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A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING DELAY UMBALICAL CORD CLAMPING AMONG THE NURSING STUDENTS OF SELECTED NURSING COLLEGES OF MEHSANA DISTRICT

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ABSTRACT

INTRODUCTION: Umbilical cord clumping consists in the binding of the umbilical cord by nipper to interrupt blood flow from placenta to fetus. Umbilical cord can be clamped within 30s or at least 1 min after birth. A lot of studies have shown that delayed umbilical cord clamping is associated with greater haemoglobin concentration, better iron storage between 3-6 months of life and lower incidence for transfusion and neonatal hypotension compared to immediate umbilical cord clumping. The umbilical cord is the essential life-sustaining connection between fetus and placenta. It constitutes a stable connection to the feto-maternal interface, while allowing fetal mobility that is essential for fetal development in general and neuromotor development. OBJECTIVE: The aim of the study was to assess the existing knowledge of Nursing students on delay umbilical cord clamping evaluate the effectiveness Of Structured teaching programme on delay umbilical cord clamping,to find the Association between post- test knowledge score and their selected Demographic variables. STUDY DESIGN: Quasi Experimental study. METHOD:A Total 60 sample were included in a study who met the sampling criteria and Probability simple random sampling technique used. The researcher used self Structured questionnaire for collect the data. The data collection tools contain Demographic variables, to assess the knowledge. The result shows that the Highest percentage is that(82%) nursing students belong to the age group 18-20 years, majority (53%) nursing students were female, majority(74%) hindu Religion students, equal both (50%)GNM and BS C of nursing students stream of Education, majority (68%) nursing students had prior knowledge of delayed Umbilical cord clamping.hrough source of part of curriculum. RESULT: There is No any significant association between the prevalence of delay umbilical cord Clamping with selected demographic variables. ($p<0.05$) So. Hypothesis I is Rejected. There is a significant association between the prevalence of delay Umbilical cord clamping with selected demographical variables ($p>0.05$) So, Hypothesis I is accepted. CONCLUSION: The findings of the study revealed that Structured teaching programme helps in improving knowledge regarding delay Umbilical cord clamping among Nursing students.

Keywords: Assess, Knowledge, Prevalence , Structure Teaching Programme, Nursing Students, Delay Umbilical Cord Clamping

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INTRODUCTION

"Mother's love is peace. It need not be acquired,

It need not be deserved"

"Erich Fromm"

"WHO recommended to delayed umbilical cord clamping for improved maternal and infant health and nutrition outcomes."

Umbilical cord clumping consists in the binding of the umbilical cord by nipper to interrupt blood flow from placenta to fetus. Umbilical cord can be clamped within 30s or at least 1 min after birth.

A lot of studies have shown that delayed umbilical cord clamping is associated with greater haemoglobin concentration, better iron storage between 3-6 months of life and lower incidence for transfusion and neonatal hypotension compared to immediate umbilical cord clumping.

Newborns subjected to Caesarean Section showed greater value of haemoglobin and lower value of red blood cells compared to newborns birth by vaginal delivery. Despite evidence of beneficial effects for delayed umbilical cord clamping after eutocic delivery, this practice is not yet taken into consideration after elective Caesarean Section.[1]

Before the mid 1950s, the term early clamping was defined as umbilical cord clamping within 1 minute of birth, and late clamping was defined as umbilical cord clamping more than 5 minutes after eutociIn a series of small studies of blood volume changes after birth, it was reported that 80-100mLof blood transfers from the placenta to the new born in the first 3 minutes after born and up 90% of that blood volume transfer was achieved within the first few breaths in healthy term infants. Because of these early observations and the lack of specific recommendations regarding optimal timing, the interval between birth and umbilical cord clamping began to be shortened, and it became common practice to clamp the umbilical cord shortly after birth, usually within 15–20 seconds. [2]

However, more recent randomized controlled trials of term and preterm infants as well as physiologic studies of blood volume, oxygenation, and arterial pressure have evaluated the effects of immediate versus delayed umbilical cord clamping (usually defined as cord clamping at least 30–60 seconds after birth.

The umbilical cord is the essential life-sustaining connection between fetus and placenta. It constitutes a stable connection to the feto-maternal interface, while allowing fetal mobility that is essential for fetal development in general and neuromotor development .[3]

Immediately after birth, the newborn infant still shares its blood circulation with the placenta and umbilical cord. The arteries in the umbilical cord start to constrict, uterine contractions

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contribute with a net flow of blood from the placenta into the newborn, totaling approximately 30% of the extra blood volume.

The umbilical cord is an elastic tube that connects the fetus to the placenta and includes two arteries and one vein that carry blood in and out between the fetus and the placenta. [4]

Cord clamping is defined as a process of holding or pressing tightly together the umbilical cord after delivery with a specially designed clamp with provision to avoid slippage.[5] The clamping of the umbilical cord can be done at different times; although delaying the clamping of the cord for more than one minute after birth improves the haemoglobin outcomes (WHO, 2014). Umbilical cord clamping is a painless procedure due to the absence of nerves.

When an infant is born at 37 weeks gestation or more, it is estimated that one third of a fetus's blood supply exists in the placenta.[6] During labor and delivery, the force of the uterine contractions, pass on much of the blood from the placenta into the newborn.

The transfer of blood from the placenta continues after the period of birth and if left uninterrupted for a proximately one minutes after delivery, about 89 m/s of the blood will be delivered to the newborn.

The time taken before the midwife clamp the umbilical cord after the infant is delivered is helpful and can improve the iron status of the infant's for up to 6 months after birth especially when the duration is prolonged before clamping of the umbilical cord.[7]

A deferral of cord clamping of two to three minutes or until cord pounding come to an end, allows for optimal transfer of placental blood to the infant ("placental transfusion"), where most of it is within three minutes of delivery.

The amount of iron achieved through the transfer of placental blood provides abundant stores which are essential for the first six months of life and thus preventing the development of iron deficiency as the child continue with exclusive breastfeeding before the introductions of the complementary iron rich or fortified foods .[8]

Awaiting to clamp the umbilical cord after three minutes may provide an additional blood volume of nearly 200ml to the new born.[9] This additional blood improves the hemoglobin level of the infant and may help in reducing iron deficiency anemia.

Although most studies document the benefit of deferring umbilical cord clamping in relation to hematocrit and hemoglobin levels, there is still a knowledge gap on the consequence of umbilical cord clamping time on the infant nutritional status at 6 months of life.

The effort to increase iron stores in infants through delayed cord clamping is important and also beneficial to the infant especially in resource-poor settings where severe anemia may be common. Resource constrains settings may find access to combined folic acid and iron a

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challenge In addition, maternal nutrition intervention that promotes prevention of anemia such as dietary diversification and fortification with iron rich foods may not be optimal during pregnancy because of other factors including behavior change which regarded as key drivers to optimal maternal nutrition.

There are a number of benefits of delayed cord clamping that can vary between term and preterm newborns. In all cases, DCC allows more blood to transfer from mama's placenta to their baby by up to a third. This increases iron stores which is vital for your little one's brain development.

NEED OF THE STUDY

The optimal timing of umbilical cord clamping has been debated in the scientific literature for over a century.There is growing evidence that delayed cord clamping is beneficial and can improve the infant's iron status for up to 6 months after birth. For the first few minutes after birth, there is still circulation from the placenta to the infant. Waiting to clamp the umbilical cord for 2–3 min, or until cord pulsations cease, allows a physiological transfer of placental blood to the infant (the process referred to as "placental transfusion"), the majority of which occurs within 3 min.

This placental transfusion provides sufficient iron reserves for the first 6–8 months of life, preventing or delaying the development of iron deficiency until other interventions –such as the use of iron-fortified foods– can be implemented.

The most recent WHO Guideline on delayed cord clamping (2014) recommends that, even when positive pressure ventilation is required, the cord should not be clamped earlier than 60 seconds in both term and preterm babies .[10]

This is a change from the WHO Basic Newborn Resuscitation Guideline of 2012 which emphasized that early cord clamping is recommended when the neonate is asphyxiated and needs to be moved immediately for resuscitation [11'12], and is otherwise contraindicated. Delayed cord clamping combined with resuscitation found to be a suitable option for asphyxiated new-borns than immediate cord clamping [13'14],comes such as hypoxia, infections, delayed psychomotor development, and anaemia.[15'16]In 2015, Tanzania's Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC) reported that 43 infants out of every 1,000 live births die within the first year of life and neonatal deaths totalled 25 for every 1,000 live births.

Most of the neonatal deaths were caused by birth asphyxia. In addition, 58% of children under five had anaemia in 2015.[17]It has been shown that children with iron deficiency anaemia have an increased risk of impaired neurodevelopment, potentially affecting their cognitive, motor, and

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behavioural abilities .[15]

The WHO recommendations on delayed umbilical cord clamping may reduce the risk of anaemia and hypoxia to infants, and may also reduce the risk of postpartum haemorrhage to the mother because it gives the midwife or obstetrician time to actively manage the third stage of labour.[10]

Eighteen randomized controlled trials compared delayed vs early clamping in 2834 infants. Most infants allocated to have delayed clamping were assigned a delay of ≥60 seconds.

Delayed clamping reduced hospital mortality (risk ratio, 0.68; 95% confidence interval, 0.52-0.90; risk difference, -0.03; 95% confidence interval, -0.05 to -0.01; P = .005; number needed to benefit, 33; 95% confidence interval, 20-100; Grading of Recommendations, Assessment, Development, and Evaluations = high, with I2 = 0 indicating no heterogeneity). In 3 trials in 996 infants ≤28 weeks' gestation, delayed clamping reduced hospital mortality (risk ratio, 0.70; 95% confidence interval, 0.51-0.95; risk difference, -0.05; 95% confidence interval, -0.09 to -0.01; P = .02, number needed to benefit, 20; 95% confidence interval, 11-100; I2 = 0).

In subgroup analyses, delayed clamping reduced the incidence of low Apgar score at 1 minute, but not at 5 minutes, and did not reduce the incidence of intubation for resuscitation, admission temperature, mechanical ventilation, intraventricular hemorrhage, brain injury, chronic lung disease, patent ductus arteriosus, necrotizing enterocolitis, late onset sepsis or retinopathy of prematurity.

Delayed clamping increased peak hematocrit by 2.73 percentage points (95% confidence interval, 1.94-3.52; P < .00001) and reduced the proportion of infants having blood transfusion by 10% (95% confidence interval, 6-13%; P < .00001). Potential harms of delayed clamping included polycythemia and hyperbilirubinemia.

STATEMENT OF THE PROBLEM:

"A quasi experimental study to assess the effectiveness of Structured teaching programme on knowledge regarding delay Umbilical cord clamping among the nursing students of selected nursing colleges of mahesana district."

OBJECTIVE OF THE STUDY:

- To Assess the Level Of Knowledge Regarding Delay Umbilical Cord Clamping Among Umbilical Nursing Students Of Selected Nursing Collage Of Mehsana District.
- To Assess The Effectiveness of Structure Teaching Program On Knowledge Regarding Delay Umbilical Cord Clamping Among Nursing Students Of Selected Nursing Collage Of Mehsana District.

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- To Find Out the Association Of The Pre Test Knowledge Score With Selected Demographic Variables.

HYPOTHESIS:

H0:-There will be no significant difference between pre-test and post-test level of knowledge score regarding delay umbilical cord clamping among the nursing students.

H1:-There will be significant difference between pre-test and post-test knowledge score after administration of structured teaching programmed regarding delay umbilical cord clamping among the nursing students.

MATERIAL AND METHOD

Quasi -experimental one group pre-test post-test research design and Quantitative Approach. Effectiveness of structured teaching programme on knowledge regarding delay Umbilical cord clamping among the nursing students of selected nursing colleges of mahesana district. The data was collected from 60 students. "probability simple random "sampling technique were used. A structured Knowledge questionnaire was selected to assess the knowledge regarding delay Umbilical cord clamping.

RESULT

Demographic data was analyzed using frequency and percentage. Frequencies, percentage, Mean, mean percentage (%) and standard deviation was used to determine the knowledge score. The "t" value was computed to show the effectiveness of Structured teaching programme And chi-square test was done to determine the association between the pre-test knowledge Nursing students with selected demographic variables.

❖ **Finding related to demographic data:**

In this study overall Among the 60 college students, the majority of the sample 49 (82%) nursing students belong to the age group 18-20 years, majority 32 (53%) nursing students were female, majority 30(50%)G.N.M and BS.C both stream students, majority 44(74%) of nursing students Hindu, majority 41(68%) nursing students had prior knowledge about delay umbilical cord clamping .

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❖ **Finding related to pre and post knowledge score :**

Pre-test prior to the administration of Structured teaching programme,92% of Nursing Students poor knowledge (score:0-10) and 8% Nursing students had average knowledge (score:11-15) regarding delay Umbilical cord clamping among Nursing students.

Post-test that was marked improvement in the knowledge of Nursing student with (30%) of Nursing student gained good knowledge (score:16-25) and (25%) gained average knowledge(score 11-15) regarding delay Umbilical cord clamping among Nursing student. It was inferred from the below table that the Structured teaching programme was effectiveness in improving knowledge on delay Umbilical cord clamping among Nursing student.

Finding related to effectiveness of structured teaching programme:

Table 1: Distribution of subject on paired‘t’ test between pre-test and post-test knowledge score Regarding delay Umbilical cord clamping.

PARAMETER	MEAN	SD	MEAN%	‘t’VALUE
Pre -test	6.82	2.38	10.05	20.57
Post -test	16.87	2.48		

Finding related to association between pre-test knowledge score of office employees with their selected demographic variables:

To find out the pre-test knowledge score with selected demographic variables were found by using chi-square test. The results of the present study showed that there is no any significant association found between pre-test knowledge score and selected demographic variables like Age, gender, religion, stream of education, prior knowledge regarding delay Umbilical cord clamping. So, the research fulfills study objective.

CONCLUSION

The present study aims to evaluate the effectiveness of structured teaching programme on Knowledge regarding delay Umbilical cord clamping among Nursing students at selected colleges. The study conducted by using a Quasi-experimental one group pre-test and post-test Research Design. selected area is there in study for sample collection at Mehsana district.The sample size was 60 college students. The tool used for the study is self structured knowledge

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questionnaire. The response was reanalyzed through descriptive (mean, frequency, percentage distribution, standard deviation) and inferential statistics (t test, Chi square). The findings was completed on the objective of the study.

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