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Original Research Article

Satisfaction Regarding Immunization Services in Ayub Teaching Hospital

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Abstract

Immunization is a very important process of making a person immune or resistant to an infectious disease. It is of utmost importance for the children under 5 years of age to get immunized against the infectious diseases which are vaccine preventable. The childhood immunization introduced through EPI is the most efficient public health innovation for the prevention of vaccine-preventable common child illnesses provided that the program is uninterrupted and parents are satisfied with the service and adhere to the program. The satisfaction of the accompanying persons depends on different factors which are substantial in making the final decision. The sampling technique that we used in this study was non-probability consecutive sampling. The study was carried out at Immunization center at Ayub Teaching Hospital, Abbottabad from December 2016 to August 2017. The methods primarily employed in this research were based on filling a questionnaire. They were filled by us according to the answers the accompanying persons provided. Our study revealed that most of the accompanying persons were satisfied with the immunization services provided at ATH, Abbottabad. Their education status was at least Primary and secondary and mostly the persons who were graduated were not satisfied with the services. The waiting time was the main concern because the persons who thought waiting time was prolonged were mostly unsatisfied. Greetings affected the behavior of the accompanying persons regarding the services and their satisfaction level was directly affected by the behavior of the health team. Cleanliness of the immunization center didn't affect the level of satisfaction that much. With the new advancements in health system and education status around the world, everything inconstantly evolves. The conclusion of this study is that satisfaction of the accompanying persons has different factors which affect it directly and indirectly .awaiting time, greetings, distance etc. Satisfying the accompanying persons regarding the immunization services requires teamwork. The government, health professionals and health team workers are all responsible in this regard. The waiting time should be decreased and the accompanying persons should be greeted properly. Cleanliness should be maintained at the immunization center.

Keywords: Health Services, Immunization, Satisfaction

INTRODUCTION

Immunization is the process of making a person immune or resistant to an infectious disease, by introduction of a vaccine. It is basically the induction of immunity. Vaccines help to stimulate the body's own immune system to protect the person against subsequent infection or disease (WHO, 2017a).

Immunization may be active immunization or passive immunization, in the first one we introduce a foreign substance into the body, which causes the body itself to generate immunity against the target. T cells and the B cells with their antibodies are responsible for such kind of immunity. While in the second one pre-synthesized

elements of the immune system are transferred to a person so that the body does not need to produce these elements itself. Currently, antibodies can be used for passive immunization (Disabled World, 2017).

Immunization is done most commonly through vaccination. Vaccines against microorganisms that cause diseases help to prepare the body's immune system, thus to fight or prevent an infection.

The population of the country has increased by 41.0% in the past 25 years, reaching 188.1 million in 2015. Along with the population the diseases have also increased both communicable and non-communicable. The burden of disease attributable to communicable diseases is 38.3% (2012), for non-communicable diseases it is 50.5%. Approximately 17% of deaths in children under five are vaccine-preventable. An estimated 1.5 million children die annually from diseases that can be prevented by immunization (http://apps.who.int/immunization_monitoring/diseases/en/ and http://www.who.int/gho/immunization/en/ (2008).

In developing countries infectious disease are still the leading cause of morbidity and mortality in children. In Pakistan the main cause of death in over 70% children are infectious diseases. In Pakistan under five year, under one year and under one month mortality is 97, 78 and 57 per 1,000 live births respectively (State of the World's Children, 2008).

Vaccination against a range of bacterial and viral diseases is an integral part of communicable disease control world-wide. Vaccination against a specific disease not only reduces the incidence of that disease, it reduces the social and economic burden of the disease on communities. The world-wide eradication of smallpox and the near eradication of polio from many countries provide excellent examples of the role of immunization in disease control.

Vaccine preventable Diseases for which vaccinations form part of the NHMRC Standard Vaccination Schedule are diphtheria, tetanus, pertussis (whooping cough), poliomyelitis (polio), measles, mumps, rubella, haemophilus influenza type b infections, HPV (Human Papillomavirus), hepatitis B, influenza, pneumococcal and meningococcal infections (Australian Government Department of health, 2017).

Approximately 29% of deaths in children under five are vaccine preventable. In 2011 alone, 1.5 million children died from diseases preventable by currently recommended vaccines (Harris et al., 2013).

In 2011, an estimated 83% of infants worldwide were vaccinated with the three doses of the vaccine required to immunize them against diphtheria, tetanus and pertussis (DTP3 vaccine).These three diseases are potentially fatal for children under five.

In 2011, 123 countries immunized over 90%v of infants against measles. Between 2000 and 2015, vaccination resulted in a 79% drop in measles deaths worldwide. During 2000-2015, measles vaccination prevented an estimated 20.3 million deaths making measles vaccine one of the best buys in public health (Lu and Santosham, 2012).

If all children were immunized with existing vaccines, we could save nearly 25 million lives between 2011 and 2020 (http://www.who.int/mediacentre/factsheets/fs286/en/).

More than 60 percent of the children who have not received three doses of DTP-containing vaccine during 2014 live in ten countries: Democratic Republic of the Congo, Ethiopia, India, Indonesia, Iraq, Nigeria, Pakistan, Philippines, Uganda and South Africa (Leach-Kemon et al., 2014).

The Expanded Programme on Immunization (EPI) was launched in Pakistan 1978 to protect children by immunizing them against childhood tuberculosis, poliomyelitis, diphtheria, pertussis, tetanus and measles. Children and babies are vaccinated against these diseases because without this immunity these diseases would have serious consequences. Now a child needs only five visits during the first year and one visit during the second year of his/her life to complete the vaccination with four antigens against eight dreadful diseases. Other diseases which are common in our society are Whooping cough, typhoid, meningitis, Rabies, Measles, and Hepatitis etc.

Polio is a highly infectious disease caused by a virus. It mainly affects children under 5 years of age. Polio cases have decreased by over 99% since 1988, from an estimated 350 000 cases then, to 74 reported cases in 2015. The reduction is the result of the global effort to eradicate the disease.

Pakistan made important progress in 2015, with the lowest number of cases in its history. However, in high-risk areas of the country, unvaccinated children remain vulnerable. The total number of WPV1 cases for 2017 remains one, and for 2016 remains 20 (Global Polio Eradication Initiative, 2017).

Tuberculosis is another common infectious disease. TB bacteria are spread through the air from one person to another (Centers for disease control and prevention, 2017).Tuberculosis is one of the major public health problems in Pakistan. Pakistan ranks fifth amongst TB high-burden countries worldwide. Approximately 420 000 new TB cases emerge every year and half of these are sputum smear positive (WHO, 2017b). In 2013, the tuberculosis-related mortality rate was estimated at 27.0 per 100 000 population. A total of 298 446 detected tuberculosis cases were reported in 2013, of which 111 682 were new sputum smear-positive cases (WHO global tuberculosis database, 2014).

Besides the routine immunization service, the Expanded Programme on Immunization also conducts supplementary immunization activities periodically against polio, measles and neonatal tetanus.

Immunization coverage among 1-year-olds improved between 1990 and 2013: for BCG from 80.0% to 85.0%,

DTP3 from 54.0% to 72.0%, measles from 50.0% to 61.0% and polio from 54.0% to 72.0%. Neonatal tetanus coverage increased during the same period from50.0% to 75.0%. In 2013, hepatitis B (HepB3) vaccine coverage was 72.0% among 1-yearolds (Global health observatory data repository, 2017).

The country has about 33% of the children who must be immunized in accordance with WHO immunization targets for the Region. The country is one of 10 countries with at least 60% of children unvaccinated.

We are doing this study to find out the level of satisfaction of the parents regarding the immunization services provided at the hospital.

OBJECTIVES

To find out the level of satisfaction of parents regarding immunization services at Ayub Teaching Hospital, Abbottabad.

LITERATURE REVIEW

Immunizations, or vaccines as they're also known, safely and effectively use a small amount of a weakened or killed virus or bacteria or bits of lab-made protein.

When you get an immunization, you're injected with a weakened form of a disease. This triggers your body's immune response, causing it to either produce antibodies to that particular ailment or induce other processes that enhance immunity.

When exposed to the actual disease-causing organism, your immune system is prepared to fight the infection (Web, 2017).

Edward Jenner is considered the founder of vaccinology in the West in 1796, after he inoculated a 13-year-old-boy with vaccinia virus (cowpox), and demonstrated immunity to smallpox. In 1798, the first smallpox vaccine was developed. Over the 18th and 19th centuries, systematic implementation of mass smallpox immunization culminated in its global eradication in 1979 (Immunisation Advisory Center, 2017).

In May 1974, the 27th World Health Assembly resolved to build on the success of the smallpox eradication programme and established the Expanded Programme on Immunization (EPI) to ensure that all children, in all countries, benefited from life-saving vaccine. The EPI launched at that time recommended the use of vaccines to protect against six diseases: tuberculosis (BCG), diphtheria, tetanus, pertussis (DTP vaccine), measles and poliomyelitis (WHO (2017c).

Vaccinations are one of the simplest and most effective ways that we can protect the health of our children. Physicians, family and friends, communities, and public health programs all influence young children's receipt of vaccinations. Mothers are often strongly influential in the vaccination of their children. It is therefore important toensure that public health interventions for promoting childhood vaccinations address maternal concerns and barriers.

We found that mothers with multiple children and less education are at highest risk of having under-vaccinated children and thus should be given special attention and encouragement to vaccinate their children.

Other barriers to vaccination not evaluated in this analysis may be related to maternal characteristics as well. For example, lack of insurance to cover the cost of well-child care and ability to gain access to health care during work hours may be related to maternal employment status (Luman et al., 2003).

Study reports show that being full vaccinated for children whose mother's educational level is at least primary school graduation is nearly nine times more than for children whose mother had no education.

We find that the being non-vaccinated for children whose father had education less than secondary school (less than 8 years) were nearly 2.3 times more than the children whose father's educational level was more (Torun and Bakirci, 2006).

The level of satisfaction was somewhat dependent on the training level of the provider, and confidence in the provider, and waiting time. We found that majority of clinic users are women, but that most of them were there on behalf of children rather than their own care (Newman et al., 1998).

Parental satisfaction with care was related to age appropriate well-child care utilization independent of associated sociodemographic characteristics and maternal health care utilization.

Variables positively related to age-appropriate and up-to-date immunization included older maternal age; higher maternal education; higher income; home ownership; white, non-Hispanic race/ethnicity; being married; private insurance; first birth order; good or excellent infant health status; receipt of first-trimester prenatal care; maternal postpartum visit; 2-month well-child visit; and the Healthy Steps intervention (Schempf et al., 2007).

Parents expressing less anxiety about their child's illness graded staff work environment significantly higher than parents who felt more worried. Reports found that anxious parents report less satisfaction with pediatric hospital visits than other parents.

The value of measuring parent satisfaction is increasingly important and necessary as hospitals are required by the public and private sector to document quality improvement measures (Britt-Marie and Arnetz, 2001).

Parental satisfaction is the most important element when dealing with pediatric care because their role is pivotal and it is considered an indicator of provider quality that has been relatively unexplored in relation to childhood immunization.

Moreover, satisfaction has been said to be a major

predictor of use of services, as it is essential if clients were to utilize services, comply with treatments and maintain a continuing relationship with practitioners.

In terms of the process factors, the majorities were happy with the cleanliness of the waiting room and when the child received the vaccination though there was dissatisfaction with the vaccinating waiting time and in vaccine related information delivery during the service and is concordant with the study done among the pastoralists community in east Ethiopia.

Contrary to our present findings, the study done among pastoralis community documented that age, time spent to reach health facility, and waiting time to get the service were important predictors of maternal satisfaction with the immunization service provided deserving further study (Hussen et al., 2016).

METHODOLOGIES

Study design

The study that took place at the immunization center in ATH was a cross sectional study.

Study Setting

Our survey was conducted in the immunization center at tertiary care hospital (ATH, situated in Abbottabad).

Study Duration

The study around 9 months starting from December2016 to August 2017.

Sample Size

100 accompanying persons who brought the children for immunization. (Males 21 and females 79)

Sampling Technique

Non-probability consecutive sampling.

Inclusion Criteria

All the accompanying persons at the immunization center took part in it. Most of the children included were below 18 months of age.

Exclusion Criteria

All the persons who didn't give consent or the children they brought were above 2 years of age were excluded.

Sample Selection

All the accompanying persons who brought the children to get immunized at the immunization center at ATH situated in Abbottabad.

Data Collection

The population for our research were the accompanying persons who brought the children for immunization at ATH, Abbottabad. The immunization center at ATH was functional on Tuesdays and Saturdays only and the timing was from 9:00-12:00am. A total of 100 accompanying persons (males and females) at ATH were interviewed in our study by filling of a questionnaire. First of all we took consent from them and almost all of them agreed with us without any hesitation. Then the accompanying persons were asked for their name, age and other sociodemographic information at first and then they were asked to answer different questions regarding the study. A total of 19 questions were asked from them. All of them were asked different question regarding immunization i.e. Immunization schedule of Pakistan, current immunization of child, no of children immunized and who influenced them to immunize the children. After that they were asked the questions related to their satisfaction regarding the immunization services provided at ATH i.e. waiting duration, waiting place cleanliness and health team greetings etc. Each of question was asked by the researcher and the answer was marked as it was given by the responder.

Data Analysis

All data was analyzed with IBM SPSS 23 version to calculate frequencies, percentage, means and standard deviation for the variables given in questionnaire.

RESULTS

The study enrolled 100 accompanying people from the immunization center at Ayub teaching hospital who accompanied the babies about to get immunized. Most of them were their mothers (62%) and fathers (19%). The rest of (19%) included their sister, grandmother, uncle and aunt. The frequency distribution table below shows the exact figures.

Table No.2 illustrates the frequency of sex of accom-

Table 1. Accompanying Persons

Accompanying Person	Frequency	Percent
Aunt	8	8.0
Father	19	19.0
Grandmother	7	7.0
Mother	62	62.0
Sister	2	2.0
Uncle	2	2.0
Total	100	100.0

Accompanying Persons	Frequency	Percent	Valid Percent	Cumulative Percent
Parents	81	81.0	81.0	81.0
Others	19	19.0	19.0	100.0
Total	100	100.0	100.0	

Table 2. Sex of Accompanying Person

Sex of the Accompanying Person	Frequency	Percent
Male	21	21.0
Female	79	79.0
Total	100	100.0

Table 3. Educational Status of Accompanying Person

Educational Status of Accompanying Person	Frequency	Percent
Primary	21	21.0
Secondary	24	24.0
Higher Secondary	24	24.0
Graduation	20	20.0
Uneducated	11	11.0
Total	100	100.0

panying person. From a total of 100 accompanying persons females were (79%) and males were (21%).

Age of Accompanying Person

Out of 100 accompanying persons most of them were young adults 62(62%) age range from 22-30. The mean age was 29.7100 ± 8.58386. The minimum age was 18 years and the maximum age was 65 years.

The table above shows that most of them were educated (89%) and some of them were uneducated (11%). (Table No.3)

Occupation of Accompanying Person

Most of the accompanying people who came to the immunization center at ATH were Housewives (70%) and the rest of them were Government Employees and a few were in the private sector.

The table below shows the distance of the accompanying people from the clinic/health centre and it shows that (51%) were outside the 5km range and (49%) were inside the 5km range. (Table No.4)

The table illustrates that around (92%) of the babies brought for immunization have 1-4 siblings. The minimum siblings were one and the maximum were 10. (Table No.5)

Age of children

The data we collected shows us that (78%) babies were below 1 year of age and (22%) were between 1 year and 2 years. The minimum age of baby is 1 day and the maximum age is 2 years.

Sixty-five percent (65%) of the accompanying people don't have any knowledge about the immunization schedule of Pakistan and only (35%) know about the

Table 4. Distance of accompanying person from Clinic/Health Centre

Distance of accompanying person	Frequency	Percent
within 2 km	27	27.0
3-5 km	22	22.0
>5 km	51	51.0
Total	100	100.0

Table 5. No of Siblings

No. of siblings	Frequency	Percent
1.00	33	33.0
2.00	25	25.0
3.00	22	22.0
4.00	12	12.0
5.00	4	4.0
6.00	2	2.0
8.00	1	1.0
10.00	1	1.0
Total	100	100.0

Table 6. Knowledge about Immunization Schedule of Pakistan

Knowledge about Immunization Schedule of Pakistan	Frequency	Percent
Yes	35	35.0
No	65	65.0
Total	100	100.0

Table 7. Current Immunization of Child

Current Immunization of Child	Frequency	Percent
BCG	35	35.0
OPV	6	6.0
Measles	32	32.0
Pentavalent	26	26.0
Hepatitis	1	1.0
Total	100	100.0

immunization schedule. (Table No.6)

According to our data out of total 100 children brought for current immunization of the following vaccines; BCG (35%), Measles (32%), Pentavalent (26%), OPV (6%) and Hepatitis (1%). (Table No.7)

Household Income per Annum

The mean annual income is 387131.31±308202.579. The minimum annual income is Rs/-120000 and the maximum annual income is Rs/-2160000. Around 84% of the total have an income in range of Rs/-120000-480000.

All the previous siblings of 81% of the children brought to the immunization center were immunized and none of the previous siblings of 15% children were immunized and few of the previous siblings of 4% children were immunized. (Table No.8)

The below table shows that 58% out of total 100 people thought that vaccine is beneficial, 21% were influenced by family, 19% were those to whom HCW recommended the vaccine and 2% showed some other reasons. (Table No.9)

According to the data out of total 100 about 48% self-realized the benefits of immunization, 29% were influenced by their families, 21% by HCW and 2% were influenced by the media. (Table No.10)

Table below shows that out of total 100 accompanying people most of them were greeted (79%) and some of them were not (21%). (Table No.11).

About 97% of the people think that the waiting place was clean and comfortable and only 3% think that the

Table 8. Previously Immunized Siblings

Previously Immunized Siblings	Frequency	Percent
Non	15	15.0
All of them	81	81.0
Few	4	4.0
Total	100	100.0

Table 9. Why did you choose to immunize your Children

Why did you choose to immunize your Children	Frequency	Percent
Vaccine is beneficial	58	58.0
Influenced by family	21	21.0
Recommended by HCW	19	19.0
Other	2	2.0
Total	100	100.0

Table 10. Who Influenced to Immunize

Who Influenced to Immunize	Frequency	Percent
HCW	21	21.0
Family	29	29.0
Media	2	2.0
Self-Realization	48	48.0
Total	100	100.0

Table 11. Health team greeting

Health team greeting	Frequency	Percent
Yes	79	79.0
No	21	21.0
Total	100	100.0

Table 12. Waiting place clean and comfortable

Waiting place clean and comfortable	Frequency	Percent
Yes	97	97.0
No	3	3.0
Total	100	100.0

Table 13. Waiting Time (in minutes)

Mean	20.28
Standard Deviation	22.957
Minimum waiting time	2
Maximum waiting time	120

waiting place wasn't clean and appropriate. (Table No.12) The below table shows the waiting time of the accompanying people at the immunization center at ATH. The mean time every one waited was 20.28 ± 22.957. The minimum time was 2 minutes and the maximum time was 120 minutes. (Table No. 13)

The collected data shows that most of the people who accompanied the children who were about to get immunized think that the waiting time is appropriate (81%) and some of them (19%) think that the waiting time was prolong. (Table No.14).

Out of total 100 accompanying people who brought

Table 14. Waiting Time Appropriate

Waiting Time		Frequency	Percent
	Appropriate	81	81.0
	Prolong	19	19.0
	Total	100	100.0

Table 15. Complete information about immunization

Complete information about immunization		Frequency	Percent
	Yes	30	30.0
	No	70	70.0
	Total	100	100.0

Table 16. Cost of vaccination

Cost of vaccination		Frequency	Percent
	No	100	100.0

Table 17. Information about type of vaccine

Information about type of vaccine		Frequency	Percent
	Yes	33	33.0
	No	67	67.0
	Total	100	100.0

Table 18. Dose of vaccine

Dose of vaccine		Frequency	Percent
	Yes	5	5.0
	No	95	95.0
	Total	100	100.0

Table 19. Next date of immunization info

Next date of immunization info		Frequency	Percent
	Yes	86	86.0
	No	14	14.0
	Total	100	100.0

the children for immunization, only 30% were given complete information about the immunization and 70% were given no information about the immunization. (Table No.15)

The table below shows that no one out of total 100 accompanying people were charged for the vaccinations at ATH. (Table No.16)

According to the collected data out of total 100 accompanying people only 33% were given the information about the type of vaccine their child was given and 67% were given no information about the type of vaccine given to their child. (Table No.17)

From a total of 100 accompanying persons around 95% were not told about the dose of vaccine they were giving to the child and only 5% were told about the dose of vaccine. (Table No.18)

The table below shows that the vaccinator told 86% of the accompanying persons about the next date of immunization and 14% were not informed about the next date of immunization. (Table No.19)

Data shows that 75% of the accompanying persons who came to the immunization center to immunize the children didn't notice any unvaccinated child suffering from a vaccine preventable disease and 25% noticed

Table 20. Noticed unvaccinated children suffering from VPD

Noticed unvaccinated children suffering from VPD	Frequency	Percent
Yes	25	25.0
No	75	75.0
Total	100	100.0

Table 21. Satisfaction about immunization services

Satisfaction about immunization services	Frequency	Percent
Fully Satisfied	62	62.0
Satisfied	35	35.0
Not Satisfied	3	3.0
Total	100	100.0

Table 22. Ensure next child immunization

Ensure next child immunization	Frequency	Percent
Yes	99	99.0
Not Sure	1	1.0
Total	100	100.0

Table 23. Comfortable recommending immunization to parents

Comfortable recommending immunization to parents	Frequency	Percent
Yes	100	100.0

such unvaccinated children suffering from a vaccine preventable disease. (Table No.20)

Almost all of the parents (97%) were satisfied with the immunization services at the immunization center of ATH. Only 3% were not satisfied with the immunization services provided at this health facility. (Table No.21)
Majority of the accompanying persons (99%) ensured us that they will come here for the immunization of their next child and only 3% weren't sure about that. (Table No.22)

The table shows that out of total 100 accompanying persons, all of them felt comfortable in recommending immunization to the others parents. (Table No.23)

Cross Tabs

The below table shows that there is a significant relation between the sex of accompanying person and satisfaction level. The accompanying persons who were fully satisfied with the immunization services provided were mostly Males (71.4%) and the females were (59.5%). Out of total 3 unsatisfied accompanying persons 2 were males and 1 was female.

This table shows that there is no significant relation between the accompanying persons and the satisfaction. Most of the accompanying persons were parents (81%).

There is no relation between the cost of immunization and the satisfaction. The immunization was free of cost.

This table shows that there is a strong relation between the waiting time and the satisfaction level of the accompanying persons. The accompanying persons who considered waiting time was appropriate were mostly satisfied (81%) and those who considered that the time was prolong only (3%) of them were unsatisfied. It means that the waiting time affects the satisfaction level of accompanying persons.
This shows that the cleanliness of the waiting place has no effect on the satisfaction of accompanying persons.

The below table illustrates that the greeting of the accompanying persons has a strong relation with the satisfaction level. The accompanying persons who were greeted were more satisfied than those who were not. It means greeting the accompanying persons has an important role in satisfaction of the people who accompanied the children.

The table shows that the knowledge of immunization schedule didn't changed the satisfaction level of accompanying persons. It has little or no effect on the satisfaction of the accompanying person.

The table shows that the distance of the Health center has a strong relation with the satisfaction level of the accompanying persons. Two out of three unsatisfied accompanying persons were outside the 5km range.

This table shows that there is no significant relation

Table 24. Sex of the Parent

Sex of the Parent			Satisfaction			Total
			Fully Satisfied	Satisfied	Not Satisfied	
	Male	Count	15	4	2	21
		% within Sex of the Parent	71.4%	19.0%	9.5%	100.0%
	Female	Count	47	31	1	79
		% within Sex of the Parent	59.5%	39.2%	1.3%	100.0%
Total		Count	62	35	3	100
		% within Sex of the Parent	62.0%	35.0%	3.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.085[a]	2	.048
Likelihood Ratio	5.486	2	.064
Linear-by-Linear Association	.074	1	.786
N of Valid Cases	100		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is .63.

Table 25. Accompanying Person X Satisfaction

Accompanying Person			Satisfaction			Total
			Fully Satisfied	Satisfied	Not Satisfied	
	Parents	Count	48	31	2	81
		% within Accompanying Person	59.3%	38.3%	2.5%	100.0%
	Others	Count	14	4	1	19
		% within Accompanying Person	73.7%	21.1%	5.3%	100.0%
Total		Count	62	35	3	100
		% within Accompanying Person	62.0%	35.0%	3.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.221[a]	2	.329
Likelihood Ratio	2.313	2	.315
Linear-by-Linear Association	.683	1	.409
N of Valid Cases	100		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is .57.

Table 26. Cost of Vaccination X Satisfaction

Cost of vaccination		Satisfaction			Total
		Fully Satisfied	Satisfied	Not Satisfied	
No	Count	62	35	3	100
	% within cost	62.0%	35.0%	3.0%	100.0%
Total	Count	62	35	3	100
	% within cost	62.0%	35.0%	3.0%	100.0%

Chi-Square Tests

	Value
Pearson Chi-Square	.[a]
N of Valid Cases	100

a. No statistics are computed because cost is a constant.

Table 27. Waiting Time X Satisfaction

Waiting Time			Satisfaction			Total
			Fully Satisfied	Satisfied	Not Satisfied	
	Appropriate	Count	58	23	0	81
		% within Waiting Time	71.6%	28.4%	0.0%	100.0%
	Prolong	Count	4	12	3	19
		% within Waiting Time	21.1%	63.2%	15.8%	100.0%
Total		Count	62	35	3	100
		% within Waiting Time	62.0%	35.0%	3.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24.447[a]	2	.000
Likelihood Ratio	22.578	2	.000
Linear-by-Linear Association	22.212	1	.000
N of Valid Cases	100		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is .57.

Table 28. Waiting Cleanliness X Satisfaction

Waiting Cleanliness			Satisfaction			Total
			Fully Satisfied	Satisfied	Not Satisfied	
	Yes	Count	60	34	3	97
		% within Waiting Cleanliness	61.9%	35.1%	3.1%	100.0%
	No	Count	2	1	0	3
		% within Waiting Cleanliness	66.7%	33.3%	0.0%	100.0%
Total		Count	62	35	3	100
		% within Waiting Cleanliness	62.0%	35.0%	3.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.106[a]	2	.948
Likelihood Ratio	.196	2	.907
Linear-by-Linear Association	.060	1	.807
N of Valid Cases	100		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is .09.

Table 29. Greetings X Satisfaction

Greeted			Satisfaction			Total
			Fully Satisfied	Satisfied	Not Satisfied	
	Yes	Count	56	21	2	79
		% within Greeted	70.9%	26.6%	2.5%	100.0%
	No	Count	6	14	1	21
		% within Greeted	28.6%	66.7%	4.8%	100.0%
Total		Count	62	35	3	100
		% within Greeted	62.0%	35.0%	3.0%	100.0%

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.682[a]	2	.002
Likelihood Ratio	12.437	2	.002
Linear-by-Linear Association	10.795	1	.001
N of Valid Cases	100		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is .63.

Table 30. Knowledge of Immunization Schedule X Satisfaction

Knowledge of Immunization Schedule			Satisfaction			Total
			Fully Satisfied	Satisfied	Not Satisfied	
	Yes	Count	21	12	2	35
		% within Knowledge of immunization schedule	60.0%	34.3%	5.7%	100.0%
	No	Count	41	23	1	65
		% within Knowledge of immunization schedule	63.1%	35.4%	1.5%	100.0%
Total		Count	62	35	3	100
		% within Knowledge of immunization schedule	62.0%	35.0%	3.0%	100.0%

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.365[a]	2	.505
Likelihood Ratio	1.285	2	.526
Linear-by-Linear Association	.392	1	.531
N of Valid Cases	100		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.05.

Table 31. Distance from the Clinic/Health Facility X Satisfaction

Distance from the Clinic/Health Facility			Satisfaction			Total
			Fully Satisfied	Satisfied	Not Satisfied	
	within 2 km	Count	11	16	0	27
		% within Distance of the facility from home	40.7%	59.3%	0.0%	100.0%
	3-5 km	Count	13	8	1	22
		% within Distance of the facility from home	59.1%	36.4%	4.5%	100.0%
	>5 km	Count	38	11	2	51
		% within Distance of the facility from home	74.5%	21.6%	3.9%	100.0%
Total		Count	62	35	3	100
		% within Distance of the facility from home	62.0%	35.0%	3.0%	100.0%

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.595[a]	4	.021
Likelihood Ratio	12.195	4	.016
Linear-by-Linear Association	5.334	1	.021
N of Valid Cases	100		

a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is .66.

Table 32. Education of Accompanying Person X Satisfaction

Education of Accompanying Person			Satisfaction			Total
			Fully Satisfied	Satisfied	Not Satisfied	
	Primary	Count	14	7	0	21
		% within Education of accompanying person	66.7%	33.3%	0.0%	100.0%
	Secondary	Count	14	10	0	24
		% within Education of accompanying person	58.3%	41.7%	0.0%	100.0%
	Higher Secondary	Count	17	7	0	24
		% within Education of accompanying person	70.8%	29.2%	0.0%	100.0%
	Graduation	Count	10	8	2	20
		% within Education of accompanying person	50.0%	40.0%	10.0%	100.0%
	Uneducated	Count	7	3	1	11
		% within Education of accompanying person	63.6%	27.3%	9.1%	100.0%
Total		Count	62	35	3	100
		% within Education of accompanying person	62.0%	35.0%	3.0%	100.0%

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.479[a]	8	.388
Likelihood Ratio	8.841	8	.356
Linear-by-Linear Association	1.212	1	.271
N of Valid Cases	100		

a. 6 cells (40.0%) have expected count less than 5. The minimum expected count is .33.

Table 33. Complete Immunization Info X Satisfaction

Complete Immunization Info			Satisfaction			Total
			Fully Satisfied	Satisfied	Not Satisfied	
	Yes	Count	22	7	1	30
		% within Complete Info	73.3%	23.3%	3.3%	100.0%
	No	Count	40	28	2	70
		% within Complete Info	57.1%	40.0%	2.9%	100.0%
Total		Count	62	35	3	100
		% within Complete Info	62.0%	35.0%	3.0%	100.0%

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.570[a]	2	.277
Likelihood Ratio	2.677	2	.262
Linear-by-Linear Association	1.701	1	.192
N of Valid Cases	100		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is .90.

Table 34. Ensure Next date of immunization X Satisfaction

Ensure Next Date of Immunization			Satisfaction			
			Fully Satisfied	Satisfied	Not Satisfied	Total
	Yes	Count	61	35	3	99
		% within Ensure next immunization	61.6%	35.4%	3.0%	100.0%
	Not Sure	Count	1	0	0	1
		% within Ensure next immunization	100.0%	0.0%	0.0%	100.0%
Total		Count	62	35	3	100
		% within Ensure next immunization	62.0%	35.0%	3.0%	100.0%

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.619[a]	2	.734
Likelihood Ratio	.962	2	.618
Linear-by-Linear Association	.557	1	.456
N of Valid Cases	100		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is .03.

between the education of the accompanying persons and the satisfaction of the accompanying persons.

There is no significant relation between the satisfaction and the complete immunization info given to the accompanying persons.

The table below shows that there is not a significant relation between the satisfaction and the persons who were ensured to come next time for immunization.

DISCUSSION

Immunization is the process of making a person immune or resistant to an infectious disease which is mostly done through vaccination. It is very important for the children under 5 years of age to get immunized against the infectious diseases which are vaccine preventable. The childhood immunization introduced through EPI is the most efficient public health innovation for the prevention of vaccine-preventable common child illnesses provided that the program is uninterrupted and parents are satisfied with the service and adhere to the program. An estimated 1.5 million children die annually from diseases that can be prevented by immunization. In Pakistan the main cause of death in over 70% children are infectious diseases. In Pakistan under five year, under one year and under one month mortality is 97, 78 and 57 per 1,000 live births respectively. Approximately 29% of deaths in children under five are vaccine preventable. From the above figures we can conclude how important vaccines are for children under 5 years of age. In this case the accompanying persons play a critical role and usually they are their parents. Mothers are often strongly influential in the vaccination of their children. It is therefore important to ensure that public health interventions for promoting childhood vaccinations are addressed as maternal.

Concerns and barriers

Parents educational status has a major role in the satisfaction and dissatisfaction regarding the services provided. The study was conducted to find out the satisfaction level of the accompanying persons regarding the immunization services at ATH, Abbottabad.

The study conducted at ATH showed that the accompanying persons who were satisfied with the

immunization services provided were mostly females (78%) and some of them were males (19%). Most of the accompanying persons were educated (89%) in which (69%) were having Primary/Secondary/higher secondary education status and only (20%) were having university education (graduated) compared to the (11%) who were uneducated. A similar study was conducted by Hanan Abbas for finding out the maternal satisfaction about childhood immunization in primary health care center in Egypt. His study showed that the educational status of the accompanying mothers having intermediate education (Primary/Secondary) represented 54.6% of mothers compared to 33.7% for high education (University education), 8.1% can read & write and only 8.1% are illiterate mothers. From our study we concluded that most of the accompanying persons having intermediated education status were satisfied and only those who were highly educated (graduation) were unsatisfied with the immunization services provided at ATH. Our study results were coinciding with the study conducted by Hanan Abbas shows that there was no statistically significant relation between vaccination coverage and maternal knowledge. The majority of those with full vaccination coverage (84.5%) and all of those with deficient vaccination coverage had inappropriate knowledge. Our study results illustrates that 62% were fully satisfied, 35% were only satisfied and 3% were not satisfied. Their study shows that 57.3% of mothers evaluated childhood immunization services as good compared to 40.6% of mothers who evaluated it as fair, while 2.1% evaluated it as inappropriate. From our study results we conclude that most of the persons who were greeted were satisfied (76%). The study conducted by Hanan shows that maternal satisfaction about staff attitude was 66.7%. Our study results show that 97% of the persons were satisfied with the waiting place cleanliness and their study shows that the satisfaction about waiting place was 62.9%. Our satisfaction about waiting time was 81% and according to their study results the satisfaction about waiting time 61.5%. As per our studies those persons who were not given complete information about the immunization were not satisfied compared to their study the level of satisfaction about information giving was 61%. All of the persons (100%) were satisfied with the cost and charges of the vaccination compared to their study setting where the level of satisfaction about cost was 50.5%. Our study results also coincided with the results of another study conducted by Abdu Hussen and his co-researchers in Ethiopia in which majority were happy with the cleanliness of the waiting room and when the child received the vaccination though there was dissatisfaction with the vaccinating waiting time. The study we conducted illustrates that the distance of the clinic has an effect on the satisfaction of accompanying persons and the results showed that the unsatisfied persons were mostly at a distance more than 5km.

Surprisingly none of the socio-demographic and other independent variables considered in the study showed significant association with the satisfaction level of respondents and the findings concur with the Ethiopian study where age-group and education had no association with satisfaction.

CONCLUSION

With the new advancements in health system and education status around the world, everything is constantly evolving. The conclusion of this study is that satisfaction of the accompanying persons has different factors which affects it directly and indirectly. Satisfying the accompanying persons regarding the immunization services requires a teamwork. The government, health professionals and health team workers are all responsible in this regard. The centers of immunization should be properly monitored and all the mismanaged and dissatisfying factors should be pointed out and removed from the system. The waiting time should be decreased and the accompanying persons should be greeted properly. Cleanliness should be maintained at the immunization center.

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