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# Vitamin A Supplementation in Children in Guédiawaye Health District, Senegal

To assess the coverage rate of routine vitamin A supplementa tion, a descriptive study was carried out in the Guédiawaye Health District. The coverage rate for vitamin A supplementation was 48.6%. Age over 24 months, uneducated father, maternal age over 25, and lack of disease-related knowledge were factors associated with delayed vitamin A supplementation.

**Keywords**: *Coverage, Health program, Under-5 children*.

Vitamin A deficiency remains a public health problem in developing countries, particularly in Africa and the Indian subcontinent. It affects young children, often associated with protein-energy malnutrition, and pregnant women [1]. Vitamin A supplementation is recommended in infants and children aged 6-59 months as a public health intervention to reduce child morbidity and mortality [2]. In accordance with this guideline, Senegal adopted vitamin A supplementation as a strategy during routine immunization activities and mass campaigns, since 2013. The objective of this study was to determine the coverage rate for vitamin A supplementation among children 6-59 months of age in the Guédiawaye Health District.

This community-based descriptive study was conducted from 1 June to 30 November, 2018 in the Guédiawaye district. The surveys relating to the characteristics of the child, the family and knowledge about vitamin A supplementation concerned the households drawn at the level of each stratum, using a systematic two-stage cluster random sampling. The first stage consisted in selecting neighborhoods within the geographical area of the district, and the second stage in selecting households within the drawn neighborhoods. In each selected household, all children aged 6-59 months were included in the survey. Data collection was carried out by two trained investigators. Each investigator was accompanied by a *bajenou ngox*, a neighborhood godmother, to facilitate the interview. The parameters studied were: the individual characteristics of the child (age, sex, position within sibling, spacing interval between births), household characteristics, and knowledge about vitamin A supplementation. A written informed consent was obtained from the individual parent prior to the survey.

The median age of fathers was 38 and that of mothers 28 years. The average household size was 7 people. Out of 366 children aged 6-59 months surveyed, 188 (51.4%) had not received vitamin A. The coverage rate was higher for children over 23 months of age (65.6%). Before 12 months, coverage rate was 36.8% and between 12 and 23 months 64.6%. The characteristics of the households surveyed are summarized in **Table I**. Age over 24 months [OR (95% CI) 3.41 (1.87-6.19); $P<0.001$], father's lack of education [OR (95% CI)1.49 (0.91-2.44); $P=0.11$], maternal age over 25 year [OR (95% CI) 1.74 (1.01-3.02); $P=0.04$], and lack of knowledge of means of protection against diseases [OR (95% CI) 1.43 (0.83-2.44); $P=0.19$] were factors associated with delayed vitamin A supplementation.

Improving the vitamin A status of under-5 children increases their chance of survival by reducing mortality by 25% from childhood illnesses such as malaria, diarrhea, acute

**Table I Household Characteristics**

| *Characteristics* | *No. (%)* |
|---|---|
| Interviewee: | |
| Mother | 182 (96.8) |
| Married | 176 (93.6) |
| Educated father | 139 (73.9) |
| Educated mother | 90 (47.9) |
| Mother employed | 66 (35.1) |
| *Fathers occupation* | |
| Liberal profession | 129 (68.6) |
| Civil servant | 31 (16.5) |
| Worker | 18 (9.6) |
| *Housing occupancy status* | |
| Tenant | 109 (58.0) |
| Family property | 47 (25.0) |
| Owner | 31 (16.5) |
| Free accommodation | 1 (0.5) |
| *Main source of income* | |
| Trade | 146 (77.7) |
| Salary | 35 (18.6) |
| Other source | 7 (3.7) |
| Main source of stable income | 35 (18.6) |
| Main source of regular income | 35 (18.6) |
| *Income amount per mo*[a] | |
| 36000 – 72000 XOF | 2 (1.1) |
| Over 72 000 XOF | 3 (1,6) |
| Does not know | 178 (94.7) |

[a]*refused to answer. XOF – West African CFA Franc.*

respiratory infections and measles [3]. Therefore, evaluating the coverage rate for vitamin A supplementation and knowing the factors associated with delayed supplementation help reduce under-5 morbidity and mortality. A vitamin A supplementation coverage rate of 48.6% was found in this study. This rate is lower than that found in the 2017 demographic and health survey (57.4%) [7] and that of the local vitamin A supplementation days (90.4% in June, 2011 and 93.5% in December, 2011) [8]. In Mali, Sangho, et al. [9] found a 90% vitamin A supplementation coverage rate in children. These higher coverage rates than that found in this study do not reflect the results associated with routine vitamin A supplementation because in these studies the surveys were carried out immediately after supplementation campaigns. This proves that routine vitamin A supplementation activities alone do not achieve the expected coverage rates, hence the need to couple them with mass campaigns. According to WHO, vitamin A supplements should be given to children 6 to 59 months of age twice a year, during contact with the health system [2].

Children between 12 and 23 months of age and those between 24 and 59 months of age were 3.53 times and 3.41 times, more likely respectively to receive vitamin A than infants between 6 and 12 months of age, in this study. This could be due to vitamin A supplementation being integrated into immunization activities in Senegal, and that the older the child the more contact he has with these services. Likewise, fathers' lack of education and knowledge of protective measures against diseases were associated with no vitamin A supplementation. Fathers' education was previously also reported to be associated with vitamin A coverage of children in Mali [10]. Possibly the role of fathers in healthcare decisions, and parental education promoting better adherence to interventions are the reasons for these findings.

This study reveals that vitamin A supplementation coverage in routine activity seems low in the study area. Educating parents and organizing mass campaigns could help improve coverage rates.

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