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Towards participatory malaria prevention strategies in pregnant women in the rural commune of Safo in Mali

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Résumé

Au Mali, le paludisme est la première cause de mortalité des femmes enceintes. Malgré des efforts accomplis pour l'éradiquer, il reste un problème de santé publique. Notre objectif est d'analyser la couverture de plus de 3 doses de traitement préventif intermittent à la sulfadoxine-pyriméthamine (SP) en milieu rural et envisager des alternatives de distribution de la SP à base communautaire. La méthodologie adoptée est mixte, elle a combiné l'administration d'un questionnaire ménage, l'animation des groupes de discussions et des entretiens individuels et l'organisation d'un forum de consensus via une enquête participative. Il ressort de notre étude que 85,4% des femmes enquêtées déclarent la piqure de moustique comme principale cause du paludisme. Parmi les femmes enceintes ayant une activité hors du foyer, 61% ont pris au moins 3 doses ; ce taux est de 44% chez les femmes au foyer. Bien que la SP soit gratuite pour les femmes enceintes, celles-ci sont réticentes à sa prise supervisée comme stipulent les directives nationales sur la prise de la SP. Toutefois elles reconnaissent l'importance de la consultation prénatale. Mais la majorité soit (46,26%) d'entre elles n'ont commencé la consultation prénatale qu'au deuxième trimestre de la grossesse. En plus du manque des moyens financiers, des normes culturelles et les caractéristiques du prestataire (âge, sexe) seraient en cause dans le faible recours à la consultation prénatale. Ces facteurs contribuent à accentuer le retard et le manque de suivi des soins prénataux par les femmes enceintes et par conséquent aux autres soins connexes en matière de santé maternelle et infantile. Les causes profondes sont à trouver dans la situation subordonnée des femmes dans la famille, dans la société et dans le manque d'engagement communautaire en faveur des soins maternels.

Mots-clés : Paludisme, Grossesse, TPI-SP, Communauté, Rural.

Abstract

In Mali, malaria is the leading cause of death among pregnant women. Despite efforts to eradicate the disease, it remains a public health problem. Our objective is to analyse the coverage of more than three doses of intermittent preventive treatment with sulfadoxine-pyrimethamine (SP) in a rural area and to consider alternatives to community-based SP distribution. The methodology adopted was mixed, combining the administration of a household questionnaire, the facilitation of focus groups and individual interviews, and the organization of a consensus forum via a participatory survey. Our study showed that 85.4% of the women surveyed reported mosquito bites as the main cause of malaria. Among pregnant women with an activity outside the home, 61% had taken at least three doses, while this rate was 44% among housewives. Although SP is free for pregnant women, they are reluctant to take it under supervision, as stipulated in the national SP guidelines, although they recognize the importance of prenatal consultation. However, the majority (46.26%) did not start prenatal consultation until the second trimester of pregnancy. In addition to the lack of financial means and cultural norms, the characteristics of the provider (sex and age) are among the main causes of the low recourse to prenatal consultation. These factors contribute to the delay and lack of follow-up in prenatal care among pregnant women and in other related maternal and child health care matters. The profound causes for this can be attributed to the subordinate status of women in the family and in society, as well as to the lack of commitment of local communities for maternal care.

Keywords: Malaria, Pregnancy, IPT-SP, Community, Rural.

Towards participatory malaria prevention strategies in pregnant women in the rural commune of Safo in Mali

Introduction

Malaria remains a major public health problem worldwide. About 3.2 billion people are at risk of contracting the disease. In 2017, the number of new cases recorded was estimated at 219 million for 435,000 deaths. Furthermore, according to the 2018 global report, 92% of these cases and 93% of deaths occur in the African region of the World Health Organization (WHO). Malaria has socio-economic repercussions on the populations of the most affected countries. Mali, like most countries in sub-Saharan Africa, records malaria as the leading cause of mortality and morbidity. In 2018, according to the health information system, 2,614,104 cases of malaria were confirmed, of which 1,001 deaths were recorded. Despite the progress made in the field of prevention and treatment, national health statistics report that malaria is still ranked first among major diseases and represents 39% of the reasons for consultation in health facilities in the general population (Demography and Health Survey V Mali, 2018). Malaria is the primary cause of mortality and morbidity in the most vulnerable groups, which are children under five and pregnant women. The 2018 DHS survey reports that only 28% of women aged 15-49 who had a live birth in the two years preceding the survey reported having received three or more doses of SP/Fansidar during their pregnancy. These results fall short of the objective that the NMCP set for itself in the 2016-2018 national strategic plan. This objective is "to ensure universal access to preventive measures for 100% of the population at risk of malaria, in particular the use of long-lasting impregnated mosquito nets (LLINs), intermittent preventive treatment (IPT) in pregnant women, and seasonal malaria chemoprevention (SMC)".

New perspectives on the roles of individuals and communities must be considered by exploring the *capacity* of women to use IPTp-SP and by addressing the issue of possibly developing a more endogenous health offer. The viewpoint developed by Amartya Sen and his colleagues deals with thinking in terms of the opportunities that people have and the ways they can accomplish them, namely "the freedom to live the life that they have reason to value" (Sen, 1999). Health services are readily available, yet we question their quality and accessibility as well as the ability and willingness of women to make use of them in accordance with their circumstances and personal values. There is also the question of whether a prophylaxis can be distributed at the village level, for example, by community health workers or through community channels, so as to prevent people from having to travel under increasingly difficult conditions owing to medical issues, security concerns, and the pandemic. Greater cultural proximity would also prevent the problem of young, male health workers being less accepted.

Methodology

Our methodology used a combination of quantitative and qualitative approaches along with a documentary review on the fight against malaria. Documentary review was conducted throughout the study and was summarized to support field data when applicable.

A household survey was conducted in the 13 villages of the Safo health area. A CSPro questionnaire was created and distributed to smartphones for data collection. After being compiled into a single database, the data was cleaned up by correcting typos and creating certain variables in the form of an interval. The database was tested for quality and completeness to ensure that it met the requirements for analysis. The data initially extracted from the CSPro software was transmitted to SPSS and Stata software to perform various data analyses. Univariate and bivariate analyses were performed.

For the qualitative aspect, out of a total of 19 interviews including 14 discussion groups, four (4) individual interviews were conducted. The discussion groups included pregnant women. The individual interviews were held with two (2) health workers (the head officer and the technical director of the centre, one (1) community representative, one (1) member of the management committee of the health association, and one (1) community health officer. The interviews were recorded on digital dictaphones transferred to a laptop, and then transcribed using Word software. These transcriptions were transferred to ATLAS.ti software for coding and extraction of topics and subtopics responding to the objectives and initial research questions. The interviews were conducted in localities that would safeguard the privacy and identity of the respondents. It should be noted that the pregnant women interviewed with the questionnaire were distinct from those who participated in the focus groups. The community representatives helped verify this. Finally, a participatory survey was carried out with some key community members as part of a consensus forum. The Ethics Committee of the Faculty of Medicine of Bamako granted approval for this research (under number N.2020/88/GE/FMOS/FAPH). Free and voluntary verbal consent was requested and received from each study participant.

Results

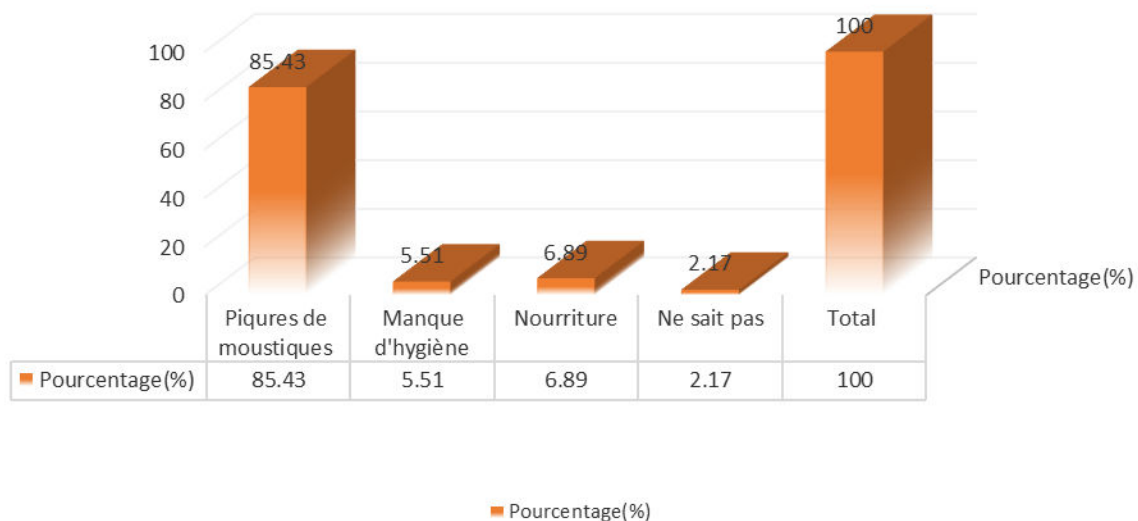
Sociodemographic characteristics of pregnant women surveyed

A total of 508 pregnant women were surveyed. The majority (34) of pregnant women, i.e., 80% of respondents, were between 21 and 25 years old. As for marital status, all but one of the pregnant women were married. As for their level of education, more than half, or 51.60%, had no level of education. The Bambara ethnic group was dominant, representing 85.60% of the pregnant women surveyed. As for their occupation, the overwhelming majority (470) were housewives, that is, 92.50% of the women surveyed. The dominant religion was Islam representing 95.70% of the women.

Knowledge of the modes of transmission of malaria

Out of the 508 pregnant women who were asked about the mode of transmission of malaria, 85.43% declared that mosquito bites cause malaria.

Graph 1: Distribution of pregnant women according to knowledge of modes of malaria transmission

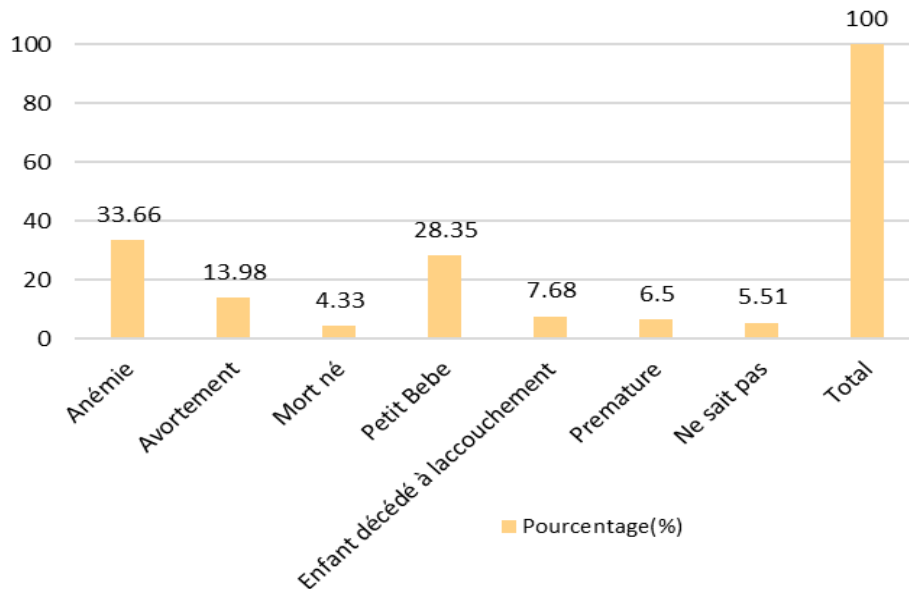


Knowledge of the risk factors associated with malaria in pregnant women

(Mosquito bites/Lack of hygiene/Food/ Don't know/Total)

Among the risk factors associated with malaria in pregnant women, anemia was the most frequently cited by 33.66% of respondents. A small baby at birth came second as cited by 28.35% of respondents.

Graph 2: Distribution of pregnant women according to their knowledge of the risk factors associated with malaria

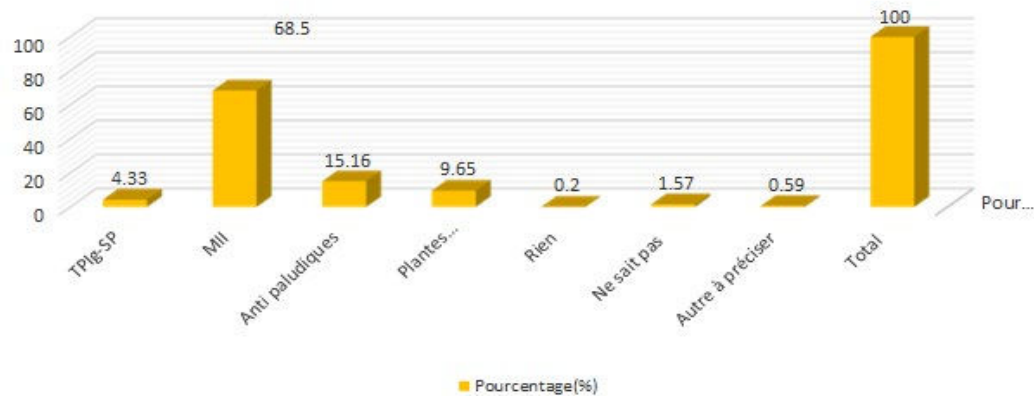


Knowledge of methods of malaria prevention in pregnant women

(Anemia/Abortion/Stillbirth/Small baby/Infant mortality at birth/Premature birth/Don't know/Total)

Pregnant women expressed their views on the methods of preventing malaria during pregnancy. The results are shown in the following graph. Out of 508 pregnant women, 68.5% cited a mosquito net impregnated with insecticide as a method of preventing malaria during pregnancy, Antimalarials came second (15.16%), followed by traditional plants (9.65%). Intermittent preventive treatment with sulfadoxine-pyrimethamine (IPTp-SP) came in fourth position with 4.33%, i.e., 22 pregnant women.

Graph 3: Distribution of pregnant women according to the methods used to prevent malaria

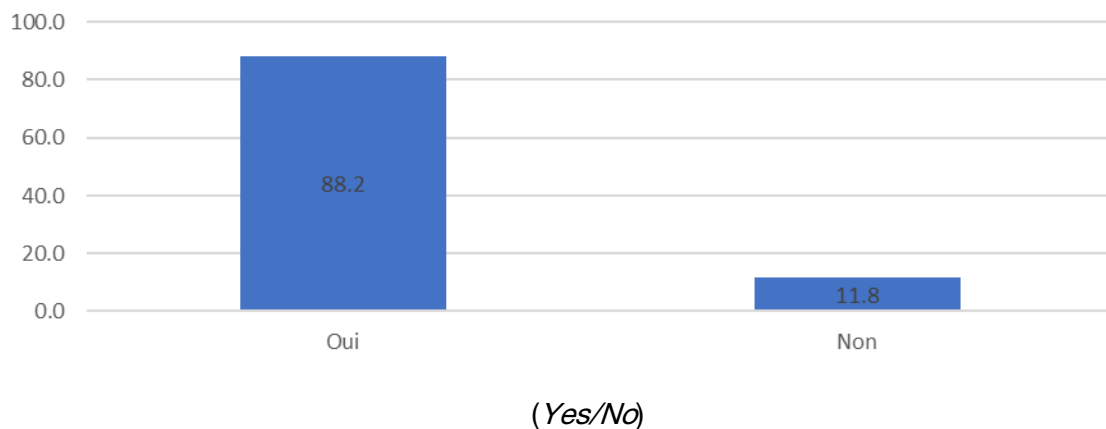


Uptake of IPTp-SP during pregnancy

(IPTp-SP/Impregnated mosquito net/Antimalarials/Traditional plants/Nothing/

*Don't know/Other/Total)*As for the uptake of IPTp-SP, the vast majority of pregnant women reported having taken SP during their pregnancy.

Graph 4: Distribution of pregnant women according to IPTp-SP uptake during a current or past pregnancy



Number of SP uptakes by pregnant women according to their level of education and occupation

SP uptake is positively impacted by the educational level and occupation of pregnant women, but even among women with a higher educational level or activity outside of the home, an uptake of at least three doses, as recommended by national policy, is not universally followed. Among pregnant women with a level of secondary or higher education, only half (50%) took at least three doses. The percentage is 44% among those who have no education or have only attended primary school. Among pregnant women with an occupation outside the home, 61% took at least three doses, whereas this was the case for 44% of housewives.

Table 1: Distribution of the number of SP uptakes by pregnant women according to the level of education and profession

	Number of SP uptakes					
	0	1-2	3-4	>4	Total	Chi-squared test
Level of education of the woman						
No formal education	39	107	91	25	262	5.41
	14.89	40.84	34.73	9.54	100%	
Primary school	18	86	69	13	186	
	9.68	46.24	37.10	6.99	100%	
Secondary school and beyond	5	25	24	6	60	
	8.33	41.67	40.00	10.00	100%	
Woman's occupation						
Housewife	60	205	170	35	470	14.37**
	12.77	43.62	36.17	7.45	100%	
Trader	0	6	5	6	17	
	0.00	35.29	29.41	35.29	100%	
Other	2	7	9	3	21	
	9.52	33.33	42.86	14.29	100%	

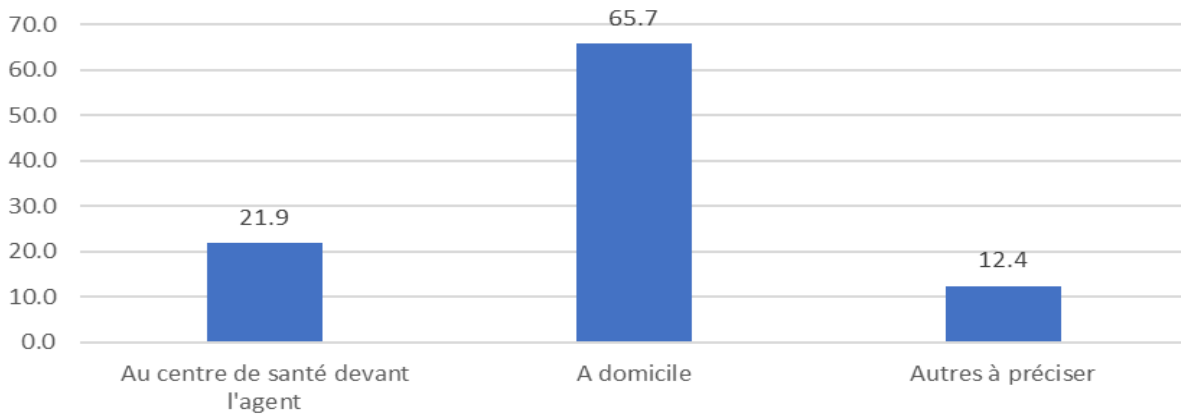
**Significant at 5%

Locations where pregnant women take IPT-SP

The majority of pregnant women, i.e., 65.7%, declared having taken SP at home, against 21.09% in the presence of an agent at the health centre. The uptake of SP at home is contrary

to national policy in the fight against malaria in pregnant women. A parturient must take the SP at the health centre in the presence of a supervising agent.

Graph 5: Locations where pregnant women take SP

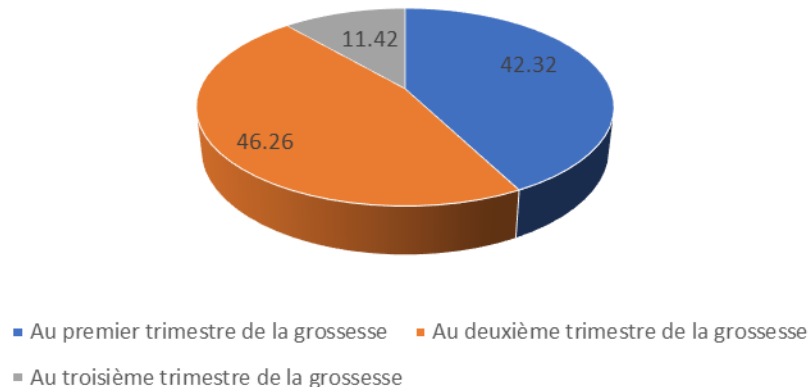


(At the health centre with an agent/At home/Other)

Onset of prenatal care and gestational age

As for onset of prenatal care (PNC), the majority, i.e., 46.26%, of pregnant women began their prenatal consultations during the second trimester of pregnancy. This indicates that the onset of consultations by pregnant women is delayed, but very few women wait until the third trimester.

Graph 6: Distribution of pregnant women by onset of PNC and gestational age

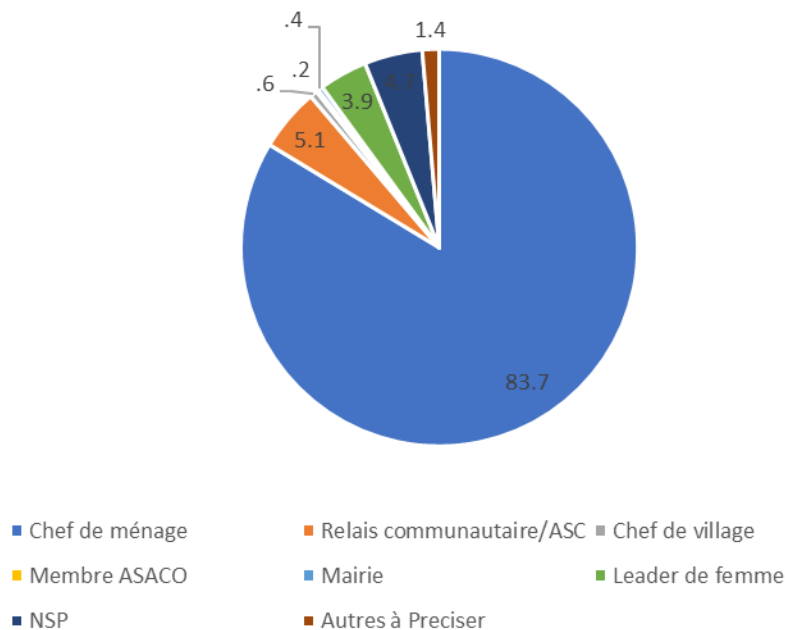


(First trimester of pregnancy/Second trimester of pregnancy/Third trimester of pregnancy)

Opinion of women on the people to be involved in the proper uptake of SP in pregnant women

Out of 508 pregnant women, 83.7% declared the need to involve the heads of household in monitoring SP uptake. In fact, the heads of household hold the decision-making power in the family unit in the rural commune of Safo. Next, come community health officers.

Graphique 7 : Breakdown of people to be involved in monitoring SP uptake according to pregnant women



(Head of Household/Community health officer/Village head/ASACO member/
Town Hall/Women's leader/Don't know/Other)

General perceptions about malaria and prenatal care

Knowledge of malaria

Respondents stated that malaria is the most dangerous disease in their community. It affects all sectors of the community, but pregnant women and children are the most vulnerable. According to some pregnant women, the symptoms of malaria include: vomiting, fever, diarrhoea, swelling of the face, body aches, loss of appetite, a bitter taste in the mouth.

The respondents cited several causes for malaria that include mosquitoes, flies, cockroaches, sewage, fertilizers, and foods like Calvé-brand mayonnaise. Malaria is often

considered to be a contagious disease in the sense that if a family member contracts it, it can become contagious and spread to other members of the same family.

Sulfadoxine-pyrimethamine (SP) is generally favourably viewed. In fact, the majority of the women surveyed believed that SP is an effective drug for pregnancy-related illnesses, appetite loss, and sleep deprivation.

Views of prenatal care

Respondent views of prenatal therapeutic care display a fusion of conventional, traditional, and street medicine.

In analysing the respondents' statements, several reasons emerge to explain why pregnant women do not desire prenatal care (PNC). Specifically, there is a hush when it comes to disclosing a pregnancy, and getting their pregnancy checked at the health centre at an early stage is equivalent to declaring the pregnancy, which is forbidden by custom (owing to superstition). This socio-cultural practice could be an explanation, among others, for the low rate of prenatal consultations, particularly between the first prenatal consultation and those that follow.

In most interviews, it was found that the husband retains the exclusive right to decide when, how, and where to seek medical care. From the analysis of pregnant women's statements, the decision to go to the health centre for general care is always made by the head of household. This was expressed as follows: "It's the head of the family who always decides to get treatment at the health centre when needed. He's the one who grants permission to get medical attention when there's a problem" (Focus Group_ Pregnant Women of the village of Tassan Safo). Some women say that some husbands refuse to allow their wives to go to the health centre for PNC. The husbands prefer to wait until their wives are further along in their pregnancy up the point that others can see her stomach swell. This was expressed as follows: "This problem is caused by some husbands who don't send their wives for prenatal care until visible stomach growth begins" (Focus_Women's Encounters_Kola).

A pregnant woman's mother-in-law also plays a significant role in this, because she may ask to stay in her daughter-in-law's house until the pregnancy has advanced up to eight or nine months, and only then can prenatal care begin.

A health official commented: "Community representatives ask expecting women to begin PNC, but the problem stems from the mothers-in-law and the husbands, as well as from certain other women too. Mothers-in-law need to be made aware that things are not as they once were. It is important for husbands to understand the significant risk posed by a woman not getting prenatal care. Awareness needs be raised in public gathering places like the locationss where the meetings of the Benkadi Women's Association are held.

Problems with health workers

One very significantly recurring theme that emerged from our interviews is the profile of health workers. Specifically, the age of the health worker may deter women from going to a health centre. In fact, some pregnant women don't like prenatal consultations conducted by medical professionals who are younger than they are. Getting undressed in front of a person of the same age as a young brother or sister is just unacceptable and inconceivable. Women dislike having their genitals touched during consultations. They feel uncomfortable and distrust this practice, especially when it is performed by health workers who are younger than they are. In this regard, some say, "Oh! They touched my female genital organ and put their hand inside. I really don't like that. It makes me feel ashamed. But OK, if it's a man who does it, it may be admissible, but it's not good when very young women do PNC, or when they give PNC to women who could be their mothers. Referring to seventeen- or eighteen-year-old girls. When they provide care to adult pregnant women, the women feel shame, and this often discourages them from seeking prenatal care at the health centre" (Focus_Women _ Safo). "Yes, there are people who say they don't want to receive care from their little sister. In general, the age problem can be a constraint for older women" (Focus_Women _Sirababougou).

Some pregnant women also question the professional skills of some health workers. The dread of employee missteps deters pregnant women from seeking prenatal care services. Most pregnant women say that the trainees are still learners and are insufficiently trained and qualified to offer prenatal care services, especially to middle-aged women. This is expressed as follows: "Often it's the trainees. They first don't know a thing about the job, and they've only taken care of their mothers. It's not good. They can make mistakes when they provide care, and this can lead to other problems" (Focus, Pregnant Women, Safo).

For these pregnant women, youth is equivalent to inexperience and incompetence, even if the health worker has the full range of medical skills required. Here is what women have said: "With all things considered, I will still see the provider as a young person who's going to see me naked. No, I won't do it. One day I was faced with this problem which almost cost me dearly. I was six and a half months pregnant, and during my prenatal exam the doctor told me that my pregnancy had come to term, but I said no and he told me that he was the doctor, so I gave in, and he prescribed three injections for me to take at night to make my delivery easier, and the next day my husband went to the centre to check why I was told to buy the three injections, and he almost got into a fight with them, and then an older lady consulted me and told me that if I had gotten the three shots I would have died, and so ever since that day when I see a young man at the hospital, I go straight back home" (Focus_Women_Falayan).

Other parturients say that they do not accept that a male health worker should provide health care for them, even though he has proven to be competent. This was stated as follows: "Yes, the fact that some people are taken care of by persons of the opposite sex creates a constraint when they want to get health care at the centre" (Focus Groups_Women_Sirababougou). Aside from gender, the provider's ethnic origin can be

decisive in the follow-up a prenatal consultation given by a woman. In fact, among certain ethnic groups in Mali, there are joking relationships that are a form of ritualized banter or physical non-aggressiveness between one or more ethnic groups. This relationship pact exists between the Forgeron and Fulani ethnic groups in the rural commune of Safo. How does a relationship pact affect a medical department? Medical examinations are often performed with demeaning gestures or acts, such as undressing, vaginal touching and even injections. In order to avoid exposing themselves to these annoyances during PNC, some pregnant women avoid health workers with whom they have joking relationships. This was stated as follows: "... Between the Forgerons and the Fulani, there is no touching. There are no Forgerons among our health workers, because we cannot receive care from a Forgeron" (Focus Groups_Women_Safo).

In addition to the above considerations, the poor reception and the long waiting time in the prenatal consultation units also seem to explain the avoidance of prenatal consultations, and, indirectly, the uptake of sulfadoxine-pyrimethamine (SP) to prevent malaria during pregnancy. This is firmly stated as follows: "I really appreciate the work of our health workers. Because health workers are not all at the same level of understanding. There are some who greet clients very well, and others who do not" (Focus Group_Femmes_Kola).

Factors hindering access to prenatal consultations and sulfadoxine-pyrimethamine

Material and financial obstacles

The failure of some pregnant women to consent to blood tests or X-ray exams prescribed by health providers means that they will not get PNC or at least complete one they have started PNC. Several women said: "When you go to the first prenatal consultation, they give you a form that says you need to have an X-ray exam and a blood test, and so if you don't bring the results, the agent does no more PNC. They want the results first" (Focus_Women_Safo).

Overall, the lack of financial resources is a major obstacle. A pregnant woman may no longer be earning her own income, thus making her dependent on her husband. This is stated as follows: "There is no human resource support [an accompanying person], but the main obstacle is the lack of money. Because if you don't have someone to take you to the centre, and if you have money anyway, you can still go to Safo [village where the community health centre is located] anyway on foot. You can't refuse to go to a health care centre just because you do not have someone to take there on a motorbike" (Focus_Women_Sirababougou)

In other cases, the husband provides money for the prenatal consultation, but the pregnant woman uses it for other needs such as food or for future savings.

The pregnancy experience: multiparity

Most multiparous women fail to properly adhere to the schedule of prenatal consultations, as they consider themselves experienced in the management of their own pregnancies. On the other hand, primiparous women, despite the reluctance of their mothers-in-law, typically take the necessary steps to get PNC early on out of fear of the risks associated with pregnancy. This is stated as follows: "It's true that the mothers-in-law have their say, but women who have just become pregnant are afraid, and so they do everything they can to get PNC at the health centre to avoid any risks" (health worker). Some multiparous women are ashamed of getting PNC early on. This is stated as follows: "Shame is an obstacle when trying to get health care" (focus group, women).

The interval between the last child and the current pregnancy is brief, i.e., less than the 18-month minimum recommended in the World Health Organization's current guidelines. Respecting the recommended interval between childbirth and a new pregnancy would reduce the health risks for the mother and the baby. Shorter intervals between pregnancies can lead to premature births, low birth weight babies, and a higher infant mortality.

Conclusion

The results show that not all pregnant women have access to intermittent preventive SP treatment with during pregnancy. The reasons for this are individual (poverty and socio-cultural pressure on pregnant women), and collective (decision-making in the household, lack of community involvement), and, as well, are due to certain adverse conditions (long waiting time in the health centres, poor work quality of some health providers) in the provision of prenatal services. It should be emphasized that a prenatal consultation is the opportunity for the pregnant woman to receive sulfadoxine-pyrimethamine. Our results show that most pregnant women receive a prenatal consultation, but often relatively late. However, starting PNC late or failing to adhere to the vaccination schedule will negatively impact the reception of the doses required (at least three) to prevent malaria in pregnant women. In fact, SP should be administered to pregnant women from the thirteenth week of pregnancy until delivery.

It is important to raise awareness among pregnant women, as well as among mothers-in-law and husbands, and demonstrate the advantages of PNC services for the health of mother and baby. Awareness campaigns can be held in public settings, such as at gatherings of women's associations and groups. The Benkadi women's association in Safo is one example of a gathering place.

This research has its limitations. Its aim was not epidemiological nor even clinical. The symptoms of malaria and the SP side effects mentioned should not be regarded as biomedically authoritative. The study on household finances must not be considered as an analysis of health economics.

Other studies have obtained results similar to ours. For example, in a cross-sectional study conducted in rural Nigeria, 52.2% women had heard of IPTp-SP¹. Overall, 89.2% of pregnant women know about intermittent preventive treatment with sulfadoxine-pyrimethamine (IPT-SP)². In 2012, some authors reported that 52.9% of pregnant women were aware that malaria was associated with the low birth weight of a baby, while 45.9% were aware that malaria can cause an abortion and anaemia³. In our research, among the risks associated with malaria in pregnant women, anaemia is the most cited by 33.66% of respondents. The second most cited risk, according to 28.35% of pregnant women, is a small baby at birth. In a cross-sectional study in rural Nigeria, the percentage of women whose uptake of IPTp-SP was supervised by a health worker was 14.3%⁴. In our case, we report a greater percentage at 21.9%. The major determinants of IPTp-SP compliance in our research included socio-economic status, marital parity, as well as the number and timing of prenatal visits. In contrast, in 2012, in a cross-sectional study of factors affecting optimal uptake of IPTp-SP across six health districts in Tanzania, the authors concluded that receiving information about the risks of malaria during pregnancy was the major determinant of optimal uptake of IPTp-SP⁵.

Community mobilization can be defined as a process whereby local groups receive help to define and state their own needs and goals, and to act collectively to fulfil them. It lays emphasis on the people taking it upon themselves to define and meet their own needs⁶. A wife is usually excluded from important family decisions and relegated to a position of reverence and obedience to her husband and is assigned to carry out the decisions that have been made. A mother does not have full latitude of choice and the intervention of the father or grandparents is likely to influence the decisions taken⁷. Women's perceptions of the risks associated with pregnancy and childbirth show that health decisions are not individual choices. The family's approach of inquiring with the parturient is consistent with a feeling of strong solidarity and very hierarchical social relations⁸.

Investing in the empowerment of pregnant women in rural areas is a sure path to equality for access to maternal and child health care in a poor country like Mali. Humanitarian operatives

¹ Akinleye SO, Falade CO, Ajayi IO. Knowledge and utilization of intermittent preventive treatment for malaria among pregnant women attending antenatal clinics in primary health care centres in rural southwest, Nigeria: a cross-sectional study.

² *ibid*

³ Amoran OE, Ariba AA, Iyaniwura CA. Determinants of intermittent preventive treatment of malaria during pregnancy (IPTp) utilization in a rural town in Western Nigeria.

⁴ Akinleye SO, Falade CO, Ajayi IO. Knowledge and utilization of intermittent preventive treatment for malaria among pregnant women attending antenatal clinics in primary health care centres in rural southwest, Nigeria: a cross-sectional study

⁵ Exavery A, Mbaruku G, Mbuyita S, Makemba A, Kweka H. Factors affecting uptake of optimal doses of sulphadoxine-pyrimethamine for intermittent preventive treatment of malaria in pregnancy in six districts of Tanzania.

⁶ Action for the Rights of Children. Mobilisation Communautaire, p10.

⁷ Adjamagbo A. et al. Santé maternelle et infantile en milieu akan (Côte d'Ivoire), pp 109-130.

⁸ Arborio, S. Safe motherhood initiative: from control to trust.

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must include access to intermittent preventive treatment with sulfadoxine-pyrimethamine in their agenda.

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