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MOTHERS' KNOWLEDGE, ATTITUDES AND PRACTICES REGARDING ACUTE RESPIRATORY INFECTIONS IN CHILDREN IN BARINGO DISTRICT, KENYA

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D.E. SIMIYU, E.M WAFULA and R.W. NDUATI

ABSTRACT

Background: Control of acute respiratory infections (ARI) is a major public health problem in developing countries. Implementation of case management protocols requires participation of the community to reduce morbidity and mortality from ARI. Health education programmes can only be effective when designed to take into account the prevailing knowledge, attitudes and practices (KAP) of the community towards ARI in their children.

Objective: To determine the KAP of mothers regarding ARI in their children aged less than five years.

Design: Community based cross-sectional survey.

Setting: Baringo District, Kenya.

Subjects: Mothers with children aged 0-5 years were recruited following stratified random sampling in three areas of Baringo District to represent low, medium and high potential areas based on agricultural productivity.

Intervention: A mixed structured and unstructured questionnaire was administered to each of the respondent mothers by the investigator; with the help of an interpreter where necessary.

Results: A total of 309 mothers were interviewed. Their mean age was 31.5 years (range 16-51) and 34% had no formal education. Only 18% of mothers described pneumonia satisfactorily. 60.2% knew that measles is preventable by immunisation. 87.1% of the mothers said they would seek health centre services for severe ARI. Formal education had a positive influence on the KAP of the mothers.

Conclusion: The study reveals that the mothers had good knowledge of mild forms of ARI but not the severe forms. Their attitude to ARI was appropriate but subsequent practices were not. Low utilisation of health services for moderate ARI may result in continued high mortality because of delayed identification of seriously ill children.

INTRODUCTION

Acute respiratory infections represent an important cause of morbidity and mortality in developing countries. Together with malnutrition and diarrhoeal diseases, ARI ranks among the top three diseases in terms of morbidity and mortality worldwide(1).

Annual incidence of pneumonia in developing countries in children under five years is 70-100/1,000 rising to 500/1,000 among the malnourished(2,3). Pneumonia causes 30% of all deaths among under fives in developing countries(4). In developing countries, 80% of the pneumonias are due to bacterial pathogens and therefore the high mortality is preventable by use of appropriate antibiotics early in course of the disease(5). Using WHO recommended classification and case management protocols, diagnosis and management of moderate to severe ARI can be done without use of

sophisticated equipment and by health workers with limited skills(6-8). Mortality from acute lower respiratory infections can be prevented through early diagnosis and management of moderate and severe acute lower respiratory infection(ALRI). In study conditions where active case finding is employed by visiting the homes, mortality is significantly reduced as the victims are identified early by the health workers(9). In practice it is not possible to employ active case finding as the resources are limited.

Passive case finding becomes the only option and requires active participation of parents or care givers. Mothers are usually the primary care providers for their children and their ability to recognise symptoms of ALRI determine the success of controlling mortality from this condition. Campbell *et al* in 1989 noted that it was possible for semi-literate or illiterate mothers with variable cultural

medical beliefs to identify ALRI and seek treatment after brief health education(7,10).

In Kenya, ARI is one of the leading causes of morbidity and mortality in young children. Most of the deaths take place outside the health facility suggesting that mothers and primary care givers lack skills in appropriate health seeking behaviour for the management of ARI. Community based studies are needed to identify the specific gaps in knowledge and attitudes towards ARI in order to make health education and advocacy messages for prevention of ARI mortality relevant.

The available outpatient data for Baringo District indicates that the leading causes of morbidity in order of importance are ARI, malaria and diarrhoeal disease. ARI accounted for 48% of outpatient and inpatient health care attendance in the district during the months of August to October 1990(11).

MATERIALS AND METHODS

Baringo District covers an area of 10,949 square kilometers. Altitude ranges from 1,000 to 3,000 meters above sea level. Apart from the south-west corner and the Tugen hills, the rest of the district is arid to semi-arid rangeland. Fifty one percent of the population are children below age 15 years. The district can be divided into low, medium and high potential areas based on land agricultural output, population density and per capita income.

The study was carried out in three areas representing the high, medium and low agricultural potential areas.

Sampling: Cluster sampling was employed so as to yield a sample representative of low, medium and high agricultural potential areas. Stratification was employed to include only households with children aged five years and less.

A list of all locations in each division was made and one selected randomly from each division. A list of sub-locations in each sampled location was made and again one sub-location randomly selected from the low and high potential areas and two sub-locations in the medium potential area to represent the two divergent climatic conditions in this area.

From the existing four sub-locations, thirty clusters were randomly selected. The distribution of clusters by sub-location was weighted according to population density so that the lower density areas had more clusters. For each cluster selected, probability proportional to size was applied so that those clusters with more households had more of these included in the sample. A list of households in each cluster was made, stratified to only include households with children aged five years and less. The households were serially numbered from 1 and using a table of random numbers, simple random sampling was employed to select the study households.

Procedure: The mothers were interviewed to determine their knowledge of the causes of pneumonia, measles and cough. The researcher also sought to know whether there were traditional names for these conditions. The mothers were also asked to describe how they managed these conditions

in their children. The mothers were also interviewed about their health seeking behaviour.

Two interpreters were selected from the pool of clerks in the district statistics office. The selection was based on their previous experience and familiarity with questionnaire administration. They were indigenous to the study area and doubled as guides. One of the selected interpreters in the absence of the other translated the English questionnaire into the vernacular. The other, without having read the English version, translated the vernacular script back into English. Any misinterpretations were identified and corrected with both interpreters by the investigator. The two day training was stopped when the investigator was satisfied after an exercise at the district hospital outpatient department.

The sub-chiefs asked mothers from each cluster to assemble at pre selected central points on selected dates. The mothers were informed to bring any ill children for medical attention on the selected dates if they so wished.

With the guide/interpreters, the investigator visited each center on the selected dates. The list of sampled households was used to identify respondents from each cluster. The questionnaire was administered to each of the respondents by the investigator with the help of an interpreter whenever necessary. At the end of each interview, all medical complaints of both mothers and children were dealt with by immediate treatment or referral to appropriate health facilities.

Mothers who were unable to attend were revisited after arrangement through the sub-chief. If any mother still didn't turn up on revisit she was presumed lost to the study. An effort was made to replace her by selecting another mother from the same cluster with a child/children aged below five years. No further effort was made when no suitable replacement was available on a revisit.

RESULTS

Three hundred and fifty five households with mothers of children aged < 5 years were identified. A total of 309 (87%) mothers were interviewed of the expected 355. Their mean age was 31.5 years with a range from 16-51 years. One hundred and five (34%) of them had no formal education. One hundred and sixty one (52%) of the mothers said their children slept in the same area they cooked in. All used wood fuel for cooking.

Area of origin (low, medium or high potential) had no influence on the results.

Children who slept in the cooking area had more cases of ARI compared to those who did not sleep in the cooking area at the time of interview. However the difference was not significant (Table 1).

Knowledge attitudes and practises towards pneumonia: Inquiry from Kabarnet Hospital personnel and other health units in the study area revealed that they didn't know any local term for pneumonia. The community uses the word pneumonia. 96.1% of the mothers interviewed said they knew the disease called pneumonia. However, on asking them to describe it only 54(18%) did so satisfactorily. This included 15 (5%) who described increased respiratory rate, 30 (10%) difficulty in breathing

and nine (3%) cough. Two hundred and forty three women (80%) described it as fever with no respiratory association (Figure 1).

Two hundred and seventy (87.5%) thought pneumonia was caused by cold weather and avoidance of cold conditions would prevent it.

Table 1

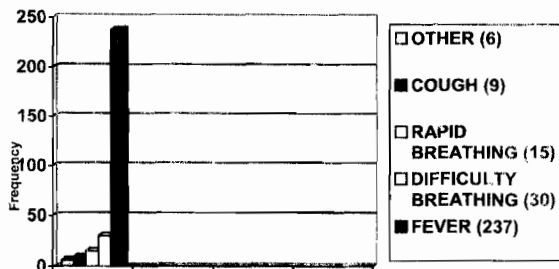
Influence of sleeping quarters on number of ARI episodes

	ARI Episodes		
	No	Yes	Total (%)
Sleeping in cooking area	20	141	161(52.4)
Not sleeping in cooking area	19	127	146(47.6)
Total	39(12.7%)	268(87.3%)	307(100)

$X^2 = 0.024$ DF = 1; P = 0.877 Yates correction; P = 1.00

Figure 1

Mother's description of pneumonia



Cough as symptom of pneumonia: The local name for serious cough related disease that was closest to description of pneumonia was "Ngotobjan". 97.8% knew that cough could develop into a serious disease. Two hundred and thirty two (75.1%) knew that cough was serious when the child developed an increased respiratory rate, difficulty in breathing or refusal to feed.

For a child with a serious cough (Ngotobjan), 97.8% said they would seek help in its management. The reasons for seeking any form of help were difficulty in breathing 143 (46.3%), refusal to feed 65 (21%), fever 56 (18.2%) and rapid breathing 24 (7.8%) in that order.

One hundred and eighty four (59.8%) said they would seek help in form of traditional herbalist and

non-prescription drugs, for the rest only 84 (27.2%) would seek health center services. Presence of fever didn't alter this behaviour but when fever occurred alone without features of ARI 250 (81.7%) utilised non-prescription drugs.

Knowledge attitudes and practises towards measles

Measles knowledge: All mothers interviewed said they knew measles and described it adequately. The local name for measles is "sarserek". 4.5% thought measles was caused by germs or recognised its contagious nature. All the others did not know the cause of measles. However 186 (60.2%) mothers correctly knew that measles was preventable by immunisation while twenty two (7.1%) thought it was preventable but not by immunisation. A significant number of mothers with at least primary education knew that measles was preventable compared to those with no education (Table 2).

Table 2

Education level and knowledge of measles prevention

	None(%)	Primary(%)	Post primary(%)	Total(%)
Education level				
Preventable				
Yes	49 (16)	131 (42)	28 (9)	208 (67.3)
No	56 (18)	44 (14)	1 (0.3)	101 (32.6)
Total	105 (34)	175(56.7)	29(9.3)	309(100)

$X^2 = 36.222$ DF = 2 P = 0.001

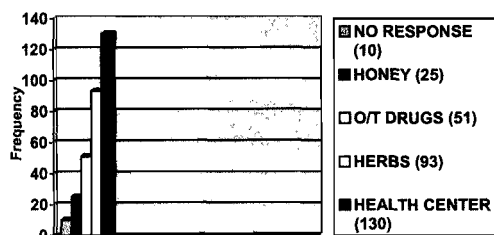
Ninety eight percent knew that measles was a serious disease and 283(91.6%) associated it with high mortality. The mothers were not fully aware of the complications of measles and they did not associate severe measles with respiratory symptoms.

Attitudes towards measles: The attitude towards measles was that it was a serious disease that required intervention. Of the one hundred and twenty three (39.8%) mothers who didn't know measles was preventable by immunisation, their childrens' clinic cards were scrutinised. These showed that one hundred and one (82%) of the children aged over nine months had actually received measles immunisation.

Measles practises: The mothers were told to describe what they do when a child with measles develops hoarsness or loss of voice. Only 42.2% said they would go to the health center for treatment. Forty six point six percent utilised herbs or off-counter drugs for management of measles croup (Figure 2).

Figure 2

Practice in measles croup



Nutrition practise: Ninety seven point four percent of the mothers said they would continue feeding their ill children. 96.1% gave the food in liquid form such as milk, porridge or soup.

DISCUSSION

The term pneumonia as used in the study area is a label for fever rather than the actual disease in biomedical terms. The local community does not seem to have a specific terminology for pneumonia, the closest being "Ngotobjan" which literally translated means serious cough. As noted by other researchers, most rural communities don't seem to have an explanatory model of ALRI. Where this may actually be in existence, it would need medical anthropologists to determine it. As in the case of pneumonia, some cultures may use biomedical terminology to label an illness which is quite different from the biomedical equivalent(12).

The reasons given for seeking help for a child with *Ngotobjan* imply knowledge among some mothers of danger signs of ALRI. 75.1% recognised these signs but only 68.3% utilised health center services. Recognition of the features of moderate to severe ARI exemplified by difficulty in breathing led to more use of health center services than in case of mild ARI exemplified by cough. Recognition of early signs of ALRI is important for appropriate case management. Moderate ALRI for the purposes of this study was defined to include increased respiratory rate. This has been found by various workers to be a sensitive and specific predictor of ALRI(5,7). There was significant deficiency in knowledge and practices which could deter effective case management.

In this study mothers practices in moderate and severe ARI are inappropriate. The use of herbs and non-prescription medicine was widespread. Tupasi noted an

almost similar trend in the Philippines. She found that mothers brought their children to hospital only when cough was accompanied by fever, weakness, inability to feed or the child became blue in colour(13). Health seeking behaviour can be enhanced by health education regardless of the mothers literacy level or cultural background as noted by Campbell *et al*(7). The widespread use of off-counter drugs as found in this study may be detrimental by drawing parents into a false sense of security and delay appropriate health seeking behaviour with timely management. The cost especially to the parents in the low potential areas could be enormous. The increased use probably reflects the advertisement pressure they face. In this study, the occurrence of fever alone was likely to result in use of non prescription drugs.

The knowledge of measles as a disease is universal in the study area. This is probably a reflection of its prevalence. Its contagious nature however was not mentioned prominently in its aetiology. This is surprising considering that many mothers in developing countries are in the habit of letting their children contract measles early by deliberately exposing them to other children with measles with the underlying belief that measles at a younger age has less mortality and/or severe morbidity.

Adequate immunisation together with good primary health care are essential for control of ARI(2,3). Immunisation coverage in the study area is good (above 85% including measles)(14). With an effective cold-chain and correct administration, the measles vaccine results in very effective control of measles. In this study 34% of the respondents had no formal education. It appears that in the study area immunisation is carried out without adequate health education to the mothers. This is shown by the fact that among the mothers who thought measles is not preventable or preventable by means other than immunisation their childrens, cards revealed that most children above age nine months had actually been vaccinated against measles. A study in Port-eau prince in Haiti showed that the greater positive impact on mortality from measles by vaccination was in children borne to mothers who were illiterate and of low socio-economic status (15). In the study area, the knowledge of the preventable nature of measles needs to be enhanced.

Mortality from measles is frequently associated with respiratory complications either due to the virus itself or due to secondary bacterial invasion(2,3). Without prompting, the mothers in the study area didn't mention respiratory involvement although they were agreed on the high mortality associated with measles. Health seeking behaviour for measles respiratory morbidity was inappropriate with over half not taking the children to a health center.

The majority of mothers continued to feed their ill children. The importance of providing adequate nutrition and fluids for ill children is well understood. This should

be in the most acceptable form to the child. It forms an important part of supportive care for ill children that may influence the outcome favourably (3,6).

Study limitation: Selection of the replacement mothers may have introduced some minor bias. The mothers who were motivated to come to the revisit interviews although not belonging to the identified sample may have had attributes that the non-respondents didn't have e.g. a well or ill child, different education level or age differences that led to this motivation. A total of thirty mothers (9.7%) were replacements. Perhaps the good turnout was also because of the promised medical attention in a background of lack of drugs in the local health facilities. This lack of drugs may have had an influence on the responses to questions pertaining to practices. Some mothers may say they wouldn't go to a health center from the background of lack of drugs in these centres.

In conclusion the knowledge of mothers regarding ARI and measles in the study area is adequate. However attitude and practices are inappropriate for successful management.

We recommend health education to the mothers to: Enhance their knowledge of early signs of ALRI such as increased respiratory rate; Encourage early appropriate health seeking behaviour; Discourage inappropriate, at times harmful health practices, such as over the counter medication.

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