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# A cross-sectional survey of parental care-seeking behavior for febrile illness among under-five children in Nigeria

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## KEYWORDS

Fever;  
 Child;  
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**Abstract** *Background:* Infections are a common cause of childhood morbidity and mortality in developing countries. Proper management of these conditions in appropriate health facilities provides the best opportunity for survival and reducing disability.

*Aims:* To evaluate the care-seeking behavior by parents of under-five children with fever in Nigeria and determine household characteristics associated with appropriate care-seeking.

*Material and methods:* The study is a secondary analysis of 2013 Demographic and Health Survey data for Nigeria, which was a cross-sectional survey conducted nationwide to obtain demographic and health characteristics of the population among 40,680 households selected using a multistage cluster sampling method. Under-five children with fever in the preceding two weeks were selected alongside their mothers. Selected sociodemographic parameters were related to parents seeking care from appropriate health facilities or otherwise. Logistic regression analysis was employed to evaluate the association of these parameters with appropriate care-seeking.

*Results:* There were 3632 (12.6%) under-five children with fever in the preceding two weeks. Of these, 1142 (31.4%) had been taken to an appropriate health facility for care. Factors associated with appropriate care-seeking were paternal secondary (OR, 95% CI; 1.49, 1.16–1.90), paternal tertiary education (OR, 95% CI; 2.03, 1.49–2.76) and belonging to the Muslim faith (OR, 95% CI; 2.31, 1.86–2.87). Others were age of child < 36 months, being married and working mother.

*Conclusion:* There is poor care-seeking for fever in under-five children by parents in Nigeria. Improved literacy, women empowerment and health education are strategies that may improve care-seeking behavior. Highlighted regional differences are additional considerations for such interventions.

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## 1. Introduction

Fever represents a perception of an elevated body temperature and is often considered by parents as a disease rather than a symptom or sign of disease.<sup>1</sup> It is a common symptom/sign in children and accounts for about 61% of visits by children to a pediatric outpatient clinic in Nigeria.<sup>2</sup> Most cases of fever in developing countries, such as Nigeria, result from infectious diseases, such as malaria, septicemia, respiratory and urinary tract infections, among others.<sup>3</sup> The burden of these infectious diseases makes it crucial for children having a fever to have proper evaluation by a healthcare practitioner. Several community and facility based interventions, such as malaria rapid diagnostic testing and use of artemisinin based combination therapies, designed for early diagnosis and appropriate management of these disorders often go under-utilized as parents fail to avail themselves of their use.<sup>4</sup>

Pneumonia, malaria, diarrheal disease, sepsis and other infections accounted for 64.0% (4.9 million) of the 7.6 million deaths of children under five years of age that occurred globally in 2010, with majority of these deaths occurring in developing countries.<sup>5</sup> In Nigeria, these conditions accounted for about 57% of all under-five mortality in 2013.<sup>6</sup> Most of these conditions will present with fever early on in the illness. Thus, early diagnosis and treatment are cardinal aspects of the global strategies for reducing the burden of malaria and pneumonia morbidity and mortality rest crucially on parents recognizing fever early and taking the right decisions for the child to have a near optimal opportunity for treatment and survival.<sup>6,7</sup> Sick children need to get efficacious and appropriate drugs in time. The Roll Back Malaria program set ambitious targets of at least 80% of those suffering from malaria having easy access to appropriate and affordable treatment within 24 h of the onset of symptoms by 2013.<sup>8</sup> Similarly, the global action plan for the prevention and control of pneumonia set targets to achieve 90% access to appropriate pneumonia case management by 2015.<sup>9</sup> Developing effective strategies to improve care-seeking behavior by parents in Nigeria will require a careful examination of those factors that are associated with appropriate care seeking and otherwise. Unfortunately, few studies have examined these on a national scale in relation to febrile illness and as such, there are fundamental gaps in our understanding of the role of sociodemographic and household characteristics in determining appropriate care-seeking. One of such nationwide studies is the 2011 Nigeria multiple indicator cluster survey.<sup>10</sup> The survey explored treatment, such as antimalarials given to febrile children nationwide, but failed to determine whether the treatment was based on seeking care from an appropriate facility.<sup>10</sup> Similarly, the 2010 Nigeria malaria indicator survey reported 35.4% of the 5519 under five children surveyed had fever in the preceding two weeks and 49.1% of them received an antimalarial drug but did not report on their care seeking behavior.<sup>4</sup> On the other hand, several local studies from different parts of Nigeria have reported varying findings as to determinants of care seeking behavior.<sup>11–13</sup> Abdulkadir et al. in North-Central Nigeria reported high social class and ethnic group were significant predictors of parents seeking care early for their febrile children.<sup>11</sup> Interestingly, they found that mothers with secondary school education were less likely to have appropriate care seeking behavior.<sup>11</sup>

Onwujekwe et al. in South East Nigeria demonstrated that in one community the most poor were likely to seek medical care early while in another the least poor had the least delay in seeking for medical care for their children suspected to have malaria.<sup>12</sup> Other demographic characteristics, such as religion and household size were either not examined or not significant.<sup>11–13</sup> Extrapolating the findings of these local studies to a National scale is not feasible considering the major differences in terms of culture, education, religion, among others across the country. Thus, knowledge gap exists on the major cross-cultural determinants of care-seeking behavior and how factors such as education, religion, family size, socioeconomic status, among others relate to parents seeking care for their febrile under-five children. Such knowledge may provide insight into how targeted education and other social interventions may provide the critical ingredients that will improve parental use of medical services and appropriate decision making for childhood illnesses.

Thus, the study seeks to ascertain the proportion of febrile under-five children who receive appropriate care in Nigeria and the role of child and household characteristics in determining appropriate care-seeking behavior for febrile under-five children.

## 2. Materials and methods

### 2.1. Study design

The study utilizes the dataset of the 2013 Nigeria Demographic and Health Survey (NDHS), conducted by the National Population Commission which is available for use to researchers. Written approval was obtained for use of the data from DHS program and ICF International after submitting a brief proposal on the topic. A detailed description of the study design, participants and study instruments has been previously published by National Population Commission.<sup>14</sup> The study received ethical approval from the National Health Research Ethics Committee. Written informed consent was a stringent prerequisite for every participating respondent and was obtained. The survey was conducted nationwide using a stratified three-stage cluster design.<sup>14</sup> In the first stage, 893 localities were selected across the country using probability sampling with probability of selection being proportional to size. Enumeration areas with clear geographical boundaries were delineated across the country (defined from population census in 2006) and at least one enumeration area was selected randomly from each of the 893 localities resulting in 904 enumeration areas. In a few of the larger localities more than one enumeration area was selected.<sup>14</sup> A listing of households in each selected enumeration area was made and 45 households were selected using systematic probability sampling with the sampling frame being the list of households in each enumeration area.<sup>14</sup> This resulted in selection of 40,680 households that were surveyed for the demographic and health survey. A standard demographic and health survey questionnaire developed by the DHS program with some country adaptation was administered to members of the household, including mothers.<sup>15</sup> Questionnaires covered a wide range of topics including household characteristics, health of children and care-seeking behavior, among others.<sup>14,15</sup>

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