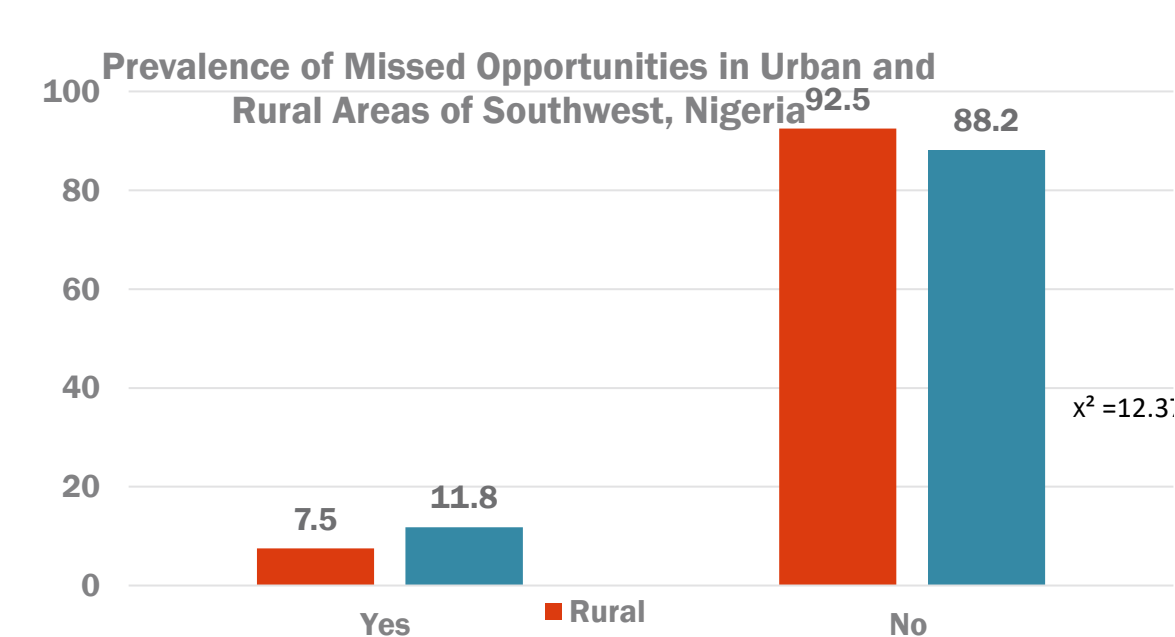


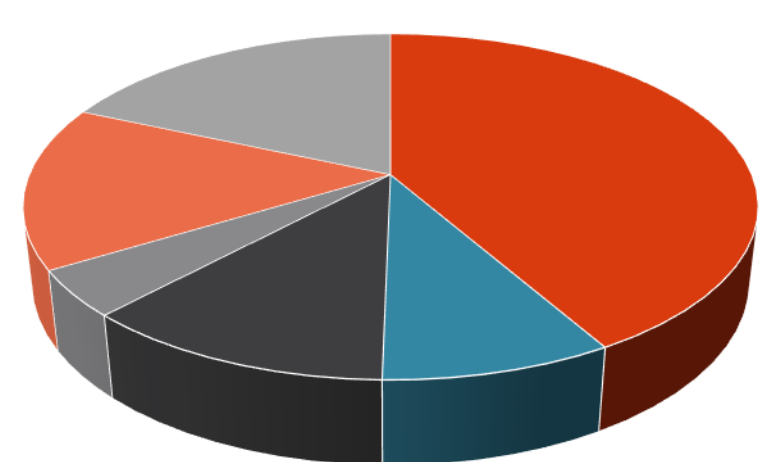
Background

Missed Opportunities for Immunization (MOI) is defined as missing the benefit of getting immunization by the partially or non-immunized child during a visit to a health facility for health care, when there is no absolute contraindication. Missed opportunity for vaccination among children could be attributed to the health system, health workers and caregiver factors. Very few studies looked at associated factors like ethnicity, socio cultural, economic, and political factors

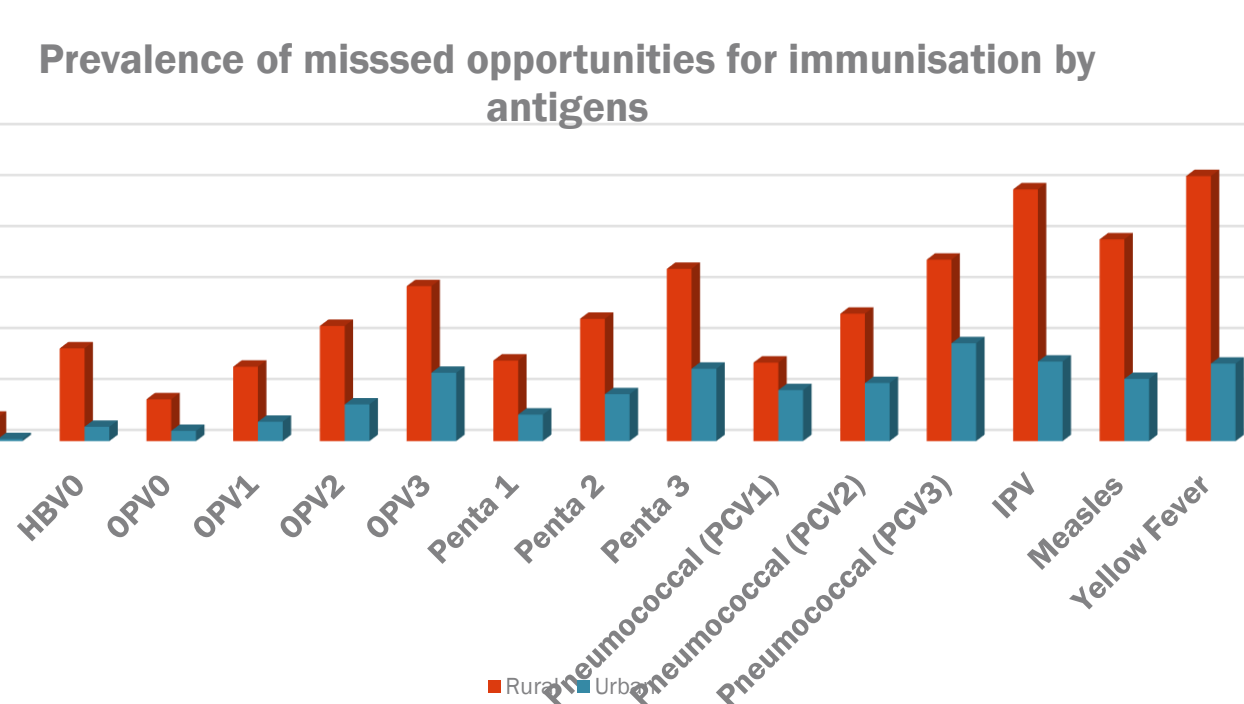
Graphs/Figures



Reasons for Missed Opportunities for Immunisation



- Non availability of vaccines
- Child brought to facility but ill
- Visit not scheduled
- Facility closed
- Open vial policy
- Long wait time



Specific Aims & Objectives

This study tends to determine and compare the prevalence of missed opportunities for immunization and the associated demographic, social, economic, ethnic and political factors in urban and rural areas of southwest Nigeria.

Methods

The study was conducted in urban and rural areas in southwest, Nigeria. The southwest, Nigeria comprises of six states, Ogun, Lagos, Oyo, Ondo, Ekiti and Osun States. The states have local government areas which are stratified into urban and rural within three senatorial districts in the states. It was a cross sectional study that employed the mixed method (quantitative and qualitative) of data collection. The study population for the quantitative study was mothers with index children aged 12-23 months both male and female living in rural and urban areas of southwest zone, Nigeria. The study population for qualitative study was community and opinion leaders in the urban and rural areas of southwest, Nigeria. The sampling of the mothers of the children aged 12-23 months from the urban and rural areas of the southwest zone, Nigeria employed the WHO cluster sampling technique. Two thousand, four hundred mothers with index children aged 12-23 months were recruited. Research protocol was submitted for ethical review and approval. Community entry was conducted before data collection. A pretested semi-structured adapted WHO questionnaire for Missed Opportunities for Immunization was used. Twenty-four focus group discussion (FGD) sessions were held with the mothers of children 12-23 months in urban and rural areas of the six states of southwest zone. In-depth-interviews (IDI) were also held with 240 community and 240 opinion leaders. The quantitative data was analyzed using IBM SPSS version 21 and STATA 13 software, univariate, bivariate and multivariate analyses were carried out. The qualitative data was subjected to content analysis after transcription.

Results

Quantitative

The number of respondents in the urban was 1100 and not 1200 as in the rural areas. The investigators couldn't access the urban area in one of the 6 states of the southwest zone, Nigeria. The demographic characteristics are significantly different in the two areas. The socio-economic characteristics are also significantly different in the two areas. The overall prevalence of missed opportunities for immunization for children is 9.6% ; 7.5% in rural areas compared with 11.8% in urban areas. The dose specific prevalence of missed opportunities for immunization in rural areas was highest for BCG, HBV and OPV0 and lowest for BCG and OPV0 in urban areas. The reasons for missed opportunities for immunization in both areas are non-availability of vaccines, long wait time, visit not scheduled and child brought to facility ill. The demographic factors of mothers, ethnic and religious factors were not significantly associated with prevalence of missed opportunities for immunization. The social factors are significantly associated with the prevalence of missed opportunities for immunization. Children whose mothers had secondary and tertiary levels of education in rural areas were less likely to experience missed opportunities for immunization than those who had no level of education (OR =0.35, 95% CI 0.21-0.59) & (OR=0.11, 95% CI 0.62-1.79). Similarly, the odds were lower amongst children whose fathers had secondary and tertiary levels of education in rural areas than those who had no level of education. (OR =0.56, 95% CI 0.36-0.87) & (OR=0.19, 95% CI 0.12-0.30). Children whose mothers are skilled mothers, their odds of missed opportunities for immunization increased by 1.50-fold while those with professional mothers in the rural areas are less likely to experience missed opportunities of immunization than children of unskilled mothers. (OR =1.5, 95% CI 1.22-1.86) & (OR =0.34, 95% CI 0.25-2.46). Children of professional fathers in rural areas are less likely to experience missed opportunities for immunization compared with children of unskilled fathers. (OR=0.14, 95% CI 0.35-0.55).

Children aged 16-19 months in the rural areas, their odds of missed opportunities for immunization increased by 1.43 compared to children aged 12-23 months. (OR=1.43, 95% CI 1.17-1.76). While children delivered in health facilities in rural areas experienced lower odds of missed opportunities for immunization compared to children delivered in homes and mission houses. (OR=0.42, 95% CI 0.35-0.52). The children whose mothers received immunization messages in rural areas were less likely to experience missed opportunities for immunization compared to children of mothers who did not receive immunization messages. (OR =0.56, 95% CI 0.48-0.67).

Qualitative

There are divergent views on associated factors of missed opportunities for immunization. Several factors were mentioned as possible barriers to immunization in the communities by mothers included concerns about the side effects of immunization on the children and religious beliefs. Community and opinion leaders reported distance to the health facility, lackadaisical behavior of parents, past experiences, and cultural practices, level of education, religious belief, attitude of health workers and situation of relocation as factors. Government was said to be greatly involved in providing resources for immunization and making it free for all. They facilitate community campaigns to encourage parents to get their children immunized.

Table 1: Parent's socioeconomic factors associated with prevalence of missed opportunities of immunization

Factors	Odds ratio	95%CI	Pvalue
Mothers' educational status			
None	1.00		
Primary	0.77	0.44-1.36	0.37
Secondary	0.35	0.21-0.59	0.0001
Tertiary	0.11	0.62-1.79	0.0001
Fathers' educational status			
None	1.00		
Primary	1.04	0.60-1.02	0.88
Secondary	0.56	0.36-0.87	0.01
Tertiary	0.19	0.12-0.30	0.0001
Mothers' occupational status			
Unskilled	1.00		
Skilled	1.50	1.22-1.86	0.0001
Professional	0.34	0.25-0.46	0.0001
Fathers' occupational status			
Unskilled	1.00		
Skilled	1.09	0.89-1.33	0.41
Professional	0.41	0.35-0.55	0.0001

Table 2: Child and other factors associated with prevalence of missed opportunities for immunization

Factors	Odds ratio	95%CI	Pvalue
Child's age(months)			
12-15	1.00		
16-19	1.43	1.17-1.76	0.0001
20-23	1.16	0.96-1.42	0.13
Sex of the child			
Male	1.00		
Female	0.89	0.76-1.05	0.17
Place of delivery			
Home /mission	1.00		
house	0.42	0.35-0.52	0.0001
Health facility			
Received immunization messages			
No	1.00		
Yes	0.56	0.48-0.67	0.0001

Conclusions

Evidence suggests the existence of missed opportunity for immunization in urban and rural areas of southwest Nigeria. The reasons given for missed opportunity for immunization are nonavailability of vaccines, long wait time, visit not scheduled, child brought to facility ill but not vaccinated and open vial policy. The other reason is the distance of the facility. The social and economic factors associated with missed opportunity for immunization are educational level of mothers, occupational status of mothers and child factors are age of the child and place of delivery. Government are involved in immunization at all levels, supported by international organizations and partners. The findings and lessons learnt from the present study are vital for informing quality improvement in interventions to reduce missed opportunities for immunization in among children aged 12-23 months in urban and rural areas of southwest zone, Nigeria. This might be a practical strategy for improving immunization services and mothers use of approved health facilities. It might also be an advocacy tool for Government continual support for immunization through provision of necessary logistics and funds.

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