

# Self- Care program for Improving Practices among Postpartum Women in Rural Areas

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**Abstract:** The postpartum period is the period when women adjust physically and psychologically after the delivery of the baby. It is the period after the end of labor during which special attention of a community health nurse is required on the women's and the baby's health. **Research Design:** a quasi-experimental design was used. The aim of this study was to evaluate the effect of self-care program on postpartum women in rural area. **Setting:** This study was conducted at family medicine centers affiliated to shesht El-Enaam health unit at El-Behara Governorate and postpartum women's homes. **Sampling:** purposive sample of 67 postpartum women were included, Primipara and multipara postnatal mothers, during first two weeks from postpartum period, women who delivered normally or by cesarean section and women free from any medical or gynecological disease or disability and their babies free from anomalies. **Tools:** for data collection three tools were used, 1<sup>st</sup> tool: an interviewing questionnaire for the postpartum women includes five parts; Part one: socio-demographic characteristics, Part two: obstetric history, Part three: Postpartum woman's cultures and beliefs about postpartum period, Part four: Postpartum woman's knowledge regarding postpartum self-care, Part five: Postpartum woman's self-care during postpartum period, 2<sup>nd</sup> tool: review of infant's growth and development measurements sheet, 3<sup>rd</sup> tool: home environmental assessment observational checklist. **Results:** the current study revealed that less than three quarter of postpartum women had negative total cultures and beliefs regarding postpartum self-care, more than two fifth of postpartum women had satisfactory knowledge toward total postpartum self-care in preprogram implementation while in post program less than three quarter of them had satisfactory knowledge, also majority had inadequate self-care practice in preprogram implementation developed approximately two third in post program. With a highly statistically significant difference between knowledge and self-care practice pre and post program implementation **Conclusion:** self-care program reported remarkable improvement in postpartum women's knowledge and self-care practice toward postpartum self-care in rural areas. **Recommendations:** applying health education programs about maternal health issues through ministry of health.

**Keywords:** Postpartum period, Community health nurse, Self-care program, Rural area.

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## 1. INTRODUCTION

The postpartum period begins with the birth of the baby, comprises both physiological and psychological components and lasts for approximately six weeks. During this period, the reproductive organs recover from pregnancy and delivery. In general, this time period is the physiologic stabilization of the mother's body to the pre-pregnant state. It is time period where the mother and infant need the assistance from health care workers and family to ensure successful transition (Robin, et al., 2019).

Postnatal care is regarded as one of the most important maternal health care services for the prevention and impairment and disability resulting from child birth. The postnatal care includes systematic examination of the mother and baby and appropriate advice given to the mother during postpartum period. Lack of appropriate care at postnatal period may result in death or disability as well as missed opportunity to promote healthy behavior, affecting mother and newborn (Dutta, 2018).

Although women are often the focus of interventions to improve maternal and newborn health, they make decisions within the larger context of family and community. Women's choices are influenced by social networks, cultures, beliefs and myths that convey behavioral norms, health information, social support, and other resources that impact women's and new born health. Therefore, comprehensive reviews of strategies to improve maternal and newborn health have concluded that community-based interventions encouraging healthy behaviors and appropriate utilization of health services can be an effective way to reduce morbidity and mortality (**Johnson, 2018**).

The maternal self-care broadly defined by **Trevino & Smith (2019)**, as the mother's ability and willingness to take care of herself both physically and emotionally, Proper nourishment, taking time out for one's self when necessary, attention to hygiene and adequate sleep, the ability to care her baby and willingness to delegate and ability to set boundaries are practical applications of self-care in motherhood.

Add to that **Michele (2018)**, postpartum care at home is a post-delivery care method that can be provided by public health nurses, trained health workers, or midwifery nurses. This type of maternal and neonatal care includes mother and neonate health problems assessment and training for self and child care and also, under particular conditions, refers them to specialized maternal and neonatal service centers. This service helps mothers to better cope with their new, stressful life and empowers them to better manage taking care of themselves and their infants.

#### **Significance of the study:**

According to **WHO (2018)**, every day, approximately 830 women die from preventable causes related to pregnancy and childbirth and 99% of all maternal deaths occur in developing countries. Maternal mortality is higher in women living in rural areas and among poorer communities. Between 2016 and 2030, as part of the sustainable development goals, the target is to reduce the global maternal mortality ratio to less than 70 per 100 000 live births.

In 2017, the risk of a child dying before completing the first year of age was highest in the WHO African Region (51 per 1000 live births), over six times higher than that in the WHO European region (8 per 1000 live births). Globally, the infant mortality rate is 29 deaths per 1000 live births in 2017 (**WHO, 2018**).

Egypt has achieved success in reaching international health benchmarks set by the WHO, including substantially reducing child and maternal mortality rates. Maternal mortality rate in 2018 was down to 33 deaths/100,000 live births, similarly, deaths for children under the age of one per 1000 live births declined significantly from 63 in 1990 to 18.53 in 2019. Mortality rate for under age 5 is 22.11 per 1000 live births and in 2017; neonatal mortality rate was 11.6 deaths per 1,000 live births (**Central Agency for Public Mobilization and Statistics, 2018**).

However, Egypt has not yet closed the gap between its level of access to quality health care and the best possible level of provision. The discrepancy between urban and rural access and quality persists, as well as access based on economic means (**Sayed, 2018**). **CAPMAS (2018)**, added that in 2017, Beheira government is the fifth government in population size is 6.2 million and achieved an annual growth rate of 2.7%. Also, mentioned that the rural illiteracy rate was 32.2% compared to 17.7% in urban areas. The highest rates for illiteracy in Lower Egypt governorates were 32.9% in Beheira governorate which effect on their cultures and beliefs.

#### **Aim of the study:**

This study aims to evaluate the effect of self-care program on postpartum women in rural area through:

1. Assessing postpartum women's knowledge related to self-care.
2. Assessing postpartum women's practice related to self-care.
3. Designing and implementing self-care program among postpartum women in rural area.
4. Evaluating the effect of designed self-care program for postpartum women's self-care during home visits.

#### **Research Hypothesis:**

- Self-care program will improve postpartum women's knowledge about self -care.
- Self-care program will improve self -care practices among postpartum women.

## 2. METHODOLOGY

**1. Research Design:** A quasi experimental design was used.

**2. Technical Design:** The technical design includes; the setting, subject & tools were used in the study.

**Setting:**

The study was conducted at family medicine centers affiliated to shesht El- Enaaam health unit at El-Behara Governorate and postpartum women's homes which include seven family medicine centers, 50% was chosen approximately four centers. The study was conducted at shesht El- Enaaam center, Abo Shady center, El- Hawata center and EL- Shaira center in a rural area in Egypt.

**Sampling:**

**Type:** A purposive sample

**Size:** The study sample included 67 postpartum women representing 10% from the total number of postpartum women of attending during the year of 2017 was (674 postpartum women) registered in previous family medicine centers (affiliated to the ministry of health) and were attending the center to vaccinate their infants on the assigned vaccinated days for hepatitis B and T.B and thyroid test. Pilot study was included in the sample size.

Family health centers	Total number	Sample
Shesht El- Enaaam	226	23
El- Hawata center	221	22
EL- Shaira center	124	12
Abo Shady center	103	10

**Criteria:** Postpartum women were Primipara and multipara postnatal mothers, during first two weeks from postpartum period, women who delivered normally or by cesarean section and women free from any medical or gynecological disease or disability and their babies free from anomalies.

**3. Tool of Data Collection:**

**First tool: An interviewing questionnaire: it was used to** assess the following parts:

**Part one:** postpartum woman's socio- demographic characteristics such as age, marital status, educational level, occupation, husband's occupation, family members and monthly income per-capita (Q 1-7).

**Scoring system:**

According to CAMPS (2016), people whose income is less than 1.25\$ a day for person are poor people and their income are not enough (Dollar equal 18 Egyptian pounds at 2018). Family's income which exceeds 22.5 Egyptian pounds for each member per day, its monthly income is enough.

**Part two:** Obstetric history such as gravidity, parity and mode of delivery (Q 8-10).

**Part three:** It was concerned with postpartum woman's cultures and beliefs related to postpartum period as: drinking water, eating fish, eating cold vegetables and fruits, drinking khallba with honey, taking shower during postpartum, rest during postpartum period and usefulness of colostrum (Q 11-34).

**Scoring system:**

Related to postpartum woman's cultures and beliefs related to postpartum period; a correct answer scored one and each incorrect answer scored zero, the whole cultures and beliefs questions scored 34 points, a total of 50% and above (12-24 points) were considered positive and less than 50% (0-11 points) were considered negative.

**Part four:** Postpartum woman's knowledge (Q 35- 147) pre and post self-care program regarding to normal physiological changes during postpartum period, postpartum nutrition, personal hygiene, breast feeding, minor discomfort, family planning methods, baby's growth and development during first year of life, etc.....

**Scoring system:**

The whole knowledge questions regarding postpartum self-care scored 217 points, a total of 50% and above (19 -217 points) were considered satisfactory and less than 50% (0 -108 points) were considered unsatisfactory.

**Part five:** Postpartum woman's self-care during postpartum period pre and post self-care program (Q 148- 192). This part was developed to assess the following; postpartum nutrition, postnatal clinic follow up, exercise, family planning, personal hygiene, breast feeding, baby care, immunization and etc.....

**Scoring system:**

Total self-care included 88 statements for woman who delivered normal as the highest score, 90 statements for woman who delivered normal with episiotomy and 92 statements for woman who delivered cesarean section. The final score of woman responses was either 60% and above representing adequate (53-88 points) for normal delivery, (54-90 points) for normal with episiotomy and (55-92 points) for cesarean section or less than 60% denoting in adequate (0- 52points) for normal delivery, (0- 53points) for normal with episiotomy and (0- 54points) for cesarean section.

**Second tool: Review of Infant's Growth and development measurements sheet:**

This includes infant's weight, height and chest and head circumferences which available at family medicine centers records.

**Scoring system:**

The infant's growth and development took 2 times at birth and at age four months from measurements records during four months immunization then taken Mean  $\pm$  SD for each measurement and determine normal and abnormal according to (WHO, 2018) child growth standard according to their age.

**Third tool: Home environmental assessment observational checklist:**

It was abstracted from (Department of Housing and Urban Development, 2012) and modified by investigator to assess home environment of postpartum woman such as crowding index, lighting, ventilation, cleanliness, sanitary condition, etc..... by using an observation checklist the investigator arranged for home visit with postpartum women under study.

**Scoring system**

Family Crowding Index (FCI) formula adapted from American Association of public Opinion Research (2007), Family Crowding Index= number of persons in a household/number of rooms used for sleeping ,less than 3 (<3) was considered not crowded family and more than 3 (>3) was considered overcrowded family.

The investigator give score one for good sanitation and zero for poor sanitation for each item. The total score of environment checklist were 34 points, The tool rated on a 2-point scale, "1"good, "0"poor.Home was considered good sanitary if the percent score equal and more than ( $\geq$  60%) 20- 34 points, and poor sanitary if the percent score less than (60%) 0- 19 points.

**Administrative Design**

An official permission including the title and aim of the study were submitted from the dean of faculty of nursing Ain Shams University and forwarded to the director of the shesht El- Enaam health unit then forward to Abo Shady center, El-Hawata center and EL- Shaira center, to get an approval for data collection to conduct the study.

**I. Operational design:**

The study to be completed passed through different phases included: preparatory phase, pilot study and field work phase.

**A. Preparatory phase:**

A review of the past and current available related literatures covering all aspects of the research subject, using the available books, journals, articles and nursing magazines. In order to get a clear picture on the research problem, as well as, to design the study tools for data collection. Then tools of data collection were tested for content validity through pilot study.

**B. Pilot study:**

It was conducted on 7 postpartum women representing 10% of the total study sample and conducted in shesht El- Enaam family centers in order to its containing of highly study sample, the aim of the pilot study was to evaluate clarity, visibility, applicability and content validity, as well as the time required to fulfill the developed tools. According to the obtained results, modifications such as omission, addition and rewording were done. The number of the pilot study included in the study sample because these women need program to improve their pre inadequacy self-care and unsatisfactory knowledge.

**Content validity:**

The tools were tested through five experts from community health nursing department, Faculty of Nursing, Ain Shams University.

**The reliability:**

It was done by Cronbach's Alpha coefficient test which revealed that the tools consisted of relatively homogenous items as indicated by the moderate to high reliability of each tool. The questionnaire was tested to be reliable with Cronbach's alpha coefficient of 0.78 for items showed tool proved to be strongly reliable.

**Field Work:**

- An official permission including the title and purpose of the study were submitted from the Dean of Faculty of Nursing Ain Shams University and directed to the director of Shesht El- Enaam health unit then to get an approval for data collection to conduct the study that forwarded to the directors of Shesht El- Enaam, Abo Shady center, El- Hawata center and EL- Shaira centers where the study was conducted. After permission the researcher started with introducing herself to the selected family member of postpartum women came to immunized newborn with hepatitis B and T.B and tested thyroid test and explaining the aim of the study, take permission to visit postpartum women at home, assured that data collected will be confidential and will used only to achieve the purpose of the study. The researcher visit the pre-mentioned setting three days per week during immunization of Hepatitis B and T.B and thyroid test to take permission from family member of postpartum women to visit home, then visit postpartum women at the same time or the next day to take oral consent from her to participate in the study after explaining the aim of the study, assured that data collected will be confidential and will used only to achieve the purpose of the study and to fill questioner sheet was about 30 to 45 minutes by asking her and assess their home environment was about 10 minutes. The study work was carried out within duration of 8 months starting from beginning of January 2018 till the end of August 2018. The researcher meet postpartum women two days/ weekly (Saturday or Wednesday or Thursday) for educational session in the period from beginning of January 2018 to the end of February 2018 at Shesht EL- Enaam center, from beginning of March 2018 to the end of April 2018 at El- Hawata center and from beginning of May 2018 to the end of June 2018 at El- Shaira and from beginning of July 2018 to the end of August 2018 at Abo Shady centers. The researcher interviewed postpartum women at suitable place at pre mentioned centers for women who or at home were unable to come at family planning room when became empty or under (Mazella) away from overcrowded and noisy. The self-care program consists of 10 sessions required 10 hours and 45 minutes distributed as (5 hours and 15 minutes for theory and 5 hours and 30 minutes for practice). The program implemented 5 weeks/ 2 session per week from (10am- 12pm) at family medicine centers or according to suitable time of women at homes, number of hours differed from one session to another to accomplish health education sessions. The researcher got infant's growth and development measurements for two times at birth and at age four months from family medicine centers records because effect of breast feeding on infant growth become effective and appear at three months of age but at family medicine centers, measurements took at immunization time so the researcher get measurements at four months immunization. Self-care program was planned and designed by researcher based on the result of the assessment phase. A booklet of information about postpartum self-care was designed in Arabic. Evaluation Phase was done one week after implementation of program.

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### Self-care Program construction:

#### Phase 1: Program Development:

The program was designed by the investigator and based on the result obtained from the study tools; also, review of recent, current, national and international related literature in various aspects of postpartum woman self-care. This program content was revised and validated by experts in Faculty of Nursing, community health nursing department, Ain Shams University.

#### Phase 2: Assessment:

Assessment was done to determine the postpartum women's needs by using pretest based on the collecting data on the woman's cultures and beliefs, knowledge and their practices, which was carried out through three days/ week for two weeks from each setting from previous settings; which carried out for 8 weeks for four settings, the average time consumed to fill tools was 30-45 minutes for questionnaire and 10 minutes to assess home environment.

#### Phase 3: Program Implementation:

Program implementation based on conducting sessions plan using different educational methods and media through using laptop in addition to the use of guiding booklet specifically designed and developed based on women's assessment needs.

Implementation of the program took five weeks months for each setting which carried out for 5 months for four settings, through visited the pre-mentioned settings or postpartum women's home two day/week, (Saturday and Wednesday or Thursday) two hours/ day from (10 am – 12pm) at family medicine centers or according to suitable time of women at homes, number of hours differed from one session to another to accomplish health education sessions and practice training, sessions was conducted at postpartum home and previous family medicine centers.

#### Overall goal of the program:

Improve women's self- care during postpartum period in rural area through increasing their knowledge and practice.

**General objectives of the program:** by the end of self-care program each woman will be able to:

- Apply steps of perineal, C- section wound and breast care and postpartum mother warning signs.
- Acquire knowledge related to baby's warning signs, neonate problems and apply skills of baby care
- Acquire basic knowledge about postpartum minor discomfort and nutrition
- Assemble skills related to breast feeding and postpartum sexual activity.
- Develop skills related to performing postpartum exercise
- Explain knowledge related to postpartum follow up visits and immunization.
- Identify and explain methods of family planning

#### Program sessions:

Time allowed: 10 hours and 45 minutes has been allocated for health education sessions, distributed as (5 hours and 15 minutes for theory and 5 hours and 30 minutes for practice).

At the beginning of the first session, an orientation about the program and its purposes was given. From the second session and so on each session started by a summary about what was given through the previous sessions and objectives of the new one, taking into consideration using simple and clear language to suit the level of all women.

By the end of each session a summary were made and time allocated for questions and answers & plan for next session were made, Except for the last session a termination of sessions through feedback. As for sessions that consumed long time to be fulfilled (more than 60 minute) it included a break before resuming the session.

Teaching methods and media it was; brain storming, demonstration and re-demonstration, and role-play. Suitable teaching aids prepared especially for the program were used such as laptop, printed materials and posters.

**Program Booklet:**

A Booklet including all content of the program was designed and given to postpartum women as an educational reference during program implementation and as self-learning reference after program implementation. Its aim was providing accurate knowledge & practice related guideline instructions about postpartum women self-care.

**Phase 4: Program evaluation**

This phase aimed to evaluate the level of improvement in knowledge and self-care of postpartum women, through implementation of post-test after the program, as well as to identify differences, similarities, areas of improvement and defects. Evaluation was done one week after program implementation.

**Ethical consideration**

Issues of ethical consideration were discussed with the director of health unit then the directors and head nurses of each setting then with the family member of postpartum women who attend to vaccinate baby, to visit them at their home and finally with postpartum women herself at home including; privacy of information collected from them & freedom to withdraw from the study at any time. Then written approval obtained from postpartum women to apply the study. Also head nurses attended some sessions that conducted at previous health centers and obtained a copy of the data collection tools and the program booklet.

**Statistical Design:**

Data were revised, coded, analyzed and tabulated using the number and percentage distribution and carried out at the computer, using appropriate statistical methods.

**The following statistical techniques were used:**

Percentage, mean value, standard Deviation, chi-square ( $X^2$ ), correlation test ( $r$ ), and Proportion Probability (P-value).

**Significance of results**

- ✓ When  $P > 0.05$  it is statistically insignificant difference.
- ✓ When  $P < 0.05$  it is statistically significant difference.
- ✓ When  $P < 0.01$  or  $P < 0.001$  it is high statistically significant difference.

### 3. RESULTS

**Table (1): Distribution of Postpartum Women According to Socio Demographic Characteristics (N= 67).**

Items	NO	%
<b>Age</b>		
≤ 20	19	28.3
20 ≥ 30	32	47.8
30 > 35	12	17.9
≥ 35	4	6
Mean ± SD = 24.8 ± 5.61		
<b>Marital status</b>		
Married	61	91
Divorced	6	9
<b>Educational level</b>		
Illiterate	11	16.5
Secondary education	48	71.6
highly education	8	11.9

Occupation		
House wife	51	76.1
Employed	16	23.9
Husband work		
Employed	30	44.8
Free work	37	55.2
Monthly family salary per capita		
1000 ≤ 2000 L.E	2	3
2000 ≥ 3000 L.E	19	28.3
3000 ≥ 4000 L.E	32	47.8
4000 > 5000 L.E	12	17.9
≥ 5000 L.E	2	3
Mean ± SD = 3161.19 ± 699.99		
Family income:		
Enough	20	29.9
Not enough	47	70.1

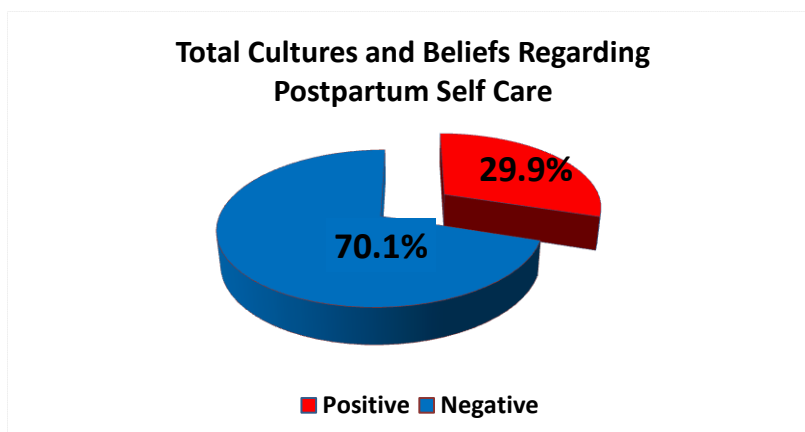
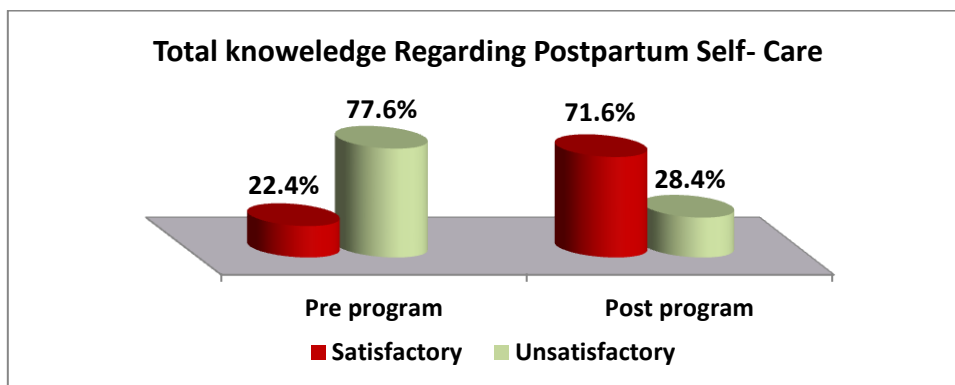


Figure (1): Distribution of Postpartum Women According to Their Total Score Level of Cultures and Beliefs Regarding Postpartum Self-Care (N=67).

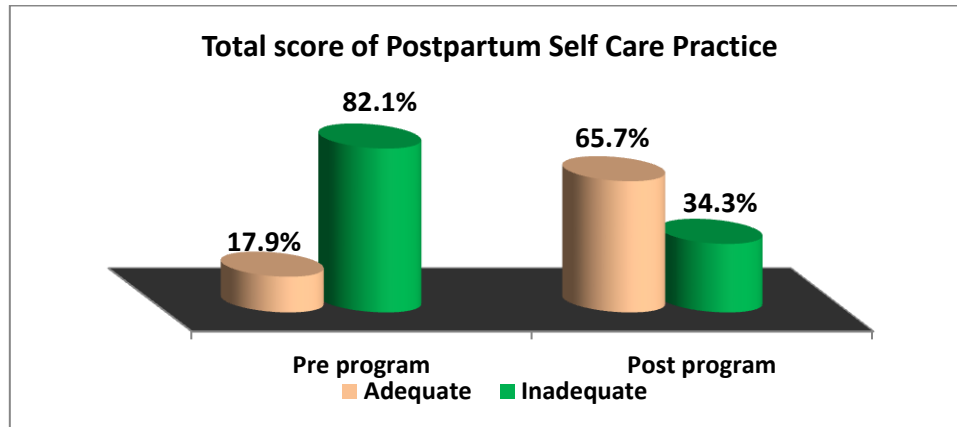


$\chi^2 = 32.6237$

$p \text{ value} < 0.001 \text{ HS}$

Figure (2): Distribution of Postpartum Women According to Their Satisfactory Score Level of Knowledge Regarding Postpartum Self-Care Pre & Post Self-Care Program (N= 67).





$\chi^2 = 31.4139$

$p \text{ value} < 0.001$  H

Figure (3): Distribution of Postpartum Women According to Their Total Postpartum Self-Care Practice Pre/ Post Pre Self-Care Program (N= 67).

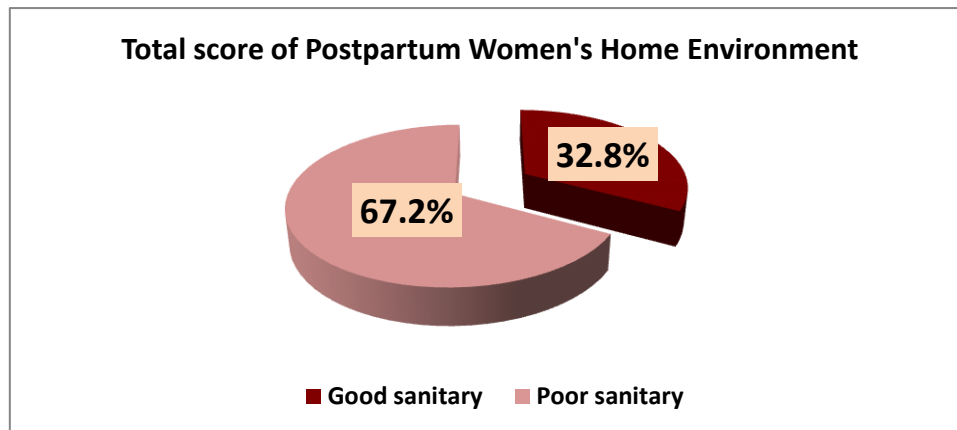


Figure (4): Distribution of Postpartum Women's Home Environment According to Their Total Cleanliness (N=67)

Table (2): Association between Post Postpartum Women's Total Knowledge & Their Total Post Self-Care Practice Post Self-Care Program (N= 67).

Total Knowledge	Self-care practice				Chi square test	
	Adequate (N=44)		Inadequate(N=23)		$\chi^2$	P
	N	%	N	%		
Satisfactory (N=54)	44	100	4	17.4	50.736	<0.001**
Unsatisfactory (N=13)	0	0	19	82.6		

$P \text{ value} < 0.001$  \*\* HS

Table (3): Correlation between Postpartum Women's Total Cultures and Beliefs & Total Knowledge & Total Self-Care Practice Post Self-Care Program (N= 67).

	Total cultures and beliefs		Total self-care Practice	
	r	P-value	r	P-value
Total self-care Practice	0.482	<0.001**		
Total Knowledge	0.566	<0.001**	0.926	<0.001**

$P \text{ value} < 0.001$  \*\* HS

**Results:**

**Table (1)** shows that the postpartum women in the age of  $20 \geq 30$  years representing 47.8% with a mean  $\pm$  SD age  $24.8 \pm 5.61$  years, 91% of them were married, 71.6% of studied sample are secondary education. Regarding to occupation the same table reports that 76.1% of postpartum women were house wife and had equal or more than five family numbers while 55.2% of husband works were free work. This table also shows that 47.8% of studied sample had  $3000 \geq 4000$  L.E/month per capita and the mean  $\pm$  SD monthly family salary  $3161.19 \pm 699.99$ . In relation to family income 70.1% were not enough.

**Figure (1):** reveals that 70.1% of postpartum women had negative cultures and beliefs regarding postpartum self-care.

**Figure (2):** discusses that 22.4% of postpartum women had satisfactory knowledge regarding postpartum self-care in preprogram meanwhile in post program raised to 71.6% with there is highly statistically significance difference P value  $< 0.001$ .

**Figure (3):** describes that According to total postpartum self-care practice of postpartum women, in preprogram 17.9% of them had adequate self-care practice while improved to 65.7.6% in post program. Difference observed highly statistically significance P value  $< 0.001$ .

**Figure (4):** demonstrates that 32.8% of postpartum women had good sanitary home environment.

**Table (2):** illustrates that there is highly statistically significance between postpartum women's total knowledge & their total self-care practice P value  $< 0.001$ .

**Table (3):** reflects that there was highly correlation between total cultures and beliefs, total practice and total knowledge P value  $< 0.001$ .

#### 4. DISCUSSION

Postpartum time is a critical physiological adaptation phase and therefore has a meaningful impact on the future of maternal and neonatal health. Its importance is also due to the risk level of mortality and morbidity in this period. In the postpartum period, the mother is faced with many physical and emotional challenges. She also should learn about the infant-care behaviors in addition to her health problems. Hence, the mother needs more social, educational, and medical support (Seyedeh, et al. 2014).

The findings of this study reported that the mean age of postpartum women were  $24.8 \pm 5.61$  years, less than fifty of them were aged  $20 \geq 30$  years old and had  $3000 \geq 4000$  L.E monthly family salary (equivalent to approximately 164  $\geq 219$  US dollars), more than one quarter were aged  $\leq 20$  years old, less than three quarter were secondary education, approximately three quarter were house wife, more than half of husband work were free work, and less than one third had enough family income (Table 1).

These findings are opposite of the study conducted about the relationships among postpartum fatigue, depressive mood, self-care agency, and self-care action of first-time mothers in Bangladesh by Khatun, et al. (2018), who revealed that the mean age of postpartum women were  $22.40 \pm 3.98$  year, 64.5% were 20 to 29 years old, 47.6% had secondary school, 90.3% were housewives, 41.1% were of low in-come and 88.7% were less than 20,000 Bangladeshi Taka (equivalent to approximately 280 US dollars).

The present results are in disagreement with the study conducted about enhancement of mother's self-care practices for relieving minor discomfort during postpartum period in Egypt by Abd Elrazek (2013), who reported that 67.5% of studied sample aged from 20 to 30, 27.5% had secondary education and 83.5% were house wife. Also, Hamed, et al. (2018), who conducted the study in Egypt about Egyptian status of continuum of care for maternal, newborn, and child health: Sohag Governorate as an example, are inconsistent with these findings, they reported that 24.5% of studied sample were  $< 20$  years old, 16% secondary education, 69.7% not working and 31.8% of them were low socioeconomic status.

(Figure 1), reflected that less than three quarter had negative cultures and beliefs regarding postpartum self-care. These findings may due to the highest rates for illiteracy in Lower Egypt governorates were 32.9% in Beheira governorate which effect on cultures and beliefs of studied sample. Also, These findings make it imperative that appropriate knowledge

about cultural values are included in the education of midwives, nurses and other health care professionals to increase their cultural awareness and their possibilities to provide culturally congruent care.

These findings are on the opposite of the study conducted in Bengaluru by **Lalitha (2016)**, who investigated beliefs and practices of women related to maternal care and newborn care in selected areas of rural Bengaluru, the researcher mentioned that the overall classification of women's beliefs revealed that 64% of the rural women had positive beliefs as compared to 36% who had negative beliefs on maternal care and newborn care. This indicates the importance of taking into account traditional belief when assessing and managing mothers in maternal and child health services, which is not yet emphasized in the standard care provided by the country's health services.

According to total knowledge of postpartum self-care (**Figure 2**), discussed that more than one fifth of postpartum women had satisfactory knowledge in preprogram implementation meanwhile in post program raised to less than three quarter with there was highly statistical difference significance P value < 0.001. **Asgharnia, et al. (2015)**, who assessed women's knowledge regarding postpartum complications and cares in Iran; concluded that an evaluation of their knowledge about postpartum care showed that 5.7% of them had poor knowledge and suggested that increasing knowledge levels by means of holding different classes and counseling sessions and also continuous home visiting of the mothers which can help them to reach this goal.

**Moumita, et al. (2018)**, who studied assessment of knowledge regarding post natal care among antenatal mothers in India; stated that awareness program is required to improve maternal knowledge on different aspects of postnatal care. So that further studies should be conducted to make more clear views, to plan for future on reproductive rights and to utilize the reproductive health services by people.

**Figure (3)** described that according to total postpartum self-care practice of postpartum women, in preprogram less than one fifth of them had adequate self-care practice while improved to approximately two third in post program. Difference observed highly statistically significance P value < 0.001. **Pradan & Rani (2018)**, who studied knowledge and practice on selected aspects of postnatal care among postnatal mothers, indicated that 8.34% of mothers had adequate practices on selected aspects of postnatal care.

On the other hand **Abdul Ghani & Salehudin (2018)**, who investigated traditional belief and practice on postpartum recovery among mothers in east coast of peninsular Malaysia; revealed that the good postpartum care practices should be encouraged among mothers particularly those that can reduce the complications during confinement. Hence, appropriate postpartum practice lead to the reduction of postpartum complications which can indirectly reduce the number of deaths among the mothers to achieve goal of sustainable development goals aim to decrease global maternal mortality rate to less than 70/100.000 live birth by 2030.

According to postpartum women's home environment (**Figure 4**), reflected that approximately two third of postpartum women had good sanitary home environment. **Esther, et al. (2014)**, who studied impact of home environment measurements on postpartum rural mother and their newborn health in Nigeria, mentioned that 27.6% of rural postpartum women had good home environment. This result suggests that the post women rural environment may have played a more important role during postpartum period in promoting mothers and their newborn health.

According to **Built Environment Deprivation Indicator (2016)**, in El-Beheira governorate in which our study was conducted, 9.2% of its population has durable housing, 8.3% of them have safe water and 38% of them have improved sanitation. This data showed that this governorate requires governmental efforts to improve its environmental sanitation which help in improving population health and decrease morbidity especially in its rural areas

Related to association between post postpartum women's total knowledge & their total self-care practice post self-care program, (**Table 2**), mentioned that there is highly statistically significance P value < 0.001. This result is in the same line with **Pradan & Rani (2018)**, who explained that there was a positive correlation between level of knowledge and practice of postnatal mothers regarding selected aspects of postnatal care. **Muthulakshmi (2016)**, who assessed the knowledge and practice on selected aspects of postnatal care among primi mothers in Aravindan Hospital, Coimbatore, reflected that there was a positive correlation between knowledge and practice of postnatal mothers regarding selected aspects of postnatal care.

This result reflected that more effort is required for improving postpartum women knowledge which in turn improve their self-care practice and reduce morbidity and mortality rate among mothers and their infant and to help in achieving goal 3 & 4 of sustainable development goals which concerning with reduce morbidity and mortality for mothers and infant.

In our study (**Table 3**), reflected that there was highly correlation between total cultures and beliefs, total practice and total knowledge P value < 0.001. This result also explained by a study in India cultural beliefs and practices among postnatal mothers in selected rural areas Tirupati by **Bhuvanewari & Swarna (2015)**, who reflected that there was positive correlation between knowledge, practices and beliefs and culture (P < 0.01). Hence, CHN have a vital role in improving negative cultures and beliefs in rural area for families to improve their knowledge regarding postpartum period and maternal and neonate care.

#### Conclusion

#### *On the light of the results and answers on research hypothesis the study was concluded that:*

There was a highly statistically significant difference between pre and post program implementation related to postpartum women's knowledge and self-care practice related to postpartum self-care in rural areas. Less than three quarter of postpartum women had negative total cultures and beliefs regarding postpartum self-care which include nutrition, exercise, personal hygiene, breast feeding, sexual activity and baby care. More than two fifth of postpartum women had satisfactory knowledge toward total postpartum self-care in preprogram implementation while in post program less than three quarter of them had satisfactory knowledge with a highly statistically significant difference between pre & post program implementation at P value < 0.001. The total score level for self-care practice revealed that the majority of study sample unaware of adequate self-care practice preprogram implementation. On the other hand post program implementation approximately two third reported adequate self-care practice pattern with a highly statistically significant difference at P value < 0.001. In conclusion, self-care program reported remarkable improvement in postpartum women's knowledge and self-care practice toward postpartum self-care in rural areas.

#### *The findings of this study highlight the following recommendations:*

1. Continuity of health education programs about cultural values for nurses and other health care professionals in rural areas to increase their cultural awareness and their possibilities to provide culturally congruent care.
2. Health educational package on postpartum self-care should be given on discharge plan and should written in clear, simplified and comprehensive explanation about postpartum issues supported by drawing pamphlets especially for illiterate one to raise the awareness of postpartum women about these issues especially in rural communities of Egypt.
3. Raising public awareness through home visit and educational campaigns about postpartum self-care especially in rural areas.
4. Policy makers must build up a national strategy for enhancement health services provided about perinatal care into family centers especially in rural areas through coordination with the related ministries of higher education and scientific research and youth.

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