Effect of Educational Program on Mothers ' Knowledge and Perception about Sudden Infant Death Syndrome Based on Health Belief Model

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Abstract:*Description: Sudden Infant Death Syndrome (SIDS), owing to unsafe sleeping habits, extends in infats life stage.Mothers are really the main caregiver ; if they have sufficient knowledge and perception of the Suddn Infant Death Syndrome (SIDS) based on the Health Belief Model (HBM) through an educational program.*
Aim: *to assess the effect of educational program on knowledge and perception about Sudden Infant Death Syndrome based on Health Belief Model.*
Design: *Quasi-experimental (pretest–posttest) design was utilized to conduct this study.*
Setting: *it was performed on a total of 50 mothers attending the Western Maternal and Child Health Center located in Minia City next to El-Chest's disease hospital.*
Tools: *data were collected by utilizing three tools. Tools: three tools were used to collect data. Tool I: interview sheet structure was split into two parts. Part I: Socio-demographic questionnaire for obtaining studded mother-related data, Part II: knowledge of mothers about sudden infant death syndrome. Tool II: SIDS health belief questionnaire: use the Champion's Health Belief Model. Tool III: The Arabic Education Program.*
Results: *significant improvement after post / test in the knowledge and perception of mothers.*
Conclusion: *there was a remarkable improvement in the knowledge and perception of mothers after the program was implemented.*
Recommendations: *a program developed should be applied and repeated in the same study setting and adopted with necessary modifications in other similar settings, provision of continuation*
Keywords: *Knowledge, Perception, Sudden Infant Death Syndrome, Health Belief Model, Mothers.*

I. Introduction

During this stage of life, infants are newborns between one month and one year of age ; the infant is at the highest risk of dying due to immature bodies and unsafe sleeping behaviours.Providing proper care and instruction during this span is very vital, both to increase the odds of subsistence of the infant and to laying the foundations for a healthy life.Sudden Infant Death Syndrome (SIDS) spreads through unsafe sleeping practices in this stage of life.

This is considered a critical period because the baby's sleep awakening ability is not yet mature **(Kinney and Thach, 2009).**

Sudden Infant Death Syndrome (SIDS) is defined as the abrupt, unexpected death of an infant under the age of 1 year that can not be stated in spite of a thorough investigation, including complete autopsy, death scene examination, clinical and social history review.Infants aged 1–12 months, SIDS is the leading cause of death. SIDS can occur   in infants under the   age of 16 months, but the peak incidence is between 2 and 4 months. **(Moon, 2011 & Willinger and James, 2013).**

Sudden Infant Death Syndrome (SIDS) remains to be a phenomenon of unknown cause, while it is not possible to predict which infant will die from SIDS, certain factors such as premature birth,
prone sleep, age, second-hand smoke, race, low birth weight, male sex, tobacco smoke exposure, family history and inadequate prenatal care increase the risk of occurrence. **(Willinger and James, 2013).**

To increase the risk of SIDS, sleeping environmental factors items in a baby's crib and his or her sleeping position can combine with physical problems of a baby.Examples include: sleeping on the stomach or side babies in those sleeping positions may have more difficulty breathing than those on their backs, sleeping on a soft surface facing a fluffy comforter, a soft mattress.If a baby sleeps in the same room as his or her parents, the risk increases if the baby sleeps in the same bed with his or her parents or siblings or pets and the risk of overheating while sleeping can increase the risk of SIDS (McMullen, 2013).

In parental education, nurses and other medical staff play critical roles; they act as role models and educators. They have a duty to provide parents and caregivers with guidance and education on the importance of safe sleeping practices. In addition, it has been shown that the way infants are placed in the hospital for sleep has a strong influence on parental practice at home. Reducing SIDS   strategies are typically introduced to parents by bedside nurses as part of routine newborn care **(Gelfer, et al., 2013).**

The most effective way to reduce the risk of SIDS is to put an infants under the age of one on their back to sleep during their sleep, other measures include a firm mattress separate from but close to caregivers, no loose bedding, a relatively cool sleeping environment, using a pacifier and avoiding tobacco smoke exposure. It can also be preventative for breastfeeding and immunization **(Consumer Product Safety Commission, 2014).**

The parents ' level of knowledge and beliefs about safe sleep practices can play a significant role in reducing SIDs. The Health Belief Model (HBM) was developed to understand why some people participate in activities related to health prevention and health promotion while others do not. It revolves around the perceived notions of an individual about a disease and how it contributes to their implementing behaviors that protect against the disease or disease. The HBM's primary objective is to predict why people are taking action to address a health issue or condition with a central focus on the subjective perception of an individual. Its original structures include: susceptibility perceived, severity perceived, perceived benefits and perceived barriers and indications of action as a variable within the model **(Glanz, et al., 2008 &** Cao**, et al., 2014)**.

Perceived predisposition is a structure that refers to the perceived vulnerability of an individual to a particular condition of health or how easily they can contract a disease. Perceived severity refers to how serious and damaging an individual considers a condition of health, including the effects and symptoms of that condition of health. An individual may therefore have an increased perception

An individual may have an increased purported proneness to common cold but a lowered purported sev erity because common cold usually has mild symptoms that are not as detrimental and subside rather quickly ap parent proneness and perceived severity work together to create perceived threat that affects an individual's abili ty to engage in protective behaviors against a common cold. **(Glanz, et al., 2008 & Cao, et al., 2014).**

Advantages are those benefits or valued things a person receives from participating in activities and behaviors that either reduce risk or deter the condition of health and act as an opportunity. Purported obstacles are the potentially negative elements of participating in a activity or behavior that reduces the risk or prohibits a condition of health such as: discomfort, time consuming, costly **(Glanz, et al., 2008 & Cao, et al., 2014).**

Signals for intervention are those triggers that can pull a person into preventive behaviors such as a campaign for awareness, advice from a medical professional or a family member's request. The last building, self-efficacy, refers to the purported ability of the individual to perform successfully the actions and behaviors necessary to prevent or reduce the chances of the health condition. Changes in the HBM include variables such as demographics, psychological and structural variables that are thought to influence individual perceptions **(Reed, 2009).**

The SIDS Task Force of the American Academy of Pediatrics (AAP) published an development of suggestions for a safe sleeping environment for infants that was supported by Centers for Disease Control and Prevention (CDC). In this document, the AAP outlines and describes risk factors beyond position of sleep and makes its official recommendations in 2011, also the AAP made modification for these recommendations in 2016 **(SIDS and Other Sleep-Related Infant Deaths, 2016).**

In 2012, the National Institute of Child Health and Human Development launched the Safe to sleep campaign to revamp safe sleep practices. Its objectives are to integrate new and developed research based on safe child sleep and SIDS reduction strategies and to reach all ethnically sensitive communities **(Chu, 2015).**

The back-to-sleep campaign also attacks education in other areas to avoid other factors such as unsafe bed-sharing, tobacco smoke exposure and extra baby bed blankets. The biggest concern with "Back to Sleep" promotion is to alleviate the fears and questions of parents about putting their babies on their backs to sleep. The campaign aims to provide parents, grandparents and caregivers of all backgrounds with sufficient informati on to enable them to understand how important it is to put babies on their backs **(Okpere and Opara, 2014).**

Significance of the study:

To decrease the incidence of SIDS a change of sleep position to supine position has to be recommended. Poor socioeconomic conditions and ignorance due to safe sleeping practices are common in developing countries, and yet there is a shortage of data from our national statistics, so the precise incidence of SIDS among Egyptian infants is not well known since autopsy is usually not widely performed **(Ibeziako, 2009).** To decrease infant mortality, it is therefore very important to develop and apply educational program for mother knowledge and perception of sudden infant death syndrome.

The aim of the study was:

To assess the effect of educational program on knowledge and perception about Sudden Infant Death Syndrome based on Health Belief Model.

II. Subjects and Method

Research design: For the purpose of this study, quasi-experimental (Pretest-posttest) research design was used.

Setting: Data was collected at the Western Maternal and Child Health Center located in Minia City next to El-Chest's disease hospital.

Sample: Random sample of 50 mothers attending the Western Maternal and Child Health Center located next to El-Chest Disease Hospital, the study was conducted between the beginning of January 2018 to the end of April 2018. **Inclusion criteria include:** Mothers have normal baby aged from 0–2 months and mothers who willing to participate in program. **Exclusion criteria inculde:** Mothers have newborn infant baby with chronic diseases or any congenital anomalies and mothers who having any known psychological disorders or mental retardation.

Data collection tools:

In this study, three tools were used to collect the data needed for this study.

Tool I: Pre-designed questionnaire sheet for mothers as pre /post designed by the researcher to evaluate the mothers ' knowledge and perception of sudden infant death syndrome after reviewing the related literature. The following parts were included:

Part I: socio-demographics characteristics: as mothers age, qualification, number of children, family income

Part II: mothers' knowledge about sudden infant death syndrome was adopted from **American Academy of Pediatrics (AAP), (2011).** The questions were used in this format; the multiple – choice question. Mothers' knowledge about sudden infant death syndrome include: Items about the meaning of sudden infant death syndrome, risk factors & preventive measures of sudden infant death syndrome, and, strategies to reduce the risk of SIDS which includes back to sleep, room-sharing, keep soft objects and loose bedding away from the infant's sleep area, consider offering a pacifier at naptime and bedtime, avoid second hand smoking exposure, avoid overheating, adequate prenatal care, immunization and breast feeding. **Scoring of mothers knowledge:** a score of two was given for correct answer; one for incorrect answer and zero for don't known. These scores will be converted into a percent score. The mothers' knowledge was considered satisfactory if the percent score is 50% or more and unsatisfactory if less than 50 %.

Tool II: SIDS health belief questionnaire: using Champion's Health Belief Model (HBM) constructs instrument as a tool for development of the questionnaire with Health Belief Model items that are specific to SIDS **(Champion, 1984).** Health Belief Model (HBM) includes: 25-items instrument that measures perceived susceptibility (five items), perceived severity (five items), perceived benefits (four items), perceived barriers (six items) and cues to action (five items). The questions were measured using a 5-point Likert scale ranging from strongly agree, agree, unsure, disagree and strongly disagree. Two items for cues to action had yes or no options. Scoring of SIDS health belief questionnaire: Each response was scored one through five, thus "strongly agree" is coded as one, "agree" is coded as two, "unsure" is coded as three, "disagree" is coded as four and "strongly disagree" is coded as five.

Tool III: The researcher designed an educational program in Arabic form of an educational brochure based on the mother's actual need assessment. It was supplemented with information on the Western Maternal and Child Health Center located next to El-Chest Disease Hospital based on review of relevant literature (nursing textbooks, guidelines, journals and internet resources) on SIDS.

Validity and reliability

A 5 panel of experts in pediatric nursing tested the tool for content validity and the necessary modifications will be made. The study tools were reliable by using the alpha coefficient test by Cronbach.

Pilot study: was carried out on (10 %) 5 mothers who fulfilled the criteria of the study to evaluate the applicability and clarity & completeness of the study tools and to determine the time required to fill each tool. According to the results of pilot, the needed modification, omissions and/or additions were done. Analysis of pilot study refilled the modification were done and the mothers excluded from the pilot study. A jury acceptance of the final forms was secured before actual study work and the reliability was assessed in a pilot study by measuring their internal consistency using Cronbach's alpha coefficient method.

Ethical consideration:
- The oral consent was obtained from all mothers to participate in the study and the nature and purpose of the study were explained to them.
- The researchers initially introduced themselves to all optional subjects and they were assured that the collected data would be absolutely confidential.
- They were informed that participation is voluntary and that they could withdraw at any time of the study.

Field work

The field work was carried out through a period of 4 months starting from January 2018 to April 2018; the time required for the program implementation was 4 months. Mothers was divided into 10 small groups each group has 5 mothers. There was 3 sessions for each group; each session was variable and ranged between 30-60 minutes. Each participant gets a copy of the brochure that included all the training materials. Giving praise and/or recognition to the interested mothers were used for motivation during program implementation.

The actual work started by meeting the mothers in pediatric ward at Western Maternal and Child health center that located beside of El-Chest Disease Hospital, the researcher first introduced herself to them and gave them a complete back ground about the study, it's aim, then the pre-test format, was distributed in order to collect the required data. The researcher was available for more clarification whenever needed. Then, the content of the program was designed based on actual educational need assessment of the studied mothers. Consequently, the subject content has been sequenced through theoretical sessions. The session 1, content: personal interviewing of the studied mothers, the aim, duration of the study explained by the researcher through direct personal communication, mother class and discussion and pre-test. The session 2, content: definition, risk factor and preventive measures and strategies to reduce the risk of SIDS. The session 3, content: revision. Methods of teaching were through mother class, group discussion. At the last, post-test format was distributed in order to collect the required data.

Limitations of the study:

Difficult collect mothers to attend the program**.**

Statistical analysis:

Data entry was done using compatible personal computer. The statistically analysis was done using SPSS-20 statistical software package. The content of each tool was coded, categorized and then analyzed. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables and means and standard deviations for quantitative variables. Quantitative continuous data were compared by using student T-test in case of comparisons between the mean scores of the two studied groups. The qualitative studied variables were compared using Chi-square test. Pearson correlation analysis used for assessment of the inter-relationships between the nurses' knowledge and practices about SIDS. Statistical significance used at P. value <0.05.

Theoretical Framework:

The Health Belief Model is an appropriate model to serve as a framework for SIDS. It has previously been used effectively to promote behavior changes for health promotion and is appropriate for the application of SIDS. The current study used the HBM to develop an educational program in order to promote maternal knowledge and perception about risk factor for SIDS **(Cao, et al., 2014).**
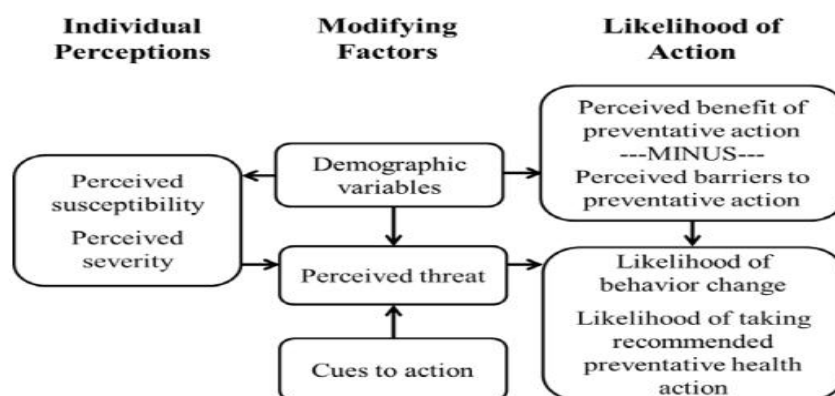
Health Belief Model. (*Recreated from Becker & Maiman, 1975.*)
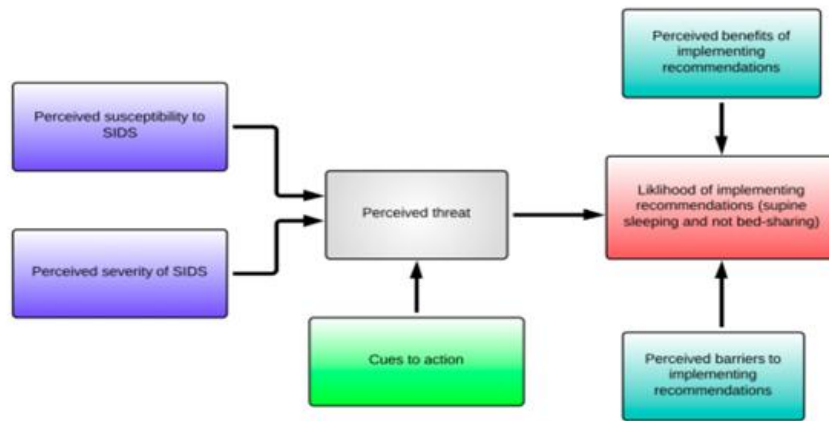
SIDS and the Health Belief Model

III. Results

Table (1): socio-demographic characteristics of studied mothers' about SIDS based on HBM (n= 50)

Items	No	%
1. Age in years of mothers:		
- Under 20 years	9	18
- From 21 : 25 years	10	20
- From 26:30 years	25	50
- More than 30 years	6	12
Mean ± SD	28.3 ± 9.9	
2. Formal education		
- Illiterate	7	14
- Read and write	18	36
- Secondary school	18	36
- Higher secondary or more	7	14
3. Number of children :		
- From 1- 3children	17	34
- From 4-6 children	30	60
- More than 6 children	3	6
Monthly income		
- Adequate	0	0
- In-adequate	50	100
Previous attendance of training courses:		
- **Yes**	0	0
- **No**	50	100

Table (1) this table shows that, 50% of mother's age from 26-30 years, with mean age 28.3±9.9. Their formal education revealed that, mothers can read and write equal mothers have secondary school (36%). 60% of mothers have from 4-6 children. In addition monthly income; 100% of mothers get in-adequate income. While, (100%) of mothers no previous attendance training courses about SIDS.

Table (2): The mean scores of the mothers' knowledge related to SIDS pre/post educational program n= 50

Items	Knowledge		T. test	*P.* value
	Pre Mean ± SD	Post Mean ± SD		
Meaning of SIDS	2.9±1.8	4.7±1.7	4.45	.60
Risk factors of SIDS	2.1±1.4	5.8±2.5	7.86	.04*
Preventive measures of SIDS	2.7±1.6	5.1±2.1	7.35	.05*
Strategies to reduce the risk of SIDS	3.5±1.96	7.2±2.1	11.75	.01*
Total scores of mothers' knowledge about SIDS.	9.2±4.26	21.8±7.5	21.97	.001*

*= Significant

Table (2) describes the mean score of mothers' knowledge about SIDS pre/post educational program. The scores of satisfactory knowledge among mothers' were generally low in pre/ test and the scores have all increased at the post program phase reached statistical significant difference except meaning of SIDS (*P*.0.06).

Table (3): The distribution of the mothers difference in SIDS belief sub-scale in pre/post educational program
n= 50

SIDS belief sub-scale	SIDS belief sub-scale		X^2	P. value
	Pre- test N (%)	Post- test N (%)		
Perceived barriers:				
⬇ Strongly Agree	5 (10)	6 (12)	0.55	0.04*
⬇ Agree	10 (20)	36 (72)		
⬇ Unsure	27 (54)	8 (16)		
⬇ Disagree	8 (16)	0 (0)		
⬇ Strongly Disagree	0 (0)	0 (0)		
Perceived severity:			0.77	0.02*
⬇ Strongly Agree	27 (54)	16 (32)		
⬇ Agree	13 (26)	34 (68)		
⬇ Unsure	10 (20)	0		
⬇ Disagree	0 (0)	0		
⬇ Strongly Disagree	0 (0)	0		
Perceived susceptibility:			0.88	0.02*
⬇ Strongly Agree	30 (60)	0 (0)		
⬇ Agree	17 (34)	16 (32)		
⬇ Unsure	3 (6)	0 (0)		
⬇ Disagree	0 (0)	18 (36)		
⬇ Strongly Disagree	0 (0)	16 (32)		
Perceived benefits:			0.55	0.04*
⬇ Strongly Agree	10 (20)	30 (60)		
⬇ Agree	12 (24)	16 (32)		
⬇ Unsure	25 (50)	4 (8)		
⬇ Disagree	3 (6)	0 (0)		
⬇ Strongly Disagree	0 (0)	0 (0)		

*= Significant

Table (3): presents the distribution of the mothers difference in SIDS belief sub-scale in pre/post educational program**.** 54% in pre-test unsure while 72% agree in post-test program of participants about perceived barriers with overall statements. 54% in pre-test strongly agree while, 68% agree in post test program of participants about perceived severity with overall statements. 60% strongly agree in pre-test while 36% disagree in post-test program of participants about perceived susceptibility with overall statements. 50% unsure in pre-test while, 60% strongly agree in post- test program of participants about perceived benefits. The distribution of the mothers SIDS belief sub-scale in pre/post educational program reached statistical significant difference was, at ($P. > 0.05$).

Table (4): The relation between the studied sample knowledge about SIDS and their characteristics n= 50

Items	Knowledge				X^2	*P*. value
	Satisfactory		Unsatisfactory			
	No	%	No	%		
Age in years:						
- Under 20 years	3	6	6	12	0.65	0.01*
- From 21 : 25 years	6	12	4	8		
- From 26:30 years	15	30	10	20		
- More than 30 years	3	6	3	6		
Formal education						
- Illiterate	2	4	5	10	0.27	0.01*
- Read and write	5	10	13	26		
- Secondary school	7	14	11	22		
- Higher secondary or more	4	8	3	6		
Number of children :						
- From 1- 3children	4	8	13	26	0.06	0.003*
- From 4-6 children	12	24	18	36		
- More than 6 children	3	6	0	0		
Monthly income						
- Adequate	0	0	0	0	0.40	0.02*
- In-adequate	35	70	15	30		
Previous attendance of training courses:						
- Yes	0	0	0	0	0.55	0.04*
- No	38	76	12	24		

*= Significant

Table (4) presents the relation between the studied sample knowledge about SIDS and their characteristics. It is evident that there is statistically significant relation with the mothers' age (*P.* 0.01), formal education (P. 0.01), and number of children (P. 0.03), monthly income (P. 0.02) previous attendance of training courses and their knowledge (P. 0.04). It is evident that higher percentages of satisfactory knowledge were observed among mothers' age from 26 years to 30 years old (30%), the mothers' have Secondary School (14%) had satisfactory knowledge, satisfactory knowledge of in-adequate monthly income was (70%) compared to those who had adequate monthly income (0%). While (76%) of mothers who had no previous attendance training courses have satisfactory knowledge.

Table (5): Difference in SIDS Belief Sub-scale scores by their monthly income n= 50

SIDS beliefs	Monthly income		T. test	P. value
	Adequate Mean ± SD	In-adequate Mean ± SD		
Perceived barriers	2.23±1.6	4. 5±2.4	6.05	0.06
Perceived severity	2.40±2.5	5.7±2.4	5.76	0.02*
Perceived susceptibility	2.43±1.4	5.6±2.3	5.35	0.04*
Perceived benefits	2.33±1.6	6.5±2.3	4.75	0.02*
Total Score	8.38±5.3	21.8±8.5	25.66	0.04*

*= Significant

Table (5) describes the mean score of mothers' difference in SIDS Belief Sub-scale scores by their monthly income. The differences of SIDS beliefs among mothers' have adequate and in-adequate monthly income was reached statistical significant difference of all SIDS beliefs, except for perceived barriers (P. 0.06).

Table (6): The correlation between the total scores of mothers knowledge about SIDS and SIDS Belief Sub-scale scores n= 50

SIDS beliefs	Knowledge about SIDS	
	Correlation Coefficient (r)	P. value
Perceived barriers	0.80	0.01*
Perceived severity	0.89	0.02*
Perceived susceptibility	0.87	0.04*
Perceived benefits	0.90	0.02*

*=Significant

Table (6): this table illustrates the correlation between the total scores of mothers' knowledge about SIDS and SIDS Belief Sub-scale scores. It is evident that the highest strong positive statistical significant correlation was found between the total scores of knowledge about SIDS and SIDS beliefs: perceived barriers, severity, susceptibility, and benefits (p. 0.01, 0.02, 0.04 and 0.02); respectively has strong positive statistical significant correlation were (r=0.80, 0.89, 0.87 and 0.90).

Table (7): The correlation between the total scores of mothers knowledge in pre-test and post-test about SIDS in the program n= 50

Pre-test	Post-test	
	Correlation Coefficient (r)	P. value
Knowledge	0.90	0.001*

*=Significant

Table (7): this table shows the correlation between the total scores of mothers knowledge in pre-test and post-test about SIDS. It is evident that the highest strong positive statistical significant correlation was found between the total scores of knowledge in pre-test of mothers about SIDS has strong positive statistical significant correlation were in the post-test program (r=0.90).

IV. Discussion

Sudden Infant Death Syndrome (SIDS) is defined as the sudden, unforeseen death of an infant under the age of 1 year. This infant is at increased risk of SIDS physical factors, including: prone or side sleep, bed sharing, overheating, soft or loose bedding, bed sharing, sleeping in inappropriate bedding, such as an adult bed, couch or car seat, respiratory tract infection, and exposure to secondhand smoke postnatal **(Trachtenberget al., 2012)**

The aim of the study was to assess the effect of educational program on knowledge and perception about Sudden Infant Death Syndrome based on Health Belief Model.

Half of mother's age from 26-30 years in the present study, their formal education revealed that there is secondary school for mothers to read and write equal mothers; most mothers have 4-6 children. In addition, monthly income; inadequate income for 100 percent of mothers. Furthermore, a higher proportion of mothers

had no previous training courses in participation **Harris-Mims and Jameelah, (2018)** who state that the most women's age from 31-35, had at least a high school education and stated they had children with the majority having one child.

In the present study the mothers who illiterate in education level had low scores of knowledge about SIDS, is in agreement with **Hunt and Hauck, (2006); Moon and Fu, (2012)** who stat that the result is also consistent with data from a previous study that demonstrated that women with less education are associated with increased risk of SIDS.

In the present study the knowledge of mothers about meaning, risk factors, preventive measures of SIDS increase after application of educational program, is in congruence with **Noreen, (2016)** who stat that, his study demonstrated that the educational intervention resulted in improvements in the knowledge and self-reported practices and positive behavioral intent. Marked improvement in knowledge in all of the questions after education was delivered these points to the need for effective education, which must be frequent and consistent.

In the present study the relation between the studied sample knowledge about SIDS and mothers age there is statistically significant (*P.* 0.01), and there was the highest strong positive statistical significant correlation between the total scores of knowledge about SIDS and SIDS beliefs: perceived barriers, severity, susceptibility, and benefits (p. 0.01, 0.02, 0.04 and 0.02); respectively has strong positive statistical significant correlation were (r=0.80, 0.89, 0.87 and 0.90), **Harris-Mims and Jameelah, (2018)** who stat that, Pearson's correlation coefficient indicated no relationship between participant age and average SIDS beliefs, r (173) = .06, p= .412. Examination of the SIDS beliefs sub-scales did reveal a significant, positive relationship between age and perceived severity. There was also a significant relationship between level of education and perceived barriers.

In the present study, the scores of satisfactory knowledge about risk factors of SIDS, preventive measures of SIDS, and strategies for reducing the risk of SIDS among mothers were generally low in pre-test and the scores all increased statistically significantly during the post-program phase, **Moon et al., (2010),** Participants also felt that SIDS was a random act of God's will and could not be prevented and that low levels of knowledge about certain behaviors identified as risk factors for SIDS such as pre-test bed sharing and participants ' knowledge of risk factors and preventive measures for SIDS improved after application of the education program. **Northington, et al., (2011),** His study showed that educational intervention led to improvements in knowledge and self-reported practices and positive behavioral intent, although mothers were familiar with co-sleeping recommendations and practices that included blankets, pillows and soft bedding, many ignored these recommendations and continued to sleep with their infants because they felt their infants.

To better understand African-American women's perceptions and beliefs about SIDS, more studies are needed, including younger and older African-American women, so that health professionals can better understand how these influence children's sleeping and bed sharing. **(Chung Park, 2012).**

V. Conclusion and Recommendations

the present study revealed that after the implementation of the program there was remarkable improvement of mothers' knowledge and perception. Based on results current study it was recommended that, a developed educational program should be applied and repeat again in the same study setting and adopted in other similar settings with required modifications, workshop to mothers who to deal their children to reduces sudden infant death syndrome or prevention

References

[1]. American Academy of Pediatrics (AAP)., (2011): SIDS and other sleep-related infant deaths: Expansion of recommendations for a safe infant sleeping environment. Pediatrics, 2011, 125(5), 1030-1039. Safe to Sleep® Public Education Campaign

[2]. Cao ZJ., Chen Y., & Wang SM., (2014): Health belief model based evaluation of school health education program for injury prevention among high school students in the community context. BMC Public Health, 14(26), 1-8. Doi: 10.1186/1471-2458-14-26.

[3]. Champion V., (1984): Instrument development for health belief model constructs. Advances in Nursing Science, 73-87, 1984.

[4]. Chu T., Hackett M., & Kaur N., (2015): Exploring Caregiver Behavior and Knowledge About Unsafe Sleep Surfaces in Infant Injury Death Cases, Health Education & Behavior. 42(3), 293-301 9.

[5]. Chung-Park, M., (2012): Knowledge, opinions and practices of infant sleep positions among parents. Military Medicine, 177(2), 235-239

[6]. Consumer Product Safety Commission., (2014): Deaths prompt CPSC, FDA warning on infant sleep positioners. Washington, DC: Consumer Product Safety Commission. Retrieved from http://www.cpsc.gov/cpscpub/prerel/prhtml10/10358.

[7]. Gelfer P., Cameron R., Masters K., Kennedy KA., (2013): Integrating Back to sleep recommendations into neonatal ICU practice, Pediatrics. 131(4):e1264-70. doi: 10.1542 /peds. 2012-1857.

[8]. Glanz K., Rimer B., & Viswanath K., (2008): Health Behavior and Health Education: Theory, Research, and Practice. San Francisco, CA: Jossey-Bass.

[9]. Harris-Mims, Jameelah., (2018): Perceptions of Sudden Infant Death Syndrome among African American Women Living in SPA 6 of Los Angeles County. 16:45:06.

[10]. Hunt, C., & Hauck, F., (2006): Sudden infant death syndrome. Canadian Medical Association Journal, 174(13), 1861-1869.

[11]. Ibeziako NS., Ibekwe RC., Ibe BC. (2009): Infant sleeping environment in south-eastern Nigeria (sleeping place and sleeping position): a preliminary survey. J Trop Med. 283046.
[12]. Kinney HC, Thach BT. (2009): "The sudden infant death syndrome". N. Engl. J., 361 (8): 795–805
[13]. McMullen SL., (2013): Transitioning premature infants supine: State of the science. MCN, The American Journal of Maternal/Child Nursing. 38(1), 8-12.
[14]. Moon RY., (2011): Task Force on Sudden Infant Death Syndrome, SIDS and other sleep-related infant deaths: expansion of recommendations for a safe infant sleeping environment Pediatrics. 128 (5):1030-9. doi: 10.1542/peds.2011-2284.
[15]. Moon, R., & Fu, L., (2012): Sudden infant death syndrome: An update, 33(7), 314- 320.
[16]. Moon, R., Oden, R., Joyner, B., Ajao, T., (2010): Qualitative Analysis of Beliefs and Perceptions about Sudden Infant Death Syndrome in African-American Mothers: Implications for Safe Sleep Recommendations. Journal of Pediatrics, 157(1), 92-97.
[17]. Noreen R., Mulvanerty, M., (2016): Impact of Health Care Provider Education Related to Safe Sleep Practices on Care Delivery: pilot study Washington, D.C. November 18, 2016
[18]. Northington, L., Graham, J. & Fletcher, A., (2011): Assessing knowledge of Sudden Infant Death Syndrome among African American women in two Mississippi communities. Journal of Cultural Diversity.18(3), 95-100.
[19]. Okpere AN., Opara PI., (2014): Mothers' knowledge and practice of infant sleep position. Niger J Paediatr. 41(4):312–315.
[20]. Reed, P. & Shearer, N., (2009): Perspectives on Nursing Theory, Lippincott Williams & Wilkins. https://www.coursehero.com/file/p1kofut/32sample-size-calculation-The-sample-size-was-determined-using-Fisher-Exact/.
[21]. SIDS and Other Sleep-Related Infant Deaths (2016): Recommendations for a Safe Infant Sleeping Environment, Pediatrics, 138(5). doi:10.1542/peds.2016-2938
[22]. Trachtenberg, F., Haas, E., Kinney, H., Stanley, C., & Krous, H., (2012): Risk factor Changes for Sudden Infant Death Syndrome after Initiation of Back to Sleep Campaign. American Academy of Pediatrics. 129(4), 630-638.
[23]. Willinger, M., James L., (2013): Defining the sudden infant death syndrome (SIDS): National Institute of Child Health and Human Development https://www.cbsnews.com/ .../too-many-parents-put-babies-to-sleep-in-unsafe-position.