

Awareness Regarding Childhood Immunization among Rural Mothers of Under-Five Children in Bangladesh

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ABSTRACT

Background: Under five mortality is still a burning issue in developing world. Thousands of children still die from Vaccine-Preventable diseases each year. Immunization is a cornerstone of public health and one of the most cost-effective interventions available worldwide that significantly contributes to the decline in childhood morbidity and mortality and mothers are the major role players with regard to their children's immunization. Most of the world's major health problems and premature deaths can be prevented through immunization alone. So the objective of this study is to assess the awareness regarding childhood immunization among the mothers of under-5 children in the context of rural Bangladesh.

Materials and methods: This was a descriptive cross-sectional study conducted at the selected villages of Brahmanbari in Bangladesh in August 2025. A total of 270 rural mothers of under-5 children were selected purposively for the study and interviewed face to face with the help of Interview schedules.

Results: The study findings revealed that most (90.00%) of the mothers aged between 18-33 years, majority (92.96%) of them were housewives and most (70.37%) of them had 3-5 children. The (06.67%) of them was quite illiterate. The (52.22%) of the mothers got themselves married between 18-21 years while the (35.19%) got married <18 years. The majority (98.52%) of the mothers had knowledge about childhood immunization. Most (73.31%) of them had their children vaccinated fully, the (12.03%) partially and the (03.38%) of them had not their children vaccinated at all.

Conclusion: The study showed a gap between childhood immunization knowledge and practice. So the people should be enabled more to realize the importance of vaccination to solve the problems of communicable diseases and for this the community participation in vaccination program must be ensured by motivating community people through different media, health personnel and the community leaders.

KEY WORDS

Attitude; Childhood immunization; Knowledge; Practice; Rural mothers.

INTRODUCTION

Health is both a responsibility as well as right. It is the responsibility of those with power and the right of those

without it. Health is more than just the absence of disease. It is affected by a spectrum of physical, mental, social and political factors. The promotion of health is a social and political as well as individual responsibility. It has been seen that some five million children were dying each year and mother five million were disabled by six childhood diseases in some developing countries. Protecting the health and development of children is a long term contribution to the growth and development of the country as a whole. Their protection is greatest investment in a country's economic prosperity and political stability. One of the important factors for achieving health for all, is the ability of the individual and organization to recognize and respond to changes in advancing technology for health maintenance and promotion, new pattern of disease and disability etc. new social policies, expectations and programmes for better health services. The key to attain the goal of HFA, primary health care, emphasizes on the preventive principle. One of the most cost-effective health intervention is immunization.

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Immunization is a process of protecting an individual from a disease through introduction of a live, killed or partial component of the invading organism into the individual system. Immunity is acquired, after the administration of an antigen in the form of vaccination by the production of antibodies within the body. The body is then immune to the effects of the intended pathogens.^{1,2} One of the major problems of our country is our unhealthy less productive human population. For our development and progress we need a healthy productive human resources and this is the successful EPI coverage for Under-5 children which may contribute to fulfil this demand to some extent. The role of the mother is pivotal for good health of an under-5 child. In developing countries the gap in their knowledge and consequently the ability to initiate health promoting activities remains as a chronic challenge. Under five mortality is still a burning issue in developing world. Thousands of children still die from Vaccine-Preventable diseases each year.³ Mothers are the major role players with regard to their children's immunization. Immunization is a cornerstone of public health and one of the most cost-effective interventions available worldwide that significantly contributes to the decline in childhood morbidity and mortality. It is estimated that, each year worldwide, vaccines prevent up to 3 million deaths.⁴ Parents' knowledge about immunization is an important predictor of their children's immunization status. Knowledge, attitude, and practice of parents contribute to the success or failure of immunization programs. It is important to increase awareness and knowledge about the benefits and importance of vaccinations, as well as the harmful consequences of non-complete or partial immunization.^{5,6} For the above mentioned reasons, We should assess the present state of children's immunization status in terms of their health and evaluate the level of knowledge, attitude and practice of the mothers regarding childhood immunization. So a study on childhood immunization status is crucial for reducing preventable childhood diseases, disability and death by identifying factors hindering vaccination coverage. Such studies provide evidence to improve vaccine acceptance, develop targeted interventions for hesitant communities and strengthen health system delivery, ultimately leading to higher immunization rates and better public health outcomes.

MATERIALS AND METHODS

This was a descriptive cross-sectional study done at the selected villages of Brahmanbari in Bangladesh in August 2025. A total of 270 rural mothers of under-5 children were selected purposively for the study to assess their awareness regarding childhood immunization. Before data collection verbal consent was taken from each of the available respondents and they were clearly informed of the objective of the study. Then face to face interviews were conducted by using interviewer-

administered semi-structured questionnaires. After compilation, the obtained data were checked, verified, edited and a Master table was prepared. The data were then analyzed manually and by using a calculator and computer for having the findings of the study. The ethical clearance was taken from the IERB of Brahmanbaria Medical College.

RESULTS

A total of 270 rural mothers of under-5 children were selected purposively for the study to assess their awareness concerning childhood immunization. The findings of the study reflected that among 270 mothers, the highest and lowest variation of age was 41 and 18 years. The majority (90.00%) of them aged between 18-33 years and the (47.04%) of them were from the age group of 26-33 years. The mean age was (26.86 ± 5.20) years. Majority (92.96%) of the mothers were housewives and most (70.37%) of them had 3-5 children. The (52.22%) of the mothers got themselves married between 18-21 years while the (35.19%) got married <18 years. As to educational status, mothers (06.67%) were quite illiterate, the (48.52%) primary, the (41.11%) SSC and HSC and only (03.70%) of them had graduation and above. The highest and lowest variation of monthly family income was 55000 and 5000 taka. The mean ($\pm$ SD) monthly family income of them was 21407.41 ± 10141.23 taka. The majority (70.37%) of mothers had 4-6 family members. The mean family member was 5.25 ± 1.84 . The majority (76.30%) of mothers lived in the nuclear family (Table-I).

Table I Socio-demographic information

Variable	n (%)	Variable	n (%)
Age of mothers (Year)		Occupation	
18 - 25	116(42.96%)	House wife	251(92.96%)
26 - 33	127(47.04%)	Service	12(04.45%)
34 - 41	27(10.00%)	Seamstress	03(01.11%)
Mean $\pm$ SD	26.86 ± 5.20	Maid servant	04(01.48%)
Age at marriage		Monthly family income (Taka)	
<18	95(35.19%)	5000-15000	82(30.37%)
18 - 21	141(52.22%)	15000-25000	103(38.15%)
22 - 25	34(12.59%)	25000-35000	55(20.37%)
Mean $\pm$ SD	18.60 ± 2.62	35000-45000	25(09.26%)
Living children		45000-55000	05(01.85%)
1 - 3	72 (26.67%)	Mean $\pm$ SD	21407.41 ± 10141.23
3 - 5	190(70.37%)	Family member	
5 - 7	08(02.96%)	1 - 3	33(12.22%)
Mean $\pm$ SD	3.53 ± 0.98	4 - 6	190(70.37%)
Education		7 - 9	34(12.60%)
Illiterate	18(06.67%)	> 9	13(04.81%)
Primary	131(48.52%)	Mean $\pm$ SD	5.25 ± 1.84
SSC	60(22.22%)	Type of Family	
HSC	51(18.89%)	Nuclear family	206(76.30%)
Graduation and above	10(03.70%)	Joint family	64(23.70%)

Out of 270 mothers, majority 266(98.52%) of them had knowledge about vaccination and the rest 04(1.48%) did not have knowledge about vaccination. Among 266 mothers, most (94.36%) of the mothers answered outcome of receiving vaccines was beneficial and the rest (05.64%) of them did not have knowledge for the same. Majority (96.61%) of the mothers could answer that vaccination in EPI Schedule should be started 'Just after birth' and majority (70.30%) of them could answer that vaccination in EPI Schedule should be completed 'After completion of 15th month' of child age. Most (50.75%) of the mothers had their children vaccinated from 'Govt. Satellite clinics', the (38.72%) from 'NGO' and the rest (10.53%) of them from 'Govt. hospitals (UHCs)'. Majority (65.42%) of the mothers could answer '5 visits' required for complete vaccination. Most (40.60%) of the mothers mentioned 'Health workers', the (21.81%) mentioned 'EPI Campaigns', the (19.92%) mentioned 'Mass media (Radio, TV, Social media etc.)' and the rest (17.67%) of them mentioned 'Friends-Family-Relatives and Neighbours' as their sources of knowledge about vaccination (Table II).

Table II Knowledge of mothers about childhood immunization

Variable	n (%)	Variable	n (%)
Knowledge about vaccination		Sources of receiving vaccines	
Yes	266(98.52%)	Govt. Satellite clinics	135(50.75%)
No	04(1.48%)	NGO	103(38.72%)
Results of receiving vaccines		Govt. Hospital (UHCs)	28(10.53%)
Beneficial	251(94.36%)	Visits to complete vaccination	
Don't know	15(05.64%)	< 4 visits	22(08.27%)
Starting of EPI-Schedule		4 visits	41(15.41%)
Just after birth	257(96.61%)	5 visits	174(65.42%)
From 6 month of age	05(01.89%)	5 > visits	29(10.90%)
From 1 year of age	04(01.50%)	Sources of knowledge	
Completion of EPI-Schedule		Mass media	
After 9th month of child age	15(05.64%)	(Radio-TV-Social media)	53(19.92%)
After 15th month of child age	187(70.30%)	Health workers	108(40.60%)
After 18th month of child age	64(24.06%)	EPI Campaigns	58(21.81%)
		Friends-Family-Relatives-Neighbours	47(17.67%)

Among 09 mothers, most (44.44%) of them mentioned 'Lack of felt need for vaccination' and the (22.23%) of them mentioned 'Negligence' as the reasons for not having their children vaccinated at all. Out of 195 mothers, most (89.74%) of them mentioned 'For good health', the (07.18%) mentioned 'For child development' and the rest (03.08%) of them mentioned 'For prevention of vaccine preventable diseases' as the

reasons for having their children vaccinated fully. Among 32 mothers, most (65.63%) of them mentioned 'Failure to manage time' and the (21.87%) of them mentioned 'Forgetting to take the children to the vaccination centre for the subsequent doses' as the reasons for having their children vaccinated partially. Out of 266 mothers, most (98.87%) of them gave their absolute positive opinions regarding giving vaccines to every child, importance of completion of EPI-Schedule and encouraging the EPI Campaigns and the rest (01.13%) of them gave their negative opinions for the same (Table III).

Table III Attitude of mothers about childhood immunization

Variable	n (%)	Variable	n (%)
Reasons for not vaccinated at all		Whether vaccines should be given to every child	
Negligence	02(22.23%)	Yes	263(98.87%)
Lack of felt need for vaccination	04(44.44%)	No	03(01.13%)
Sickness of the child	03(33.33%)	Whether completion of EPI-Schedule is important	
Reasons for vaccinated fully		Yes	263(98.87%)
For good health of the child	175(89.74%)	No	03(01.13%)
For child development	14(07.18%)	Whether encourage the EPI Campaigns	
For prevention of diseases	06(03.08%)	Yes	263(98.87%)
Reasons for vaccinated partially		No	03(01.13%)
Failure to manage time	21(65.63%)	Whether encourage the EPI Campaigns	
Illness of the child	04(12.50%)	Yes	263(98.87%)
Forgetting to take the child for vaccination	07(21.87%)	No	03(01.13%)

Among 266 mothers, most 195(73.31%) of them had their children vaccinated fully, the 32(12.03%) partially, the 30(11.28%) continued receiving vaccines for their children on the running program and the rest 09(03.38%) of them had not their children vaccinated at all. (Figure 1).

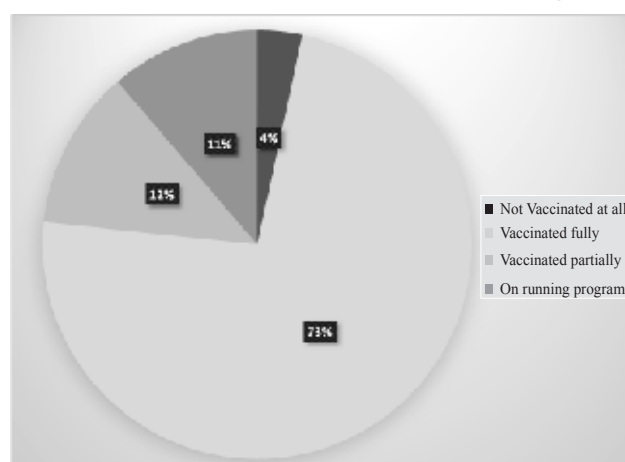


Figure 1 Practice of mothers about childhood immunization

DISCUSSION

A descriptive cross-sectional study was conducted with a view to assessing the awareness regarding childhood immunization among the mothers of under-5 children in the context of rural Bangladesh. A sample of 270 rural mothers of a selected area of Bangladesh were selected purposively for the study. The study was aimed to explore the state of immunization knowledge, attitude and practice among mothers of children of under-five years.

Regarding Socio-demographic information: The study findings reflected that among 270 surveyed mothers, the highest and lowest variation of age was 41 and 18 years. The (47.04%) of them were within the age group of 26-33 years. The mean ($\pm$ SD) age of them was (26.86 ± 5.20) years. In contrast with the study conducted by Huda SMN et al. (2019), the study finding was more or less similar as regards mean age of the mothers. The results reflected that out of 370 respondents, the 174(47.02%) of the mothers were from the age group of 26-35 years and their mean ($\pm$ SD) age was $26.71 (\pm 6.43)$ years while in this study the (47.04%) of them were from the age group of 26-33 years and mean ($\pm$ SD) age of them was (26.86 ± 5.20) years.⁷ The (52.22%) of the mothers got themselves married between 18-21 years while the (35.19%) got married <18 years. The mean ($\pm$ SD) age at marriage of the mothers was 18.60 ± 2.62 years. Most (70.37%) of the mothers had 3-5 children. The mean ($\pm$ SD) number children was 3.53 ± 0.98 . In contrast with the study conducted by Salam MM et al. the study finding was more or less similar. The observation reflected that out of 598 mothers, the 29(04.85%) of them were illiterate as regards education and 568(95.00%) of them were house wives by occupation while in our study, the 18(06.67%) of the mothers were Illiterate and the 251(92.96%) of them were housewives.⁸ The highest and lowest variation of monthly family income of the mothers was 55000 and 5000 taka. Monthly family income of most 103(38.15%) of them was within the range of 15000-25000 taka, In our study, the mean ($\pm$ SD) monthly family income of the mothers was 21407.41 ± 10141.23 taka while it was $11,892 \pm 0.00$ taka in the study done by Huda SMN et al. and fortunately our study findings showed that the income situation has improved.⁷ The majority (70.37%) of the mothers had 4-6 family members. The mean ($\pm$ SD) family member was 5.25 ± 1.84 (Table I). The majority (76.30%) of the mothers lived in the nuclear family.

Regarding Basic information: Knowledge: Out of 270 mothers, majority 266(98.52%) of them had knowledge about vaccination and the rest 04(01.48%) did not have knowledge about vaccination. Among 266 mothers, most (94.36%) of the mothers answered outcome of receiving vaccines was beneficial and the rest (05.64%) of them did not have knowledge for the same. Majority (96.61%) of the mothers could answer that vaccination in EPI Schedule should be started 'Just after birth' and most (70.30%) of them could answer that vaccination in EPI Schedule should be completed 'After completion of 15th month' of the child. Most (50.75%) of the mothers had their children vaccinated from 'Govt. Satellite clinics', the (38.72%) of them from 'NGO' and the rest (10.53%) of them from 'Govt. Hospitals (UHCs)'. Majority (65.42%) of the mothers could answer '5 visits' required for complete vaccination. In contrast with the study conducted by Salam MM et al. there is difference too some extent in comparison with our study findings. The study observation reflected that out of 598 mothers, the 491(82.11%) of the mothers had correct knowledge about the number of visits required for complete vaccination while in our study out of 266 mothers, the 174(65.42%) of them had knowledge about the same.⁸ Most (40.60%) of the mothers mentioned 'Health workers', the (21.81%) mentioned 'EPI Campaigns', the (19.92%) mentioned 'Mass media (Radio, TV, Social media etc.)' and the rest (17.67%) of them mentioned 'Friends-Family-Relatives and Neighbours' as their sources of knowledge regarding vaccination.

Attitude: Among 09 mothers, most (44.44%) of them mentioned 'Lack of felt need for vaccination' and the (22.23%) of them mentioned 'Negligence' as the reasons for not having their children vaccinated at all. Out of 195 mothers, most (89.74%) of them mentioned 'For good health', the (07.18%) mothers mentioned 'For child development' and the (03.08%) of them mentioned 'For prevention of vaccine preventable diseases' as the reasons for having their children vaccinated fully. Among 32 mothers, most (65.63%) of them mentioned 'Failure to manage time' and the (21.87%) of them mentioned 'Forgetting to take the children to the vaccination centre for the subsequent doses' as the reasons for having their children vaccinated partially. Among 266 respondents, most 263(98.87%) of the mothers answered positively regarding giving vaccines to every child and the rest 03(01.13%) of them answered negatively regarding giving vaccines to every child. Most 263(98.87%) of the mothers gave their positive opinions about importance of completion of EPI-Schedule and the rest

03(01.13%) of them gave their absolute negative opinions for the same. Out of 266 respondents, most 263(98.87%) of the mothers gave their answers in favour of encouraging the EPI Campaigns and the rest 03(01.13%) of them gave their negative opinions for the same.

Practice: Among 266 mothers, majority 195(73.31%) of them had their children vaccinated fully, the 32(12.03%) had their children vaccinated partially, the 30(11.28%) mothers continued receiving vaccines for their children on the running schedule and the rest 09(03.38%) of them had not their children vaccinated at all. In contrast with the study conducted by Huda SMN et al. the study finding was more or less similar. The study observation reflected that the (85.31%) of the mothers gave all the vaccines of EPI Schedule to their children and only (14.87%) did not complete the Schedule.⁷ And as compared with the study conducted by Marskole P et al. the study observation reflected that the (86.00%) of the mothers completed the vaccination schedule and the (14.00%) did not complete the vaccination schedule while in our study, the (73.31%) of the mothers completed the schedule and the (12.03%) of them did not complete the Schedule.^{9,10} Considering the overall study, it is felt that health education is an essential component that can go a long way in improving the prevailing scenario of immunization in our country.

CONCLUSION

In this century mankind has witnessed important landmark in the field of public health. Smallpox eradication has been achieved and the eradication of poliomyelitis is in sight. Thus most of the world's major health problems and premature deaths can be prevented through immunization alone. So we did this study to assess the status of immunization coverage in the rural areas of Bangladesh. Many children are still remaining unprotected as a partial immunization does not protect the children from the diseases. The Government EPI Program is working actively for the improvement of health status of the rural children. But practically the present study illustrates that the health awareness specially regarding immunization of the children is not up to the satisfactory level. Though immunization is a most cost effective tool in modern medicine, EPI still remains tragically underutilized.

RECOMMENDATION

Motivation of parents, especially mothers of under-5 children about the benefit of childhood immunization could help to achieve positive attitude for the effective use of vaccines in EPI-Schedule and thus this would contribute to remove or reduce the gap between childhood immunization knowledge and practice.

DISCLOSURE

All of the authors declared no competing interests.

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