CAUSES OF NON-IMMUNIZATION IN CHILDREN FOR MEASLES IN URBAN AND RURAL AREAS OF PESHAWAR

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ABSTRACT

Objectives: To find the coverage and factors associated with low immunization with respect to user and provider in urban and rural areas of Peshawar.

Material and Methods: This cross-sectional study was conducted in selected areas of Peshawar from 9th to 19th of June 2010. 486 children, aged 4 years and below, were included in the study. Infants below 9 months were excluded. Parents were asked about demographics, measles vaccination status, reasons for non vaccination and their views on immunization. A separate questionnaire was used for 40 health personnel regarding reasons for low coverage. Pearson’s chi-square test was used for statistical testing, a P value of < 0.05 was considered significant.

Results: Measles vaccination coverage was 67.1%. The reasons for non-immunization by parents/guardians were no awareness (25.62%), busy/family problems (24.37%),centre too far (23.75%), wrong idea/sterility (11.88%), sick child (6.88%) and fear of reactions (1.25%). The problems faced by EPI staff were lack of awareness (32.5%), load shedding (20.0 %), poor transport facilities (10.0%), lack of timely availability of vaccines (10.0%) and security (10.0%).

Conclusion: Our study revealed that low vaccination coverage was due to low awareness regarding its importance. Low awareness, inadequate equipment and security are main problems faced by immunization staff.

Key words: Childhood, immunization, measles, vaccine.

INTRODUCTION

Measles, a vaccine-preventable disease, primarily affects children in developing countries. According to the World Health Organization (WHO), measles is a leading cause of childhood mortality. Globally, measles fell 60% from an estimated 873,000 deaths in 1999 to 345,000 in 2005. Estimates for 2008 indicate deaths fell further to 164,000 globally, with 77% of the remaining measles deaths in 2008 occurring within the South-East Asian region. In Pakistan, estimates show that 20,000 children die from measles annually. This is despite the Pakistan Expanded Programme on Immunization which provides measles vaccine during the first year of a child’s life. According to the Pakistan Ministry of Health, the programme is aiming for “90% routine immunization coverage of all EPI antigens with at least 80% coverage in every district by 2012”. There is evidence suggesting that measles vaccination coverage has increased only slightly or even stagnated in some provinces in the last few years. For example, measles vaccination in Balochistan province fell from 70% in 2006 to 54% in 2007. Measles vaccination is crucial as measles has nearly been eradicated from most countries in the world and from many states of India but Pakistan is yet to make sufficient progress in this field. The purpose of this study is to assess the situation in Peshawar. This study seeks to find the factors associated with the vaccination coverage and non immunization with respect to the user as well as the provider. This study can also help in developing new strategies for measles vaccination to attain better immunization results.

MATERIAL AND METHODS

This cross sectional study was conducted from 9th to 19th of June 2010 to determine the coverage and find factors associated with missed vaccination. The reason for conducting a cross sectional study was, it being the simplest variety of descriptive or observational epidemiological study that can be conducted on representative samples of a population. A confidence level of 95% and confidence interval of 5 was used to derive the sample size.

The study area was Peshawar - urban and rural areas. Simple Random sampling was done and households were interviewed in selected areas of Peshawar University Campus, Hashangri, Naway Kalay and Pawaka village. A researcher-administered standard questionnaire was used as a data collecting tool. Parents were given a choice to leave any question unanswered or to end the interview anytime.
they wished. All data was collected through informed consent. Parents of 486 children aged 4 years and below, were asked about their measles immunization status. Infants less than 9 months and children who had not spent their immunization life time i-e 1st year of their life, in Peshawar, were excluded. Forty health personnel involved in immunization were also interviewed in different immunization Centres of Khyber Teaching Hospital, Lady Reading Hospital, University Campus female dispensaries, different Basic Health Units (BHUs) of Hashtnagri, Pawaka and Naway Kalay.

Parents were asked about measles immunization status through a questionnaire containing information regarding demographics, education (None, Primary, Middle, Matric, Higher Education, Traditional/Madressa), occupation and income of the family earner. Information regarding immunization, accessibility to the health centre, behaviour of vaccinator as assessed by the parents (poor-average-good-vgood-excellent), frequency of Health workers visiting their place (never, seldom, often, very often), parents view on immunization whether immunization was useful or not and reason for non immunization. Immunization record was noted through cards if present or through memory recall. Parents’ preference in place and time of immunization were also asked.

RESULTS

The immunization coverage against Measles was 67.1%. Most of the parents had immunization card present (52.7%). Reason and comparison for non immunizing in urban and rural areas is given in Figure 1. Out of 486 children, females were 52.1% and males were 47.9%. Urban population was 53.7% while rural population was 46.3%. Most of the family earners were illiterate (41% n=203), followed by higher education (26.3% n=128), Primary (13.0% n=63), Matric (11.5% n=55), Middle (4.9%, n=24) and traditional Madrassa education (2.7% n=13). Monthly income of families ranged from Rs.2,000 to Rs. 31,000. Most of the family earners were private employed (43.8%), followed by labourers (24.5%) and government servants (18.3%).

Cross tabulation showed higher immunization rates in urban areas (79.8% immunized) than rural areas (52.2% immunized) (P<0.001). A clear pattern of low immunization among uneducated and high immunization among educated families was also seen. (P<0.001) (Figure 2). A significant pattern was not observed for sex of the child. The males and females immunized against measles were 67.0% and 67.2% respectively (P=0.95).

Immunization was high for the household earners having government (80.9%) and private jobs (79.8%) rather than labourer (45.4%) (P<0.001). The income had a great effect on the immunization (Figure 3) (P<0.001). The distance had no significant effect on Immunization status below 13km but it had a clear effect on immunization above 13 km (Figure 4) (P<0.001). Similarly respondents who thought immunization wasn’t of any benefit had a very low
immunization status (25.5%) than the respondent’s children who considered it beneficial (71.5%) (P<0.001). In households where EPI workers visited often, immunization was high (85.2%) but it was low in areas never visited by the staff (53.6%) (P<0.001).

**DISCUSSION**

The measles child immunization rate was found at 67.1%. This is considerably higher than national figures and from Khyber Pakhtunkhwa Province, for which 2006 values were 57.6%. This was also higher than studies carried out in Lasbela, Balochistan and elsewhere. The reasons could be that Peshawar has mostly urban population and better facilities resulting in higher coverage than rural areas. However, a recent study in Peshawar put the figures closer to ours. Causes of low vaccination in children were similar to studies in Khyber Pakhtunkhwa and elsewhere. 52.7% had vaccination cards present; memory recall was used in remaining cases. Vaccination status by memory recall is considered a reliable method.

Most of the parents wanted to immunize their children in the morning and at homes. This shows that if immunization is done at homes, a much higher rate can be achieved. Cross tabulation showed low immunization among uneducated and high immunization among educated families. Mothers having knowledge about immunization and its importance had much greater immunization rates for their children - consistent with other studies. This shows a clear impact of education on immunization. We must increase this knowledge among people through health education programmes.

A significant pattern was not observed with respect to sex of child. This was in contrast to studies conducted elsewhere, indicating that social factors regarding sex do not come to play in very young children especially when it comes to availing free services like immunization. Immunization was high for parents having government and private jobs rather than labourer due to income disparities between these jobs. Similarly, mothers having the government job were much more likely to immunize their children. However, the reason behind this is more likely because mothers having government jobs were educated and considered immunization beneficial. A significant pattern was not observed with respect to sex of child. This was in contrast to studies conducted elsewhere, indicating that social factors regarding sex do not come to play in very young children especially when it comes to availing free services like immunization. Immunization was high for parents having government and private jobs rather than labourer due to income disparities between these jobs. Similarly, mothers having the government job were much more likely to immunize their children. However, the reason behind this is more likely because mothers having government jobs were educated and considered immunization beneficial.

One of the main causes of low vaccination was distance of the health centres. The effect of distance did not exist below 13 km. Above 13 km, there was a sharp decrease in immunizations. This correlation was not uncommon; it has been indicated in other studies. Therefore, a need for improvement access to health centres is emphasized. The frequency of visits from health workers was ‘often’ (40.3%). This rate was little higher than in Pakistan and much lower than other studies in Khyber-Pakhtunkhwa. The reason behind this better performance by health workers is Peshawar being the capital of province, with easy access and better facilities. This can also be one of the reasons of relatively higher immunization rate in Peshawar than other parts of the province. Most of the mothers thought vaccination was useful but significant number didn’t consider it useful (8.8%), indicating the need for health education. There were still misconception like sterility and considering it as ineffective, indicating that work is needed to remove such misconception from society.

Lack of awareness among people was the main hurdle faced by immunization staff followed by severe load shedding as this caused hurdles in maintaining the cold chain. Transport was also a problem as it restricted the movement of the EPI staff. Other studies also showed similar results. Improving awareness, security and increasing staff would bring a major impact in immunization. The cooperation from parents and general public community leaders was very good, but it was poor by NGOs as reported by the staff. Most of EPI staff thought NGOs had rather a negative role. Interestingly similar results were found in other studies in Pakistan. Parents and community leaders knowledge on immunization was not satisfactory and there were no direct steps taken for its improvement. Most of the staff was not satisfied with the salaries and incentives, as in other studies. This has a negative impact on the performance of EPI staff.

**CONCLUSION**

Lack of awareness, low accessibility and misconception regarding immunizations and associated low literacy and poor socioeconomic conditions are the main causes of low immunization against measles.

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