

## REPORT ON SCIENTIFIC RESEARCH PROCESS

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**Healthcare seeking trends in acute respiratory infections among children of Pakistan**

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**Running Title:** Health care seeking trends in ARI

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Acute respiratory infections (ARI), in general, and pneumonia, in particular, continue to be the leading causes of childhood morbidity and mortality worldwide. In Pakistan more than 250,000 children die each year due to pneumonia. This makes Pakistan enlisted among the top five countries globally with the highest childhood mortality due to pneumonia, a preventable disease. Over 80% of these deaths occur due to lack of adequate and timely healthcare seeking. It is, therefore, important to understand the factors leading to poor health seeking behaviors among the caretakers of children suffering from ARI. This can assist in developing effective strategies to improve survival of children under five of developing countries. ARI continues to be among the major health problems in Pakistan, especially when there has been limited evidence generated regarding the health care seeking behavior over the past decade. We aim to assess the trends of the health care seeking behaviors among caretakers of children with ARI especially pneumonia in Pakistan with respect to the demographic health surveys (DHS) conducted during 2006-07 and 2012-13.

It is retrospective study whereby secondary data from datasets of 2006-07 and 2012-13 Pakistan Demographic Health survey (PDHS) , carried out by the National Institute of Population Studies, was utilized after seeking permission from the Demographic Health Survey Program under USAID. The survey in both the cases was designed to provide information on maternal and child health. The sampling methodology employed in both the surveys was multistage stratified cluster sampling whereby urban and rural samples were drawn separately. The sample was nationally representative in line with the population distribution in each province of the country. Random household sampling was conducted to select the respondents for the survey. Considering this is a sub analysis of an existing dataset therefore consent from the participants of the survey was not sought as the National Institute of Population studies had taken prior consent upon completion of the survey. The data set was downloaded from the public access website (<http://www.measuredhs.com>). In the 2006-07 survey 10,023 respondents were

surveyed whereas in the 2012-13 survey the sample was of 12, 943 respondents. The response rate for the 2006-07 survey was 94.5% whereas that of 2012-13 was 93.1%. The data was inspected for quality, completeness of information and comparability of variables required for the present analysis. The variables from the data set were then selected according to the objectives and the files were constructed. We selected lastborn children from 0-24 months of age at the time of the survey who had suffered from cough in the last two weeks and were living with respondents/mothers. There were 2508 cases identified with history of cough in DHS 2006-07 whereas 2012-13 had 3419 such cases. According to the case definition 1590 and 2142 children in DHS 2006-07 and 2012-13 respectively with acute respiratory symptoms were finally analyzed.

The data was analyzed using STATA 10.0 software. Frequency and percentages were calculated for ARI and its care seeking. The trends of health care seeking were determined separately for the individual, household and community level according to the study parameters. The variables included maternal age, maternal education, working status, father's occupation, child age, gender, residence, place of delivery, delivery conducted by, socioeconomic status and geographical region. These variables were then coded and categorized. Chi square test was applied to compare the trends of the rates of care seeking among the different categories according to the study parameters. A p-value of  $< 0.05$  was considered significant.

Out of 2508 children in 2006-07 there were 1590 with ARI according to case definition along with 2142 out of 3419 children in 2012-13 DHS, whose data was analyzed. During 2006-07, 69% cases sought healthcare for ARI which improved to 79% in 2012-13. Additionally, it was revealed that when compared between 2006-07 and 2012-13, improvement in care seeking practices was observed among illiterate mothers (64% vs. 77%) although there was minimal change in those literate. Similarly, those women working also showed an increase in healthcare seeking from 67% to 79%. Additionally, those belonging to low and middle socioeconomic class showed a marked increase as

compared to those in the higher class where there was no significant change. Whereas those living in rural communities also showed an increase from 66% to 78%.

Increasing health budget, improving maternal education and strengthening multi-sectoral coordination are among the effective strategies to improve outcomes associated with healthcare seeking in ARI.