Malaria in Pregnancy SBC Technical Brief

Trends from the Malaria Behavior Survey

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Background

In 2022, 36% of pregnant women in the WHO African Region were infected with malaria.[1] Pregnant women have a higher risk of infection than non-pregnant women, particularly during the first and second trimesters of pregnancy.[2] Malaria in pregnancy contributes to preterm birth and low birth weight, increasing the risk of morbidity, including cognitive and social developmental delays and mortality.[3] The WHO recommends that pregnant women have at least eight antenatal care contacts with a health provider and take at least three doses of intermittent preventive treatment during pregnancy (IPTp) with sulfadoxine-pyrimethamine (SP) beginning in the second trimester.[4] Attendance at ANC in the first trimester of pregnancy is associated with a greater likelihood of receiving IPTp3, reducing the risk of malaria in pregnancy and associated adverse outcomes.[5]

Effective strategies to improve IPTp uptake require quality data that yield behavioral insights such as the **Malaria Behavior Survey** (MBS). The U.S. President's Malaria Initiative (PMI) partners with the Breakthrough ACTION project at the Johns Hopkins Center for Communication Programs to implement the MBS. The MBS is a multi-country, community-level survey designed to assess factors associated with malaria-related behaviors like the uptake of IPTp using a standardized methodology based on the ideation model of behavior change.[6] Better understanding of the various psycho-social factors associated with behaviors can inform tailored interventions.[7]

This technical brief summarizes three compelling trends in MBS surveys implemented in Benin, Cameroon, Côte d'Ivoire, the Democratic Republic of the Congo (DRC), Malawi, and Sierra Leone, which were fielded between 2018 and 2021. The most salient data points from each country are reported here; full survey results for each country can be found on the **Malaria Behavior Survey** website and in a recent **manuscript**. Finally, this technical brief includes evidence-based recommendations for using SBC to increase uptake of IPTp and ANC based on these data trends.

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1 World Malaria Report 2023. Geneva: World Health Organization; 2023. ISBN: 978-92-4-008617-3.

2 Rogerson, S. J., Desai, M., Mayor, A., Sicuri, E., Taylor, S. M., & van Eijk, A. M. (2018). Burden, pathology, and costs of malaria in pregnancy: new developments for

3 Chua, C. L., Hasang, W., Rogerson, S. J., & Teo, A. (2021). Poor birth outcomes in malaria in pregnancy: recent insights into mechanisms and prevention approaches. Frontiers in immunology, 12, 621382.

4 WHO Guidelines for Malaria November 2022

5 Apanga, P. A., Kumbeni, M. T., & Chanase, M. A. W. (2022). The association between early antenatal care and intermittent preventive treatment of malaria in pregnancy in Sub-Saharan Africa: effect modification by planned pregnancy status. Annals of Global Health, 88(1).

6 Kincaid, D. L. (2000). Mass media, ideation, and behavior: a longitudinal analysis of contraceptive change in the Philippines. Communication Research, 27(6), 723-763.

7 Monroe, A., Olapeju, B., Moore, S., Hunter, G., Merritt, A. P., Okumu, F., & Babalola, S. (2021). Improving malaria control by understanding human behaviour. Bulletin of the World Health Organization, 99(11), 837.

TREND 1: Intention to attend ANC in the first trimester is associated with several psychosocial factors

Reported attendance at ANC in the first trimester of pregnancy among women who had at least one child in the last two years was 82% in Benin, 40% in Cameroon, 37% in DRC, and 42% in Malawi. A range of psychosocial factors were associated with women's i**ntention to attend ANC early** (first trimester) in subsequent pregnancies (Table 1). Women were more likely to report an intention to attend ANC early in a future pregnancy if they: **felt confident in their ability to attend ANC** (4.5 AOR in Benin; 1.4 in Malawi), had correct knowledge about malaria in pregnancy (2.2 AOR in DRC; 2.0 AOR in Malawi), had favorable attitudes towards IPTp (2.4 AOR in Benin; 1.5 AOR in Malawi), **perceived malaria in pregnancy as severe** (2.2 AOR in Benin), talked to others about malaria (1.9 AOR in Benin; 1.3 AOR in Malawi), and **perceived that attending ANC the recommended number of times was the social norm** (1.5 AOR in DRC).

Table 1. Summary of ideational factors associated with intention to attend ANC during the first trimester of the next pregnancy in Benin, DRC, and Malawi (Adjusted Odds Ratio-aOR)

Ideational factors related to intention to attend early ANC	Benin (aOR)	DRC (aOR)	Malawi (aOR)
Self-efficacy (confidence in the ability to attend early ANC and/or obtain IPTp)	4.54**	1.90	1.40*
Correct knowledge about malaria in pregnancy	1.38	2.20***	2.01***
Favorable attitudes towards IPTp	2.41**	1.33	1.49**
Perceived severity of malaria in pregnancy	2.16*	---	1.06
Talked about malaria with spouse/friends/family	1.91*	0.79	1.31*
Perceived norm that others in the community attend ANC the recommended number of times	0.99	1.50*	0.94
Key: * p < 0.05; ** p < 0.01; *** p < 0.00			

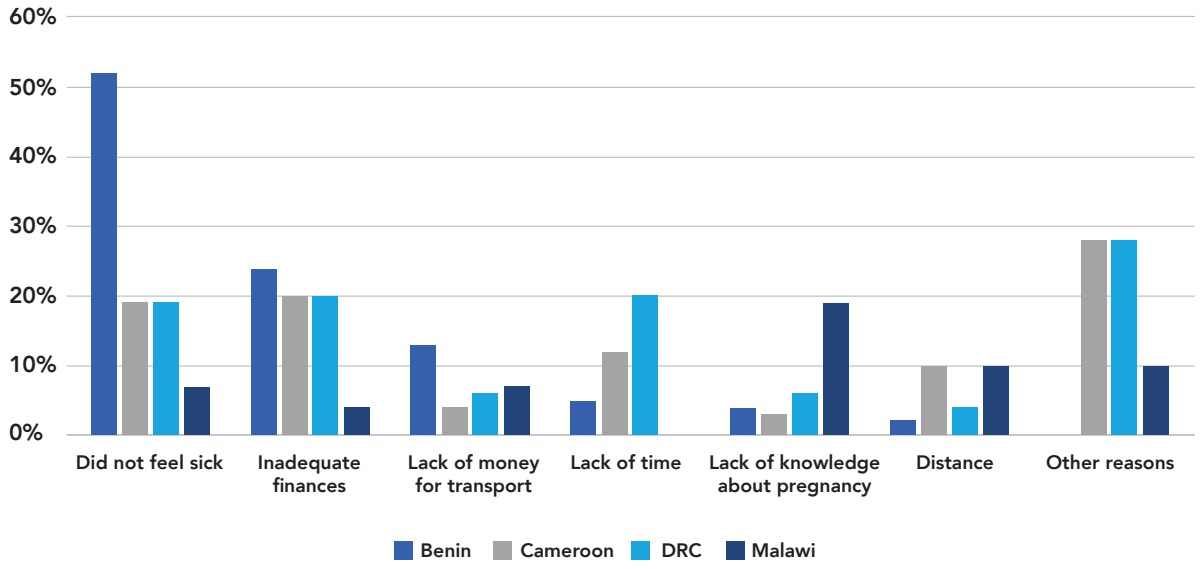
SBC Recommendations

Ideational factors related to intention to attend ANC early	How SBC programs can support these factors
Self-efficacy confidence in the ability to attend early ANC and/or obtain IPTp	• Celebrate women in the community who do attend ANC early. SBC materials can feature women who attended early; who discuss the barriers they faced; and how they overcame them to attend ANC early. These testimonials can also discuss the benefits this behavior brought them and their pregnancy. • Have health providers congratulate and recognize clients who report to ANC early. • Organize community engagement activities that directly address perceived barriers to early ANC.
Correct knowledge about malaria in pregnancy	• SBC activities and materials can build comprehensive knowledge of malaria in pregnancy by presenting this information to women and their partners through a variety of channels starting in secondary school. • These materials can dispel common myths and misperceptions and in a direct, clear, and engaging way, communicate key malaria in pregnancy information. • A variety of channels can be used to accomplish this, depending on the needs of the target population, including mass media, community activities, church or mosque sermons, school curricula, traditional leader dialogues, women's groups, etc.
Favorable attitudes towards IPTp	• SBC programs and materials can promote favorable attitudes towards IPTp by featuring people whose attitudes about IPTp have changed from negative to positive and their stories about why they changed their attitudes. • Materials might also celebrate those with favorable attitudes towards IPTp and those who help change others' attitudes about IPTp. • SBC programs can also encourage women of reproductive age from women's groups, religious groups, market associations, and other female community role models to voice their intention to obtain IPTp to leverage influence in a trusting environment. • Programs can focus on the perceived benefits of IPTp, including reduced worry that malaria will negatively affect the pregnancy, to increase favorable attitudes.

Ideational factors related to intention to attend ANC early	How SBC programs can support these factors
Perceived severity of malaria in pregnancy	• SBC programs can help increase perceptions of the severity of malaria in pregnancy by featuring testimonials by women describing an experience with a preventable malaria crisis during a prior pregnancy, and how they now take malaria symptoms more seriously because they are convinced of the potential severity. • Programs can use "community dashboards" to display the numbers of severe malaria cases during pregnancy in a health facility catchment area, providing a visual reminder that malaria can escalate quickly into a very severe condition. • NOTE: Interventions to increase perceived severity should also always include approaches to increase self-efficacy to prevent malaria in pregnancy, otherwise raising perceived severity without raising self-efficacy could result in paralysis to act.
Talked about malaria with spouse/friends/ family	• SBC activities can spark conversations about malaria between partners, friends, and family by modeling these types of discussions in mass and mid media materials. • Depending on the target audience, virtual or phone-based discussion prompts could be built into SBC programs. • Local radio could also prompt discussions by facilitating conversations on air between listeners. • Students could be assigned homework to discuss malaria with their families and report back on the content of the discussion.
Perceived norm that others in the community attend ANC the recommended number of times	• SBC programs can help increase the perception that others attend the recommended number of ANC visits (i.e., that this is a community norm) by featuring the numbers of women who completed at least the recommended number of ANC visits during their pregnancy over the course of a year in visible locations like health facility waiting rooms and community score cards, especially in areas where the majority of women are attending ANC at good rates. • SBC materials can feature women discussing how they were surprised that many more women in their community attend the recommended number of ANC visits than they had thought and how good this is for the whole community. • SBC programs and materials can feature champions within the community talking about their own and others' experiences with multiple ANC visits. • SBC materials might position multiple ANC visits as the "responsible," "trendy," or "aspirational" thing to do, depending on the target population.

TREND 2: Women face barriers to attending ANC early

The most common **barriers reported to attending ANC during the first trimester** were related to the **knowledge that ANC is preventative care** (i.e., women reported not feeling sick and thus not seeing a reason to attend ANC in the first trimester) and **access** (i.e., women reported inadequate finances, lack of money for transport, lack of time, distance to the facility). Not knowing one's pregnancy status can also, in part, reflect a lack of access to pregnancy testing and counseling Figure 1 below shows the top barriers reported by MBS respondents in four countries.



SBC Recommendations

SBC programs can assist with perceived and real barriers to early ANC attendance by:

Barriers to attending early ANC	How SBC programs can support these factors
Structural and policy	• Encouraging communities to organize group ANC transportation for those a long distance away from a health facility. • Ensuring pregnancy tests are available at the health facility to ensure that early pregnancy detection is feasible. • Supporting community-based ANC and IPTp where applicable.
Correct knowledge about malaria in pregnancy	• Increasing knowledge of the importance of going for early ANC and that ANC is recommended even if a pregnant woman is feeling well.
Time and financial limitations	• Delivering client-centered programs that consider the daily responsibilities and financial limitations of women of reproductive age in malaria endemic areas and meet them where they are: in women's groups, faith groups, micro-credit groups, in homes, and in places that employ many women.

Barriers to attending early ANC	How SBC programs can support these factors
Couple communication	• Encouraging couples to budget resources early or even before pregnancy to support their partners to attend ANC as soon as they know they are pregnant and to attend frequently.

TREND 3: Spousal support and shared decision-making for ANC are important

Gaps remain in decision-making and support for ANC between men and women. Table 2 compares the **percentage of participation in decision-making** by male and female partners to attend ANC and the percentage of women who reported they were accompanied by their partner during past ANC contacts.

Across all six countries, **male respondents were consistently more likely to report they were involved in the decision for their partner to attend ANC** (range: 72-84%) **compared to women** (range: 25-72%). Both **male engagement** and **shared decision-making** for ANC are critical for securing the needed family resources to seek ANC services.

High self-efficacy for male support of ANC attendance was also prevalent. **Most male respondents** in Cameroon (89%), Côte d'Ivoire (97%), Malawi (95%), and Sierra Leone (93%) said they **were confident in their ability to support their spouse or partner to attend ANC** as soon as they think she might be pregnant.

Table 2. Participation in decision making about attending ANC and partner accompaniment to ANC in a recent pregnancy

ANC decision making and partner accompaniment	Benin	Cameroon	Côte d'Ivoire	DRC	Malawi	Sierra Leone
% men who reported participation in decisions for their partner to attend ANC (made the decision solely or jointly with spouse/partner)	82.6	74.3	85.0	71.8	83.0	83.6
% women who reported they were accompanied by their spouse/partner to ANC in their recent pregnancy	49.4	32.6	36.1	25.4	72.0	54.0

% of men who were confident in their ability to support their spouse or partner to attend ANC as soon as they think she might be pregnant.	n/a	89.3	96.5	n/a	95.0	93.1

Finally, as shown in Table 3, women who reported that their **husbands ever accompanied them** to ANC were twice as likely to **report making at least four ANC contacts** during their last pregnancy in Côte d'Ivoire ($p<0.001$), 75% more likely in Cameroon ($p<0.001$), and 48% more likely in Malawi ($p<0.01$) than those who reported their husbands did not accompany them.

Table 3. Adjusted odds ratios (aOR) for the association between reported accompaniment to ANC by a spouse or partner and attending at least 4 ANC consultations in a recent pregnancy

	Benin	Cameroon	Cote d'Ivoire	DRC	Malawi	Sierra Leone
	aORs					
Reported ever being accompanied by spouse/partner to ANC	1.20	1.75***	2.04***	1.01	1.48**	1.36

Key: ** $p<0.01$; *** $p<0.001$

The other covariates in the multiple logistic regression model include: Survey zone, age, urban/rural residence, education, and wealth quintile

SBC Recommendations

Factors related to shared decision-making and spousal support for early ANC	How SBC programs can support these factors
Community leaders	• Church and mosque leaders and related activities can focus on gender transformative activities to support care-seeking of all kinds, including ANC and malaria testing.
Engaging men	• Men's groups and places where men congregate can feature programming focused on the value of shared decision making for ANC and feature men who previously were the sole decision maker who moved to shared decision making and how things improved as a result. • Encourage male community role models to voice their intention to share decision making or to support their partner to make their own decisions about ANC attendance.

Factors related to shared decision-making and spousal support for early ANC	How SBC programs can support these factors
Couple communication	• Programs can encourage couples to: - Discuss the importance of attending ANC, providing conversation prompts to spark the discussion. - Plan ahead for ANC and to go together, as feasible. - Further discuss what they heard at ANC visits with each other and plan for any follow-up actions. • SBC materials can model attendance to ANC by male partners in materials to position male accompaniment to ANC as a norm. • SBC materials could feature testimonials from couples who have succeeded in shared decision making about ANC attendance when previously the male partner made all health decisions.