................................................................................................... 13
Scope of the Problem ............................................................................................................. 13
Purpose and Aims ................................................................................................................... 14
Significance to Advanced Nursing Practice .......................................................................... 14
Definitions .............................................................................................................................. 16

CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK ............. 17
Parental Knowledge, Attitudes and Beliefs ............................................................................. 17
  Hispanic Parents .................................................................................................................. 19
  Failure to Vaccinate: Results of a National Survey ............................................................ 20
Theoretical Framework .......................................................................................................... 21
  Health Belief Model Constructs and Inputs ......................................................................... 21

CHAPTER THREE: METHODOLOGY .................................................................................. 25
Research Design ..................................................................................................................... 25
Sample and Setting ................................................................................................................ 25
Participant Recruitment ........................................................................................................ 26
Human Subjects Protection .................................................................................................... 26
Ethical Considerations ........................................................................................................... 27
Study Instrument ................................................................................................................... 28
  Subscales ............................................................................................................................ 29
Data Collection Procedure ................................................................................................... 29
Data Management ................................................................................................................ 30
Data Analysis ......................................................................................................................... 30

CHAPTER FOUR: RESULTS ................................................................................................ 32
Demographics ......................................................................................................................... 32
Aim 1: Describe Parental Knowledge Regarding HPV and HPV Vaccination ................. 34
Aim 2: Describe Perceived Vulnerability, Perceived Severity, Perceived Benefits and
  Perceived Barriers of HPV and HPV Vaccination .............................................................. 34
Aim 3: Describe Relationships Among Demographic Characteristics and Parental Knowledge
  of HPV and HPV Vaccination ........................................................................................... 36
## TABLE OF CONTENTS - Continued

**CHAPTER FIVE: DISCUSSION** .......................................................................................... 38
Findings ................................................................................................................................. 38
  Demographics ...................................................................................................................... 38
  Aim 1: Describe Parental Knowledge Regarding HPV and HPV Vaccination .......... 39
  Aim 2: Describe Perceived Vulnerability, Perceived Severity, Perceived Benefits and
  Perceived Barriers of HPV and HPV Vaccination ............................................................. 40
  Aim 3: Describe Relationships Among Demographic Characteristics and Parental
  Knowledge of HPV and HPV Vaccination ......................................................................... 43
Study Instrument Reliability ................................................................................................. 43
Strengths ............................................................................................................................... 45
Limitations ............................................................................................................................. 46
Implications for Advanced Practice Nursing ...................................................................... 46
Conclusions .......................................................................................................................... 47
Suggestions for Future Research .......................................................................................... 47

**APPENDIX A: STUDY INSTRUMENT** ............................................................................. 49
**APPENDIX B: PERMISSION TO USE STUDY INSTRUMENT** ........................................ 52
**APPENDIX C: RECRUITMENT SCRIPT** .......................................................................... 57
**APPENDIX D: INFORMED CONSENT** ........................................................................... 59
**APPENDIX E: COPYRIGHT PERMISSION** ....................................................................... 63

REFERENCES ....................................................................................................................... 65
LIST OF FIGURES

FIGURE 1: Health Belief Model  ................................................................. 23
FIGURE 2: Adapted Health Belief Model  ................................................... 24
LIST OF TABLES

TABLE 1. Sample Demographics ................................................................. 33

TABLE 2. PHPVS Sum Score Correlations ...................................................... 37
ABSTRACT

Human papillomavirus (HPV) is a sexually transmitted infection that represents a serious health issue that can lead to significant morbidity and mortality. Although FDA-approved vaccines for the prevention against the majority of strains responsible for cervical cancer and genital warts have been available for many years, immunization rates remain low. This study will consider cervical cancer as the main consequence of HPV and thus will investigate parents of daughters. This is of particular relevance to Arizona, given the large Hispanic population and the racial and ethnic disparities that exist in the incidence, mortality and survival of cervical cancer when compared to the national average. Administration of the three-dose series is recommended for girls and boys beginning at 12 years of age. The target population of this study was parents as the HPV vaccine necessitates parental consent and immunization rates remain low. This study specifically aimed to explore the knowledge, attitudes and beliefs of Hispanic parents in Maricopa County toward the HPV vaccine in efforts to identify barriers to immunization and create future implications for practice. Findings were consistent with previous literature: Hispanic parents exhibited suboptimal knowledge regarding HPV and HPV vaccination. Specific opportunities for education include the etiology, transmission and health consequences of HPV. Despite many areas for education, the majority of Hispanic parents indicated they would follow their health providers’ recommendation on vaccination.
CHAPTER ONE: INTRODUCTION

Chapter one discusses the background and significance of human papillomavirus (HPV) in regards to the general population as well as specifically towards Hispanic populations. This chapter will additionally outline the statement and scope of the problem, list the purpose and specific aims of the study and discuss the significance to advanced nursing practice.

Background and Significance

Human papillomavirus is the most common sexually transmitted infection in the United States, with an estimated annual incidence of 14 million infections and overall prevalence of 79 million infections (Hariri, Dunne, Saraiya, Unger, & Markowitz, 2014). There are over 100 types of HPV, 40 of which infect the genital area (Hariri et al., 2014). Genital HPV (henceforth referred to as HPV) is divided into two types: low-risk (non-oncogenic) and high-risk (oncogenic). Infection with low-risk HPV is associated with benign cervical changes, anogenital warts and recurrent respiratory papillomatosis (RRP) (Hariri et al., 2014). Infection with high-risk HPV is associated with development of cervical, vulvar, vaginal, anal, penile and oropharyngeal cancers (Hariri et al., 2014). Virtually all cervical cancers (99.7%) are caused by HPV (Chelimo, Woudes, Cameron, & Elwood, 2014).

Human papillomavirus is typically transmitted via sexual intercourse. However, transmission can also occur from other intimate contact such as genital-genital or oral-genital routes as well as the potential to autoinoculate between anatomic sites (Markowitz et al., 2014; Moscicki et al., 2012). Infections with non-oncogenic strains that do not produce genital warts are asymptomatic with spontaneous resolution in 1-2 years and no long-term effects (Markowitz et al., 2014). Due to high clearance rates, national guidelines have recently updated their
recommendations to restrict routine HPV testing in average-risk women beginning at age 30 (CDC, 2014b).

In recent years, vaccines have made HPV largely preventable. In 2006 the Federal Drug Administration (FDA) approved Gardasil®, a quadrivalent vaccine to prevent infection against high-risk HPV strains 16 and 18, along with low-risk strains 6 and 11 (Hariri et al., 2014). Three years later, the FDA approved Cervarix®, a bivalent vaccine to prevent infection against high-risk HPV strains 16 and 18 (Hariri et al., 2014). In 2014, the FDA approved Gardasil® 9, expanding coverage to include five additional oncogenic strains of HPV (31, 33, 45, 52 and 58) (Petrosky et al., 2015).

Oncogenic HPV strains 16, 18, 31, 33, 45, 52 and 58 are responsible for 90% of cervical cancers, 85% of anal cancers and 50% of vaginal, vulvar, penile and oropharyngeal cancers while non-oncogenic HPV strains 6 and 11 are responsible for 90% of genital warts (NIH, 2014; Petrosky et al., 2015). The Advisory Committee on Immunization Practices (ACIP) recommends routine immunization with either the bivalent or quadrivalent vaccine for women beginning at age 11 or 12 and up to age 26 and the quadrivalent vaccine for men beginning at age 11 or 12 and up to age 21 (Markowitz et al., 2014). As these vaccines are considered a preventive intervention, administering the vaccine before sexual activity is paramount. Statistics demonstrate the cumulative probability of HPV infection within 2 years of sexual debut is 38.9% in women and 62.4% in men (Markowitz et al., 2014).

Yet despite rigorous data consistently demonstrating these vaccines to be safe and effective, immunization rates remain suboptimal (CDC, 2013a; CDC, 2013b; Markowitz et al., 2014). Current national data report 57.3% of adolescent females initiated HPV vaccination but
only 37.6% of this population completed the three-dose series (Schmidt & Parsons, 2014). These immunization rates are particularly poor when compared to immunization rates of other vaccines indicated for the same age group, such as Tdap/TD (tetanus, diphtheria and acellular pertussis/tetanus and diphtheria) which was 86% for the same year (Elam-Evans et al., 2014). While suboptimal, these immunization rates represent a 5% increase from the previous year (Elam-Evans et al., 2014). Despite this improvement, they are still drastically below the Healthy People 2020 goal of 80% (Healthy People, 2014).

**Statement of the Problem**

Hispanic women in Arizona are disproportionately affected by cervical cancer not only compared to all other races, but also Hispanic women in non-bordering states. In light of this inequality and the high Hispanic population in Arizona, it is imperative to explore the knowledge, attitudes and beliefs Hispanic parents possess toward vaccination against HPV in efforts to identify barriers to immunization and opportunity for immunization uptake.

**Scope of the Problem**

Hispanic women experience significant disparities in the incidence and mortality of cervical cancer when compared to non-Hispanic women in national data samples. To illustrate, the national rate per 100,000 women of HPV related cervical cancer in Hispanic women is 11.3 compared to 7.4 in non-Hispanic women (CDC, 2014a). At the state level, the gap is smaller with a rate of 8.8 versus 7.0, respectively. Still, a gap exists. Hispanic women who are living in border states such as Arizona are of particular concern. This population experiences greater disparities than those living in non-border states (Coughlin et al., 2008; Singh, 2012). Further, Hispanic women living in border states are more likely to present with late-stage disease with an
earlier age of presentation (Scarinci et al., 2010). Most concerning is that recent literature suggests these disparities persist even when socioeconomic status (SES) and access to health care are comparable (Siegel, Naishadham, & Ahmedin, 2012). Arizona reform law SB1070 creates an additional barrier in access to care as its enactment has incited fear within the Hispanic population, demonstrated by a drop in preventive health care services (Toomey et al., 2014). Currently Hispanics comprise 30% of the population in Maricopa County and represent 30% of the total population in Arizona (United States Census Bureau, 2013).

**Purpose and Aims**

The purpose of this study is to describe Hispanic parents’ knowledge, attitudes and beliefs toward HPV and HPV vaccination in Maricopa County. The specific aims of this study are to:

1) Describe parental knowledge regarding HPV and HPV vaccination.

2) Describe perceived vulnerability, perceived severity, perceived benefits and perceived barriers of HPV and HPV vaccination.

3) Describe relationships among demographic characteristics and parental knowledge of HPV and HPV vaccination.

**Significance to Advanced Nursing Practice**

The current body of literature on this subject is small given the relatively recent development of the preventive vaccines. Literature specific to Hispanic parents’ is even smaller and to the knowledge of this researcher, none include Hispanic participants from Arizona. This detail is important; to be clinically effective in addressing the aforementioned disparities this population experiences, cultural influences specific to this population must first be explored.
The concept of cultural sensitivity or cultural competence has evolved from viewing culture primarily as a derivative of ethnicity to include the unique location, characteristics of the population and their dynamics within their community (Kirmayer, 2012). Thus, findings from the Hispanic population in Arizona may differ greatly from findings from the Hispanic population in other states. Further, exploration of this subject represents Essential VII of The Essentials of Doctoral Education for Advanced Nursing Practice outlined by the American Association of Colleges of Nursing (AACN): Clinical Prevention and Population Health for Improving the Nation’s Health (AACN, 2006).
Definitions

*Hispanic:* a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race (United States Census Bureau, 2012).

*Parent:* Biological mother or father of subject.
CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Chapter two provides an overview of the current literature discussing parents’ knowledge, attitudes and beliefs towards HPV and HPV vaccination in terms of intent to vaccinate. This chapter will additionally discuss the current literature pertaining to parental barriers to HPV vaccination. Lastly, the Health Belief Model will be presented as the conceptual framework for this project.

Parental Knowledge, Attitudes and Beliefs

A modest body of literature currently exists exploring parental knowledge, attitudes and beliefs of HPV and HPV vaccination. The majority of these studies conclude parental attitudes and beliefs are heavily influenced by knowledge and explore the association of these factors in terms of predictive value toward immunization uptake.

Parental knowledge has typically been measured in terms of accuracy in response to questions pertaining to HPV and HPV vaccination. The reviewed studies demonstrated high awareness but poor knowledge: Grabel et al. (2013) found a mean accuracy of only 36% while Caskey, Lindau, and Alexander (2009) found a mean accuracy of 55% in HPV knowledge based questions. Incorrect responses consistently demonstrated lack of knowledge regarding susceptibility, i.e. the STI nature (Garcini, Galvan, & Barnack-Tavlaris, 2012). Knowledge levels about HPV have been identified as an important factor in vaccine uptake. One of the largest studies on the subject concluded insufficient knowledge and absence of provider recommendation were the main deciding factors against vaccine uptake (Laz, Rahman, and Berenson, 2012). Multiple systematic reviews endorse these findings (Bartlett & Peterson, 2011; Holman et al., 2013; Hopkin & Woods, 2013). Moreover, studies that have employed
educational interventions have demonstrated a reported change in vaccine intention following the intervention (Cassidy, Braxter, Charron-Prochownik, & Schlenk, 2013; Cox, Cox, Sturm, & Zimet, 2010; Reiter, Stubbs, Panozzo, Whitesell, & Brewer, 2011). In retrospective studies, parents who intended to vaccinate their daughters, or who had already initiated the immunization series, exhibited an overall greater knowledge than parents who neither intended nor initiated the immunization series (Caskey, Linday, & Alexander, 2009; Reiter, Brewer, Gottlieb, McRee, & Smith, 2009). Insufficient knowledge was associated with negative attitudes towards vaccination and low immunization uptake (Bartlett & Peterson, 2011).

Parental attitudes towards vaccine characteristics were also relevant: parents who held positive attitudes towards vaccination in general, specifically viewing immunizations as efficacious and safe, were more likely to vaccinate against HPV (Allen et al., 2009; Dahlström, et al., 2010; Garcia, Galvan, & Barnack-Tavlaris, 2012). Finally, parents’ health beliefs were found to be highly influential. Parental health beliefs predominately involved perceived risk and anticipated regret (Griffioen et al., 2012). In one relevant study, mothers’ personal health beliefs, such as engaging in preventive medicine or personal history with STIs were the determining factor in initiating vaccination (Griffioen et al., 2012).

A recurrent theme in the literature was the concern of the HPV vaccination influencing future sexual activity. Some parents cited absence of sexual initiation as reason to forgo vaccination while others were concerned vaccination would promote sexual activity (Allen et al., 2010; Darden et al., 2013; Jacobson, Roberts, & Darden, 2013). While many studies have investigated the sexual activity-related outcomes post HPV vaccination, few have included adolescent subjects. Bednarczyk, Davis, Ault, Orenstein, and Omer (2012) published the first
study with adolescent subjects. The retrospective cohort study examined sexual activity-related outcomes after HPV vaccination in 11 to 12 year olds finding no increase in outcomes such as pregnancy or non-HPV STIs in the girls that had been vaccinated (Bednaryzk et al., 2012). A similar study was conducted in Ontario, Canada, where HPV vaccination was offered through a school-based immunization program. The results of this study were similar to that of Bednaryzk et al. (2012), demonstrating no statistically significant differences in sexual-activity outcomes such as pregnancy or non-HPV STIs between groups (Smith, Kaufman, Strumpf, & Lévesque, 2014). Mayhew et al. (2014) published the first study directly examining sexual behaviors of adolescents two and six months after HPV immunization and found no association between riskier sexual behaviors.

**Hispanic Parents**

There is a scarcity of current literature exclusively exploring Hispanic parents’ knowledge, attitudes and beliefs of HPV and HPV vaccination. However the existing literature exclusive to Hispanic parents was consistent with the previously discussed literature, exhibiting suboptimal knowledge of HPV and HPV vaccination (Molokwu, Fernandez, & Martin, 2014; Morales-Campos, Markham, Peskin, & Fernandez, 2012). One study explored the role of acculturation in HPV vaccination, finding higher levels of American acculturation were more likely to have their daughters vaccinated (Gerend, Zapata, & Reyes, 2013). This was the only study to report such findings as all other similar studies consistently found higher levels of American acculturation were congruent with lower levels of general vaccination (Gerend, Zapata, & Reyes, 2013). Novel findings from more relevant studies include the deferment of decision making to the primary female caregiver and the desire for collaborative decision
making, i.e. between the provider, caregiver and daughter (Allen et al., 2011). Of note, none of these studies had samples from Arizona.

**Failure to Vaccinate: Results of a National Survey**

The National Immunization Survey of Teens is conducted to estimate the status of adolescent immunization and evaluate national progress towards immunization goals set forth in Healthy People. During data collection, parents of female teens who were not up to date for the HPV vaccine were asked about their intent of future immunization and those who reported no intent were asked to disclose their reasons for foregoing immunization. The most commonly cited reasons were: not enough information, not needed or not necessary (including not sexually active), safety concerns/side effects and not recommended by provider (Darden et al., 2013; Schmidt & Parsons, 2014). This data further illustrates suboptimal knowledge in addition to the studies discussed previously. When examining the data from 2008-2012, a rise in each of these responses was apparent, as was the intent not to vaccinate (Darden et al., 2013). The increase in intent not to vaccinate is particularly concerning as it continues to rise despite a reported rise in clinician recommendation (Darden et al., 2013; Jacobson, Roberts, & Darden, 2013).

In summation, the literature review yielded a common theme relevant to this study: insufficient or inaccurate knowledge pertaining to HPV and HPV vaccination. This was demonstrated by low mean accuracy in knowledge based questions and commonly cited vaccination refusal responses. The literature review unearthed few articles with Hispanic subjects and of those, none were Hispanic subjects from Arizona.
Theoretical Framework

The Health Belief Model (HBM) was the conceptual framework for this study (see Figure 1). Originally developed in the 1950s, the HBM was devised to understand possible reasons for non-compliance with recommended health actions to prevent and detect disease (Hochbaum, 1958 as cited in Champion & Skinner, 2008). The original HBM was comprised of four constructs: perceived susceptibility or vulnerability [of disease], perceived severity [of disease], perceived benefits [of recommended health action] and perceived barriers [toward recommended health action] (Champion & Skinner, 2008; Hayden, 2013). It was hypothesized if individuals believed themselves to be susceptible to a disease and the disease to have serious consequences, they would engage in a course of action that would reduce susceptibility and/or severity if the anticipated benefits outweighed the barriers (Champion & Skinner, 2008).

The original HBM evolved over time and eventually a fifth construct was added, self-efficacy. Newer versions also expanded to consider how the constructs of perception were affected by other variables, such as age, gender, ethnicity, personality, socioeconomics and knowledge as well as the role of external influences, termed “cues to action” (Champion & Skinner, 2008; Hayden, 2013). Ultimately, the HBM serves to predict final health behavior toward a recommended health action based on the complex interactions of the aforementioned inputs.

Health Belief Model Constructs and Inputs

- **Perceived susceptibility, or vulnerability, and perceived severity.** Perceived susceptibility, or vulnerability, is the degree to which individuals believe themselves to be at risk towards a health condition or disease. Personal risk evaluation has been demonstrated to be one
of the leading instigators for individuals to either engage or not engage in preventive behaviors towards a health outcome (Hayden, 2013). Perceived severity, also referred to as perceived seriousness, refers to individuals’ beliefs of the seriousness of a health condition or disease in terms of clinical and social consequences (Champion & Skinner, 2008; Hayden, 2013). In relation to this study, parents may perceive daughters to have a low risk of contracting HPV for reasons such as not engaging in sexual intercourse. Similarly, parents may deem disease severity to be mild if they do not have the understanding HPV can lead to cervical cancer.

**Perceived threat.** The combination of perceived susceptibility and perceived severity has been termed perceived threat (Stretcher & Rosenstock, 1997 as cited in Hayden, 2013). Combinations of measures of susceptibility and severity will produce different measures of perceived threat. To illustrate, perceived threat is great if an individual deems there to be a high risk of susceptibility to a health condition or disease and considers the health condition or disease to have a high level of severity.

**Perceived benefits.** Perceived benefits refer to an individuals’ belief in value of a health action or intervention to reduce a health condition or disease (Champion & Skinner, 2008; Hayden, 2013). In order for a health action or intervention to be adopted, there must be a belief of benefits (Hayden, 2013). For instance, for a parent to elect to immunize their child against HPV, it is important they believe in the efficacy of the vaccine.

**Perceived barriers.** Perceived barriers refer to the anticipated or actual hindrances preventing a health action or intervention (Hayden, 2013). According to Janz and Becker (1984), this is the most formative construct in influencing behavior change. Perceived barriers may even prevent receipt of health interventions despite being an established threat and
recognizing benefits (Hayden, 2013). The range of perceived barriers is assorted as they vary from person to person, but universal barriers may include cost, negative side effects and issues with access to care (Reiter et al., 2009).

**Perceived self-efficacy.** Perceived self-efficacy is the belief in an individual’s ability to successfully perform a health action. An individual is unlikely to attempt a new health action if they fear they cannot perform it correctly (Hayden, 2013). In relation to this study, self-efficacy may be demonstrated by a parents’ confidence in their ability to overcome perceived barriers to attaining HPV immunization (Gerend & Shepherd, 2012).

**Cues to action.** Cues to action consists of external influences capable of impacting behavior (Hayden, 2013). Such influences may include interpersonal discussion, familial illness, warning labels, media reports and mass media campaigns (Hayden, 2013). The most frequently cited cue to action in acceptability and uptake of HPV immunization is physician recommendation (Brewer & Fazekas, 2007).

---

Figure 2. Adapted Health Belief Model.
CHAPTER THREE: METHODOLOGY

Chapter three discusses the methodology of this study. This specifically includes the research design, sample and setting, human subject protection, ethical considerations, research instrument, data collection procedures, data management and data analysis.

Research Design

A cross-sectional, descriptive research design was used to assess the knowledge, attitudes and beliefs of Hispanic parents in Maricopa County. For this study the intent was to recruit 30 participants. There is conflicting discussion on the appropriate sample size for pilot studies, ranging from no justification necessary, as few as 10-15, to 10% of the needed sample projected for the larger parent study (Hertzog, 2008; Connelly, 2008). Twenty-five has been cited as the lower threshold of sample sizes deemed sufficient to provide rough estimates (Hertzog, 2008). Thirty participants was 15% of the original study’s sample (N=200). In this study, findings that approached significance may have reached significance with a sample size that mirrored the original.

Sample and Setting

A convenience sampling technique was used to gain a sample of participants at Spectrum Health Care, P.C. in Maricopa County, Arizona. Non-purposive sampling is a primary method of sampling in quantitative data (Polit & Beck, 2008). The sample for this study was 30 subjects who met the following inclusion criteria:

1) Self-identify as Hispanic or Latino
2) Have a daughter(s) between the ages of 9-18
3) Daughters have not received partial or complete HPV vaccination
4) Speak and read in English
5) A patient in Spectrum Health Care, P.C.
6) Reside in Maricopa County, Arizona
7) Willing to participate in the study

**Participant Recruitment**

Participant recruitment was face-to-face as this has been demonstrated to be more effective than other solicitation methods (Polit & Beck, 2008). Upon appointment check-in, the front office staff determined interest by reading a recruitment script (*see Appendix C*). If a potential participant answered in the affirmative the PI proceeded through the inclusion criteria in a private exam room to determine eligibility criteria.

**Human Subjects Protection**

The principal investigator (PI) maintained the protection of human subjects in multiple ways. Prior to the beginning of the study, the PI first reviewed the United States Department of Health and Human Services (HHD) policy for protection of human research subjects and the Belmont Report. The Belmont Report heavily influenced the HHD policy and serves to encapsulate ethical principles and guidelines for research involving human subjects. Second, the PI received Collaborative Institutional Training Initiative (CITI) training, permitting the PI to work with human subjects. Third, the study was approved by the University of Arizona’s Institutional Review Board (IRB).

During the study, eligible participants were educated thoroughly on the study and informed they had the decision to participate or not participate and either decision would not affect future medical care at the site. Those who elected to proceed were provided an informed
consent containing an explanation of the study purpose, procedures, risks, benefits and confidentiality (see Appendix D).

Participants were then assigned a participant number which appeared on the questionnaire they completed. A separate password protected file was created and was the only document that linked participant contact information with the study number assigned to them and that appeared on their completed questionnaire. The password protected file was only accessible by the PI and DNP Project Committee Chair. Any identifying information on the survey such as name and address were recorded on a separate password protected Microsoft Excel document accessible to only the PI and DNP Project Committee Chair. Completed questionnaires were kept in a locked file in the PI’s office and were destroyed by shredding after study findings were published. All hard data was physically locked.

**Ethical Considerations**

Ethical considerations that were taken into account in this study were English comprehension and Hispanic culture. A participant’s level of comfort with spoken and written English was ensured by verifying with the participant and remaining with the participant during completion of the questionnaire in the event of questions or need for clarification. Health literacy was not evaluated as part of this study. Cultural sensitivity was demonstrated by acknowledgement of the participants’ culture, beliefs and practices. A sociocultural norm of Hispanic culture is sexual silence, i.e. matters relating to sex are not openly discussed, a phenomenon most pronounced between men and women (D’Orazio, Taylor-Ford, & Meyerowitz, 2014). Given HPV is a STI, a female PI was used to minimize discomfort and
promote participation. Further, participants’ physical privacy was ensured during completion of
the questionnaire.

**Study Instrument**

The study instrument used was the Parental Human Papillomavirus Vaccine Survey
(PHPVS) (*see Appendix A*). Permission to use this instrument was given by PI Tami Lyn Thomas
(*see Appendix B*). The PHPVS was developed in 2007 in response to the controversy that
followed the debut of vaccines to protect against HPV (Thomas et al., 2013). The PHPVS is
framed on and organized by the theoretical constructs of the HBM: perceived vulnerability,
perceived severity, perceived benefits and perceived barriers. Survey items were developed to
address knowledge, attitudes and beliefs as well as intent to vaccinate. The sample used for
developing and piloting of the original PHPVS was 200 English speaking parents or caregivers
of children age 9-13 attending parent-teacher conferences in the Southeastern United States.
There is no further description of demographics.

The PVPHS is a 28 item scale using a five-choice Likert scale where 1 = disagree, 2 =
slightly disagree, 3 = unsure, 4 = slightly agree and 5 = agree. Cumulative scoring was used in
which higher scores indicated greater knowledge and greater intent to vaccinate. Specifically,
scores of 100 or more is indicative of a high level of knowledge and understanding, scores
between 26 and 100 indicate opportunities for education and scores less than 25 indicate little or
no understanding; specific areas for where education efforts should be focused can be identified
by noting which subscales have the lowest scores (Thomas et al., 2013). All items that were
negatively worded were reverse coded to conduct summative scoring. Subscale and item-level
reliability were calculated for this sample using Cronbach’s alphas.
Subscales

Perceived vulnerability ($\alpha = .80$) was comprised of 5 questions for a total possible range of 5 to 25 points. Scores closer to 25 indicate participants have a greater knowledge and understanding of HPV vulnerability whereas scores closer to 5 indicate poorer knowledge and understanding of HPV vulnerability.

Perceived severity ($\alpha = .89$) was comprised of 6 questions for a total possible range of 6 to 30 points. Scores closer to 30 indicate participants have a greater knowledge and understanding of HPV severity whereas scores closer to 6 indicate poorer knowledge and understanding of HPV severity.

Perceived benefits ($\alpha = .85$) was comprised of 8 questions for a total possible range of 8 to 40 points. Score closer to 40 indicate participants are able to recognize benefits of HPV vaccination whereas scores closer to 8 indicate participants have difficulty recognizing or do not recognize benefits of HPV vaccination.

Perceived barriers ($\alpha = .92$) was comprised of 9 questions for a total range of 9 to 45 points. Scores closer to 45 points indicate participants associate fewer barriers to HPV vaccination whereas scores closer to 9 indicate participants associate more barriers to HPV vaccination.

Demographics. The demographics portion of the survey contained 8 items including age, gender, country of origin, age of child, household size, total number of years resided in United States, highest attained education and insurance.

Data Collection Procedure
Once an eligible participant consented to participate in the study the PI brought the participant into a private room at the place of recruitment and provided a verbal explanation and incomes consent, including the study purpose, procedures, risks, benefits and confidentiality (see Appendix D). The PI then assigned the participant an anonymous participant number and proceeded with the study. At the conclusion of the survey the PI reviewed responses to ensure completion and minimize missing data.

**Data Management**

Data analysis was completed using SPSS. First, data was entered into a Microsoft Excel spreadsheet by participant number and double entered to crosscheck accuracy. Once data entry was completed the spreadsheet was cleaned by looking for outliers. If outliers were present the original survey was referenced and corrections made. If a participant chose not to answer a question a mean score of 3 for the missed item was assigned so the whole subscale could be used. If a participant omitted more than 20% of questions their data were excluded.

**Data Analysis**

Demographic data were analyzed using descriptive statistics and measures of central tendency. The specific research aims were analyzed as follows:

Aim 1: Describe parental knowledge regarding HPV and HPV vaccination.

Evaluation: Summary score from the PHPVS was utilized. The total possible sum score of the PHPVS is 135. Scores of 100 or greater indicated a high level of knowledge, scores between 26 and 100 indicated mediocre knowledge and scores less than 25 indicated little or no knowledge.
Aim 2: Describe perceived vulnerability, perceived severity, perceived benefits and perceived barriers of HPV and HPV vaccination.

Evaluation: Subscale scores of perceived vulnerability, perceived severity, perceived benefits and perceived barriers were totaled to describe the variables. In total, the PHPVS consists of a possible score of 135; specific score ranges are as described in the HBM details. Higher scores indicate greater perceived vulnerability, perceived severity, perceived benefits and perceived barriers.

Aim 3: Describe relationships among demographic characteristics and parental knowledge of HPV and HPV vaccination.

Evaluation: Correlation was analyzed by Kendall’s Tau due to the measures’ accuracy with smaller sample sizes. Correlations were calculated to describe relationships between age, highest level of education, age of daughter, household size and total scores on the PHPVS. Statistical significance was set at $p<0.05$. Country of origin and type of health insurance were dummy coded and compared to overall scores on the PHPVS.
CHAPTER FOUR: RESULTS

Chapter four discusses the results from data collection and statistical analysis for the evaluation of the study’s specific aims. The mean, median, mode and standard deviation were determined for each subscale.

Demographics

Table 1 shows the distribution of the 30 subjects who participated in the survey on the basis of selected sociodemographic characteristics. The sample consisted of 30 subjects who ranged in age from 24 to 62 with a mean age of 39.4 years (±7.8, $Mdn=40.5$, $Mo=33$). There were 25 females and 5 males. All participants identified as Hispanic as part of the inclusion criteria; the majority of subjects (93.3%, $n=28$) identified their country of Hispanic origin as Mexico while one participant identified El Salvador and another identified Cuba. Most participants (63.3%, $n=19$) had not completed an education past high school level and only one participant had a college degree. Participants’ length of time living in the United States ranged from 3 to 62 years with a mean length of 33.7 years (±13.4, $Mdn=33.5$, $Mo=41$). The majority of participants had a household size of 5 or greater (56.6%, $n=17$, $M=4.8 \pm1.8$, $Mdn=5$). Two-thirds of participants (66.7%, $n=20$) identified Medicaid or AHCCS as their insurance while 8 held private insurance and 2 had no insurance. Participants’ daughters ranged in age from 9-18 as part of the inclusion criteria with a mean age of 12.9 years (±2.3, $Mdn=13$, $Mo=13$).
<table>
<thead>
<tr>
<th>TABLE 1. Sample Demographics</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>25</td>
<td>83.3</td>
</tr>
<tr>
<td>Male</td>
<td>5</td>
<td>16.7</td>
</tr>
<tr>
<td>Age, mean SD (range)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>39.4 ± 7.8 years (24-60)</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>8</td>
<td>26.7</td>
</tr>
<tr>
<td>High school diploma or GED</td>
<td>11</td>
<td>36.7</td>
</tr>
<tr>
<td>Vocational or technical school</td>
<td>4</td>
<td>13.3</td>
</tr>
<tr>
<td>Some college</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Associate or Bachelors degree</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Graduate or professional degree</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Country of Origin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>28</td>
<td>93.3</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>El Salvador</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Cuba</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Household size, mean SD (range)</td>
<td>4.8 ± 1.8 persons (2-12)</td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>8</td>
<td>26.7</td>
</tr>
<tr>
<td>Medicaid/AHCCS</td>
<td>20</td>
<td>66.7</td>
</tr>
<tr>
<td>Medicare</td>
<td>2</td>
<td>6.7</td>
</tr>
<tr>
<td>None</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
**Aim 1: Describe Parental Knowledge Regarding HPV and HPV Vaccination**

Parental knowledge regarding HPV and HPV vaccination was evaluated by a summary score from the PHPVS ($\alpha = .817$). There was a total possible score of 140; the average score was 95.7 (68.4%) representing suboptimal knowledge of HPV and HPV vaccination. Alternative application of the PHPVS proposed by the authors includes exchanging the Likert scale responses to a dichotomous yes-no scale where 5 points is assigned to a yes response and 0 points is assigned to a no response. If the study results are converted to this scale, where 5 points is assigned to agree and strongly agree and 0 points is assigned to 3 and below, the average score drops to 67 (47.9%).

Most subjects (67%, $n=20$) knew HPV is a sexually transmitted disease ($M=3.93 \pm 1.3$) and causes cervical cancer ($M=4.13 \pm 0.9$) but fewer were confident condoms can prevent spread of disease (60%, $n=18$, $M=3.63 \pm 1.2$). Approximately half of subjects were either unsure or did not think genital warts are caused by HPV (53%, $n=16$, $M=3.40 \pm 1.2$). Two-thirds were either unsure or believed HPV renders women unable to have children (67%, $n=20$, $M=3.13 \pm 1.0$). Only half of subjects could confidently say they knew exactly what the HPV vaccine is for (53%, $n=16$, $M=3.70 \pm 1.1$).

**Aim 2: Describe Perceived Vulnerability, Perceived Severity, Perceived Benefits and Perceived Barriers of HPV and HPV Vaccination**

Perceived vulnerability ($\alpha = .493$) was comprised of 5 questions for a total possible score of 25 points. The mean score was 17.73 ($\pm 3.3$, $Mdn=17.00$, $Mo=17.00$) indicating the majority (69.9%) of subjects felt their child was vulnerable toward, or at risk of contracting, HPV. As aforementioned, the majority of subjects knew HPV is a sexually transmitted disease but 60% of
subjects indicated they either did not know or were unsure if condoms helped prevent the spread of disease. Only half of subjects correctly answered a person with HPV may not have symptoms (53.3%, $n=16$, $M=3.63 \pm 1.0$).

Perceived severity ($\alpha = .70$) was comprised of 6 questions for a total possible score of 30 points. The mean score was 20.90 ($\pm 4.54$, $Mdn=21.00$, $Mo=20.00$) indicating the majority (69.7%) of subjects recognized the severity of HPV and its sequela. Sixty-percent ($n=18$) of parents indicated they believed required vaccinations protected their children from contracting disease from unvaccinated children and half of parents (56%, $n=17$, $M=3.53 \pm 1.3$, $Mdn=4$, $Mo=4$) were worried their daughter may contract HPV ($M=3.53 \pm 1.0$, $Mdn=4$, $Mo=5$).

Perceived benefits ($\alpha = .424$) was comprised of 8 questions for a total possible score of 40 points. The mean score was 26.10 ($\pm 4.3$, $Mdn=27$, $Mo=25$) indicating over a third of subjects (35.5%) have difficulty recognizing or do not recognize benefits of HPV vaccination. Attitudes of vaccines in general were positive. The vast majority of subjects indicated the health status of children was irrelevant to the necessity of vaccinations (90%, $n=27$, $M=1.53 \pm 0.9$, $Mdn=1.0$, $Mo=1$), children should be routinely vaccinated; not only against serious diseases (73%, $n=22$, $M=2.17 \pm 1.3$, $Mdn=2$, $Mo=1$), believed vaccines were continuously getting better because of research (83%, $n=25$, $M=4.03 \pm 1.0$, $Mdn=4$, $Mo=4$) and did not liken giving their child a new vaccine to performing an experiment on them (60%, $n=18$, $M=2.27 \pm 1.1$, $Mdn=2.0$, $Mo=1$). Regarding the HPV vaccine specifically, the majority of subjects identified vaccination could prevent their daughter from future problems (63%, $n=19$, $M=3.67 \pm 1.2$, $Mdn=4$, $Mo=4$) and half endorsed their friends agreed (50%, $n=15$, $M=3.4 \pm 1.2$, $Mdn=3.5$, $Mo=4$). Nearly three-
quarters of subjects stated they typically follow the recommendation of their provider (73.3%, 
\( n=22, M=3.83 \pm 1.1, \text{Md}=4, \text{Mo}=4 \)).

Perceived barriers (\( \alpha = .757 \)) was comprised of 9 questions for a total score of 45 points. The mean score was 33.73 (\( \pm 6.20, \text{Md}=33.5, \text{Mo}=30 \)) indicating a minority of subjects (25%) associated more barriers to HPV vaccination. Cost represented the greatest barrier: while 87% (\( n=26 \)) indicated low cost or free vaccination was either an incentive or irrelevant, 55% (\( n=19 \)) indicated if vaccination was expensive they would not or were unsure if they would vaccinate their daughter (\( M=3.37 \pm 1.1, \text{Md}=3, \text{Mo}=3 \)). Only one parent identified they would not vaccinate their daughter because of the associated pain. Despite potential perceived barriers, 83% felt confident when and if they decided to vaccinate their daughters they would be able to do so (\( n=25, M=4.2 \pm 0.93, \text{Md}=4, \text{Mo}=5 \)).

**Aim 3: Describe Relationships Among Demographic Characteristics and Parental Knowledge of HPV and HPV Vaccination**

Correlations between socio-demographic characteristics and PHPVS score are detailed in Table 2; statistical significance was set at \( p<0.05 \). Cohen’s standard was applied to evaluate the correlation coefficients to determine the strength of the relationship (effect size). Correlation coefficients between .10 and .29 a small or weak association, correlation coefficients between .30 and .49 denote a medium or moderate association and correlation coefficients greater than .50 denote a large or strong association (Cohen, 1977).

There was a statistically significant weak positive correlation between highest level of education and PHPVS sum score (\( r=.291, p=0.042 \)). Among the subscales, there was a statistically significant moderately negative correlation between gender and perceived barriers
There were also correlations approaching significance: there was a near significant weak negative correlation between gender and PVPHS sum score ($r=-.295$, $p=.058$). This means there might be an association but the study was underpowered to detect it and as such is clinically important and warrants further consideration and exploration.

Table 2. *PHPVS Sum Score Correlations*  

<table>
<thead>
<tr>
<th></th>
<th>$r$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of daughter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highest level of education</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household size</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years in United States</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country of origin</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $N=30$
CHAPTER FIVE: DISCUSSION

Chapter five presents a discussion of the findings, study strengths, study limitations as well as the implications for advanced nursing practice. This chapter will also present conclusions and provide suggestions for future research.

Findings

This section will describe how this study relates to current literature. While the examined studies all used the HBM as a theoretical basis for their research, each focused on select constructs; this was the sole study that examined all constructs.

Demographics

Comparing the demographics of this study to the largest (N=2171, N=889) two similar studies and one smaller (N=127) study, there were many notable differences. The first major difference was ethnicity/race. In the first comparable study by Laz, Rahman, and Berenson (2012), despite oversampling minorities in a nationwide sample, non-Hispanic whites made up the majority (43.3%, n=940) of the population, followed by Hispanics (29.7%, n=645), non-Hispanic blacks (17.7%, n=384), non-Hispanic Asians (5.8%, n=127) and other (3.5%, n=75). In the second comparable study by Reiter et al. (2009) non-Hispanic whites also comprised the majority (70.2%, n=624), followed by non-Hispanic blacks (23.2%, n=206) and other (6.6%, n=59). In the third comparable study by Grabel et al. (2013) non-Hispanic whites again comprised the majority (53.5%) followed by non-Hispanic Asians (37.2%) and other (9.3%). The second major difference was highest level of education. Seventy-eight percent of Reiter et al.’s (2009) sample and 53.1% of Laz, Rahman, and Berenson’s (2012) sample identified some college or greater whereas only 23% (n=7) of this study’s sample identified some college or
greater. Educational attainment in Grabel et al.’s (2013) sample may be comparable to this study’s, however is difficult to adequately assess as selection were restricted, including only high school education (52.3%) or Bachelor’s/graduate degree (25.8%). The last major difference was type of insurance. Over half (55.1%, n=1197) of Laz, Rahman, and Berenson’s (2012) sample held private insurance whereas just over a quarter (26.7%, n=8) of this study’s sample held private insurance. Reiter et al. (2009) and Grabel et al.’s (2013) studies did not report this information.

**Aim 1: Describe Parental Knowledge Regarding HPV and HPV Vaccination**

The study conducted by Grabel et al. (2013) was the only study that described parental knowledge of HPV and HPV vaccination in terms of mean accuracy. Grabel et al. (2013) cited a mean accuracy of 36% in knowledge-based questions whereas this study demonstrated a mean accuracy of 76% on the PHPVS. It is important to note Grabel et al. (2013) assessed knowledge by true-false responses; therefore using the alternative scoring previously discussed is more appropriate for comparison (alternative sum score 47.9%). Potential reasons for the disparity in mean accuracy may be explained by the content of Grabel et al.’s (2013) survey questions. This will be detailed further in Aim 2.

The findings pertaining to knowledge from the systematic review conducted by Bartlett and Peterson (2011) were reflective of this study’s findings. Bartlett and Peterson (2011) reported the majority of parents correctly identified HPV causes cervical cancer, just over half of parents correctly identified HPV as a STI and less than half of parents correctly identified HPV as the cause of genital warts. Comparatively, in this study 66.7% (n=20) of parents correctly
identified both HPV causes cervical cancer and identified HPV as a STI while 46.7% (n=14) of parents correctly identified HPV as the cause of genital warts.

Reiter et al. (2009) gauged knowledge indirectly based on questions aimed at parents’ beliefs while Laz, Rahman, and Berenson (2012) gauged knowledge rudimentarily by assessing awareness of HPV and a vaccine for HPV thus are not appropriate for direct comparison.

**Aim 2: Describe Perceived Vulnerability, Perceived Severity, Perceived Benefits and Perceived Barriers of HPV and HPV Vaccination**

**Perceived Vulnerability.** Questions addressing perceived vulnerability were framed primarily as knowledge based and risk assessment questions. This study and the study by Grabel et al. (2013) focused on knowledge based questions, which if incorrect would signify a lower perception of risk. The results of this study and Grabel et al.’s (2013) were comparable: subjects correctly identified HPV causing cervical cancer (67% versus 65.9%, respectively), HPV as a STI (67% versus 70.5%, respectively) and HPV causing genital warts (46.7% versus 34.1%, respectively). One possible explanation for the disparity between identifying HPV as the cause of genital warts could be that the question was phrased negatively in Grabel et al.’s (2013) study: “HPV does not cause genital warts.”

Due to dissimilarities of how other two studies derived perceived vulnerability, they cannot be directly compared to this study. To illustrate, Reiter et al. (2009) simply asked parents of unvaccinated daughters to what degree they felt their daughter would develop cervical cancer while Laz, Rahman, and Berenson (2012) derived perceived vulnerability by assessing the reasons parents stated they would not choose to vaccinate their daughters.
**Perceived Severity.** Comparing perceived severity among the studies was difficult. Questions aimed at identifying perceived severity must elicit subject’s perception of the social and clinical consequences of HPV. This study addressed both the social and clinical consequences of HPV however the studies by Grabiel et al. (2013) and Laz, Rahman, and Berenson (2012) did not. Reiter et al. (2009) had an altogether different approach to perceived severity. The authors wanted their sample to have some understanding of HPV so a short script with basic facts was read before surveys were conducted. Then perceived severity was assessed by asking parents “without the vaccine, what do you think is the chance that [name] will get cervical cancer?” This question could be considered loosely related to this study’s question “I worry that my child may get HPV.” However responses were not comparable: parents cited a “low” likelihood of their daughters developing cervical cancer ($M=2.46$) whereas in this study results indicated parents were worried their child may get HPV ($M=3.53$, $Mo=4$). As previously mentioned these questions are so loosely related that there are many explanations why findings do not align.

**Perceived Benefits.** Questions addressing perceived benefits were framed as how effective parents perceive HPV vaccination. The PHPVS addressed perceived benefits vaguely, framing questions as general opinions toward vaccination with only one question specific to HPV vaccination. This was very different from the study conducted by Grabiel et al. (2013) in which questions were so specific subjects would likely need to have some baseline knowledge regarding the HPV vaccine. Reiter et al. (2009) assessed benefits less specifically, but also appeared to depend on subjects’ knowledge and understanding of the HPV vaccine. Given the overt dissimilarities, perceived benefits cannot be compared between articles.
**Perceived Barriers.** Questions addressing perceived barriers explored anticipated or actual hindrances to vaccination. All studies were found to share the following barriers: cost, concern over potential harms and provider recommendation (or lack thereof).

Regarding cost, this study examined cost in general terms of “expensive” while Laz, Rahman, and Berenson (2012) quantified cost, investigating how many parents were willing to pay $360-500 for the vaccines. This study demonstrated only 36% of parents indicated if the HPV vaccine were expensive they would be able to vaccinate their daughters compared to 53.7% willing to pay $360-500. A possible explanation for this discrepancy between findings is the disparity of types of insurance. As previously stated, 55.1% of the sample from Laz, Rahman, and Berenson’s (2012) study had private insurance compared to 26.7% of this study’s sample. This is relevant because it has been shown the median wealth among those who have private insurance is 23.2 times that of those have Medicaid [AHCCS] or are uninsured (Bernard, Banthin, & Encinosa, 2009). These results should prompt providers to include educating patients on the availability of federally funded vaccines via the VFA during counseling about the HPV vaccine.

Regarding concern over potential harms, this study only briefly assessed the issue via the item “shots are very painful, so I would rather not vaccinate my daughter” whereas both Reiter et al. (2009) and Grabel et al. (2013) addressed potential harms through questions related to more serious short and long term effects of the vaccine. Because this study did not posit similar questions, no direct comparisons of the findings can be presented. This is unfortunate as additional questions examining potential harms could provide further insight to poor vaccine uptake.
Regarding accessibility, Reiter et al. (2009) thoroughly addressed barriers including level of difficulty associated with finding a provider, getting to said provider and said provider having the vaccine available as well as cost. Conversely, this study only nebulously addressed the matter by how confident parents felt in being able to attain vaccination for their daughters when they desired. Despite differences evaluating accessibility, results were similar: Reiter et al. (2009) reported their sample felt it was “not hard at all” to attain vaccination ($M=1.63$ where $1=$ not hard at all, $2.5=$ somewhat hard and $4=$ very hard) and the sample from this study indisputably agreed they felt confident they could attain vaccination ($M=4.2$ [standard Likert-scale scoring]). These results are interesting because they essentially eliminate accessibility as a causative factor in poor vaccine uptake.

**Aim 3: Describe Relationships Among Demographic Characteristics and Parental Knowledge of HPV and HPV Vaccination**

This study was the only study that investigated relationships among demographic characteristics and knowledge of HPV and HPV vaccination. The comparable studies investigated relationships among demographic characteristics and either intended or actual vaccine initiation.

**Study Instrument Reliability**

Compared to findings from Thomas et al. (2013) this study overall had a good measure of internal consistency reliability ($\alpha=.96$ compared to $\alpha=.81$ in this study) but suboptimal measures on the subscales. Cronbach’s alpha ($\alpha$) measurements are generally interpreted as an $\alpha$ greater than .90 is excellent, an $\alpha$ between .80 and .89 is good, an $\alpha$ between .70 and .79 is acceptable, an
α between .60 and .69 is questionable, an α between .50 and 59 is poor and an α less than .50 is unacceptable (Gliem & Gliem, 2003).

The subscale perceived vulnerability in this study resulted in α=.493, versus the original, α=.80. This subscale relied on knowledge of HPV and items were phrased into agree/disagree responses. When the item “HPV makes you unable to have children” was eliminated the internal consistency improved (α=.596). The subscale perceived severity resulted in α=.70 versus the original, α=.89. This subscale was comprised of items that required subjects to use their knowledge of HPV and vaccines to form beliefs, opinions and projections. Eliminating the item “I worry that my child may get HPV” improved the α to α=.722 but if any other item in the subscale were deleted the internal consistency reliability dropped (α <.70). The subscale perceived benefits resulted in the lowest measure of internal consistency reliability among the subsets (α=.424). Comparatively, the original resulted in α=.85. This subscale was almost entirely comprised of items requiring the subject’s opinion. When the item “healthy children do not need vaccinations” was eliminated, the α improved to α=.584. The subscale perceived barriers resulted in the greatest measure of internal consistency in this study (α=.757) and the original (α=.92). Eliminating the item “shots are very painful for my child so I would rather not vaccinate her” improved the measure (α=.82). This large increase may be due to the sentence syntax, i.e. using a double negative. As this item did not perform well in the subscale, it would be fruitful to examine in future studies.

The discrepancy between this study and the original may be due to a few causes. The first potential cause is a language barrier. This study recruited subjects who could speak and read in English, however there was no assessment of comprehension before participation. A
remedy to this would be to translate the PHPVS in Spanish. Similarly there may have been
concepts foreign to Hispanic cultures. The last potential cause proposed is poor knowledge.
Subjects may have had no knowledge of HPV and were guessing or answering randomly. A
remedy to this potential cause for discrepancy would be to initially ask parents if they had ever
heard of HPV or including this as a question in the survey. Including the question in the PHPVS
would provide further insight to the awareness of HPV and the HPV vaccine. In light of the
difference in internal consistency reliability in this study compared to the original, despite
accounting for any potential causes, the PHPVS needs to be reworked to better suit the Hispanic
population.

**Strengths**

The study presented many strengths. The foremost strength is this study was the first
study investigating HPV knowledge, attitudes and behaviors using a psychometrically sound
instrument with an all Hispanic sample. Moreover, the majority of the sample included
participants of Mexican origin. This is novel because Hispanics of Mexican descent comprise
the largest Hispanic group in Arizona, a border state. Additionally, this study elicited important
knowledge deficits within the Hispanic population which may serve as a catalyst for focused
efforts on education and HPV vaccination campaigns, ultimately improving healthcare for
women of this population.

Another major strength is this study discerned the PHPVS needs to be re-examined for
the appropriateness for Hispanic populations. Although the sample indicated they felt proficient
in English, there may have been some confusion with the sentence structure. For instance the
item “shots are very painful for my daughter so I would rather not vaccinate her” may have been
better understood if written “I would rather not vaccinate my daughter because shots are very painful.” The authors posit the instrument is simple enough to be translated to other languages, and while this may be so, it is also important to adapt an instrument in cross-cultural studies. Adaptation requires “a balanced treatment of linguistic, cultural, contextual and scientific information” (Borsa, Damásio, & Bandeira, 2012, p.424). Careful attention must be paid to semantic equivalence, idiomatic equivalence, experiential equivalence and conceptual equivalence independent of language (Borsa, Damásio, & Bandeira, 2012).

**Limitations**

This study was not without its limitations. The first limitation of the study was the sample size. Although the sample size was sufficient for a pilot study, the small sample size may have underscored power and a larger sample size may have better mirrored the original study, led to more significant correlations if increased or produced results more generalizable to the Hispanic population. However a larger sample size is not always a guarantee of generalizability and this study provided a representative sample of the Hispanic population in Arizona. Another limitation of the study was using a single source for recruitment. Multiple sites may have provided a greater variability in participant demographics or knowledge. Nevertheless as the first study to include an exclusively Hispanic population, the study results provided preliminary information on HPV knowledge in an important ethnic group.

**Implications for Advanced Nursing Practice**

The results of this study demonstrated that most Hispanic parents have opportunities and areas for further education and guidance regarding HPV and HPV vaccination which includes the specifics of disease burden including vulnerability and severity of disease and benefits of
vaccination. Discovering these knowledge deficits is important as advanced practice nurses in primary care have a significant role in education and have the unique opportunity to bridge the gap. This is especially important as the study suggests a large proportion of Hispanic parents defer vaccine decision-making to providers.

The results of this study also provide insight to advanced practice nurses on the barriers of HPV vaccination, predominantly cost. While educating parents the advanced practice nurse should be sure to discuss the availability vaccines through private insurance, public financing and others to eliminate cost as a barrier. The Affordable Care Act (ACA) requires all new private insurance companies, including those who obtain insurance through the health exchange, to cover HPV vaccines for the recommended age groups of males and females without consumer cost-sharing (Kaiser Family Foundation, 2015). The federally funded Vaccines for Children (VFC) and Vaccines for Adults (VFA) programs, Immunization Grant Program (Section 317), Medicaid and Children’s Health Insurance Program (CHIP) offer additional opportunities for coverage. Lastly, Merck and GlaxoSmithKline also have financial assistance programs for free vaccines.

Conclusions

The aim of this study was to describe Hispanic parents’ knowledge, attitudes and beliefs toward HPV and HPV vaccination in Arizona. The study elucidated parents have no more than a mediocre general knowledge of HPV and HPV vaccination and have a poor knowledge of the specifics of disease burden. Despite this lack of knowledge the study showed parents are amenable to vaccination.

Suggestions for Future Research
This study was restricted to an office in Phoenix, a major metropolitan city in Arizona.

This study should be expanded not only to multiple sites in Phoenix but also a variety of geographical regions and rural areas in Arizona. Additionally, as the HPV vaccination series has since been approved for males since the start of this project, future research should additionally include Hispanic parents of sons.
APPENDIX A: STUDY

INSTRUMENT
Parental Human Papillomavirus Survey

Participant Number ____________________

What is your gender?  
☐ Female  
☐ Male

What is your age? ____________________

What is the age of your daughter(s):  
______________________________

What is your highest level of education?  
☐ Less than high school  
☐ High school diploma or GED  
☐ Vocational or technical school  
☐ Some college  
☐ Associate or Bachelors degree  
☐ Graduate or professional degree

What Hispanic origin do you identify?  
☐ Mexico  
☐ Puerto Rico  
☐ El Salvador  
☐ Cuba  
☐ Other ____________________

How many people are living with you?  
______________________________

How many years have you lived in the United States?  
______________________________

What type of insurance do you have?  
☐ Private  
☐ Medicaid / ACCHS  
☐ Medicare  
☐ None
Parental Human Papillomavirus Survey

The following pages contain a number of statements about human papillomavirus (HPV). Please rate how much you personally agree or disagree with these statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral or Unsure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Papillomavirus (HPV) is a sexually transmitted disease.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using condoms can prevent HPV.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genital warts are caused by HPV.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People with HPV might not have symptoms.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPV makes you unable to have children.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I worry that my child may get HPV.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPV can cause cervical cancer.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment for HPV is painful.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required vaccinations protect children from getting disease from unvaccinated children.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I understand exactly what the HPV vaccine is for.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Having genital warts makes it very difficult to find a sexual partner.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children should only get vaccinated for serious diseases.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am more likely to trust vaccinations that have been around awhile.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaccinations are getting better all the time because of research.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy children do not need vaccinations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A vaccine against HPV could prevent future problems for my child.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giving my child a new vaccine is like performing an experiment on them.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most people I know think vaccinating children with the HPV vaccine before they are teenagers is a good idea.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A teenager should be able to get a vaccination for HPV without a parent's consent.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would vaccinate my daughter with the HPV vaccine if it were free or at a very low cost.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would vaccinate my daughter with the HPV vaccine if she could get it at school.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If this new HPV vaccine was available when my daughter was an infant, I would have vaccinated my child.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shots are very painful for my child so I would rather not vaccinate her.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If the new HPV vaccine is not required, I will not vaccinate my daughter.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think that even if the vaccine is expensive I will be able to vaccinate my daughter.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My closest friends are vaccinating their daughters with the HPV vaccine.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generally I do what my doctor recommends, so I would vaccinate my daughter.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When I decide to get my daughter vaccinated, I believe I will be able to get her vaccinated. In other words, I feel confident I can get my daughter vaccinated.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

APPENDIX B:

PERMISSION TO USE STUDY INSTRUMENT
From: Sarah Raleigh [mailto:sraleigh@email.arizona.edu]
Sent: Thursday, January 01, 2015 6:42 PM
To: Ora Strickland
Subject: Inquiry from DNP Student of Judy Berg

January 1, 2015

Good evening Dr. Strickland,

My name is Sarah Raleigh and I am a student of Dr. Judy Berg at the University of Arizona. To fulfill the requirements of my Doctorate of Nursing Practice, my research focus is exploring Hispanic parents’ knowledge and attitudes towards HPV and HPV vaccination. I am writing this email to request permission to use the Parental Human Papillomavirus Vaccine Survey (PHPVS) I saw in one of your publications as the tool for my practice inquiry or to be directed to the appropriate persons to ask permission to use. If permission is granted, I would also appreciate direction where to obtain the PHPVS in its entirety.

I greatly appreciate the opportunity to use the PHPVS and continue HPV uptake efforts in Arizona. If you had additional questions, comments, or suggestions to enrich my project, please do not hesitate to contact me at the below contact information.

Regards,
Sarah Raleigh, M.S.N., R.N.
Doctorate of Nursing Practice Student
2012 Cohort - Family Nurse Practitioner Specialty
phone: 602-692-6348
email: sraleigh@email.arizona.edu

From: Ora Strickland <olstrick@fiu.edu>
Subject: RE: Inquiry from DNP Student of Judy Berg
Date: January 5, 2015 at 4:48:25 PM MST
To: Sarah Raleigh <sraleigh@email.arizona.edu>
Cc: "Tami Thomas (surfer1958thomas@gmail.com)" <surfer1958thomas@gmail.com>

Dear Sarah,
I am directing your email to my colleague, Dr. Tami Thomas, who can provide you with the assistance you need. I am copying her on this email for your direct contact.
Sincere regards,
Ora
From: Thomas, Tami Lynn <tami.thomas@emory.edu>
Sent: Saturday, January 10, 2015 8:18 AM
To: Sarah Raleigh
Cc: Tami Thomas
Subject: Re: Inquiry from DNP Student of Judy Berg

Hello Sarah
I am happy to help you.
I am traveling and will respond to your email on Monday
Kind regards
Dr Thomas
Tami Thomas, PhD, RN, FAAN, FAANP
Sent from my iPhone

On Jan 9, 2015, at 10:37 PM, Sarah Raleigh <sraleigh@email.arizona.edu> wrote:

Good evening Dr. Thomas,

After reviewing the email from Dr. Strickland, I noticed she forwarded to the attached email to your personal email account. I wanted to contact you via your school affiliation in case my email was filtered to your junk mail folder.

My name is Sarah Raleigh and I am a student of Dr. Judy Berg at the University of Arizona. To fulfill the requirements of my Doctorate of Nursing Practice, my research focus is exploring Hispanic parents’ knowledge and attitudes towards HPV and HPV vaccination. I am writing this email to request permission to use the Parental Human Papillomavirus Vaccine Survey (PHPVS) I saw in one of your publications as the tool for my practice inquiry or to be directed to the appropriate persons to ask permission to use. If permission is granted, I would also appreciate direction where to obtain the PHPVS in its entirety.

I greatly appreciate the opportunity to use the PHPVS and continue HPV uptake efforts in Arizona. If you had additional questions, comments, or suggestions to enrich my project, please do not hesitate to contact me at the below contact information.

Regards,
Sarah Raleigh, M.S.N., R.N.
Doctorate of Nursing Practice Student
2012 Cohort - Family Nurse Practitioner Specialty
phone: 602-692-6348
e-mail: sraleigh@email.arizona.edu:
From: Thomas, Tami Lynn <tami.thomas@emory.edu>
Sent: Saturday, January 12, 2015 3:57 PM
To: Sarah Raleigh
Subject: Re: Inquiry from DNP Student of Judy Berg

Hello Sarah,
It was great to hear from you.
Thank you for your email
I am fine with your use of the PHPVS but need a few pieces of information.
1. Where do you go to school ?
2. Title of your capstone ?
3. Your advisors name and contact info
4. Please share the results of your Capstone

If you have no problems sharing this then – yes you have my permission.

You can find the tool in the following publication.


Best wishes for a great project !
Dr. Thomas

From: Sarah Raleigh <sraleigh@email.arizona.edu>
Subject: Re: Inquiry from DNP Student of Judy Berg
Date: January 12, 2015 at 5:52:07 PM MST
To: Tami Thomas <ttomas@fiu.edu>, tami.thomas@emory.edu
Cc: "Berg, Judith A - (jaberg)" <jaberg@email.arizona.edu>

Good afternoon Dr. Thomas,

Thanks for the quick reply! I am attending school at the University of Arizona in Tucson, Arizona. The working title of my capstone project is “Hispanic Parents’ Knowledge, Attitudes and Beliefs toward Human Papillomavirus and Human Papillomavirus Vaccination in Arizona.” I am more than happy to share my results when my research is complete. Judy Berg is my advisor; in addition to copying her on this email, her contact information is as follows:

*Judith A. Berg, PhD, RN, WHNP-BC, FAAN, FAANP*  
*Clinical Professor, The University of Arizona College of Nursing*
Thank you again for allowing me to use the PHPVS, and if any questions or concerns arise please do not hesitate to contact me or Dr. Berg.

Kind regards,
Sarah Raleigh, M.S.N., R.N.
Doctorate of Nursing Practice Student
2012 Cohort - Family Nurse Practitioner Specialty
phone: 602-692-6348
e-mail: sraleigh@email.arizona.edu
APPENDIX C:

RECRUITMENT SCRIPT
Recruitment Script

Study Title:
HISPANIC PARENTS’ KNOWLEDGE, ATTITUDES AND BELIEFS TOWARD HUMAN PAPILLOMAVIRUS AND HUMAN PAPILLOMAVIRUS VACCINATION IN ARIZONA

Principal Investigator: Sarah Raleigh, MSN, RN, FNP-C, DNP-candidate

Receptionist:
At check in – Today we have a nurse practitioner student at the University of Arizona seeking participants for a research study to fulfill the requirements of her graduate degree. Participation in this research includes taking a survey that will take approximately 10 minutes. It will not delay your appointment today. Are you interested in hearing more details?

If no... Thank you for your time. If yes... I will now introduce you to Sarah.

Principal Investigator:
Thank you for your interest. My name is Sarah Raleigh and I am a nurse practitioner student at the University of Arizona. For confidentiality we will move into a private exam room if you’ll follow me. I am currently conducting research investigating parent’s knowledge, attitudes and beliefs towards human papillomavirus or HPV. Are you interested in hearing further information?

If no... Thank you for your time. If yes...
Great. Now, I need to ask you a few further questions to determine your eligibility for participating:

1. Do you have a daughter between the age of 9-18?
2. Do you identify as Hispanic or Latino?
3. Are you comfortable speaking and reading in English?
4. Do you live in Maricopa county, Arizona?

If any no... Thank you for your time. If yes...
Great. This purpose of this study is to explore Hispanic parents’ knowledge, attitudes and beliefs toward human papillomavirus and human papillomavirus in Arizona. The results of this research may be used to develop interventions to improve vaccination usage and improve the health of the Hispanic population. An Institutional Review Board responsible for human subjects research at The University of Arizona reviewed this research project and found it to be acceptable, according to applicable state and federal regulations and University policies designed to protect the rights and welfare of participants in research. Please take a moment and read this consent and let me know if you have any questions.
APPENDIX D:

INFORMED CONSENT
The University of Arizona Consent to Participate in Research

Study Title:

HISPANIC PARENTS’ KNOWLEDGE, ATTITUDES AND BELIEFS TOWARD HUMAN PAPILLOMAVIRUS AND HUMAN PAPILLOMAVIRUS VACCINATION IN ARIZONA

Principal Investigator: Sarah Raleigh, MSN, RN, FNP-C, DNP-candidate

This is a consent form for research participation. It contains important information about this study and what to expect if you decide to participate. Please consider the information carefully. Feel free to discuss the study with your friends and family and to ask questions before making your decision whether or not to participate.

Why is this study being done?
This purpose of this study is to explore Hispanic parents’ knowledge, attitudes and beliefs toward human papilloma and human papillomavirus in Arizona. The results of this research may be used to develop interventions to improve vaccination usage and improve the health of the Hispanic population.

What will happen if I take part in this study?
If you chose to take part in this study you will complete a survey that is estimated to take 10 minutes. Your answers will remain anonymous.

What are the costs of taking part in this study?
There are no costs, monetary or non-monetary, to you aside from your time.

How long will I be in the study?
Your participation in this study is limited to the time it takes to complete the survey. This is estimated to be 10 minutes.

How many people will take part in this study?
Approximately 30 people will be part of this study.

Can I stop being in the study?
Your participation is voluntary. You may refuse to participate in this study. If you decide to take part in the study, you may leave the study at any time. In addition, you may skip any question that you choose not to answer. No matter what decision you make, there will be no penalty to you and you will not lose any of your usual benefits. Your decision will not affect

Consent Version: 2015-03
Page 1 of 3
your future relationship with The University of Arizona. If you are a student or employee at the University of Arizona, your decision will not affect your grades or employment status.

What risks, side effects or discomforts can I expect from being in the study?
As HPV is a sexually transmitted infection you may feel mildly uncomfortable providing your responses. This varies between individuals and if you do experience discomfort or embarrassment, it is expected to be of short duration and not permanent.

What benefits can I expect from being in the study?
You may or may not benefit as a result of participating in this study. This study may cause you to seek further information on HPV and HPV vaccination which may or may not be beneficial to your and/or your daughter's health.

What other choices do I have if I do not take part in the study?
Your participation is voluntary. You may choose not to participate in this study without penalty or loss of benefits to which you are otherwise entitled.

Will my study-related information be kept confidential?
Your confidentiality is of utmost importance. Your answers will remain anonymous. Your survey will be identified through a subject number only, meaning it will not include any identifying information such as your name. Identifying information will be kept in a password protected file accessible only to the principal investigator, Sarah Raleigh, and faculty advisor, Judy Berg. Your responses will be reported as aggregate data, not individual responses.

Efforts will be made to keep your study-related information confidential. However, there may be circumstances where this information must be released. For example, personal information regarding your participation in this study may be disclosed if required by state law.

Also, your records may be reviewed by the following groups:
- Office for Human Research Protections or other federal, state, or international regulatory agencies
- The University of Arizona Institutional Review Board

Who can answer my questions about the study?
For questions, concerns, or complaints about the study, you may call Sarah Raleigh MSN, FNP-C, DNP-candidate at 602-652-2885 or email sraleigh@email.arizona.edu

For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact the Human Subjects Protection Program at 520-626-6721 or online at http://orcr.arizona.edu/hssp.
An Institutional Review Board responsible for human subjects research at The University of Arizona reviewed this research project and found it to be acceptable, according to applicable state and federal regulations and University policies designed to protect the rights and welfare of participants in research.

**Signing the consent form**

I have read (or someone has read to me) this form, and I am aware that I am being asked to participate in a research study. I have had the opportunity to ask questions and have had them answered to my satisfaction. I voluntarily agree to participate in this study.

I am not giving up any legal rights by signing this form. I will be given a copy of this form.

<table>
<thead>
<tr>
<th>Printed name of subject</th>
<th>Signature of subject</th>
<th>AM/PM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Date and Time</td>
</tr>
</tbody>
</table>

**Investigator/Research Staff**

I have explained the research to the participant or the participant’s representative before requesting the signature(s) above. There are no blanks in this document. A copy of this form has been given to the participant or to the participant’s representative.

<table>
<thead>
<tr>
<th>Printed name of person obtaining consent</th>
<th>Signature of person obtaining consent</th>
<th>AM/PM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Date and Time</td>
</tr>
</tbody>
</table>
APPENDIX D:

COPYRIGHT PERMISSION
**Order Completed**

Thank you very much for your order.

This is a License Agreement between Sarah E Raleigh ("You") and John Wiley and Sons ("John Wiley and Sons"). The license consists of your order details, the terms and conditions provided by John Wiley and Sons, and the payment terms and conditions.

**Get the printable license.**

<table>
<thead>
<tr>
<th>License Number</th>
<th>3522200374178</th>
</tr>
</thead>
<tbody>
<tr>
<td>License date</td>
<td>Dec 04, 2014</td>
</tr>
<tr>
<td>Licensed content</td>
<td>John Wiley and Sons</td>
</tr>
<tr>
<td>publication</td>
<td>Wiley Books</td>
</tr>
<tr>
<td>Licensed content</td>
<td>Health Behavior and</td>
</tr>
<tr>
<td>title</td>
<td>Health Education:</td>
</tr>
<tr>
<td></td>
<td>Theory, Research, and</td>
</tr>
<tr>
<td></td>
<td>Practice, 4th Edition</td>
</tr>
<tr>
<td>Licensed copyright</td>
<td>Copyright 2008</td>
</tr>
<tr>
<td>line</td>
<td></td>
</tr>
<tr>
<td>Licensed content</td>
<td>Karen Glanz (Editor),</td>
</tr>
<tr>
<td>author</td>
<td>Barbara K. Rimer</td>
</tr>
<tr>
<td></td>
<td>(Editor), K. Viswanath</td>
</tr>
<tr>
<td></td>
<td>(Editor)</td>
</tr>
<tr>
<td>Licensed content date</td>
<td>Sep 1, 2008</td>
</tr>
<tr>
<td>Type of use</td>
<td>Dissertation/Thesis</td>
</tr>
<tr>
<td>Requestor type</td>
<td>University/Academic</td>
</tr>
<tr>
<td>Format</td>
<td>Electronic</td>
</tr>
<tr>
<td>Portion</td>
<td>Figure/table</td>
</tr>
<tr>
<td>Number of</td>
<td>1</td>
</tr>
<tr>
<td>figures/tables</td>
<td></td>
</tr>
<tr>
<td>Original Wiley</td>
<td>FIGURE 3.1. Health</td>
</tr>
<tr>
<td>figure/table number(s)</td>
<td>Belief Model Components</td>
</tr>
<tr>
<td>Will you be translating?</td>
<td>No</td>
</tr>
<tr>
<td>Title of your thesis</td>
<td>HISPANIC PARENTS'</td>
</tr>
<tr>
<td>/dissertation</td>
<td>KNOWLEDGE, ATTITUDES</td>
</tr>
<tr>
<td></td>
<td>AND BELIEFS TOWARD</td>
</tr>
<tr>
<td></td>
<td>HUMAN PAPILLOMAVIRUS</td>
</tr>
<tr>
<td></td>
<td>VACCINATION IN ARIZONA</td>
</tr>
<tr>
<td>Expected completion</td>
<td>Jan 2015</td>
</tr>
<tr>
<td>date</td>
<td></td>
</tr>
<tr>
<td>Expected size (number</td>
<td>70</td>
</tr>
<tr>
<td>of pages)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0.00 USD</td>
</tr>
</tbody>
</table>
REFERENCES


