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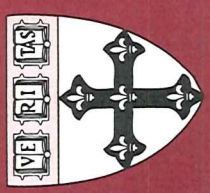

# Therapeutic Patterns Among Children with Fever in Rural Senegal

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## ABSTRACT

Because of increasing drug resistance, malaria remains a major public health issue. This study examines health seeking behaviours in rural Senegal through 85 interviews conducted in 1997. We put parents in a hypothetical situation and recorded independently mother's and father's care intentions in response to fever among children 2-5 years. Our findings confirm that mothers initially decide when and which first aid should be given, mostly beginning with 12-24 hours' home treatment. Fathers are consulted when illness requires external care. Therapeutic failures seem to be misinterpretations of aetiological origin rather than inappropriate or ineffective treatment, and parents easily change them therapy. The delay following family treatment and therapeutic changes can explain the high frequency of severe attacks of malaria in this population. Moreover, the misuse of modern treatment is also a factor in drug resistance, leading to therapeutic failure. We conclude with the necessity to examine more closely health-seeking behaviour and their determinants, representations of symptoms, perceptions of health care systems and interpretation on therapeutic failure. Results of such a study could be very helpful to produce suitable health information messages, to improve population's understanding of new sanitary conditions.

## INTRODUCTION

For over fifteen years, studies on the use of health-care services by the population in developing countries have significantly increased in number and evolved in their disciplinary approach. Sociologists and anthropologists, pioneers in this field research, are now followed by demographers, geographers and epidemiologists. A recent review presents a complete chronological account of work carried out in this field.[1] The authors show that these studies were developed when researchers realized that, in developing countries, increasing provision of the health care facilities does not automatically lead to increasing utilization. A major finding from these studies was the plurality of health care and the direction of much more attention to the diversity of source of illness treatment available to families. [2] These surveys also revealed the relative autonomy of the users towards health workers and the complexity of household-level decision-making. [3] [4]Health is not only a medical reality. It is also a social, cultural and economic reality. If health system and health training messages are to match the needs of the population, it is important to take into account the knowledge, beliefs and practices guiding their health-seeking behaviour at an individual and a household level. [5]

Since 1983, vital events from the population of 30 villages have been collected in a demographic surveillance survey in a rural zone of Senegal, the Niakhar area. A mortality study was carried out using verbal autopsy methods [6], methodology based in a postmortem maternal (or familial) interview by a non medical interviewer, to determine selected causes of children's death. This study revealed that between 1984 and 1996, malaria was likely to be the cause of about 22% of deaths among children from one to five year. [7] A detailed examination of the questionnaires shows that about 40% of the children who died were not brought to a health centre, despite the presence of five health centres in the neighbourhood which the population regularly consult.

These data show the need for a better understanding of the ways in which families resolve their health problems. To achieve this goal, from April to June 1997, we carried out a survey in the Niakhar area to examine parent's behaviour when their children suffered from fever.

## MATERIAL AND METHODS

### Study area

The study was carried out in the area of Niakhar in the district of Fatick, 150 km South-East of Dakar. Since 1983, a demographic and epidemiological surveillance survey has been conducted by scientists from the French IRD (Institut de Recherche pour le Développement). Demographic events (births, deaths, migrations, marriage, divorces and widowhood), nutrition (weaning) and morbidity (measles, whooping cough) have been regularly collected in 30 villages : yearly between 1984 and 1987, weekly between 1987 and 1997 and quarterly since 1997. The observed population was 29,818 people in January 1998. The population is homogeneous, 95 % Sereer, supported by agricultural activity and with a very low educational level. Farmers cultivate both a subsistence crop (millet) and a cash crop (groundnuts) in association with cattle breeding. The climate is soudano-sahelian with two seasons, one rainy season between July and October and a long dry season between November and June. Rainfall decreased from 808 mm per year for the period 1921-67 to 520 mm for 1968-87 and to 463 mm for 1988-98. [8]

Three dispensaries are found in the three larger villages of the zone and two in neighbouring villages. These are associated with maternity units that ensure consultations and primary health care. Infant and child mortality remains high with a rate of 73‰ before one year and 109‰ between 1 to 5 (1994-97).

## Methods

Many studies have indicated that health care decisions related to children's illnesses are largely influenced by the characteristics of the morbid event. To avoid this problem and to study the determinants of individual's health care behaviours, we wanted to compare mother's and father's answers concerning the same health problem. We chose a specific symptom, sufficiently frequent and recognised : fever, generally expressed as " *hot body* ". We put the two parents in a fictitious situation. The question was : ' *What would you do if one of your children, 2 to 5 years old, suffered from fever* '. Because of potential biases, families, in which a child death had occurred in the last six months, were excluded.

Malaria's fever is often persistent or repeated and this characteristic probably influences the therapeutic decisions of the parents. To explore this particular point, we asked parents to imagine the fever was persistent or recurrent, confronting their with the need for a new therapeutic action. Because of traditional separation of responsibility between men and women in the household and to evaluate the consequence of social organisation on treatment-seeking behaviours, we[a] conducted simultaneous but independent interviews with fathers and mothers. We carried out the investigation by semi-structured questionnaires. We were assisted by two trained interpreters. The various elements of each interview were noted on a questionnaire, then coded.

After a chronological description of the different steps of health care, we supplemented the interview with some questions on the reasons for recourse to traditional practitioners and on specific recourse for some serious symptomatologies (vomiting, coma, convulsion). Lastly, we carried out an inventory of drugs kept within the household.

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[a] A medical researcher and a demographer

We used a randomised sample of 50 women from 25 to 35 years old. The selection criteria included residence with their husband in the study zone of Niakhar and at least one child between 2 and 5 years. The survey was carried out in June 1997. Information about the study was given and the agreement of the couple was obtained before beginning the investigation. The data were entered and analysed using the software EPI-INFO, version 6. [9]

## RESULTS

The interviews were conducted in 50 families, but because of absences, only 45 wives and 40 husbands were surveyed. The average age of the women was 30.3 +/- 3.3 years. The average age of the men was 41.5 +/- 10.5 years. The average number of children less than 10 years old per couple was 3.3 +/- 1.3. Eighty per cent (36/45) of the families were Muslim, 18 % Catholic (8/45) and one couple was animist.

The educational level of the parents was low. Indeed, only 18% (7/40) of men and 7% (3/45) of women had attended primary school. Five interviews out of 40 with the men and 2 out of 45 with the women proceeded in French without interpreter. Lived also in the same compound, consisted of individual huts for each of the wives and their children, in 21/40 (53.8%) the husband's mother, in 11/40 (28.2%) father and in 7/40 (17.5%) both their parents.

The main activity of the respondents was the cultivation of millet and groundnuts. During the dry season, from December to June, the men (80%) and to a lesser extent the women (49%) had other activities, mainly petty trade for women and animal breeding and trade for men.

Treatment patterns

a) Mother's interview

In 77% (33/43) of cases, the mother declared that she would be the first to notice that the child was sick; in 4.7% (2/43) of the cases, it was to be the father. The remaining 18.6% (8/43) had no precise answer: it could be the father, the mother or the grand-mother. The mother would also be the first to decide the action to be taken, mostly, it would be a traditional treatment at home (93%), such as massage or a home made herbal potion. Three mothers would give medication against fever such as chloroquine or aspirin.

When the mother-in-law (mother of the father) lived in the compound, she was generally consulted. The father would rarely intervened at this stage of illness. After 12-24 hours of home treatment, in 78% of cases (35/45) the mother would take the child to the health centre (table I). In 22% of the cases (10/45), she would take the child to consult a traditional practitioner. In the event of no improvement, 31% (14/45) of the women would change strategies: 4 would pass from the health centre to the traditional practitioner and 10 would pass from the traditional practitioner to the health centre.

In 14 cases out of 45 (31%), recourse to the traditional healer was considered: in 10 cases it was the first intention (after home treatment) and in 4 cases after visiting the health center.

b) Father's interview

Fathers declared that they would be the first to report the child's illness in 20% of cases. In 65% of the cases, it would be the mother or the grand-mother. In 15% of the cases, we received no precise answer. For fathers, treatment at home was irrelevant since it was used only in 62.5% of cases (25/40), always by the women. If the fever were to persist after this treatment, in 85% of

the cases (34/40), he would send the child to the dispensary (table I). In 15% of the cases (6/40), he would at first send the child to the traditional healer. In the event of failure of the first treatment, 35% (14/40) would change, 9 would go from the health centre to the traditional practitioner and 5 from the traditional practitioner to the health centre.

On the whole, in 14 cases out of 40 (35%), consultation with a traditional practitioner was considered, 5 times as first intention and 9 times as second intention.

c) Couples' answers

For mothers, recourse to traditional therapies in the household is quasi-systematic (93%) whereas it is sometimes ignored by fathers (37.5%). After home treatment, in 75% (30/40) of the cases, the two parents agreed about the type of treatment; 27 couples would send the child to the dispensary and 3 couples would bring him to a traditional healer (table II). In 10 cases, the two parents did not give the same answer, one recommended recourse to the traditional practitioner, the other recourse to the health centre.

Delay between the beginning of fever and recourse to the health centre

The lag between onset of fever and arrival at the dispensary depends on duration of treatment given in the household, generally between 12 and 48 hours, and recourse or not to a traditional practitioner. In this case, duration of traditional treatment varies according to the sex of the child: 2 days for girls, 3 days for boys. Therefore, in the case of recourse to the traditional practitioner, the child would arrive at the dispensary 4.6 +/- 1.7 days after the beginning of symptoms compared to 1.3 +/- 0.6 days if there was no recourse to the traditional healer.

First recourse in the case of specific symptoms.

Table III shows the different choices in the case of serious symptomatology accompanying fever. These symptomatologies are often characteristic of a malaria attack or cerebral malaria.

For mothers as for fathers, vomiting does not seem to constitute a serious warning sign. About half of the children with vomiting symptoms (39.5% for mother and 61.5% for father) would be treated at home. The majority of the remaining half children would be sent to a health centre.

Children with comas would generally be referred by the father (77,8%) and by the mother (83,7%) to a health centre.

Treatment for convulsions or "*crises*" (local expression) would be significant more by use of traditional therapy than treatment for vomiting or coma; for the mother: 30,2 % and for the father: 43,6%. In 60.5% and 46.2% of the cases, respectively, the mother and the father would refer the child to a health centre.

Recourse to the traditional healer

For 39 women out of 45 (86,6%) and 31 men out of 39 (79,5%), recourse to the traditional healer was the most popular choice in case of *evil wind, fear of the child, " fit "* or of more specific symptomatologies such as the "*crisis*" which refers to convulsions.

In this work, we studied three factors likely to exert some influence on health-seeking behaviour: presence of the mother-in-law in the compound, parent's religion and distance to health facilities. Our findings suggest that none of these three factors seems to have a major influence on the therapeutic choice.

Drugs in the household

Few families (5/40) had drugs at home (chloroquine, aspirin and Chinese balsam used for massages). When they had drugs, it was in very small quantities. Usually, drugs are purchased in case of necessity and if money is available. However, 24/40 (60%) of men and 19/45 (42,2%) of women said they had used nivaquine as self medication during the last rainy season for an average period of three months (15 days to 6 months) between August and November. These drugs would generally be used as chemioprophylaxis. Dosage, in this case, seemed fairly standardized: 1 tablet of nivaquine per week, regardless of the age of the child. This behaviour is closely related to financial concerns; to the health policy at the district level; and to the local (committees of village associations) or private (small trade) initiatives.

## DISCUSSION

The methodology adopted does not focus on behaviours but rather on people's intention to adopt certain behaviours. Surveys on health-seeking behaviours are often based on the latest morbid episode reported by families during a given period: the last two weeks (Demographic and Health Survey), the last month[10], the last 3 or 6 months[11], or the last year. [12] Such studies have two problems. First, the choice of therapeutic action is a function of various factors such as the type and the duration of illness and perceived aetiology and severity. The range of illnesses reported by respondents and the variety of health-seeking responses significantly reduce the power of such surveys. Second, the delay between the morbid event and the survey can lead to recall errors, affecting the later analysis. In order to avoid these two problems, we choose to interview parents in hypothetical situations. This approach allowed us to standardize on an initial morbid event,

fever, and to avoid memory effects. In addition, it allowed us to minimize the emotional aspect of a recent morbid episode.

The hypothetical situation can lead to a misreporting of health-seeking behaviour. Would mothers and fathers effectively chose the therapy they have declared ? We are not able to answer, but what we can discuss is how these results can be helpful to highlight some key points in public health concerns: delay to health services use; misinterpretation of therapeutic failure and misuse of medication; traditional interpretation of specific symptoms.

Fever is the main symptom associated with most childhood infectious diseases. It is the first sign that worries parents and it is also the main cause of consultation for children. In most developing countries, peripheral health centres do not have laboratories able to establish the cause of fever. The aetiology of fever is therefore not determined and the treatment is empirical, affecting its efficiency. This is largely the case with fever due to malaria which is frequent in this region during the rainy season. Furthermore, the number of therapeutic failures has increased because of the development of drug resistance of *P. Falciparum* to chloroquine, the main drug used to cure malaria in this region. [13] Thus parents often have to face the problem of recurrent fevers and the answers they give could be influenced by this repetition. To tackle this issue, we asked parents to tell us what they would do if the first therapy failed.

Concerning health care for children, the mother is often chosen as the most reliable interlocutor. In fact, like in other African communities, Sereer people assign different roles to fathers and mothers as far as household management, child caring and decision making for health care are concerned. [14] This sharing of responsibilities gives fathers and mothers different perspectives on health problems and their costs. Thus, we felt it was important to examine separately the father's and the mother's views and to compare the answers. Our findings confirm these notions about the

important responsibility of mothers at the onset of illness. As reported by Sauerborn *et al.* [15], in Burkina Faso too, most of the time, it is the mother who identifies the morbid episode and provides primary health care. A few authors assert that children's survival is often linked to the appropriateness of this care and thus to the family members' competence. [16] In most cases, one or two days after the symptoms appear, parents take the child with fever to the health centre after traditional "local " therapy. [17] The question of familial treatment is particularly acute in case of malaria fever, according to its particular design (i.e. successive picks and remissions) who can lead to be interpreted as an efficacy of the treatment. It is clear that knowledge and understanding of malaria fever would reduce the delay between first symptom and health care.

There are many health facilities in Niakhar area: health centres, traditional healers with many specialties, visionaries. Our results confirm that people are free to choose their therapeutic methods. If the first treatment method happens to be a failure or if pathological episodes become recurrent, parents do not hesitate either to go to another health facility or to shift to traditional healer. It seems that, in case of shifting from a health centre to a traditional healer, the persistence of symptoms is not assigned to an inappropriate or inefficient treatment. It is instead associated with a different etiological origin. This would suggest that parents shift towards an "externalised" medicine [2], practiced by traditional healers, who focus on the search of an external cause. So, even if the first choice leads parents to modern therapy, the therapeutic failure will lead them to recourse to traditional therapy, according to cultural rationality. Thus, it is essential for a better understanding of health care to examine in depth the parents' perceptions of therapeutic failure and on the need for medical follow up. It is all the more important that, if until the last few years, chloroquine has been a " miraculous " medicine thanks to its outstanding clinical and parasitological efficiency on fevers and attacks of malaria, the recent emergence of *P.*

*Falciparum* drug resistance has significantly reduced its efficacy. In the area of Niakhar, the percentage of drug resistance is estimated at 30%. [18] Because of these failures, a few children are redirected to traditional healers. These delays in the treatment of these children in health centres can explain a higher frequency of severe attacks of malaria during a recent period (1992-97).

Another problem linked to malaria health care is the misuse of the medication. In fact, it is also common that fever attacks reappear at the end of the treatment, because the duration (three-days treatment) is rarely respected.

Parents' various reactions to the main symptomatologies that might indicate a serious malaria (vomiting, coma and convulsions) prove the importance of belief in the understanding of the mechanisms that guide them in choosing a therapeutic method. In almost half of the cases, vomiting is treated at home. The cause of the vomiting is interpreted most of the time according to the behaviour of the child with food : " *he played where millet is pounded* ". Vomiting is not seen as a serious symptom and mothers have efficient traditional method to heal. They use these methods before taking the child to the health centre. However, according to the father as well as to the mother, coma should immediately be treated at the health centre. At last, convulsions (or fits) are interpreted as being the manifestation of forces that can be healed by traditional healers. Moreover, interpretations are strongly linked to the events that occurred in the immediate surroundings of the child or of the family: the child's fear, evil wind. In cases where there is some doubt about the cause of the disease, it is possible to consult a clairvoyant who directs the child to a traditional healer or to the health centre.

Finally, it should be noted that repeated consultations significantly increase the expenses for therapeutic treatment in families where there are often many children. Furthermore, the recourse to a traditional healer is an easier opportunity to solve health problems considering that the healer

can sometimes be paid later or in kind. In general, if financial considerations do not deter people from going to a health centre before anything else, it seems a more important factor if repeated consultations and prescriptions are required.

## CONCLUSION

For several years now, treatments against malaria have been less effective. This is also true for a few medicines such as antibiotics. Health care systems and therapeutic strategies are set up to attend and treat patients during a single consultation. Unexpected consequences like a change of therapeutic methods among rural populations who have less access to health information are likely to occur because of the lack of information on probable therapeutic failures and on the action to be taken if the symptomatology persists or reappears. The simultaneous recourse to various therapeutic methods increases delays in appropriate treatments of the child and puts into conflict the various therapists, traditional healers and health workers. They should instead co-operate for a better orientation and a more appropriate therapeutic method. It is necessary to examine more closely the methods of recourse to health care and their determinants, namely the perceptions about health care systems as regards their quality and the relationships between health workers and patients. It is also necessary to take into consideration the core of ethnographic knowledge in the representations of diseases. This knowledge is scarcely taken into account in public health. These two issues are essential for preparing new education messages and health information more suitable for the populations and new sanitary conditions.

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Table I : Successive health-seeking behaviours declared by mothers or fathers

| | father | mother |
|---|---|---|
| Health centre – Traditional healer | 9 | 4 |
| Traditional healer - Health centre | 5 | 10 |
| Health centre - Health centre | 25 | 31 |
| Traditional healer - Traditional healer | 1 | 0 |
| Total | 40 | 45 |

Table II: Couple health-seeking behaviours

| | Father | Mother | Number |
|---|---|---|---|
| Agreed | Traditional healer | Traditional healer | 3 |
| | Health centre | Health centre | 27 |
| Disagreed | Traditional healer | Health centre | 3 |
| | Health centre | Traditional healer | 7 |

Table III: Health-seeking behaviours relative to three symptoms accompanying fever by respondent

| | Mothers | | | Fathers | | |
|---|---|---|---|---|---|---|
| | At home | Health centre | Traditional healer | At home | Health centre | Traditional healer |
| Vomiting | 17 (39,5) | 23 (53,5) | 3 (7) | 24 (61,5) | 13 (33,3) | 2 (5,2) |
| Comas | 2 (4,6) | 36 (83,7) | 5 (11,7) | 2 (5,5) | 28 (77,8) | 6 (16,7) |
| Convulsions | 4 (9,3) | 26 (60,5) | 13 (30,2) | 4 (10,2) | 18 (46,2) | 17 (45,6) |

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