

## ASSESSMENT OF KNOWLEDGE OF MOTHERS REGARDING HAND HYGIENE OF THEIR CHILDREN IN URBAN AND RURAL AREA

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### ABSTRACT

**Background:** Knowledge, attitude and practice of mothers regarding the basic health care needs of their child is inevitable for maintaining good health to create a better future. The Knowledge regarding hand hygiene was found to be satisfactory in both urban mothers and rural mothers such as; importance of keeping proper hand hygiene, unwashed hands can spread Microbes and cause diarrhoea. But rural mothers were not very much familiar about the seven Steps of hand washing. Most of the urban mothers used soaps with germicidal activity to clean Their children's hands. This study aimed to determine the knowledge of mothers regarding hand hygiene and its various aspects in both urban and rural areas and to determine the impact of counselling.

**Methodology:** Our study was an observational cross-sectional study with 300 participants of which 150 were from rural and 150 from urban locations and the study was carried out in Eraviperoor Gramapanchayath and Thiruvalla Municipality from Pathanamthitta district.

**Result:** Compared to rural mother's urban mothers had satisfactory knowledge on various aspects of hand hygiene such as; communicable diseases, 7 steps of hand washing etc.

**Conclusion:** Mothers in urban areas have better knowledge regarding healthcare in terms of hand hygiene. But it was found with the selected group of respondents for the study that the intervention given in the form of counselling resulted in increasing the knowledge regarding the same among both groups. So proper counselling and a holistic level of support and guidance should be given to mothers, who is possible by strengthening and streamlining the existing programs designed for the same.

**KEYWORDS:** Children in Urban and Rural Area

### INTRODUCTION

Communicable diseases continue to be the major contributor to global morbidity and mortality.(1) According to WHO estimates, 3.8 million children aged less than five die each year from diarrhoea and acute respiratory tract infections.(2) Children at day-care and kindergartens are at higher risk of getting infections. (15) The contributory factors are overcrowding, lack of understanding on basic hygiene and lack of natural immunity to viruses and bacteria. (16)Hand washing with soap could protect about 1 out of every 3 young children who get sick with diarrhoea and almost 1 out of 5

young children with respiratory infections like pneumonia.(3,4,5) Clean water and hand washing are viewed as the most cost-effective intervention for preventing diarrheal diseases.(6) It is observed that young children and their mother in developing countries fail to wash their hand adequately after faecal contact.(1) Diarrhoea morbidity rates are also increasing. Children in developing countries suffer from average four to five debilitating bouts of diarrhoea per year, which can cause and exacerbate malnutrition and result in long-term growth stunting. (15)

Mortality and morbidity is concentrated in the under-fives and in the poorer countries. (5) Several viruses that were believed to use airborne or fomite routes exclusively are now thought also to be transmitted faeco-orally. Hands are thus disease vectors: carrying respiratory microorganisms shed from the nose, mouth or anus to the nasal mucosa of new hosts. Hands can be cleansed of viruses and bacteria by washing with soap.(7) It is biologically plausible that enhanced hand hygiene would interrupt influenza transmission, predominantly through reducing contact and some droplet spread rather than through effects on aerosol transmission.(17) Many communicable diseases can be effectively managed by improving the sanitation, hygiene and water usage practices.(7) Mother's hand washing practices also helps in reduction of malnutrition among children. (8).

The effects of poor sanitation seep into every aspect of life — health, nutrition, development, Economy, dignity and empowerment. (9) One of the lasting complications of diarrhoea is Malnutrition. Diarrhoea and malnutrition is a vicious cycle always. Therefore, hand washing is incorporated along with safe water and sanitation. Limited access to safe drinking water and poor sanitation can lead to under nutrition, water borne diseases, gastroenteropathy along with Diarrhoea and dysentery. These problems are predominant among preschool children in the developing countries. (10) Still hand washing with soap is not a universal practice in India.

Therefore health education of mothers regarding HWWS is a necessary intervention. (8) Hand-washing practice is being promoted among children in India through the school hygiene program and mass media campaign on —the hand washing dayl as a preventive strategy for diarrhoea and malnutrition. But most programs are yet to include mothers of young children as part of their health education program. (11)

## 7 STEPS OF HAND WASHING

### The Seven Steps for Hand Washing Are

- **Step 1:** Rub your palms together with soap and water.
- **Step 2:** Rub the back of each hand.
- **Step 3:** Rub both your hands while interlocking your fingers.
- **Step 4:** Rub the back of your fingers.
- **Step 5:** Rub the tips of your fingers.
- **Step 6:** Rub your thumbs and end of your wrist.
- **Step 7:** Rinse both hands properly with water (12)

Regular hand washing, particularly before and after certain activities, is one of the best ways to remove germs, avoid getting sick, and prevent the spread of germs to others.

## WHEN TO WASH HANDS?

- Before, during and after preparing food.
- Before eating food
- After using toilet
- After changing diaper
- After cleaning a child who has used the toilet. (12)

Magnitude of the problem is more in urban slums with reduced access to safe water and Sanitation. Children from poorest urban are three times more likely to die before the age of five than children from wealthiest urban and rural areas.(13) Thus understanding usual hand washing is an important baseline assessment for any programme intended to improve sanitation, hand hygiene and water quality.(1) Hand washing is an important practice to reduce the burden of childhood morbidity and mortality and various communicable diseases like diarrhoea, ARI etc.

However, both knowledge and practice of proper hand washing after critical moments still remains low among mothers. (14)

## METHODOLOGY

The study was designed as a prospective cross sectional study to determine the knowledge of urban and rural mothers regarding hand hygiene of their children in urban and rural area and to determine the impact of counselling. The study was carried out in 300 subjects 150 each from urban and rural area and the data was collected using a structured questionnaire that contained various questions to meet the objectives.

## LOCATION OF THE STUDY

The study was carried out in Eraviperoor Grama-panchayath and Thiruvalla Municipality from Pathanamthitta District on the topic “ASSESSMENT OF KNOWLEDGE OF MOTHERS REGARDING HAND HYGIENE OF THEIR CHILDREN IN URBAN AND RURAL AREA”.

**Duration of Study:** Six months.

**Sample Size:** The sample was calculated to be 300; 150 mothers each from urban and rural area using the statistical formula

$$\frac{Z^2 \times P(1+P)}{e^2} \div \left[ 1 - \frac{z^2 \times P(1+P)}{e^2 N} \right]$$

Where,

P-Standard deviation

N-Population size

e-Margin of error

Z-95 % Confidence interval of  $Z^2$

### **INCLUSION CRITERIA**

Mothers of 0 months - 5 years old children.

### **EXCLUSION CRITERIA**

Mothers who are not willing to participate.

### **DATA COLLECTION PROCEDURE**

Participants who were willing to participate and who have given a written informed consent were taken into study and were asked to fill a prepared questionnaire to determine their knowledge regarding hand hygiene of their child. Questionnaires were filled through face-to-face interviews with participants and data were collected. Later counselling was given to mothers and their knowledge regarding hand hygiene of their child was again collected, after that leaflet regarding the same were given to mothers. After one month of data collection, their knowledge regarding hand hygiene was again monitored and recorded.

### **RESULTS**

The study focused on obtaining data on awareness of mothers regarding hand hygiene of children in Urban and Rural areas. This was a cross sectional study conducted in Eraviperoor Grama Panchayath and Thiruvalla municipality of Pathanamthitta District. The data were collected using a structured questionnaire.

Figure 1 show in our study the total population was 300 mothers, 150 mothers each in urban and rural group pre-test and post test study.

Figure 2 shows 300 participants in our study was divided into 5 groups based on their age, out of which the maximum respondents were from the age group 26-30 (77 were from Rural area and 78 were from Urban area) followed by the age groups 31-35, 21-25, 36-40 years. There were no participants from both urban and rural area that belong the group of less than 20.

Figure 3 shows that the total population of 300 was divided into urban and rural groups each having 150 samples, which was again divided into divided into 5 groups based on their educational status. Here the number of graduate mothers were 72 in rural area and 129 in urban area followed by mothers with secondary school education which was 47 in rural area and 10 in urban area followed by mothers with primary school education which was 10 in rural area and 1 in urban area followed by mothers with pre-college school education which was 19 in rural area and 10 in urban area. The number of illiterate mothers in rural areas was 2 and there were no such mothers in urban areas.

Figure 4 shows reveals that the total study population of 300 was divided into urban and rural groups each having 150 samples, which was again divided into three groups (Unemployed /Housewife, Daily wage, Employed).Here the number of unemployed mothers/Housewife were 106 in Rural area and 50 in Urban area, the number of daily wage mothers were 5 in Rural area and 10 in Urban area and the number of employed mothers were 39 in Rural area and 90 in Urban area.

Figure 5 shows distribution of awareness on the fact that bacteria will spread from hand to nose and mouth causes various communicable diseases in children. Out of 150 mothers each in urban and rural area, the number of mothers who gave positive response was 150 in both rural and urban area.

Figure 6 shows Out of 150 mothers each in urban and rural area, the number of mothers who gave positive response was 130 before counselling, 150 immediately and 139 one month after counselling and the negative response was given by 20 before counselling, 0 immediately and 11 one month after counselling in rural area. Whereas the number of mothers who gave positive response in urban area was 135 before counselling, 150 immediately and 148 one month after counselling as well as the negative response was given by 15 before counselling, 0 immediately and 2 one month after counselling.

Figure 7 shows illustrate distribution of awareness about the correct techniques of 7 steps of hand washing. Out of 150 mothers each in urban and rural area, the number of mothers who gave positive response was 30 before counselling, 150 immediately after counselling and 142 one month after counselling in rural area. And the negative response was given by 120 before counselling, 0 immediately after counselling and 8 one month after counselling. Whereas in urban area, the number of mothers who gave positive response was 106 before counselling, 150 immediately after counselling and 149 after one month of counselling as well as the negative response was given by 44 before counselling, 0 immediately after counselling and 1 after one month of counselling.

Figure 8 shows Out of 150 mothers each in urban and rural area, the number of mothers who gave positive response was 140 before counselling and 150 immediately and after 1 month of counselling as well as the negative response was given by 10 before counselling and 0 immediately and after 1 month of counselling in rural area. Whereas the number of mothers in urban area who gave positive response was 146 before counselling and 150 immediately and after 1 month of counselling as well as the negative response was given by 4 before counselling and 0 immediately and after 1 month of counselling.

Figure 9 shows reveals the distribution of the type of soap preferred for washing in urban and rural area. Mainly two types of soaps were used (soap with fragrance and soap with germicidal property). Here the number of subjects who used soap with fragrance before counselling in rural area was 60 and 30 in urban area, after counselling it was nil in both areas. On the other hand the number of subjects who used soap with germicidal property in rural area was 90 before counselling and 150 after counselling whereas that in urban area before counselling it was 120 which increased to 150 after counselling.

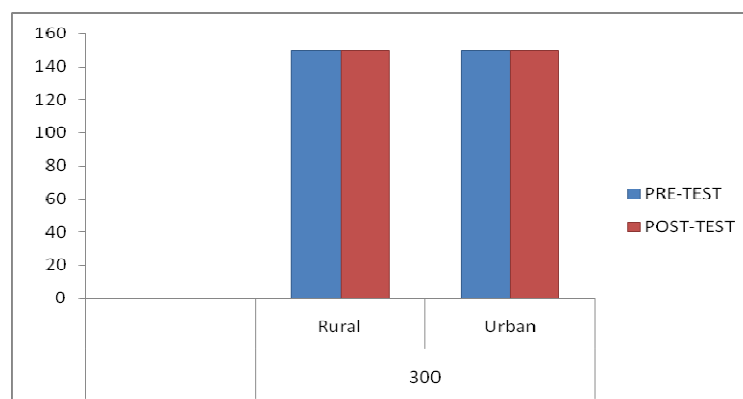


Figure 1: Distribution of Subjects Enrolled in the Study.

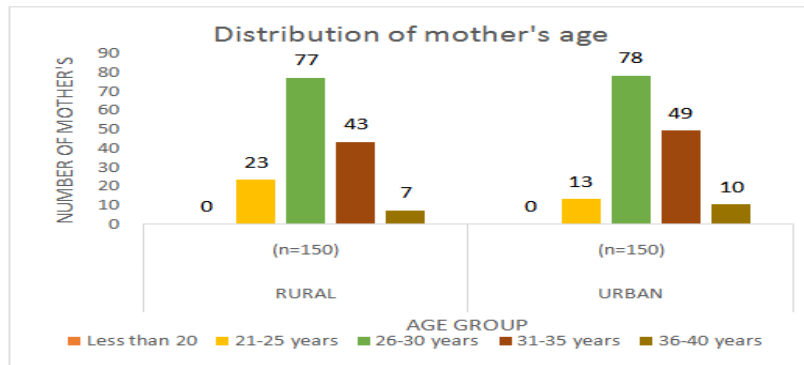


Figure 2: Distribution of Mother's Age Group.

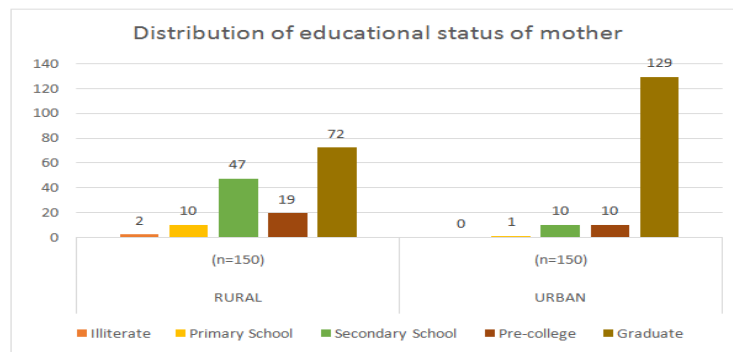


Figure 3: Distribution of Educational Status of Mother.

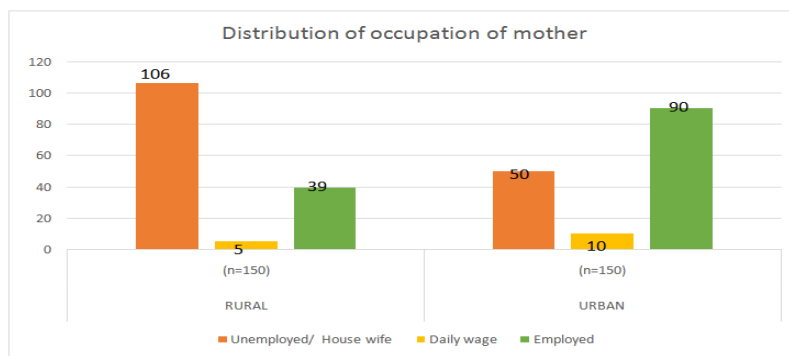


Figure 4: Distribution of Occupation of Mother.

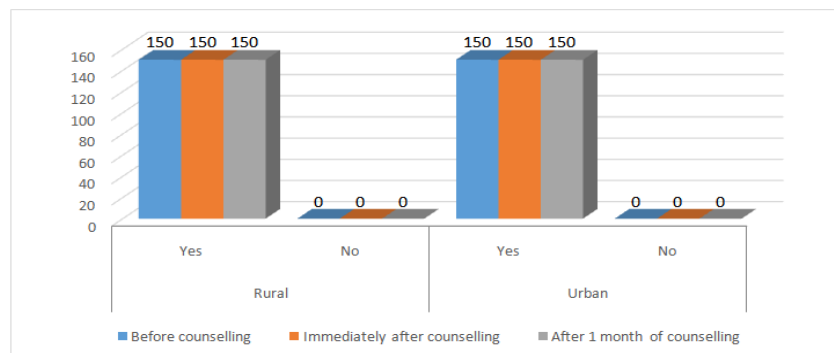


Figure 5: Distribution of Awareness on the Fact those Bacteria will spread from Hand to Nose and Mouth causes various Communicable Diseases in Children.

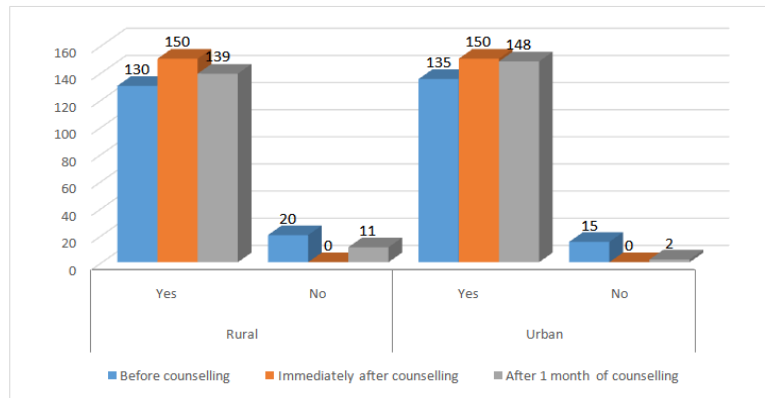


Figure 6: Distribution of Awareness on the Fact that Unwashed Hands Cause Diarrhoea and Other Related Diseases.

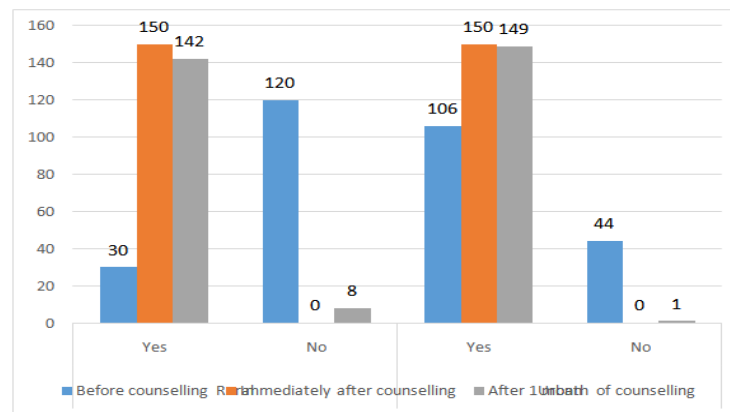


Figure 7: Distribution of Awareness about the Correct Techniques of 7 Steps of Hand Washing.

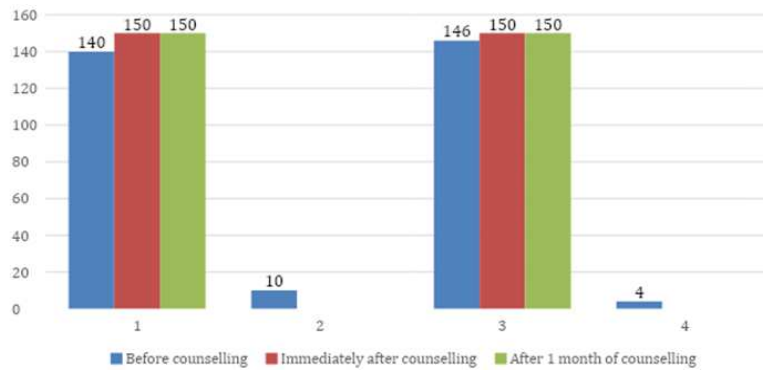
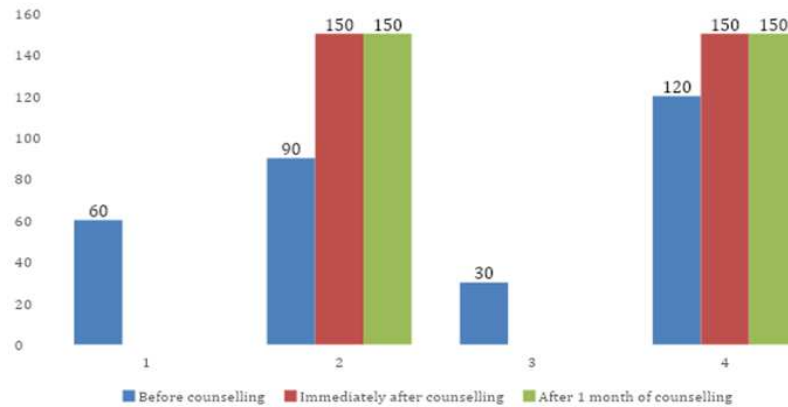


Figure 8: Distribution of Awareness on the Fact That the Child's Hand Must Be Kept Clean and Should be Washed With Soap.



**Figure 9: Distribution of Which Type of Soap was Preferred for Washing.**

## FINDINGS

- Our study was carried out in 300 mothers, 150 mothers each from urban and rural areas.
- Most of the mothers fall in the age group 26-30 years. The mean age of rural participants was 29.13( $\pm$ 3.82) and that for urban ones was 29.87( $\pm$ 3.65).
- The percentage of graduate mothers in urban areas was 86% which was much higher compared to that of mothers in rural areas which was 48 %.
- Considering the employment status, most women in rural areas were unemployed compared to that of women in urban areas.
- Most mothers in the urban area had complete knowledge about the importance of hand hygiene in children compared to rural mothers.
- Knowledge about 7 steps of hand washing was more in urban areas than in rural areas.
- Only 60 % of rural mothers used soap with germicidal activity to wash their hands and 40 % used soap with fragrance to wash their hands but 80 % of urban mothers preferred germicidal soaps to wash their hands.

## DISCUSSIONS

The role of the mother is pivotal for good health of an under five year child. Therefore, the mother's knowledge about the basic health care needs of their child is important. Knowledge and attitude of mothers towards the basic healthcare needs of their children especially hand hygiene is important and essential for proper growth and development of children and thereby contributes positively for the economic growth as the future is in their hands. This study describes knowledge of mothers regarding the hand hygiene of their children in rural and urban areas.

The results of the present study have depicted that both rural and urban respondents have good knowledge on basic hand hygiene and it has been attributed to their usual understanding of personal as well as hand hygiene acquired from formal and informal learning processes. Among the urban mothers, some of the knowledge parameters were found to be better than their rural counterparts. The results are in agreement with those reported by Gupta RK et.al in their study.



Among various knowledge parameters, the results have shown that both rural and urban respondents had very good knowledge about the importance of hand hygiene, spread of bacteria from hands can cause communicable disease, diarrhoea and other related diseases, importance of washing hands with soap and keeping hands clean. In the present study while we asked the mothers about 7 steps of hand washing only 30 rural mothers (20%) knew about the 7 steps, whereas 106 urban mothers (70.6%) were aware about the same. At the same time only 90 rural mothers ( 60% ) used soap with germicidal activity to wash their hands and 60 rural mothers (40%) used soap with fragrance to wash their hands but among our urban participants 120 urban mothers i.e. 80% preferred germicidal soaps to wash their hands. This difference mainly depends on their education level as the majority of urban mothers were graduates when compared to their rural counterparts.

Mothers are concerned about the cleanliness of their child, clinical appointment, and his overall health. In this regard, maternal education has been suggested to be a powerful and significant determinant of child health status. Multipronged efforts have made significant inroads in uplifting child health in India. This is being reflected by improved parameters. Still, there are areas which if attended to, can contribute to further improvement. It is pertinent to mention that community based public education; focused more on mothers should be encouraged to improve health status.

## **LIMITATIONS**

- The main limitation of the current study is the study sample, which may not be the representative of the population and thus cannot be generalized.
- Through this study, we were able to determine the knowledge of mothers regarding hand hygiene. But due to limited time we were not able to determine the practice and attitude of mothers regarding the same.
- In the study, when data was collected one month after counselling, we found that the response of a small percentage of mothers was not improved as expected. This could have been improved if we had provided counselling one month after counselling as well and again collected the data after 2 weeks. This was not possible due to lack of time, and the pandemic condition prevailing.

## **CONCLUSIONS**

Mother's perception and attitude towards hand hygiene greatly influence the quality of life and future of the child. From our cross-sectional study we tried to assess the knowledge of mothers regarding hand hygiene in urban and rural areas. The presence of rural urban division was significant in our study. From this study we were able to find out that mothers in urban areas have better knowledge regarding hand hygiene than rural areas. Also educated mothers from rural areas have better knowledge. We can't say that rural mothers are less educated, as the percentages of uneducated mothers were less.

Mothers' knowledge about hand hygiene was found to be more satisfactory in urban settings than rural settings. Proper counselling sessions regarding healthcare were given to every mother included at the beginning of study and proper follow up were done. With regards to counselling given, we were able to improve the knowledge of rural as well as urban mothers.

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