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Attitudes towards the children immunization at population level in Sheikh Maltoon Town, Mardan, KPK

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Abstract--Introduction: Vaccine is a substance used to stimulate the production of antibodies and provide immunity against one or several diseases, prepared from causative agent of disease, its products or a synthetic substitute, treated to act as an antigen without inducing the disease. In current world, vaccine is the most effective method of preventing infectious disease. It is also one of the cost effective method against high morbid diseases. Although despite its effectiveness, proper vaccination has not been achieved. This could be the result of defect in the any step in the conduction of vaccination of process but the most important factor affecting vaccination is attitudes of population towards immunization and different barriers for population for achieving proper vaccination. Our study is important because so far, there is no such study done in the setting of sheikh maltoon town, Mardan, KPK. Objectives: Our objectives were: 1) To determine the different attitudes of parents towards children immunization, 2) To determine different myths and beliefs regarding immunization.

Methodology: The study design used for the study was cross-sectional, conducted in the setting of sheikh maltoon town, mardan, kpk. The sampling method used was non-probability, convenient type, in which total of 125 people participated, all of age above 18 years. All the participants were the permanent residents of sheikh maltoon town, Mardan, KPK. The data was collected through both questionnaires and active interaction (interview). The data was recorded and analyzed on IBM SPSS 22. **Results:** The data collected from the permanent residents of sheikh maltoon town, Mardan, Kp, showed that out of 125 residents 119(95.2%) knew about vaccines and vaccination while 6(4.8%) had absolutely no idea about it. The data collected provided means for uncovering misbeliefs against vaccination in which out of 125 residents 10(8%) believed that vaccines contain expired products, 6(4.8%) believed that vaccines were from nonhalal sources, 2(1.6%) believed that vaccinations are secret agendas by enemy country, while 103(82.4%) have no such misbeliefs. **Conclusion:** It is concluded from our study that the overall attitude of the people toward children immunization is very optimistic and encouraging, with overwhelming majority believing in the effectiveness of vaccination in the prevention of diseases. Main barriers confronted by parents vaccinating their children are hard to memorize vaccination schedule and multiple shots of vaccination are recognized annoying and difficult to follow.

Keywords---Children Immunization, Population, Vaccine.

Introduction

Vaccine is a biological preparation that provides active acquired immunity to a particular disease. Administration of vaccines is called vaccination. The term vaccine and vaccination is derived from Variolae vaccinae (smallpox of the cow), the term devised by Edward Jenner to denote cowpox. A vaccine contains an agent that resembles a disease-causing microorganism and is often made from weakened or killed forms of the microbe, its toxins or one of its surface proteins. The agent stimulates body's immune system to recognize the agent as threat, destroy it and also to recognize any other organism which may encounter in future. Vaccines can be prophylactic (prevent) or therapeutic against cancer, example HPV vaccine.

Vaccination is the most effective method of preventing infectious diseases. This vaccination is largely responsible for the eradication of small pox and the restriction of diseases such as polio, measles and tetanus. The vaccines are proven effective in case of influenza vaccine, HPV vaccine and the chicken pox vaccine.

Limitations to their effectiveness, nevertheless, exist. These limitations can be external and internal depending upon the type of vaccine and the given conditions and circumstances.

External limitations can be further divided into two 1) limitations at supplier (government) level, 2) limitations at population level. The limitations at population level can be diverse, from cost of vaccine till the schedules of vaccine.

Literature Review

Qidwa.W et.al performed a research on the topic of knowledge, attitude and practice regarding immunization among family practice patients, which was published in Journal of Dow University of Health Sciences. The purpose of the study was to determine the knowledge, attitude and practices about immunization among family practice patients by questionnaire based survey. The data for study was collected from 97 patients, majority of which were men (59.8%) with a mean age of 29.69 years. Vaccination was believed to prevent diseases by 94%. Source about harmful vaccination was provided by friends and parents (80%). Hurdles against vaccination were lack of education and lack of funds according to 45% and 29% respectively. Immunization received against polio and hepatitis B was 89%, and 27% respectively, while immunization against hepatitis C and malaria according to 36% and 10% respectively. The study results have identified a strong need for education programs for the masses about immunization. (1)

Muhammad Ahmed Khan et.al performed a research on the topic of Polio immunization and awareness as a cross sectional study in Shangla and Swat districts, Pakistan from January to July 2014.(2) The purpose of study was to assess polio immunization coverage, awareness about polio and its vaccination, and to find reasons for polio vaccination refusals in districts Swat and Shangla with cross sectional descriptive based study by door to door survey of 800 families selected by random sampling from four different localities of these two districts. There were a total of 1775 children in age group 05 in the 800 households under study. The children who got vaccinated against polio were 1392 (78%). Out of the rest, 294 (16.5%) had not been vaccinated against polio and the parents of the remaining 89 (5%) did not remember whether vaccination against polio was done or not. The study results have concluded that Law and order situation, illiteracy and misperceptions about the vaccine should be addressed along with the capacity building of healthcare staff as soon as possible through sincere coordinated efforts for complete eradication of polio by all concerned institutions.

A cross-sectional research study was conducted by Shafiq Y, et.al. from the Department of Pediatrics and Child Health, Aga khan University, Karachi, Pakistan titled as "Knowledge, attitudes and practices related to tetanus toxoid vaccination in women of childbearing age: A Cross-sectional study in peri-urban settlements of Karachi, Pakistan". The study aimed at assessing knowledge, attitudes and practices related to tetanus toxoid (TT) vaccine in women of childbearing age. The results of the study are as follow: a total of 450 women participated, of which the largest proportion were married and non-pregnant (41%); over 50% of women had not received TT vaccine; 97% unmarried women were unvaccinated.

Non-vaccination predictors included: women aged less than 25 years without any formal education (adjusted odd ratio [OR], 2.1; confidence interval [CI], 1.0-4.4);;

lack of knowledge about free vaccination (adjusted OR, 4.0; 95% CI, 1.04-3.96); family non-supporting vaccination (adjusted OR, 5.7; 95% CI 2.3- 3.9); and husband/other family member deciding upon issues related to women's health (adjusted OR, 2.9; 95% CI, 1.3-6.6). The study concluded that low coverage of TT vaccine is largely influenced by poor knowledge, family structure and family decision-making in the local communities of Pakistan. (3)

Khan N et.al carried out a cross-sectional research study on the topic of "Effect of Institute and Educational Level on Knowledge, Attitude and Practice regarding Hepatitis A and C and vaccination of Hepatitis B among Medical Students of Karachi, Pakistan. The study was published in the Journal of the Dow University of Health Sciences on January 13, 2013. The purpose of the study was to determine the effects of type of college (private/public) and educational level (preclinical/clinical group) on the knowledge, attitude and practice regarding hepatitis B and C viruses, and vaccination status among medical students.

The results of the study are as follow: out of 1509 subjects surveyed, 937 (62.1%) were from public administered colleges and 794 (52.1%) were from clinical group. 85% of the respondents indicated that they were aware of the availability of vaccine for hepatitis B. Clinical group showed significantly higher percentage than preclinical. 57.1% of the students displayed excellent knowledge about the routes of spread of hepatitis B and C. Students of private colleges portrayed relatively better knowledge than public college students ($P < 0.0001$). 53.4% interviewees considered that a patient with hepatitis B should abandon the sexual contacts. About 71% of the respondents were found to be vaccinated with all 3 doses. The study established that students from private institutions and clinical group showed higher knowledge, better attitude and good practice related to hepatitis B and C viruses. (4)

Muhammad Naeem et.al performed a research on topic of barriers against children immunization under two years of age in Mohmand agency, Federally administrated Tribal Areas, which was published in journal of Saidu Medical College, 2018. The purpose of the study was to determine the barriers of immunization in children under 2 years of age by questionnaires based survey. The data for study was collected for 421 children under 2 years of age, out of which 287 (68.2%) were immunized and among this 102 (35.5%) were fully immunized, while the rest 134 were not immunized. Immunization rate of children among parents of 20-30 years age (22%) as compared below 20 years (2.4%) and above 40 years of age had high rate of non-immunization (27.8%). Immunization rate was (89.7%) vs 10.3%) in children's of parents having secondary school or higher education. Immunization rate in children of parents having income above 10000 Rs (93% vs 7%). Moreover the psychological fear of being attacked for immunizing was reported by 410 (97.4%) participants.

The study have identified a strong connection of immunization status of child with educational level and income of parents. In addition to this fear of being attacked for immunizing their children is an important barrier. So there is strong need for awareness of community and children. (5)

Ali et al performed a research on topic knowledge, attitude and barriers toward influenza vaccine of medical doctors and was published on frontiersin.org, 2018. This cross sectional study was done evaluate the knowledge, attitude and awareness of medical doctors towards influenza vaccine and the reason for not getting vaccinated and the data was collected by pre-tested questionnaire. A total of 300 doctors were invited out of which 215 participated among which 95.3% were male with a mean age of 28.67. Of the total sample 38(17.7%) received some kind of vaccine whereas 19(8.84%) were vaccinated against influenza. The major barriers were unfamiliarity with influenza vaccine (RII=0.83), unavailability (RII=0.634), cost (RII=0.608) and insufficient staff to administer (RII=0.589). Physicians obtained a high score of knowledge (8.27+_1.61) followed by Medical officers (8.06+_1.37). Males had a higher score (8.0+_1.39) than females (6.80+_1.61). Many of the doctors were not vaccinated despite the ACIP and CDC guidelines. There is a need for increasing awareness and implementing international guidelines relating to influenza vaccine.(6)

Mahnoor. Y at.al performed a research on the topic of knowledge attitude and barriers towards Human Papilloma Virus (HPV) vaccination. Among youths of Karachi, Pakistan which was published on crueus.com. The purpose of the study was to access the knowledge of HPV vaccination in Pakistan and to determine the barriers against it by questionnaire based survey. The data for study was collected from 400 people, out of which nearly 3 quarters were female (n=280, 70.0%) with the mean age of 22.1+_2.1 years. More than 2/3rd of the participants responded with correct answers with 91% (n=364 of participants correctly recognizing HPV's ability to infect both males and females. 73 of participant did not consider sexual contact as a route of transmission and more than 25 of the participants believed that HPV has not association with cervical cancer. Additional responder believe that HPV vaccine protected against breast cancer, anal cancer and valvar cancer and HIV. The study results have identified s strong need for awareness regarding HPC and its vaccine, thereby reducing barrier to HPV prevention.(7)

Amna a et al performed a research on the topic of awareness knowledge and coverage of vaccination against tetanus, diphtheria and pertussis. Among medical students of Karachi which was published on crueus.com. The cross sectional study was done to evaluate the awareness, knowledge and coverage of DPT3 vaccine and booster among medical students of public university in Karachi Pakistan and the data was collected by questionnaire. The data was collected from 281 students, out of which 2/3rd of the participants were female with only 29.4% males and with a mean age of 22.21 years. Only 93% participants received adult boosters. The assessment revealed that only 10.5% individual could be regarded as wellaware, 20.3% students as unaware and 69.2% participants as moderately aware. The study results have identified a need for enhancing knowledge and ensure strict adherence of students to appropriate vaccination programs.(8)

Jin-Won Noh et.al performed a research on the topic of Determinants of timeliness in early childhood vaccination among mothers with vaccination cards in Sindh province, Pakistan which was published in the British medical Journal. The purpose of this study was to assess the extent of timeliness of childhood

vaccinations and examine the determinants of vaccination timeliness by cross-sectional analysis of data. The data for study was collected from 1143 women who had a live birth in the last 2 years. 20.8% of children received all vaccinations on schedule among children who received a full set of basic vaccinations. The percentages of timely vaccinations ranged from 2.3% for second measles vaccination to 89.3% for bacillus Calmette-Guérin. Child's age and place of delivery were associated with timely vaccinations. Older child age and institutional delivery were associated with decreased timely vaccination rate. The study results have concluded that home based vaccination card is a key tool to improve timeliness of vaccination. There is need for renovations in these cards like tracking system to remind 2nd or 3rd visits may be helpful to improve timeliness of vaccination for children under 2 years of age. (9)

Muhammad Tahir Khan et al performed a research on the topic of Maternal education, empowerment, economic status and child polio vaccination uptake in Pakistan which was published in British Medical Journal. The purpose of the study was to explore the association of maternal education and empowerment with childhood polio vaccination using nationally representative data of Pakistani mothers in a reproductive age group by cross-sectional based study. The data for study was collected from 6982 mothers out of 13558 who were able to give information regarding polio vaccination. Only 56.4% of the children received complete polio vaccination. Women with no education had significantly higher odds of their child receiving no polio vaccination (OR 2.34) and incomplete vaccination (OR 1.40). Further, unemployed women also had significantly higher odds of not taking their child for any polio vaccination (OR 1.58) and incomplete vaccination (OR 1.18). The study results have concluded that illiteracy, socioeconomic status and empowerment of women remained significant factors linked to poorer uptake of routine polio vaccination. (10)

A national survey, regarding Barriers to the Use of Herpes Zoster Vaccine, funded by Centers of Disease Control and Prevention, was conducted from July to September 2008. The overall objective was to assess current vaccination practices, knowledge and practice regarding reimbursement, and barriers to vaccination among general internists and family medicine physicians. The participants for this study were General internists and family medicine physicians. Data was collected via Mail and Internet. Response rates were 72% in both specialties (301 general internists and 297 family medicine physicians). Physicians in both specialties reported similar methods for delivering vaccine, which included stocking and administering the vaccine in their offices (49%), referring patients to a pharmacy to purchase the vaccine and bring it back to the office for administration (36%), and referring patients to a pharmacy for vaccine administration (33%). Eighty-eight percent of providers recommend herpes z vaccine. (11)

The Vaccine Policy Collaborative Initiative in collaboration with Centers for Disease Control and Prevention conducted a study in order to assess U.S. Physicians' Perspective of Adult Vaccine Delivery. It was a Mail and Internet-based survey, conducted from March to June 2012, with the sole aim of assessing vaccination status and stocking recommended vaccines, barriers to vaccination, characteristics associated with reporting financial barriers to delivering vaccines,

and practices regarding vaccination by alternate vaccinators. The participants were General internists and family physicians throughout the United States. Vaccination rates in adults are low, even though more than 95% of Americans who die of vaccine-preventable disease each year are adults. General internists and family medicine physicians were surveyed about vaccine perceptions and practices. Response rates were 79% (352 of 443) for general internists and 62% (255 of 409) for family physicians. Twenty-nine percent of general internists and 32% of family physicians reported assessing vaccination status at every visit. A minority used immunization information systems (8% and 36%, respectively).

Almost all respondents reported assessing need for and stocking seasonal influenza; pneumococcal; tetanus and diphtheria; and tetanus, diphtheria, and acellular pertussis vaccines. However, fewer assessed and stocked other recommended vaccines. According to recent estimates (3, 4), only 62% and 65% of adults aged 65 years or older received a pneumococcal or influenza vaccine, respectively; only 20% of high-risk adults aged 19 to 64 years received a pneumococcal vaccine; and only 16% of adults aged 60 years or older received a herpes zoster vaccine. All of these percentages are well short of Healthy People 2020 goals the most commonly reported barriers were financial. Also in private practice setting, fewer than 5 providers in the practice and, for general internists only, having more patients, lack of insurance coverage for the vaccine (55% for general internists and 62% for family physicians) or inadequate reimbursement (36% and 41%, respectively) also posed a problem. Patients were most often referred to pharmacies/retail stores and public health departments. Improving adult vaccination delivery will require increased use of evidence-based methods for vaccination delivery and resolving financial barriers.(12)

A research study was carried out by Sonawane K. et al based in Houston Texas, published in journal *Jama Network Open* titled as 'Prevalence of Human Papilloma virus Infection by Number of Vaccine Doses among US Women'. The cross-sectional study analyzed National Health and Nutritional Examination Survey 2009 to 2016. The study aimed at investigating HPV infection prevalence among women by number of vaccine doses received. The results are as follows: The study sample included a total of 1620 women (mean [SE] age, 22.2 [0.1] years; 56.5% white), of whom 1004 were unvaccinated and 616 received at least 1 dose of HPV vaccine: 106 received 1 dose, 126 received 2 doses, and 384 received 3 doses. Compared with unvaccinated women (prevalence of 12.5% [95% CI, 9.7%-15.3%]), infection with HPV type 6, 11, 16, or 18 was significantly less prevalent among women who received 1 dose (2.4% [95% CI, 0%-4.9%]), 2 doses (5.1% [95% CI, 0.8%-9.5%]), or 3 doses (3.1% [95% CI, 0.9%-5.3%]) of HPV vaccine (Table 1). There was no significant difference in prevalence for 1 dose vs 2 doses or 1 dose vs 3 doses. Differences were not statistically significant for cross protection (except for 2 doses vs unvaccinated and 1 dose vs 2 doses) and other high-risk HPV types. The study is concluded as the US women who received 1 dose of HPV vaccine may have gained similar protection against vaccine type infection compared with those who received multiple doses.(13)

A research study was carried out by Verger. P et al published in the journal *The Lancet* volume 2, Issue 8, P891-7 titled as 'Vaccine Hesitancy among General Practitioners and its determinants During Controversies: A National Cross

Sectional Survey in France'. The purpose of the study was 1) Vaccine hesitancy prevalence among French GPs throughout frequency of their vaccine recommendations 2) Determinants of these recommendations. The results are as follows: 16% to 43% of GPs sometimes or never recommended at least one specific vaccine to their target patients. Multivariable logistic regressions of the dichotomized score showed that GPs recommended vaccines frequently when they felt comfortable explaining their benefits and risks to patients (OR = 1.87; 1.35–2.59), or trusted official sources of information highly (OR = 1.40; 1.01–1.93). They recommended vaccines infrequently when they considered that adverse effects were likely (OR = 0.71; 0.52–0.96) or doubted the vaccine's utility (OR = 0.21; 0.15–0.29). The study is concluded that after repeated vaccine controversies in France, some VH exists among French GPs, whose recommendation behaviors depend on their trust in authorities, their perception of the utility and risks of vaccines, and their comfort in explaining them. Further research is needed to confirm these results among health care workers in other countries.(14)

Jin-Won Noh et.al performed a research on the topic of Determinants of timeliness in early childhood vaccination among mothers with vaccination cards in Sindh province, Pakistan which was published in the British medical Journal. The purpose of this study was to assess the extent of timeliness of childhood vaccinations and examine the determinants of vaccination timeliness by cross-sectional analysis of data. The data for study was collected from 1143 women who had a live birth in the last 2 years. 20.8% of children received all vaccinations on schedule among children who received a full set of basic vaccinations. The percentages of timely vaccinations ranged from 2.3% for second measles vaccination to 89.3% for bacillus Calmette-Guérin. Child's age and place of delivery were associated with timely vaccinations. Older child age and institutional delivery were associated with decreased timely vaccination rate. The study results have concluded that home based vaccination card is a key tool to improve timeliness of vaccination. There is need for renovations in these cards like tracking system to remind 2nd or 3rd visits may be helpful to improve timeliness of vaccination for children under 2 years of age.(15)

Muhammad Tahir khan et.al performed a research on the topic of Maternal education, empowerment, economic status and child polio vaccination uptake in Pakistan which was published in British medical Journal. The purpose of the study was to explore the association of maternal education and empowerment with childhood polio vaccination using nationally representative data of Pakistani mothers in a reproductive age group by cross-sectional based study. The data for study was collected from 6982 mothers out of 13558 who were able to give information regarding polio vaccination. Only 56.4% of the children received complete polio vaccination. Women with no education had significantly higher odds of their child receiving no polio vaccination (OR 2.34) and incomplete vaccination (OR 1.40) Further, unemployed women also had significantly higher odds of not taking their child for any polio vaccination (OR 1.58) and incomplete vaccination (OR 1.18). The study results have concluded that illiteracy, socioeconomic status and empowerment of women remained significant factors linked to poorer uptake of routine polio vaccination.(16)

Objectives of the Study

- To determine the different attitudes towards children immunization.
- To determine the different myths and beliefs about immunization.

Rationale of the study

- This type of study has never been done before in this setting of sheikh Maltoon town, Mardan, KPK.
- This study will also show us the different attitudes of people regarding immunization, as attitude of population is the basic factor affecting the progression of any sort of campaign.
- This study will help us to eliminate different rumors, myths and beliefs which present a big hurdle in the vaccination of children.

Methodology

Settings

This study was conducted in the settings of Shiekh Maltoon, Mardan, Kpk, Pakistan. This town is well structured and is located near to different institutes such as Mardan Medical complex, and thus provides perfect location for the attitudes of people living near the periphery of hospitals and other health centers.

Study Design and Population

Study design chosen for this study is Cross Sectional descriptive type and the population chosen for this study design was general population of sheikh malton, Mardan, Kp, Pakistan.

Sample Size

Sample Size for this study was 125 which was calculated through following formulas.

Confidence level (z) = 95% (1.96)

Margin of Error = 4.1%

Population proportion = 65% (p)

Sampling Formula

$$\text{population: } n = \frac{z^2 \times \hat{p}(1-\hat{p})}{\epsilon^2}$$

$$n = \{(1.96)^2 * (.94) (1-0.94)\} / (0.0416)^2$$

$$n = \{(3.8416) * (0.94) (0.06)\} / (0.001703)$$

$$n = (3.8416) * (0.0564) / (0.001703)$$

$$n = 0.216 / 0.001703$$

$$n = 125$$

Sampling Technique

Sampling technique used for this study was Convenient Sampling. According to this Sampling technique individuals were chosen in the sheikh maltoon town randomly based on convenience of approach and interaction.

Selection criteria:

- ***Inclusion criteria:***
Permanent residents of Shiekh Maltoon, Mardan, Kpk.
Adult's whose age was of equal or more than 18 years can be representative of his family.
- ***Exclusion criteria:***
Residents living outside of the setting.
Hostilities of any institute living in the area.

Data collection

Data was collected through a properly designed questionnaire containing questions which fully covered the objectives. The questionnaire was filled by participants themselves and by the investigators after conducting a short interactive section with them.

Data analysis

Data was entered and analyzed through IBM SPSS 22. The data of qualitative variables is represented through frequencies, percentages and bar and pie charts.

Ethical consideration

- Informed consent was taken from the participants.
- Their identity was kept confidential.
- The data was collected and analyzed only for research purposes.

Duration of research

From January 2022 to March 2023.

Results

Gender

We have collected data from 125 inhabitants of sheikh maltoon town, Mardan. Out of 125 participants 103(82.4%) were male while 22(17.6%) were females. The table 1 is shown as;

Table 1

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
	Male	103	82.4	82.4	82.4
	Female	22	17.6	17.6	100.0
	Total	125	100.0	100.0	

Vaccination awareness

Out of 125 participants 119(95.2%) knew about vaccine while 6 (4.8%) had no idea about vaccine. The data is represented by the below given table and pie chart.

Table 2

Vaccine					
		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	119	95.2	95.2	95.2
	NO	6	4.8	4.8	100.0
	Total	125	100.0	100.0	

Figure 1 Vaccination awareness

Source of information

Regarding vaccination, the bulk of information about vaccination for different people comes from the following different sources. Doctors contribute to 39 (31.2%), social media to 14 (11.2%), Vaccine programs to 36 (28.8%) and other people to 11(8.8%) of information about vaccine to the population of sheikh maltoon town, mardan, KPK. Besides these some of people get their information from the multiple sources mentioned above and some of them have non-specific source. The same data is also represented in Bar chart for convenience;

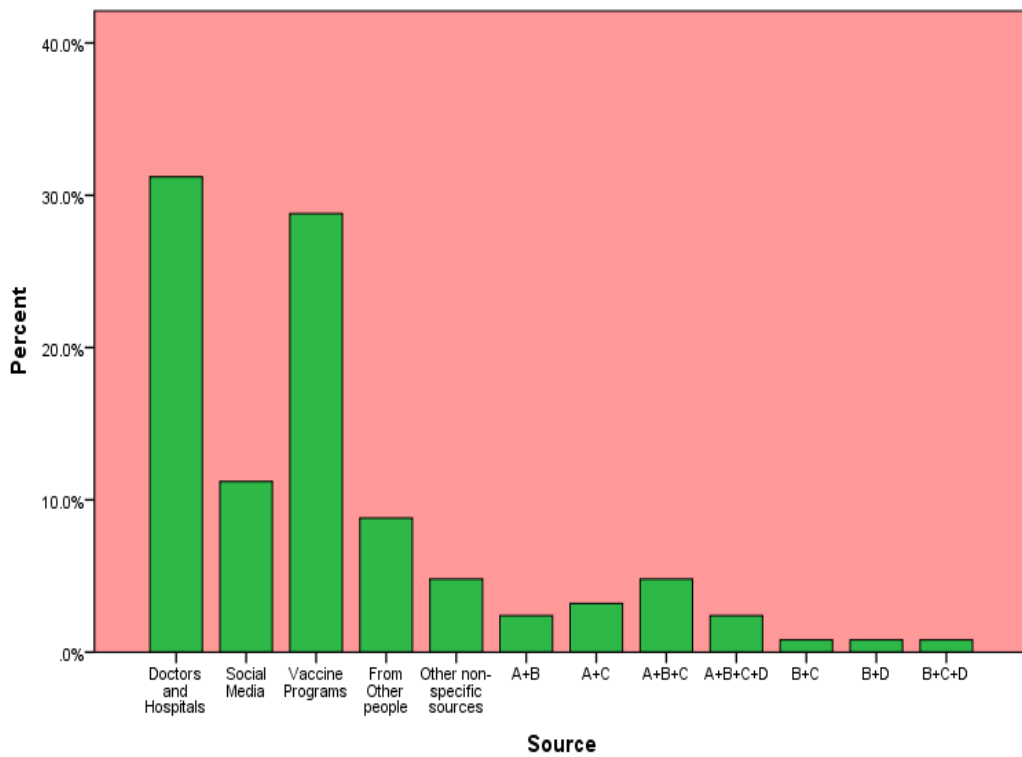


Figure 2. Source of vaccine

Belief about vaccination

Out of 125 people 92(73.6%) people believe that vaccines are helpful in prevention of disease, 2(1.6%) believe that there are other better ways to prevent diseases than vaccination, 3 (2.4%) believes that vaccines can exaggerate some diseases, 3(2.4%) believes that vaccines are useless and ineffective while 12(9.6%) had no idea about the vaccine. Some of the multiple responses were also obtained which are mentioned in the given table below.

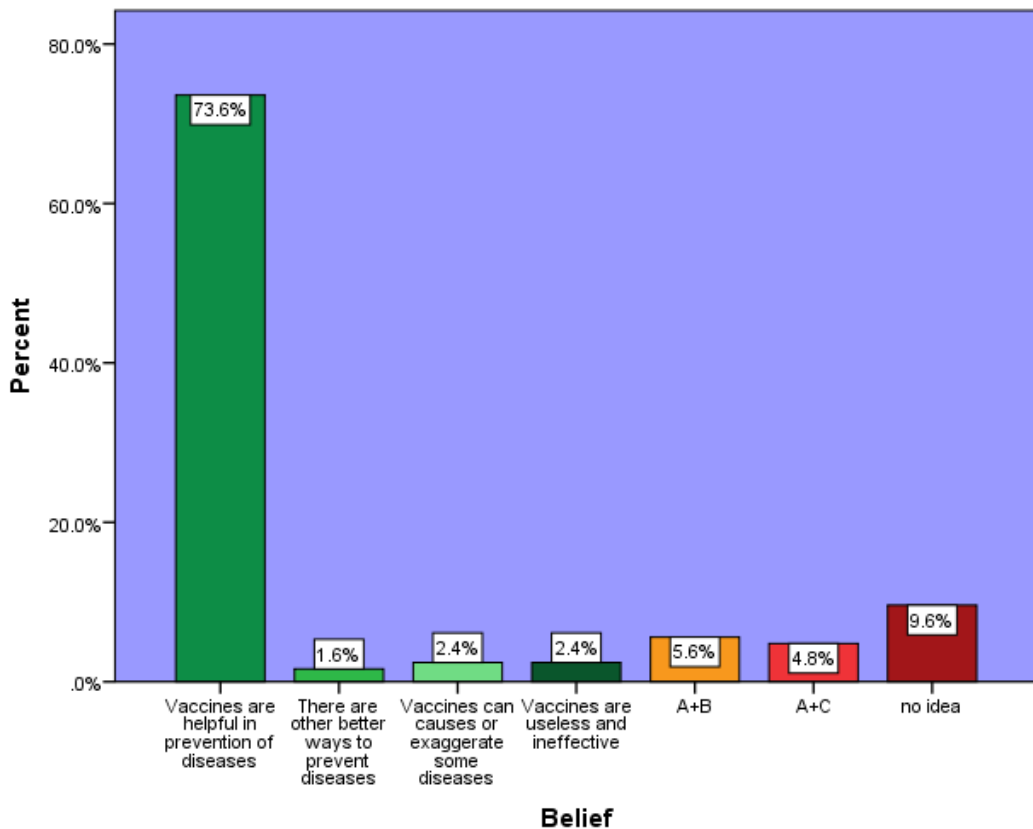


Figure 4. Distribution according to different belief among people

Misbeliefs regarding vaccine

Regarding Misbeliefs about vaccination, out of 125 participants 10(8%) says that vaccine contains expired products, 6(4.8%) says that vaccine are from non-halal source, 2(1.6%) thinks that vaccine are secret agenda by enemy countries while 103 (82.4%) believes in no such misconception. The data is described in Bar chart given below.

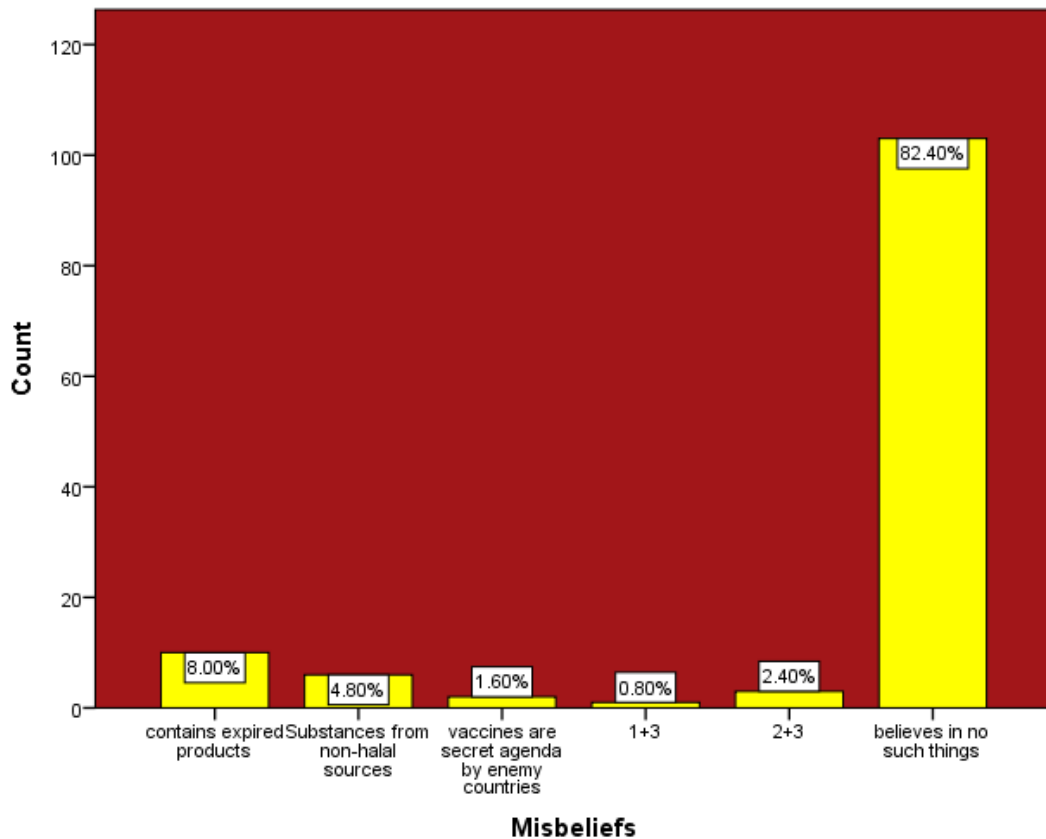


Figure 5. Misbeliefs regarding Vaccination

Gender Belief

Out of 125 people who participated in this study 76(60%) believes that vaccine are equally important to both genders (male and female), 35(20%) believes gender plays no role in vaccination, 4(3.2%) believes that need of vaccination for male is more than of female, 2(1.6%) believes that females are more in dire need of vaccination than male while 7(5.6%) had no clue about gender association with vaccination. The multiple responses chosen by people are shown in the table given below;

Table 3. Gender beliefs about vaccination

Gender belief				
	Frequency	Percent	Valid Percent	Cumulative Percent
boys	4	3.2	3.2	3.2
girls	2	1.6	1.6	4.8
equal	76	60.8	60.8	65.6
no affect	25	20.0	20.0	85.6
no idea	7	5.6	5.6	91.2
C+D	11	8.8	8.8	100.0
Total	125	100.0	100.0	
C= Equal				
D= No affect				

Vaccine influence

Out of 125 participants, 4(3.2%) are influenced by Imam/teacher/Health care worker, 2(1.6%) are influenced by myth that vaccines preventable diseases are rare, while 113(90.4%) are not influenced by such factors. This is shown by the pie chart and table given below.

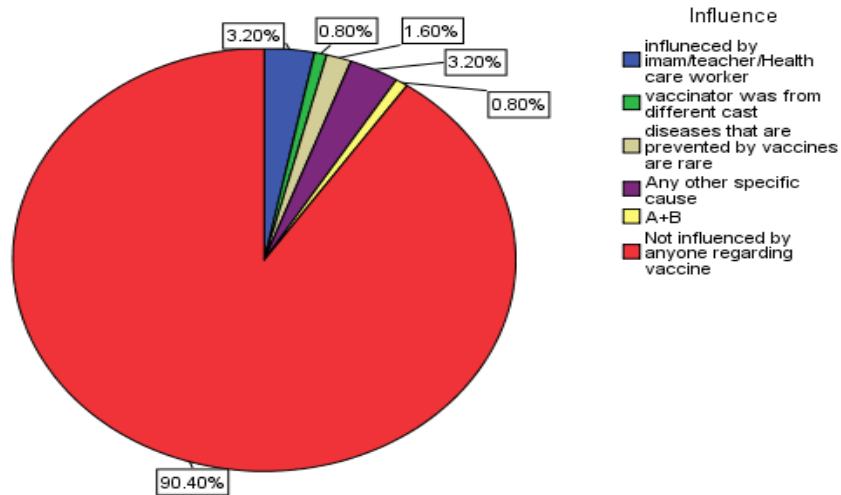


Figure 6. Factors influencing vaccination

Discussion

There is an old adage that prevention is better than cure and for a developing country like ours, it is not only better but also cost-effective. Unfortunately, the practice of vaccination in our country_ the source of prevention of some commonly occurring diseases_ is looked at with suspicion. Our study gave a shot at identifying digging out the attitudes of people toward the process of children immunization at population in Sheikh Maltoon Town, Mardan, KP. Data for our study was collected from the general population of Sheikh Maltoon town in comparison to the study conducted by Qidwa W et.al, in which the data was collected from family practice patients (1) or the study carried out by Shafiq Y et.al, in which the data was collected only from women of child-bearing age (3).

Out of 125 participants of our research study, 103 participants (82.4%) were males in collation to the research study of Amna A et.al, in which 70.6% of the participants were females and only 29.4% participants were males (8). When asked about what vaccine was, 95.2% of our participants (mostly from well-off socio-economic background) answered in positive contrast to the result of research study managed by khowaja A et.al that showed that 41% of the people surveyed (primarily from low-income families) had never heard of even polio vaccine despite the multitude of government-led polio campaigns (A).

Two mains sources of information identified by our participants as their sources of information regarding vaccination were: doctors and hospitals (31.2%); vaccine programs (28.8%), in contrast to the research performed Qidwa W et.al that

identified the main source regarding information about vaccination as friends and parents (80%) (1).

Results concerning beliefs about the effectiveness of vaccines were very positive and laudable with about 92% people surveyed believing in the fact that vaccines were effective in the prevention of diseases. When inquired about side effects of vaccines 89% came up with the answer that vaccines did not cause any side effects in contrast to the results of the research study conducted by Kennedy A et.al that reported 32% parents showed concern about vaccine causing fever in their children and 30% were concerned that vaccines may cause learning disabilities like autism (B).

Gender disparity was not observed as majority, about 96%, believed vaccines are equally important for both males and females or that gender plays no role in vaccination in agreement to the claim made by a report that worldwide, a child's gender does not have a significant influence on immunization status (C). Views of the partakers on the vaccination were not influenced substantially by religious leaders (Imam) with only 3.2% reporting that Imam's word could sway their mind while taking decision about vaccinating their children. Our research is a milestone in a sense that it is the first of its kind in the same setting and whole of District Mardan. No research study has been done in the District Mardan on the said topic or if it has been done it is not available on the internet.

During course of data collection, we held small interactive sessions with each participant to make them aware of the importance of children immunization. Each participant were informed that with the help of vaccines, small pox has been wiped out, polio has been eradicated globally sparing for three countries, i-e Pakistan, Afghanistan and Nigeria, mainly because of poor compliance on part of the parents to vaccinate their children and the number of cases of measles, diphtheria, pertussis and other communicable diseases have been abridged. In our setting of Sheikh Maltoon town, posh area of Mardan and with predominantly educated population, the attitude of people is overwhelming positive and admiring about children immunization. This also hints at a solution that improving overall living standards of people and educating the masses can result in better vaccination coverage.

Meager resources and short span of our research study limited the number of participants to 125 (this number could have been high). Lack of funds translated into lack of transport confined our research to Sheikh Maltoon Town; otherwise we would have liked the study to be a comparative one between population of Sheikh Maltoon Town and any rural area of district Mardan. Approximately, 1 out of 20 people asked to fill the questionnaire refused to do so. The ideas of these people, supposedly negative, have not been reflected in the results.

As mentioned earlier this is the first of its kind study on the topic in District Mardan, further research, both undergraduate and postgraduate, are required to delve deep into the topic. Separate research on each vaccine and comparative research between urban and rural population would be highly appreciated yielding more relevant information.

Conclusion

It is concluded from our study that the overall attitude of the people toward children immunization is very optimistic and encouraging, with overwhelming majority believing in the effectiveness of vaccination in the prevention of diseases. Notwithstanding the positive attitude proper education of the people about each vaccine is need of the hour, particularly true about HPV and Rota virus vaccines. This further needs to be tackle with the introduction of different seminars and awareness campaigns regarding vaccination for both mothers and general youth to eliminate any hostile beliefs and myths. This can also be improvised by taking small sessions in the hospitals to the general population by doctors when they come for routine check. Different educational lectures, seminars and campaigns can be held in schools, high schools and colleges to encourage and promote the act of vaccination and save the youth from misleading concepts about vaccination. The same youth will then become parents and thus will play positive role in promotion of vaccination.

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