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Study to Express the Perception of Parents/Caregivers on the SMC Intervention in Sokoto Nigeria.

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Abstract
Malaria is a protozoan infection of the red blood cells, transmitted to humans via the bite of a female anopheles' mosquito of Plasmodium species. A malaria control effort during the last decades to prevent and eliminate malaria from Africa has remained a major problem throughout the tropics. At the end of the 20th century, childhood mortality caused by malaria was on the increase. The aim of the study was to express the perception of parents/caregivers on the SMC intervention in Sokoto Nigeria. Parents/caregivers placed a high priority on the health of their children and have pledged to support the SMC intervention and any other program in the community aimed at improving the health of their children. However, negative attitudes and lack of trust by few parents have proven the little interest they have in the intervention. The intensive health education on the SMC intervention with a focus on the importance of the drug, the likely side effects and the need for parents to allow their children to receive the drug could further improve acceptability and the smooth implementation of the program by changing the mindset of some caregivers in other areas who are relatively low.
Keywords: Malaria, SMC, intervention, Sokoto and Nigeria

Introduction
Malaria is a protozoan infection of the red blood cells, transmitted to humans via the bite of a female anopheles mosquito of Plasmodium species (Amodu-Sanni et al., 2020; Lehane et al., 2019). Malaria control efforts during the last decades to prevent and eliminate malaria from Africa have remained a major problem throughout the tropics (USA, 2011). At the end of the 20th century, childhood mortality caused by malaria was on the increase (MalariaConsortium, 2015). In sub-Saharan Africa, Nigeria in particular, nearly all of the malaria-associated morbidity and mortality is caused by P. falciparum (Bâ et al., 2018). Individuals of all ages remain susceptible to infection, non-immune individuals - typically young children in sub-Saharan Africa, are at risk of developing severe and complicated malaria. Semi-immune people can be infected (i.e., Parasitaemia) but asymptomatic; when semi-immune people do develop a malaria illness, (MalariaConsortium, 2019a) it is generally marked by fever malaise and rarely becomes life threatening (Chotsiri et al., 2019; WHO, 2017).

Purpose of the Study.

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The present study aimed to express the perception of Parent/caregivers on SMC intervention on children under 5 years of age in Sokoto Nigeria.

Research Questions:

1. What is the perception of parents/caregivers on the SMC intervention in Sokoto state?

MATERIALS AND METHOD

STUDY DESIGN

This study was carried out as descriptive-analytical study. Inclusion criteria was strictly based on those parents/caregivers of children under 5 years that were eligible for SMC. Sokoto State was carved out of the then North-Western State on February 3rd, 1976 by the former regime of General Murtala Mohammed. Its capital and largest city is Sokoto. The state is named after it's capital Sokoto, a city with a long history and the seat of the Sokoto Caliphate (Wikimedia, 2020).

Data Collection

The data source was given for each indicator, and this defined the data collection method. Depending on the nature of the data, routine SMC reports, health information, surveillance systems or special surveys (such as population-based surveys, case-control and case-cohort studies) were used to collect the data required for monitoring and evaluating SMC. For example, data collected overtime at the facility level can be used to assess the intervention. Interviewer administered questionnaire through the research assistant were used which was adopted from the Sokoto state Malaria Elimination Agency SMC campaign.

Data Analysis

SPSS Statistics version 22.0 (IBM Corp., Armonk, New York, USA) was used to analyse the data. The analysed data were presented in form of figures and expressed as means ± SEM (Standard Error of Mean). Statistical differences were compared by simple descriptive analysis, a p-value of ≤ 0.05 was considered statistically significant.

Ethical Considerations

The ethical clearance for the study was sought and obtained from the State Ministry of Health Sokoto (SKHREC/0108).

Results

The perception of caregivers was generally high on the effectiveness of SMC, also the acceptability of the program was noted to be highly appreciated by parents and other stakeholders. Parents and caregivers placed a high priority on the health of their children and have pledged to support the SMC intervention and any other program in the community aimed at improving the health of their children. However, negative attitudes and lack of trust by few parents have proven the little interest they have in the intervention.

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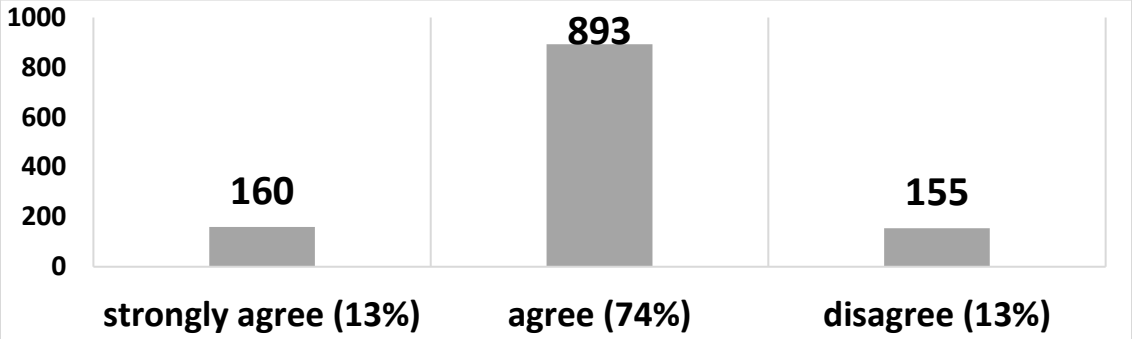

Figure 1: The medicine that prevents malaria during the rainy season medicines are easy to administer to young children

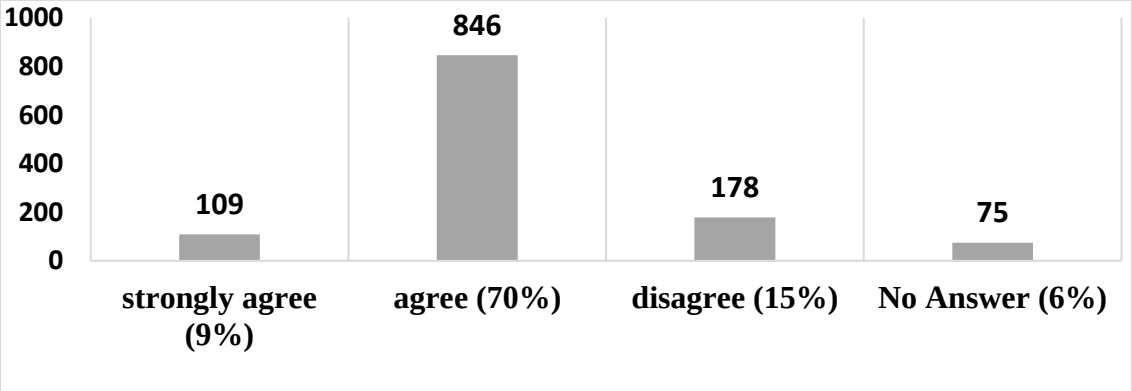

Figure **Error! No text of specified style in document.**: People in this community would like to receive more information on the medicine that prevents malaria during the rainy season

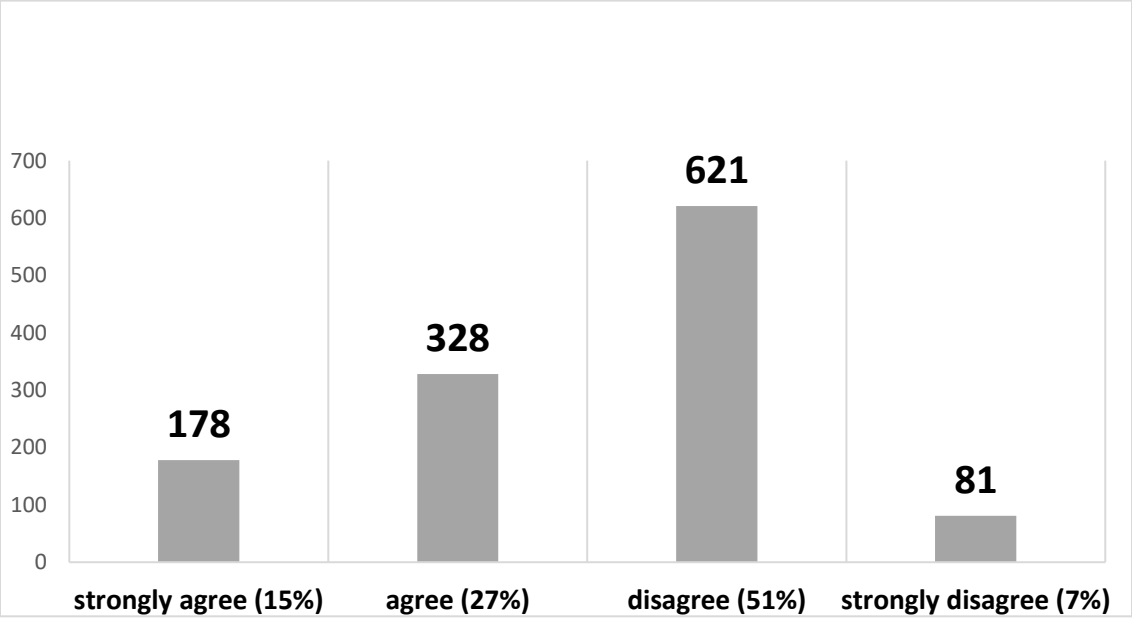

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Figure 3: Young children should take the medicine that prevents malaria during the rainy season every month

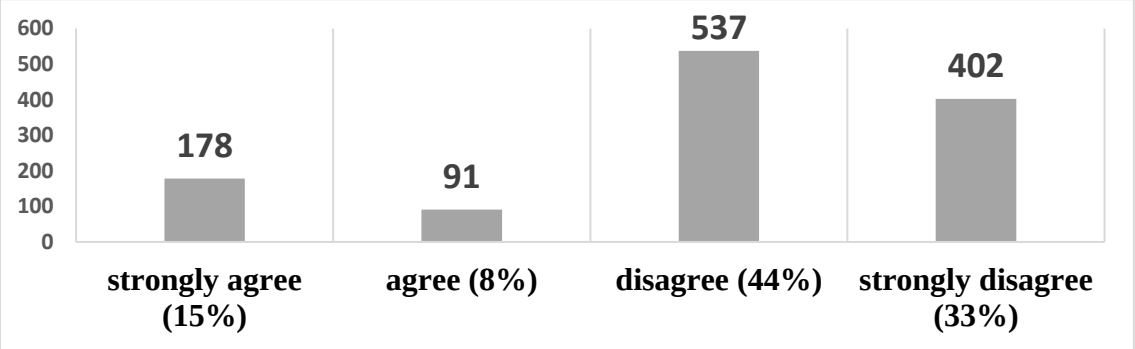

Figure 4: The medicine can be harmful to children

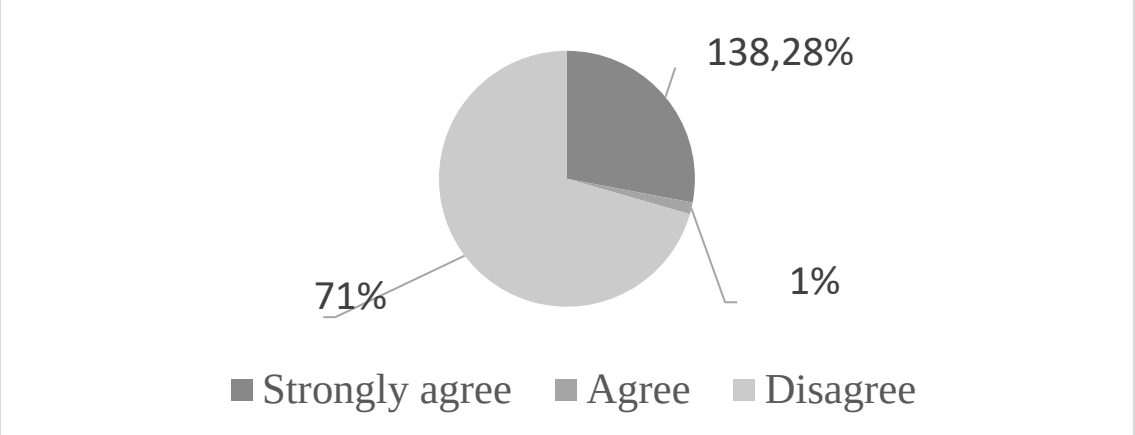

Figure 5: Malarial attack after given the medicine that prevents malaria during the rainy season

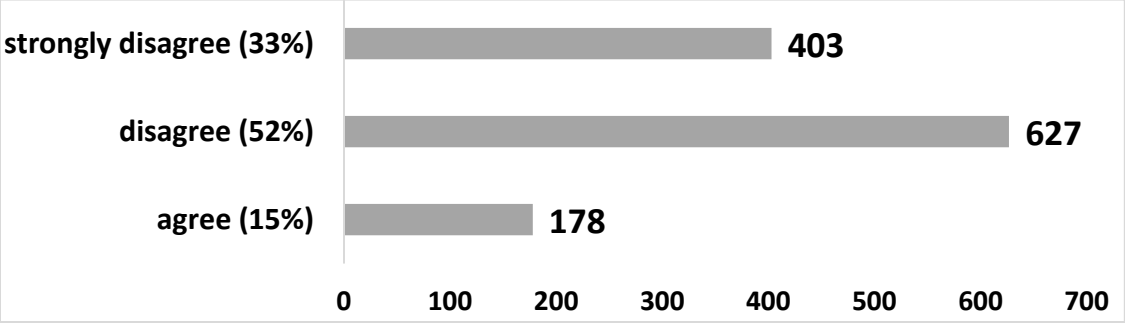

Figure 6: When I crush the tablet, most is spilt or spoiled and the child receives only a small quantity of the medicine

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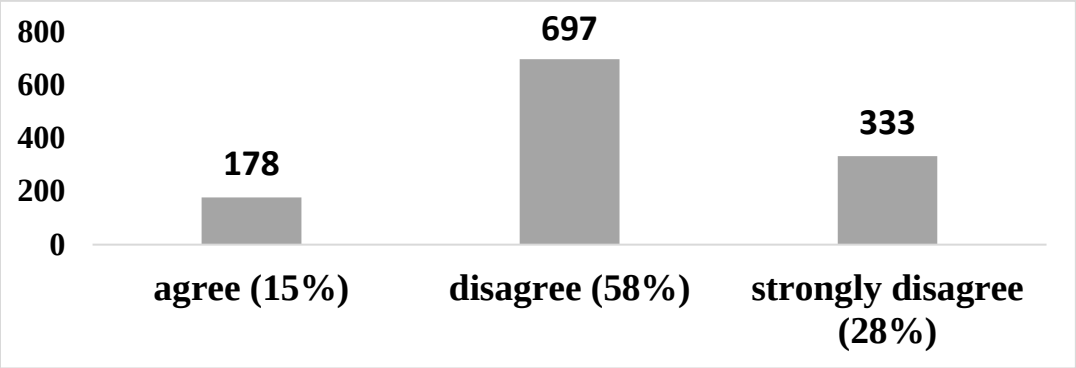

Figure 7: People in this community don't think malaria is a serious disease anymore

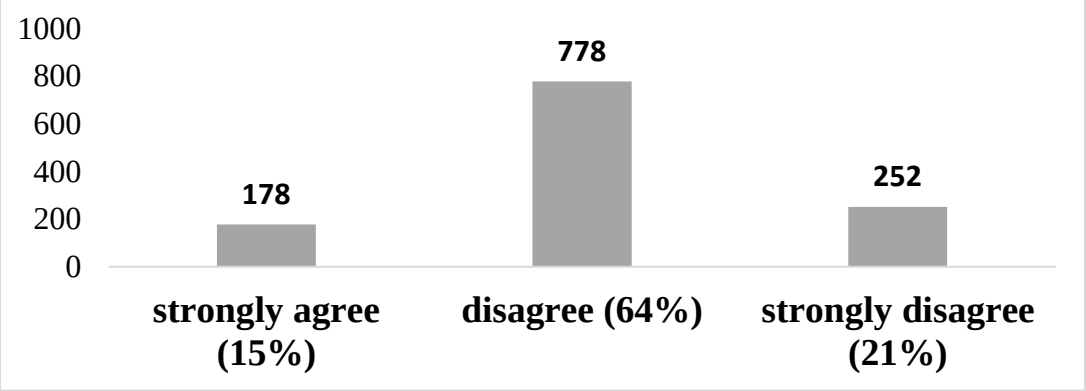

Figure 8: Children often refuse to take the medicine that prevents malaria during the rainy season

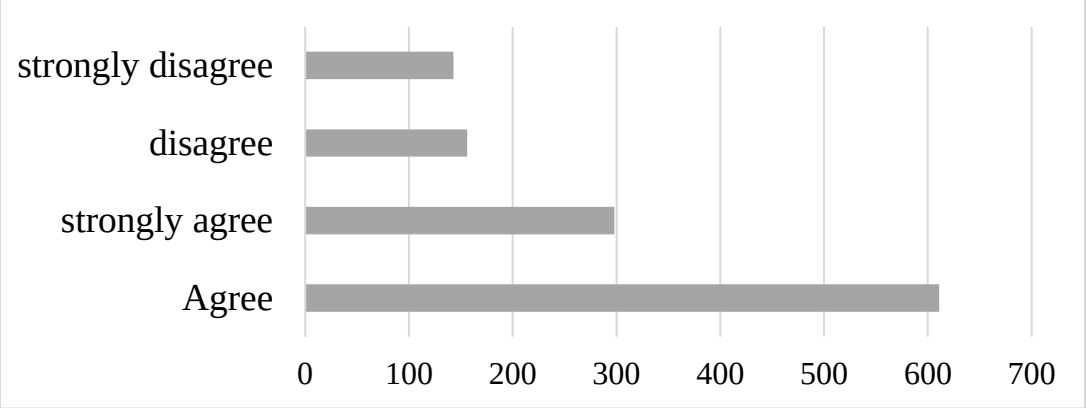

Figure 9: It is easy to get the medicine that prevents malaria during the rainy season from the health facility

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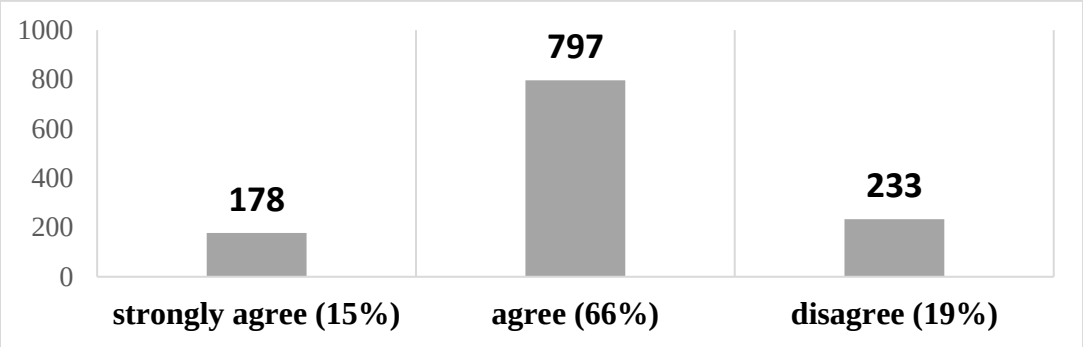

Figure 10: Will you feel compassion and desire to help children to get SMC medicine?

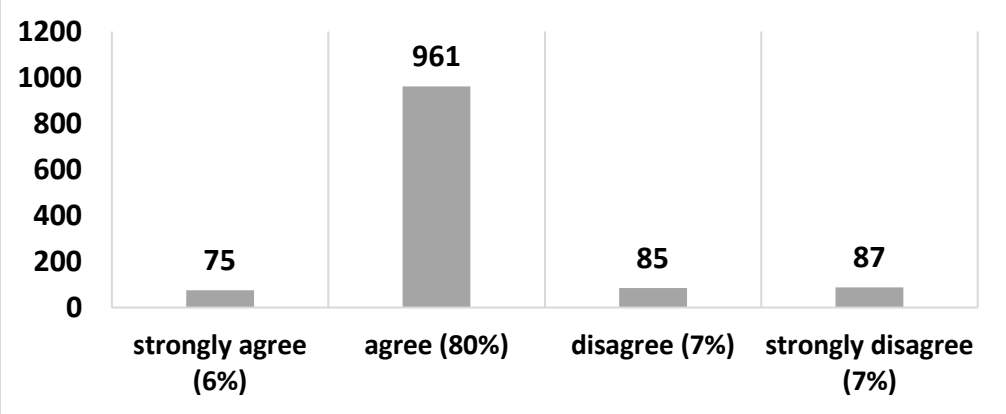

Figure 11: It will be okay not to discriminate about children suffering from malaria

Figure 12: I feel it is good to educate people on SMC

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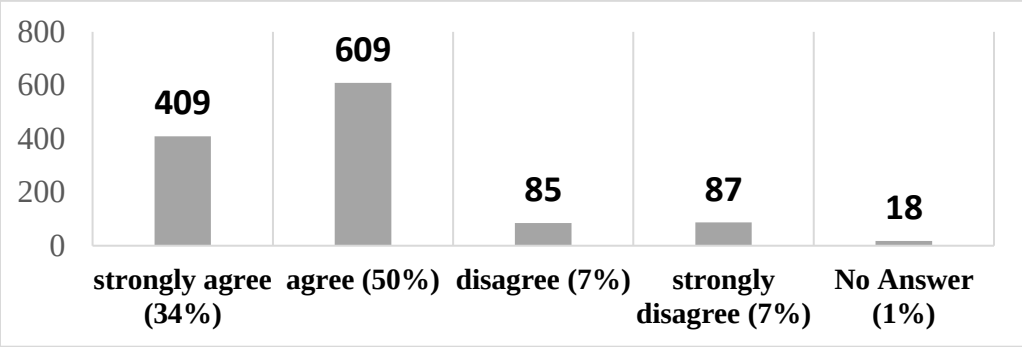

Figure 13: I will allow my child to take SMC drugs

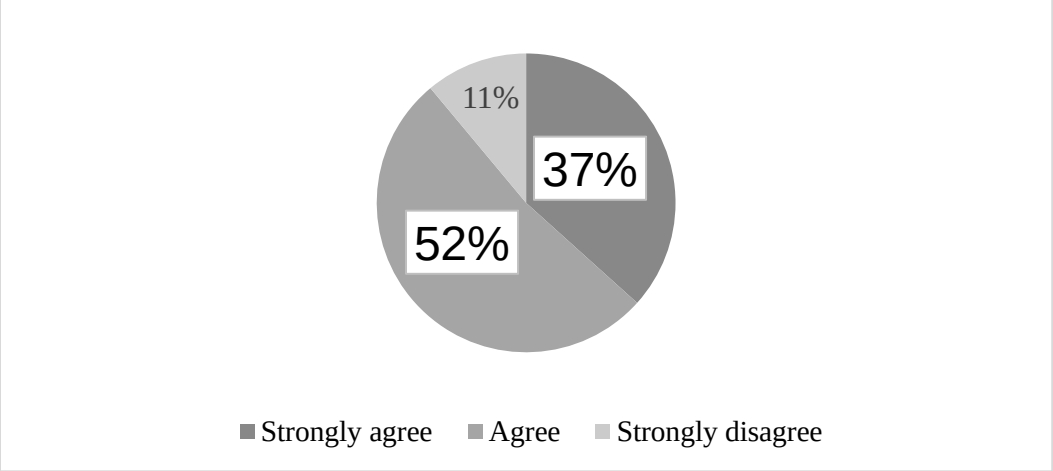

Figure 14: I believe malaria is preventable with SMC intervention

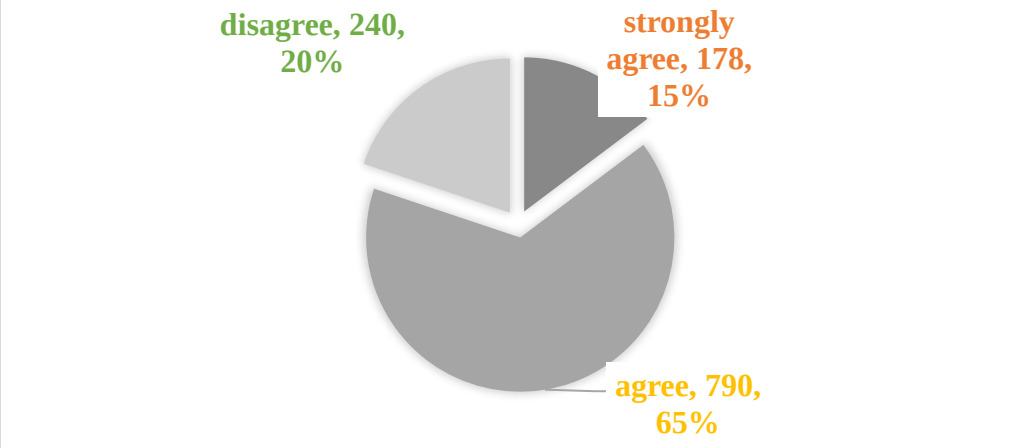

Figure 15: I will feel embarrassed knowing my child is suffering from malaria

Discussion

The current findings on parent/caregivers' perceptions of SMC in this survey related to the ease of giving SP+AQ to eligible children are provided. According to the respondents interviewed, 13% strongly agreed that SP+AQ is simple to administer, while 74% strongly agreed on the above, because it is safe and has undergone certain modifications on the medication, as each blister pack

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was dispersible, making it very easy to dissolve after the addition of water, in a similar study conducted in Gambia by Dial, Ceesay, Gosling, D'Alessandro, and Baltzell (2014) reported major concerns about probable adverse effects were a key impediment to community-wide medication administration. The most frequent adverse effects of SMC medications are gastrointestinal symptoms (abdominal pain and vomiting) and fever. According to a survey conducted by the malaria consortium in 2018, a large percentage of children swallowed the drugs without vomiting or spitting, accounting for 84% of respondents, with about 12% of children in Sokoto, Jigawa, Zamfara, and Katsina states spitting or vomiting part of the drug immediately after being given, and 3% vomiting all the drug after given. The children's reactions after being administered SP+AQ were evaluated, and the majority of them (87%) had no adverse reactions to the drug. Only about 13% of the children were reported to react to the drug, the overall rate of outpatient attendance with SMC-related vomiting was low (Singh, Musa, Singh, & Ebere, 2014). Most of the mothers and guardians interviewed in our study knew the common side effects associated with the administration of SP and AQ. The level of SMC coverage is often affected by the level of information dissemination and awareness creation to the community and caregivers, from the interview conducted the response of the caregivers shows the need where people in the community would like to receive more information on the medicine that prevents malaria during the rainy season. From the total number of respondents in the community only 9% strongly agreed on the need for more information related to SMC to gun for more acceptance, 70% agreed on the same,15% disagreed while 6% of the respondents did not comment on the need to intensify information dissemination. A research article by Diop et al. (2018), the report suggested that women information on malaria prevention was primarily from the SMC sensitization campaign. Any new plan involves successful community sensitization as well as the transmission of clear, simple, and trustworthy information. The above statement significantly supports the preceding conclusion in our research. In this study, the respondents were asked if eligible children should take the malaria-prevention medicine every month during the rainy season, and 15% of the respondents strongly agreed that eligible children should take SMC medication (SP+AQ) every month during the rainy season to prevent malaria, 27% also agreed on the above while 51% disagreed in addition to 7% of the respondents who strongly disagreed, a high proportion agreed that SMC have positive impact in children under-5 years among parents and caregivers respectively, this was similar to the research conducted by Mitiku and Assefa (2017) it depicts that 56.2% of caregivers had high perception about SMC in the prevention of malaria infection and 51.1% of the parents had almost similar perception about the effectiveness of SMC medication, this might be connected to the level of literacy and occupation, both of which are important in grasping the crucial idea of SMC, while Cissé et al. (2016) gave a contrary view stating that a children of mothers or guardians with no formal education had a greater proportion of treatment coverage (30.5%) than children of mothers or guardians with basic education (19.8%) or secondary education (18.8%). This disparity in therapy coverage might be explained by the fact that educated parents are more likely to resist changing their behaviour and accepting new therapies. In our current study, 23% and 6% were neutral, 5% and 3% disagreed while 6% and 3% strongly disagreed on the positive impact of SMC in children under-5 years in Sokoto among parents and caregivers respectively. This finding is following the data published from a study that documented

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95.2% of parents/guardians knew the benefits of SMC intervention and its safety to the eligible age group (Cissé et al., 2016).

Despite the high rate of morbidity and mortality related to malaria still, a high proportion of people in the study area don't think malaria is a serious disease anymore, those that strongly agreed were reported to be 15% while 58% of the respondent disagreed and 28% of the respondents strongly disagreed, this is similar to the Perceptions of some of the respondents at Katsina about the malaria burden in the community were that it has significantly decreased as agreed by 82.9% of caregivers though only about half of the caregivers depicting 49.9% still consider it as a serious disease. Moreover, when interviewed on children who refused to take the SMC medicine that prevents malaria during the rainy season, 15% of respondents strongly agreed that children refuse to take the medication, while 64% of the respondents disagreed and 21% strongly disagreed (MalariaConsortium, 2019b).

The ease of getting the SMC medication is one component of achieving high coverage and maximize the benefit of the campaign, the ease of getting the SMC medicine that prevents malaria during the rainy season for eligible children from the health facility this figure from this study work shows those strongly agreed 11.8% of the respondents while 50.6% respondents agreed and 24.7% respondents strongly disagreed on the ease of getting the SMC medication from the health facility and also 12.9% of the respondents disagreed with the earlier proclamation. Two approaches were used to overcome any perceived challenge, the first was House to house delivery method which was the most used approach, as reported by 88.2% of the respondents in the research conducted at Katsina in 2014 (MalariaConsortium, 2019b). This was similar across the LGAs through Mai-adua had slightly higher numbers receiving through the fixed-point delivery approach. The duration spent in receipt of drugs in the home was 20 minutes, half the time spent in receipt of drugs from a fixed point which was 47 minutes. Knowledge of the different types of SMC drugs and dose duration was high at over 80%. This highlights house to house delivery of SMC as a quicker and most preferred delivery mechanism by the caregivers. There is a need for costing the two delivery mechanisms to assess if home-based delivery remains a cost-effective delivery channel (MalariaConsortium, 2019a).

Conclusion

The intensive health education on the SMC intervention with a focus on the importance of the drug, the likely side effects and the need for parents to allow their children to receive the drug could further improve acceptability and the smooth implementation of the program by changing the mindset of some caregivers in other areas who are relatively low.

Recommendations

Parental perception is an important factor to consider when implementing seasonal malaria chemoprevention. Parents/caregivers should be made aware of the benefits and risks associated with this intervention, and a high level of commitment from the health promoter/provider is needed. As parents and caregivers, they are the ones responsible for their children's well-being. It is therefore imperative that they understand the importance of understanding medications that are available to help prevent seasonal malaria infections in their children.

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