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# KNOWLEDGE OF ESSENTIAL NEWBORN CARE AMONG FINAL YEAR NURSING AND MIDWIFERY STUDENTS IN LIRA CITY, A CROSS-SECTIONAL STUDY.

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## ABSTRACT

### Background:

Nearly 7000 newborns die every day from preventable causes like prematurity, birth asphyxia, and neonatal sepsis. Essential newborn care (ENC) seeks to lower this mortality in developing nations, This study aimed to evaluate the knowledge of ENC among Lira City's final-year nursing and midwifery students.

### Methodology:

A cross-sectional study was employed involving 275 final year student nurses and midwives. Institutions and participants were randomly sampled, and data were collected using self-administered questionnaires. Participants who scored 75% were regarded as having good knowledge, 50-74%, moderate knowledge, and ≤ 49%, poor knowledge. Multivariable logistic regression was used to identify the knowledge of Essential Newborn Care.

### Results:

The study involved more females, 57.1%, than males, 42.9%, the majority of whom were aged 22-26 years, and 80.0% were single. Overall, there was adequate knowledge (95.27%) of ENC. Students at certificate and Diploma levels were 31.289 [AOR= 31.289; P= 0.001; 95%CI; 4.262- 259.986] and 217.929[AOR= 217.929; P< 0.001; 95%CI; 19.312-2459.259] times respectively, more likely to have good knowledge than Bachelor's students. Whereas there was adequate knowledge, 54.2% on cord care, 50.2% were unaware that something was applied to the cord. The majority (91.3%) had adequate knowledge of breastfeeding, with 81.1% being aware that EBF is done for 6 months. Despite 96.0% being aware that babies are supposed to be vaccinated at birth, 61.6% and 72.4% were unaware that the Oral Polio and Hepatitis B vaccines, respectively, are given at birth. There was good knowledge, 98.9% and 79.6% on eye care and neonatal resuscitation, respectively.

### Conclusion:

Generally, participants had adequate knowledge of ENC; however, there were knowledge gaps in cord care, as many did not know what to apply to the cord.

### Recommendation:

Enhance teaching techniques to improve students' knowledge levels on Essential Newborn Care.

***Keywords:*** *Knowledge, Essential Newborn care, Nursing and Midwifery, Lira City.*
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## BACKGROUND OF THE STUDY

Globally, 2.7 million newborns perish each year, primarily due to birth asphyxia, complications of preterm birth, and infections (UNICEF 2015). Over the last few years, the latter value has, however, improved as the annual number of under-five deaths has fallen to 4.9 (4.6–5.4) million in 2022. The report reveals that more children are surviving today than ever before, with the global under-5 mortality rate declining by 51 per cent since 2000 (UNIGME Report 2023). Despite a reduction in this burden, newborn mortality remains one of the main public health concerns and is an important indicator of child health, development, and well-being (WHO, 2022a).

Approximately, every two minutes, a baby dies in the WHO Western Pacific region within the first few days, mostly from preventable causes. The high neonatal mortality rates are related to inappropriate hospital and community practices. Furthermore, newborn care has fallen into a gap between maternal and child care (Office et al., 2018).

A good term baby and a healthy mother usually occasion the birth of a child. In the minority of cases, the pregnancy may be complicated by maternal illness, preterm labor, a difficult delivery, or other problems resulting in babies requiring additional neonatal care at and after birth. Essential newborn care is the care required by all neonates (first 28 days of life), whether they are born healthy, small, or unwell. It includes appropriate preventive care, routine care, transition, and care of sick and small babies. The success with which mortality and morbidity are prevented will depend largely on the commitment and expertise of the health workers responsible for newborn care.

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In Sub-Saharan Africa, a study revealed that in all countries assessed, major deficiencies exist for essential newborn care supplies and equipment, as well as for health worker knowledge of ENC, particularly for immediate skin-to-skin contact and breastfeeding initiation. Of newborns, 89% recovered either on their own or through active steps taken by the provider through resuscitation with initial stimulation and/or ventilation. (De Graft-Johnson et al., 2017). WHO recommends essential newborn care, including early initiation of breastfeeding, keeping babies warm, recognition of neonatal danger signs and cord care, among others, as crucial in newborn survival (WHO 2000; WHO 2020).

Uganda, in comparison to Ethiopia, DRC, and Tanzania, with 97, 96, and 43 deaths per 1000 live births, respectively, has about 27 neonates die per 1,000 live births (Asiime et al., 2020; WHO, 2022b). Lira district in 2020 had a perinatal mortality of 43/1000 live births (Anna Agnes Ojok Arach et al., 2021). The majority of these deaths were preventable with proper practice of essential newborn care (A. A. O. Arach et al., 2021).

In India, a study showed that the majority of nursing students, 66.66% have very good knowledge of ENC (Maheswary et al., 2021). In contrast, in East Africa, a study highlighted that 89 (36.2%) had adequate knowledge of ENC. Having a BSc in Nursing (AOR = 8.83, 95%CI = 2.00-38.96) and the presence of guidelines (AOR = 3.52, 95%CI = 1.59 -7.80) were significantly associated with knowledge of ENC (Bakar & Joho, 2023). This study, therefore, aimed to assess the knowledge of ENC among final year student nurses and midwives.

## METHODOLOGY

### Study design

A descriptive and cross-sectional study utilizing quantitative data collection techniques. This is because cross section design enables collection of data at a specific point in time and descriptive statistics was used to better understand the variables, it is descriptive.

### Study site

This study was conducted in four health-training institutions in Lira City (one university and three other nursing and midwifery health training institutes).

### Study setting

Lira University was the only training institution at the bachelor's level, so it got an automatic first slot. One of the public universities in the northern part of Uganda is Lira University, located in Lira City. It is 326 kilometers from Kampala and 12 kilometers west of Lira City. The six faculties of Lira University are the following: the faculties of public health, medicine, education, computing and information sciences, nursing and midwifery, and management science. However, this study involved the Faculty of Nursing and Midwifery, focusing on final year students pursuing a Bachelor of Science in Midwifery.

Three training institutions within Lira City have diploma and certificate level training that were selected using simple random sampling at the time of data collection, and only for the final year.

### Study Population.

All final year nursing and midwifery students in health training institutions in Lira City. There are nine nursing and midwifery training institutions in Lira City, with one university and eight institutions. That is Lira University, Lira School of Comprehensive Nursing- Lira City, Daf School of Nursing - Lira City, Uganda Christian Institute-Lira City, Jerusalem School of Nursing- Lira City, King James Nursing School-Lira City, Victoria School of Nursing and Midwifery- Lira City, John Fisher School of Nursing and Midwifery-Lira City, Good Samaritan school of nursing and midwifery-Lira City (MoES, 2022). Three institutions were selected.

### Target Population.

Final year nursing and midwifery students in Lira City.

### Accessible population.

Final year nursing and midwifery students in the four selected institutions were available at the time of data collection.

### Eligibility criteria

### Inclusion criteria

All final year student nurses and midwives from the selected institutions who were present at the time of data collection and were willing to participate in the study were included.

### Exclusion criteria.

Final year student nurses and midwives from the selected institutions who were ill on the day of data collection and could not give the required information were excluded from the study.

### Sample size determination

The sample size calculation was adopted from the Krejcie and Morgan method of sample size estimation of 1970, which is Sample size (S) = N * Z^2 / (d^2 * (N-1) + Z^2)

The estimated population of final year Nursing and Midwifery students in the four selected institutions

Final year students in Lira University at bachelor's level are 67, and the estimated number of final year students at diploma and certificate levels in the three institutions is 902

Sample size (S) = N * Z^2 / (d^2 * (N-1) + Z^2)

N = 969 students

At a 95% confidence level (Z = 1.96),

10% margin of error (d = 0.1)

S = 969 * 1.96^2 / (0.1^2 * (969-1) + 1.96^2) ≈ 275

Rounded sample size = 275 students

With a 95% confidence level (Z = 1.96), a 10% margin of error (d = 0.1), and a finite population of 969 students in

Lira City, your estimated sample size using the Krejcie and Morgan formula was approximately 275 students.

### Sampling technique and procedure

A random sample method was utilized, since the study only needs one random selection and minimal prior information about the study population. Until the desired sample size of 275 was attained, the initial participants were selected at random, and the remaining participants were selected in accordance with their availability and willingness to participate. With an average of 91 individuals per day, the researcher needed three working days to get the necessary sample size of 275 persons.

### Recruitment of participants

Participants who fitted the inclusion criteria for the study, or potential participants, were contacted and asked for their written informed consent. The study recruited those who provided their consent. Study participants were recruited by email, social media, and physical interpersonal encounters.

## Study Variables

### Dependent Variable

Essential newborn care

### Independent Variable

Knowledge of essential newborn care.

Knowledge was determined based on the questions in the questionnaire about knowledge in section B, and whoever scores 50% and above will be regarded as having adequate knowledge, and 49% and below will be regarded as having inadequate knowledge.

## Data collection procedures, methods, and tools

### Data Collection Procedure

The Research Ethics Committee of Lira University was requested to approve the study to be conducted in the university by the researcher. The three principals of the nominated nursing and midwifery institutions received a request letter seeking permission to conduct the study in their health training institutions, which was obtained from the Research Ethics Committee of Lira University. The final year nursing and midwifery students in the selected health training institutions were asked for their informed consent before giving their permission to participate. Those who gave approval and matched the inclusion requirements were included in the study. Questionnaires that are self-administered were used to gather data. Participants received a thanks message for taking part in the study upon completion.

### Data Collection Method and Tool

The methodology for gathering data was quantitative. Self-administered questionnaires were used. Numerical values are used in quantitative research to measure other factors, such as the knowledge level of ENC. It entailed employing multiple-choice or closed-ended questions to gather numerical data. This methodology contributed to the production of high-quality data that was utilized to interpret numerical data. Self-administered questionnaires that were typed in English were used as the data collection instrument. The questionnaire was created by consulting earlier research on nursing and midwifery students' understanding of critical infant care and related characteristics. Three sections made up the questionnaire: section a) asked about socio-demographics (institution and level of education, age, sex, gender, resilience, marital status, religion, ethnic group, and education level); section b) asked about knowledge levels on ENC. To minimize data loss, the gathered data was verified twice for accuracy and completeness, and any inaccuracies or incompleteness were instantly fixed.

## Data Management

### Data Entry and Cleaning

After creating data entry screens with checks, the data was duplicated and entered into the EPI-DATA software version 3.0 before being cleaned and moved to the SPSS version 23 analytical software.

### Data Analysis

The statistical software for social sciences (SPSS) (version 23) was used to analyze the data collected using questionnaires. Tables, graphs, and charts were used to display the gathered data. While categorical variables were analyzed and shown as percentages and frequencies in the pertinent tables and diagrams. The relationship between the final year Nursing and Midwifery students' knowledge of ENC and the associated factors was tested at the 95% confidence level, and as an odds ratio, logistic regression was employed.

## Quality control

### Pre-test

The validity and reliability of the data collection instrument were ascertained by pre-testing. To increase the validity of the questionnaire in this study, it was pre-tested before data collection. The purpose of the pretest was to ascertain whether they can extract the necessary information and whether there's any room for interpretation. The research tool was modified in light of the pilot study's findings after the questionnaire was given to a small number of Lira University participants (10% of the sample size), from whom responses were collected for a single day.

### Validity

Validity refers to the extent to which an instrument measures what it intends to measure. A key person in nursing reviewed the designed questionnaire and midwifery to ensure it covered all aspects of knowledge of essential newborn care. It was then pre-tested before data collection among 28 participants at Lira University, and their answers were collected over the day to assess the

questions' readability, capacity to extract the necessary information, and clarity.

### Reliability
Reliability refers to the extent to which an instrument produces consistent results under similar and different conditions. The questionnaire was pretested on 10% of the total participants at Lira University to guarantee that the research tools would produce consistent findings.

### Ethical Considerations
### Ethical approval
The study received ethical approval and administrative clearance from the Research Ethics Committee of Lira University.

### Informed consent
Consent was sought from the final year students following a detailed explanation of the advantages and goals of the study; participants were free to consent from the four selected institutions with no coercion.

### Privacy
Privacy of the participants was observed by using questionnaires with anonymous identity in private, quiet, and comfortable places for the participants without recording their names.

### Confidentiality
To preserve the privacy of the participants, identifiers like personal addresses, names, or phone numbers were not provided in the questionnaires. Participants were identified by code numbers.

### COVID-19 mitigation plan
Strict standard operating protocols (SOPS) were followed while in the field, and only participants who complied with them were interviewed. Keeping a social distance, cleaning hands with soap and water, donning face masks, and hand sanitizing were all part of these SOPS.

## RESULTS
### Socio-demographic characteristics of the participants.
The majority (57.1%) of the participants were females. Most (56.7%) of the participants belonged to the 22-26 age category. Almost all (80.0%) of the participants were single. Concerning religion, the majority (40.7%) of the participants were protestants. Regarding Ethnic groups, nearly half (51.6%) of the participants were Luo. Most (58.2%) of the participants were from urban areas. The majority (79.3%) of the participant were on direct entry into their learning institutions. Certificate level of education (59.3%) had the highest number of students who participated in the study

**Table 1: Showing Sociodemographic characteristics.**

| Socio demographic | Frequency (N=275) | Percentage (%) |
|---|---|---|
| **Gender** | | |
| Male | 118 | 42.9 |
| Female | 157 | 57.1 |
| **Age** | | |
| 17 – 21 | 76 | 27.6 |
| 22- 26 | 156 | 56.7 |
| 27- 31 | 33 | 12.0 |
| > 31 | 10 | 3.6 |
| **Marital status** | | |
| Married | 40 | 14.5 |
| Divorced/ separated | 15 | 5.5 |
| Single | 220 | 80.0 |
| **Religion** | | |
| Catholic | 94 | 34.2 |
| Muslim | 25 | 9.1 |
| Protestant | 112 | 40.7 |
| Born again | 38 | 13.8 |
| SDA | 6 | 2.2 |
| **Ethnic group** | | |
| Bantu | 75 | 27.3 |
| Luo | 142 | 51.6 |
| Plain Nilotic | 36 | 13.1 |
| Hamites | 22 | 8.0 |
| **Residence** | | |
| Village | 115 | 41.8 |
| Town | 160 | 58.2 |

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| | | |
|---|---|---|
| **Entry level** | | |
| Extension | 57 | 20.7 |
| Direct | 218 | 79.3 |
| **Study year** | | |
| 2 | 51 | 18.5 |
| 3 | 181 | 65.8 |
| 4 | 43 | 15.6 |
| **Education level** | | |
| Certificate | 163 | 59.3 |
| Diploma | 69 | 25.1 |
| Bachelor | 43 | 15.6 |

*Source: Primary data 2024*

## Knowledge on Essential Newborn Care.

### Knowledge of cord care

Generally, most of the participants 54.2% had adequate knowledge of cord care. Concerning the covering of the applied to the cord, while among the 121 who were aware, the majority, 35.7% thought it was honey that was applied to the cord. umbilical cord, the majority, 50.5% were aware that it should not be covered. The majority, 62.5% knew that salt and water were used when cleaning the cord. The majority, 50.2% were not aware that there was something

**Table 2: Showing the Knowledge on cord care.**

| Knowledge of cord care | Frequency (N=275) | Percentage (%) |
|---|---|---|
| **Overall knowledge** | | |
| Adequate | 149 | 54.2 |
| Inadequate | 126 | 45.8 |
| **The umbilical cord should be covered.** | | |
| Yes | 139 | 50.5 |
| No | 136 | 49.5 |
| **Used for cleaning the umbilical cord** | | |
| Water and soap | 56 | 20.4 |
| Water and salt | 172 | 62.5 |
| Saliva | 6 | 2.2 |
| Chlorohexidine | 41 | 14.9 |
| **Apply anything to the umbilical cord.** | | |
| Yes | 121 | 44.0 |
| No | 138 | 50.2 |
| Not sure | 16 | 5.8 |
| **If yes, what is applied (N= 121)** | | |
| Cow dung | 9 | 7.9 |
| Honey | 44 | 35.7 |
| Oil | 4 | 3.2 |
| Chlorohexidine | 28 | 23.0 |
| Powder | 15 | 12.7 |
| Vaseline | 21 | 17.5 |

*Source: Primary data 2024*

### Knowledge of breastfeeding

The majority (91.3%) of the participants had adequate knowledge of breastfeeding. Regarding whether sugary fluids were recommended to be given to the baby, the majority, 56.4% were aware that it was false. The majority, 84.7% were aware that breastfeeding initiation in the newborn was within the first hour. Concerning the frequency of breastfeeding, the majority, 56.0% were aware that babies are supposed to be breastfed on demand, and the majority, 52.7% were not aware that babies are supposed to be breastfed every 2 hours. Concerning giving colostrum to the baby, the majority, 86.5% were aware that colostrum is supposed to be given to the newborn baby. Concerning breastfeeding at night, the majority were informed that babies are supposed to be breastfed at night, 85.1%. The majority, 81.1% were aware that exclusive breastfeeding is done for a period of 6 months.

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**Table 3: Showing the knowledge on breastfeeding**

| Knowledge of breastfeeding | Frequency (N=275) | Percentage (%) |
|---|---|---|
| **Overall knowledge** | | |
| Adequate | 251 | 91.3 |
| Inadequate | 24 | 8.7 |
| **Sugary fluids are recommended to be given to the baby.** | | |
| True | 120 | 43.6 |
| False | 155 | 56.4 |
| **Breastfeeding initiation in the newborn** | | |
| First hour | 233 | 84.7 |
| After 2 hours | 39 | 14.2 |
| After 4 hours | 3 | 1.1 |
| **Frequency of breastfeeding Every 4 hours** | | |
| Yes | 30 | 10.9 |
| No | 245 | 89.1 |
| **After 2 hours** | | |
| Yes | 118 | 42.9 |
| No | 157 | 57.1 |
| **Not sure** | | |
| Yes | 47 | 17.1 |
| No | 228 | 82.9 |
| **On demand** | | |
| Yes | 154 | 56.0 |
| No | 121 | 44.0 |
| **Colostrum is given to the baby.** | | |
| Yes | 238 | 86.5 |
| No | 37 | 13.5 |
| **Breastfeeding the baby at night** | | |
| Yes | 234 | 85.1 |
| No | 41 | 14.9 |
| **Duration of exclusive breastfeeding** | | |
| 4 months | 29 | 10.5 |
| 6 months | 223 | 81.1 |
| 2 years | 23 | 8.4 |
| **Supplementary feeds introduction** | | |
| 4 months | 36 | 13.1 |
| 6 months | 230 | 83.6 |
| 2 years | 9 | 3.3 |

*Source: Primary data 2024*

## Knowledge of immunization.

The majority (96.0%) had adequate knowledge of immunization. The majority, 96.0% were aware that babies are supposed to be vaccinated at birth, and among those who were aware, 74.3% knew that BCG was supposed to be given. The majority, 61.6% were not aware that OPV is given at birth, and the majority, 72.4% were not aware that Hepatitis B is given at birth. The majority, 94.2% were aware that vaccines prevent infections.

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**Table 1: Showing Knowledge on immunization**

| Knowledge of immunization | Frequency (N=275) | Percentage (%) |
|---|---|---|
| **Overall knowledge** | | |
| Adequate | 264 | 96.0 |
| Inadequate | 11 | 4.0 |
| **Vaccination at birth** | | |
| Yes | 268 | 97.5 |
| No | 7 | 2.5 |
| **If yes, what are they?**<br>**BCG** | | |
| Yes | 199 | 74.3 |
| No | 69 | 25.7 |
| **OPV** | | |
| Yes | 103 | 38.4 |
| No | 165 | 61.6 |
| **Measles vaccine** | | |
| Yes | 65 | 24.3 |
| No | 203 | 75.7 |
| **Vitamin k** | | |
| Yes | 117 | 43.7 |
| No | 151 | 56.3 |
| **Hepatitis B** | | |
| Yes | 74 | 27.6 |
| No | 194 | 72.4 |
| **Why immunize babies** | | |
| To treat infections | 16 | 5.8 |
| To prevent infections | 259 | 94.2 |
| **What does the BCG vaccine prevent** | | |
| Tb | 237 | 86.2 |
| Polio | 24 | 8.7 |
| Hepatitis B | 14 | 5.1 |
| **What does OPV prevent** | | |
| Tb | 14 | 5.1 |
| Polio | 255 | 92.7 |
| Hepatitis B | 6 | 2.2 |
| **Hepatitis B** | | |
| T. B | 3 | 1.1 |
| Polio | 34 | 12.4 |
| Hepatitis B | 238 | 86.5 |

*Source: Primary data 2024*

## Knowledge of eye care.

Participants (98.9%) had adequate knowledge of eye care. The majority, 98.9% were aware that something was applied to the baby's eyes, and 86.2% of them were aware that it is TEO, which is applied.

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**Table 5: Showing the Knowledge on eye care**

| Eye care knowledge | Frequency (N=275) | | Percentage (%) |
|---|---|---|---|
| **Overall knowledge** | | | |
| Adequate | 272 | | 98.9 |
| Inadequate | 3 | | 1.1 |
| **Applying anything to the baby's eyes after delivery** | | | |
| Yes | 272 | | 98.9 |
| No | 3 | | 1.1 |
| **If yes, what did we apply** | | | |
| TEO | 237 | | 86.2 |
| Eye drop | 35 | | 12.7 |

*Source: Primary data 2024*

## Knowledge of thermal regulation.

The majority (88.4%) had adequate knowledge of thermal regulation.

**Table 2: Showing the Knowledge on thermal regulation**

| Knowledge of thermal regulation | Frequency (N=275) | Percentage (%) |
|---|---|---|
| **Overall knowledge** | | |
| Adequate | 243 | 88.4 |
| Inadequate | 32 | 11.6 |
| **Source of warmth to the newborn baby KMC** | | |
| Yes | 154 | 56.0 |
| No | 121 | 44.0 |
| **Radiant warmer** | | |
| Yes | 189 | 68.7 |
| No | 86 | 31.3 |
| **Incubator** | | |
| Yes | 135 | 49.1 |
| No | 140 | 50.9 |
| **Separating the baby and the mother is necessary in the first hour.** | | |
| Yes | 199 | 72.4 |
| No | 76 | 27.6 |
| **If yes, when is it necessary To apply TEO and administer vitamin K** | | |
| Yes | 75 | 37.5 |
| No | 125 | 62.5 |
| **To weigh the baby** | | |
| Yes | 65 | 32.5 |
| No | 135 | 67.5 |
| **In case of birth asphyxia** | | |
| Yes | 146 | 73.0 |
| No | 54 | 27.0 |
| **To put the baby in a warmer** | | |
| Yes | 57 | 28.5 |
| No | 143 | 71.5 |

*Source: Primary data 2024*

## Knowledge of danger sign recognition.

The majority (88.4%) had adequate knowledge of danger sign recognition and could identify the danger signs.

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**Table 3: Showing the knowledge of danger sign recognition**

| Knowledge of danger sign recognition | Frequency (N=275) | Percentage (%) |
|---|---|---|
| **Overall knowledge** | | |
| Adequate | 243 | 88.4 |
| Inadequate | 32 | 11.6 |
| **Know any danger signs in newborns** | | |
| Yes | 243 | 88.4 |
| No | 32 | 11.6 |
| **Danger signs in the newborn baby**<br>**Pink baby** | | |
| Yes | 21 | 8.6 |
| No | 223 | 91.4 |
| **Blue baby** | | |
| Yes | 124 | 50.8 |
| No | 120 | 49.2 |
| **Not breathing** | | |
| Yes | 157 | 64.3 |
| No | 87 | 35.7 |
| **Bleeding at the cord** | | |
| Yes | 106 | 43.4 |
| No | 138 | 56.6 |
| **Not passing meconium and urine in the first 24 hours.** | | |
| Yes | 101 | 41.4 |
| No | 143 | 58.6 |
| **Fever** | | |
| Yes | 125 | 51.2 |
| No | 119 | 48.8 |
| **Refusal to breastfeed** | | |
| Yes | 192 | 78.7 |
| No | 52 | 21.3 |

*Source: Primary data 2024*

## Knowledge of resuscitation.

The majority (79.6%) had good knowledge of resuscitation, with adequate knowledge.

**Table 4: Showing the knowledge of resuscitation.**

| Knowledge of resuscitation | Frequency (N=275) | Percentage (%) |
|---|---|---|
| **Overall knowledge** | | |
| Adequate | 219 | 79.6 |
| Inadequate | 56 | 20.4 |
| **All babies require resuscitation.** | | |
| Yes | 56 | 20.4 |
| No | 219 | 79.6 |
| **We use**<br>**Bag and mask** | | |
| Yes | 191 | 69.5 |
| No | 84 | 30.5 |
| **Bulb syringe** | | |
| Yes | 159 | 57.8 |
| No | 116 | 42.2 |
| **Oxygen** | | |
| Yes | 94 | 34.2 |
| No | 181 | 65.8 |
| **Back stimulation** | | |
| Yes | 96 | 34.9 |
| No | 179 | 65.1 |

| **CPR** | | |
|---|---|---|
| Yes | 84 | 30.5 |
| No | 191 | 69.5 |

*Source: Primary data 2024*



### Level of knowledge.

Over all the level of knowledge on essential newborn care was good, with adequate knowledge of 95.27% (Shown in figure 1).

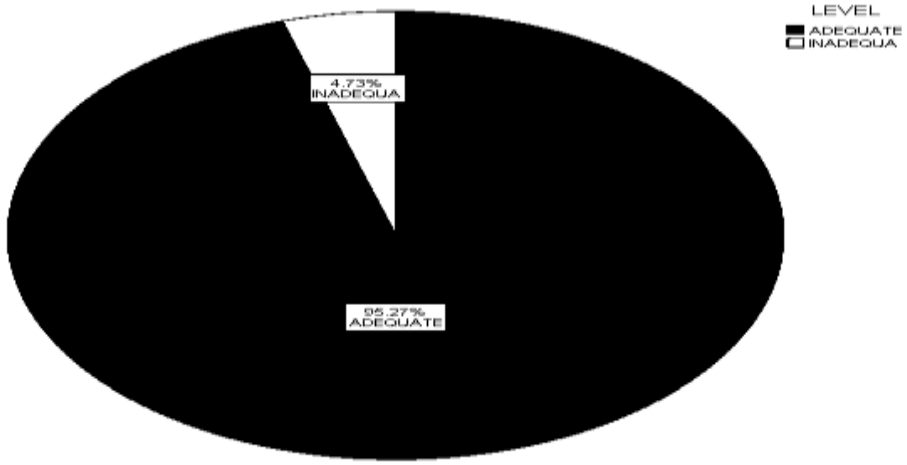


*Figure 1: showing the overall Level of knowledge*

## DISCUSSION

### Level of knowledge on essential newborn care among final year nursing and midwifery students in Lira City

Overall, the level of knowledge on essential newborn care was good. The majority, 95.27% of the study participants, had adequate knowledge. This could have been attributed to the fact that they were final-year students who could have accumulated knowledge as a prerequisite for their academic program. However, this study finding was higher than the findings from a comparable study carried out among nurses and midwives in public health facilities in Wolaita zone, southern Ethiopia, which revealed that 57.9% of the study participants had adequate knowledge about essential Newborn Care (Arba & Zana, 2020c). The variation may result from variations in the sample size, research period, and study location, as well as from variations in the educational backgrounds of the various regions.

Generally, most of the participants 54.2% had adequate knowledge of cord care. This could be due to comprehensive newborn care training and the education level of the health worker. However, these health workers were not providing the actual care to the newborns. Findings that align with those of a study. A study carried out at "China-Uganda Friendship Regional Referral hospital, Naguru on the quality of essential newborn care highlighted that health care providers knew routine newborn care; however, they were not providing the actual cord care to newborns (Babirye, 2022).

Additionally, the majority (91.3%) of the participants had adequate knowledge of breastfeeding. Ideally, breast milk ought to be initiated immediately after birth, since it contains all the nutrients best for the newborn. The findings are disproportionate with those of Nampijja and others (2023), whose study in Uganda revealed that only 21% of participants initiated breastfeeding within the first hour of birth, and 37.6% either gave water or cow's milk to the babies. This highly suggests that there was a lack of knowledge on when to initiate breastfeeding.

Furthermore, the majority, 84.7% were aware that breastfeeding initiation in the newborn was within the first hour. The findings are highly significant compared to those of a study in Adjumani district, northern Uganda, by Komakech et al. (2020) that showed that "57% of mothers breastfed their babies within the first hour. However, the study was conducted among postpartum mothers, yet this study will be done among final nursing and midwifery students.

There was adequate knowledge on immunization as the majority, 96.0% were aware that babies are supposed to be vaccinated at birth, and among those who were aware, 74.3% knew that BCG was supposed to be given, 61.6% were not aware that OPV is given at birth, and the majority 72.4% were not aware that Hepatitis B is given at birth. This suggests a knowledge gap on what vaccines are to be administered at birth, yet Galadima et al. (2021) argue that

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vaccine-preventable diseases are estimated to cause about 29% of deaths of children below 5 years, despite the benefits of immunizing children. According to Prentice et al. (2021), vaccination is an extremely cost-effective approach to lower morbidity and death rates among newborns, and the recommended three vaccines within the first 24 hours are birth dose hepatitis B vaccine (Hep B-BD), zero dose oral polio vaccine (OPV0), and Bacillus Calmette-Guerin (BCG). Therefore, student nurses and midwives should perhaps be educated on the exact vaccines to be administered at birth.

In addition, the majority (88.4%) had adequate knowledge of thermal regulation. Thermal regulation helps to keep the newborns warm, thus maintaining a constant body temperature as they adapt to the new surroundings. The findings disagree with those of a study by Arba & Zana (2020b) conducted in Ethiopia, which revealed that nurses and midwives lacked basic understanding about several aspects of ENC, such as heat protection, as only 17% of the neonates received thermal care immediately after birth.

The majority (79.6%) had good knowledge of neonatal resuscitation, which may be attributed to the enormous and concurrent practice, placements where they gain exposure to such procedures. A facility-based cross-sectional study in Eastern Ethiopia public health institutions," by Sintayehu et al., 2020, disagrees with these findings as it revealed that participants knew very little about doing newborn resuscitation, which could be due to having a bachelor's degree in science or higher, not receiving training.

## CONCLUSION

The majority of the participants had adequate knowledge of essential newborn care. However, students had knowledge gaps in cord care. Teaching techniques are to be maintained to ensure that students acquire the required knowledge levels on Essential Newborn Care.

Education level, marital status, who taught the student about ENC, where the person was taught from, and continued support and supervision were the factors associated with the knowledge of Essential Newborn Care.

## RECOMMENDATION

Incorporate hands-on simulation training that helps students advance their knowledge of ENC. Emphasizing evidence-based practices, cultural sensitivity, and family-centered care prepares students to communicate effectively with families and respect ethical considerations. Diverse clinical placements help students gain more knowledge and emotional resilience, supported by ongoing professional development and mentorship for comprehensive skill development.

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## LIST OF ABBREVIATIONS

**ENC** Essential Newborn Care
**LMIC:** Low and Middle-income countries
**SSA** Sub-Saharan Africa
**WHO** World Health Organization
**SPSS** Statistical Package for Social Sciences
**SDA** Seventh Day Adventist
**EBF** Exclusive breastfeeding
**BCG** Bacilli Calmette-Guérin
**OPV** Oral Polio Vaccine
**KMC** kangaroo mother care
**CPR** Cardiopulmonary resuscitation
**MoES** Ministry of Education and Sports
**DRC** Democratic Republic of Congo

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## CONFLICT OF INTEREST

The author declares no conflict of interest.

## AUTHOR CONTRIBUTIONS

**JA-** Study developer, Data collector, and analyzer
**EM-** Supervised the Study

## DATA AVAILABILITY

Data is available upon request.

## ETHICAL APPROVAL

The study received ethical approval and administrative clearance from the Research Ethics Committee of Lira University.

## INFORMED CONSENT

There was full disclosure; full comprehension, and respondents voluntarily consented to participate in the study. Consent was sought from the final year students following a detailed explanation of the advantages and goals of the study; participants were free to consent from four selected institutions with no coercion.

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