



## “We are Muslims and these diseases don’t happen to us”: A qualitative study of the views of young Somali men and women concerning HPV immunization



Rebekah Pratt<sup>a,\*</sup>, Sharon W. Njau<sup>a</sup>, Channelle Ndagire<sup>a</sup>, Nicole Chaisson<sup>a,b</sup>, Sharondeep Toor<sup>a,b</sup>, Nimo Ahmed<sup>a</sup>, Saida Mohamed<sup>b</sup>, Jay Dirks<sup>a,b</sup>

<sup>a</sup> Department of Family Medicine and Community Health, University of Minnesota, 717 Delaware Street, Minneapolis, MN 55414, USA

<sup>b</sup> University of Minnesota Physician Smiley's Clinic, 2020 E 28th Street, Minneapolis, MN 55407, USA

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### ABSTRACT

**Background:** Minnesota is home to the largest Somali immigrant population in the United States. Despite high rates of cervical cancer in this population, immunization rates for the human papillomavirus (HPV) are among the lowest in the nation. Targeting Somali young adults for catch-up vaccinations may be an important strategy for addressing these low rates. This study sought to understand the views of Somali young adults regarding HPV immunization.

**Methods:** Four focus groups (N = 34; 21 women) were conducted at an urban clinic in Minnesota. Two groups were all female, one all male, and one mixed gender. Participants in each group discussed their views on immunization in general, and then their views on HPV immunization.

**Findings:** Most participants had prior negative experiences with immunization and were skeptical concerning its value. In general, participants had low knowledge about HPV, though they expressed interest in knowing more. Views about HPV were influenced by culture, with risk perceived as low due to interpretations of religious beliefs and expectations around sexual behavior. Low levels of trust in doctors and other healthcare providers influenced participants' perceptions of the benefits of immunization. Participants also valued autonomy highly and resented having received required vaccinations without much choice, such as through their immigration experience or by school authorities. Participants suggested making more opportunities available for learning about HPV and how to prevent it, including via web-based platforms.

**Conclusion:** An important opportunity exists to address low HPV immunization rates in the Somali American population by offering vaccination to young adults, who are interested in learning more about HPV. However, key barriers around HPV needs to be addressed in ways that respect the need for autonomy in this age group and that build trust with providers, which may mean avoiding authoritative approaches.

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## 1. Introduction

Human papillomavirus (HPV) is the most common viral infection of the reproductive health tract, and certain types of HPV are known to cause cervical and other cancers. Two different vaccines for HPV, both of which target the most common types of HPV that lead to cervical cancer (HPV 16 and 18), are commercially

available. Rates of cervical cancer have declined since the introduction of these vaccines worldwide [1]; however, some communities have expressed skepticism and resistance to HPV vaccination. In the United States, HPV immunization rates in the Somali immigrant community are lower than those in the general population [2], yet the incidence of cervical cancer among Somali women is among the highest in the world [3]. A complex set of barriers influence low cervical cancer screening rates in the Somali immigrant population, including limited health literacy [4], lack of knowledge about cancer [5,6], and cultural and religious beliefs that can be construed as discouraging medical screening [4,7–10]. The failure of public health messages and of clinical providers to successfully

\* Corresponding author.

E-mail addresses: [rjpratt@umn.edu](mailto:rjpratt@umn.edu) (R. Pratt), [njau003@umn.edu](mailto:njau003@umn.edu) (S.W. Njau), [ndagire@macalester.edu](mailto:ndagire@macalester.edu) (C. Ndagire), [chai0027@umn.edu](mailto:chai0027@umn.edu) (N. Chaisson), [stoor@umn.edu](mailto:stoor@umn.edu) (S. Toor), [nimoo@umn.edu](mailto:nimoo@umn.edu) (N. Ahmed), [smohamed10@umphysicians.umn.edu](mailto:smohamed10@umphysicians.umn.edu) (S. Mohamed), [dirks007@umn.edu](mailto:dirks007@umn.edu) (J. Dirks).

address these barriers, in combination with low HPV immunization rates and a rise in HPV-related cancers [11–15], contributes to preventable late-stage diagnoses, increased treatment burden, and higher mortality among Somali immigrant men and women.

Over one quarter of a million Somali have settled in North America [16], and Minnesota is home to the continent's largest population of Somali immigrants. In general, the Somali community has been resistant to childhood immunization [17,18] in part due to erroneous concerns about vaccines leading to autism [19,20], but also because of concerns about the effectiveness of immunization [21]. This reluctance to accept immunization has led to adverse consequences such as a recent measles outbreak [20]. General vaccine hesitancy, along with additional concerns about HPV and sexual activity, has led to low HPV vaccination initiation and completion rates among Somali adolescents. Somali parents have reported concerns that HPV vaccination may be related to the initiation of sexual activity [21], and have stated that their cultural views discouraging premarital sex already decrease their children's risk [22]. Somali parents also report low levels of knowledge about HPV [23,24], including confusion between HPV and HIV, due to the similarity of the acronyms [21,25], which may exacerbate reluctance to discuss HPV. Finally, reports in the literature have identified a lack of trust in health care providers among the Somali immigrant population and a resulting negative impact on discussions about HPV and HPV vaccination [21,22].

While trust in doctors has been established as a concern [21,22], Somali immigrants have also described health care providers as exerting positive influence on their health care decision making [26,27], including their decisions about HPV vaccination [24,28]. Provider knowledge and practices are known to influence HPV vaccination initiation and completion in the general population [29–31]. Greater provider knowledge about HPV vaccination has been shown to be associated with HPV vaccination uptake [32], whereas provider perception of parental barriers has led to lower uptake [32]. Common perceived barriers include lack of parental knowledge about immunization, perceived low risk, reluctance to discuss sexual activity, and feeling that their child is too young [32]. Providers have been described as using a broad range of strategies to engage parents, including providing little information about HPV as a way to avoid resistance [33]. The consistency and strength of provider recommendations concerning HPV vaccination has also been shown to influence vaccine uptake among adolescents [34].

The U.S. Centers for Disease Control and Prevention (CDC) vaccine tip sheet for providers offers information about HPV in general and emphasizes an authoritative approach by providers in advocating for vaccination [35]. However, some published research emphasizes a need to find ways to improve relationships and communication between providers and parents around the topic of HPV vaccination [29,36]. Some researchers have suggested that this approach will help to develop future interventions that foster shared values between parents and providers, as well as appropriate resources and strategies to address parental concerns [29].

There are indications of shifting attitudes in the Somali community toward cancer prevention activities, with younger people being more open to such activities than older community members [27], suggesting that younger adults may also be more open to HPV vaccination. Young people may have missed timely vaccination when their parents made the decision not to vaccinate, however, there is potential in offering this “catch-up” age group (18–26 years) the opportunity to receive HPV vaccination and benefit from the protection offered by the most recent vaccine [37–40]. Despite the potential importance of offering catch-up vaccination to this population, very little is known about how young Somali adults view HPV vaccination initiation and completion; in particular, the views of young men have not been examined to date. In this qualitative focus group study, we aimed to address this lack of

knowledge regarding the views of young Somali men and women on HPV vaccination and to further understand their experiences of interacting with providers about HPV and HPV vaccination.

## 2. Methods

### 2.1. Participants

Patients at a primary care clinic and a high school in an urban area of Minneapolis were approached, on the phone or in person, by a bilingual (Somali-English) community health worker and asked if they would be willing to participate in a focus group discussing HPV vaccination to help improve knowledge on this topic, and practice a local primary care clinic. Participants were eligible if they were Somali and between 18 and 26 years of age, and were not previously known to the researchers. The sample was obtained through a combination of purposive and snowball sampling. Non-participation was not tracked, as that can be challenging to accurately account with this combination of recruitment approaches in community settings. Four focus groups with a total of 34 participants (21 women and 12 men) were conducted. One group was mixed gender (4 women and 6 men), one all male ( $n = 6$ ), and two all female ( $n = 5$  and  $n = 13$ ). Participants were asked if they preferred to participate in a single- or Mixed-gender group and were assigned to focus groups accordingly. Three focus groups were conducted in a clinic, and one at a school. While most of the participants were fluent in English, a subset of more-recent immigrants to the United States were fluent only in Somali. To enable this subset to participate in the research, one focus group (one of the two all-female groups) was conducted in Somali. The other three were conducted in English. The groups took an average of 60 min to conduct.

### 2.2. Data collection

A semi-structured focus group guide was developed with input from the research team, which comprised of researchers, primary care providers, and bilingual Somali health professionals (one community health worker, and one nurse). The guide included questions about participants' experiences with immunization in general and their experience with the HPV vaccination in particular (see Table 1). The focus group facilitators were both female bilingual Somali health professionals, one being a community health worker (SM) and the other a nurse (NA), and they were the only members of the research team present during the focus groups. Both were experienced in conducting focus groups. Both provided brief field notes and participated in a focus group debrief with the lead qualitative analyst (RP). Due to the anticipated low level of knowledge about the HPV vaccination, the facilitators allowed time to pause and offer brief information about the HPV vaccination, and its role in cervical cancer prevention, part way through the focus group. This was done to support richer conversation on the views of the vaccine. Participants were asked to provide written informed consent for their participation and were compensated \$50 for their time.

### 2.3. Data analysis

The focus groups were audio recorded and then transcribed verbatim. One focus group was also translated by a professional translation service. The transcripts were not returned to participants. The qualitative data were analyzed using NVivo 11 [41]; two members of the research team double-coded the data to ensure consistency. The coders met to discuss and review the emerging themes. Differences in coding were resolved through reviewing the data

**Table 1**  
Focus Group Guide.

1. What was your experience of getting immunizations when you were younger?
2. What do you think when a doctor or medical providers recommends an immunizations?
3. How were the decisions made about which immunizations to get when you were a child?
4. One of the immunizations you would have been offered when you were younger was the HPV immunization. What do you know about the HPV immunization?
5. Who do you think should or shouldn't get the HPV immunization?  
We are now going to share some brief information with you about the HPV vaccine, and what it is for (share key facts about cervical cancer prevention, immunization guidelines, and cervical cancer rates).
6. What are your thoughts about the information you have just heard about the HPV vaccine?
7. Now you are over 18 years of age, you can get a free HPV immunization until you are 26 years of age. What would help you make a decision about if you were to get the immunization or not?
8. How would you like to receive information about HPV?
9. The Somali community has one of the lowest rates of HPV immunization in Minnesota. What might we do to help share information about HPV in the community?

and developing a consensus on the emergent themes. The research team used the social constructivist approach to identify themes and subthemes in the data, which allows for themes to emerge from the data, while acknowledging knowledge from the broader context of from clinical practice and the literature [42,43]. Discussions with members of the research team on the emerging analysis further validated the rigor of the qualitative analysis, through reviewing the emerging themes, including with bilingual Somali research team members. Study participants were not involved in the analytical process. Data saturation was not a goal of the analysis, rather the analysis focused on exploring a depth and breadth of experience among these participants.

#### 2.4. Human subjects

The study was approved by the University of Minnesota Institutional Review Board.

#### 2.5. Participants

Participants' mean age was 19.9 years. Twenty percent of participants were born in the United States. Half of the sample had received an HPV vaccination in the past; of those, 57% had completed the series. (Note that these participants would have been required to have a three-dose series when they were younger, as the guidelines for the two-dose series became effective only in 2016). Fifty-three percent of participants identified a primary care doctor whom they regularly saw. Demographic data for the study population is presented in Table 2.

### 3. Findings

Four main themes emerged from the focus group data: (1) the general experience of immunization, (2) experience with the HPV vaccination, (3) key factors that influence immunization, and (4) opportunities to improve low HPV vaccination rates. We present here a description of the participants, followed by a discussion of these main themes and their associated subthemes.

#### 3.1. General experience of immunization

##### 3.1.1. Experience of childhood vaccinations

Participants were asked to describe their experiences with childhood vaccinations. These experiences ranged from fear and hate to acceptance. Some participants recalled looking forward to getting shots because they were helpful in preventing some diseases. Most participants described always receiving the shots recommended for them as children. Some participants shared that they feared the shots would make them sick, while others described experiencing swelling, itchiness, or both after receiving

recommended childhood vaccinations. Some described experiencing pain when multiple shots were administered at one time. Many participants were familiar with flu and MMR vaccinations; most of the reported negative experiences related to the flu shot.

*For me, if I take the flu shot – it makes me sick. (Female Focus Group 1)*

##### 3.1.2. Limited knowledge

Many participants were unsure which vaccinations they had received during their childhood. Many had very limited knowledge about any of these common childhood vaccinations. Participants frequently confused vaccinations with shots or injections of medication they might have received when they were unwell. Some participants thought that shots should be given only to people who have the disease that the injection is intended to treat, not understanding that vaccinations are given for prevention purposes.

*I recognize the names, but – I understand, I heard some of them, but I don't know what they mean. (Male Focus Group)*

##### 3.1.3. Skepticism

Many participants expressed skepticism about the value of vaccination in general. Some felt that the idea that the serum contained part of the dead virus they were supposed to be protected from seemed counterintuitive and that receiving such a shot would be more likely to cause them to become unwell. Others simply didn't believe in the effectiveness of vaccination and felt that they were being told that vaccinations were good for them when their own feeling was that this was not the case.

*I believe that ... it doesn't do nothing. It's just people just want to put titles and labels to things and tell you what's good for you, and it's not. (Mixed Focus Group, Male)*

### 4. HPV immunization

Participants were asked to share their experiences with the HPV vaccination series and, in particular, their experience of recommendations to obtain the HPV vaccine. Some female participants had received the vaccination, although some were not sure what it was for. Some had started but not finished the series, although did not specifically share why they had not completed the series. Some shared that they had found the shot to be very painful. Many participants did not know what HPV was, and those that did know had minimal knowledge. Many comparisons were made between HPV and HIV. Some participants confused the two and were relieved to hear that HPV was less serious than HIV if treated. Some commented that the similarity between the acronyms added to their confusion. Some knew that the vaccine was offered during

**Table 2**  
Focus Group Participant Demographics.

	Group 1 (n = 10)	Group 2 (n = 6)	Group 3 (n = 5)	Group 4 (n = 13)	Total (n = 34)	Sig.
Gender						
Female	4 (40%)	0 (0.0%)	5 (100%)	13 (100%)	22 (64.7%)	<0.001
Male	6 (60%)	6 (100%)	0 (0.0%)	0 (0.0%)	12 (35.3%)	
Age (Mean, SD)	19.2 (1.48)	20.2 (1.72)	20.4 (1.67)	20.2 (1.2)	19.9 (1.46)	0.389
Born in the USA						
Yes	5 (50.0%)	0 (0%)	2 (40.0%)	0 (0%)	7 (20.6%)	0.009
No	5 (50.0%)	6 (100%)	3 (60.0%)	13 (100%)	27 (79.4%)	
Years in USA (Mean, SD)	8.80 (5.45)	13.3 (4.68)	13.7 (5.03)	2.95 (0.76) <sup>a</sup>	8.10 (5.93)	<0.001
Ethnic Background						
African American/Black	1 (10.0%)	0 (0%)	1 (20.0%)	1 (7.7%)	3 (8.8%)	0.798
Somali	8 (80.0%)	6 (100.0%)	4 (80.0%)	12 (92.3%)	30 (88.2%)	
Other (1 Oromo)	1 (10.0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Education						
Some primary or secondary school	1 (10.0%)	1 (16.7%)	0 (0%)	4 (33.3%)	6 (18.2%)	0.005
High School Grad or GED	2 (20.0%)	1 (16.7%)	1 (20.0%)	8 (66.7%)	12 (36.4%)	
Some college or technical school	7 (70.0%)	4 (66.7%)	3 (60.0%)	0 (0%)	14 (42.4%)	
College graduate	0 (0%)	0 (0%)	1 (20.0%)	0 (0%)	1 (3.0%)	
Ever received a HPV vaccine?						
Yes	4 (40.0%)	2 (50.0%)	4 (80.0%)	5 (45.5%)	15 (50.0%)	0.578
No	6 (60.0%)	2 (50.0%)	1 (20.0%)	6 (54.5%)	15 (50.0%)	
If yes, how many shots have you received?						
One	2 (50.0%)	0 (%)	1 (25.0%)	0 (%)	3 (21.4%)	0.210
Two	2 (50.0%)	0 (%)	0 (%)	1 (20.0%)	3 (21.4%)	
Three	0 (%)	1 (100%)	3 (75.0%)	4 (80.0%)	8 (57.1%)	
Do you plan to get an HPV vaccine in the next three months?						
No	3 (30.0%)	2 (33.3%)	3 (60.0%)	2 (16.7%)	10 (30.3%)	0.121
Yes	0 (0%)	0 (0%)	0 (0%)	4 (33.3%)	4 (12.1%)	
Maybe	7 (70.0%)	4 (66.7%)	2 (40.0%)	6 (50.0%)	19 (57.6%)	
Do you have a doctor you see regularly?						
No	4 (44.4%)	5 (83.3%)	3 (60.0%)	3 (25.0%)	15 (46.9%)	0.126
Yes	5 (55.6%)	1 (16.7%)	2 (40.0%)	9 (75.0%)	17 (53.1%)	

<sup>a</sup> For years in the USA, group 4 is significantly different from groups 2 and 3. It is not sig. different from group 1.

the early teenage years, while others thought it was mainly offered to pregnant women.

*“To me, this is the first-time hearing about both the disease and its immunization. So that is a new information.” (Female Focus Group 1)*

Participants were very interested in knowing more about HPV and asked many questions, including what HPV was, where it came from, how it differed from HIV, and how it could be contracted. As the discussion generated some shared understanding about HPV, some participants stated that cervical cancer was not a disease they had in their community and therefore the HPV vaccine was not relevant to them. Others talked about the need for increased openness and discussion about sex in their community, including talking about what it means to be sexually active prior to and after marriage.

*Somali people, when we get married, we don't check our partners out. We don't tell 'em, “Hey, go to the hospital. Check yourself. Give me a clean bill of health.” (Female Focus Group 2)*

## 5. Key influencing factors

Participants described three key factors that influenced their experience with vaccinations: culture, the value of autonomy and independence, and clinical care.

### 5.1. Culture

Participants shared how their experience of their culture influenced their views about HPV vaccination. When HPV was understood as disease that can be sexually transmitted, many

participants deemed it irrelevant to them, stating that the Somali community was mostly Muslim and did not engage in sexual activity before marriage. Some felt that the vaccination was beneficial only for those who were sexually active. The all-female focus groups included participants who described how Somali teens were not immune to societal pressures to engage in sexual activity. Some described a need for more conversations about safe sex and prevention of STDs and pregnancy, particularly in the female focus groups. The Mixed-gender focus group had a lively discussion, with some male participants suggesting to the female participants that the best prevention approach for women was abstinence, a view that did not emerge in the female or male only groups.

*Keep your legs closed, guys. (Mixed Focus Group, Male)*

The role of religion was described as influential, including the idea that some diseases, such as cervical cancer, were perceived as not affecting Muslims. Participants discussed a prevalent view in the Somali community that being Muslim would protect them from getting some diseases, including cervical cancer and HPV.

*“Also, if they hear about these diseases, they'll tell you: we are Muslims and these diseases don't happen to us.” (Female Focus Group 1)*

Some participants felt that their culture influenced the way they were offered vaccines, with some describing feelings of stigma in coming to the United States from a “third world” country in Africa. Some said that they felt as if they were the only ones required to get a multitude of shots when they were young because they came from Africa and were thought of as unhealthy or capable of spreading diseases.

*It's like, 'Oh, you came to America, so you have to take the shot because you never know when you're bringing stuff from Africa, so you have to give the shot. (Female Focus Group 1)*

## 5.2. Value of autonomy and independence

A major theme that arose in the focus groups was the importance of autonomy and independence as young adults making their own decisions about health and vaccinations. Many participants felt some resentment about having been in situations where they had been required to receive vaccinations, such as when required by immigration authorities or schools.

*So it's like schools require it. Like some schools you're not allowed to go to if you don't have your shots completed. (Mixed-Gender Focus Group)*

Participants were concerned that their parents, at the time they had been making decisions about vaccinations for them as children, had not been able to obtain all the information they needed from the doctor because they had to communicate through an interpreter. Some participants stated that their parents may not have had enough information to make the decision well, and may have followed doctors' recommendations due to a lack of knowledge. Some felt that their parents may have acted out of ignorance as new immigrants with limited knowledge and an inclination to defer to the doctor's authority.

*So the parents, I feel like, would inject their children to whatever the doctor said. (Female Focus Group 1)*

*I think our parents didn't know any better, so it was whatever the doctor said. It was the doctor's always right, so you got the shots. (Female Focus Group 1)*

Participants often described seeing themselves as able to make better decisions than their parents had, as they felt that they were better educated, better informed, and better positioned to disagree with doctors. Some also felt that their parents might have been influenced by their reliance on interpreters, and that the interpreters may not have always accurately shared what the doctor was saying or may have encouraged immunization without being well informed about it.

## 5.3. Clinical care

Participants recalled feeling that their parents usually followed recommendations from physicians, and therefore doctors were seen as having significant influence on the choice to receive vaccinations.

*All the doctors would say is, "Oh, it's good for you. It's this and that." And they just like hear that good part and they just be like, "Oh, okay. You take it. You have to take it." And as growing up, it was just like you have to take the shots and you wouldn't know what the shots were for, but you just knew you had to take it. (Mixed-Gender Focus Group)*

Participants described feelings of distrust, lack of explanation, and feeling forced by doctors to receive vaccinations. Many said that they felt doctors had an agenda, and not necessarily one that was in their best interest. Some felt that doctors treated them differently because of their African ethnicity. Participants felt that doctors aggressively promoted vaccinations and presented them as if they were mandatory. One participant explained how her mother sidestepped going to the hospital for checkups to avoid the doctor's consistent "suggestion" that her daughter get a particular shot. Another participant described taking on the

responsibility for bringing her siblings to medical appointments so she could ask more questions.

*I take my siblings to their doctor's appointment. I'm more likely to be like, "Why are we doing this? Is there alternative?" Compared to my parents, where it was just like, well, if the doctor said it, hurray, we're doing it. (Mixed-Gender Focus Group, Female)*

Participants stated that as young adults they did not like being told what to do, and would rather receive full explanations and be given the option to decide for themselves. Some participants felt that doctors did not actually explain to them the purpose of the shots they were receiving, but rather brushed over the topic by saying that the shots were good for patients and that children would get sick if they did not receive the shots. Participants said that this lack of explanation made them feel rushed and also made them worry that the doctor had skimmed over the details or used uncommon terminology as a way to "get one over" on the participants.

## 6. Opportunities to improve HPV immunization rates

Participants expressed a variety of ideas about the most effective methods to engage the Somali community and increase HPV immunization rates. Many mentioned advertisements in the form of flyers and pamphlets in both English and Somali. Reputable internet sites were another suggested avenue for obtaining information. Yet another prominent idea was to infuse information about HPV into the curriculum of school health classes and health fairs. Participants also wanted to learn what HPV is, how to prevent it, and what symptoms to look out for.

*"Oh, yeah. And use every platform as possible, wherever there's health fair, bring good awareness there. Just like this . . . make this talk happen. And use fliers, newspapers, even TV commercials, everything. Use every platform as possible." (Mixed-Gender Focus Group)*

Both young men and young women also expressed a need for parents and guardians in the Somali community to learn more about HPV in order to make better-informed decisions for their children. Participants said that if given the choice to receive a vaccination, they would consult family members before making a decision, demonstrating the importance of parental input to them even as young adults, despite their previous comments about parental ignorance. Participants suggested using community events and forums in community centers to provide information about HPV and HPV vaccination. Many felt that face-to-face outreach would be the most valuable. These interactions could be between a medical provider and patients; however, participants stressed the value of having someone from within their community, such as a Somali health care provider, involved in the communication effort. Participants' opinions differed as to the age and circumstances in which HPV vaccination should be introduced. Some said that the appropriate time was when a person became sexually active, others said at age 18 years, and many said that the appropriate time was when the patient could understand the information they were given and be properly informed about the vaccination.

## 7. Discussion

Addressing HPV vaccination is a topic of particular urgency in the Somali immigrant community, especially given the low rates of HPV vaccination [2] and high rates of cervical cancer within this community [3]. With immunization rates so low during

adolescence, there is an opportunity to target the young adult “catch-up” age group between 18 and 26 years of age. We have previously suggested that this age group may be more open to HPV immunization, as prior research in the Somali community identified a trend of younger people being more open than older community members to cancer prevention messages [27]. However, this initial research in the catch-up age group appears to identify the same reluctance and skepticism about vaccination that has been previously reported in studies of Somali parents, and that likely contributed to a recent measles outbreak in Minnesota [17–21]. Overall, the young adults in this study described quite negative experiences with vaccinations in general, including very limited knowledge about common vaccinations and suspicion concerning the effectiveness or value of immunization. These negative experiences and general skepticism about immunization also applied to the HPV vaccine.

Somali parents have been previously reported to have low levels of knowledge about the HPV vaccination [23], including some confusion between HPV and HIV due to the similarity of the acronyms [21,25], as well as concerns about the relevance of HPV vaccination to their community due to a perception of low risk [22]. In the current study, young Somali adults held similar views and also reported low knowledge, confusion between HPV and HIV, and a perception that HPV vaccination was not relevant to them as Muslims. However, some members of this sample, particularly participants in the two all-female focus groups, talked about changing attitudes to sex in their age group and a need for more access to sex education, even if that was controversial within the community.

Despite the similarities in findings between the current study involving Somali young people and prior research involving Somali parents, a clear theme emerged from our data regarding the importance and value of autonomy for this group of young people. Some clearly reacted negatively to situations where vaccinations had been required, feeling that the intervention had been forced upon them. Another perception was that vaccination requirements during immigration processes stemmed from negative stereotyping of people from African countries. These negative perceptions may be exacerbated by confusion between HIV and HPV. Additionally, this particular cohort of young people expressed low levels of trust in health care providers, perhaps at even higher levels than have been reported in studies of their parents' generation [21,22].

These findings indicate that current CDC recommendations to providers that emphasize the use of an authoritative approach to vaccine advocacy [35] may not resonate well with Somali young adults in the catch-up age group. Authoritative approaches may reinforce suspicions about providers having hidden agendas and may remind young people of earlier occasions when they received vaccinations without being given a choice, which may have caused resentment. These findings support the literature that suggests a need to improve relationships and communication between providers and patients in order to identify shared values and improve immunization rates [29,36]. This may be of particular importance for Somali young adults.

The values of autonomy and independence were also evident when focus group participants shared their views about how their parents had approached vaccinations. Although the views they expressed were consistent with those expressed in prior studies by members of their parents' generation, these young people sought to clearly distinguish themselves from their parents in their approach to HPV. They stated that they felt better informed, educated, and skilled than their parents in dealing with health care providers and in considering recommendations for vaccination. They stated the belief that their parents, as new immigrants, had been naive and unquestioning in accepting vaccinations, even though this belief contradicts the literature showing vaccination reluctance in Somali parents [23,22]. This suggests a disconnect

between what young adults perceive about their parent's views on vaccinations, and what parents themselves might believe as demonstrated in the literature.

The sensitivity to the perceived views of their parents signals a need for particular care and sensitivity in addressing HPV vaccination for this catch-up group that reinforces the value they place on autonomy. This may be challenging to achieve, however, as many of our focus group participants also described continuing to consult with their parents about vaccinations as young adults. However, it has been established that mothers who do not participate cervical cancer screening, may be particularly likely to have daughters who do not have HPV vaccination [44], indicating that there is value in addressing parent and child screening and vaccination concurrently. Finding a balance between engaging young adults both independently and in ways that allow for family involvement may be important for addressing HPV prevention in this Somali young adult population. Many of these barriers have been reflected in the general literature outlining barriers, including the concerns about discussing sex, trust in vaccines and lack of information [45]. This suggests that while there may need to be culturally specific tailoring to address HPV vaccination [45], there is also the potential to learn from commonalities across cultural groups and contexts.

Across the analysis there were very limited difference in responses between female and male participants, although our sample size limits our ability to fully consider differences based on gender. The one area where there was a clear difference was in the way sexual health was discussed. Male participants, particularly in a mixed gender setting, shared their views that abstinence would protect females from HPV. However, female participants talked about valuing and wishing for more general, helpful sex education information. This included fostering an openness in their community to talk more openly about sex. This suggests that there may need to be further consideration of how to address different attitudes to HPV vaccination based on gender within the community.

Despite all these challenges, focus group participants expressed high levels of interest in obtaining more information about HPV, as well as a clear preference for obtaining it from members of their own community. Participants' interest in being able to access a website that would provide comprehensive information about HPV and HPV vaccination points to a potentially valuable role for technology in the dissemination of information to this age group. Popular social media platforms could also act as a tool to spread HPV information to young people. However, participants also expressed a need for face-to-face gatherings in which these health issues could be addressed and in having health care professionals present to answer questions. However, the general literature suggests that educational interventions have had limited success to improving HPV vaccination [46–48], although there is limited literature on the impact of education interventions tailored to address specific cultural barriers [46]. This highlights the need to consider educational approaches alongside other barriers, such as improving trust in providers and addressing family based decision making dynamics.

### 7.1. Limitations

This study has several limitations. It is a qualitative study that represents only a small subset of members of the Somali community in Minnesota. The sample had higher vaccination completion rates (57%) than those for Somali adolescent patients at the clinic we recruited from (10%). This suggests that the sample may have been subject to self-selection bias, in that participants who were prepared to take part in the project may have been more willing to share their views on HPV immunization, and more open to vaccination, than those who chose not to participate. Additionally, the

Somali immigrant community is diverse, and a larger sample might present greater diversity of views and allow for subanalysis of differences by gender, age, and other key demographic variables.

## 8. Conclusion

An important opportunity exists to address low HPV immunization rates in the Somali American community by offering targeted vaccination to young adults. This age group is very interested in learning more about HPV and the HPV vaccine, but shares the same skepticism and lack of knowledge about HPV as their parents. Future interventions should focus on increasing opportunities for HPV vaccination in ways that respect the clear need for autonomy in this age group. Further research is needed to better understand how providers can best communicate with Somali young adults in ways that build trust and address common barriers.

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## Conflicts of interest

The authors have no conflicts of interest to declare.

## Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.vaccine.2019.03.006>.

## References

- [1] Hariri S, Markowitz LE, Dunne EF, Unger ER. Population impact of HPV vaccines: Summary of early evidence. *J Adolesc Health* 2013;53:679–82. <https://doi.org/10.1016/j.jadohealth.2013.09.018>.
- [2] Pruitt C, Reese C, Grossardt B, Shire A, Creedon D. Completion of the human papillomavirus vaccination series lags in Somali adolescents. *J Low Genit Tract Dis* 2014;17(3):280–8. <https://doi.org/10.1097/LGT.0b013e3182759a64>.
- [3] Jemal A, Bray F, Center MM, Ferlay J, Ward E, Forman D. Global cancer statistics. *CA Cancer J Clin* 2011;61:69–90. <https://doi.org/10.3322/caac.20107>.
- [4] Pavlish CL, Noor S, Brandt J. Somali immigrant women and the American health care system: discordant beliefs, divergent expectations, and silent worries. *Soc Sci Med* 2010;71:353–61. <https://doi.org/10.1016/j.socscimed.2010.04.010>.
- [5] Carroll J, Epstein R, Fiscella K, Volpe E, Diaz K, Omar S. Knowledge and beliefs about health promotion and preventive health care among Somali women in the United States. *Health Care Women Int* 2007;28:360–80. <https://doi.org/10.1080/07399330601179935>.
- [6] Al-Amoudi S, Cañas J, Hohl SD, Distelhorst SR, Thompson B. Breaking the silence: breast cancer knowledge and beliefs among Somali muslim women in seattle, Washington. *Health Care Women Int* 2013;36(5):608–16. <https://doi.org/10.1080/07399332.2013.857323>.
- [7] Bigby J, Ko LK, Johnson N, David MMA, Ferrer B. A community approach to addressing excess breast and cervical cancer mortality among women of African descent in Boston. *Public Health Rep* 2003;118:338–47.
- [8] Khaja K, Lay K, Boys S. Female circumcision: toward an inclusive practice of care. *Health Care Women Int* 2010;31:686–99. <https://doi.org/10.1080/07399332.2010.490313>.
- [9] Degni F, Suominen S, Essén B, El Ansari W, Vehviläinen-Julkunen K. Communication and cultural issues in providing reproductive health care to immigrant women: health care providers' experiences in meeting the needs of [corrected] Somali women living in Finland. *J Immigr Minor Health* 2012;14:330–43. <https://doi.org/10.1007/s10903-011-9465-6>.
- [10] Johnson CE, Ali SA, Shipp MP-L. Building community-based participatory research partnerships with a Somali refugee community. *Am J Prev Med* 2009;37:S230–6. <https://doi.org/10.1016/j.amepre.2009.09.036>.
- [11] Goldie SJ, Gaffikin L, Goldhaber-Fiebert JD, Gordillo-Tobar A, Levin C, Mahé C, et al. Cost-effectiveness of cervical-cancer screening in five developing countries. *N Engl J Med* 2005;353:2158–68. <https://doi.org/10.1056/NEJMsa044278>.
- [12] Peirson L, Fitzpatrick-Lewis D, Ciliska D, Warren R. Screening for cervical cancer: a systematic review and meta-analysis. *Syst Rev* 2013;2:35. <https://doi.org/10.1186/2046-4053-2-35>.
- [13] Preventive US. Services task force. Screening for breast cancer: U.S. preventive services task force recommendation statement. *Ann Intern Med* 2009;151:716. <https://doi.org/10.7326/0003-4819-151-10-200911170-00008>.
- [14] Jemal A, Simard EP, Dorell C, Noone AM, Markowitz LE, Kohler B, et al. Annual report to the nation on the status of cancer, 1975–2009, featuring the burden and trends in human papillomavirus (HPV)-associated cancers and HPV vaccination coverage levels. *J Natl Cancer Inst* 2013;105:175–201. <https://doi.org/10.1093/jnci/djs491>.
- [15] Gillison ML, Chaturvedi AK, Anderson WF, Fakhry C. Epidemiology of human papillomavirus-positive head and neck squamous cell carcinoma. *J Clin Oncol* 2015;33:3235–42. <https://doi.org/10.1200/JCO.2015.61.6995>.
- [16] Social Omar YS. Integration and the sense of hope among Somali Youth in Australia and the United States. *Bildhaan: Intl J Somali Stud* 2013;12(1):9.
- [17] Skull SA, Ngeow JYY, Hogg G, Biggs B-A. Incomplete immunity and missed vaccination opportunities in East African immigrants settling in Australia. *J Immigr Minor Heal* 2008;10:263–8. <https://doi.org/10.1007/s10903-007-9071-9>.
- [18] Ben Morrison T, Wieland ML, Cha SS, Rahman AS, Chaudhry R. Disparities in preventive health services among Somali immigrants and refugees. *J Immigr Minor Heal* 2012;14:968–74. <https://doi.org/10.1007/s10903-012-9632-4>.
- [19] Wolff ER, Madlon-Kay DJ. Childhood vaccine beliefs reported by Somali and non-Somali parents. *J Am Board Fam Med* 2014;27:458–64. <https://doi.org/10.3122/jabfm.2014.04.130275>.
- [20] NPR. Understanding the history behind communities vaccine. Fears 2017.
- [21] Dailey P, Krieger J. Communication and US-Somali Immigrant Human Papillomavirus (HPV) vaccine decision-making. *J Canc Educ* 2017;32:516. <https://doi.org/10.1007/s13187-015-0959-0>.
- [22] Salad J, Verdonk P, de Boer F, Abma TA. A Somali girl is Muslim and does not have premarital sex. Is vaccination really necessary? A qualitative study into the perceptions of Somali women in the Netherlands about the prevention of cervical cancer. *Int J Equity Health* 2015;14:68. <https://doi.org/10.1186/s12939-015-0198-3>.
- [23] Abakporo U, Hussein A, Begun J, Shippee T Knowledge. Beliefs and attitudes of Somali men in Olmsted county, Minnesota, US, on the human papillomavirus vaccine and cervical cancer screening. *J Immigrant Minority Health* 2018;20:1230. <https://doi.org/10.1007/s10903-017-0642-0>.
- [24] Allen EM, Lee HY, Pratt R, Vang H, Desai JR, Dube A, et al. Facilitators and barriers of cervical cancer screening and human papilloma virus vaccination among Somali refugee women in the United States: a qualitative analysis. *J Transcult Nurs* 2018. <https://doi.org/10.1177/1043659618796909>.
- [25] Dailey P. Communication, Somali culture and decision-making about the human papillomavirus (HPV) Vaccine. Ohio State University; 2013.
- [26] Pratt R, Mohamed S, Dirie W, Ahmed N, VanKeulen M, Ahmed H, et al. Views of Somali women and men on the use of faith-based messages promoting breast and cervical cancer screening for Somali women: a focus-group study. *BMC Public Health* 2017;17:270.
- [27] Raymond NC, Osman W, O'Brien JM, Ali N, Kia F, Mohamed F, et al. Culturally informed views on cancer screening: a qualitative research study of the differences between older and younger Somali immigrant women. *BMC Public Health* 2014;14:1188. <https://doi.org/10.1186/1471-2458-14-1188>.
- [28] McComb E, Ramsden V, Olatunbosun O, et al. Knowledge, attitudes and barriers to Human Papillomavirus (HPV) vaccine uptake among an immigrant and refugee catch-up group in a Western Canadian Province. *J Immigrant Minority Health* 2018. <https://doi.org/10.1007/s10903-018-0709-6>.
- [29] Henninger ML, McMullen CK, Firemark AJ, Naleway AL, Henriksen NB, Turcotte JA. User-centered design for developing interventions to improve clinician recommendation of human papillomavirus vaccination. *Perm J* 2017;21. <https://doi.org/10.7812/TPP16-191>.
- [30] Bonville CA, Domachowski JB, Cibula DA, Suryadevara M. Immunization attitudes and practices among family medicine providers. *Hum Vaccin Immunother* 2017;13:2646–53. <https://doi.org/10.1080/21645515.2017.1371380>.
- [31] Garbutt JM, Dodd S, Walling E, Lee AA, Kulka K, Lobb R. Theory-based development of an implementation intervention to increase HPV vaccination in pediatric primary care practices. *Implement Sci* 2018;13:45. <https://doi.org/10.1186/s13012-018-0729-6>.
- [32] Rutten LJE, St. Sauver JL, Beebe TJ, Wilson PM, Jacobson DJ, Fan C, et al. Clinician knowledge, clinician barriers, and perceived parental barriers regarding human papillomavirus vaccination: association with initiation and completion rates. *Vaccine* 2017;35:164–9. <https://doi.org/10.1016/j.vaccine.2016.11.012>.
- [33] Hughes CC, Jones AL, Feemster KA, Fiks AG. HPV vaccine decision making in pediatric primary care: a semi-structured interview study. *BMC Pediatr* 2011;11:74. <https://doi.org/10.1186/1471-2431-11-74>.
- [34] Finney Rutten LJ, St. Sauver JL, Beebe TJ, Wilson PM, Jacobson DJ, Fan C, et al. Association of both consistency and strength of self-reported clinician recommendation for HPV vaccination and HPV vaccine uptake among 11- to 12-year-old children. *Vaccine* 2017;35:6122–8. <https://doi.org/10.1016/j.vaccine.2017.09.056>.
- [35] CDC. Parents top questions about HPV Vaccine; 2016
- [36] Holman DM, Benard V, Roland KB, Watson M, Liddon N, Stokley S. Barriers to human papillomavirus vaccination among US adolescents. *JAMA Pediatr* 2014;168:76. <https://doi.org/10.1001/jamapediatrics.2013.2752>.

- [37] Chandra A, Mosher WD, Copen C, Sionean C. Sexual behavior, sexual attraction, and sexual identity in the United States: data from the 2006–2008 national survey of family growth. vol. 19; 2011. <https://doi.org/10.1007/978-94-007-5512-3>.
- [38] Dunne EF, Nielson CM, Stone KM, Markowitz LE, Giuliano AR. Prevalence of HPV infection among men: a systematic review of the literature. *J Infect Dis* 2006;194:1044–57. <https://doi.org/10.1086/507432>.
- [39] Joura EA, Giuliano AR, Iversen OE, Bouchard C, Mao C, Mehlsen J, et al. A 9-valent HPV vaccine against infection and intraepithelial neoplasia in women. *N Engl J Med* 2015;372:711–23. <https://doi.org/10.1056/NEJMoa1405044>.
- [40] Serrano B, Alemany L, Tous S, Bruni L, Clifford GM, Weiss T, et al. Potential impact of a nine-valent vaccine in human papillomavirus related cervical disease. *Infect Agent Cancer* 2012;7:38. <https://doi.org/10.1186/1750-9378-7-38>.
- [41] QSRIP. NVivo qualitative data analysis software. Version 10. QSR International Pty Ltd; 2012.
- [42] Charmaz K. Grounded theory. In: Smith J, Harre R, Van Langenhove L, editors. *Rethinking methods in psychology*. London: Sage Publications; 1995. p. 27–49.
- [43] Charmaz K. *Constructing grounded theory*. 2nd ed. London: Sage Publications; 2014. p. 416.
- [44] Spencer AM, Roberts SA, Brabin L, et al. Sociodemographic factors predicting mother's cervical screening and daughter's HPV vaccination uptake. *J Epidemiol Community Health* 2014;68:571–7.
- [45] Ferrer HB, Trotter C, Hickman M, et al. Barriers and facilitators to HPV vaccination of young women in high-income countries: a qualitative systematic review and evidence synthesis. *BMC Public Health* 2014;14:700.
- [46] Fu LY, Bonhomme LA, Cooper SC, et al. Educational interventions to increase HPV vaccination acceptance: a systematic review. *Vaccine* 2014;32:1901–20.
- [47] DiClemente RJ, Murray CC, Graham T, et al. Overcoming barriers to HPV vaccination: a randomized clinical trial of a culturally-tailored, media intervention among African American girls. *Hum Vaccin Immunother* 2015;11:2883–94.
- [48] Rickert VI, Auslander BA, Cox DS, et al. School-based HPV immunization of young adolescents: effects of two brief health interventions. *Hum Vaccin Immunother* 2015;11:315–21.