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# Effect of Education Program on Mothers' Knowledge about Breastfeeding in Al-Hodieadh Governorate-Yemen 2021

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**Abstract:** Breastfeeding is an essential and important for public health and growth newborn. It is considered as the appropriate feeding method to provide necessary nutrition for the newborn. The study aimed to increase mothers' knowledge about breastfeeding. Methods: The quasi-experimental research design was utilized in this study. The study revealed that there is an effect of the education program on mothers' knowledge toward breastfeeding. The total score of mothers' knowledge about breastfeeding showed that; 8.1% of mothers had good knowledge in pretest and their knowledge improved after being implemented to be 76.3% in posttest, and 56.3% in follow up test. The presented study findings highlighted the effect of education programs on mothers' knowledge of breastfeeding. Also, this study discovered that there is a relationship between the characteristic and mothers' knowledge. It was observed after the education programme was implemented. Recommendation: Yemenis' mothers need to continue education program about breastfeeding, in particular the mothers who lives in rural areas.

**Keyword**: Breastfeeding; Education; Knowledge; Newborn; Mother

## 1. Introduction:

Breastfeeding is an essential and important for public health and growth newborn. It is considered as the appropriate method feeding to provide necessary nutrition for the newborn (1). Moreover, milk of breast is better resource for immunological factors and variety nutrition for newborn need to build body and disease resistance, that cannot be replicated (2). Breast-milk has been available and invaluable source in all mothers after delivery (3). It is important for the health of mother (4).

Breastfeeding should be started into one hour after baby delivered and the newborn should be continuing feeding according to demand (5). Exclusive breastfeeding should be up to six months after birth. According to many studies conducted around the world, it still remained allowed over the world (6). According to WHO, only "one-third of children were exclusively breastfed for the first 6 months of life" (7). Breastfeeding rates for exclusive breastfeeding have not reached to health organization's goals in several countries (8).

Regarding to WHO recommendation "Where facilities provide antenatal care, mothers and their families should be counselled about the benefits and management of breastfeeding" (9). Other studies ensure the important counselling of the mothers about effective breastfeeding technical, it include that position, milk transfer, and avoid breastfeeding problems (10). Put baby during breastfeeding with correct position and attachment have effective on result suckling (11). So, breastfeeding education program is developed in order to encourage mothers for optimal use of breastfeeding, increase their knowledge about importance of breastfeeding and its benefits for health growth of infant (12). Low knowledge of mother about breastfeeding leads to lactation failure, fatigue, breast pain, cracked nipple and

trauma (13). Also, education program recommends mothers that 'infants must be exclusively breastfed for the first 6 months of life' and child should receive complementary foods while continuing to be breastfed for up to two years (8).

Breastfeeding is usually stress physically and emotionally demanding (14). For mothers, breastfeeding is not instinctive, but it is an exercise and process (15). So, mothers need to be learned about breastfeeding activities. Therefore, mothers need to start preparing for breastfeeding during pregnancy (14). For successful breastfeeding, mothers must learn the correct position of infant, latch and right signs for absorption and sucking of breast milk, signs of hunger and child acceptance for breastfeeding (16).

In 2018, a descriptive study cross-section research recruited 270 pregnant women carried out from rural and urban areas into Al-Hodeida governorate by Al-hatemi et al, 2018. It showed that; 45.9% of studied women had poor knowledge (17). Furthermore, according to Ministry of Public Health and population in Yemen; the report 2011 revealed that Al-Hodeida governorate is considered as one of the highest children's deaths rates in Control, estimated at children <5 years 66/1000, infant 49/1000, and newborns 29/1000 (18).

**2. Methodology:**

**2.1. Research design**: The quasi-experimental research design was utilized in this study.

**2.2. Research setting**: this research was implemented in three districts (Al-Hali, Al-Hok, Biat-Alfaqi and Almrawah) at Al-Hodiedah governorate. Al-Hali and Al-Hok are urban districts, while Biat-Alfaqi and Al-Mrawah are rural districts. It included 4 out of 10 (40%) of urban health centers and 4 out of 40 (10%) of rural health centers.

**2.3. Target Population**: all mothers who agreed to be involved in this study, and were eligible and meet the inclusion criteria: -

- Mother had baby and breastfeeding practice.
- Mother attended the target health centers
- Mother agreed to participate in this research

**2.4. Sample size***:* The health facilities in urban and rural districts were selected randomly. Also, the quota sampling used to recruit mothers according to their agreed to participate in this study. The total number of the study sample was 135 mothers.

**2.5. Research Tools:**

Toll (1): Structured interview questionnaire:

The interview questionnaire sheet was developed by the researchers based on the review of relevant literature. It included two parts: -

Part (1): Personal characteristics included: mothers' age, level of education, residence, number of gravidities, and parity.

Part (2): in this part, the questionnaire was designed to assess mothers' knowledge about breastfeeding. It included breastfeeding; start breastfeeding after birth colostrums, prepare of breast before breastfeeding, newborns position during breastfeeding and burping after breastfeeding, the benefit of breastfeeding for newborn, exclusive breastfeeding. This part was applied three times, 1) immediately test, 2) post-test after education program, 3) follow up test after two months.

The Scoring system was developed for knowledge as follows: zero grade for the wrong answer and I don't know. While one grade for the right answer. Sum the right answer and converted it to percentage. The total knowledge score was determined by (17) who estimate the answer by taking point as the score divided into:

- Poor<50%
- Average 5o % < 70%
- Good 70% and more

**The Validity of Tools**: The tools of study were translated from English to Arabic language and reviewed to ascertain their validity by the panel of six experts from community health nursing staff at Alhodiedah University, and who reviewed the tools for their clarity, relevance, and comprehensiveness, understanding, and applicability.

**Reliability Test**: Reliability is applied by the researchers for testing the internal of the tool, by administration of the same tools to the same subjects under similar conditions two times 15 days apart. Cronbach's Alpha reliability for knowledge was 7.81.

**2.6. Authorities Approval**

An official letter of approval was obtained from Ministry of Health in Al-Hodiedahh Governorate to target districts authorities and directors of the health facilities to achieve this study. Finally, the letters agreement got to carry out the study.

**2.7. Study Pilot**:

A pilot study was done before collection data on 10% of the mothers, who were included in the sample. The purpose of the pilot study was to test the clarity and feasibility of the tools and estimate the required time to fill the questionnaires. They were included in this study.

**2.8. Data Collection Phase:**

The researchers started to collect pretest data from the educational pregnant mothers before started, immediately test was collected after implementing the educational program, follow up test was collected after three months. The period of collection data from ninth of September until November 30, 2020.

The interviews were carried out individually "A face to face" with each mother in a separate room at health facilities by researchers. Every month, about 40-45 sheets were finished.

Nearly 35-45 minutes need to carry out each interview. The researchers worked 4 days per week to finish data collection. Almost (2-4) mothers were interviewed per the day; this depends on availability of the mothers in the health facilities. The researchers selected mothers who fulfilled and meet the criteria of study. Also, researchers explained the purpose of the study to each mother who agreed to participate in this study.

**2.9. Educational program:**

The educational program had been designed and established by the researchers based on available resources, and review of relevant literature. Educational booklet was prepared by researchers and it was used as a handout for participants. It included seven parts of essential breastfeeding (preparing the breast before breastfeeding,

colostrums, breastfeeding process, position of newborn during breastfeeding process and burping newborn after finished from breastfeeding, the benefit of breastfeeding for baby, exclusive breastfeeding). All mothers who attended this study received booklet during implementation of education sessions. Moreover, 10 copies were distributed for each health centers.

At the end this education program, mothers should be able to:

1.Prepare the breast before breastfeeding.
2.Preform breastfeeding process in correct way.
3.Identify right position of breastfeeding for their baby and burping their baby after finished from breastfeeding.
4.Understand the important exclusive breast feeding.

**2.9.1. The program's phases:**

1.Assessment phases: Based on the carried-out assessment about the mothers' knowledge relevant to breastfeeding by Alhatemi, et al 2018. The educational program was designed and implemented.

2.Planning phase: The arrangement of conducting the program was done during this stage:

The arrangement includes the following steps:

1.Oral consent of mothers who participated in the present study and their household leaders (Fathers or husbands) was taken during the preparation phase before starting educational program.

2.Mothers were divided into 13 groups; each group consists of 10 to 12 participants.

**2.9.2. Methods of teaching:**

- Teaching method: it included; lectures, discussions, and brainstorming.
- Media used: pictures and booklet as handout for participants.
- Teaching time: the time of teaching was decided according to the mother's available time, particularly in rural areas.
- Teaching place: the program was conducted in a training room in all selected health facilities, except in two rural areas (Al-A'awadar and Al-Saeed health units), the program was implemented in villages to save time and make the participants feel comfortable.

**2.9.3. The Implementation phase:**

The educational program was carried out by the researcher in the period from 9th of September till the 30th of November 2020. There were three sessions pre-day; orientation and pretest, education session and post-test. Every session required from 30-45 minutes and 15 minutes as a break between sessions. Mothers were informed about the time and the place of sessions.

Follow up test was conducted after mothers gave birth using the same questionnaire.

**2.9.4. Evaluation stage:**

The evaluation was done by an immediate post-test, and follow up test.

**2.9.5. Ethical consideration:**

The proposal of the research was approved by the Ethical Committee in the Faculty of Nursing at Jibla University. There is no risk for the study's subject during the application of the research. Mothers were informed about the objectives of the study and they were free to either accept or refuse to participate in the current study. Oral consent was obtained from the target mothers. Confidentiality of the obtained information was assured as the obtained information was used only for the purpose of the study.

**2.9.7. Statistical analysis:**

The obtained data were reviewed, prepared for computer entry, coded, analyzed and tabulated to evaluate the differences between the groups participating in this study. Descriptive statistics as the percentage, mean and standard deviation were done using computer program SPSS version (21). Chi-square test was used. It is considered significant when P-value less than 0.05.

**3. Result**

One hundred and thirty-five mothers were recruited in study.

**Table 1**. Distribution of the studied mothers regarding their personal characteristics at Al-Hodeida government, Yemen 2017(n= 135)

| Items | Mothers (n= 135) | |
|---|---|---|
| | No. | % |
| **Age: (years)** | | |
| <25 | 58 | 43.0 |
| 25-30 | 39 | 28.9 |
| >30 | 38 | 28.1 |
| **Mean ± SD** | 26.83 ± 6.61 | |
| **Range** | 16.0 – 45.0 | |
| **Residence:** | | |
| Rural | 68 | 50.4 |
| Urban | 67 | 49.6 |
| **Mother educational** | | |
| Illiterate | 55 | 40.7 |
| Basic education | 49 | 36.3 |
| Secondary | 31 | 23.0 |
| **Gravidity:** | | |
| Primary gravidity | 26 | 19.2 |
| 2 – 4 | 78 | 57.7 |
| 5 or more | 31 | 23.1 |
| **Parity:** | | |
| None | 26 | 19.2 |
| Once | 16 | 11.9 |
| 2 – 4 | 62 | 45.9 |
| 5 or more | 31 | 23.0 |

Table (1): shows that mothers' age ranging from16 to 45 years old with mean score 26.83 ± 6.61. An attempt was made to balance between the number of participates from urban and rural areas; slightly more than half (50.4%) of mothers recruited from rural areas. Moreover, 40.7% of mothers were illiterate, follow by a total of 36.3% who had basic education, and 23% who had secondary education. Also, table 1 shows that 57.7% of mothers had 2-4 gravidity, and 45.9% had one to four parities.

The current study found that 62.2% of mothers do not know the importance of breast wash before start breastfeeding in pretest. Previous result improved after implementing education program to be 100% in posttest and 77.8% in follow up test.

Also, this study revealed that only 28.2% of studied mothers mentioned to wash breast by water in pretest, but their knowledge improved in posttest and follow up test to be 88.1% and 74.8% respectively with P-value<5 (0.000*).

**Table 2**. Significant of the mother's knowledge about breast care in pre, post and follow up tests 2020(n=135)

| Items | Study | | | | | | P-value[1] | P-value[2] |
|---|---|---|---|---|---|---|---|---|
| | Pre-test | | Post-test | | Follow-up | | | |
| | No. | % | No. | % | No. | % | | |
| **Washing breast is important before breastfeeding:** | | | | | | | 0.000* | 0.000* |
| Yes | 51 | 37.8 | 135 | 100.0 | 105 | 77.8 | | |
| No | 84 | 62.2 | 0 | 0.0 | 30 | 22.2 | | |
| **Technique breast wash** | | | | | | | | |
| Cycle | 20 | 39.2 | 10 | 7.4 | 26 | 24.8 | 0.000* | 0.063 |
| From inside to outside | 5 | 9.8 | 122 | 90.4 | 74 | 70.5 | 0.000* | 0.000* |
| From outside to inside | 4 | 7.8 | 3 | 2.2 | 5 | 4.8 | 0.091 | 0.475 |
| Randomly | 22 | 43.1 | 0 | 0.0 | 7 | 6.7 | 0.000* | 0.000* |
| **Material use to breast washing:** | | | | | | | | |
| Water | 38 | 28.1 | 119 | 88.1 | 101 | 74.8 | 0.000* | 0.000* |
| Water and soap | 16 | 11.9 | 11 | 8.1 | 3 | 2.2 | 0.310 | 0.002* |
| Cloths | 7 | 5.2 | 6 | 4.4 | 33 | 24.4 | 0.776 | 0.000* |

Statistically significant difference
P[1]: P-value between Pre-test and Post-test
P[2]: P-value between Pre-test and follow up-test

In additional the current study showed that only (5) 9.8% of mothers mentioned to right answer as "wash breast from inside to outside" in pretest. The previous result improved after implemented education program to be 90.5% in posttest and 70.5% in follow up test. See table (2).
Colostrum is first of mothers' breast milk after birth. It was known by 69.2% of mothers in pretest. But their knowledge improved to be 93.3% in posttest, and 73.3% in follow up teste. Also, table 3 showed that (70.4%) of mothers started breastfeeding within the first hour after birth in the pre-test. However, mothers' knowledge improved in the posttest to be 100%.

**Table 3**. The Knowledge of the mothers about important colostrum in pre, post and follow up tests 2020 (n=135)

| Items | Study | | | | | | P-value[1] | P-value[2] |
|---|---|---|---|---|---|---|---|---|
| | Pre-test | | Post-test | | Follow-up | | | |
| | No. | % | No. | % | No. | % | | |
| **Initiation of breastfeeding:** | | | | | | | | |
| Immediately after birth | 95 | 70.4 | 135 | 100.0 | 131 | 91.1 | 0.000* | 0.000* |
| After 30 min | 23 | 17.0 | 0 | 0.0 | 11 | 8.1 | | |
| After hours | 8 | 5.9 | 0 | 0.0 | 1 | 0.7 | | |
| After days | 9 | 6.7 | 0 | 0.0 | 0 | 0.0 | | |
| **Do you know what is colostrum's** | | | | | | | 0.000* | 0.000* |
| Yes | 120 | 88.9 | 135 | 100.0 | 135 | 100.0 | | |
| No | 15 | 11.1 | 0 | 0.0 | 0 | 0.0 | | |
| **Definition of colostrum's:** | | | | | | | 0.000* | 0.463 |
| Mother breast milk during fist days | 83 | 69.2 | 126 | 93.3 | 99 | 73.3 | | |
| Pus and Blood mother breast | 37 | 30.8 | 9 | 6.7 | 36 | 26.7 | | |
| **Give colostrums for your baby:** | | | | | | | 0.000* | 0.000* |
| Yes | 123 | 91.1 | 135 | 100.0 | 135 | 100.0 | | |
| No | 12 | 8.9 | 0 | 0.0 | 0 | 0.0 | | |
| **Importance of colostrums** | | | | | | | | |
| To growth newborn | 42 | 31.1 | 135 | 100.0 | 105 | 77.8 | 0.000* | 0.000* |
| protect newborn of diseases | 34 | 25.2 | 135 | 100.0 | 101 | 74.8 | 0.000* | 0.000* |
| As immunization for newborn | 59 | 43.7 | 118 | 87.4 | 118 | 87.4 | 0.000* | 0.000* |
| Total score of Mean ± SD | 2.03±0.48 | | 6.12±2.10 | | 5.83±2.31 | | 0.001* | 0.007* |

Statistical significant difference
P[1]: P-value between Pre-test and Post-test
P[2]: P-value between Pre-test and follow up-test

This result declined in follow up test but it is still better than pretest. In the same table, the finding showed that 43.7%, 31.1%, and 25.2% respectively of mothers pointed out to colostrum increase the immunity of newborn, growth newborn and protect newborn from diseases in pretest. But mothers' knowledge improved after education programme to be 87.4%, 100%, and 100% respectively in posttest. Previous results declined in follow up test, but it is still better than pretest. See table (3).

Regarding mother's knowledge about exclusive breastfeeding, mean (giving breast milk to infants without other extra fluids). It was cleared that 41.1% of mothers had knowledge about exclusive breastfeeding in Pre-test. In the contrary, mothers' knowledge improved after implemented education program to (100%) on posttest and follow up test. See figure (1)

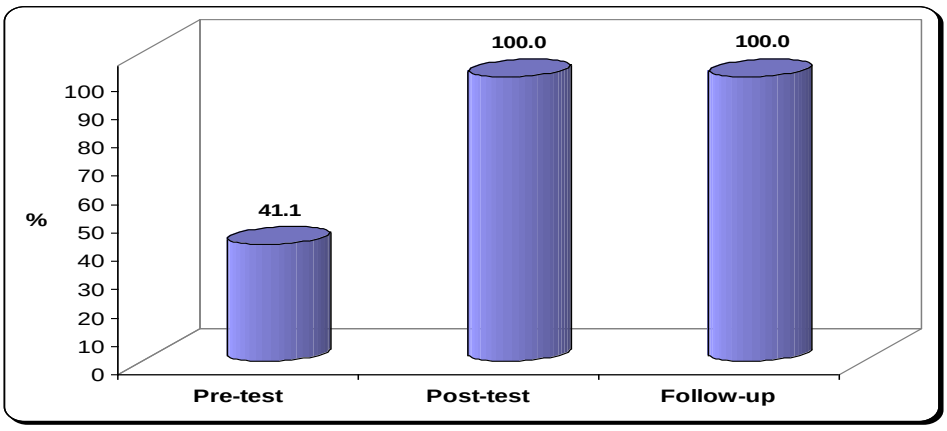


**Figure 1**. Shows the Significant of the Mother's Knowledge in Pre, Post and Follow up Tests about Exclusive Breastfeeding in Yemen 2020 (n=135)

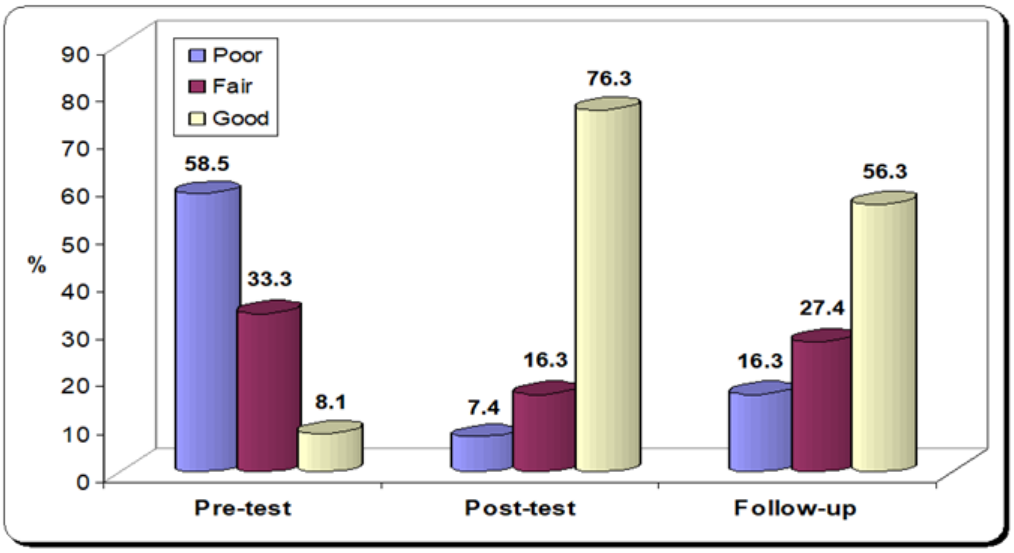


**Figure 2**. Total Score of Mothers' Knowledge about Breastfeeding After Educational Program in Al-Hodiedah governorate, Yemen 2020 (n=135)

As regarding the total score of mothers' knowledge about breastfeeding, it was cleared that 8.1% of mothers had good knowledge in pretest. Previous result improved after implemented to be 76.3% in posttest, but their knowledge slightly declined on follow up test to be 56.3%. See figure (2), Concerning newborn's position during breastfeeding,it was noted that 54.1% of mothers had mentioned to lie down on the newborn side and 64.4% of mothers pointed out to burping newborn after breastfeeding in pre-test. But their knowledge improved in the posttest and follow up test, to 100% and 71.1%% respectively. See table (4).

**Table 4**. Distribution of the studied mothers concerning their Knowledge about mothers knowledge newborn position and burping after breastfeeding .2020 (n=135)

| Items | Study | | | | | | P-value[1] | P-value[2] |
|---|---|---|---|---|---|---|---|---|
| | Pre-test | | Post-test | | Follow-up | | | |
| | No. | % | No. | % | No. | % | | |
| **Burping newborn after breastfeeding:** | | | | | | | | |
| Yes | 87 | 64.4 | 135 | 100.0 | 96 | 71.1 | 0.000* | 0.2419 |
| No | 48 | 35.6 | 0 | 0.0 | 39 | 28.9 | | |
| **Importance of burping newborn:** | | | | | | | | |
| Improve the gestation | | | | | | | | |
| Yes | 13 | 9.6 | 111 | 82.2 | 76 | 56.3 | 0.000* | 0.000* |
| No | 122 | 90.4 | 24 | 17.8 | 59 | 43.7 | | |
| Take out the over milk | | | | | | | | |
| Yes | 13 | 9.6 | 83 | 61.5 | 60 | 44.4 | 0.000* | 0.000* |
| No | 122 | 90.4 | 52 | 38.5 | 75 | 55.6 | | |
| Take out the air | | | | | | | | |
| Yes | 51 | 37.8 | 125 | 92.6 | 88 | 65.2 | 0.000* | 0.000* |
| No | 84 | 62.2 | 10 | 7.4 | 47 | 34.8 | | |
| Don’t know | | | | | | | | |
| Yes | 58 | 43.0 | 2 | 1.5 | 41 | 30.4 | 0.000* | 0.032* |
| No | 77 | 57.0 | 133 | 98.5 | 94 | 69.6 | | |
| **Newborn breastfeeding position:** | | | | | | | | |
| Lie down on your side | | | | | | | | |
| Yes | 73 | 54.1 | 71 | 52.6 | 102 | 75.6 | 0.000* | 0.000* |
| No | 62 | 45.9 | 64 | 47.4 | 33 | 24.4 | | |
| On arm | | | | | | | | |
| Yes | 17 | 12.6 | 135 | 100.0 | 101 | 74.8 | 0.000* | 0.000* |
| No | 118 | 87.4 | 0.0 | 00.0 | 34 | 25.2 | | |
| On knee | | | | | | | | |
| Yes | 45 | 33.3 | 47 | 34.8 | 47 | 34.8 | 0.797 | 0.0697 |
| No | 90 | 66.7 | 88 | 65.2 | 83 | 61.2 | | |
| Don’t know | 0 | 0.0 | 0 | 0.0 | 5 | 3.7 | | |
| **Safe sleep position for newborn after breastfeeding:** | | | | | | | | |
| On right hand | 17 | 12.6 | 0 | 0.0 | 0 | 0.0 | 0.000* | 0.000* |
| On left hand | 23 | 17.0 | 0 | 0.0 | 0 | 0.0 | 0.000* | 0.000* |
| On back | 95 | 70.4 | 135 | 100.0 | 104 | 77.0 | 0.000* | 0.2139 |
| On abdominal | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | -- | -- |
| Don’t know | 0 | 0.0 | 0 | 0.0 | 31 | 23.0 | -- | 0.000* |

Statistical significant difference
P1: P-value between Pre-test and Post-test
P2: P-value between Pre-test and follow up-test

**Table 5**. The relation between personal characteristics and good score of mothers' knowledge about breastfeeding after educational program in Al-Hodiedah governorate, Yemen 2020 (n=135)

| Items of some-demographic | Knowledge of study group N=(135) | | | | | | | | | | | | P-value1 | P-value2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pre-test | | | | Post-test | | | | Follow up test | | | | | |
| | Good | | Poor | | Good | | Poor | | Good | | Poor | | | |
| **Age:** | No | % | No. | % | No. | % | No. | % | No. | % | No. | % | | |
| < 25 | 7 | 12.1 | 51 | 87.9 | 34 | 58.6 | 24 | 41.3793 | 30 | 51.7 | 28 | 48.27586 | 0.043 | 0.562 |
| 25 – 30 | 5 | 12.8 | 34 | 87.2 | 26 | 66.7 | 13 | 33.3 | 18 | 46.2 | 21 | 53.84615 | | |
| > 30 | 6 | 15.8 | 32 | 84.2 | 33 | 86.8 | 5 | 13.2 | 16 | 42.1 | 22 | 57.89474 | | |
| **Residence:** | | | | | | | | | | | | | | |
| Rural | 7 | 10.3 | 61 | 89.7 | 36 | 52.9 | 32 | 47.0588 | 26 | 38.2 | 42 | 61.76471 | 0.000* | 0.0176 * |
| Urban | 11 | 16.4 | 56 | 83.6 | 57 | 85.1 | 10 | 14.7059 | 38 | 56.7 | 29 | 43.28358 | | |
| **Mother education:** | | | | | | | | | | | | | | |
| Illiterate | 0 | 0 | 55 | 100 | 38 | 69.1 | 17 | 30.9091 | 22 | 40 | 33 | 60 | 0.000* | 0.005* |
| Basic education | 7 | 14.3 | 42 | 85.7 | 37 | 75.5 | 12 | 24.4898 | 24 | 49 | 25 | 51.02041 | | |
| Secondary school | 11 | 35.5 | 20 | 74.5 | 18 | 58.1 | 13 | 41.9355 | 18 | 58.1 | 13 | 41.93548 | | |
| **Gravidity:** | | | | | | | | | | | | | | |
| Primary | 6 | 23.1 | 20 | 76.9 | 12 | 46.2 | 14 | 53.8462 | 13 | 50 | 13 | 50 | 0.098* | 0.475 |
| 2 – 4 | 8 | 10.3 | 70 | 89.7 | 54 | 69.2 | 24 | 30.7692 | 37 | 47.4 | 41 | 52.5641 | | |
| 5 or more | 4 | 12.9 | 27 | 87.1 | 27 | 87.1 | 4 | 12.9032 | 14 | 45.2 | 17 | 54.83871 | | |
| **Parity:** | | | | | | | | | | | | | | |
| None | 6 | 23.1 | 20 | 76.9 | 12 | 46.2 | 14 | 53.8462 | 13 | 50 | 13 | 50 | 0.100 | 0.061* |
| Once | 3 | 18.8 | 13 | 81.2 | 9 | 56.3 | 7 | 43.75 | 2 | 12.5 | 14 | 87.5 | | |
| 2 – 4 | 5 | 8.1 | 57 | 91.9 | 45 | 72.6 | 17 | 27.4194 | 35 | 56.5 | 28 | 44.44444 | | |
| 5 or more | 4 | 12.9 | 27 | 87.1 | 27 | 87.1 | 4 | 12.9032 | 14 | 45.2 | 17 | 54.83871 | | |

Statistical significant difference
P1: P-value between Pre-test and Post-test
P2: P-value between Pre-test and follow up-test

In addition, the present study found out that there is relation between personal characteristics and total score of mothers' knowledge about breastfeeding after educational program. As regarding mothers' age, it was noted that only 12.1% of mothers aged under 25 years, 12.8% of mothers aged between 25-30 years and 15.8% of mothers aged over 30 years had good knowledge in pretest, compare with 58.6%, 66.7% and 86.8 % respectively in posttest. But their knowledge was declined in follow up test but it still better than pretest. Demonstrate to residence of mothers.

**5. Discussion:**

In this study, outcome education programme was designed according to the classification of World Health Organization (16), which is essential to increase mothers' knowledge about the early initiation of breastfeeding (BF), exclusive breastfeeding and others breastfeeding technique as breastfeeding position and burping newborn after breastfeeding". The early initiation of breastfeeding was defined as "initiation of breastfeeding within 1 hour of birth irrespective of the mode of delivery". While the exclusive breastfeeding was defined as feeding breast milk from mother without extra fluid or solid up to 6 months of baby age (Sinha et al, 2015)

The present study revealed an improvement of mothers' knowledge toward breastfeeding after implementing the education programme. This finding agreed with other study conducted by Hanafi et al, 2014 in Saudi Arabia about "impact of health education on knowledge of, attitude to and practice of breastfeeding among women attending primary health centers in Almadinah Almunawwarah, Kingdom of Saudi Arabia" (18).

In the present study, the finding reveal that more than two fifths aged less than 25 years. Previous result disagreed with other study conducted by Mehrass et al, 2016 in Yemen about " prevalence and predictors of oral contraceptive pills among Yemeni women in Dhamar area", they reported that 63.2% of participates aged under the 25 years (19). The difference between both studies because the present study recruited mothers from urban and rural. Also, present study discovered that more than two fifths of mothers' illiteracy, more than third had basic education and less than third had secondary school. Pervious result agreed with other study conducted by Al-Zubairi et al, 2007 in Yemen about "Effect of breastfeeding on growth in Yemeni infant" (20). They found out that; out of 395 mothers, more than half were illiterate. Moreover, this study pointed out

that more than half of mothers had 2 to 4 gravidity and two fifths of mothers had from two to four parity. Previous result agreed with other study conducted in Yemen by Mehrass et al, 2016 about" Prevalence and predictors of oral contraceptive pills use among Yemeni women in Dhamar area". They revealed that 56.5% of mothers had more than three children (19).

Preparing the breast and clean is very important before starting the breastfeeding to prevent and protect baby from diseases. The present study indicated that more than three-fifths (62.2%) of mothers reported that was not important to wash breast before starting breastfeeding process in pretest. Effect of the education program occurred on posttest, where all mothers mentioned to wash breast before starting breastfeeding process.

Regarding the important colostrum for newborn, the present study indicated that more than two third of Yemeni's mothers mentioned to early initiation of breastfeeding after birth into 1 hour in pre-test. Previous result agreed with other systematic review study conducted by Dukuzumuremyi et al, in East Africa, about "knowledge, attitude and practice of exclusive breastfeeding among mother in East Africa: a systematic review" (21). They showed that more than two thirds of mothers had started breastfeeding in 1 hour after birth. Also, present result agreed other study conducted by Nkoka et al, 2019 in Malawi (22), and other study conducted by Motee, et al, in Mauritius (23). They showed that more than three quarters of the mothers had initiated breastfeeding after birth.

On the contrary, the mothers' knowledge improved after the implementation of the educational program, all of them pointed to start breastfeeding immediately after birth into 1 hour. This result declined on follow up test, but it is still better than pretest. These results supported by 73 titles systematic literature search in PUBMED journal conducted by Sinha et al, about" Interventions to improve breastfeeding outcomes: a systematic review and meta-analysis" that identified that 25% of articles had affected with intervention of education programme to improve mother's knowledge and practice to start breastfeeding after birth into 1 hour (24).

Demonstrating mothers' knowledge about importance of colostrum for newborn; more than two fifth of mothers known that the colostrum increase the immunity of newborn, and slight less than third reported that colostrum help growth newborn. While more than quarter of mothers believe that colostrum, protect newborn from diseases in pretest. These findings agreed with other study done in Ethiopia (21). They discovered that 59.8% of mothers known the colostrum is preventing of newborn from diseases, and 33.7% of them reported mentioned to colostrum as important to growth of their baby.

On the contrary, the mothers' knowledge improved after the implementation of the educational program, where all mothers indicated that colostrum increased the immunity of newborn and protect newborn from diseases.

Furthermore, the finding of this study show that more than two fifths of mother had correct answer about definition of exclusive breastfeeding in Pre-test. Previous result disagrees with other study conducted by Tariku et al, in Ethiopia about" Mothers' education and ANC visit improved exclusive breastfeeding in Dabat Health and Demographic Surveillance System Site, northwest Ethiopia" (33). They reported that more than half of mothers had knowledge about exclusive breastfeeding. The different between the both studies because the present study involved of mothers from urban and rural areas.

On Post-test and follow up test, the mothers' knowledge improved after implemented educational program, where all of them referred to correct answer about exclusive breastfeeding. Previous results were agreed by other systematic review and meta-analysis study conducted by Sinha et al, 2015 about "interventions to improve breastfeeding outcome; a systematic review and meta-analysis". They showed that more than two fifths of mothers had affected with intervention to improve their knowledge about breastfeeding and exclusive breastfeeding.

Regarding the total score of mothers' knowledges about breastfeeding techniques. The present study revealed that less than one of tenth (8.1%) out of all sampling mothers had good knowledge in pretest. Previous result disagrees with study conducted by Alamirew et al, in Ethiopia about "Knowledge and attitude towards exclusive breast feeding among mothers attending antenatal and immunization clinic at Dabat Health Center, Northwest Ethiopia" (They showed that the total score of participants; more than two quarters of respondents had good knowledge about breastfeeding process. The difference between both studies because that present study implemented with respondents from rural and urban areas, and more than fifths of them were illiterate.

Similar to the findings of other studies, our study observed that mothers' knowledge improved after implemented educational program, where more than two thirds of mothers had good knowledge about breastfeeding technique. Systematic review and meta-analysis study carried out by Maleki et al, from electric journals. They reported that result from 40 articles showed that education intervention had a positive effect on breastfeeding (32).

Basic on relation between personal characteristics and good score of mothers' knowledges. This study reveals that there is significance between personal characteristics and total score of mothers' knowledges in pretest, posttest and follow up test. Previous results agreed with other study conducted by Mostafa et al, in Egypt, about "effect of an educational intervention on breastfeeding knowledge and attitude among inters at Cairo University Hospital" (25). They showed that there is effect of education intervention on participants' knowledge in pretest, posttest and follow up test.

Related to mothers' age, our study pointed out that more than four fifths of mothers aged over 30 years had good knowledge, compare with almost three fifths (58.6%), and slightly more than three quarters (66.7%) respectively of mothers aged under 25 years, and mothers aged between 25-30 years in posttest. The different between the mothers' aged groups because mothers aged over 30 had more experiences about breastfeeding.

Demonstrating to residence of mothers, the current study shows that more than tenths of participants (16.4%) urban and (10.3%) rural areas had good knowledge about breastfeeding in pretest. Pervious result disagrees with other study conducted by Balogun et al in Nigeria about" Knowledge, Attitude, and Practice of Breastfeeding: A Comparative Study of Mothers in Urban and Rural Communities of Lagos, Southwest Nigeria" (26). They revealed that more than four quarters of mothers had good knowledge about breastfeeding in urban and rural areas. The difference between studies because more than two quarters of mothers were illiterate in present study.

On the contrary, mothers' knowledge improved after implemented education program. It was noted that more than four fifths of urban mothers had good knowledge on posttest, compare with more than half of rural mothers. Previous result was disagreed with other study conducted by Sinha et al, 2015. They showed that "high effect of intervention in rural areas, compared to urban areas". There is difference between studies because current study conducted in Yemeni population only. Also, most of mothers in Yemeni's rural illiterate (27).

As regarding the mothers' education. This study discovered that non-score of knowledge of mothers who never attended, compare with more than tenth (14.3%) of mothers who had basic education and slightly more than third of mothers who had secondary school who had good knowledge in pretest. Our study findings agreed with other study conducted by Laksono et al, in Indonesia (28), they reported that "mothers who graduate primary schools and who graduate from high schools had knowledge more than other mothers who non attended schools. Also, previous results agreed with other study conducted by Hamze et al in Chain (29).

Similar to other studies, the education program had effect on mothers' knowledge. Our findings in the present study indicated that mothers who had basic education had improved knowledge, more than mothers who had non attended schools. Previous results greed with other study conducted by Shalaby et al in Saudi Arabia about " health education roles in promoting mothers' beliefs, knowledge and practice of exclusive breastfeeding among King Fahad armed forces hospital population" (30). They study recruited in-patients and out-patient postnatal women who received information about EBF in their third trimester. They reported that educated mothers had good knowledge, more than other non-educated mothers.

Moreover, the present study reveals that slightly more than three quarters (75.5%) of mothers who had basic education had good knowledge, compare with less than three fifths (58.1%) of mothers who had secondary education. These results happen because that the sampling of mothers who had basic education are more than other sampling of mothers who had secondary education.

## 6. Conclusion and Recommendation the Study

The present study findings highlighted effect of education programme on mothers' knowledge toward breastfeeding. The total score knowledge showed difference between outcomes of pretest, posttest and follow up test. Also, the findings showed a positive significance between mothers' knowledge and characteristics; age, residence, level of education, parity and gravidity after implemented education health. According to finding of the current study and conclusion, the researchers recommend that:

1. Yemenis' mothers need to continue education program about breastfeeding, particular the mothers who lives in rural areas.
2. Education program about exclusive breastfeeding importance to mothers during antenatal and postnatal care.
3. Health staff could be provide education sessions during mothers' visits to receive health cares into the antenatal, postnatal or immunization rooms.
4. Support and Encourage to continuing training of health staff about breastfeeding.

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# تأثير برنامج التثقيف في معرفة الأمهات حول الرضاعة الطبيعية في محافظة الحديدة –اليمن 2021

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**الملخص:** تعد الرضاعة الطبيعية أمراً أساسياً مهماً جداً للصحة العامة ولنمو الوليد. تعد الطريقة المناسبة لتوفير التغذية اللازمة لحديثي الولادة. استهدفت الدراسة زيادة معرفة الأمهات حول الرضاعة الطبيعية. الطرائق: تم استخدام تصميم البحث شبه التجريبي في هذه الدراسة. النتيجة: كشفت الدراسة عن تأثير برنامج التثقيف في معرفة الأمهات تجاه الرضاعة الطبيعية. أظهرت الدرجة الكلية لمعارف الأمهات عن الرضاعة الطبيعية أن؛ 8.1% من الأمهات كان لديهن معرفة جيدة في الاختبار القبلي وتحسنت معرفتهن بعد تطبيقه لتصل إلى 76.3% في الاختبار البعدي، و56.3% في اختبار المتابعة. الاستنتاج: أبرزت نتائج الدراسة المقدمة تأثير برنامج التعليم في معرفة الأمهات تجاه الرضاعة الطبيعية. كما توصلت هذه الدراسة إلى وجود علاقة بين هذه الخاصية ومعارف الأمهات بعد تنفيذ البرنامج التعليمي. التوصية: تحتاج أمهات اليمنيين إلى مواصلة برنامج التثقيف حول الرضاعة الطبيعية، وخاصة الأمهات اللآتي يعشن في المناطق الريفية.

**الكلمات الافتتاحية:** الرضاعة الطبيعية؛ تعليم؛ معرفة؛ مولود جديد؛ الأم