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SURVEYING CLINICAL ATTITUDES, PERCEPTIONS, AND THE EFFECT OF CULTURAL BARRIERS TOWARDS THE USAGE OF HUMAN PAPILLOMAVIRUS VACCINES IN DELHI-NCR

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ABSTRACT

While there exists a vast expanse of research in the West regarding public opinion and perception of preventative human papillomavirus (HPV) vaccinations, there is a large gap in surveying and present scholarship in two regards - firstly with respect to the attitudes, beliefs, and ideas of clinicians themselves towards the HPV vaccine's administration, and secondly a geographical void where there is an extreme lack of such study in the Indian context. This study involves the construction and administration of a simplified survey among a selected sample of 33 highly qualified doctors in the Delhi-NCR region, to test the perception and attitudes towards the HPV vaccine in India. The survey revealed that 61% of respondents always recommend the HPV vaccine, 15% of respondents would often recommend it, 18% of respondents sometimes recommend it and the remaining 6% rarely recommend it. 97% of the respondents in this study were women. While studying the role of cultural barriers in negatively affecting perceptions towards the vaccine, it was found that 85**%** believed there to be no presence of said barriers for the same. Ultimately, the research combines secondary research of existing studies in the United States and Europe, and juxtaposes the same with contextual study in a hospital's micro-environment in Delhi-NCR, keeping in mind the limitations of such a study.

Keywords: Human papillomavirus, Cultural barriers, Vaccines, WHO

INTRODUCTION

Human papilloma vaccines are vaccines that prevent infection by multiple types of human papillomavirus (World Health Organization, 2017). These vaccines reduce the risk of contracting cervical cancer by 70%, anal cancer by 80%, vaginal cancer by 60% and vulvar cancer by 40% (De Vyust, et al., 2009). They have also been found to prevent some types of mouth cancer (Thaxton & Taxman, 2012). Gardasil, a specific type of HPV reduces the risk of penile cancer (for men), genital warts and precancerous regions (CDC, 2010). This vaccine was first developed

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

in the University of Queensland, Australia and was approved for consumption by the Food and Drug Administration of the United States in 2006 (McNeil, 2006). More than 80 countries approved the prescription of this drug within months of it being legalized in the United States (Reuters, 2007). Papillomavirus vaccines reduce the risk of certain types of cancers by more than 50%. However, they do not completely eliminate the risk. Hence, individuals are recommended to continue using preventive measures and screening tests including the Papanicolau Test (Cutts, et al., 2007).

The World Health Organization recommends the usage of HPV vaccines in the regular vaccination programs conducted by countries, along with other preventive measures. These vaccines are recommended to be first administered in the pre-adolescent stage (typically between 9-13 years of age) and remain effective from a period of 5 to 10 years from administration (World Health Organization, 2017). These vaccines were believed to benefit people till the age of 25 but recent research suggests that all HPV vaccines remain effective upon administration till the age of 45 (Your Cancer Today, 2008). Even though the National Advisory Board on Immunization recommends HPV vaccination, it is yet to be implemented (Das, 2018). Any move aiming to mandate the HPV vaccine has been met with considerable opposition from religious and conservative groups in many countries including India (Gabriel & Denise, 2011).

HPV vaccines are not associated with any adverse or serious side effects (Arbyn, et al., 2018). Research shows that the usage of these vaccines does not reduce the willingness of people to take preventive measures or undergo screening tests (Moghtaderi & Dor, 2016). However, individuals with hypersensitivity to vaccine components like yeast are advised against taking HPV vaccines. People suffering from mild to acute illness are also advised against taking the vaccine until the improvement of their illness (FDA, 2017). Despite the existence of conclusive evidence for the success of this vaccine, its inclusion in the health policy is usually met with considerable opposition. This primarily stems from the social stigma around sex and misconceptions about the transmission of certain forms of cancer. Conservative and religious groups oppose this vaccine on the grounds of it providing false immunity against sexually transmitted diseases and hence leading to early sexual activity amongst adolescents (Gabriel & Denise, 2011). However, both of these claims have been disproven through research (Arkaitz, 2012).

LITERATURE REVIEW

The perception of HPV vaccines amongst clinicians can create barriers for individuals to access them. Opinions about the vaccine are not necessarily guided by empirical evidence of the success of the vaccine. Misconceptions about the vaccination and wrongful conclusions about its impact has often created wrongful perceptions within the medical community itself (Pandey, et al.,

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

2012) HPV vaccination typically occurs in medical settings and the recommendation from a clinician plays a central role in the individual's decision to receive the HPV vaccine (Guerry et al., 2011). Among those who have not received the HPV vaccine, the lack of recommendation to do so has been identified as a major reason for non-vaccination (Zimet et al., 2013).

A survey of 2500 gynecologists, oncologists and pediatricians was conducted in Canada to assess their knowledge, beliefs, and opinions about HPV infection, prevention and the use of HPV vaccine. It was revealed that 95% of respondents indicated that the vaccine should be given to girls before the onset of sexual activity and 80% of respondents felt that the most appropriate age for the administration of the HPV vaccination program is less than 14 years (Duval, et al., 2007). A survey conducted by Stanley, etl al., in 2018 to address the attitudes towards male HPV vaccination in male Gynecologists and Otolaryngologists at academic institutions. It revealed that 79% of the respondents recommended the usage of the HPV vaccine without any cut off age for vaccination. The primary reasons that were given by those who would not recommend the use of this vaccine was high personal costs and concerns about the safety of the vaccine (Stanley, et al., 2018). The taboo and stigma around sexuality is another reason why clinicians fail to recommend HPV vaccines. Clinicians have reported being uncomfortable in engaging in discussions regarding sexuality with their patients, especially those who are adolescents (Kahn et al, 2005; Schnatz et al., 2010). A study has also found that most failures to complete the HPV vaccine cycle occurs because of gaps in communication between the parents and the hospitals and doctors. Hesitation to engage in this discussion repeatedly was found to be a reason behind the lack of communication (Perkins, et al., 2016)

Research in the field of clinicians' perception of the HPV vaccine remains nascent in India. A survey of 641 medical students in India revealed that 76% of students who participated in the survey were aware of the availability of a vaccine against the cancerous HPV virus whereas 68% said that they would always recommend it. The majority of participants in that study also agreed that the most significant obstacle in the implementation of the HPV vaccine program in India is inadequate information (Pandey, et al., 2012). A survey conducted in 2008 amongst physicians in Mysore revealed that while most physicians expressed positive attitudes toward vaccination in general and HPV vaccination in particular, the majority believed that very few of their patients would react positively to a vaccine recommendation. Most of them were concerned about having discussions with parents about their adolescent daughters' sexuality and reproductive lives. Some even considered recommending such vaccinations 'inappropriate' for their workplace environment (Krupp, et al., 2010).

Research conducted in the west has signaled towards positive and increasing chances of getting a recommendation of HPV vaccines from researchers. However, the impact of 'traditional' culture

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

and the stigma around sexuality, especially of adolescents and women is much higher in developing nations like India. The media plays an important role in framing narratives around vaccinations of all types. Content analysis studies about the media's representation of these vaccines demonstrate that the media's perception has been extremely variable and inconsistent. Whilst there has been considerable support for this vaccine amongst some media outlets, HPV vaccines are often met with harsh criticism in the media. (Briones et al., 2012; Keelan et al., 2010). Unfortunately, it is often the most unrealistic and negative vaccine fears that frame central narratives and opinions amongst the public, which then tends to sensationalize the potential side effects of vaccination. These rumors become further exaggerated when the trickle down to adolescents (Brabin et al., 2009).

METHODOLOGY

The respondents of the survey consisted of 33 specialist doctors from a range of hospitals in New Delhi including Max Super Speciality Hospital, PSRI Hospital, Dr. Vikram's Clinic, Alaknanda Hospital, Nirmal Maternity and General Healthcare Center, Angel Clinic, Rainbow & Chikitsa Hospital, Fortis LaFemme, and the All India Institute of Medical Sciences (Ref Table 1). The interview consisted of 10 questions in English that were administered on paper and asked in-person to the doctors. (Ref. Annex. 1). Verbal consent from the respondents was obtained to use the responses in this research paper. 97% of the respondents (32/33) were female whereas 3% (1/33) were male (Ref. Table 1). The average age and median age of the respondents was 55 and 52 years respectively (Ref. Table 1.). 3% of the respondents were younger than 41 years (1/33), 39% were between the ages of 41 and 50 (13/33), 27% were between the ages of 51 and 60 (9/33), 24% were between the ages of 61 and 70 (8/33) and 6% were more than 70 years old (2/33).

Table 1

Participant's Characteristics	**Number of Participants (n=33)**	**Percentage**
1. Sex		

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

Male	1	3%
Female	32	97%
2. Age		
<40 years	1	3%
41-50 years	13	39%
51-60 years	9	27%
61-70 years	8	24%
>70 years	2	6%
3. Hospitals		
Max Multispeciality, New Delhi	10	30%
AIIMS, New Delhi	1	3%
Fortis La Femme, New Delhi	6	18%
Private Practitioners	10	30%

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

Angel Clinic, New Delhi	1	3%
PSRI Hospitals, New Delhi	1	3%
Dr. Vikram's Clinic	1	3%
Alaknanda Hospitals	1	3%
Rainbow Chikitsalay	1	3%
Nirmal Clinics	1	3%

SURVEY RESULTS

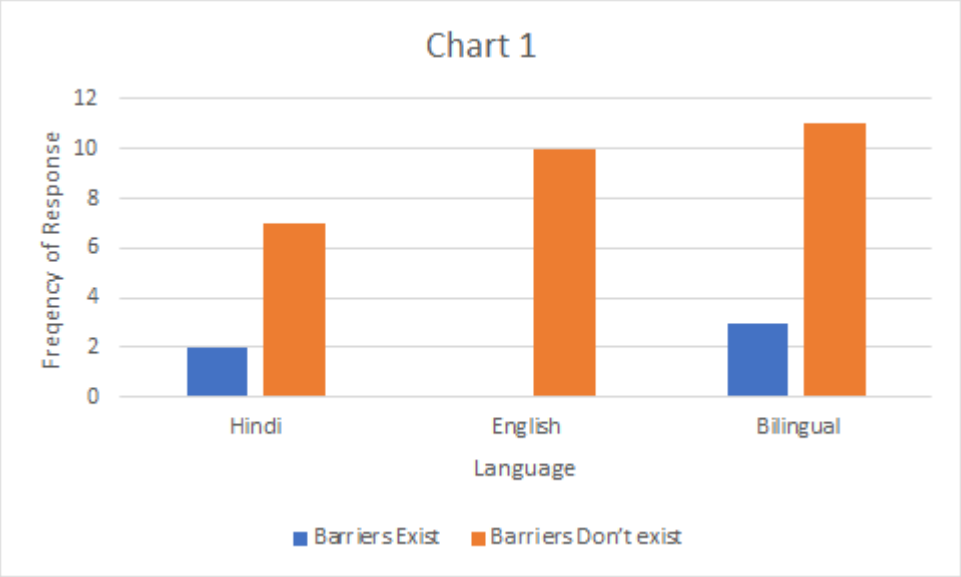
According to the survey, none of the respondents irrespective of their age, gender or language of communication believed that the virus had any serious side effects. A significant majority of the respondents (31/33) believed that the HPV vaccine should be first administered to children before they become sexually active.

Existence of cultural barriers that restrict access to the HPV Vaccine- 85% (28/33) of the respondents reported that they did not feel that a cultural barrier restricted access to the HPV vaccine, whilst only 15% (5/33) felt that they did. All doctors (10/10) who used English as a

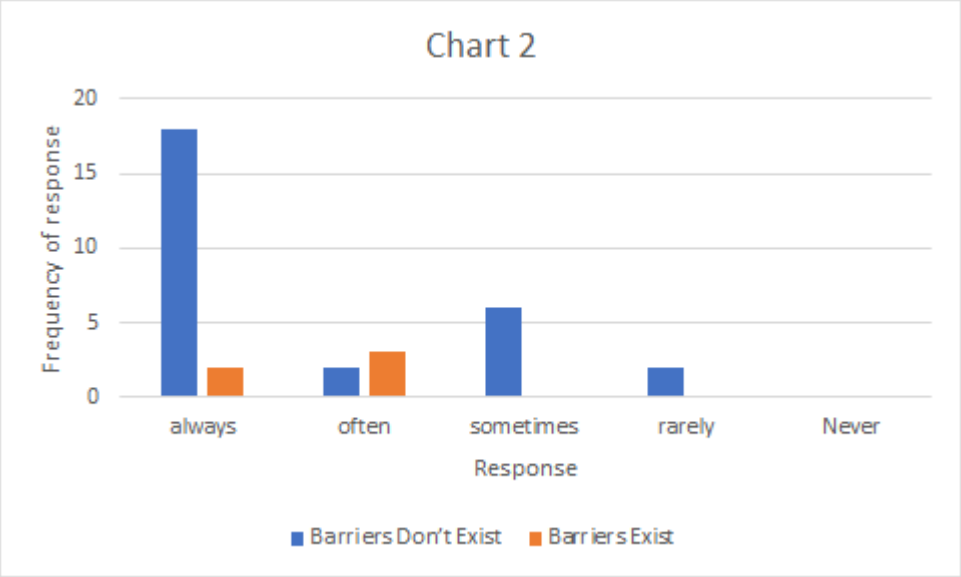
ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

medium for communication reported that there was no such barrier, whilst 78% of Bilingual (11/14) and Hindi Speaking (7/9) Doctors gave the same answer (Ref. Chart 1).



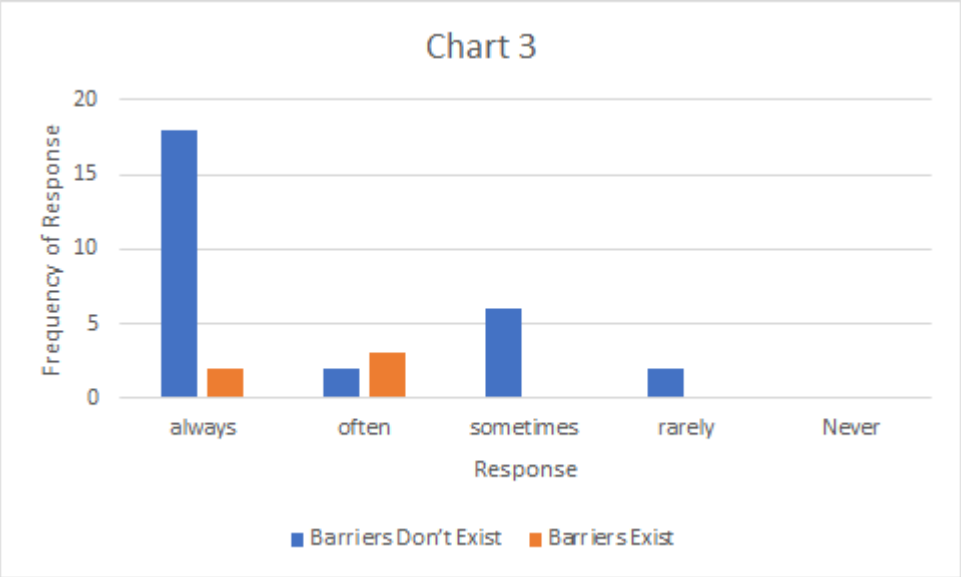
Recommendation of the HPV Vaccine- The clinicians showed a positive inclination towards recommending the HPV vaccine. It was reported that 61% (20/33) of respondents would always recommend the HPV vaccine, 15% (5/33) of respondents would often recommend it, 18% (6/33) of respondents sometimes recommend it and the remaining 6% (2/33) rarely recommend it. (Ref Chart 2.)



ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

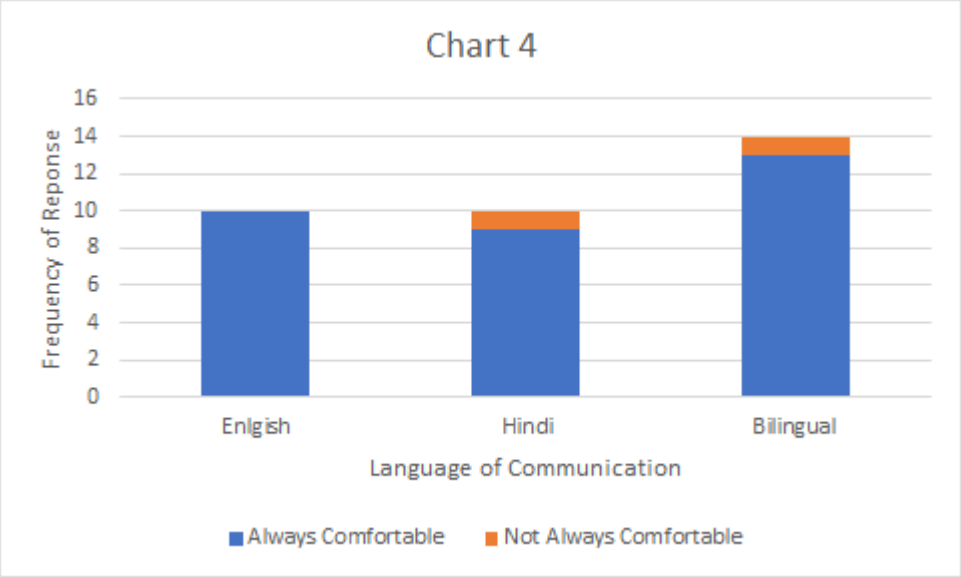
Impact of Perception of Cultural Barriers on Recommendation of the HPV Vaccine - The rates of recommendation from clinicians for the HPV virus vaccines remain high irrespective of their belief in the presence of cultural barriers that would otherwise restrict the access to the vaccine. 61% (17/28) of respondents who believed that cultural barriers did not restrict the access to the vaccine to parents always or often recommended the use of the vaccine, whilst the same figure stood at 100% (5/5) for the respondents who did believe that cultural barriers impacted access to the vaccine to parents (Ref. Chart 3).



Comfortability in Having Discussions about the HPV Vaccine with Parents - The data collected from the respondents reveals that irrespective of the language of communication, clinicians usually always feel comfortable talking about the HPV vaccine to parents. 100% (10/10) of clinicians who primarily communicate in English, 90% (9/10) of clinicians who primarily communicate with patients in Hindi and 93% (13/14) of clinicians who are bilingual reported that they do not usually feel any discomfort in having discussions about the HPV vaccination with parents (Chart 4).

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"



Impact of cultural barriers in discussions - The impact of cultural barriers in discussions about the HPV vaccine was also insignificant. Of the clinicians who felt that cultural barriers restricted the access of parents to the vaccine (5/33), 80% (4/5) of them reported that they always felt comfortable in discussing the HPV vaccine with parents while 20% (1/5) reported that they did not always feel comfortable doing the same (Ref. Table 2).

Table 2.

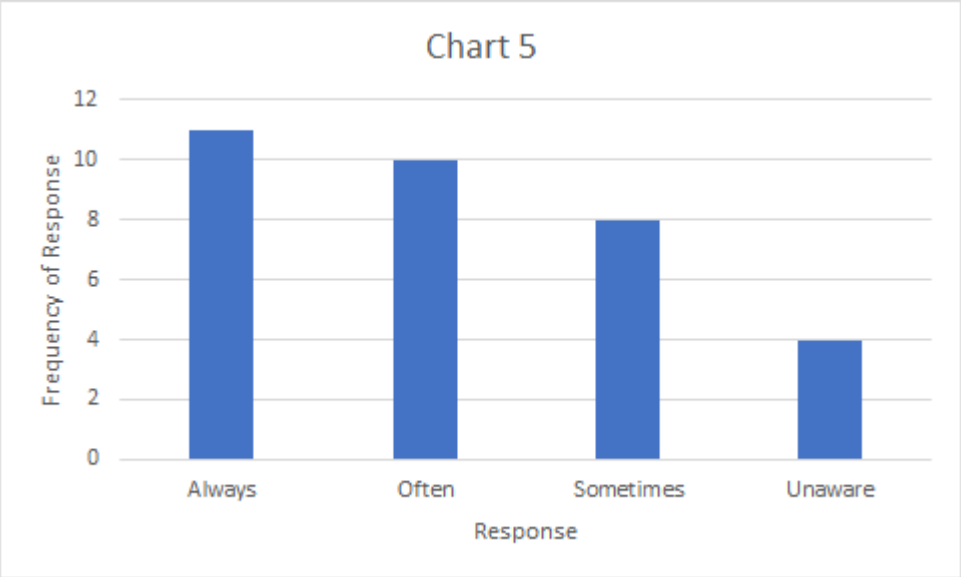
Felt that Cultural Barriers Impacted Access	
Always Comfortable	4
Not Always Comfortable	1

Colleagues' Perception of the HPV Vaccine - When asked about the perception of their colleagues of the HPV virus amongst their colleagues, 33% (11/33) of respondents believed that their colleagues always recommended the HPV vaccine, 30% (10/33) of them believed that their

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

colleagues often recommended it, 24% (8/33) of them believed that their colleagues sometimes recommended it whilst the remaining 12% (4/33) were unaware of their colleagues' views on the vaccine (Ref. Chart 5).



DISCUSSION

The results of this study show that there is an overall favorable attitude amongst clinicians towards HPV vaccination. None of the respondents believed that the HPV vaccine had any serious side effects, which is a reflection of their confidence in it. In line with studies in the west, the vaccine was also highly recommended by clinicians to parents (Ref. Chart 2). Similarly, the recommendations for the age of administration of this vaccine also remained consistent with previous research in this field (age before sexual activity). The respondents were also confident about the opinions of their colleagues about the HPV vaccine. Most of them believed that their colleagues always, often or sometimes recommended the HPV vaccine to parents (Ref. Chart 5). This goes on to show that the HPV vaccine is positively perceived by clinicians and is often recommended. Despite the presence of active opposition from conservative social organizations in India, the HPV vaccine remains extremely favorable in the medical community. However, the HPV vaccine remains absent from the Universal Immunization Program of India (Irigoyen, 2017). This reason for this is political and not medical. Governments tend to view conservative organizations including the Swadeshi Jagran Mach and The Rashtriya Swayamsevak Sangh as their primary vote banks and refuse to mandate the HPV vaccine at the cost of losing their support irrespective of its universal acceptability (Narayanan, 2018).

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

Previous research in this field indicated significant reluctance on the part of clinicians to engage in conversations with patients about the HPV vaccine (Kahn et al, 2005; Schnatz et al., 2010). However, a significant majority of the respondents in this study (31/33) reported that they did not feel uncomfortable in engaging in such conversations. The responses were equally favorable irrespective of the language of communication that clinicians generally used (Hindi, English or both) (Ref. Chart 4). The presence of cultural barriers also did not seem to impact the conversations around the HPV vaccine unlike previous studies (Perkins, et al., 2016). The effect that cultural barriers have on restricting access to the HPV vaccine remained significantly week. Only 15% of clinicians reported that such barriers impacted the willingness of parents to opt into HPV vaccination (Ref Chart 1). Findings also suggest that researchers feel more comfortable having conversations about the HPV vaccines despite the presence of cultural barriers contrary to the findings of previous surveys conducted in India (Krup, et al., 2010).

The primary reason for this difference in results could be a positive evolution of discourse around the HPV vaccine. Differences in the social, economic and cultural background of parents and clinicians also contribute to such differences in results. The clinicians surveyed in this research practice in economically affluent and socially progressive areas of the country unlike previous research conducted by Krupp, et al. in 2010 which could have contributed to differences in findings regarding the presence of cultural barriers and their ability to impact parents' decisions to opt into HPV vaccination programs.

LIMITATIONS

The perception of both parents and clinicians towards vaccination in general and the HPV vaccine, in particular, is guided to a great degree by their social, cultural and economic backgrounds. The respondents of this survey are employed in private practice in some of the most affluent localities and neighborhoods of India. This implies that the parents who seek their recommendations and consultations regarding illness in general and vaccination in particular also belong to similar localities and have similar socio-economic backgrounds. This explains the findings that point to a lower impact of cultural barriers on restricting access to the vaccination. These barriers are much stronger in less developed cities and areas of the country which are dependent on government hospitals for vaccination and consultancy. Those who lie at the top of the economic pyramid in India tend to have access to better education and socially progressive discourse (Kopf, 2017). These impact views on sexuality, women's healthcare, and vaccination. Neglect of women's healthcare, which is a major issue in rural and socially backward regions of India and impacts choices, attitudes and perceptions towards the HPV vaccination, especially for pre-adolescent girls is absent in more progressive and developed cities like those that have been included in this survey (Mennon, 2018). Caste is another social barrier that restricts the access of

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

a significant section of India's population to healthcare. Individuals belonging to the Scheduled Caste and Scheduled Tribe community are often denied healthcare at government hospitals. This research does not take into account the problem of caste and access to healthcare as well, as the clinicians surveyed as a part of this research practice in hospitals which are mostly located in economically affluent localities that are occupied by people who belong to the 'upper' or more privileged castes of the society (Tan, 2016). Lastly, this survey is skewed in terms of the gender of the respondents. Out of the 33 clinicians interviewed 32 were women. 'Male Privilege' guides how men differently perceive and develop opinions especially about gender and female sexuality that negatively impact women. This survey does not fully account for bias that male doctors might have towards HPV vaccine which would guide how frequently the vaccine would be recommended by them.

CONCLUSION

This research shows positive perceptions of the HPV vaccine amongst the medical community. The reduction in cultural barriers, even if it is for the economically affluent, is a sign of positive evolution of discourse around the vaccine. A decrease in social stigma around sexuality, increased emphasis on the healthcare of women, an increase in literacy and continuous research into the efficacy of the HPV vaccine that has generated positive results are responsible for this. This goes on to show that moves aimed at generating awareness and breaking myths around vaccination in general and the HPV vaccine, in particular, are successful in breaking cultural barriers and motivating parents to opt into vaccination programs. At present, due to the exclusion of the HPV vaccine from the Universal Immunization program in India, this level of awareness mostly exists in economically affluent and socially progressive parts of the country. However, with increased government intervention, there is a very high propensity of this discourse trickling down to the other regions of the country. Presently, unlike vaccines for Polio and Smallpox, the government does not subsidize or make the HPV vaccine freely available. The price of the HPV vaccine in the market is too high for a significant section of the population to subscribe to, even if they overcome cultural barriers to access (Menon, 2018).

The presence of multiple barriers blocks accesses to a vaccination that has been found to reduce the risk of a certain type of cancers by more than 50% for a significant section of the population (De Vyust, et al., 2009). The inclusion of the HPV vaccine in the Universal Immunization Programme can significantly improve access for a major part of the population. Vaccination drives conducted by the government as a part of the UIP are free, and hence completely eliminate economic costs. Awareness programs that form an integral part of the UIP will go a long way in reducing cultural barriers as well. The government should collaborate with grassroots NGOs at the local level to increase the impact and outreach of awareness campaigns

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

and vaccination drives in economically backward regions of the country. This would not only cause a decrease in the number of cancer patients (especially female cancer patients) but a healthier population adds to the economic productivity and growth of countries. Health is an asset that generates economic returns over time and vaccinations reduce the potential risk to one's health (Grossman, 1972). Increased rates of vaccination and reduced rates of illness also reduce economic costs on healthcare. Moreover, such a move will help advance narratives that promote healthcare for women in general.

There has been a gradual yet significant improvement in the recommendation of the HPV vaccine from doctors and acceptance from parents. However, these improvements remain restricted to the top of the socio-economic ladder. Collective efforts from the government, the medical community, and grassroots movements are required to improve the access that the most vulnerable communities to the HPV vaccine.

BIBLIOGRAPHY

Arbyn M., Xu L., Simoens C., Martin-Hirsch P.P. (May 2018). Prophylactic vaccination against human papillomaviruses to prevent cervical cancer and its precursors. *The Cochrane Database of Systematic Reviews*, Accessed on 14th July 2019 https://www.ncbi.nlm.nih.gov/pubmed/29740819

Arteaga, Arkaitz. (2012). The Shape and Structure of HPV. Accessed on 14th July 2019 http://hpv.emedtv.com/hpv-vaccine/hpv-vaccine-and-pregnancy.html

Brabin, L., Roberts, S.A., Stretch, R., et al. (2009). A survey of adolescent experiences of human papillomavirus vaccination in the Manchester study. Accessed on 17th July 2019 https://www.nature.com/articles/6605362

Briones, R., Nan, X., Waks, L. (2012). When vaccines go viral: an analysis of HPV vaccine. Accessed on 16th July 2019 https://www.tandfonline.com/doi/abs/10.1080/10410236.2011.610258

Centers for Disease Control Prevention (CDC) (2010). FDA licensure of quadrivalent human papillomavirus vaccine (HPV4, Gardasil) for use in males and guidance from the Advisory Committee on Immunization Practices. *Morbidity and Mortality Weekly Report*, Accessed on 13th July 2019 https://www.cdc.gov/mmwr/pdf/wk/mm5920.pdf

Cutts F.T., Franceschi S., Goldie S., Castellsague X., de Sanjose S., Garnett G., Edmunds W.J., Claeys P., Goldenthal K.L., Harper D.M., Markowitz L. (2007). "Human papillomavirus

and HPV vaccines: a review". *Bulletin of the World Health Organization,* Accessed on 13th July 2019 https://scielosp.org/scielo.php?script=sci_arttext&pid=S0042-96862007000900018&lng=en&nrm=iso

Das, M. (2018). Cervical Cancer Controversy in India. *The Lancet.* Accessed on 14th July 2019 https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(18)30018-4/fulltext

De Vuyst H, Clifford G.M., Nascimento M.C., Madeleine M.M., Franceschi S. (2009). Prevalence and type distribution of human papillomavirus in carcinoma and intraepithelial neoplasia of the vulva, vagina, and anus: a meta-analysis. *International Journal of Cancer*, Accessed on 14th July 2019 https://www.ncbi.nlm.nih.gov/pubmed/19115209

Duval, B., Gilca, V., McNeil, S., Dobson, S. (2007). Vaccination against human papillomavirus: A baseline survey of Canadian clinicians' knowledge, attitudes, and beliefs. Accessed on 15th July 2019 https://doi.org/10.1016/j.vaccine.2007.08.041

Food and Drug Administration. (2012). New Data Presented on GARDASIL, Merck's Cervical Cancer Vaccine, in Women Through Age 45. Accessed on 13th July 2019 https://web.archive.org/web/20071112010855/http://www.merck.com/newsroom/press_releases/product/2007_1105.html

Guerry, S.L., De Rosa, C.J., Markowitz, L.E., et al. (2011). Human papillomavirus vaccine initiation among adolescent girls in high-risk communities. Accessed on 15th July 2019 https://www.sciencedirect.com/science/article/pii/S0264410X11000910

Gabriel T., Denise G. "In Republican Race, a Heated Battle Over the HPV Vaccine. *New York Times,* 13th September 2011 https://web.archive.org/web/20170307110249/http://www.nytimes.com/2011/09/14/us/politics/republican-candidates-battle-over-hpv-vaccine.html?_r=0

Glaxo prepares to launch Cervarix after EU okay. *Reuters,* 24th September 2007 https://www.reuters.com/article/glaxo-cervarix/update-1-glaxo-prepares-to-launch-cervarix-after-eu-okay-idUSL2446805720070924

Grossman, M. (1972). On the Concept of Health Capital and the Demand for Health. *Journal of Political Economy,* Accessed on 12th June 2019 https://www.journals.uchicago.edu/doi/10.1086/259880

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

HPV Vaccine Update. *Your Cancer Today*, 30th July 2008 http://www.yourcancertoday.com/news/HPV-update.html

Irigoyen, Claudia. (2017). The Universal Immunization Programme in India. *Centre for Public Impact*, Accessed on 17th July 2019 https://www.centreforpublicimpact.org/case-study/universal-immunization-program-india/

Kahn, J.A., Zimet, G.D., Bernstein, D.I., et al. (2005). Pediatricians' intention to administer human papillomavirus vaccine: the role of practice characteristics, knowledge, and attitudes. Accessed on 16th July 2019 https://www.sciencedirect.com/science/article/abs/pii/S1054139X05003733

Keelan, J., Pavri, V., Balakrishnan, R., Wilson, K. (2010). An analysis of the Human Papilloma Virus vaccine debate on MySpace blogs. Accessed on 17th July 2019 https://www.sciencedirect.com/science/article/pii/S0264410X09018635

Kopf, Dan. (2017). Proof that India's growth mostly benefits India's rich. *Quartz*, Accessed on 17th July 2019 https://qz.com/india/916236/regional-inequality-is-increasing-in-india/

Krupp, K., Laura, A.V., Kielmann, K., Doddaiah, N., Mysore, S., Reingold, A.L., Madhivanan, P. (2010). Factors Associated With Intention-to-Recommend Human Papillomavirus Vaccination Among Physicians in Mysore, India. *Journal of Adolescent Health*, Accessed on 16th July 2019 https://www.sciencedirect.com/science/article/abs/pii/S1054139X09003802

McNeil C. (2006). Who invented the VLP cervical cancer vaccines?. *Journal of the National Cancer Institute*, Accessed on 13th July 2019 https://www.ncbi.nlm.nih.gov/pubmed/16595773

Menon, S. Women's Reproductive Health is the Most Neglected Thing in Our Society. *Huffington Post*, 14th March 2018 https://www.huffingtonpost.in/india-development-review/women-s-reproductive-health-is-the-most-neglected-thing-in-our-society_a_23385135/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAHRcqX7SHgw1Hkdr9Zl-zldy5IGNrHbclhwi52SryAYcjW9ALhX5MHVFtCNRNBQR7V_pye5L524cuhj7ce2L3pdcOhpvQXOdr1Bf3TovclFCY7YIFcoS9OCBh3xamqFyH-lyJujYVJAExSKQqXefRGYZX8iKO0Itxkq8yH19bV5Z

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

Moghtaderi, A., Dor, A. (2016). Immunization and Moral Hazard: The HPV Vaccine and Uptake of Cancer Screening". *National Bureau Economic Research,* Accessed on 13th July 2019 https://www.nber.org/papers/w22523.pdf

Narayanan, N. Efficacy, safety, cost: India's decade-old debate on the cervical cancer vaccine erupts again. *Scroll*, 17th January 2018 https://scroll.in/pulse/865284/efficacy-safety-cost-indias-decade-old-debate-on-the-cervical-cancer-vaccine-erupts-again

Pandey D., Vanya V., Bhagat S., Shetty J. (2012). Awareness and Attitude towards Human Papillomavirus (HPV) Vaccine among Medical Students in a Premier Medical School in India. Accessed on 16th July 2019 https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0040619

Perkins, R.B., Chigurupati, N.L., Apte, G., Clark J.A., et al. (2016). Why don't adolescents finish the HPV vaccine series? A qualitative study of parents and providers. *Human Vaccines and Immunotherapeutics,* Accessed on 17th July 2019 https://www.scopus.com/record/display.uri?eid=2-s2.0-84961211122&origin=inward&txGid=f33d1f34921c9834fa26d0960c121c6d

Schnatz, P.F., Humphrey, K., O'Sullivan, D.M. (2010). Assessment of the perceptions and administration of the human papillomavirus vaccine. Accessed on 16th July 2019 https://insights.ovid.com/crossref?an=00128360-201004000-00004

Stanley, Secter, M. Chauvin, S., Selk, A. (2018). HPV vaccination in male physicians: A survey of gynecologists and otolaryngology surgeons' attitudes towards vaccination in themselves and their patients. Accessed on 15th July 2019 https://reader.elsevier.com/reader/sd/pii/S240585211730071X?token=58E7400F89203644B326A837936ED21F14F96AE5E0BD8C1804DAC8FC03645B9C1A1895E11853AD950D2F2F39571261E4

Tan, S. (2016). India's Inequality in Healthcare: The Caste Divide. *Humanitarian Aid Relief Trust.* Accessed on 12th July 2019 https://www.hart-uk.org/blog/indias-inequality-in-healthcare-the-caste-divide/

Thaxton L., Waxman A.G. (2015). Cervical cancer prevention: immunization and screening 2015. *The Medical Clinics of North America,* Accessed on 14th July 2019 https://www.ncbi.nlm.nih.gov/pubmed/25841595

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

World Health Organization. (2017). Human papillomavirus vaccines: WHO position paper, May 2017. *Weekly Epidemiological Record,* Accessed on 14th July 2019 https://apps.who.int/iris/bitstream/handle/10665/255353/WER9219.pdf;jsessionid=5320F8F83989068A1F5229C1E9F324D0?sequence=1

Zimet, G.D., Rosberger Z., Fisher W.A., Perez S., Stupiansky, N.W. (2013). Beliefs, behaviors and HPV vaccine: Correcting the myths and the misinformation. Accessed on 15th July 2019 http://dx.doi.org/10.1016/j.ypmed.2013.05.013

Annexure 1 - Questionnaire and Results

Q1. What is your age?

Age	**Frequency of Response**
<40 years	1
41-50 years	13
51-60 years	9
61-70 years	8
>70 years	2

Q2. What is your gender?

Gender	**Frequency of Response**
Female	32
Male	1

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

Q3. How often do you recommend the HPV vaccine?

(always/ often/ sometimes/ rarely/ never)

Response	**Frequency of Response**
Always	20
Often	5
Sometimes	6
Rarely	2
Never	0

Q4. How often do you think your colleagues recommend the HPV vaccine?

(always/ often/ sometimes/ rarely/ never/ unaware)

Response	**Frequency Of Response**
Always	11
Often	10
Sometimes	8
Rarely	0
Never	0

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

Don't Know	4

Q5. Do you think there are significant side effects for the HPV vaccine?

(yes/no)

Response	**Frequency of Response**
Yes	0
No	33

Q6. What age do you think is appropriate to take the HPV vaccine?

Response	**Frequency of Response**
9 years	12
10 years	1
11 years	5
12 years	3
13 years	4
14 years	4

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

15 years and above	4

Q7. Do you feel comfortable talking to the patient's parents about the HPV vaccine?

(always/ often/ sometimes/ rarely/ never)

Reponse	**Frequency of Response**
always	28
often	3
sometimes	1
rarely	1
never	0

Q8. Do you feel cultural barriers impact access to the HPV vaccine?

(yes/no)

Response	**Frequency of Response**
Yes	5
No	28

ISSN: 2455-8834

Volume: 04, Issue: 11 "November 2019"

Q9. If yes, to what extent?

(strongly/ partly/ hardly)

Reponse	**Frequency of Response**
Strongly	3
Partly	2
Hardly	0

Q10. What is your primary language of patient communication?

(English/ Hindi?Both)

Response	**Frequency of Response**
English	10
Hindi	9
Both	13

