

# Self-Medication Among Children Under 5 Years Living in Rural Area, Ferlo Senegal

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**Abstract:** In African rural area, self-treatment has its place in the devices of therapeutic choices. The aim of this study was to determine the extent and pattern of self-treatment among children living in Senegal rural area. A cross-sectional study was carried out to examine the place of self-treatment in the stages of the therapeutic itinerary among children living in Senegal rural area in March 2017. Using Schwartz formula for sampling, we had included in this study 173 children aged 6 to 59 months living in the area of Widou Thiengoly. Mothers were interviewed on the therapeutic itinerary chosen in case of children disease. Bivariate and multivariate analyses were made. Most of children (82.3%) lived on more than 1 hour drive from health facility. For the first instance of therapeutic choice, most of mothers (61.2%) used self-medication in case of children disease, 35.3% of mothers used health facilities and 2.6% choosed traditional healers. For second instance, only 2.4% of mothers were used self-medication. For third instance, there was no self-treatment. Therapy organizing group were led by mothers at 56.5% and fathers in 45.6%. At 77.6% of cases, there were discussions to decide on the treatment of the child. In most cases, fathers were interviewed (90.9%) to give their opinion on the therapeutic choice. Fathers paid for children care in 87.6% of cases. 30.6% of mothers said that self-medication was cheaper compared to health facilities and traditional healers. 95.3% said that they believed that it was most efficiency to use a lot of type of therapeutic in same moment. Multilogistic regression found that living away from health facility (more than 30 minutes) was positively correlate with self-treatment  $p < 0.01$ ,  $OR_{adj} = 5.39$   $IC = [1.42-24.26]$ . This study contributes to the knowledge of self-treatment choices regarding children disease management in Senegal rural area. This study shows that geographical inaccessibility of health facilities impact on self-medication practices in rural area.

**Keywords:** Self-Medication, Children, Rural Area, Senegal

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## 1. Introduction

In Senegal, the search for care for sick children is intimately linked to self-treatment practice and low use of health facilities [1]. In the "Sénégal-Analyse globale de la vulnérabilité, de la sécurité alimentaire et de la nutrition" (AGVSAN) report [2], we note that with most children living in villages in Senegal, the initial care begins with self-medication at the expense of the use of health facilities. Self-medication refers to all practices related to "self-care",

through "products" or practices to improve health without the use of a health professional. The diversity of therapeutic offers is a proven fact in the contemporary world. It refers to a cosmopolitan therapeutic space. In Africa, there is a wide range of therapeutic remedies, ranging from modern medicine to traditional medicine, through cults healing Jewish-Christian or prophetic or maraboutic practices. Beside these possibilities of recourse, are added the popular

practices of care whose main actors are the mothers, the fathers, the grandmothers and grandfathers, but also all the peddlers of medicines (modern or traditional) sold at the detail through African towns and villages [3]. The success of this therapeutic pluralism in Africa is commensurate with the health system crisis and, more generally, with the crisis in African states [4]. Self-medication is often the first step in treatment [5]. Many studies concern self-medication, but very little has been done in self-medication among young children in rural Africa. The main of this article is to analyze the place of self-medication among children in a rural environment in Ferlo, Senegal.

## 2. Materials and Method

### 2.1. Study Area and Population

This study was made in Widou Thiengholi. Widou is an area located in the department of Linguère in the Ferlo of Senegal. This zone is the seat of the implantation of the great green wall. The number of inhabitants of the Widou Thiengoly area is estimated at about 5,200 people [6]. The majority of Widou's population is nomadic Fulani whose encampments revolve around the Widou borehole. The study looked at children under 5 living in the study area. The children under 5 years old were included in the study. Children fewer than 5 whose parents refused to answer questions and those who were not found in households were excluded from the study.

### 2.2. Type of Study

A cross-sectional study for descriptive and analytical purpose was used to assess practices of self-medication among children less than 5 years.

### 2.3. Sample Size Determination and Sampling Technique

A representative sample size of 173 was obtained using formula for descriptive study design [7],  $n = Z^2 \alpha \times pq/d^2$  where  $n$ , is sample size;  $Z\alpha$  is standard normal deviate at alpha error corresponding to confidence value of 1.96;  $p$  is the proportion of factor of interest under study in the previous study and  $q$  is complimentary probability of  $p$  while  $d$  is level of precision set at alpha value of 5% (0.05) [7]. In Widou, the child population is estimated at 988 (19% of 5200 people living in Widou). Nineteen percent (19%) is the size of the child population in Senegal. In Linguère, department, the prevalence of malnutrition is 12.3% according to the SMART survey. The selection of the prevalence of malnutrition as the basis for sampling ( $p$ ) is linked to the fact that it is one of the leading causes of morbidity and is associated with 50% of the causes of death among children under 5 in Africa [8]. Taking into account the number of non-respondents, the total sample size is 170 children. The questionnaires were administered to the mother of each child included in the sample. Thus 170

mothers of children under 5 were surveyed.

For sampling technique, household were selected using simple random sampling technique method (Balloting technique). Where in the selected house, the eligible person refused to participate, the next sampling unit was selected.

### 2.4. Data Collection and Analysis

The survey was done in 2017 by 3 investigators speaking the vernacular language of the area which is fulbé. The questions concerning the therapeutic routes were thus asked to the Fulbe mothers. Mothers and their children were all found in the household.

Data analysis was done using R studio software version 3.1.3. The mean and standard deviation was calculated for the continuous data while the categorical data were expressed in frequency and percentages. Multivariate logistic analysis was made to determine factors associated with self-medication. Variables included in the model were socio-demographic variables, type of household, type of organization of the therapy organizing group and the organization of the modern local health care system.

### 2.5. Ethical Consideration

Prior to the commencement of the study approval had been obtained from the University Cheikh Anta Diop Local Research Ethics Committee (Reference: Protocol 074/2015/CER/UCAD).

## 3. Results

### 3.1. Sociodemographic Characteristics of the Population

In our sample, the average age of the mothers was 28.1 +/- 8.01 years; the average age of the fathers was 38.35 +/- 9.1 years. Ninety eight percent (98.8%) of mothers are married. Seventy three (72.94%) of target children were between 24 and 60 months old.

Eighty-two percent (82.25%) of the sample take more than one hour to reach the nearest health facility.

*Table 1. Description of the time taken to reach the nearest health facility.*

Time Set to Join the Health Structure	Frequency	Percentage
1- Less than 30 minutes	18	10,65%
2- Between 30 min and 1 hour	12	7,10%
3- 1 hour	22	13,02%
4- More than 1 hour	65	38,46%
5- More than 2 hours	52	30,77%

### 3.2. Description of the Group Organizing Care

In 56.5% of cases, it is the mother who decides that the child needs care. In most cases (77.6%), there is a discussion in the family about the therapeutic choice. This discussion mainly concerns the father in 90.9% of the cases. It is noted that care is paid by fathers in 87.6% of cases.

**Table 2.** Description of the Therapy Organizing Group.

	Absolute frequency (n)	Relative frequency (%)
Leader of the therapy organizing group		
Mother	96	56,5
Father	77	45,3
Grand-mother	8	4,7
Grand father	1	0,6
Existence of discussion about therapeutic choice		
Yes	132	77,6
No	38	22,4
Parents involved in discussions about therapeutic choices		
Father	120	90,9
Mother	23	17,4
Grand-father	19	14,4
Grand-mother	2	1,5
Parents involved in the payment of child care		
Father	149	87,6
Mother	17	10,0
Grand-mother	9	5,3
Grand father	3	1,8

### 3.3. Description of Therapeutic Itinerary

In most cases (61.8%), at the first resort the preferred choice of the population is self-medication. As a second recourse, the health post is more used (84.1%). At the third level, there is still a better use of modern health posts (84.7%) and hospitals (23.5%).

There is a therapeutic wandering in 95.3% of cases. They believe that it's most efficiency to use a lot of type of therapeutic in same moment.

**Table 3.** Description of Therapeutic Routes.

	Absolute frequency (n)	Relative frequency (%)
First resort in case of illness		
Self-medication	105	61,8
Health post	60	35,3
Traditional healer	5	2,9
Second resort in case of illness		
Health post	143	84,1
Traditional healer	18	10,6
Self-medication	6	3,5
Hospital	3	1,8
Third resort in case of illness		
Health post	144	84,7
Hospital	40	23,5
Traditional healer	33	19,4
Health case	1	0,6

### 3.4. Multivariate Analysis

Mom-child dyads living more than 30 min from the health facility were 5.39 times more likely to use self-medication (ORaj = 5.39 CI: 1.42-24.26).

**Table 4.** Multivariate analysis.

	P	ORaj	CI
Mother's age	0.99		
≥45 years		0.45	0.12-1.51
<45 years		1	
Marital status (married)	0.99	NA	
Yes			
No			
Type of household	0.55		
Polygamous		1.94	0.19- 20.20
Monogamous		1	
Presence of a caretaker	0.35		
No		2.10	0.47- 11.52
Yes			

	P	ORaj	CI
Child sex	0.78		
Female		0.91	0.45- 1.80
Male			
Existence of discussion about the type of care	0.99		
Yes		NA	
No			
Mother leader group therapy organizer	0.47		
Yes		0.65	0.19- 2.06
No		1	
Father Leader Group Therapy Organizer	0.25		
Yes		0.48	0.14-1.56
Non		1	
Belief in the effectiveness of several remedies	0.52		
Yes		2.68	0.09-78.69
No		1	
Transhumance family	0.25		
No		0.66	0.32-1.32
Yes		1	
Time to join the structure (more than 30 minutes)	0.01 *		
Yes		5.39	1.42- 24.26
No		1	
Presence of health structure in the housing area	0.65		
Yes		2.17	0.05- 81.76
No		1	

NA: Non applicable.

## 4. Discussion

The collective approach in the management of child health induces a long decision-making process, a confrontation of knowledge that favors self-treatment [9]. In our study, in 77.6% of the cases, there was within the families, a process of consultation leading to the therapeutic decision. This discussion mainly concerns the father in 90.9% of the cases. It is noted that care is paid by fathers in 87.6% of cases. However, we note in our study that in 56.5% of cases, it is the mother who decides that the child needs care. Studies in Africa have shown that women participating in health care decisions [10; 11]. In general, self-medication has its place in the devices of therapeutic choices. Thus it is not uncommon for a user in Africa to go directly to a private pharmacy and find his happiness. This is the case in the study by Hounsa A. et al which raises the problem of modern self-medication through antibiotics in Abidjan [5]. Self-medication is usually the first step of treatment. If it does not succeed, the patient turns separately, simultaneously or alternatively generally to traditional healers, religious, health facilities [12]. Therapeutic choice is determined by cognitive models that have long been studied according to Keith J.1997 [13]. According to him, the first therapeutic recourse is explained by belief patterns that are subject to the expressed need and to the benefits and risks of treatment. We realize that at first resort, most families choose self-medication as the first therapeutic remedy (61.8%), followed by the health post (35.3%) and then the traditional health practitioner (2.9%). In Africa, numerous studies have shown the predominance of self-medication on other types of treatment [14, 15]. In Senegal, the results of Franckel (2004) show an intense practice of home care and a low use of health facilities [1].

Similarly, Faye S. et al (2004) shows that in Senegal, self-treatment is the first response to childhood diseases [9]. The high price of drugs at the community level would influence patients' attitudes towards the drug [16]. Thus, it is recommended to take into account the context of poverty and vulnerability of patients in setting up treatment at the community level. For some authors in Mali in particular, the low income of the poor leads to reducing to a strict minimum the use of modern health centers and to favor alternative solutions such as self-medication and the use of traditional medicine because modern medicine often costs very expensive [17]. In Senegal, parents usually give credit to biomedicine but their financial precariousness predisposes them to use self-medication to the detriment of the health structure [9]. Ndir in Senegal shows that the main reason given for self-medication is the lack of financial means [18]. However, the main determinant of self-medication at first resort is the geographical inaccessibility of modern health care facilities, in this case the health post. The results of our study challenge the geographical access of health structures in rural areas. Only 10.65% of patients live within 30 minutes of the nearest health facility. Living more than 30 minutes from the nearest health facility favors the use of self-medication as the first use of care in children  $p = 0.01$  ORaj = 5.39 [1.42-24.26]. Other studies have found the influence of the accessibility of health structures in the definition of therapeutic routes [17; 19]. In Mali, for example, Coulibaly et al (2003) concluded that the geographical accessibility of health facilities in addition to the other elements involved in the provision of health services influences the therapeutic choice of patients [19]. Nikiema et al shows in their study in Burkina Faso that the proximity of a public health care structure and the quality of the services offered explain the more or less frequent use of care provision [20]. According

to Fleuret S. (2015), self-medication profiles are correlated with the socio-spatial practices of individuals [21]. Other studies show that there is a statistical correlation between the practice of self-medication and elements related to the spatial dimension (Fleuret et al online 2017) [22].

## 5. Conclusion

This article shows the place of self-medication within the system of recourse to care for children in rural Africa. The main determinant of self-medication at first resort is the geographical inaccessibility of modern health care facilities, in this case health posts. It is therefore important in public policies to take into account in the strategies for strengthening the health system, the need to increase the supply of health through geographical accessibility of health structures in rural areas.

The limits of this evaluation are related to the methodology. A mixed estimate with a complementary qualitative approach would have made it possible to explore socio-cultural factors impacting in self-medication.

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## Competing Interests

All authors declare that they have no competing interests.

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