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ORIGINAL RESEARCH

Effectiveness of an educational Program on improving nurses' knowledge regarding Apgar score in Akre city

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ABSTRACT

Background: Newborns are tested shortly after birth to get their Apgar score. This assessment evaluates an infant's cardiac function, muscle tone and other essential characteristics to establish whether additional investigations or actions that can be considered as emergency procedures are needed.
Objectives: To assess the impact of the educational program in enhancing the knowledge of Apgar score among nurses.
Methodology: A cross-sectional interventional study was conducted with the selected nurses at General Hospital and the Pediatric and Maternity Hospital in Akre City in order to evaluate the effectiveness of the educational program for enhancing the knowledge of the Apgar score. Eighty nurse nurses, who made up the entire study population during the study period, made up the sample size. Participants were asked to complete a questionnaire, specially designed for the research, indicating their overall satisfaction. In the data analysis, statistical package for social sciences (SPSS) was used to analyze the results.
Results: This current study found out that, the overall mean knowledge degrees of the nurses rose 30 days after the program had been initiated; the enhancement is statistically significant.
Conclusion: A thorough training program significantly increased the nurses' understanding of the Apgar score.

Keywords: program, knowledge, Apgar score.

INTRODUCTION

Apgar is other standard scale that is employed in neonates to assess the state of a newborn baby. It also helps physicians plan, coordinate and oversee the resuscitation procedure, in the labor room. In 1952, the Apgar score was developed by Virginia Apgar, who was an anesthesiologist. Her goal was to quickly develop a "grading" system that would offer an impartial evaluation of the newborn resuscitation procedure. (Apgar 2015).

The Apgar score is a meant as a system to guide care providers in identifying if a baby needs help or resuscitation, based on its physical condition. The exergonic process is demonstrated by Ernest and others in a study done in 2019. Both the Apgar score and the Apgar assessment are determined by five parameters in which each parameter can range between just 0 and 1 which are, heart rate, respiratory effort, muscular tone, reflex irritability and colour. Now, the score is released at one- and five-minutes following delivery. For reporting the newborn infant's state and reaction to resuscitation, the Apgar score remains a useful abbreviation. (Pediatrics et al.,

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2006). Possible values of the ratings which can be assigned to each set of factors range from 0 to 10. The acme of infant assessment possible is 10 even though it is quite rare to see a child get that mark. This is because, until they warm up, the hands and feet of the majority of babies remain blue. When the newborn is tested on the exam their score is calculated and if it is seven or above the baby is deemed healthy.

The result of the assessment is not an indicator of your child's health status, should it be lower. It implies that your child may require prompt intervention to ease his/her breathing, including oxygen therapy or being instances where your child may require airway suctioning. Even babies in perfect health can score lower than typical, mainly in the initial minutes following delivery. (Mohamed Alsheekh and Mohamed Etawa, 2019). As per to the guideline by ILCOR, AHA and NRP the recommendations current are if the HR is still not seen after 10 minutes of initiating resuscitation and it has an Apgar of 0 then the resuscitation efforts may be terminated. A variety of studies have also established a link between sleep duration and A1C / HbA1c levels; shorter and longer sleep durations have both been and shown to increase A1c / HbA1c levels >1% compared to optimal sleep durations of more than 6 hours (Wyckoff et al . ,2015).

In theory, the center of every health care system is believed to be the nurses. In the postnatal period, nurses have a prime responsibility of being with the infant and evaluating him or her. As depicted in the literature review, engaging labor room nurses suggests that they lack adequate experience with newborns. According to Nishimwe, Weinberg, and Wilson (2022). Nurses are also believed to be the backbone of any health care system and organization. During the first few hours after birth, nurses also have a great responsibility for the proper identification of newborns, as well as their early assessment and care. It was suggested by earlier research that the labor room nurses lack adequate experience to enact care for the neonates. The following are the research questions of the study. Ayele et al. , (2022).

Important of research

The Apgar score is a significant overall index for assessing the child's condition during the delivery, and every nurse should know it.

AIMS OF THE STUDY

To assess the impact of the educational program in enhancing the knowledge of Apgar score among nurses.

Research Hypothesis

It is proposed that the execution of the given educational program will increase the level of nurses' knowledge regarding the Abgar score.

METHODOLOGY

Design of the study

A quasi-experimental design study was used to establish the effects of a fifteen minutes training session towards the increased knowledge of the nurses in the domain of measuring Apgar scores. The study was conducted on nurses in two facilities; Gulan General Hospital and Akre Pediatric and Maternity Hospital in Akre City, Iraq.

Setting of the study:

The current investigation is being carried out at the General Hospital and the Pediatric and Maternity Hospital in Akre City. between the first of March 2024 and the first of May 2024.

Selecting the sample

In the present work, the sample was formed of 80 randomly selected nurses, forty of which were divided into the intervention group. These are the employees of Akre Pediatric and Maternity Hospital. Another forty were within the group not receiving the nursing intervention training: the intervention group comprised hospital employees, and the control group comprised general hospital employees.

Constructing of the instrument

To fulfill the study's objectives, a structured questionnaire was used to collect data. Informed

consent and the study's goal were briefly stated at the beginning of the questionnaire, which was then divided into two sections:

Part I: Socio - demographic data sheet

The first section is called "demographics," and it has four items that are connected to sociodemographic traits: years of experience, years of education, gender, and age.

Part II: Construct questionnaire for knowledge

The researchers generated a questionnaire following an overview of adequate past and present literature and respired nurses' comprehending of the Apgar score. In the final draft, all items had three possible answers. When the incorrect response is zero the " correct answer" is two and the " incorrect answer" is one. Nurses comprehension of the Apgar score varied; than half rated as "poor " 50, to under 75 percent as fair and, over 75 percent as good.

Operational design:

Pilot study

Prior to the collection of data, ten nurses who were chosen and eliminated from the study sample as a whole participated in a pilot study. In order to meet the goal, we need to assess the instrument's content for appropriateness, relevance, clarity, and participant understanding. We also need to estimate the average time needed for data collection and decide whether any changes to the questionnaire items are needed.

Reliability test

To determine the link between the pre- and post-test scores, a knowledge questionnaire was given to ten nurses. A further fifteen days later, the same group received another administration of the questionnaire. Utilized was Pearson's Coefficient of Correlation. (r=0.86) was the outcome.

Data collection

In order to gather information for the knowledge component, a 20-minute in-person interview was done utilizing the knowledge questionnaire both before and after the instruction program.

Implementation of Instructional program:

Implementation phase

The educational intervention was held at the Akre Pediatric and Maternity Hospital in Akre City. Important information about the understanding and methodology of measuring Apgar scores was given. The intervention group comprised ten nurses each group and was further divided into four subgroups that formed the basis of the educational program. Each subgroup's nurses took turns attending the training sessions.

Ethical Considerations:

The main factor that guided the data collection process was ethical considerations. The informed consent form that the researcher has created needs to be signed by the nurses before the interview can start. The researcher explained to nurses the purpose of the study and the way in which they may participate before any data were collected. Furthermore, the Ethical Committee of the Directorate General of Health Directorate of Planning Scientific Research Division approved the study's local conduct.

Statistical analysis

After data collection, the social science statistical tool "SPSS 19" software was used to analyze the data. The data were presented as frequencies, percentages, chi square tests, and paired t-tests to help the reader understand the statistical significance of the various variables. When the p value is less than 0.05, a result is considered significant; when the p value is greater than 0.05, a result is considered non-momentous.

RESULTS

According to **Table 1**, forty nurses were assigned to the control group and forty to the intervention group. Regarding age, there were 27 nurses in the control group, which is equivalent to 67.5% in the 23-33 years range, while the 34 nurses in the intervention group equal 67.5% in the same range. In the control group 80% of the nurses were

female whereas, in the intervention group the percentage of nurses was slightly higher at 82.5%. Moreover 75% of the nurses, in the control group graduated from the institute whereas in the intervention group this figure rose to 80%. In terms of experience than half (52.5%) of the nurses in the intervention group had between 13 23 years of experience which was also true for a number of nurses, in the control group. When comparing the knowledge scores of nurses in the intervention group at (p. values ≤ 0.05) to those in the baseline test,

Table (2) shows that there were highly significant differences, whereas the table in the control group suggests no significant differences between the knowledge scores at (p. values ≤ 0.05) and after one month of testing.

Figure 1 demonstrates that there was no statistically significant difference in knowledge between the control group's baseline and one-month test scores at (p. value ≤0.05).

Figure 2 indicates that there was highly significant difference between nurse's knowledge in baseline test and after one month posttest at (p. values ≤ 0.05).

Table 3 shows the relationship between sociodemographic traits and the knowledge of nurses in both groups at baseline and one month after the posttest.

DISCUSSION:

Apgar scores are known to be helpful in forecasting the immediate survival and health issues of newborns. Nevertheless, forecasting long-term results has become a topic of debate in recent times. In the present study, the baseline demographic traits of the two groups were evaluated. This research included 80 participants, with 40 people allocated to both the experimental and control groups. The study found that 67.5% of nurses in the intervention group and 70% of nurses in the control group were between the ages of 22 and 27. The findings are consistent with Kousar et al. (2022) study on the Influence of Educational Program on Nurses' Essential Care Practices of Newborn Baby, indicating that majority of nurses (62.5%) were aged between 25-30, as was found in the research. In terms of gender, the intervention group had 82.5 percent of nurses who were female, while the control group had 80 percent who were also women.

In comparison, more than half of the studied sample (66.2%) was male, according to Ige et al. (2015) in their study Knowledge and application of APGAR score among residents in a tertiary hospital. Results of data analysis indicated that in the intervention and control groups, the majority of educational level (80% and 75%, respectively) came from diploma graduates. This is consistent with research conducted by El-Khawaga, Ahmed, and Elwelely (2019), which found that 40% of the study participants held a diploma. In contrast to Kaur et al. (2014), who discovered that the majority of the subjects were in the age category of 26–30 years, 52.5% of nurses in the intervention group and 50% in the control group had 13–23 years of experience. The current study's findings on nurses' knowledge of how to administer the APGAR score measurement revealed that, at P.value (0.28), there was no statistically significant increase in the mean score of nurses' knowledge in the first and second tests after a month. (figure 11). This result strongly supported the findings of Ke et al. (2008), who found no significant correlation between the pre- and posttest scores for knowledge, attitude, and behavior in the control group (P. values of 0.129, 0.443, and 0.960) in their study about the effects of educational intervention on nurses' knowledge, attitudes, and behavioral intentions toward providing artificial nutrition and hydration to patients with terminal cancer. The investigation revealed that there were extremely significant differences in the pre- and post-test nurses' knowledge at P Value (0.000) for the experimental group of nurses (Figure 12). This result is consistent with the findings of Aschalew (2016), who showed that approximately 55.3% of research

participants had adequate understanding of immediate infant care.

After one month of program implementation, 53.3 percent of the participating nurses had a good level of knowledge about APGAR score measurement, compared to 13.3% before to program implementation, according to an analysis of data about nurses' knowledge scores in this study (Table 14). Strong agreement was found with El-Khawaga, Ahmed, and Elwelely (2019), whose study results showed that a decent score level of knowledge was shown immediately after and three months post program implementation, compared to only 10% of them prior to program implementation.

In test 1 and test 2, the study's results show no significant relationship between the studied nurses' total knowledge and sociodemographic information. These findings are consistent with a study by El-Khawaga, Ahmed, and Elwelely (2019), which found that the study's sample of studied nurses' total knowledge, total performance scores, and sociodemographic information regarding immediate postpartum care showed a positive statistically significant correlation between the nurses' total knowledge score and their age and educational attainment both immediately and three months after the program's implementation.

CONCLUSIONS:

The study highlights a concerning gap in the understanding and application of the Apgar score among healthcare professionals in Akre, emphasizing the need for enhanced neonatal care education and training. Addressing these gaps through comprehensive educational programs and continuous professional development is crucial for improving neonatal assessment practices and outcomes in Iraq. Nurses' understanding of Apgar score significantly improved as a result of a thorough training program.

RECOMMENDATIONS:

1. Nurses' understanding of Apgar score significantly improved as a result of a thorough training program.
2. To raise the standard of knowledge for Apgar score, nursing staff collaboration and ongoing education are essential.

REFERENCES:

Abdallah, A. et al. (2019) 'Impact of the training program on Nurse Midwives Knowledge regarding newborn resuscitation, (18).

Apgar, V. (2015). A proposal for a new method of evaluation of the newborn infant. *Anesthesia and Analgesia*, 120(5), 1056–1059.

Aschalew Z. Knowledge, attitude and practice of newborn care among postnatal mothers at governmental health centers. Addis Ababa, Ethiopia, *Master Thesis*. 2016; 34.

Ayele, A. D. et al. (2022) 'Knowledge and practice of essential newborn care and associated factors among women in Ethiopia: systematic review and meta-analysis', *Reproductive health*, 19(1), p. 172.

El-Khawaga, D., Ahmed, M. and Elwelely, M. (2019) 'Effect of Implementation of a Teaching Program about Immediate Postpartum Care on Nurses' Knowledge and Practice.', *Tanta Scientific Nursing Journal* Vol. 16 No. 1, pp. 95–112. doi: 10.21608/tsnj.2019.71352.

Ernest, E. et al. (2019) 'Apgar score and long-term respiratory morbidity of the offspring: a population-based cohort study with up to 18 years of follow-up', *European journal of pediatrics*, 178, pp. 403–411.

Kaur N and et al. Skill development of nurses in managing the fourth stage of labor. *Nursing and midwifery research journal*, 2014; 10 (1): 16-25.

Ke, L.-S. et al. (2008) 'Effects of educational intervention on nurses' knowledge, attitudes, and behavioral intentions toward supplying artificial nutrition and hydration to terminal cancer patients', *Supportive care in cancer*, 16, pp. 1265–1272.

Kousar, R. et al. (2022) 'Effect of Educational Program on Nurses Essential Care Practices of Newborn

Baby', *Pakistan Journal of Medical & Health Sciences*, 16(02), p. 1149.

Mohamed Alsheekh, A. A. and Mohamed Etawa, B. B. (2019) 'Impact of the training program on Nurse Midwives Knowledge regarding Apgar score.', *Multi-Knowledge Electronic Comprehensive Journal For Education & Science Publications (MECSJ)*, (18).

Nishimwe, A. et al. (2022) 'Context specific realities and experiences of nurses and midwives in basic emergency obstetric and newborn care services in two district hospitals in Rwanda: a qualitative study', *BMC nursing*, 21(1), p. 9.

Pediatrics, A. A. of et al. (2006) 'The apgar score', *Pediatrics*, 117(4), pp. 1444–1447.

Wyckoff, M. H., Aziz, K., Escobedo, M. B., Kapadia, V. S., Kattwinkel, J., Perlman, J. M., Simon, W. M., Weiner, G. M., & Zaichkin, J. G. (2015). Part 13: neonatal resuscitation: 2015 American Heart Association guidelines update for cardiopulmonary resuscitation and emergency cardiovascular care (reprint). *Pediatrics*, 136(Supplement_2), S196–S218.

TABLES:

Table (1): Socio-demographic characteristics of (80) nurses

No.	Socio-demographic Characteristics		Experimental group F.	Experimental group %	Control group F.	Control group %
1	**Age**	23-33 years	27	67.5	28	70
		34-44 years	11	27.5	9	22.5
		Above 44 years	2	5	3	7.5
		Total	**40**	**100%**	**40**	**100%**
2	**Gender**	Male	7	17.5	8	20
		Female	33	82.5	32	80
		Total	**40**	**100%**	**40**	**100%**
3	**Level of education**	Less than diploma	4	10	5	12.5
		Diploma	32	80	30	75
		Collage and above	4	10	5	12.5
		Total	**40**	**100%**	**40**	**100%**
4	**Services years**	2-12 years	17	42.5	18	45
		13-23 years	21	52.5	20	50
		Above 23 years	2	5	2	5
		Total	**40**	**100%**	**40**	**100%**

Table (2): Score of knowledge in both groups in base line test and after one month posttest

No.	Groups	Category	Base line test F	Base line test %	After one month posttest F	After one month posttest %	Chi. test	Sig.
1	**Control**	Poor (1-50) score	36	90	35	87.5	0.18	0.93 (N.S.)
		Fair (51-75) score	3	7.5	4	10		
		Good (76-100) score	1	2.5	1	2.5		
2	**Intervention**	Poor (1-50) score	35	87.5	15	37.5	28	0.000 (Sig)
		Fair (51-75) score	5	12.5	5	12.5		
		Good (76-100) score	0	0	20	50		

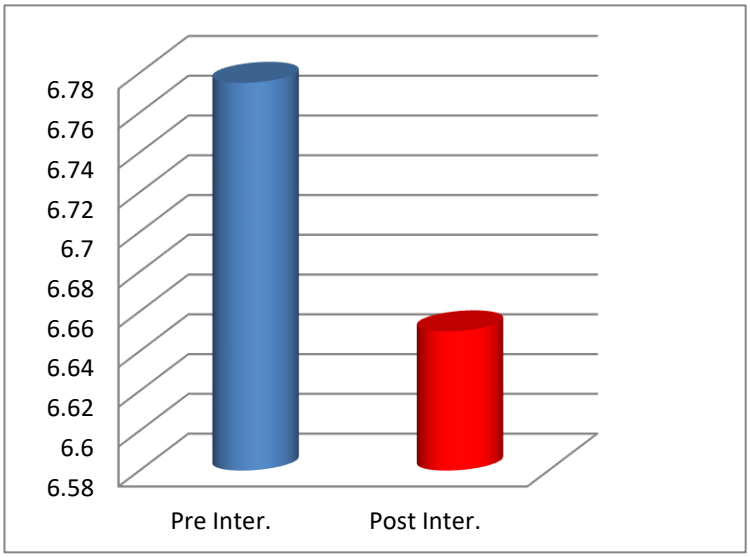

Figure 1: Differences between nurses mean of knowledge in base line test and after one month posttest in control group

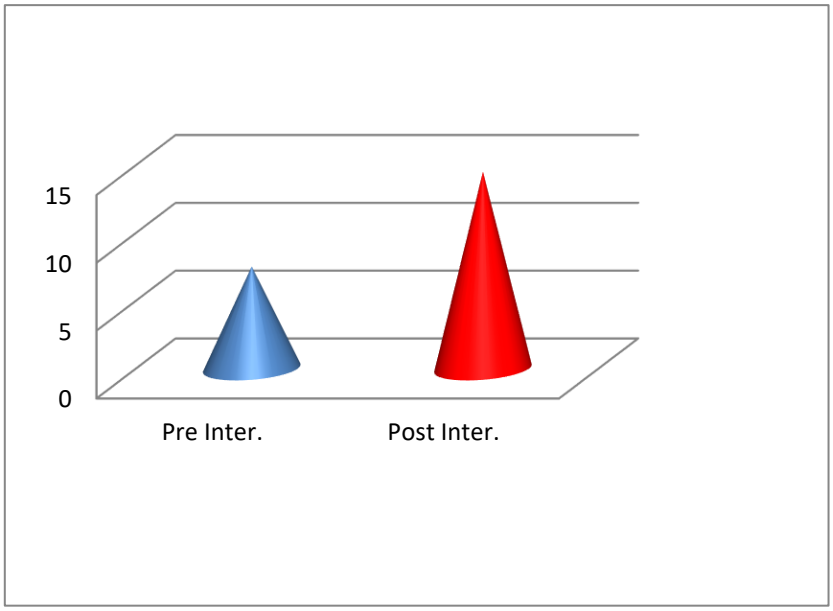

Figure 2: Differences between nurses mean of knowledge in base line test and after one month posttest in intervention group

Table (3): Association between socio demographical characteristics with nurses' knowledge in base line and after two months posttest in both groups

Variables and Categories	Control Pre n=40			Control posttest			Inter Pre n=40			Inter posttest		
	Poor	Fair	Good	Poor	Fair	Good	Poor	Fair	Good	Poor	Fair	Good
1-Age												
22-27 years	27	1	0	26	8	2	25	2	0	7	10	10
28-33 years	7	1	1	2	1	1	8	3	0	0	6	5
Above 40 years	2	1	0	0	0	0	2	0	0	0	2	0
X^2 (P. value)	**7.3 (0.12)**			**2.08 (0.53)**			**3.12 (0.21)**			**6.26 (0.18)**		
2- Gender												
Male	6	1	1	7	1	0	30	3	0	5	16	12
Female	30	2	0	28	3	1	5	2	0	0	4	3
X^2	**4.58 (0.1)**			**0.31(0.86)**			**2 (0.20)**			**1.21(0.55)**		
3- Level of education												
Less than diploma	5	0	0	5	0	0	3	1	0	0	1	3
Diploma	26	3	1	27	2	1	29	3	0	5	16	11
Collage and above	4	0	1	3	2	0	3	1	0	0	3	1
X^2	**8.11 (0.89)**			**6.2 (0.18)**			**1.43(0.49)**			**4(0.41)**		
4- Years of service												
(1-6) years	18	0	0	18	0	0	16	1	0	4	7	6
(7-12) years	16	3	1	16	3	1	17	4	0	1	11	9
(13-18) years	2	0	0	2	0	0	2	0	0	0	2	0
X^2	**4.44 (0.35)**			**4.44 (0.35)**			**1.8 (0.41)**			**5.13(0.27)**		