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Knowledge of adverse events following immunization, its prevalence and actions of mothers of children aged 0–23 months in a tertiary health institution in Jos, North Central Nigeria

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Abstract

Background: Adverse Event Following Immunization (AEFI) is any unfavorable event occurring following vaccination related to the vaccine administration and or its handling. AEFI can lead to death or a life-threatening condition requiring hospitalization with or without permanent sequel. Hence, this study was conducted to determine the knowledge of AEFI among mothers of children aged 0–23 months, its prevalence and actions of mothers of following AEFIs.

Methodology: This was a cross-sectional study conducted among 400 mothers of children aged 0–23 months between November 2017 and April 2018 using quantitative method of data collection. IBM SPSS version 20 was used for data analysis where chi square was used as a test of association a *P*-value of 0.05 considered statistically significant.

Results: The mean age of the respondents in the study was 29.0 ±5.3 years with 222 (55.5%) demonstrating good knowledge of AEFI. The prevalence of AEFI was found to be 46.5% with fever as the most experienced AEFI accounting for 90.3% of all cases experienced followed by

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Authors contributions

AT, HZ, SO, GD all participated in the literature review; concept and design of the study; analysis and interpretation of data; drafting and revising the manuscript; and final approval prior to submission for publication. UO, OA, IO, TY, BP all participated in the literature review; interpretation of results; drafting and revising the manuscript; and final approval prior to submission for publication.

Conflicts of interest

There are no conflicts of interest.

pain and swelling mentioned by 141 (75.8%) and 26 (14.0%) respectively. Only 26 (14.5) of the mothers were adjudged to have taken appropriate action following the experience of AEFI in their children. Appropriateness of actions taken by the mothers following the occurrence of AEFI was influenced by the mother's employment status (COR= 3.84; 95% CI=1.366–10.575; $P=0.007$).

Conclusion: This study has demonstrated a sub-optimal level of knowledge of AEFI among the mothers of children aged 0–23 months with a relatively high self-reported prevalence and poor level of appropriateness of actions taken following AEFI.

Keywords

Adverse events; immunization; knowledge; mothers of children aged 0–23 months; Nigeria; prevalence

INTRODUCTION

Vaccination has been adjudged one of the most successful public health interventions globally which has achieved significant reduction in morbidity and mortality associated with vaccine preventable diseases.^[1,2] Adverse Event Following Immunization (AEFI) refers to any unfavourable event occurring following vaccination related to the vaccine administration and or its handling.^[2–7] AEFI can be categorized as vaccine reactions, program errors, coincidental events, injection reactions and unknown events.^[3,4,8] AEFI can lead to death or a life threatening condition requiring hospitalization with or without permanent sequel.^[3] Occurrence of AEFI is on a global scale with 1.14 cases of AEFIs and 1.4% deaths reported in the United States of America for every 10,000 cases of vaccinations.^[9] While other studies conducted in Spain and USA showed that AEFI rate varies between 11.9–19% per 1000 doses.^[2] Furthermore, 14.1 and 129.5 cases of AEFI per 100,000 vaccine doses had been reported in Australia and Sri Lanka respectively.^[9] While in Nigeria, reported rates of AEFI varied from 19.3% to 57% indicative of the fact that occurrence of AEFI in the Nigerian context needs to be studied.^[9] However, the occurrence of AEFIs in children and purported inadequacy of knowledge among mothers or caregivers can be a cause of fear, concern and spread of rumours about vaccination which could result in the loss of immunization gains.^[10] It was against this backdrop that this study was conducted to determine the knowledge of AEFI among mothers of children aged 0–23 months, its prevalence and actions of mothers of children aged 0–23 months attending Family Health Clinic in Jos University Teaching hospital following AEFIs in order to generate home grown and evidence based information that can inform policy making and decisions on AEFI management.

MATERIALS AND METHODS

Study setting

This study was carried out in the Family Health Clinic (FHC) of Jos University Teaching Hospital (JUTH). JUTH was established in 1981 and currently situated in the Lamingo area, Jos North Local Government Area (LGA), Plateau State. JUTH is one of the tertiary health institutions in Jos with an estimated bed capacity of over 500.^[11] The institution has several service delivery outlets which includes: Family health clinic, Emergency Paediatric Unit,

Paediatric Out-Patient Department, Ante-natal Care, Family Planning, Obstetric Care, Gynaecology, Accident and Emergency Unit, Medical Out-Patient Department, Surgical Out-Patient Department Intensive Care Unit, amongst others.^[11]

The FHC is one of the service delivery outlets of Community Medicine Department which is set out to cater for children under the age of five years and their parents/caregivers. The clinic runs from Monday through Friday providing services such as vaccination against vaccine preventable childhood illness in accordance with the National Program on Immunization (NPI) as well as treatment of common childhood ailments, health education, growth monitoring, nutritional rehabilitation and follow up services etc.

Study population

The study population comprised mothers of children aged 0–23 months who attended the Family Health Clinic between November 2017 and April 2018.

Study design

This was a cross sectional study conducted among mothers of children age 0–23 months attending the Family Health Clinic between November 2017 and April 2018 using quantitative method of data collection.

Sample size determination

The sample size for this study was determined using the appropriate sample size determination formula for a cross sectional study.^[12] Where n is the minimum sample size, Z is the standard normal deviate at 95% confidence interval (1.96), q is the complementary probability ($1-p$), d is the precision of the study set at 0.05 and p is the prevalence of AEFI from a previous similar study (34.9%).^[13] This gave a minimum sample size of 400 after adjustment for non, poor and incomplete responses.

Criteria for inclusion in the study

Mothers of children aged 0–23 months who brought their children for the 9th month vaccination in Family Health Clinic, JUTH, whose children have had a full complement of the required vaccination and had given consent to participate in the study were recruited for the study. The 9th month vaccine was chosen as the reference for recruitment to ensure that the needed information on the experience of AEFI following the administration of any type of the vaccines could be elicited without difficulty in recall of experience of AEFI.

Sampling technique

A list of all the mothers of under-five children whose children had had the 9th month vaccination, booked for the four weeks followup visits and had consented to participation was made and serialized making the sampling frame. Thereafter, computer generated table of random number using the Winpepi statistical software was used to select 400 eligible women for the study. Furthermore, these women were sampled on their respective follow up clinic visits until the sample size was met.

Data collection

A semi-structured interviewer administered questionnaire adapted from previous a study conducted in Enugu, Nigeria was used in this study.^[4] The data collection instrument consisted of four sections; Demographic characteristics of the mothers, Characteristics of the child, knowledge of AEFI, Occurrence of AEFI and actions taking. Two research assistants were trained on the content and method of administration of questionnaire prior to the commencement of the study by the principal researcher. The data collection instrument was pretested in the vaccination clinic of another health institution among 40 mothers of under fives.

Grading of responses

Knowledge of AEFI was assessed with six stem questions with a maximum possible response of 63 out of which 23 were correct. Two points were assigned to every correct response and one point for every incorrect or I don't know response, giving maximum attainable points of 46. A percentile graph of the scores was drawn then scores from 50th percentile and above was graded as good knowledge of AEFI while those below the 49th percentile cut off was graded as poor knowledge of AEFI respectively. Furthermore, understanding of the definition of AEFI was as adjudged good if the respondents provided information relating to AEFI as any unfavourable event occurring following vaccination related to the vaccine administration and or its handling.^[3,4] Additionally, actions taken after the experience of AEFI was adjudged as appropriate if the child was taken to the health facility to report and seek treatment of AEFI within 24 hours of occurrence. Lifetime experience of AEFI was elicited as ever experience of AEFI either with this index child or other children while current experience of AEFI was elicited as the experience of AEFI in the index child. The index child in this study was the current child brought for vaccination by the mother.

Data analysis

The data obtained were processed and analyzed using IBM SPSS version 20 where socio-demographic characteristics of the respondents were expressed in frequency and percentage. Mean and standard deviation were used as summary indices for age of the respondents and knowledge of AEFI scores. Chi square test was used as a test of association between characteristics of the respondents including that of the index child as well as the father and the action taken following the experience of AEFI categorized as appropriate and inappropriate. Fisher's exact test was used as a test of correction of continuity where assumption for use of chi square test was not fulfilled. Crude odds ratio and 95% confidence interval were used as point and interval estimates of the measure of association while a probability value of less than 0.05 was considered statistically significant in this study.

Ethical consideration

Ethical clearance for this study was obtained from Jos University Teaching Hospital Institutional human research ethics committee prior to the commencement of the study. Written and verbal informed consents were obtained from all the respondents with confidentiality and anonymity of their responses assured and maintained.

RESULTS

The mean age of the respondents in this study was 29.0 ± 5.3 years with 341 (85.3%) of them aged 35 years and below. Assessment of the highest level of education attained by the respondents, 370 (92.5%) had attained post primary level of education while 211 (52.8%) were employed in paid jobs. Majority of the mothers, (92.2%) had 4 children and less as at the time of this study with 200 (50.0%) of the index children being females. Furthermore, 340 (85.0%) of the index children were delivered in the health facilities. See Table 1.

Knowledge of AEFI is essential in identifying these adverse events as well as taking appropriate action following its occurrence. In this study, less than a third (31.5%) of the mothers demonstrated good understanding of the definition of AEFI while 161 (40.3%) mentioned chemicals in the vaccines as being responsible for adverse events. Furthermore, 178 (44.5%) and 129 (32.3%) of the respondents stated that AEFI was caused by infections from inappropriate handling of vaccines and it being coincidental events respectively. Fever, convulsions and weakness of the limbs were mentioned by 79.5%, 18.3% and 41.5% of the mothers respectively as the types of AEFI. More than half (64.8%) of the mothers were aware of the need to report these adverse events following immunization while 222 (55.5%) demonstrated good knowledge of AEFI. See Table 2.

Experience of AEFI was registered in the index child among 186 (46.5%) in this study bringing to light the prevalence of AEFI to be 465 cases per 1000 population of under-fives. Additionally, fever was the most experienced AEFI in this study accounting for 90.3% of all cases experienced followed by pain and swelling mentioned by 141 (75.8%) of the mothers. Convulsions and generalized rashes were also experienced by 3.2% and 18.3% of the respondents respectively. Pneumococcal conjugate vaccines were suspected as the cause of the AEFI experienced by most (69.4%) of the respondents while pentavalent and BCG vaccines accounted for 127 (68.3%) and 59 (31.7%) of cases of AEFI experienced in this study. Yellow fever and measles vaccines were only mentioned by 2 (1.1%) of the mothers as being responsible for AEFI respectively. Less than a quarter (14.0%) of the respondents in the study were adjudged as having taken appropriate action of reporting and taking the child for treatment immediately after experiencing AEFI in the health facility. See Table 3.

Mother's employment status was found to have statistically significant association with actions taken following the experience of AEFI with mothers employed in paid jobs having 3.8 times the odds of taking appropriate action as compared to those without employment in paid jobs. Furthermore, none of the other factors tested had any statistically significant association with appropriateness of action taken after AEFI experience. See Table 4.

DISCUSSION

The adequacy and appropriateness of information available to every individual is vital and essential for prompt and timeliness of decision-making process of which actions taken after AEFI is not an exemption. Understanding of the concept AEFI is a component part of the assessment of knowledge of AEFI and in this study it was found to be good in less than a third of the respondents. This is in synergy with what was observed in a study conducted in

Ghana in the same West African sub region as Nigeria.^[14] However, a contrary finding was obtained in another Ghanaian study where majority of the respondents demonstrated good understating of the concept and definition of AEFI.^[15] Though the assessment of the understanding the concept of AEFI was done among mothers of under-fives in this study while the Ghanaian studies had its assessments among health care workers. However, the variation that exists between the studies conducted in Ghana could be attributable to the fact the one of the studies was conducted in a rural district while the others included a mix of health care workers including medical doctors, nurses and pharmacist cutting across all the levels of health care. The implication of this to practice is that if health care workers do not have the requisite knowledge of the concept of AEFI, it is most likely that necessary information for action regarding AEFI will not be provided to the mothers or caregivers at the points of care.

The level of awareness of the causes of AEFI in this study was suboptimal with less than half of the mothers attributing it to the components of the vaccines while a similar proportion erroneously attributed AEFI to infections from inappropriate handling of vaccines, fear and anxiety of vaccination and its being coincidental events respectively. However, other studies conducted in Ghana and India reported higher level of awareness of AEFI. ^[14,16] Fever was reported as the most common form of AEFI in this study, which was corroborated by findings of other studies conducted in India and Nigeria.^[4,16] The overall level of knowledge AEFI was adjudged to be good in slightly above half of the respondents in this study which was similar to findings of another study where only about a third of the respondents could not mention any AEFI. ^[17] Additionally, other studies carried out in Nigeria, Kenya, Albania and Ghana reported varying level of knowledge of AEFI ranging from poor to fair.^[9,15,18,19] It is important to note that the variation that existed in the levels of knowledge of AEFI could be attributed to the categories of the respondents. While in this study, mothers of under-fives were the subjects and other studies used health care workers of which all but one found the health care workers demonstrating lower levels of knowledge of AEFI than the mothers. Furthermore, it is also imperative to bring to light that these studies may have employed different modalities for assessment of knowledge of AEFI making contextualization of the findings necessary as a yardstick for comparison. In view of this and the fact that mothers and health care workers had been reported to have demonstrated poor level of knowledge of AEFI, structured trainings and knowledge enhancing interventions such as use of visual aids and posters targeted at mothers and health care workers independently could be the panacea to addressing this knowledge dearth.

The prevalence of AEFI in this study was found to be higher than what was reported in studies conducted in India, Nigeria, Poland and Brazil respectively.^[1,4,13,16,20,21] It is imperative to state that the variation in the prevalence of AEFI observed in studies across different countries could be attributable to the fact that the studies were conducted in different settings and level of health care services provision. Furthermore, self-reporting approach to assessment of the occurrence of AEFI was used in this which could have been improved on if a cohort of mothers were selected and followed up to actually determine the incidence of AEFI among their children. Additionally, the level of information available to the mothers on AEFI is assumed to vary across these study settings which could have also influenced their awareness of AEFI as well as linking them to the vaccination.

Majority of the respondents in this study mentioned fever as the most experienced AEFI, which was corroborated by findings of other studies.^[1,4,13,16,20] Other forms AEFI experienced in the study were pains and swelling as well as convulsion which were also in tandem with what was observed in another Nigerian study.^[4] Appropriate actions following AEFI were taken by less than a quarter of the mothers in this study. This finding shared similarity with what was reported in other studies conducted in Indian and Nigeria. However, other studies reported much higher levels of institution of appropriate action by mothers following the occurrence of AEFI in their children.^[4,13,16,22] In order not to reverse the gains of the immunization programs and trying to avert unnecessary morbidity and mortality associated with AEFI, institutionalization of vaccination surveillance system at all levels of health care with simplified processes and channels of reporting will be a veritable tool. Furthermore, incorporation of health education on AEFI into the immunization routines and the use of appropriate information dissemination technique targeting the mothers of under-five children will go a long way in closing the existing gaps in the appropriateness of action taken by mothers and care givers following AEFI. Although, mothers of children aged 0–23 months were the focus of this study, it would be important to also conduct similar assessment among the health care workers in this setting so as to be able to provide a link between these groups of people in order to holistically address the challenges of AEFI.

In this study, employment status of the mothers was found to have significantly influenced the appropriateness of actions taken by mothers following the occurrence of AEFI in their children. Other studies though using different designs and methodologies found poor level of awareness, prior negative experience, anticipation of self-resolution of the reaction, time constraints, cost and lack of interest as determinants of actions taken following adverse events.^[9,23]

CONCLUSION

This study has demonstrated a sub-optimal level of knowledge of AEFI among the mothers of under-fives with a relatively high self-reported prevalence and poor level of appropriateness of actions taken following AEFI. However, employment status of the mothers was found to be a positive predictor of actions taken following AEFI, therefore intervention could be structured around empowering mothers of under-fives vocationally in order to improve appropriateness of AEFI-related action taken by mothers.

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REFERENCES

1. Deoja G, Shanmuganathan P, Kumarappan M. Safety surveillance and causality assessment of adverse event following immunization in children – a vaccine vigilance study. *Natl J Physiol Pharm Pharmacol* 2018;8:1209–13.
2. Patel H, Shah S, Desai M, Kalaiselvan V, Singh GN. Retrospective Qualitative and Quantitative Analysis of Adverse Events Following Vaccination. *J Young Pharm* 2018;10:326–29.

3. Al Awaidy S, Bawikar S, Prakash KP, Al Rawahi B, Mohammed AJ. Surveillance of adverse events following immunization: 10 years' experience in Oman. *Eastern Mediterranean Health Journal* 2010;16:475–80.
4. Ekwueme OC. Adverse Events Following Immunization: Knowledge and Experience of Mothers in Immunization centres in Enugu State, Nigeria. *Int J Med Health Dev* 2009;14:21–27.
5. Sadoh AE, Nwaneri DU, Ogboghodo BC, Sadoh WE. Comparison of adverse events following pentavalent and diphtheria-tetanus-pertussis vaccines among Nigerian children. *Pharmacoepidemiol Drug Saf* 2018;27:119–22. [PubMed: 28585776]
6. Williams SE, Edwards KM, Baxter RP, LaRussa PS, Halsey NA, Dekker CL, et al. Comprehensive assessment of serious adverse events following immunization by health care providers 2013;162:1276–81.
7. Joshi ND, Prajapati HK, Solanki KC, Sukhlecha A, Trivedi HR, Gajera MV, et al. Pattern of adverse events following immunization in an Indian teaching hospital. *Int J Med Sci Public Health* 2013;2:62–68.
8. Zvanaka S, Tsitsil J, Chonzi P, Shambira G, Gombe NT, Tshimanga M. Evaluation of the adverse events following immunizations surveillance system in Harare City, Zimbabwe, 2016: a descriptive cross sectional study. *Pan African Medical Journal* 2017;28:308.
9. Mohammed LA, Aliyu AA, Maiha BB, Isa A. Knowledge, perception and reporting attitude of adverse effects following immunization among primary healthcare workers in Sabon Gari local government area Zaria, Kaduna state, Nigeria. *Niger J Basic Clin Sci* 2018;15:81–86.
10. United States Agency for International Development (USAID). Immunization essential: a practical field guide. Available from: http://www.dec.org/pdf_docs/PNACU960.pdf. Last accessed 14/08/19.
11. Jos University Teaching Hospital. About JUTH. Available from: <http://www.juthnigeria.org>. Last accessed 20/07/19.
12. Ibrahim T Sample size determination. In research methodology and dissertation writing for health and allied health professionals. First edition. Abuja, Nigeria: Cress global link limited. 2009; p. 75.
13. Lawan UM, Amole GT, Wall NY, Jahun MG, Jibo AM, Nakore AA. Pattern of adverse events following immunization in nourished and malnourished infants in Kano, North-Western Nigeria. *Sahel Med J* 2016;19:131–6.
14. Twene P, Yawson AE. Adverse events following immunization (AEFI) reporting in a rural district in Ghana. *Postgraduate Medical Journal of Ghana* 2018;7:105–14.
15. Yamoah P, Bangalee V, Oosthuizen F. Knowledge and perceptions of adverse events following immunization among healthcare professionals in Africa: a case study from Ghana. *Vaccines* 2019; 7: 28. doi: 10.3390/vaccines7010028
16. Datta A, Baidya S, Das S, Mog C, Datta S. Assessment of mother's knowledge and practices regarding adverse events following immunization of their children in a rural area of Tripura. *Natl J Community Med* 2017;8:159–63.
17. Nnenna TB, Davidson UN, Babatunde OI. Mothers' knowledge and perception of adverse events following immunization in Enugu, South-East, Nigeria. *J Vaccines Vaccin* 2013;4:202. doi: 10.4172/2157-7560.1000202
18. Masika CW, Atieli H, Were T. Knowledge, perceptions, and practice of nurses on surveillance of adverse events following childhood immunization in Nairobi, Kenya. *Bio Med Research International* 2016, Article ID 3745298.10.1155/2016/3745298.
19. Mehmeti I, Nelaj E, Simaku A, Tomini E, Bino S. Knowledge, practice and approaches of health professionals to adverse events following immunization and their reporting in Albania. *Heliyon* 3(2017) e00331. doi: 10.1016/j.heliyon.2017.e00331. [PubMed: 28664193]
20. Baranski K, Gajda M, Braczkowska B, Kowalska M. Parental declaration of adverse event following immunization in a cross-sectional study in Poland. *Int J Environ Res Public Health* 2019;16:4038; doi:10.3390/ijerph16204038
21. Santos MC, Pontes Netto VB, Andrade MS. Prevalence and factors associated with the occurrence of adverse events following immunization in children. *Acta Paul Enferm* 2016;29:626–32.
22. Bansal S, Mahajan RC. Adverse events following immunization with pentavalent vaccine in a tertiary care hospital. *Int J Contemp Pediatr* 2018;5:82–84.

23. Al Dweik R, Stacey D, Kohen D, Yaya S. Factors affecting patient reporting of adverse drug reactions: a systematic review. *Br J Clin Pharmacol* 2017;83:875–83. [PubMed: 27868226]

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Table 1:

Socio-demographic characteristics of the respondents

Characteristics	Frequency	Percentage
Age group (years)		
35	341	85.3
36 and above	59	14.8
Total	400	100.0
Mean \pmSD		
Mean Age	29.0 \pm 5.3 years	
Mother's level of education		
Primary	30	7.5
Post primary	370	92.5
Total	400	100.0
Father's level of education		
Primary	13	3.2
Post primary	387	96.8
Total	400	100.0
Mother's employment status		
Employed	211	52.8
Unemployed	189	47.3
Total	400	100.0
Father's employment status		
Employed	383	95.8
Unemployed	17	4.2
Total	400	100.0
Number of children		
4	369	92.2
5 and more	31	7.8
Total	400	100.0
Birth order of the Index Child		
1-2	243	60.8
3 and more	157	39.2
Total	400	100.0
Sex of child		
Female	200	50.0
Male	200	50.0
Total	400	100.0
Place of delivery of the index child		
Health facility	340	85.0
Non health facility	60	15.0
Total	400	100.0

SD = Standard Deviation

Table 2:

Knowledge of AEFI

Characteristics	Frequency	Percentage
Understanding of the definition of AEFI		
Good	126	31.5
Poor	274	68.5
Total	400	100.0
Causes of AEFI *		
Chemicals in the vaccine	161	40.3
Infection from inappropriate handling of vaccine	178	44.5
Fear/anxiety of vaccination	115	28.8
Coincidental events	129	32.3
Forms of AEFI *		
Fever	318	79.5
Pain/Swelling	256	64.0
Convulsions	73	18.3
Ulcerations	68	17.0
Generalizes rashes	74	18.5
Difficulty in breathing	48	12.0
Weakness of the limb/body	166	41.5
Continuous high-pitched cry	164	41.0
Sudden collapse	42	10.5
Receipt of health education on AEFI in the clinic		
Yes	110	27.5
No	290	72.5
Total	400	100.0
Awareness of need to report AEFI		
Yes	259	64.8
No	141	35.2
Total	400	100.0
Knowledge of AEFI		
Good	222	55.5
Poor	178	44.5
Total	400	100.0
Knowledge score	35.04 ± 6.58 out of 46 points	

*=Multiple responses elicited, SD = Standard Deviation

Table 3:

Prevalence of AEFI

Characteristics	Frequency	Percentage
Life time of experience of AEFI		
Yes	190	47.5
No	210	52.5
Total	400	100.0
Current experience of AEFI		
Yes	186	46.5
No	214	53.5
Total	400	100.0
Type of AEFI experienced *		
Fever	168	90.3
Pain and swelling	141	75.8
Convulsions	6	3.2
Generalizes rashes	34	18.3
Others **	28	15.1
Causes of AEFI experienced *		
BCG	59	31.7
Oral polio vaccine	43	23.1
Inactivated polio vaccine	63	33.9
Pneum. conjugate vaccine	129	69.4
Pentavalent vaccine	127	68.3
Measles vaccine	2	1.1
Yellow fever vaccine	2	1.1
Action taken after AEFI		
Appropriate	26	14.0
Inappropriate	160	86.0
Total	180	100.0

*=Multiple responses elicited,

**=Difficulty in breathing, weakness of the limb/body, continuous high-pitched cry

Table 4: Relationship between characteristics of the respondents and appropriateness of action taken after AEFI

Characteristics	Action taken after AEFI		Total	χ^2	P-value	COR (95 Conf. Interval)
	Appropriate Freq (%)	Inappropriate Freq (%)				
Age (year)						
35	21 (13.5)	135 (86.5)	156		0.578*	0.78 (0.250–2.890)
36 and above	5 (16.7)	25 (83.3)	30			
Total	26	160	186			
Sex of the index child						
Female	13 (14.8)	75 (85.2)	88	0.088	0.767	1.13 (0.495–2.597)
Male	13 (13.3)	85 (86.7)	98			
Total	26	160	186			
Mother's level of education						
Primary	1 (5.9)	16 (94.1)	17		0.475*	0.36 (0.010–2.540)
Post primary	25 (14.8)	144 (85.2)	169			
Total	26	160	186			
Father's level of education						
Primary	1 (20.0)	4 (80.0)	5		0.533*	1.56 (0.030–16.58)
Post Primary	25 (13.8)	156 (86.2)	181			
Total	26	160	186			
Mother's employment status						
Employed	21 (20.0)	84 (80.0)	105	7.270	0.007	3.80 (1.366–10.575)
Unemployed	5 (6.2)	76 (93.8)	82			
Total	26	160	186			
Father's employment status						
Employed	24 (13.2)	158 (86.8)	182		0.095*	0.15 (0.010–2.220)
Unemployed	2 (50.0)	2 (50.0)	4			
Total	26	160	186			
Number of children						

Characteristics	Action taken after AEFI				
	Appropriate		Inappropriate		Total
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	
4	23 (14.5)	136 (85.5)	159	0.772 *	1.35 (0.360–7.570)
5 & more	3 (11.1)	24 (88.9)	27		
Total	26	160	186		
Birth order of the index child					
1 – 2	12 (12.5)	84 (87.5)	96	0.361	0.548
>3	14 (15.6)	76 (84.4)	90		0.78 (0.338–1.781)
Total	26	160	186		
Awareness of need to report AEFI					
No	2 (5.1)	37 (94.9)	39	3.197	0.073
Yes	24 (16.3)	123 (83.7)	147		0.28 (0.030–1.210)
Total	26	160	186		
Prior receipt of Health education on AEFI					
No	18 (14.9)	103 (85.1)	121	0.230	0.630
Yes	8 (12.3)	57 (87.7)	65		1.25 (0.510–3.043)
Total	26	160	186		
Place of delivery of the index child					
Facility	25 (15.0)	142 (85.0)	167	0.482 *	3.17 (0.405–24.817)
Non-Facility	1 (5.3)	18 (94.7)	19		
Total	26	160	186		
Knowledge of AEFI					
Good	18 (13.7)	113 (86.3)	131	0.020	0.885
Poor	8 (14.5)	47 (85.5)	16		0.94 (0.360–2.670)
Total	26	160	186		

* = Fisher's exact, COR = Crude Odds Ratio