

Awareness, Perception to Immunisation Reminders and Recall among Caregivers of Infants in Abakaliki, Southeast Nigeria

Abstract

Background: Effective vaccination communication with parents is critical in efforts to overcome barriers to childhood vaccination, tackle vaccine hesitancy and improve vaccination coverage. Health workers should be able to provide information to caregivers and support them in decision making about vaccinating their children. Limited information exists regarding the awareness, perceptions to childhood immunisation reminders and recall system in Abakaliki. This study therefore assessed the awareness, perceptions of caregivers to childhood immunisation reminders and recall system in improving immunisation coverage in Abakaliki.

Materials and Methods: A descriptive analytical study design comparing two large health facilities (Mile-Four and St.Vincent Hospitals in Ebonyi and Izzi Local Government Areas respectively) in Ebonyi State was used for the survey. The study duration was three months. Sample size was determined using the formula for comparing two proportions. Data were collected using semi-structured interviewer administered questionnaire from 145 caregiver-child pair from each group. Statistical Package for Social Science (SPSS) version 22 was used for analysis. Ethical approval was obtained from the Research and Ethics Committee (REC) of the Federal Teaching Hospital Abakaliki (FETHA), Nigeria.

Results: The mean age of respondents in Mile-Four and St.Vincent hospitals were 26.6 ±4.9 years and 27.1±4.2 years respectively. Higher proportion of caregivers in Mile-Four group (18.6%) than in St.Vincent group (14.5%) had ever heard of immunisation reminders and recalls prior to this study. Similarly, only 8.3% of caregivers in Mile-Four and 4.8% in St.Vincent had ever been reminded and/or recalled on the course of their children's immunisation uptake. A comparable proportion of respondents in Mile-Four (93.1%) and St.Vincent (94.5%) perceived reminders and recalls very important. There was significant relationship between respondent's marital and educational status and positive perception about immunisation reminders and recalls in Mile-Four and respondent's age and marital status and positive perception about immunisation reminders and recalls in St.Vincent (p<0.05).

Conclusion: Respondents' awareness was low but positive perception to reminders and recall was found. It is pertinent for health policy makers and programme managers to understand these factors when implementing immunisation communication system.

Keywords: Awareness, perception, phone reminders and recall, immunisation uptake,

Abakaliki

Introduction:

Poor compliance to immunisation schedules and completion of recommended vaccinations limit the effectiveness of vaccination¹. Globally, about 22 million infants are not fully immunised with routine vaccines and more than 1.5 million children less than five years of

45 age die from vaccine preventable diseases² Immunisation reminder and recall systems are
46 cost-effective methods whereby infants are reminded of future immunisation appointments or
47 those **who came for vaccination** but fail to continue or come for subsequent vaccinations are
48 identified and contacted to come to the immunisation clinic or physician's office for its
49 completion. They are effective in improving adherence to recommended immunisation
50 schedules³⁻⁷ However, caregivers' level of awareness, perception to this system in the study
51 area is not known. **This study therefore assessed the level of awareness, perception to**
52 **immunisation reminders and recalls in Abakaliki.**

53 **Materials and Methods**

54 A descriptive analytical study design comparing two large health facilities (Mile-Four and
55 St.Vincent Hospitals) in Abakaliki was used for the survey. The study population comprised
56 mothers/caregivers accessing childhood immunisation services at those facilities. Sample size
57 was determined using the formula for comparing two proportions^{8,9}. Consent was obtained
58 from respondents after which data were collected using semi-structured interviewer
59 administered questionnaire from 145 caregiver-child pair from each group selected using
60 systematic random sampling technique. Statistical Package for Social Science (SPSS) version
61 22 was used for analysis. Chi-squared test was used for association with significance level set
62 at $p < 0.05$ and confidence level at 95%. Associations between socio-demographic variables
63 and immunisation reminders and recall awareness, perception were determined.

64 Ethical approval was obtained from the Research and Ethics Committee (REC) of the Federal
65 Teaching Hospital Abakaliki (FETHA), Ebonyi State, Nigeria. Permission was also obtained
66 from the management of both Mile-four and St.Vincent hospitals. Informed consent was
67 obtained from the parents/caregivers after full explanation of purpose of the study to them.
68 Only those parents/caregivers who gave their consent by signing the informed consent form
69 participated in the study.

70 **Results**

71 The mean age of respondents in Mile-Four and St.Vincent hospitals were 26.6 ± 4.9 years and
72 27.1 ± 4.2 years respectively. **Their age range were 15-39 years.** Table 2 showed that higher
73 proportion of caregivers in Mile-Four group (18.6%) than in St.Vincent group (14.5%) had
74 ever heard of immunisation reminders and recalls prior to this study. The difference in their
75 proportion was not statistically significant ($p=0.34$). Similarly, only 8.3% of caregivers in
76 Mile-Four and 4.8% in St.Vincent had ever been reminded and/or recalled on the course of
77 their children's immunisation uptake. The proportions who had ever been reminded of or
78 recalled in the two groups showed no significant difference ($p=0.23$).

79 Most of the caregivers perceived the clinic environment, long waiting times and health
 80 worker attitudes as barriers to receiving vaccination information. Table 3 showed that
 81 comparable proportion of respondents in Mile-Four (93.1%) and St.Vincent (94.5%)
 82 perceived reminders very important/necessary, while 93.1% (Mile-Four group) and 89.7%
 83 (St.Vincent group) perceived recalls very necessary. There was no significant difference in
 84 their perception ($p>0.05$).

85 There was significant relationship between respondent's marital, educational status and
 86 positive perception about immunisation reminders and recalls in Mile-Four and respondent's
 87 age, marital status and positive perception about immunisation reminders and recalls in
 88 St.Vincent.

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90 **Table 1: Socio-demographic characteristics of respondents in the study and control**
 91 **groups**

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Variables	Mile-Four (n=145) Freq. (%)	St.Vincent (n=145) Freq. (%)	χ^2	p-value
Sex				
Male	5 (3.4)	4 (2.8)	FT	0.73
Female	140 (96.6)	141 (97.2)		
Age group (years)				
15-19	11 (7.6)	9 (6.2)	6.38	0.16
20-24	50 (34.5)	37 (25.5)		
25-29	48 (33.1)	68 (46.9)		
30-39	36 (24.8)	31 (21.4)		
Marital status				
Married	137 (94.5)	134 (92.4)	2.44	0.69
Single	8 (5.5)	11 (7.5)		
Education				
Primary	10 (6.8)	17 (11.7)	3.67	0.15
Secondary	88 (60.7)	93 (64.1)		
Tertiary	47 (32.4)	35 (24.1)		
Employment				
Paid employment	25 (17.2)	21 (14.5)	2.75	0.25
Self employment	56 (38.6)	70 (48.3)		
Unemployed	64 (44.1)	54 (37.2)		
Religion				
Christianity	142 (97.9)	143 (98.6)	FT	1.00
Others	3 (2.1)	2 (1.4)		

93 **FT= Fisher's exact test**

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97 **Table 2: Respondents' awareness and usage of immunisation reminders and recalls**

Variables	Mile-four group (n=145) Freq. (%)	St.Vincent group (n=145) Freq. (%)	χ^2	(p-value)
Ever heard of reminders and recalls				
Yes	27 (18.6)	21 (14.5)	0.89	0.34
No	118 (81.4)	124 (85.5)		
Ever been reminded or recalled by health worker				
Yes	12 (8.3)	7 (4.8)	1.40	0.23
No	133 (91.7)	138 (95.2)		

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100 **Table 3: Respondents' perception to immunisation reminders and recalls**

Variables	Mile-Four group (n=145) Freq. (%) Yes	St. Vincent group (n=145) Freq. (%) Yes	χ^2	(p-value)
Perception to Immunisation reminders				
Necessary	135 (93.1)	137 (94.5)	0.23	(0.62)
Not necessary	10 (6.9)	8 (5.5)		
Perception to Immunisation Recalls				
Necessary	135 (93.1)	130 (89.7)	1.09	(0.29)
Not necessary	10 (6.9)	15 (10.3)		

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104 **Table 4: Within group relationship between socio-demographics and perception to**
105 **reminders and recalls in both groups.**

Variable	Mile-four group (n=145)				St.Vinxcent group (n=145)			
	Perception to reminders and recalls			χ^2 (p-value)	Perception to reminders and recalls			χ^2 (p-value)
Necessary Freq. (%)	Not necessary Freq. (%)	Total	Necessary Freq. (%)		Not necessary Freq. (%)	Total		
Gender								
Male	5 (100.0)	0 (0.0)	5	FT (1.00)	8 (100.0)	0	8	FT (1.00)
Female	130(92.9)	10 (7.1)	140		121(88.3)	16 (11.7)	137	
Age group (yrs)								
15-19	9 (81.8)	2(18.2)	11	6.95	5 (55.5)	4 (44.5)	9	9.84

				(0.07)				(0.02)*
20-24	49 (94.2)	3 (5.8)	52		31 (83.8)	6 (16.2)	37	
25-29	46 (95.8)	2 (4.2)	48		56(82.4)	12 (17.6)	68	
30-39	31 (86.1)	5 (13.9)	36		22 (70.9)	9 (29.1)	31	
Marital status								
Single	5(62.5)	3 (37.5)	8	14.64(0.01)*	14 (63.6)	8 (36.4)	22	14.30(<0.01)*
Married	130(94.9)	7 (5.1)	137		111(90.2)	12 (9.8)	123	
Educational status								
Primary	7 (70.0)	3 (30.0)	10	7.35 (0.02)*	10 (71.4)	4 (28.6)	14	3.63 (0.13)
Secondary	80 (90.9)	8 (9.1)	88		72(88.9)	9 (11.1)	81	
Tertiary	41 (87.2)	6 (12.8)	47		43 (86.0)	7 (14.0)	50	
Employment status								
Paid employment	21 (84.0)	4 (16.0)	25	4.28 (0.10)	37 (88.1)	5 (11.9)	42	3.16 (0.20)
Self employed	49 (87.5)	7 (12.5)	56		30(75.0)	10 (25.0)	40	
Unemployed	61 (95.3)	3 (4.7)	64		57(90.5)	6 (9.5)	63	
Religion								
Christianity	132(92.9)	10 (7.1)	142	FT (1.00)	27(98.5)	16(100.0)	286	FT (1.00)
Others	3 (100.0)	0 (0.0)	3		4 (1.5)	0 (0.0)	4	

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107 In Table 4 above: the response was analysed using the perception question-“what do you
108 think about parents/caregivers being reminded of their children’s immunisation appointments
109 before the date”?

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111 Discussion

112 Higher proportion of caregivers in Mile-Four group than in St.Vincent group had ever heard
113 of immunisation reminders and recalls prior to this study. Similarly, lower proportion of
114 caregivers in Mile-Four and in St.Vincent had ever been reminded and/or recalled on the
115 course of their children’s immunisation uptake for improved immunisation coverage. This
116 finding perhaps may have contributed to the large proportion of missed immunisations in the
117 study groups¹⁰. This finding is higher than that reported in Ibadan, Nigeria where only 3.9%
118 had ever heard of immunisation reminder and recall and 1.5% had ever received one¹¹.
119 Comparably a higher proportion of female caregivers in the Mile-Four group and St.Vincent
120 group were aware of immunisation reminders and recalls than the male caregivers. The
121 difference in the awareness of this reminders and recalls between the male and female
122 caregivers may be due to the fact that women are mostly involved in immunisation of their
123 children and are such more concerned with information regarding childhood immunisation¹⁰.
124 The higher level of awareness among the female caregivers would invariably lead to
125 improved childhood immunisation¹⁰. It is however lower than the findings in Lagos

126 University Teaching Hospital (LUTH), Nigeria where 43% had ever received a health-related
127 reminder from their global system for mobile communication. (GSM) provider while 52%
128 had ever received one from an individual/organisation providing medical services¹⁰. That
129 may be due to the fact that Lagos is a more cosmopolitan city than Abakaliki with higher
130 literacy level. It may also be explained by the fact that there are many other awareness
131 programmes through use of electronic media in Lagos. In a study by UNICEF, about ninety
132 five percent (95.6%) of the respondents believed that adherence to immunisation schedule is
133 important. Despite large proportion of respondents (60.9%) being of the opinion that mothers
134 should not forget their children's immunisation appointments, significantly high proportion
135 (92.8%) still believed it is important that parents are reminded of their children immunisation
136 before the appointment day. Almost all the caregivers (98.7%) perceived immunisation
137 reminders helpful in adhering to their children immunisation schedules¹². The perception of
138 the mothers in that study demonstrated their support for childhood immunisation because
139 over half of them were of the opinion that mothers should not forget their children
140 immunisation appointment days. Despite that, they still supported the use of immunisation
141 reminder and recall. Sixty seven percent preferred telephone reminders to SMS and 69%
142 perceived reminders to be very beneficial¹⁰.

143 In this study, comparable proportion of the respondents perceived immunisation reminders
144 and recalls necessary. The respondents believed that immunisation reminders and recalls are
145 veritable tools that would help caregivers to remember appointment date of their children,
146 thus improving immunisation coverage. There was significant relationship between
147 respondent's marital, educational status and positive perception about immunisation
148 reminders and recalls in Mile-Four and also between respondent's age, marital status and
149 positive perception about immunisation reminders and recalls in St.Vincent. The married
150 state of caregivers appeared to be a promoter of immunisation uptake in this study. This is
151 because married couples are much more concerned about immunisation of their children than
152 the single or social mother. These findings are comparable to a study in Ibadan where 92.8%
153 mothers believed that it is important that parents be reminded of their children's
154 immunisation before the appointment day¹³ and reports by UNICEF where almost all the
155 mothers (98.7%) perceived immunisation reminders helpful to mothers in adhering to their
156 children's immunisation schedules¹². This is believed to be due to the increasing quest for
157 higher education and enlightenment on the importance of childhood immunisation among
158 women in the area and repeated immunisation campaign by government agencies and non-
159 governmental organisations even in the rural areas of the state.

160 It is however higher than the finding from Lagos where 69% perceived reminders to be very
161 beneficial¹⁰ and that in Kansas, USA where 35% of respondents perceived cell phone use
162 among their patients necessary¹⁴. It is expected that higher proportion of respondents in these
163 Lagos and Kansas studies would perceive immunisation reminders and recall very important
164 owing to high level of literacy and awareness of importance of immunisation reminders and
165 recalls when compared with the findings of this present study in Abakaliki where literacy
166 level and awareness are lower. The way immunisation reminders and recalls are perceived by
167 caregivers affects the outcome of immunisation uptake¹⁰.

168 **Conclusion**

169 There was higher awareness of immunisation reminders and recall in Mile-Four than
170 St.Vincent. Comparable proportion of caregivers in both groups perceived immunisation
171 reminders and recalls as necessary. It is pertinent for health policy makers and programme
172 managers to understand these factors when implementing immunisation communication
173 system.

174 **ETHICAL ISSUE :**

175 Ethical approval was obtained from the Research and Ethics Committee (REC) of the Federal
176 Teaching Hospital Abakaliki (FETHA), Ebonyi State, Nigeria. Permission was also obtained
177 from the management of both Mile-four and St.Vincent hospitals.

178 **CONSENT:**

179 Informed consent was obtained from the parents/caregivers after full explanation of purpose
180 of the study to them. Only those parents/caregivers who gave their consent by signing the
181 informed consent form participated in the study.

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