# Effect of Health Educational Program on Mothers' Knowledge and Practices Regarding Care of Children with Trachoma

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## Abstract

**Background**: Trachoma is an infectious disease; it begins in early childhood with repeated infection of the conjunctiva by Chlamydia trachomatis, Trachoma occurs in areas with poor personal and family hygiene. Trachoma spreads easily, primarily from child to child and from child to caregiver. **Aim**: The study aimed to evaluate the effect of health educational program on mothers' knowledge and practices regarding care of children with trachoma. **Study design**: quasi-experimental design (pretest-posttest) used to conduct this study. **Sample**: The study sample includes 60 mothers caring for children with trachoma. **Setting**: This study was conducted at outpatient Ophthalmological clinics at Minia University hospital and ophthalmology hospital in Minia City .**Tools**: Three tools were utilized in this study; **the first tool** was an interviewing structured questionnaire sheet. **The second tool**: Mothers' knowledge regarding trachoma, and **the third tool**: self-reported practices scale. **Results** the minority (5%) of the studied mothers had high level of knowledge pre-educational program that increased to most (91.7%) of them immediately after the end of the educational program and a majority (88.3%) of them after one month of educational program with statistically significant differences. More than one third (41.7%) of them had good self-reported practices level pre-educational program increased to most (91.7%) of them immediately after the end of the educational program and more than majority (88.3%) of them after one month of an educational program with a highly statistically significant difference. Also, there was a strong positive association between mothers' knowledge and their reported practices regarding trachoma at pre-educational program. **Conclusion**: The teaching program is effective in improving the knowledge and practices of mother , it found that levels of knowledge and practices of mother's posttest were significantly higher compared to pretest. **Recommendations**: Health education campaigns concerning trachoma ought to be delivered through mass media. Community participation and self-reliance should be enforced. Health education programs directed towards control of communicable eye diseases should be planned and implemented through school health curriculum.

**Keywords: Children, Educational Program, Knowledge, Practices, Trachoma**

## Introduction

Trachoma is one of the most neglected tropical infectious diseases found in the world's poorest populations and is a leading cause of preventable blindness. It is caused by Chlamydia trachomatis infection and is characterized in children with subsequent scarring, corneal opacity and adult blindness by inflammatory changes in the conjunctiva. Infection is spread by the direct or indirect transmission of discharges to the eyes and nose of infected individuals, in particular young children who bear the main infection reservoir, such discharges can be transmitted by specific fly species **(Harding etal, 2019)**

Trachoma occurs in fields with bad personal and family hygiene, many mode of transmission, including lack of sanitation, lack of latrines or toilets; poverty in general, flies, closes proximity to cattle, crowding, and so on, and is indirectly related to the presence of trachoma. The final common pathway, however, seems to be the presence of dirty faces in children that encourages the regular exchange from one child's face to another of contaminated ocular discharge. Most transmission of trachoma occurs within the family **(Solomon et al., 2018)**.

The inside of the eyelid can become so seriously scarred (Trachomatous Conjunctival scarring) after years of chronic inflammation that it bends inwards and mode of transmission the eyelashes to rub against the eyeball (Trachomatous trichiasis), resulting in intense discomfort and light intolerance; this and other eye changes can lead to corneal scarring. Left untreated, this condition leads to permanent opacity, resulting in visual impairment or blindness. The age at which this happens depends on many factors, including the speed of local transmission **(Hu, et al., 2020)**.

Trachoma can occur in childhood in very highly endemic populations, but the onset of visual impairment is more common between the ages of 30 and 40 years. Visual impairment or blindness mode of transmission the life experience of affected people and their families to deteriorate. Women are blinded up to 4 times more often than men, likely due to their close contact with infected children and their increased frequency of infection episodes **(Courtright et al., 2018).**

Four-pronged approach to eliminating blinding trachoma known as SAFE by 2020 is supported by world health organization (WHO): Surgery for trichiasis, Antibiotics, Facial Cleanliness, and Environmental Sanitation. Surgery is the most straightforward and reliable way to avoid trachoma blindness. Treatment with antibiotic azithromycin is at least as effective as, if not better than, topical tetracycline for the clinical and microbiological treatment of active trachoma, as demonstrated by several pathways.

There is substantial evidence that people with clean faces are less likely to have active trachoma than others. A great deal of circumstantial evidence also shows that

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environmental change decreases the occurrence of trachoma. In the past 20 years, the SAFE interventions have been associated with substantial reductions in the incidence of active disease, but a large number of people with trichiasis remain at risk of blindness due to persistent infection in infants (**Meng et al., 2016).**

The strategy to eradicate trachoma from endemic countries involves blinding stage (Trachomatous trichiasis) surgery, direct infection antibiotics, in particular mass drug administration of the antibiotic azithromycin, which is donated by the manufacturer through the international trachoma initiative to eliminate elimination systems, facial cleaning; and improving the climate, especially improving access to water and sanitation (**Mohamud & Chowdhury, 2017).**

Health education helps individuals and groups of individuals learn to act in a way that is conducive to health promotion, conservation or restoration. The ultimate goal of health education is a substantive shift in actions. Promoting good hygiene practice is a crucial part of preventing diseases such as trachoma, so it is important to inform rural mothers about the relationship between hygiene and infection. Community health nursing means serving as equal partners with families and populations and concentrating on primary prevention and enhancement of health. Public health nurses are more aware than the general population of widespread blinding trachoma and play an important role in primary eye care and blindness prevention programs (**Stewart et al., 2019**).

**Significance of the study**

A recent study done by **Roulette et al., (2018)** a larger ethnographic study of trachoma among Maasai in Northern Tanzania was nestled in the study. In order to assess information and understanding, the authors used stratified random sampling and semi-structured interviews and stated that there was knowledge of trachoma and basic symptoms, but understanding of an etiology and prevention was low. They also stated that pollen, dust, and smoke were due to trachoma. Water was deemed helpful, but was seen as therapy rather than prevention.

Egyptian study done by **Awad et al., (2018)** conducted in the Rural Health Unit in the village of Cebrbay affiliated with the Ministry of Health in Tanta Region, El-Gharbeya Governorate, which evaluated the impact of the health education program on the knowledge and practice of rural mothers regarding blinding trachoma among their children, recorded that 98.0 percent and 87.0 percent of the sample studied before the educational program had low level of knowledge and poor practice.

Also, **Amer et al, (2018** the Trachomatous inflammation-follicular (TF) prevalence was reported to be about 10% in four districts of Menia and Bani Suef Governorates. Trachomatous inflammation-follicular prevalence was 8.5% in Matai, the fourth marakez. Three annual rounds of Mass Drug Administration (MDA) plus measures to ensure facial cleanliness and enhance the atmosphere should be handled by Abu Quorquas, Deir Mawass, and El fashn, based on WHO guidelines, until a repeat prevalence survey 6-12 months after the third MDA round.

**Aim of the study**

This study was aimed to evaluate the effect of health educational program on mothers' knowledge and practices regarding care of children with trachoma.

**Hypothesis**:

The application of health educational program will improve mother's knowledge and practices regarding care of children with trachoma.

**Study Design**:

One group quasi-experimental design (pretest-posttest) was utilized for the purpose of the current study.

**Setting**

The study was conducted at outpatient ophthalmological clinics of Minia university hospital and ophthalmology hospital at Minia city .They provide a wide range of health care services for urban and rural populations in Minia governorate such as providing early diagnosis and treatment of ophthalmology diseases and different ophthalmology surgery as cataract, glaucoma, trichiasis and squint operation. Minia city contains one ophthalmology hospital and one outpatient ophthalmology clinic in Minia university hospital which work six days/weak.

**Sample**

A purposive sample of 60 mothers meeting the inclusion criteria were selected according to the flow rate as reported from (The registration office of Minia university hospital and ophthalmology hospital, 2018). The total number of (100) mothers having children with trachoma out of 2200 patients from all other ophthalmological diagnoses during the last year, the sample size was determined according to the statistical equation in which the sample size ranged (10% to 30%) from the total population size for 6 months from December 2019 to June 2020 as the following formula:

$$n = \frac{\frac{z_\alpha^2\, p(1-p)}{m^2}}{1 + \frac{z_\alpha^2\, p(1-p)}{m^2\, N}} = \frac{\frac{(1.96)^2\,(0.5)(0.5)}{(0.05)^2}}{1 + \frac{(1.96)^2\,(0.5)(0.5)}{(0.05)^2\, 100}} = 60$$

**Description:**

- N = required sample size.
- $Z_a$ = Confidence level at 95 % (standard value of 1.960).
- $p$ = Prevalence of Trachoma at Minia University Hospitals 2018 (0, 03).
- m = Margin of error at 5 % (standard value of 0.050).
- N= Population Size.

**Inclusion Criteria**

- A mother with a child aged 1-15 years.
- A mother who has a child with a new or previous trachoma diagnosis.

**Data Collection Tools**:

After a comprehensive review of the literature and a similar study performed elsewhere (**Mohamud & Chowdhury, 2017 & Njomo et al., 2016**), A structured interviewing questionnaire was conducted and it modified by the investigator. Three tools were included in the questionnaire

**First tool Socio-demographic characteristics Questionnaire**: It designed by the investigator to cover socio-demographic characteristics related to mother and the child's ophthalmological disease history as follows:

**Part 1: Socio-demographic characteristics of mothers as:**

It was used to assess Socio-demographic characteristics of studied mother which consist of twenty two (22) questions as follow:

**Personal data** (age, marital status, residences, educational level, occupation, and monthly income). **Family data:** (no of family members, no. of children, a ranking of the child, and type of family). And **environmental data**:( type of house, house build ,room no ,crowding index, source of water ,presence of wash basin, face wash basin no, presence of sewage, presence of bathroom , bathrooms no, knowledge of mother and source of knowledge.

**Second tool: Mothers' knowledge regarding trachoma:**

This tool was developed to assess the mothers' knowledge regarding trachoma and it include ten(10) Multiple Choose (MCQ) questions to assess the studied mother's knowledge regarding ( definition , causative organism, mode of transmission, manifestations, action toward symptoms, diagnosis, prevention, complication, influence of recurrence and therapeutic management of trachoma.)

**Scoring system according to Mohamud & Chowdhury, (2017)**

The mother answers related to knowledge were scored and calculated, each complete correct answer was given a score of two, the incomplete correct answer was given a score of one ,and the wrong answer or don't know a score of zero ,these scores converted into a percent into percent score .Total knowledge score classified as follow::Less than 60% (< 12) is considered poor knowledge level, 60%-70% (12 to 14) considered fair knowledge level, and < 70%-100% (14-20) considered high knowledge level.

**Third tool: Mothers' self-reported practices regarding trachoma:**

The mothers' self-reported practices regarding the trachoma structured interviewing sheet included (10 practices) was developed to assess mothers' practices regarding trachoma prevention as following preventive measures: daily hand washing, daily face care, hand washing after entering the bathroom, Hand washing before eyewash, individual towel for every member in the family, Washing face towel of the child, consultation a doctor if there is inflammation, redness, and secretions in child's eye, daily washing of face basin, and eye care daily house cleaning of flies .

**Scoring system according to Njomo et al., (2016)**

The scores for practices are calculated based on 3 sub-scales and several filler items. The scoring of the scales is as follows: never = 1, sometimes = 2, always = 3. The scores vary from (0-30) points and classified into 3 levels as follows: Poor practice from (0- <18 scores (less than 60%), Satisfactory practice from 18 –21 scores (60%-70%), and Good practice from 21 – 30 scores (< 70%-100%).

**Ethical Consideration:**

Written initial approval was obtained from the research ethics committee of the Faculty of Nursing, Minia University. Written and oral informed consent was obtained from participants after explaining the nature and benefits of the study. Each assessment sheet was coded and participants' names will not appear on the sheets for the purpose of privacy and confidentiality. Participants were assured that they could withdraw at any time from the current study. Measures were taken to protect participants' ethical rights.

**Content validity**

The content validity of the data collection methods was submitted to five community health nursing practitioners to determine their validity. They examined the tools for material coverage, item order, clarity, relevance, applicability, wording, volume, style, and overall appearance. Based on the comments and advice of experts; slight changes were made such as rephrasing and rearranging certain sentences.

**Reliability**

The internal consistency of questionnaire was calculated using cronbach alpha coefficients .test-retest was used and the results were 0.754 and 0.778 for women's knowledge and self-reported trachoma practices, respectively, indicate good reliability.

**Pilot Study**

A pilot study was performed on 6 mothers (10%) before beginning to collect data to assess the effectiveness and applicability of the questionnaire, as well as to determine the best time to collect data. They were included in the study

**Data Collection Procedure**: it involved three phases:
**Planning phase**

- A review of the related literature which was covering various aspects of trachoma disease has done, using different books, journals and websites, to get acquainted with the investigator problem and to implement the study.
- An official permission was taken from the dean of the faculty for conducting the study.
- An official letter from the faculty of nursing was delivered to the director (s) of the intended study setting (Ophthalmology Hospital, and Department of Ophthalmology at Minia University Hospital).
- Oral informed consents were obtained from all the mothers before the program enrollments. After that; a detailed explanation of the study objectives was done.
- A colored booklet was designated covering (the contents)
- Fixed and predetermined dates have been agreed upon to explain the educational sessions.

**Implementation phase**

- The program lasted for 6 months; the study started at the beginning of December 2019 to the end of July 2020. Five visits were conducted to the two hospitals every week.
- The investigator obtained the sample from the beginning of the analysis over five days per week. The interview with mothers was carried out. At 9:00 a.m.

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to 1:00 p.m., the investigator attended the outpatient clinic of Minia University Hospitals and ophthalmology hospital through face-to-face interviews.

- The structured interviewing sheet was introduced for the mothers to be completed unless the investigator filled it in case of the illiterate mother. The investigator read the questions for participants and labeled their responses exactly.

- Each questionnaire sheet took about 25-30 minutes for every mother in the pretest. The average number of interviewed was 3-4 mothers / per day. The studied mothers divided into 4 groups, each group consisted of 15 mothers and the investigator applied the program for each group at separate times, and the duration of each session was (20-30) minutes. The total numbers of sessions were 4 (3 sessions for knowledge and 1 session for self-reported practices) for each group.

- An orientation about the program and the purpose of the study were done at the beginning of the first session, after that each session started with a summary of what was given during the previous session and the objectives of the new topics.

- Feedback about the previous session was done and the content of the session was dealt with using different ways of teaching. While the practical part of the teaching program was done for each session that corresponding with session contents.

- The investigator used diagrams, lectures, group discussions, teaching videos, and colored booklets during these sessions

- Each session followed by a summary of essential points. Immediately posttest was done at the end of program sessions each questionnaire sheet took about 25-30 minutes.

- To refresh the given information, habits, practices , solve any problems, and answer any questions; the investigator had periodic contact with the mother via telephone.

### Evaluation phase
**Assessment was done to the mother in order to test knowledge and trachoma by comparing knowledge and practices after implementation of the program.as follow:**

**Posttest evaluation**: was done immediately after the implementation of program (Tool II and III) was used.

**Follow-up evaluation**: after four weeks after initiating the program, assessment was done to detect the influence of the teaching program on the level of knowledge and practices of the mother.

The investigator left numbers of brochures to the person responsible for providing health education in the unit before leaving each ophthalmology ambulatory patient.

### Statistical Analysis:
Using a software program and statistical package for social sciences (IBM SPSS 25.0) to test nurses under study, the data collected was tabulated and statistically analyzed. Percentage (per cent), mean, stander deviation (SD) and chi-square ($x^2$) were included in the statistical review. To test the relationship between two qualitative variables and the sample size is small; Fisher's exact test was used. In the case of comparisons between the mean scores of the three periods, one way ANOVA test was used. Among the quantitative data, Pearson correlation tests were used. For data visualization using Microsoft excel, graphs were done. The level of significance was be accepted at P< 0.05 and was be considered highly significant when P-value less than or equal 0.01.

## Result
**Table (1): Distribution of the studied mothers according to their personal data (n=60).**

| Personal data | No. | % |
|---|---|---|
| **Age / years** | | |
| 18 - < 29 | 9 | 15.0 |
| 30 - < 39 | 22 | 36.7 |
| 40 - < 49 | 14 | 23.3 |
| 50 - < 59 | 10 | 16.7 |
| > 60 | 5 | 8.3 |
| **Mean ± SD** | 41.0 ± 11.9 years | |
| **Marital status** | | |
| Married | 47 | 78.4 |
| Divorced | 5 | 8.3 |
| Widow | 8 | 13.3 |
| **Residence** | | |
| Rural | 32 | 53.3 |
| Urban | 28 | 46.7 |
| **Education level** | | |
| University education | 15 | 25.0 |
| Intermediate education | 21 | 35.0 |
| Illiterate | 24 | 40 |
| **Occupation** | | |
| Housewife | 32 | 53.3 |
| Employee | 28 | 46.7 |
| **Monthly income** | | |
| Less than 1000 L.E | 22 | 36.7 |
| 1000 – 2000 L.E | 24 | 40.0 |
| 2000 – 3000 L.E | 12 | 20.0 |
| More than 3000 L.E | 2 | 3.3 |

**Table (1):** shows that 36.7% of the studied mothers aged between 30 - < 39 years with mean age 41.0 ± 11.9 years, 78.4% of them were married, 53.3% of them live in a rural area, 40% of them were illiterate, 53.3% of them were housewife mothers and 40.0% their monthly income ranged between 1000- 2000 L.E .

**Table (2): Distribution of the studied mothers according to their Family data (n=60).**

| Family data | No. | % |
|---|---|---|
| **Number of children** | | |
| >2 | 5 | 8.3 |
| 2- 4 | 43 | 71.7 |
| <4 | 12 | 20.0 |
| **Mean ± SD** | 3.3 ± 1.6 children | |
| **Rank of children** | | |
| First | 20 | 33.3 |
| Two   -    Four | 31 | 51.7 |
| Five -  Seven | 9 | 15.0 |
| **Type of family** | | |
| Extended | 32 | 53.3 |
| Single | 28 | 46.7 |

**Table (2):** shows that family data 71.7% of mothers had between two to four children, 51.7% of them their children were between   two -Four in the family ranking and 53.3% of them live in an extended family.

**Table (3): Distribution of the studied mothers according to their environmental data (n=60).**

| Environmental data | No. | % |
|---|---|---|
| **Type of house** | | |
| Mud bricks | 9 | 15.0 |
| Red bricks | 51 | 85.0 |
| **House build** | | |
| Yes | 55 | 91.6 |
| No | 5 | 8.4 |
| **Room number** | | |
| 1-3 | 27 | 45.0 |
| 4-6 | 33 | 55.0 |
| **Crowding index** | | |
| 2 – 3 persons | 44 | 73.3 |
| 4 – 5 persons | 16 | 26.7 |
| **Source of water** | | |
| Running water | 56 | 93.3 |
| Water pump | 4 | 6.7 |
| **Washbasin** | | |
| Yes | 57 | 95.0 |
| No | 3 | 5.0 |
| **Number of washbasins (n= 57)** | | |
| One | 34 | 59.6 |
| Two | 20 | 35.0 |
| Three | 3 | 5.4 |
| **Sanitation** | | |
| Yes | 42 | 70.0 |
| No | 18 | 30.0 |
| **Bathroom** | | |
| Yes | 60 | 100.0 |
| **No. of bathroom** | | |
| One | 45 | 75.0 |
| Two | 13 | 21.7 |
| Three | 2 | 3.3 |

**Table (3):** shows that 85.0% of the studied mothers live in red bricks houses, 55% of them had between 4-6 rooms in their houses, regarding the crowding index 73.3% of them had between 2- 3 persons in each room, 93.3% of them their house had running water, 95% of them their house had a washbasin, 70% of them their house had sanitation and 100.0% of them had a bathroom
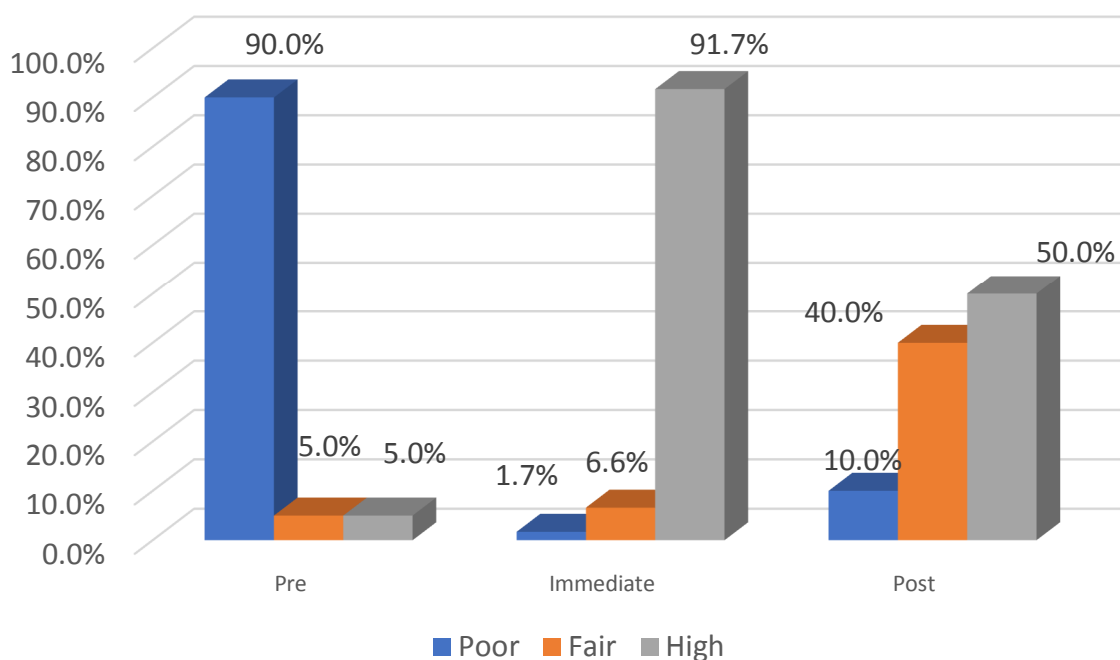
**Figure (1): Comparison between total knowledge levels pre, immediate, and post one month of an educational program among the studied mothers about trachoma (n = 60).**

**Figure (1):**shows that 5% of the studied mothers had high level of knowledge pre-educational program vs 91.7% of them in immediately vs88.3% of them after one month of an educational program with statistically significant differences, which  p-value < .0001,  and .02 respectively
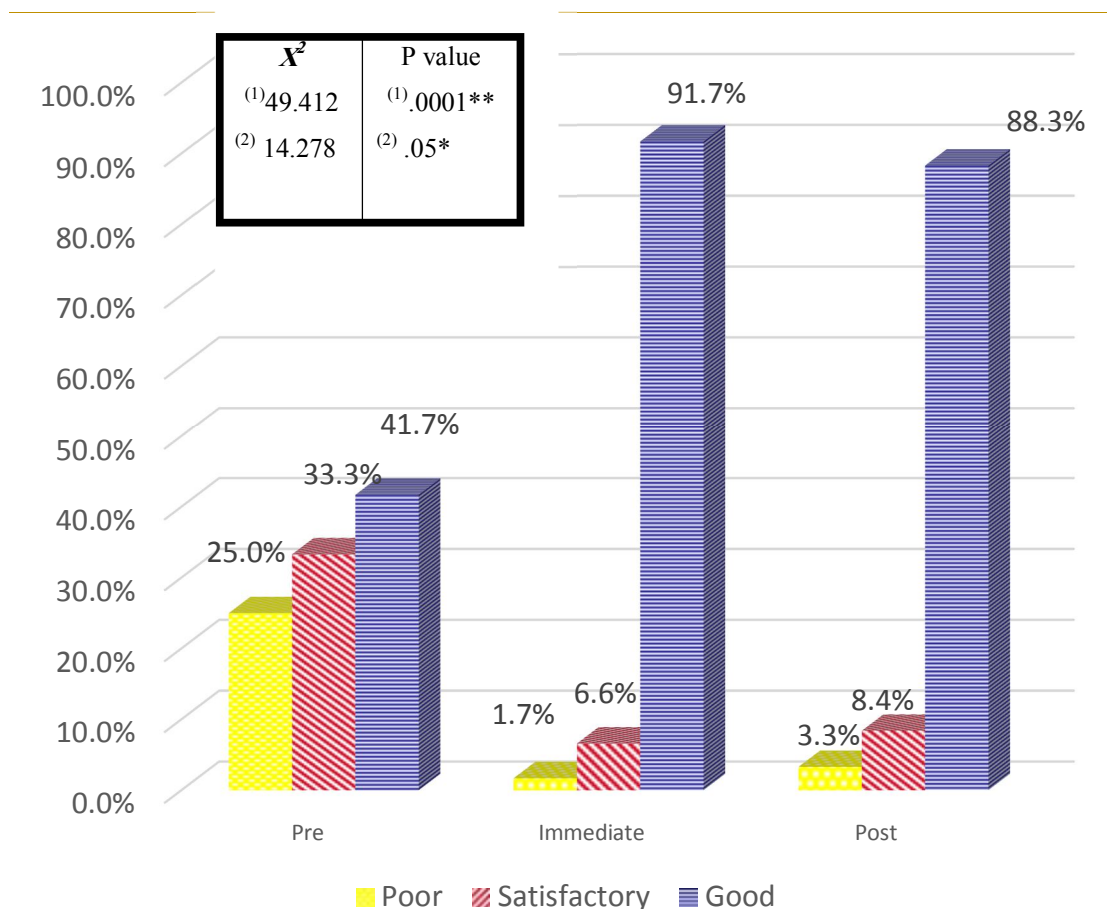


**Figure (2): Comparison between total self-reported practices levels pre, immediate, and post one month of an educational program among the studied mothers about trachoma (n = 60)**

**Figure (2):** illustrates that 41.7% of the studied mothers had good self-reported practices level pre-educational program vs 91.7% of them immediately after vs 88.3% of them post one month of an educational program which p-value <.0001, <.05 respectively

**Table (4): Comparison between total knowledge scores and practices scores pre, immediate, and post one month among the studied mothers about trachoma (n = 60).**

|  | Pre | Immediate | Post | F | P-value |
|---|---|---|---|---|---|
| Total knowledge | 9.0 ± 4.9 | 26.5 ± 1.5 | 21.5 ± 2.7 | 435.606 | .0001** |
| Total practices | 20.9 ± 4.2 | 29.9 ± .4 | 27.1 ± 1.2 | 438.710 | .0001** |

**Table (4)** indicates that there were an increase in mean scores of mothers' knowledge and self- reported practices immediately after the educational program than pre-educational program then slightly decreased post one month of an educational program than immediate at the finish of educational program with highly statistically significant difference.

**Table (5): Relation between total knowledge level about trachoma and personal data of the studied mothers pre educational program (n = 60).**

| Personal data | Total knowledge level | | | | | | Test of significance | |
|---|---|---|---|---|---|---|---|---|
|  | poor level (n= 54) | | Fair level (n= 3) | | High level (n= 3) | | Fisher | P-value |
|  | No. | % | No. | % | No. | % |  |  |
| **Age / years** | | | | | | | | |
| 18 - < 29 | 9 | 100.0 | 0 | .0 | 0 | 0 | 9.574 | .458 |
| 30 - < 39 | 21 | 95.5 | 1 | **4.5** | 0 | 0 | | |
| 40 - < 49 | 13 | 92.9 | 1 | 7.1 | 0 | 0 | | |
| 50 - < 59 | 8 | 80.0 | 1 | 10.0 | 1 | 10.0 | | |
| > 60 | 3 | 60.0 | 0 | .0 | 2 | 40.0 | | |
| **Marital status** | | | | | | | | |
| Married | 43 | 91.5 | 3 | 6.4 | 1 | 2.1 | 7.041 | 0.146 |
| Divorced | 5 | 100.0 | 0 | .0 | 0 | 0 | | |
| Widow | 6 | 75.0 | 0 | .0 | 2 | 25.0 | | |
| **Residence** | | | | | | | | |
| Rural | 30 | 93.8 | 1 | 3.1 | 1 | 3.1 | 4.512 | 0.05* |
| Urban | 24 | 85.6 | 2 | 7.2 | 2 | 7.2 | | |
| **Education level** | | | | | | | | |
| University education | 18 | 81.8 | 1 | 4.6 | 3 | 13.6 | 3.152 | 0.02* |
| Middle education | 20 | 94.2 | 1 | 4.8 | 0 | 0 | | |
| Illiterate | 16 | 94.1 | 1 | 5.9 | 0 | 0 | | |
| **Occupation** | | | | | | | | |
| Housewife | 31 | 96.9 | 1 | 3.1 | 0 | 0 | 5.180 | 0.476 |
| Employee | 23 | 82.1 | 2 | 7.2 | 3 | 10.7 | | |
| **Monthly Income / L.E** | | | | | | | | |
| Less than 1000 L.E | 21 | 95.5 | 0 | 0 | 1 | 4.5 | 2.568 | 0.01* |
| 1000 – 2000 L.E | 22 | 91.6 | 1 | 4.2 | 1 | 4.2 | | |
| 2000 – 3000 L.E | 10 | 83.4 | 1 | 8.3 | 1 | 8.3 | | |
| More than 3000 L.E | 1 | 50.0 | 1 | 50.0 | 0 | .0 | | |

**Table (5)** presents that there were statistically significance relationship between total knowledge scores of the studied mothers pre-educational program and their residence, educational levels, and monthly Income in which P – value was 0.05, 0.02 ,and 0.01.respectively.

**Table (6): Relation between total knowledge level about trachoma post educational program and personal data of the studied mothers (n = 60).**

| Personal data | Total knowledge level | | | | | | Test of significance | |
|---|---|---|---|---|---|---|---|---|
|  | Poor level (n= 6) | | Fair level (n= 24) | | High level (n=30) | | Fisher | P-value |
|  | No. | % | No. | % | No. | % |  |  |
| **Age / years** | | | | | | | | |
| 18 - < 29 | 0 | .0 | 5 | 55.6 | 4 | 44.4 | 10.271 | 0.247 |
| 30 - < 39 | 3 | 13.6 | 8 | 36.4 | 11 | 50.0 | | |
| 40 - < 49 | 1 | 7.1 | 7 | 50.0 | 6 | 42.9 | | |
| 50 - < 59 | 0 | .0 | 4 | 40.0 | 6 | 60.0 | | |
| > 60 | 2 | 40.0 | 0 | .0 | 3 | 60.0 | | |
| **Marital status** | | | | | | | | |
| Married | 5 | 10.6 | 17 | 36.2 | 25 | 53.2 | 1.887 | 0.756 |
| Divorced | 0 | .0 | 3 | 60.0 | 2 | 40.0 | | |
| Widow | 1 | 12.5 | 4 | 50.0 | 3 | 37.5 | | |
| **Residence** | | | | | | | | |
| Rural | 5 | 15.6 | 16 | 50.0 | 11 | 34.4 | .4.286 | 0.05* |
| Urban | 1 | 3.6 | 8 | 28.6 | 19 | 67.8 | | |
| **Education level** | | | | | | | | |
| University education | 0 | .0 | 7 | 31.8 | 15 | 68.2 | 3.456 | 0.04* |
| Middle education | 1 | 4.8 | 9 | 42.9 | 11 | 52.3 | | |
| Illiterate | 5 | 29.4 | 8 | 47.1 | 4 | 23.5 | | |
| **Occupation** | | | | | | | | |
| Housewife | 2 | 6.2 | 10 | 31.3 | 20 | 62.5 | 4.125 | 0.04* |

| Personal data | Total knowledge level | | | | | | Test of significance | |
|---|---|---|---|---|---|---|---|---|
| | Poor level (n= 6) | | Fair level (n= 24) | | High level (n=30) | | Fisher | P-value |
| | No. | % | No. | % | No. | % | | |
| Employee | 4 | 14.3 | 14 | 50.0 | 10 | 35.7 | | |
| Monthly income / L.E | | | | | | | | |
| Less than 1000 L.E | 3 | 13.6 | 12 | 54.5 | 7 | 31.8 | | |
| 1000 – 2000 L.E | 3 | 12.5 | 8 | 33.3 | 13 | 54.2 | 7.409 | 0.285 |
| 2000 – 3000 L.E | 0 | .0 | 4 | 33.3 | 8 | 66.7 | | |
| More than 3000 L.E | 0 | .0 | 0 | .0 | 2 | 100.0 | | |

Table (6) presents that there were statistically significance relationship between total knowledge scores of the studied mothers post-educational program and their residence, educational levels, and occupation in which P – value was 0.05, 0.04,and 0.04.respectively.

Table (7): Relation between total self-reported practices level about trachoma pre educational program and personal data of the studied mothers (n = 60).

| Personal data | Total self-reported practice level | | | | | | Test of significance | |
|---|---|---|---|---|---|---|---|---|
| | Poo(n= 15) | | Satisfactory (n= 20) | | Good(n = 25) | | Fisher | P-value |
| | No. | % | No. | % | No. | % | | |
| Age / years | | | | | | | | |
| 18 - < 29 | 2 | 22.2 | 5 | 55.6 | 2 | 22.2 | | |
| 30 - < 39 | 4 | 18.1 | 8 | 36.4 | 10 | 45.5 | | |
| 40 - < 49 | 2 | 14.3 | 4 | 28.6 | 8 | 57.1 | 11.290 | 0.094 |
| 50 - < 59 | 3 | 30.0 | 2 | 20.0 | 5 | 50.0 | | |
| > 60 | 4 | 80.0 | 1 | 20.0 | 0 | .0 | | |
| Marital status | | | | | | | | |
| Married | 11 | 23,4 | 16 | 34.0 | 20 | 42.6 | | |
| Divorced | 1 | 20,0 | 2 | 40,0 | 2 | 40.0 | 1.215 | 0.940 |
| Widow | 3 | 37,5 | 2 | 25.0 | 3 | 37.5 | | |
| Residence | | | | | | | | |
| Rural | 11 | 34.4 | 8 | 25.0 | 13 | 40.6 | 3.857 | 0.145 |
| Urban | 4 | 14.3 | 12 | 42.9 | 12 | 42.9 | | |
| Education level | | | | | | | | |
| University education | 3 | 13,6 | 7 | 31.8 | 12 | 54.6 | | |
| Middle education | 2 | 9,5 | 9 | 42.9 | 10 | 47.6 | 16.864 | 0.02* |
| Illiterate | 10 | 58.8 | 4 | 23.5 | 3 | 17.7 | | |
| Occupation | | | | | | | | |
| Housewife | 2 | 6.3 | 13 | 40.6 | 17 | 53.1 | 12.897 | 0.002* |
| Employee | 13 | 46.4 | 7 | 25.0 | 8 | 28.6 | | |
| Monthly income / L.E | | | | | | | | |
| Less than 1000 L.E | 8 | 36.4 | 6 | 27.2 | 8 | 36.4 | | |
| 1000 – 2000 L.E | 5 | 20.8 | 8 | 33.3 | 11 | 45.9 | | |
| 2000 – 3000 L.E | 1 | 8.3 | 5 | 41.7 | 6 | 50.0 | 5.077 | 0.534 |
| More than 3000 L.E | 1 | 50.0 | 1 | .50.0 | 0 | .0 | | |

Table (7): presents that there were statistically significance relationship between total self-reported practices scores of the studied mothers pre-educational program and their educational levels, and occupation in which p value was < 0.02, and 0.002 respectively.

Table (8): Relation between total self-reported practices level about trachoma post educational program and personal data of the studied mothers (n = 60).

| Personal data | Total self-reported practice level | | | | | | Test of significance | |
|---|---|---|---|---|---|---|---|---|
| | Poor (n= 5) | | Satisfactory (n= 8) | | Good (n = 47) | | Fisher | P-value |
| | No. | % | No. | % | No. | % | | |
| Age / years | | | | | | | | |
| 18 - < 29 | 0 | .0 | 2 | 22.2 | 7 | 77.8 | | |
| 30 - < 39 | 2 | 9.1 | 3 | 13.6 | 17 | 77.3 | | |
| 40 - < 49 | 2 | 14.3 | 2 | 14,3 | 10 | 71.4 | 4.647 | 0.05* |
| 50 - < 59 | 1 | 10.0 | 1 | 10.0 | 8 | 80.0 | | |
| > 60 | 0 | 0 | 0 | .0 | 5 | 100.0 | | |
| Marital status | | | | | | | | |
| Married | 5 | 10.6 | 5 | 10.6 | 37 | 78.8 | | |
| Divorced | 0 | .0 | 0 | .0 | 5 | 100.0 | 6.366 | 0.173 |
| Widow | 0 | .0 | 3 | 37.5 | 5 | 62.5 | | |
| Residence | | | | | | | | |
| Rural | 4 | 12.5 | 6 | 18.7 | 22 | 68.8 | 2.578 | 0.03* |
| Urban | 1 | 3.6 | 2 | 7.1 | 25 | 89.3 | | |
| Education level | | | | | | | | |
| University education | 0 | 0 | 0 | 0 | 22 | 100.0 | | |
| Middle education | 0 | 0 | 1 | 4.8 | 20 | 95.2 | | |
| Illiterate | 5 | 29.4 | 7 | 41.8 | 5 | 29.4 | 3.178 | 0.05* |
| Occupation | | | | | | | | |
| Housewife | 4 | 12.5 | 3 | 9.4 | 25 | 78.1 | 2.235 | 0.327 |

| Personal data | Total self-reported practice level | | | | | | Test of significance | |
|---|---|---|---|---|---|---|---|---|
| | Poor (n= 5) | | Satisfactory (n= 8) | | Good (n = 47) | | Fisher | *P*-value |
| | No. | % | No. | % | No. | % | | |
| Employee | 1 | 3.6 | 5 | 17.9 | 22 | 78.6 | | |
| **Monthly Income / L.E** | | | | | | | | |
| Less than 1000 L.E | 3 | 13.6 | 4 | 18.2 | 15 | 68.2 | | |
| 1000 – 2000 L.E | 2 | 8.3 | 2 | 8.3 | 20 | 83.4 | | |
| 2000 – 3000 L.E | 0 | .0 | 2 | 16.7 | 10 | 83.3 | | |
| More than 3000 L.E | 0 | .0 | 0 | .0 | 2 | 100.0 | 4.624 | 0.04* |

*statistically significant differences at < .05 ** Highly statistically significant differences at < .01

Table (8) presents that there were statistically significance relationship between total self-reported practices scores of the studied mothers post-educational program and their age, residence, educational levels, and monthly income in which P – value was 0.05, 0.03 , 0.05 and 0.04 respectively

## Discussion

The study was aimed to evaluate the effect of health educational program on mothers' knowledge and practices regarding care of children with trachoma

**Table (1**) regarding the personal data of the studied mothers, the current study revealed that more than one-third of mothers aged between 30 and < 39 years, with a mean age of 41.0 ± 11.9 years and received monthly income between 1000 and 2000 L.E, 40% of them were illiterate, most of them were married, more than half of them lived in rural areas and housewives. From investigator's point of view, these results are due to the fact that there is still a need to educate the rural community, especially in Upper Egypt, about the importance of educating girls because they are future mothers.

This result comes in agree with **Gebretnsae et al., (2020)** in study conducted Northern Ethiopia who recorded that less than half were in the 30-49 age group and more than half were in the marital status union at the moment. Also, this result come in agree with **Njomo et al., (2016)** who conducted study in Kenya and mentioned that the age of the sample studied was between 31:45 and most of them were married.

Related to educational level and residence; this result come in agree with **Belaynew etal.,(2013)** who conducted study in Northwest Ethiopia who reported that ; nearly half of respondents were unable to read and write. More than half of them lived in rural area and less than half of them were housewives mothers, also this result come in agree with **Kassaw, etal., (2020)** in study conducted in Northern Ethiopia who found that Wealth index of studied sample was medium, most of them were married and unable to read and write.

Related to family monthly income ;This result was confirmed by **Awad, et al, (2018)** who conducted study in Egypt and recorded, more than two third of the studied sample had just enough income. The finding of this study come in disagree with **Ketema et al. (2012)** in study conducted in Baso Liben distric who reported that the average monthly income of most household was less than or equal to 600 Ethiopian birr .

**In table** (2) Regarding the family data of the studied mothers, the current study revealed that nearly three quarters of mothers had between two to four children, , and more than half of them live in extended families. This may be related to the Egyptian family, especially in Upper Egypt, they tend to have many children and all live with grandfather in one home.)

The finding of this study come in accordance with **Kassaw et al.**, **(2020)** in a study conducted in Ethiopia who reported that more than half of study sample had between two to four children and less than ten years. But more than half of them their family size was less than six

**In table (3)** As regards environmental condition the present study showed that the majority of mothers live in red brick houses, more than half of them had between 4-6 rooms in their houses, more than two thirds of them their crowding index ranged between 2-3 persons in the room, the majority of them had running water and wash basins in their house, more than two-thirds of them had sanitation in their house, and all of them had bathrooms in their home. This may be due to the fact that rural homes are constructed in large areas and the Egyptian government is concerned with providing rural areas with basic livelihoods.

This result come in the line with **Muluneh, et al., (2016)** study was conducted in Ethiopia, who noted that the majority of the sample studied had a large house, their crowding index ranged from 2 to 4 people in the room, most of them had running water in their house and wash basin in their house, more than two-thirds of them had sanitation in their house and all of them had bathrooms in their home.

Also ,this result was supported by **Amer et al., (2018)** in a study conducted in Egypt who listed that transmission of trachoma's causative agent, Chlamydia trachomatis, is thought to be facilitated by a combination of factors including poor sanitation, inadequate access to water for face-washing, and overcrowding.

**figure (1)** Regarding levels of knowledge of studied mothers about trachoma pre, immediate, and post one month of educational program, the current study showed that little of the studied mothers had high level of knowledge pre-educational program that increased to a most of them immediately after the end of the educational program and a majority of them after one month of educational program. From the investigators opinion this result due to effectiveness of current education program and mother hadn't received any health education program regarding trachoma before.

This result were supported by **Gebretnsae et al., (2020)** indicated that health education on trachoma was significantly linked to trachoma knowledge. . More over this result were confirmed by **Anyango, (2018)** who illustrated that communities may improve knowledge about the cause of trachoma, how it is spread, and how the disease is avoided with sufficient and effective health education.

**In figure (2)** Regard to the comparison between self-reported trachoma practices level of studied mothers pre, immediate & post-educational program of the studied mothers, the current study illustrated that more than one third of them had good self-reported practices level pre-educational program increased to most of them immediately after the end of the educational program and more than majority of them after one month of an educational program

This result come in the line with **Thompson et al., (2015)** in study conducted in Guinea Bissau who reported that successful health education is the key to implementing beneficial community-based trachoma prevention and control practices to achieve the goal of eliminating trachoma as a public health problem.

**In table** (4) Respected to mean scores of knowledge and self- reported practices of studied mothers, the current study shows there were an increase in mean scores of mothers' knowledge and self- reported practices immediately after the educational program than pre-educational program then slightly decreased post one month of an educational program than immediate at the finish of educational program. This may be linked to the study sample's cooperation and their ability to learn, and their interest in adopting a healthy lifestyle.

This result was confirmed by **Awad, et al, (2018)** who suggested that from pre-program, immediate and three months after program intervention, a substantial increase in the knowledge and practice scores of the studied sample on trachoma was observed. In addition this result agree with **Ng'etich, etal, (2015)** who discovered that through community engagement in educational activities, eye care finding practices change.

Also the finding of the present study come in the same with **Belaynew W et al** (2014) in a study conducted in Ethiopia about knowledge and practice on childhood blindness among communities who found that the practice of participants towards childhood blindness prevention is associated with their knowledge. From investigator point of view, the increase of knowledge in posttest attributed to the planned teaching program which was effective in improving knowledge and self-reported practices of studied mothers, therefore it is important for mothers to provide with regular educational and training program to understand trachoma disease and its prevention to improve family and community health.

**In table** (5) concerning the relationship between the total levels of knowledge of the studied mothers pre-educational trachoma program and their personal data presented that there were statistically significance relationship between total knowledge scores of the studied mothers' pre-educational program and their residence, educational levels monthly income.

The finding of the present study come in agree with **Gebretnsae et al., (2020)** who reported that there were statistically significant variations between the overall level of knowledge of trachoma and the personal data of the sample studied.

This study was supported with **Ketema ,et al.,(2012)** in a study conducted in Ethiopia who found that Participants who attended secondary education more likely to have favorable knowledge and attitude towards childhood blindness compared to those who were unable to read and write ,and older participants were more likely to have good knowledge about childhood blindness than those who were younger than 20 years ,Children from a family getting more income are more likely to have low level of active trachoma as compared to families having less monthly income. This may be because children from a relatively well to do family will have access to sanitary materials and a better information.

From investigator's point of view this may explained by insufficient knowledge of studied mothers about trachoma and they need to be provided with enough information about trachoma infection and prevention.

**In table** (6) regarding the relation between total knowledge level about trachoma post educational program and personal data of the studied mothers found that more than half of them who had high knowledge level about trachoma post educational program were urban with statistically significance differences which , and more than two thirty of the studied mothers with high knowledge level about trachoma post educational program had university education, and housewife .

This result may be due to that educated mothers has desire and ability to learn and gain knowledge ,also urban mother has easy access to ask doctor help , gain health care services in any time and acquired more knowledge from the social media than women live in the rural area.

**In table (7)** Regarding the relationship between the total level of self-reported practices pre-educational trachoma program and their personal data shows that more than half of good self-reported practices were had university education ,and more than half of good self-reported practices were employees' mother pre the educational program with statistically significant differences. This result come in accordance with **Njomo et al., (2016)** who stated that the caretakers' education levels affected the trachoma transmission activities. In those with primary and higher levels of formal education, washing face practice was significantly higher than those without education (p= 0.031) in the current study.

**In table (8)** regarding the relationship between the total level of self-reported practices on the post educational trachoma program and the personal data of the studied mothers found that most of the studied mothers who had good self-reported practices about trachoma post educational program their age was 30 - < 39 year and had university education with statistically significance differences, majority of the studied mothers urban, and their monthly income was (1000-2000/L.E) , This can be explained by the fact that age becoming an adult increases general knowledge and cognition, provides the opportunity to advance in education and increases chances of exposure for both intra and extra-curricular education and family with good income helps mothers to care their children probably as in (nutrition, hygiene, health care, personal belongings).

**Conclusion**
**Based on the findings of the present study it was concluded that:**

Education program is effective in improving mothers' knowledge and practices regarding care of children with trachoma. It found that level of knowledge scores and practices post-test were was significantly higher after teaching program as compare to their values at pretest. There was statistically significance relationship between pretest knowledge of studied mothers with residence, education level, and monthly income, and between posttest knowledge of studied mothers and residence, education level, and occupation. Moreover, there was statistically significance association between self-reported practices of studied mothers with their education level and occupation pre educational program and between self-reported practices of them and their age, residence , education level and monthly income post educational program There was a strong positive correlation between the knowledge of mothers and their practices regarding the pre-and post-educational trachoma program

## Recommendations

- Providing training for mothers with child with trachoma at Minia city, and continuous supervision of maternal and neonatal care by the ministry of health and population
- Health education campaigns concerning trachoma ought to be delivered through mass media such as television, posters and pamphlets. Community participation and self-reliance should be enforced.
- Health education programs directed towards control of communicable eye diseases should be planned and implemented through school health curriculum
- Design and disseminate related booklets and brochures to raise mothers and public knowledge regarding child with trachoma.
- Activate the role of school nurse through continuous health education about hygienic care within the school and the wider community through displays illustrating model health practices.
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