Latinx fathers report low awareness and knowledge of the human papillomavirus vaccine, but high willingness to vaccinate their children if recommended by a healthcare provider: A qualitative study

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ABSTRACT
This descriptive qualitative study explored Latinx fathers’ awareness, knowledge, and acceptability of the human papillomavirus (HPV) vaccine for their adolescent children. Data were collected through individual, semi-structured interviews and analysed using a hybrid method of thematic analysis that incorporated deductive and inductive approaches. Nineteen, majority foreign-born Latinx fathers participated. Four main themes and two subthemes emerged from the analyses. Results found fathers’ low awareness and knowledge of HPV and the HPV vaccine. Results also identified fathers’ positive attitudes toward vaccines in general. Moreover, results revealed fathers trust in healthcare providers and high willingness to vaccinate their children against HPV if recommended by their child’s primary healthcare provider. Findings indicate the need for increased efforts to raise awareness and knowledge among Latinx fathers of HPV and the HPV vaccine. Given the limited research focused on Latinx fathers, the study’s findings are valuable in building a knowledge foundation for developing future studies and interventions to promote the HPV vaccine targeting Latinx fathers living in the United States. Future research should quantify Latinx fathers’ awareness, knowledge, and acceptability of the HPV vaccine for their sons and daughters and assess fathers’ role in the decision-making process to vaccinate their children against HPV.

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Introduction

Human papillomavirus (HPV) is the most common sexually transmitted disease in the United States, and an estimated 14 million persons are newly infected with HPV every year (Markowitz et al., 2018). HPV infection has cancer-related consequences for both men and women (Markowitz et al., 2018; Walker et al., 2019). HPV infection is etiologically linked to several types of cancers, including cervical, vulvar, vaginal, penile, anal, and oropharyngeal cancers, thus representing a significant public health concern (Markowitz et al., 2018; Walker et al., 2019).

Vaccination against HPV is the optimal way to prevent HPV-associated cancers conferring protection to the most common types of HPV that can cause cervical, oropharyngeal, vulvar, vaginal,
penile, and anal cancers (Markowitz et al., 2018; Walker et al., 2019). In the United States since 2006, the HPV vaccine has been recommended for girls ages 11 or 12 (although the series can be started at age 9) and for women not previously vaccinated through age 26. In 2011, with additional scientific evidence from clinical trials, routine HPV vaccination was recommended for boys ages 11 or 12 and for males not vaccinated previously through age 21 (Walker et al., 2019). The target age range for HPV vaccination is based on evidence that the vaccine is most effective before any exposure to HPV which is sexually transmitted, and also to facilitate administration with two other recommended vaccines (i.e. tetanus-diphtheria-acellular pertussis [Tdap] and meningococcal vaccines [MenACWY]) at the same age range (Jemal et al., 2013). The vaccine series initially included 3 doses. However, in 2016 with accumulated evidence of comparable antibody response to 3-doses, a revised recommendation for a 2-dose series, six months apart, was issued by the Advisory Committee on Immunization Practices (ACIP), the Centres for Disease Control and Prevention (CDC) (Bednarczyk et al., 2019; Jemal et al., 2013).

Although evidence indicates that Latinx adolescents have higher HPV vaccination rates than non-Hispanic whites, uptake of the HPV vaccine remains lower than the 80% goal set by the Healthy People 2030, suggesting the need for continued HPV cancer educational interventions tailored to meet the needs of specific populations (Bednarczyk et al., 2019; Markowitz et al., 2018). According to the latest estimates based on data from the National Immunization Survey-Teen (NIS-Teen) in 2017 a little less than half (49%) of adolescents in the United States were up to date on the HPV vaccine, however, 51% had not completed the HPV vaccine series (Reiter et al., 2020). Moreover, analyses found initiation rates ranging from 46.3% to 57.5% among males, and 63.4% to 71.2% among females. Moreover, vaccination completion rates were lower ranging from and 31.1% to 19.9% among males, and 33.6% to 48.7% females (Reiter et al., 2020). These rates are below the Healthy People 2030 targets and suggest the importance of further understanding the factors affecting acceptability of the HPV vaccination among Latinx parents (Adjei Boakye et al., 2017; Reiter et al., 2020).

Latinx is the largest minority population in the United States (Pew Research Center, 2017) and evidence indicates higher HPV-associated cancer incidence and mortality among Latinx compared to non-Hispanic whites (Martinez Tyson et al., 2018). Moreover, evidence indicates that low-income, minority and immigrant groups are at increased risk of HPV-associated cancers (Adjei Boakye et al., 2017; Netfa et al., 2020; Reimer et al., 2014). Several factors, including low or inadequate knowledge and awareness of HPV infection, and the HPV vaccine have been linked to increased HPV-associated cancer risk among minorities (Adjei Boakye et al., 2017; Netfa et al., 2020; Reimer et al., 2014).

Despite an increasing number of qualitative studies conducted to explore and identify Latinx mothers’ awareness, acceptability, and acceptability of the HPV vaccine among Latinx parents (Colón-López et al., 2017; Fernandez et al., 2009; Morales-Campos et al., 2021; Roncancio et al., 2019; Roncancio et al., 2017) only minimal research is specific to Latinx fathers leaving them under-represented in HPV research (Galbraith et al., 2016; Kornfeld et al., 2013; Morales-Campos et al., 2021; Suárez et al., 2019). Guided mostly by the Health Belief Model (HBM) research conducted among Latinx mothers finds that maternal acceptance and uptake of HPV vaccination is influenced by the perceived risk of HPV infection and its consequences, and perceived benefits of the HPV vaccine (e.g. prevention of cervical cancer for daughters) (Lindsay et al., 2020; Lindsay et al., 2021; Morales-Campos et al., 2021; Roncancio et al., 2017; Roncancio et al., 2019). Factors such as beliefs that that vaccination may promote adolescent sexual activity, religious beliefs, belief of child being too young and thus no immediate perceived need of vaccination, lack or inadequate knowledge about HPV and the HPV vaccine, concerns about vaccine safety and cost, etc. have all been found to influence parental acceptance and uptake of HPV vaccine (Lindsay et al., 2020; Lindsay et al., 2021; Morales-Campos et al., 2021; Roncancio et al., 2017; Roncancio et al., 2019; Warner et al., 2015). Within the Latinx family, some studies indicate parents also have misperceptions about the risk of disease and direct benefits of the vaccine for males (Morales-Campos et al., 2021; Warner...
et al., 2015). Social norms have also been found to limit the acceptance of the vaccine’s benefits, especially for males (Katz et al., 2016; Morales-Campos et al., 2021; Roncancio et al., 2019). In addition, acculturation has been found to influence parental awareness and knowledge, beliefs and attitudes towards the HPV vaccine (Lindsay et al., 2020; Lindsay et al., 2021; Morales-Campos et al., 2021; Roncancio et al., 2019).

To our knowledge, only one qualitative study has focused on Latinx, majority Mexican American and Mexican women (mothers and young females) and fathers living along the Texas-Mexico border (Morales-Campos et al., 2021). Findings from this study found that parents’ perspectives about HPV and the HPV vaccine to be highly gendered. For example, mothers’ beliefs linked HPV-related sexual risk to adultery and indiscretion of male partners. Fathers were more likely to link risk to female promiscuity. Fathers also worried that HPV vaccination might increase promiscuity (Morales-Campos et al., 2021).

Moreover, healthcare provider vaccine recommendation has been identified as one of the most important factors influencing parents’ uptake of the HPV vaccine (Gerend et al., 2019; Lindsay et al., 2021; Reiter et al., 2021). Nonetheless, evidence from qualitative and quantitative studies with Latinx mothers point to inadequate recommendation of the HPV vaccine by healthcare providers including at appropriate ages, sex differences, and economic status (Bodson et al., 2016; Colón-López et al., 2016; Gerend et al., 2019; Katz et al., 2016; Morales-Campos et al., 2021; Reiter et al., 2021; Roncancio et al., 2019; Victory et al., 2019; Warner et al., 2015). For example, a recent quantitative study examining healthcare provider’s recommendation for HPV vaccination across Hispanic/Latinx subgroups in the United States found that overall, only 62.6% of parents of Hispanic/Latinx females and 46.4% of parents of Hispanic/Latinx males reported that they had received a provider recommendation for HPV vaccination (Reiter et al., 2021). In adjusted analyses, there were no differences across Hispanic/Latinx subgroups among either males or females. However, among parents of females, provider recommendation was less common among Central Americans and South Americans whose preferred language was Spanish (Reiter et al., 2021).

Although evidence suggests that in the Latinx culture, mothers are the parent most likely to take their children to healthcare visits, fathers play a central role in the Latinx family, and available evidence suggests their influential role in the healthcare of their children (Galbraith et al., 2016; La Hoz et al., 2005; Perkins et al., 2012; Suárez et al., 2019). Therefore, understanding Latinx fathers’ awareness, knowledge, and acceptability of the HPV vaccine would be important to design effective interventions to promote the HPV vaccine among Latinx families. Given the lack of prior research on Latinx immigrant fathers’ knowledge and acceptability of the HPV vaccination for their children, a qualitative study design using interviews to obtain an in-depth understanding of the topic is appropriate as a first step (Patton, 2001). Therefore, guided by the HBM the current qualitative study was designed to explore Latinx fathers’ awareness, knowledge, attitude, and acceptability of the HPV vaccine.

**Methods**

**Study design and sample**

This study received ethical approval from the University Ethics Board at the University of Massachusetts Boston. Using an exploratory, descriptive qualitative methodology, we conducted one-on-one, face-to-face, semi-structured interviews with Latinx fathers. Fathers were eligible to participate if they: (1) had at least one child aged 11–19 years; (2) self-identified as Latinx; (3) lived in Massachusetts; (5) lived with or had shared parental responsibility to the said child; and (6) provided signed informed consent.

We used purposive sampling to recruit a convenience sample of Latinx fathers through social networking (Faugier & Sargeant, 1997; Patton, 2001). This ‘word of mouth’ or snowball sampling approach involved two strategies: (1) leveraging the personal and community networks of the
Latinx research staff to identify potential participants, and then recruit them for the study, and (2) asking early enrollees to recommend their Latinx friends who had at least one child aged 11–19 years (Lindsay et al., 2020). All interested individuals were screened in-person or via telephone by study staff. Those who met the eligibility criteria were asked to participate in the study. Study staff scheduled interviews with eligible participants at time and location (i.e. either at participant’s home, private offices at the academic institution, or in public settings including libraries or coffee shops) convenient to them. After obtaining written and verbal informed consent, staff conducted interviews in the participant’s preferred language (Spanish or English).

Data collection

Face-to-face individual qualitative interviewing with eligible participants was conducted by two trained, bilingual (native Spanish-speaker and English) Latinx research assistants between October 2019 and February 2020 using a semi-structured interview guide to ensure all participants discussed similar topics (Patton, 2001). The interview guide included open-ended questions based on available literature to elicit participants’ perceptions and understanding of HPV infection, HPV-associated cancers, and the HPV vaccine (Katz et al., 2016; Lindsay et al., 2021; Lindsay et al., 2021). In addition, interviewers asked follow-up questions and used targeted probes to clarify information and/or collect additional relevant information based on information shared by each participant. The interview also included a brief, close-ended questionnaire on participants’ socio-demographic information and acculturation level assessed via the Short Acculturation Scale for Hispanics (SASH), a 12-item measure scale validated for use in Latinx populations (Ellison et al., 2011; Marin et al., 1987).

The SASH assesses language use, media use, and ethnic social relations. The scale has good reliability (Cronbach’s alpha reliabilities 0.92–0.89 for the overall SASH scale, 0.89 for language use, 0.88 for media preference, and 0.72 for ethnic and social relations) (Ellison et al., 2011; Marin et al., 1987). Acculturation scores were computed by averaging across the 12 items, measured on a scale of 1–5, and scores were then dichotomised (high vs. low). The scale developers recommend an average of 2.99 as the cut-point scores equal to or above this point represent higher levels of acculturation, and scores below this point represent lower levels of acculturation (Marin et al., 1987). We used the recommended cut-point scores to categorise respondents as having a low acculturation level (SASH < 2.99) or a high acculturation level (SASH > 2.99) (Marin et al., 1987).

The guide was piloted-tested with two Latinx fathers, and data from the pilot interviews were dropped from the present study, but the results were used to refine the guide before use in the subsequent interviews. Before each interview, the interviewers (Lindsay et al., 2020) asked participants’ preferred language for the interview. Following, interviewers explained the study’s purpose and interview procedures including confidentiality of information in participant’s preferred language and obtained written informed consent. Participants who had more than one child between the ages of 11 and 19 years were asked to share information about each child. A trained bilingual research assistant (Lindsay et al., 2020; Lindsay et al., 2021) took notes during all interviews. The interviews were audio-recorded after obtaining verbal consent from participants and lasted approximately 25–35 min. Participants received a $25 gift card for their participation.

Data analysis

Data were analysed using standard qualitative methods (Braun & Clarke, 2006; Patton, 2001). All audio-records were transcribed verbatim in Spanish or English by a bilingual, native Spanish speaker, professional transcriptionist within a few days of the interview (Braun & Clarke, 2006; Patton, 2001). Data collection and preliminary data analysis were undertaken concurrently (Braun &
Clarke, 2006; Patton, 2001). The interviewer and research assistant met for about 20 min after each interview to discuss recurring themes and identify new additional themes.

Once all interviews were completed and transcribed, the transcripts were analysed using thematic analysis, an iterative multi-phase process of coding the data in phases to create meaningful patterns by two experienced bilingual qualitative researchers (Lindsay et al., 2020). First, two experienced qualitative researchers and bilingual speakers (Lindsay et al., 2020; Lindsay et al., 2021) read several transcripts numerous times to become familiar with the content and generate initial codes (Braun & Clarke, 2006; Patton, 2001). Following, the researchers manually coded all transcripts independently using a hybrid approach of thematic analysis that incorporated an iteration of (1) deductive approach including a priori themes based on the interview guide and literature and (2) data-driven inductive approach that allowed for new themes to emerge during analysis, thus expanding the possible a priori categories of themes (Braun & Clarke, 2006; Patton, 2001). Throughout this phase, the two researchers met regularly to discuss coding and identify and resolve coding disagreements (Braun & Clarke, 2006). Coded text describing similar ideas was grouped and sorted to identify emergent themes and subthemes. Finally, salient text passages were extracted and translated into English as illustrative quotes for emergent themes. In addition, descriptive statistics and frequencies were calculated for data collected in the socio-demographic survey using Microsoft Excel 2008.

Results

Sample

A total of 19 fathers participated in this study. As shown in Table 1, approximately 63% were foreign-born (n = 12) fathers of adolescent boys (~ 53%; n = 10) and girls (~ 74%; n = 14) aged between 11 and 19 years (mean age of adolescents: 13.8 years). A little more than half (57.9%) of the fathers were of Caribbean descent, whereas approximately 26% were South American and about 11% Central Americans. The majority (84.2%) chose to conduct the interview in Spanish and approximately 73.6% reported low acculturation levels (SASH < 2.99). Furthermore, a little more than half of the fathers (57.1%) did not know if their daughters had received the HPV vaccine, 28.6% reported their daughters being vaccinated, and another 14.3% that their daughters had not received the vaccine. In addition, 60% of fathers did not know their sons’ HPV vaccination status, whereas 40% reported their sons had not received the HPV vaccine.

Additional sample characteristics are presented in Table 1.

Themes and subthemes

We identified four main themes: (1) low awareness of HPV and the HPV vaccine; (2) low knowledge of HPV infection and HPV-associated cancer risk for girls and boys; (3) positive attitudes toward vaccines in general; and (4) high willingness to have their children (boys and girls) vaccinated against HPV if recommended by their children’s primary healthcare provider. These themes are discussed below with illustrative quotes from participants.

Theme 1. Low awareness of HPV and the HPV vaccine

A little less than half of the fathers had heard about HPV. Most fathers reported hearing about HPV from media (television and social media – Facebook) and personal (e.g. family members, mostly partner and friends) sources. Only a couple of fathers mentioned hearing about HPV from healthcare providers. These are illustrated in the following two quotes:

Yes, I have heard about HPV. The scientific name I really don’t know what it means, but I believe the HPV is linked to having sexual relations. I mean the transmission is from maintaining relationships with different people without protection … I heard on TV and my cousin in Peru had her daughter take the vaccine. She
told me was to prevent cervical cancer, which her mother (grandmother) had it. So, she felt it was good to give to her daughter because one never knows it could run in the family, right? After that I was curious, so I searched on the Internet. That’s how I learned about it. (Father #3, Peru)

| Variables                                              | Median (range)        | N (%)     |
|--------------------------------------------------------|-----------------------|-----------|
| **Father’s age**                                       | 49 years (34–57 years)|           |
| **Father’s marital status**                            |                       |           |
| Single                                                 | 1 (5.3)               |           |
| Married/Cohabitating                                   | 14 (73.6)             |           |
| Separated/Divorced                                     | 4 (21.1)              |           |
| **Children’s (11–19 years) gender**                    |                       |           |
| Male                                                   | 18 (39.5)             |           |
| Female                                                 | 12 (60.5)             |           |
| **Son’s age**                                          | 13.4 (2.1)            |           |
| 11–12 years                                            | 2 (20.0)              |           |
| 13–14 years                                            | 4 (40.0)              |           |
| 15–16 years                                            | 1 (10.0)              |           |
| 17–19 years                                            | 3 (30.0)              |           |
| **Son’s vaccination status as reported by father**     |                       |           |
| Yes                                                    | 0                     |           |
| No                                                     | 4 (50.0)              |           |
| Don’t know                                             | 6 (60.0)              |           |
| **Daughter’s age**                                     | 14.3 (2.7)            |           |
| 11–12 years                                            | 4 (33.4)              |           |
| 13–14 years                                            | 2 (16.6)              |           |
| 15–16 years                                            | 4 (16.6)              |           |
| 17–19 years                                            | 4 (33.4)              |           |
| **Daughter’s vaccination status as reported by father**|                       |           |
| Yes                                                    | 4 (28.6)              |           |
| No                                                     | 2 (14.3)              |           |
| Don’t know                                             | 8 (57.1)              |           |
| **Son and daughter’s insurance status**                |                       |           |
| Government-funded health insurance                      | 18 (94.7)             |           |
| Private health insurance                               | 1 (5.3)               |           |
| **Father’s educational level**                         |                       |           |
| Less than high school completed                        | 4 (21.1)              |           |
| High school completed                                  | 13 (68.4)             |           |
| More than high school completed                        | 2 (10.6)              |           |
| **Father’s employment status**                         | 19 (100)              |           |
| **Household annual income**                            |                       |           |
| <US$50K                                                | 3 (15.8)              |           |
| >US$50K – < US$60K                                     | 16 (84.2)             |           |
| **Father’s country/territory of origin**               |                       |           |
| Puerto Rico                                            | 6 (31.5)              |           |
| Dominican Republic                                     | 5 (26.3)              |           |
| Colombia                                               | 4 (21.1)              |           |
| Peru                                                   | 1 (5.3)               |           |
| El Salvador                                            | 1 (5.3)               |           |
| Guatemala                                              | 1 (5.3)               |           |
| USA                                                    | 1 (5.3)               |           |
| **Father’s number of years living in the United States**|                       |           |
| <10 years                                              | 2 (11.1)              |           |
| >10 years                                              | 16 (88.9)             |           |
| **Father’s SASH score**                                |                       |           |
| <2.99                                                  | 15 (78.9)             |           |
| >2.99                                                  | 4 (21.1)              |           |

Note: (SASH) – all 19 fathers reported acculturation level based on the 12 questions included in the SASH.

*Only those 11–19 years of age (i.e. age eligibility for study);*  
*Only fathers who were born outside of the United States including those born in Puerto Rico were asked to report (n = 18);*  
*Short Acculturation Scale for Hispanics.*
I didn’t really hear about it, but my wife told me that last year when my daughter was at the doctor they asked if she would allow them to give [daughter] the vaccine and she said yes, and they put one dose and told her she needs to go back after a few months and they will put one more dose … when she got home, she told me, listen [daughter’s name] got vaccine shots today … I don’t oppose to any vaccine. (Father #5, Dominican Republic)

Furthermore, some fathers appeared to confuse HPV with HIV. When reminded that HPV was not the same of HIV, some fathers then reported not knowing about HPV, while a couple pondered that HPV was probably also a sexually transmitted disease.

No, never heard about papilloma virus. You said HPV, right? No, not this word I never heard of it. I heard of HIV, but not HPV. This is the first time I hear about it when you asked me. I have heard a lot about HIV, but not HPV. It sounds similar. Could it be related to sexual relations? I really have not heard about it before. (Father #7, Puerto Rico)

Less than half of the fathers were aware of the HPV vaccine. Moreover, the majority of the fathers who were aware of the HPV vaccine believed that only girls should be vaccinated. One father said,

I don’t know much about this vaccine. I heard in passing on a Hispanic show on TV, but I didn’t pay much attention and I don’t really know much about it. What I think is that it’s a vaccine that girls get. I would have to ask my wife to know if my daughter got it. I wouldn’t be able to tell you … (Father #8, Colombia)

Only a couple of fathers believed that boys should be vaccinated. For example, one father mentioned:

At first, I did not know boys should also receive this vaccine [HPV]. I thought it was only for girls because I thought it was to prevent cervical cancer. But when my wife took my son to his last doctor appointment just after he had turned 11 [years], the doctor told my wife about the HPV vaccine. My wife was surprised too because she also did not know that boys need this vaccine. My daughter already had the vaccine, so my wife said yes and that’s how I know that boys also should get this vaccine … (Father #11, Dominican Republic)

Theme 2. Low knowledge of HPV transmission and HPV-associated cancers

The majority of fathers reported low knowledge about HPV transmission. Less than half of the fathers were aware of HPV being a sexually transmitted disease.

I don’t know too much about it, but I know it’s transmitted by sexual relations and that if one is not cautious about protection like using condoms or one has many partners and have unprotected relations [sex] one can get the virus. (Father #14, Puerto Rico)

Fathers who were aware of HPV were probed further about the link between HPV and HPV-associated cancers, and most mentioned HPV is associated with cervical cancer. Only two fathers discussed HPV being associated with other types of cancers, including cancer of the throat and anus. Moreover, it is worth mentioning that all fathers who reported some knowledge of HPV transmission and its association with cervical cancer reported having a family member or a friend who had been affected by cervical cancer. A couple of fathers said,

I know this virus can cause cervical cancer. I know this because my mother and my older sister had this cancer. But thank be to God, they [doctors] were able to treat them. For my mother was a bit worse [cervical cancer] and she suffered a lot, but for my sister was not as bad and she recovered quickly. Thanks to the Lord and the doctors they both survived because they discovered the cancer and treated them … (Father #9, Guatemala)

I know a guy in my hometown back in the Dominican Republic who had cancer on the throat and what I heard from others is that it was because of this virus. Rumour is that he despite having a family was out there with many women and lots of promiscuity. When he got sick apparently the doctor said it was this virus, HPV. People thought he had HIV, but no. He had to have a surgery in the throat. He survived but I don’t know much about him since I came to the United States. (Father #5, Dominican Republic)
**Theme 3. Positive attitude towards vaccines in general**

Despite fathers’ low knowledge of the HPV vaccine, the majority reported a positive attitude toward vaccines in general. Most fathers discussed their personal and their children’s positive experiences with childhood vaccination.

I think vaccines are very important. I recall in my country [Dominican Republic] when we were kids our mother taking us to be vaccinated. There were people in communities who did not get vaccines and people died. So, I think vaccines are very important and I personally believe one should get all the vaccines that are important to prevent disease … (Father #1, Dominican Republic)

Furthermore, some fathers explicitly discussed vaccines as being lifesaving and recalled stories of family members and friends who had experienced disabling or life-threatening effects of vaccine-preventable diseases such as poliomyelitis (poliovirus) and measles in their home countries.

Vaccine are important and especially for children to have all vaccines when they are little. I have a cousin who had paralysis when he was a child. For some reason his mother had missed the vaccination [campaign] back in El Salvador … I recall my mother always telling us when were scared [of vaccines] that it’s better to hurt one day than to suffer a whole life … (Father #13, El Salvador)

**Theme 4. High willingness to vaccinate against HPV if recommended by healthcare provider**

*Sub-theme 4.1. Trust in healthcare providers and willingness to vaccinate if recommended.* Across all interviews, all fathers expressed trust in their healthcare providers. Although most fathers spoke of mothers being the primary parent in contact with healthcare providers for the care of their children, nearly all fathers said that they trusted their healthcare providers and were supportive of their healthcare recommendations for their children, including vaccination. For example, one father said:

I trust their [children] doctor. They go to the same doctor now for many years and my wife really likes the doctor. She [doctor] studied and is trained, so always when she [doctor] says they need a vaccine, or an exam, we always agree. (Father #17, Dominican Republic)

When asked if they would be specifically willing to vaccinate their children against HPV if recommended by their child’s doctor, all fathers reported willingness to vaccinate both their daughters and their sons against HPV. One father said,

I think if it’s very important the doctor should tell the parents, right? How would I know? The doctor is the one who studied all these years. I think if it’s important the doctor should tell the parents and convince them to vaccinate their children. You know, give the information because it’s not that the parents don’t want to vaccinate their child, but sometimes we don’t know about that there is a vaccine like this one that you are telling me, the HPV. I didn’t know! Like when the kids are really little, they [doctors] tell us [parents] and my children got all the vaccines … but this one [HPV] I never heard about it. (Father #2, Puerto Rico)

When asked about any concerns about the HPV vaccine, a couple of fathers mentioned concerns about the vaccine having a negative effect on their daughters’ sexual disinhibition, while a few fathers mentioned (n = 4) concerns about vaccine safety and side effects. For example, two fathers mentioned,

As fathers we worry about our children’s health and safety. We have to keep vigilant, pay attention where the kids are, what they are doing. My problem with this vaccine [HPV] for the girls is that nowadays they know more than us [parents], so I worry that they [girls] think they are safe [to have sex], you know what I mean?! I personally think this vaccine should be given when they [girls] are older … (Father #18, Puerto Rico)

One [parent] worries about negative effects [safety] of vaccines because nothing is 100% safe. In the case of the papillomavirus vaccine my understanding is that it will do more benefits than harm. There is always a risk [adverse effect of vaccine]. But if you know it will have benefit for your child, as a parent you want to vaccinate them … One needs to trust the doctors because they are the ones who studied, who have the knowledge, right? (Father #19, Colombia)

Another father mentioned,
I think vaccines are pretty safe. But there are a lot of people who think that vaccine can cause harm to their children. Like, I heard some people say that vaccines cause autism in children and other problems. Personally, I don’t think that is the case. I don’t think it’s the vaccine. Vaccines are tested and pretty safe. I never had any problems, and my daughter never had any problems after they got any vaccine. So, in my case, I am in favour of them getting vaccines. (Father #3, Peru)

When probed about religious beliefs, nearly all fathers did not report their religious beliefs as a factor that would interfere with their acceptability of the HPV vaccine. One father said,

… If the vaccine is to prevent a disease, I don’t think religion should have anything to do with it. I am a person of faith and I believe that above all God wants us to be healthy and lead a good life. I know that there are some people who may not agree. I think we have to respect what people think. But me personally, I don’t think religion should interfere with what the doctors recommend … (Father #6, USA)

Subtheme 4.2. Healthcare provider recommendation single most important factor. Across all interviews, fathers reported that if recommended by their child’s primary healthcare provider, they would be supportive of vaccinating their children against HPV. This was true for both fathers who reported being aware of HPV and the HPV vaccine and those who were not aware of the HPV vaccine. These are illustrated in the following two quotes.

You know, there are some people who say vaccines sometimes are not safe, and that’s not good to give too many vaccines because it can cause problems. But we [father and mother] always say that if the doctor is recommending and says it’s important, we give them. We [parents] want them to be healthy and avoid diseases … (Father #4, Dominican Republic)

… One hears all sorts of things about vaccines and at the end it’s your child’s life and you [parents] will not trust just anyone or any information. In my case at least, I will tell you, I would trust my child’s doctor. If her [daughter] doctor recommends the vaccine and explains that it’s important, I will support her getting the vaccine [HPV] … (Father #16, Puerto Rico)

Only one father expressed hesitancy towards vaccinating his children against HPV due to concerns about potential vaccines’ negative side effects. This father mentioned having a family member whose son had experienced vaccine side-effects, including getting ‘sick’ after vaccination which, according to this father, led to the child developing autism.

To tell you the truth, I am not sure. One sometimes worries about the negative consequences of vaccines. Vaccines can be good, but they also have risks. One knows that vaccines are not 100% safe. There are risks. My nephew was a perfect child until he was about two and half years old, then all of a sudden, he started showing problems. We can’t tell for sure but in his case, he might have suffered some bad effects of the vaccine … (Father #10, Puerto Rico)

Subtheme 4.3. Mothers are primarily responsible for children’s healthcare, but fathers are closely involved in decision making. Nearly all fathers in our study (n = 15) referred to their child’s mother and partner as the main parent taking care of children’s health. Nevertheless, fathers mentioned that they were in close communication with their partners and wives and were also directly involved in the decisions made about their children’s health and healthcare. These are illustrated in the following quotes.

Mostly my wife takes care of those things [vaccination]. Now when it’s something more serious, say an appointment for something serious, like when the older one was hurt in a motorcycle accident, things like that, they include me. And I’m there to support them, my family, when they need me. But normally we talk and agree on everything, but their mom takes care of those things [vaccination] in our family. (Father #19, Colombia)

Perhaps I should be more informed, but the truth is that thank God the mother of my children is a wonderful woman and I do not have to worry about my children, their medical appointments, things like that, they are well cared for [by the mother]. (Father #16, Puerto Rico)

My wife is the one who always takes the kids to the doctor, but she keeps me informed and we agree on the healthcare of the children … (Father #17, Dominican Republic)
Discussion

This study contributes to the scant literature on Latinx fathers’ awareness, knowledge, and acceptability of the HPV vaccination for their sons and daughters. Fathers participating in this study reported low awareness and low knowledge of HPV transmission, HPV-associated cancers, and the HPV vaccine. Nonetheless, overall, fathers held positive attitudes towards vaccines in general, and nearly all reported a high willingness to vaccinate both their sons and daughters against HPV if recommended by a healthcare provider. Previous studies with Latinx parents, focusing primarily on mothers (Bodson et al., 2016; Colón-López et al., 2016; Leung et al., 2019; Morales-Campos et al., 2021; Parra-Medina et al., 2015; Roncancio et al., 2019; Victory et al., 2019; Warner et al., 2015) have also found that healthcare recommendations play a unique and crucial influence on parents’ acceptability and willingness to vaccinate their children against HPV. Moreover, our study’s findings also corroborate that of a recent qualitative study exploring gendered beliefs and attitudes around HPV and HPV vaccination among Mexican and Mexican American men (fathers) and women (mothers, aged 18–26, aged >26) living along the Texas-Mexico border that found that overall fathers had low awareness and knowledge of HPV and the HPV vaccine (Morales-Campos et al., 2021).

The findings of the present study are important given the limited number of studies conducted with Latinx fathers and suggest opportunities for the promotion of the HPV vaccine among Latinx fathers that have implications for cancer education programmes targeting both fathers and healthcare providers (Kornfeld et al., 2013; Morales-Campos et al., 2021; Suárez et al., 2019). First, study’s findings suggest a need for increased awareness and education of Latinx fathers about HPV and the HPV vaccine. A recent systematic review of studies (n = 11) conducted in the United States exploring HPV knowledge, awareness, beliefs, attitudes, and acceptability of the HPV vaccine among Latinx fathers found that overall, fathers reported low awareness and knowledge of HPV and the HPV vaccine compared to mothers (Suárez et al., 2019). Moreover, one of the 11 studies included in this review conducted exclusively with Latinx fathers determined that although fathers held positive attitudes toward the HPV vaccine, a notable number of participants were unsure of or had not formed an opinion about the HPV vaccine (Kornfeld et al., 2013). Furthermore, as mentioned earlier, a recent qualitative study with Mexican American and Mexican women and fathers found very low awareness and knowledge about HPV and the HPV vaccine (Morales-Campos et al., 2021). Supported by previous studies, our findings suggest interventions designed to promote HPV vaccine among Latinx fathers, and their families should aim not only to increase fathers’ awareness and knowledge of HPV transmission, HPV-associated cancers, and the HPV vaccine, but also involve promotion of improved healthcare providers communication and counselling about the HPV vaccine with Latinx parents incorporating fathers’ perceptions and acceptability of the HPV vaccination for their children.

Despite evidence indicating the importance of healthcare providers’ recommendation on the acceptability and uptake of the HPV vaccine there is a dearth of intervention studies that directly examine the effect that providers’ HPV vaccine communication strategies have on Latinx parents’ and, in particularly, fathers’ attitudes toward vaccination (Dempsey & O’Leary, 2018). A recent narrative review by Dempsey and O’Leary (2018) reviewing available evidence of studies on how providers’ vaccine communication affects attitudes and uptake suggest that provider-parent communication should include using brief, strong, unambiguous language to introduce the HPV vaccine, followed by more nuanced communication techniques, such as motivational interviewing, when encountering resistance. Furthermore, a recent qualitative study analysing the association of providers’ words with HPV vaccine receipt found association between vaccine recommendation style and vaccine receipt was most pronounced with undecided parents, with 92% accepting vaccination after an ‘indicated’ recommendation vs. 68% after an ‘elective’ recommendation (Fenton et al., 2018). In a more recent study Dempsey et al. (2019) assessed secondary, parent-reported outcomes from a randomised controlled trial (RCT) of a provider communication intervention aimed at improving adolescent HPV vaccination with a multi-racial group of parents, 27% of which were...
Hispanics. Findings found that providing very strong, presumptive HPV vaccine recommendations is associated with improved parent vaccination attitudes and acceptance, and does not seem to have significant negative impacts, even among parents who are vaccine hesitant. Finally, a recent study by Perkins et al. (2020) described the effects of multi-component intervention involving both communication training and systems improvement on change in provider HPV vaccine communication using both self-report (interviews and surveys) and analysis of audio-recorded clinical interactions. The multi-component intervention lasted six to nine months and consisted of seven sessions that included standardised provider-focused HPV education, individualised data feedback, and tailored systems changes (Perkins et al., 2020). Three of the seven intervention sessions were devoted to provider education on vaccine communication techniques: one session on HPV vaccine knowledge and the indicated presentation style, and two on motivational interviewing training, including both didactic and practical portions. Findings found that providers reported the intervention led to communication changes by increasing their knowledge, reframing the HPV vaccine as a routine vaccination, and providing tools for engaging with parents (Perkins et al., 2020). Future studies should explore the combination of both healthcare- and family-focused interventions to increase the acceptability of the HPV vaccination among Latinx parents and studies should consider including both mothers and fathers (Fiks et al., 2013; Niccolai & Hansen, 2015).

Although fathers in our study reported that mothers were the main parent in charge of children’s routine healthcare, including vaccinations, fathers also reported that they were in regular communication with their partners and wives and actively involved in healthcare decision-making for their children. This finding is substantiated by findings of a recent qualitative study with Latinx mothers and daughters, most of whom were Mexicans exploring mothers’ salient behavioural, normative and control beliefs regarding having their adolescent daughters complete the vaccine series that found that mothers believed that the main supporters were themselves, their daughter’s father and doctor (Roncancio et al., 2017). Similarly, a qualitative study with Latinx mothers, majority Mexican American and Mexicans exploring mothers’ salient beliefs regarding having their sons’ initiation of the HPV vaccine series found that, regarding having their sons initiate the HPV vaccine, mothers believed that their sons’ father would support vaccination (Roncancio et al., 2019). Although limited evidence is available for the role of Latinx fathers’ in HPV vaccination, available evidence on childhood vaccination suggests that fathers influence the healthcare decision making to vaccinate their children (Galbraith et al., 2016; Kornfeld et al., 2013; Morales-Campos et al., 2021; Perkins et al., 2012; Suárez et al., 2019). This evidence, combined with our study’s findings, suggests that incorporating men as partners and fathers into HPV vaccine advocacy and broader HPV-related cancer prevention campaigns would be important in increasing uptake of the HPV vaccine among Latinx children (Morales-Campos et al., 2021). Family is a core value in Latinx culture, and fathers play a central role within Latino family, including decision making that influences their children’s health (Guillet & Echavarría, 2015). Gendered roles in the Latinx culture and family such as mothers seeing as the primary caretaker and fathers as the decision-maker in the family influence children’s health care and are likely to play a role in HPV vaccination (La Hoz et al., 2005). For example, findings from our previous studies with Latinx mothers (Lindsay et al., 2020; Lindsay et al., 2021) suggest that Latinx mothers perceive family members’ beliefs including their child’s father beliefs that the HPV vaccine is to prevent a sexually transmitted infections and in some cases, family believing that the vaccine would promote sexual disinhibition and early sexual activity (Lindsay et al., 2020; Lindsay et al., 2021). Nonetheless, other prior studies with Latinx mothers have found that mothers perceive fathers as important supporters of decisions seen as beneficial to their children’s health including the HPV vaccine (Morales-Campos et al., 2021; Roncancio et al., 2017; Roncancio et al., 2019). Given cultural values such as machismo and marianismo, fathers may be especially instrumental in the uptake of the HPV vaccination for their sons (Morales-Campos et al., 2021; Suárez et al., 2019). For example, educational interventions targeting Latinx should raise fathers’ awareness of HPV and the benefits of the HPV vaccine and be framed in the cultural context of the role fathers play in the decision-making of their children’s healthcare. In addition,
healthcare providers should build on Latinx fathers’ positive attitudes about childhood vaccines in general and emphasise the health benefits of the HPV vaccine for both girls and boys, while stating the safety of the vaccine. Future research should quantify Latinx fathers’ participation in the HPV vaccination decision-making process. Furthermore, interventions designed to test effective ways to increase uptake and completion of the HPV vaccination should involve fathers and assess the effects of fathers’ participation in the decision to vaccinate their sons and daughters.

The majority of fathers participating in our study were foreign-born (n = 13), and the remainder (n = 6) were born and had lived in Puerto Rico (United States territory) for most of their lives. Moreover, almost two-thirds were classified as having low acculturation levels, and almost 85% reported Spanish as their primary language spoken with family and friends. Although there is a dearth of research including Latinx fathers, available research conducted with Latinx parents suggests the influence of acculturation level, birthplace, and the number of years lived in the United States on parents’ willingness to vaccinate and acceptability of the HPV vaccine (Colón-López et al., 2016; Gerend et al., 2019; Kepka et al., 2015; Kepka et al., 2015). These studies found that parents born in the United States and those who had lived in the United States for more than 15 years were more likely to report having vaccinated their children against HPV than those who had recently moved to the United States (Colón-López et al., 2016; Kepka et al., 2015; Kepka et al., 2015).

Strengths of the present study include the heterogeneity of the study sample with Latinx fathers of Caribbean, North, Central, and South American backgrounds. Similar themes emerged across sub-population groups, which strengthen the study’s findings. In addition, study team members are bilingual and bicultural, and immigrant Latinx. As with any research, there are also limitations to this study. The findings are based on a small, convenience sample of Spanish-speaking, majority immigrant Latinx fathers with low acculturation levels. Therefore, these results may not be generalisable to English-speaking Latinx fathers and those with high acculturation levels. Participants were recruited from urban communities in Massachusetts, a state with higher rates of government-sponsored healthcare coverage. Therefore, results may also not be generalisable to other populations in the United States. Furthermore, the use of snowball sampling may have led to the selection of participants who share similar beliefs, attitudes, and experiences. Despite the use of a semi-structured interview instrument and interviewers’ training, there is potential for interviewer bias.

Conclusion

In conclusion, the present study’s findings indicate the need for increased efforts to raise awareness and knowledge among Latinx fathers about HPV and the HPV vaccine. The fact that fathers participating in this study reported an increased willingness to vaccinate both their sons and daughters against HPV if recommended by their children’s primary healthcare provider suggests opportunities for education interventions endorsed by healthcare providers to promote the HPV vaccination among Latinx fathers and their families. Additionally, although fathers mentioned mothers as the primary parent directly interacting with healthcare providers, they also reported being directly involved in decision-making for their children’s health and healthcare. These findings combined suggest that effective interventions aimed at promoting the HPV vaccination among Latinx fathers and increasing Latinx children’s HPV vaccination rates may require a combined healthcare- and family-focused approach involving fathers’ decision support for vaccinating their children against HPV. Given the limited research focused on Latinx fathers, the study’s findings are valuable in building a knowledge foundation needed for developing future studies and interventions targeting Latinx fathers living in the United States. Future research should quantify Latinx fathers’ awareness, knowledge, and acceptability of the HPV vaccine for their sons and daughters and preferences for educational interventions to promote HPV vaccination among Latinx fathers. This information will be relevant to the development of interventions tailored to meet the needs of Latinx parents and ultimately increase their children’s HPV vaccination rates.
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