Original Article

Strategies for Improving Participation in Human Papillomavirus Vaccination Among Young Adults in the Capital of Iran: A Qualitative–Exploratory Study

Abstract

Background: Different strategies can promote healthy behaviors. Although the human papillomavirus (HPV) vaccine is very important due to its effect in reducing cervical cancer, the behavior of HPV vaccination is low among young adults in Iran. Therefore, this study aimed to determine strategies for improving HPV vaccination among young adults. **Methods:** The present study was conducted with a qualitative content analysis method. The participants were 30 health professionals and young adults in Tehran city who were selected using purposive and snowball sampling. The data were collected through semistructured interviews and analyzed by Graneheim and Lundman's approach. **Results:** In total, two categories were identified: (1) access to services: access to the vaccine, vaccine insurance coverage; (2) educational coverage: subgroup training, educational content, time for training, educational channels, education strategies, and educational conditions. **Conclusions:** This is the first study conducted to determine strategies for improving HPV vaccination in Iran. The policymakers and planners, schools, and health centers are recommended to use the strategies obtained from this study to increase HPV vaccine imports, as well as increase the community members' knowledge and acceptance of the HPV vaccine.

Keywords: *Human papillomavirus vaccine, qualitative research, strategy*

Soudabeh Yarmohammadi, Mohtasham Ghaffari[1], Parisa Mashayekhi[2], Ali Ramezankhani[3], Jamal Mirzaei[4]

School of Public Health and Safety, Shahid Beheshti University of Medical Sciences, Tehran, Iran, [1]Professor, Department of Public Health, Environmental and Occupational Hazards Control Research Centre, Shahid Beheshti University of Medical Sciences, Tehran, Iran, [2]Vaccination Department, Pasteur Institute of Iran, Tehran, Iran, [3]Department of Public Health, School of Public Health and Safety, Shahid Beheshti University of Medical Sciences, Tehran, Iran, [4]Infectious Disease Research Center, Aja University of medical sciences, Tehran, Iran

Address for correspondence:
Dr. Ali Ramezankhani, School of Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
E-mail: aramezankhani2018@gmail.com

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Introduction

The human papillomavirus (HPV) vaccine prevents infection with certain types of HPV that are associated with the development of cervical cancer and genital warts. The World Health Organization recommends vaccination for girls ages 9–13 (before sexual contact), and by 2014, 58 countries included HPV vaccination in the vaccination schedule.[1] In 2006, guidelines for HPV vaccination were recommended for girls and boys aged 11–12 years.[2] Despite the recommendations, in 2012, only 3.33% of women and 8.6% of men in the United States aged 13–17 years received all three recommended doses of the vaccine.[3]

In the study by Rashwan *et al*.,[4] 3.6% of students received the vaccine, which was very small compared to the study population. There can be several reasons for HPV vaccine nonuptake, including lack of knowledge, the misconception that there is no vaccine for men, concerns about the three-phase vaccine, pain or fear of the injection, cost, lack of insurance coverage, and stigma.[5] Although the Gardasil vaccine (against types 6, 11, 16, 18 of papillomavirus) is available in Iran, few people use this vaccine due to the community members' lack of knowledge about the vaccine availability in the country and HPV multidose vaccinations.[6] In a study by Khatibi *et al*.[7] in 2014, it was found that, given the estimated cost of HPV vaccination, this vaccine is not economically viable in Iran.

Therefore, strategies to increase public participation in HPV vaccination should be determined. One of the strategies was to provide vaccination in schools and pharmacies.[8] since 2008; 49 states have allowed youth and adult vaccinations in pharmacies.[9] Moreover, in Australia, the United Kingdom, and Portugal, which had school-based intervention programs, women received more than 80% or more of the vaccine.[10]

So far, no study has been conducted in Iran on the methods to increase participation in

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HPV vaccination among young adults. We selected ages 18–26 for this study. Because in Iran, the recommended age of the Gardasil vaccine which is from 9 to 14 years, is not prescribed and is injected at older ages.[11] Also, the prevalence of HPV in women is from 18 to 25 years old and decreases when they get older.[12] The purpose of this study was to investigate strategies to increase youth participation in HPV vaccination from the perspective of health professionals and youth adults.

Methods

Design, sample, and sampling

An exploratory qualitative study was conducted using in-person and face-to-face interviews with a health professional and young adult. This was also carried out using qualitative content analysis. Data were collected from January to May 2019 in Tehran city. Purposive sampling was used to select the participants from hospitals and by referring to specialists. The inclusion criteria included: (1) Tehran native young adult participant, (2) 18–26 years old, and (3) having information about HPV (both young adult participants and health professionals).

The exclusion criteria included unwillingness to participate and a low level of information. Most of the participants wanted to provide information in appropriate conditions. Therefore, the data were collected through individual interviews. Data collection was continued until data saturation with 30 participants (10 young adults and 20 health professionals) [Tables 1 and 2].

Procedure

First, the purpose, method, and potential benefits of the study were explained to the participants; then, interviews were conducted at separate hours in a quiet and private location in hospitals. The semistructured interview guide consisted of two parts, including demographic questions (age, sex, educational level, occupation, income, work experience, marital status) and questions related to obvious and hidden causes of strategies to increase HPV vaccination. After three interviews, the participants' opinions were used in the conclusion part of the interview guide and there were no significant changes in the interview guide. Each interview started with a key question (what should the health system do to increase people's participation in HPV vaccination? What solutions do you suggest to the health system?). Follow-up questions were also used (Can you explain more about that?).

First author conducted all the interviews and observed and recorded nonverbal activities during the discussions. Each interview lasted about 40–60 min. In the end, young adult participants were given the necessary education about HPV to thank them for their valuable time and interview.

Table 1: Demographic characteristics of young adults (*n*=10)

Variables	Group	Frequency (%)
Gender	Male	3 (30.0)
	Female	7 (70.0)
Education	Diploma and lower	3 (30.0)
	Academic	7 (70.0)
Employment status	Unemployed	4 (40.0)
	Nonemployee	2 (20.0)
	Employed	4 (40.0)
Marital status	Single	4 (40.0)
	Married	5 (50.0)
	Divorced	1 (10.0)
Income	Low	4 (40.0)
	Moderate	6 (60.0)
Age	Mean	Standard deviation
	25.10	3.14

Data analysis

Descriptive statistics were used for the young adult participants' demographic characteristics using SPSS16. For qualitative data, one researcher transcribed the interviews and another researcher confirmed the transcript. It was then MAXQDA 10 software was applied to support coding the interviews. The interviews were read by the first author several times and then coded, and the codes were reviewed and validated by two other researchers. In the next step, the codes were compared based on differences and similarities, based on them, subcategories were formed, Then, from the composition of the subcategories, the categories were formed. For enhancing the validity, we selected the participants with maximum diversity in their gender, age, education, marital status, and income to acquire a wide diversity of experiences of participants. To reinforce trustworthiness, interviews and basic coding by SY, PM, GM, and AR were verified, after completing the qualitative analysis; two researchers reviewed the results and discussed disagreements until a consensus was reached.

Ethical consideration

This study has been approved by the Ethics Committee of at the Neuroscience Research Center of Shahid Beheshti University of Medical Sciences with the code: IR.SBMU.PHNS.REC.1397.058. Informed written consent to record audio interviews was obtained from the participants.

Results

Participants characteristics

The age range of young adults was between 18 and 26 years, and their mean age was 25.10 ± 3.14. [Table 1]. Health professionals work experience was between 5 and 40 years and on average 20 years [Table 2]. In total, two categories were identified: (1) access to services: access to the vaccine and vaccine insurance coverage; 2) educational coverage: subgroup training, educational content, time for training, educational channels, education strategies, and educational conditions [Table 3].

Table 2: Demographic characteristics of health professionals (*n*=20)

Sex, age	Education	Occupation	Work experience
Female, 48	PhD of social physician	University professor	26
Male, 45	PhD of health psychology	University professor, physician	10
Male, 40	Dermatologist	Physician	31
Female, 31	PhD of clinical psychology	University professor	8
Male, 46	Masters of clinical psychology	University professor	18
Female, 55	PhD of pregnancy health	University professor, Researcher	24
Male, 40	PhD of pregnancy health	University professor, physician	25
Female, 49	PHD of pregnancy health	University professor, physician	26
Female, 46	Urology specialist	University professor, physician	20
Male, 37	Urology specialist	University professor, physician	10
Female, 58	PhD in health education and promotion	University professor	28
Female, 46	PhD in health education and promotion	University professor	21
Female, 36	PhD in health education and promotion	University professor	5
Male, 54	PhD in health education and promotion, physician	University professor, physician	26
Female, 33	Dermatologist specialist	Physician	10
Male, 64	Dermatologist specialist	University professor, physician	31
Female, 63	Obstetricians specialist	University professor, physician	28
Female, 60	Obstetricians specialist	University professor, physician	27
Female, 73	Infectious disease specialist	University professor, physician	40
Male, 66	Infectious disease specialist	University professor	34

Table 3: Themes, categories, subcategories, and codes related to strategies for improving participation in human papillomavirus vaccination among young adults

Categories	Subcategories	Example of codes
Access to services	Access to vaccines	Lack of HPV vaccine in the country
		Limited sales centers of HPV vaccines
		Expensive vaccines
	Vaccine insurance coverage	Compulsory vaccination
		Free vaccines
Educational coverage	Subgroup training	Education for young adults
		Education for parents
		Education for healthcare provider
	Educational content	Teaching sexual issues in accordance with culture
		Self-care training against sexually transmitted diseases
		Training for desensitization to vaccine uptake
	Time for training	Education about HPV and its vaccine before marriage
		Education about HPV and its vaccine in middle school and high school
	Educational channels	Education through radio and television
		Education through cyberspace
	Education strategies	Individual education
		Education through health education behavior change models
	Educational conditions	Compulsion in education
		Creating supportive environments for training

First strategy: Access to services

This category referred to two subcategories, including access to the vaccine and insurance coverage [Figure 1].

Insurance coverage

Participants stated that the high cost of the vaccine (every shot of the vaccine in Iran is 325,000 tomans, meaning that a complete vaccine series is 975,000 tomans) could be one of the barriers to its uptake in our society. Therefore, they made several suggestions. First, the HPV vaccine should be included in the national vaccination schedule, and second, the vaccine should be covered by insurance. Since the cost of HPV vaccine is also expensive for the country's health system. The health system can only vaccine uptake for free to high-risk people.

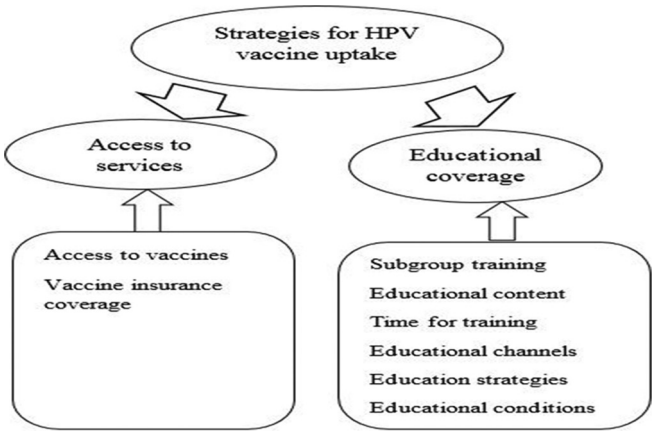

Figure 1: Strategies for improving young adult's participation in human papillomavirus vaccination

"Everyone has to be able to uptake the vaccine, and even there should be free vaccination." (psychologist, male, 45 years old).

Access to the vaccine

Participants said that because of the importance of the vaccine, different sections of society should have equal access to the vaccine. In our society, only the rich can buy the vaccine if they know about it, while the lower and middle income of society, who make the majority of our society, cannot have the vaccine uptake. Therefore, the import of this vaccine into the country should not only be done by the private sector but also by the public sector and should be fairly evenly distributed between health centers and pharmacies.

"The vaccine availability by the health system should be increased, for example, it should be sold in most pharmacies and if possible, inject the vaccine if possible." (psychologist, female, 48 years old).

It was also said in subsequent interviews that it is best to uptake this vaccine at school at certain ages.

"I think it is better HPV vaccination uptake in schools, which will make families not to oppose it." (young adult, 27 years old)

"The vaccine availability by the health system should be increased, for example, it should be sold in most pharmacies and if possible, the vaccine uptake if possible." (psychologist, male, 45 years old).

Second strategy: Educational coverage

This category referred to six subcategories. They are mentioned below [Figure 1]. The most important strategy mentioned by the participants was to educate different groups of people to raise awareness and sexual literacy in the community. According to the information obtained, the participants demanded a public educational process as follows.

Subgroup training

The participants believed that a variety of audiences, such as young adults, parents, physicians, and health care providers, need to be educated about HPV and its vaccines. In addition, health care providers should be trained in how to deal with people who have sexual problems.

"Unfortunately, in our society, the awareness about HPV and its vaccine is low in different strata. Even some of my colleagues are not familiar with HPV." (pregnancy health, female, 48 years old).

Educational content

Participants said that, in our society, due to the unfavorable cultural atmosphere, appropriate educational contents are not designed, and even if education is provided, it is taught very incomprehensibly, while clear training with videos and photos with full explanations will have a greater impact on young adults. Thus, the first step in this regard is to provide educational content about sexually transmitted diseases to normalize and desensitization talking about these issues.

"When we talk about this message, the HPV vaccine is important. Injecting this vaccine does not indicate that a person has high-risk relationships. We should normalize and desensitize this issue among the public." (psychologist, female, 31 years old).

Time for training

According to the participants, sexuality education at all stages of life should be provided. In our society, it is better to be educated about sexually transmitted diseases and ways to prevent them during adolescence and premarital counseling.

"In my opinion, education should be done in school. When students are exposed to high-risk behaviors, they can be made aware of sexual issues and their attitudes and behaviors can be changed." (urology specialist, female, 46 years old).

Educational channels

The participants believed that health professionals should provide education in mass media, such as television, which plays an essential role in informing people. First sex programs need to be shown on channels, such as health channels, and then slowly in popular channels. Also, advertising should also be carried out in rural and city health centers, and information has to be provided to the patients in clinics by physicians. In subsequent interviews, participants said that television is one of the educational channels, especially if the education about the importance of vaccines is provided indirectly in the form of movies and series. Therefore, film and serial producers should also be trained and their sensitization to the issue of vaccine should be considered by policymakers and health educators.

"Social media, radio, and television will play an important role in vaccine uptake." (dermatologist specialist, female, 33 years old)

"The doctor is very effective in uptake the vaccine. For example, you go for another illness. The doctor then gives you information about HPV or tells you, for example, this is a new disease, and you must do this to prevent it, and so on." (young adult, 25 years ago).

Also, the participants believed that the first step is that the community leaders, as well as celebrities, who are influential, including religious people, athletes, actors, should be aware of HPV and its vaccine, since they are a factor for the vaccine uptake.

"I believe that one of the good incentives for HPV vaccine uptake is celebrities, young adults are affected by the behavior of these people, it is better to use celebrities in our educational programs." (psychology, male 46 years ago).

Education strategies

The participants believed that because it is taboo to talk about sex, it is better to have individual education for young adults**.** There is no possibility of two-way communication in the media. Face-to-face education can be more effective. There are also many models of behavior change in health education. The most important of them are the health belief model and the transtheoretical model and other models that can motivate behavior change. It is advisable to develop materials on sexually transmitted diseases and their prevention based on these models.

"We discuss how social liberation in the transtheoretical model can affect other people, and also how the incentive control construct can increase the motivation to uptake the vaccine among people" (health education and promotion professional, female, 58 years ago).

Educational conditions

Education should take place in a way that information share continuously, and then acceptance and analysis of the contents should be done. It requires planning and compulsion. Regarding sensitive issues, such as sexually transmitted diseases, in education and of the other stages a supportive environment should be created based on health promotion principles.

"When we want to educate sensitive health information about sexually transmitted diseases, it should be borne in mind, from the planning to the training monitoring stage, the support of parents, professionals, and policymakers should be used." (pregnancy health, female, 49 years ago).

Discussion

This qualitative study was conducted with the aim of obtaining strategies to increase the participation of Iranian youth in vaccination. In the present study, the most important recommendations of young adults and health professionals for increasing vaccine uptake strategies are to educate different people to become familiar with HPV and HPV vaccine. By focusing on the education process, which includes the trainer, the learner, the conditions of education, the content of the education, the timing and channels of knowledge transfer and awareness, the proper training can be implemented.

In the present study, the participants preferably suggested the health professionals as trainers, since they are more reliable and knowledgeable. Moreover, the importance of the role of virtual networks and their impact on vaccine uptake can be an essential source of information for health care professionals. Various studies have also emphasized the role of physicians and the media in knowledge transfer.[13-15]

Given the culture of the society, it is difficult to talk about sex issues, especially sexually transmitted diseases. These issues are better to be educated individually. In a study by Yarmohammadi *et al*.,[16] it was believed to provide sex education individually.

Information should also be provided step-by-step from childhood to the elderly period, and there should be proper planning and compulsory education in sexually transmitted diseases. Health education models should also be used to change behavior in educational content design, such as the health belief model, planned behavior, and intention to behave. Unfortunately, in our society, because there is a concern that sex education and related diseases will lead to an increase in students' curiosity and sexual orientation, about sexually transmitted diseases education in schools and high schools, there are many limitations. Also, it makes one miss the best times that young people can be taught in the best place. In a study by Batista Ferrer *et al*.,[17] most female participants reported that they received the vaccine information through school and classrooms.

The learner could be teenagers, youth, parents, and health care professionals, educational content is designed for each one according to their knowledge and awareness, as well as the cultures and values of each country. Fontenot's[18] study showed that the family had a facilitating role in vaccine uptake and should be educated about HPV and the vaccine. In a study by Tissot *et al*.,[19] the participants generally agreed that written material should be provided separately for teenagers, youth, and parents. They also suggested that educational materials, including graphic images of HPV, are effective in emphasizing the infection for teenagers and youth.

Also, a number of participants emphasized compulsory vaccination and vaccine availability as strategies to increase vaccine uptake. Therefore, the government should cover the vaccine with insurance or add it to the vaccination schedule. The vaccine must also be produced domestically, which is sufficiently be available to the public. In a study by Patel *et al*.,[20] insurance appeared to be an essential factor in HPV vaccination intention as those who lacked

health insurance beyond services covered by the student health fee were significantly less likely to intend to undergo HPV uptake vaccination compared to those who had supplemental insurance.

Limitation and strengths

The young participants were only selected from Tehran city, which limited the findings. Future studies are required on more diverse samples and geographical areas (cities and villages) that enhance our understanding of appropriate strategies to increase participation in vaccination. Examining HPV vaccination strategies is the strength of this study, providing useful information about the cultural-fit recommended methods.

Conclusions

The findings provide important information into increasing participation in HPV vaccination among young adults. Removing barriers at the individual, social, and political levels is critical for improving HPV vaccination among the Iranian population. In Iran, HPV vaccination is rarely uptake. Its affordable price may increase young people's desire to get vaccinated against HPV-related cancer. HPV vaccination should also be included in the list of mandatory vaccines. Other strategies, such as increasing knowledge and awareness about HPV and its vaccine, are suggested to maximize the effectiveness of vaccination. It is important to increase HPV vaccination through community-based cultural and social education and through a variety of sources, including schools, hospitals, and social media.

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Conflicts of interest

There are no conflicts of interest.

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References

1. Human papillomavirus vaccines: WHO position paper, October 2014. Wkly Epidemiol Rec. 2014;89:465-91.
2. Markowitz LE, Dunne EF, Saraiya M, Chesson HW, Curtis CR, Gee J, *et al*. Human papillomavirus vaccination: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR Recomm Rep 2014;63:1-30.
3. Centers for Disease Control and Prevention (CDC). National and state vaccination coverage among adolescents aged 13-17 years--United States, 2012. MMWR Morb Mortal Wkly Rep 2013;62:685-93.
4. Rashwan HH, Saat NZNM, Manan DNA. Knowledge, attitude and practice of Malaysian medical and pharmacy students towards human papillomavirus vaccination. Asian Pac J Cancer Prev 2012;13:2279-83.
5. Fontenot HB, Fantasia HC, Vetters R, Zimet GD. Increasing HPV vaccination and eliminating barriers: Recommendations from young men who have sex with men. Vaccine 2016;34:6209-16.
6. Malakouti J, Mirghafourvand M, Gorbani M, Salehi Poormehr H, Pourasad Shahrak S, Jafari Shabiri M. Incidence of Human Papilloma Virus (HPV) infection and its relevant factors among women referring to Alzahra Therapeutic-Educational Center of Tabriz, September 2013 to March 2014. Iran J Obstet Gynecol Infertil 2016;18:16-22.
7. Khatibi M, Rasekh HR, Shahverdi Z. Cost-effectiveness evaluation of quadrivalent human papilloma virus vaccine for HPV-related disease in Iran. Iran J Pharm Res 2014;13(Suppl):225-34.
8. Brabin L, Roberts SA, Stretch R, Baxter D, Chambers G, Kitchener H, *et al*. Uptake of first two doses of human papillomavirus vaccine by adolescent schoolgirls in Manchester: Prospective cohort study. BMJ 2008;336:1056-8.
9. Rothholz MC, editor Pharmacists: Access to immunization services. Presentation to the 1st National Stakeholder Meeting: review of priorities in the National Vaccine Plan; 2008.
10. Kessels SJ, Marshall HS, Watson M, Braunack-Mayer AJ, Reuzel R, Tooher RL. Factors associated with HPV vaccine uptake in teenage girls: A systematic review. Vaccine 2012;30:3546-56.
11. Mohammad Pour F, Mnsouri A, Hadjibabaie M. Utilization evaluation of human papilloma virus vaccine (GARDASIL®) in Iran; a cross-sectional study. Iran J Pharm Res 2020;19:68-76.
12. Shafaghi B, Jarollahi A, Yousefzadeh B, Ameri A, Moghadam S, Mostafavi M. Human papilloma virus prevalence and types among Iranian women attending regular gynecological visits. Rep Radiother Oncol 2013;1:e2389.
13. Kwan TT, Chan KK, Yip AM, Tam K, Cheung AN, Lee P, *et al*. Barriers and facilitators to human papillomavirus vaccination among Chinese adolescent girls in Hong Kong: A qualitative–quantitative study. Sex Transm Infect 2008;84:227-32.
14. Haesebaert J, Lutringer-Magnin D, Kalecinski J, Barone G, Jacquard A-C, Régnier V, *et al*. French women's knowledge of and attitudes towards cervical cancer prevention and the acceptability of HPV vaccination among those with 14–18 year old daughters: A quantitative-qualitative study. BMC Public Health 2012;12:1034.
15. Cruz MRID, Tsark JAU, Chen JJ, Albright CL, Braun KL. Human papillomavirus (HPV) vaccination motivators, barriers, and brochure preferences among parents in multicultural Hawai 'i: A qualitative study. J Cancer Educ 2017;32:613-21.
16. Yarmohammadi S, Taheri G, Mousavi SS, Sheikhehpour M, Paykoub MH, Hashemian AH. The effect of education on knowledge, attitude and practice of patients with vaginitis. Adv Biol Res 2015;9:196-200.
17. Batista Ferrer H, Trotter CL, Hickman M, Audrey S. Barriers and facilitators to uptake of the school-based HPV vaccination programme in an ethnically diverse group of young women. J Public Health 2016;38:569-77.
18. Fontenot HB, Fantasia HC, Zimet GD. Increasing HPV vaccination and eliminating barriers: Recommendations from young men who have sex with men. J Adolesc Health 2017;60:S124-5.
19. Tissot AM, Zimet GD, Rosenthal SL, Bernstein DI, Wetzel C, Kahn JA. Effective strategies for HPV vaccine delivery: The views of pediatricians. J Adolesc Health 2007;41:119-25.
20. Patel DA, Zochowski M, Peterman S, Dempsey AF, Ernst S, Dalton VK. Human papillomavirus vaccine intent and uptake among female college students. J Am Coll Health 2012;60:151-61.