

Knowledge on the Causes and Management of Preterm Babies Amongst Third Year Nursing Degree Students at a University Windhoek, Namibia

Sune Karsten¹ and Joseph Galukeni Kadhila^{2*}

¹University of Namibia, Windhoek, Namibia

²School of Nursing and Public Health, Faculty of Health Sciences and Veterinary Medicine, University of Namibia, Windhoek, Namibia.

*Corresponding Author

Joseph Galukeni Kadhila, School of Nursing and Public Health, Faculty of Health Sciences and Veterinary Medicine, University of Namibia.

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Abstract

Background of Study

In Namibia, nursing students are having theoretical information about the premature babies and are also allocated in maternity ward and premature unit for in-service training. The nursing students at the University of Namibia have access to manage preterm babies during their clinical placement. However, the researcher observed that student nurses don't have enough knowledge regarding the causes and management of premature babies in the clinical setting.

Methods

In this study a quantitative research design was used, which gave the researcher an opportunity to gather all the information. Self-structured Questionnaire was developed as a research instrument to collect data. The questions used were inspired by looking at previous studies to get an idea what to ask and how the questions should be asked. Data was collected by using a questionnaire that was developed as a research instrument. A sample of 73 participants of 3rd year degree nursing students at the University of Namibia in Windhoek was used in the study. The calculation of the sampling method was done using the Slovin's formula. Data were analyzed using Microsoft excel. Descriptive statistical data was analyzed and the results were presented in frequent tables, pie chart and graphs.

Results

The results of the study indicated that participants pose major knowledge regarding the cause of prematurity, the results revealed that 88% of the participants knew the causes of premature birth and regarding the management of premature babies the majority also revealed good knowledge, the results revealed that 87% of the participants knew the management of premature babies.

Conclusion

Objective 1

To assess the knowledge of the causes of preterm babies amongst 3rd year nursing degree students at the University of Namibia, Windhoek.

The results reveal that 46 (88%) of the participants knew the causes of preterm birth. However, there are participants of 6 (12%) that have poor knowledge regarding the cause of preterm birth.

Objective 2

To assess the knowledge of the management of preterm babies amongst 3rd year nursing degree students at the University of Namibia, Windhoek. The results reveal that the average of 45 (87%) of the participants knew the management of preterm babies. However, there are 7 (13%) of the respondents with poor knowledge on the management of preterm babies.

Keywords: Preterm, Babies, Students, Knowledge, Management

1. Introduction

Pregnancy can be normal; however, complications may arise and a baby can be born before the expected date of delivery this can result in the birth of a premature baby [1]. World Health Organization stated that preterm babies are born before the completion of 37 weeks' gestation and, there are 15 million babies born premature each year worldwide, this is more than

1 in 10 babies [2]. Furthermore, World Health Organization (2018) preterm babies are identified into two categories namely, extremely preterm babies, which are born less than 28 weeks of gestational age and the very preterm, which are also born between 28 and 32 weeks. Furthermore, WHO (2020) indicated that most of the neonatal deaths in 2017 were the causes of preterm births. Centers for Disease Control and Prevention stated that in 2020,

preterm birth infected 1 in every 10 infants born in the United States (CDC, 2021). A study done in Kenya further stated that most of the premature babies born between 32 and 37 weeks of gestation died, due to lack of care [2].

The National Institutes of Health (2018) advocated that infections in the mother's genital tract are the major cause of a preterm birth, accounting for approximately 25% to 40% of all preterm births. Moreover, most preterm births happen spontaneously, but some are due to early induction of labor or caesarian section birth [2,3]. Requejo, (2013) is of opinion that prenatal care can help decrease premature birth by identifying women with medical or obstetrical problems [4]. With regular prenatal care the number of pregnancy complications can be reduce [3]. Therefore, this study is focusing on assessing the knowledge of the 3rd year nursing degree students at the University of Namibia in Windhoek regarding the causes and management of the preterm babies.

2. Background

Globally, approximately 15 000 babies are born annually prematurely, indicating a global prematurity rate of about 11% [5]. The fact that some babies are born premature, they require hospitalization for a few days in the Neonatal Intensive Care Unit (NICU) (Shrestha, & Singh, 2020). Most newborn deaths take place in low and middle – income countries, two regions accounted for almost 70% of newborn deaths in 2017 are the African Region and South-East Asia region (WHO 2020). About 140 000 (14%) babies are born premature in Ghana annually and 8400 of these babies die before reaching thirty days [6]. Premature babies can develop a range of problems because their organs are still immature [1]. In Namibia, 85% were high risk infants and 90% were delivered via Normal Vertex Delivery (NVD) and 90% via Caesarian Section(C/S) (HIS, 2021). Cordewener and Lubbe are of opinion that nurse's needs knowledge and skills to perform effective preterm baby assessments and providing of quality nursing care [7]. Therefore, a proper nursing care for a premature baby should be established through good nursing performances and health education for mothers during Antenatal Care (ANC), labor and in post-natal period [7].

In Namibia, UNAM nursing students are having theoretical information about the premature babies and are also allocated in maternity ward and premature unit for in-service training. UNAM nursing students have access to manage preterm babies during their clinical placement. However, I have observed that student nurses don't have enough knowledge regarding the causes and management of premature babies in the clinical setting. Therefore, based on this experience it is important to conduct a study to assess the knowledge the 3rd year nursing degree students at the University of Namibia in Windhoek.

3. Aim

To assess the level of knowledge of the causes and management of preterm babies amongst the 3rd year nursing degree students at a University Windhoek, Namibia.

4. Methods

In this study a quantitative approach was used. Quantitative research is used to qualify and analyze variables to get generalized results [8]. Descriptive cross-sectional study involves a systematic collection, analysis and interpretation of data to give a clear picture of the particular situation.

5. Survey

The researcher got access to the target population at the Main campus during their theoretical teaching period at the boiler room and the simulation room. The researcher gave self-administered questionnaires to the students and the questionnaires were collected after 20 minutes.

6. Interview Schedule

In this study, the researcher used self-administrative questionnaires to collect data from the participants of whom some of the questions were adopted from previous studies from regarding the causes and management of 3rd year degree nursing students at UNAM. The questionnaire consists of Section A which is the demographic data. Section B consists of questions regarding the causes of prematurity and Section C consists of questions regarding the knowledge on management of preterm babies.

7. Ethical Approval

Ethical clearance was obtained through the structures and process of the University of Namibia. The following ethical considerations were upheld. Written informed consent was obtained from each participant after the procedure and risks were pointed out after adequate information were conveyed, possible risks were pointed out. Voluntarily participation without penalty for withdrawal was pointed out.

8. Data Collection

The researcher got access to the target population at the Main campus during their theoretical teaching period at the boiler room and the simulation room. The researcher gave self-administered questionnaires to the students and the questionnaires were collected after 20 minutes.

9. Data Analysis

Data was analysed and reported by means of descriptive statistical analysis and illustrated pie charts, tables, and bar graphs. Upon the completion of data collection, data was coded and captured in a safe and secure place.

Results

Demographic Data

Sex

Valid	Frequency	Percent (%)	Cumulative Percent(%)
Females	51	98%	98%
Males	1	2%	100%
Total:	52	100%	100%

Table 1

Sex of Participants

According to table 1, 51 (98%) of the participants were female and for male participants were only 1 (2%).

Age

Valid	Frequency	Percent (%)	Cumulative Percent(%)
19 – 25	48	92%	92%
26 – 32	3	6%	98%
33 – 39	1	2%	100%
40 – 50	0	0%	0%
Total:	52	100%	100%

Table 2

Participant's Age

According to Table 2, it indicated that out of 52 respondents, 48 participants (92%) were in the age range of 19 – 25, 3 (6%) were in the age range of 26 – 32 years and only 1 (2%) between the age range of 33 – 39 years.

Working Experience in a Premature Unit

Valid	Frequency	Percent (%)	Cumulative Percent(%)
Yes	35	67%	67%
No	17	33%	100%
Total:	52	100%	100%

Table 3

Working Experience

Table 3 shows that out of 52 respondents, 35 (67%) said they have experience while the other 17 (33%) said they do not yet have experience in a premature unit.

Section B

Knowledge on the Causes of Preterm Birth Among the 3rd Year Nursing Degree Students at the University of Namibia

Participants were requested to indicate the correct answer concerning the level of knowledge regarding the cause of preterm birth. This was achieved by ticking the answer of their choice. Their responses are illustrated as follows:

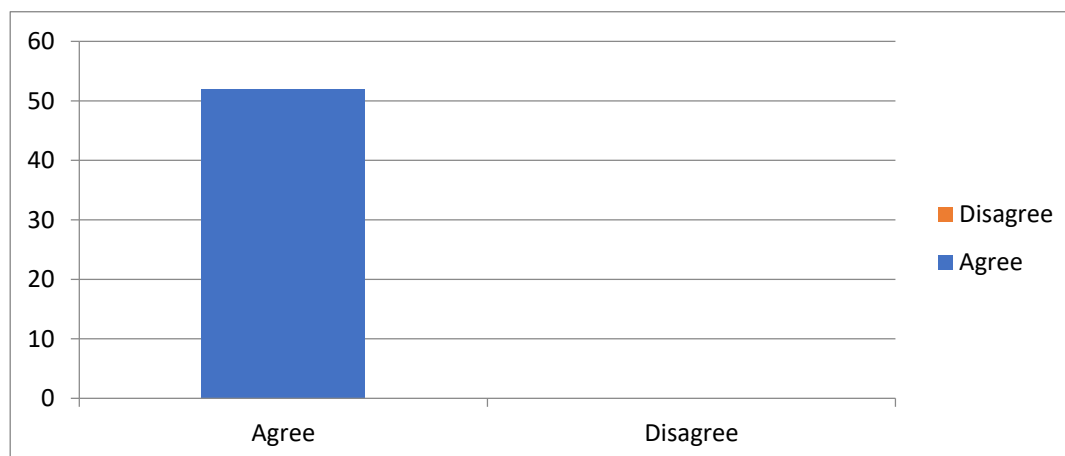


Figure 1: Smoking of Tobacco May Lead to Premature Birth

Smoking of Tobacco Substances

According to Figure 1 indicates that all 52 (100%) participants agreed that smoking tobacco may lead to premature birth.

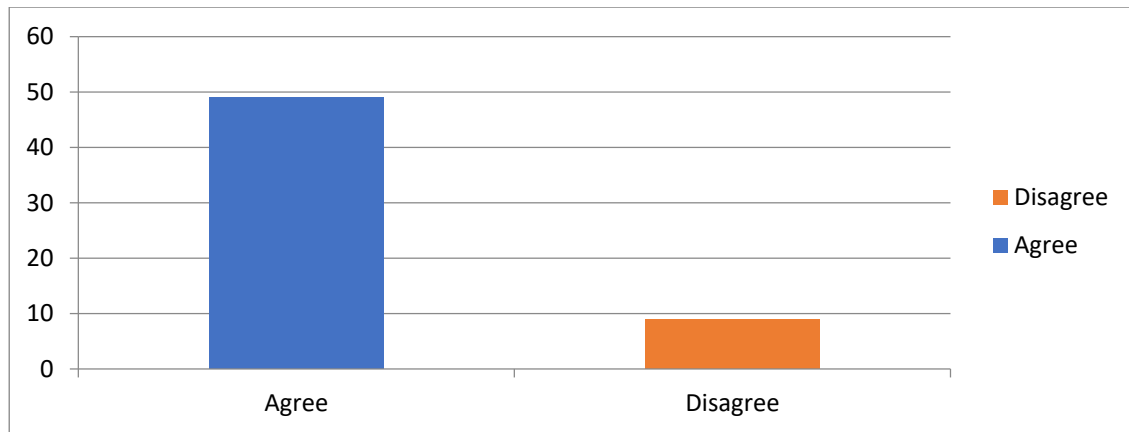


Figure 2

Premature Birth can be Prevented

Figure 2 indicates that out of 52 participants, 43 (83%) agreed that premature birth can be prevented, while the remaining 9 participants (17%) said that preterm birth cannot be prevented.

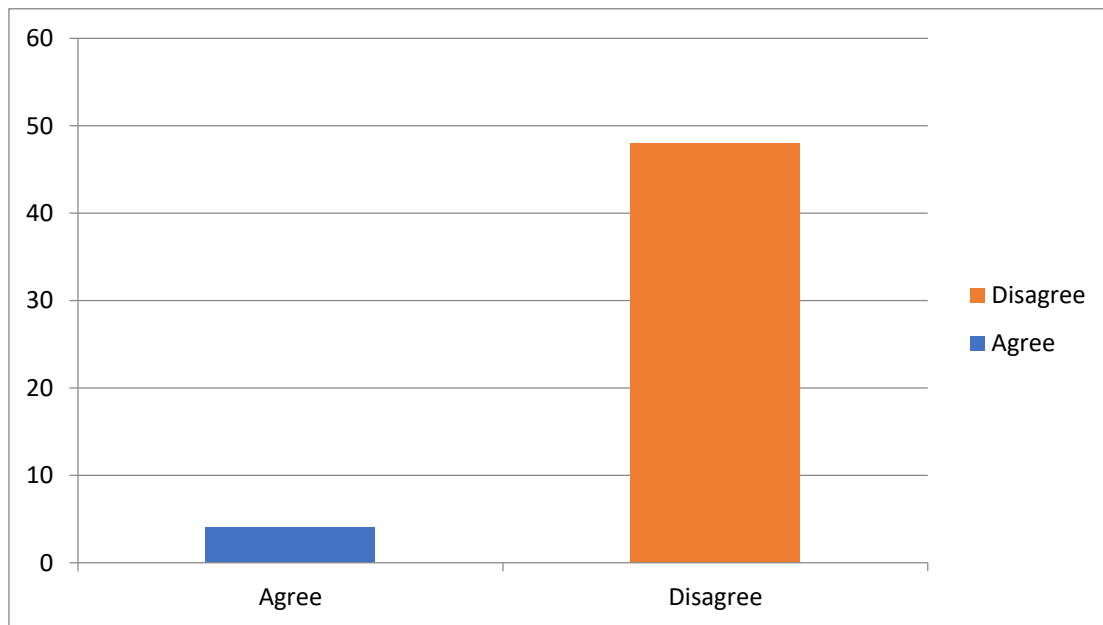


Figure 3: Premature only Happens when a Pregnant Mother does Something Wrong.

Preterm Birth Happens when a Mother does Something Wrong

On the above-mentioned Figure 3, out of 52 participants, 4 (8%) said that premature only happens when a mother does something wrong, while 48 (92%) disagreed with this statement.

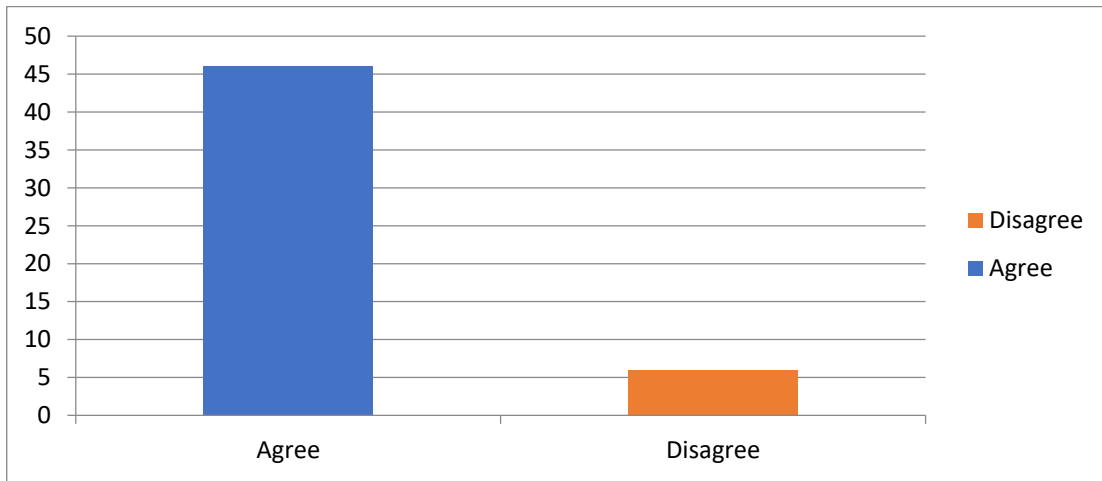


Figure 4: Urinary Tract Infections can be a Cause of Premature Birth

Urinary Tract Infections Cause Preterm Birth

Figure 4 indicates that out of 52 respondents, 46 (88%) said that Urinary Tract Infections can cause premature birth, while 6 (12%) participants do not believe that premature birth can be caused by urinary tract infections.

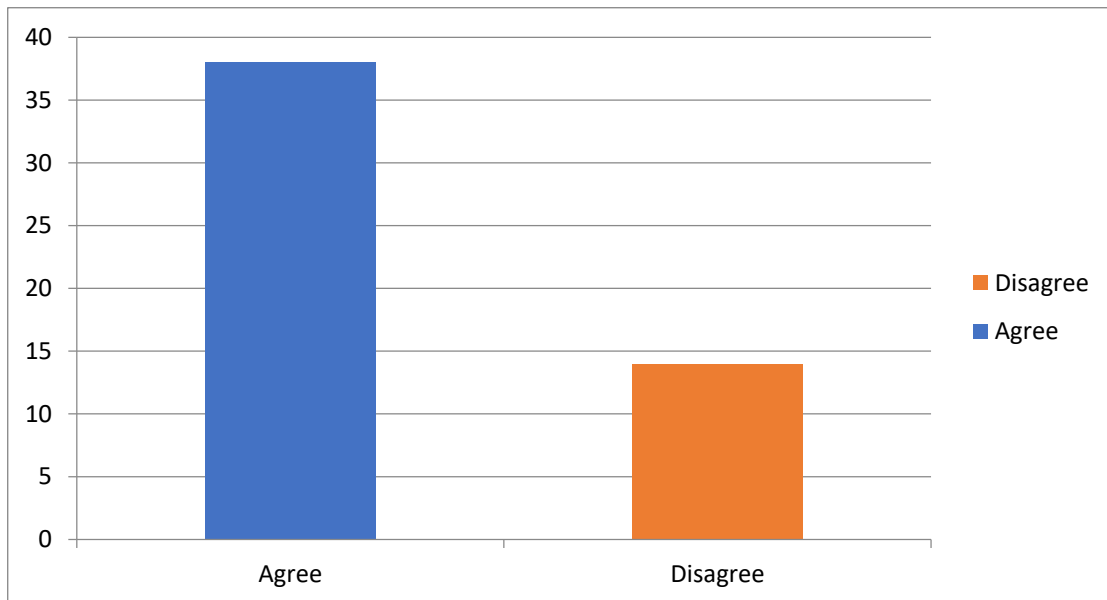


Figure 5: Diabetes is a cause of preterm birth

According to the results on figure 5, 38 (73%) participants agreed that diabetes is a cause of premature birth while the remaining 14 (27%) participants disagreed with this statement.

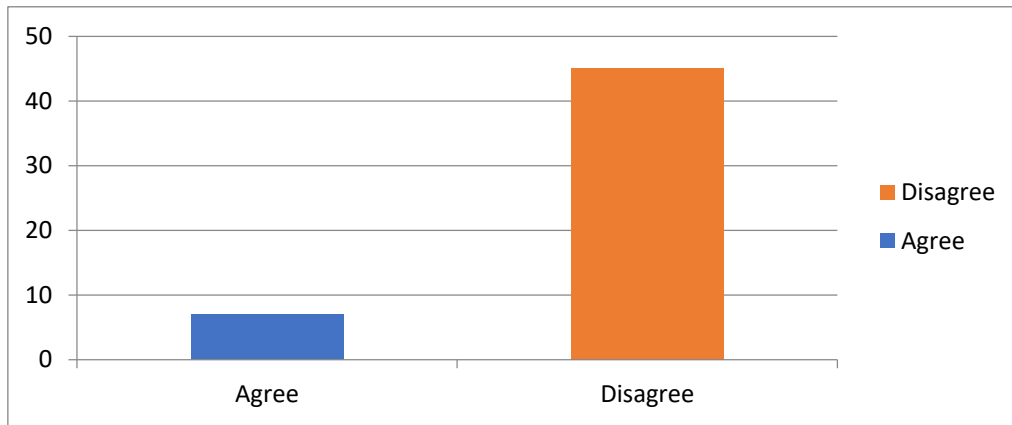


Figure 6: Multiple Pregnancies May not be a Cause of Premature Birth

Figure 6 indicates that out of 52 respondents, 7 (13%) participants agreed that multiple pregnancies are a cause of preterm birth, while 45 (87%) disagreed to this statement.

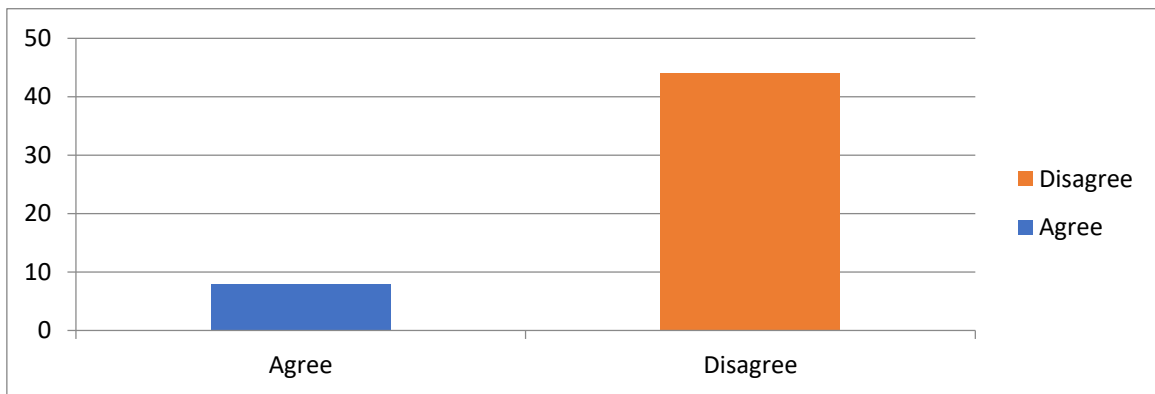


Figure 7: Premature Birth is when a Baby is Born After 34 Weeks of Gestation

Premature Birth

Figure 7 indicates that 8 (15%) out of 52 participants, agreed that premature babies are born after 37 weeks of gestation, while the remaining 44 (85%) disagreed with this statement.

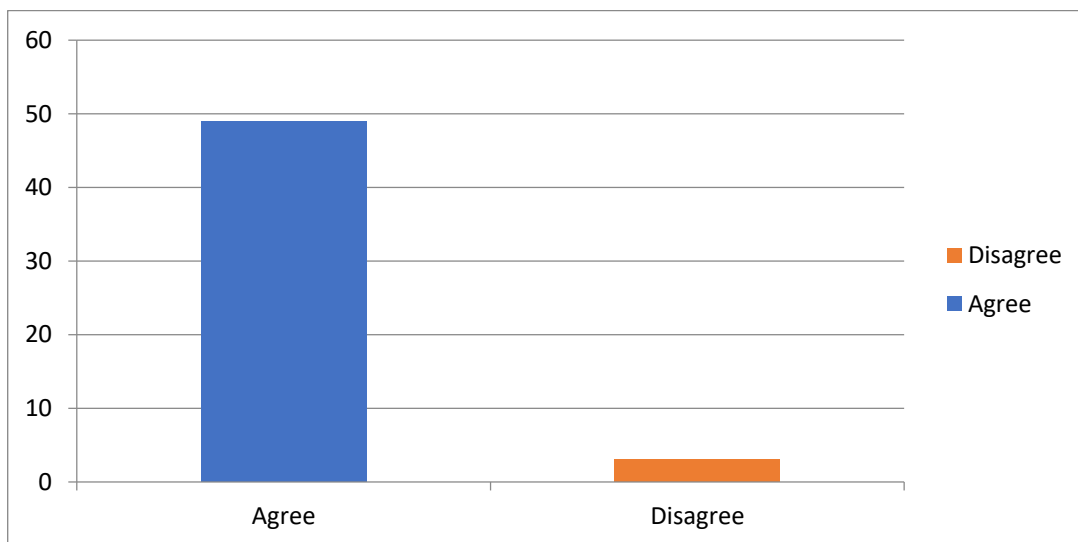


Figure 8: Stress can be Associated with Preterm Birth

Figure 8 shows that 49 (94%) students said that stress can be associated with preterm birth while 3 participants (6) disagreed.

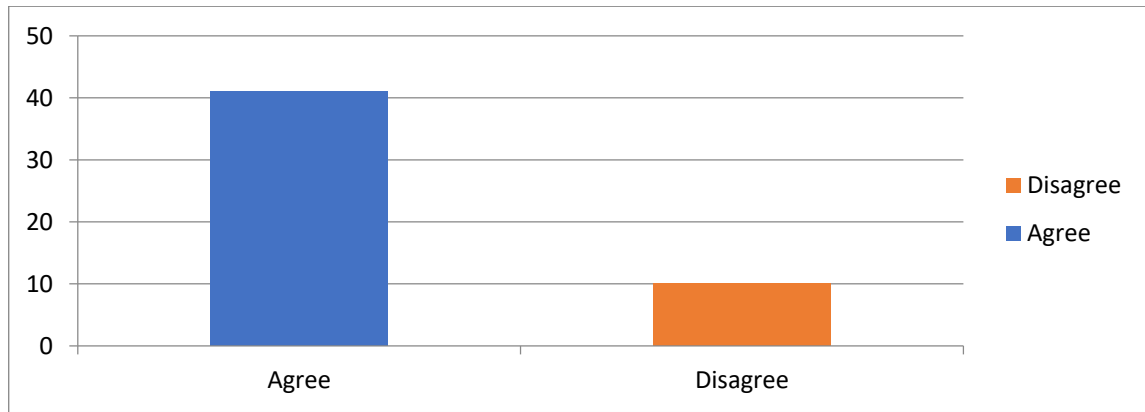


Figure 9: Preterm Birth can be Caused by Bacterial Vaginosis

According to the results in figure 9, out of 52 participants, when asked if preterm birth can be caused by bacterial vaginosis, 42 (81%) agreed while the remaining 10 (19%) disagreed.

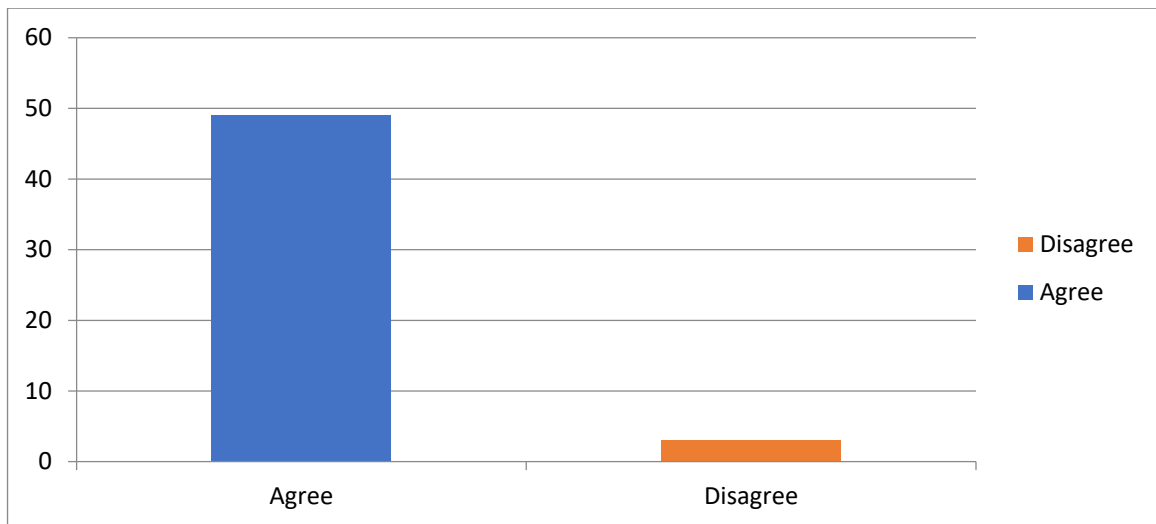


Figure 10: Preterm Birth can be Caused by Maternal Malnutrition

Figure 10 indicates that out of 52 respondents, 49 (94%) respondents said they agree that preterm birth can be caused by maternal malnutrition, while 3 (6%) participants disagreed.

Knowledge on the Management of Preterm Babies Amongst 3rd Year Nursing Degree Students at the University of Namibia, Windhoek.

In this section the participants were requested to indicate whether true or false concerning the level of knowledge regarding the management of preterm babies. This was achieved by ticking in the appropriate box.

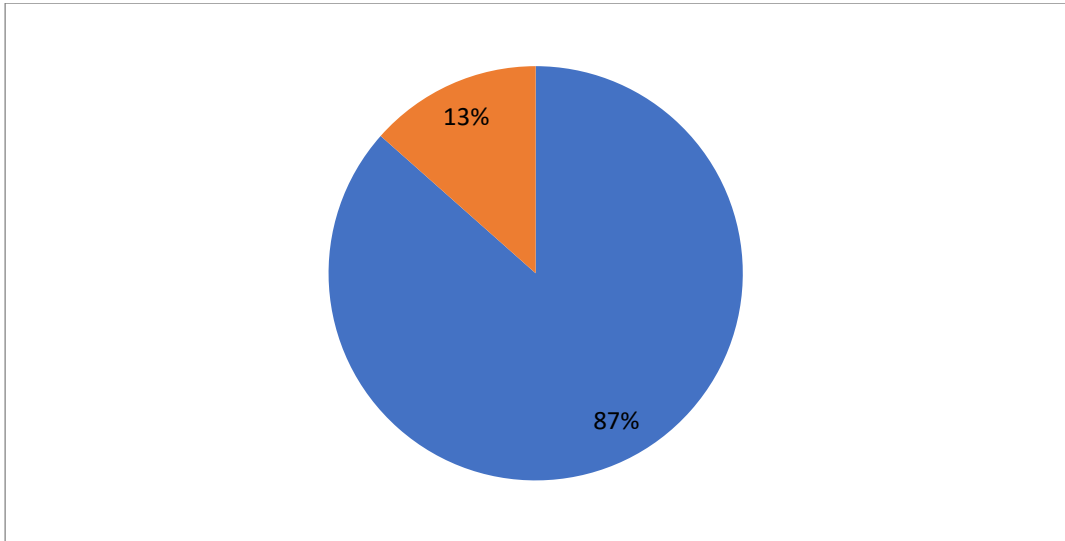


Figure 11: The Management of Preterm Babies Include Intense Monitoring of Fluid and Electrolyte Balance

Out of 52 participants, 45 (87%) students said it is true that the management of preterm babies include the intense monitoring of fluid and electrolyte balance, while 7 (13%) said this statement is false, figure 11.

Valid	Frequency	Percent (%)	Cumulative Percent (%)
True	52	100%	100%
False	0	0%	100%
Total:	52	100%	100%

Table 4: Preterm Baby Should be Placed in An Incubator

The table 4 indicates that all 52 (100%) participants said the above-mentioned statement is true.

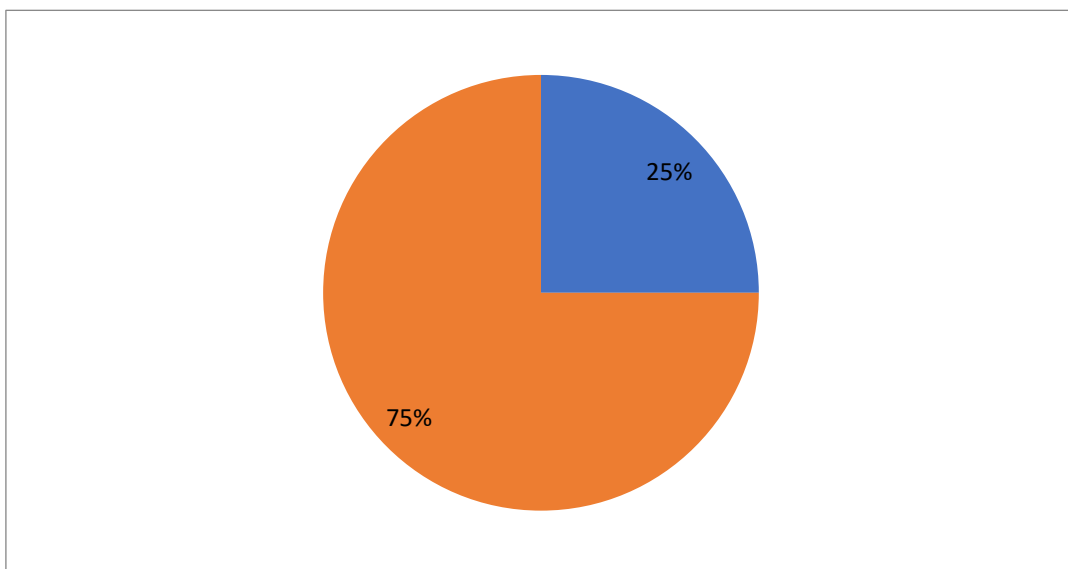


Figure 12: Management of a Preterm Baby Includes 5 Hourly Feeding

Figure 12 indicates that out of 52 participants, only 13 (25%) students said the above-mentioned statement is true, while 39 (75%) students believed this statement to be false

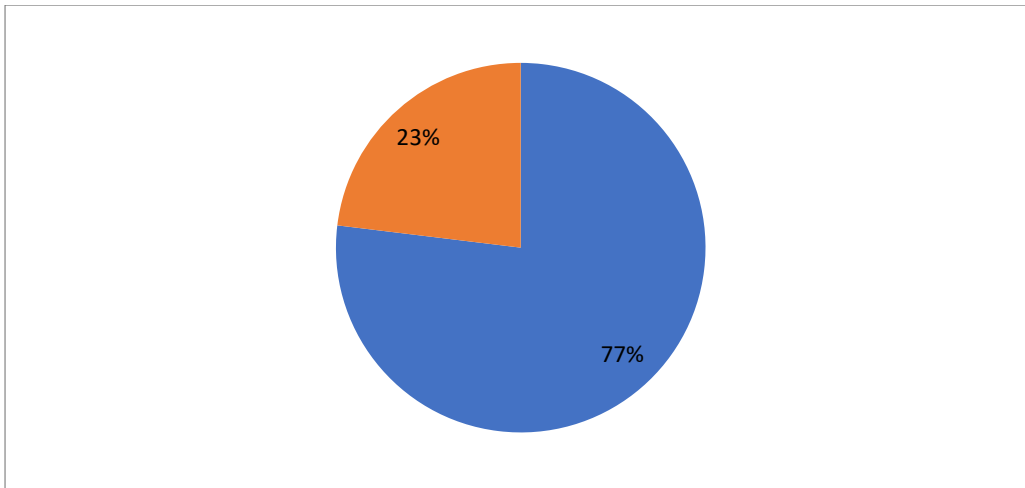


Figure 13: Premature Baby Should have a Feeding Tube Inserted

The above figure 13 indicates that 40 (77%) students believed the above-mentioned statement to be true, while 12 (23%) participants believed it to be false.

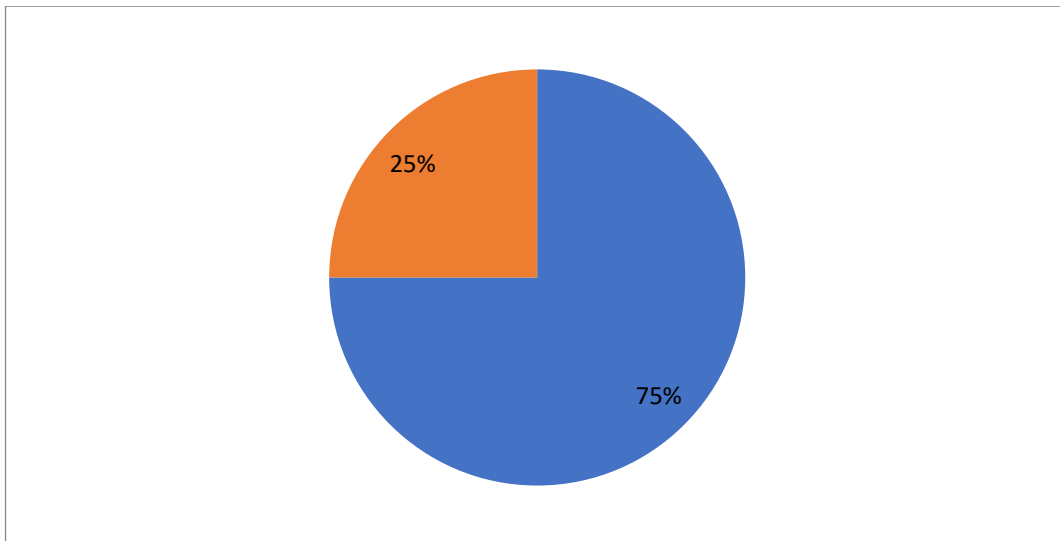


Figure 14: Some Premature Babies Receive Blood Transfusions

Figure 14 indicates that 39 (75%) participants said that the above-mentioned statement is true, while 13 (25%) participants believed the statement to be false.

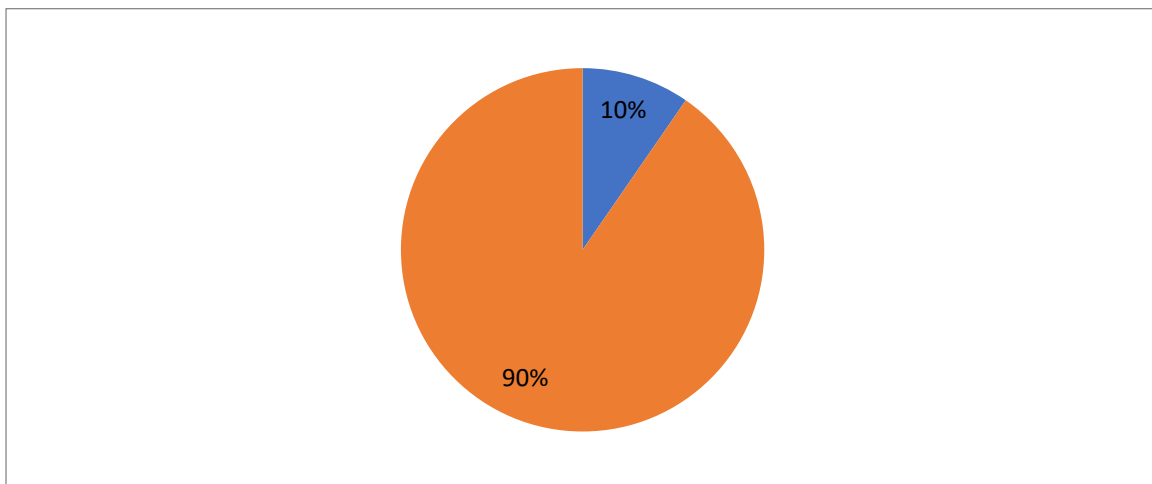


Figure 15: Normal Body Temperature is not Necessary to be Maintained by Preterm Babies

Figure 15 indicates that only 5 (10%) participants said that the above-mentioned statement is true, while 47 (90%) participants believed it to be false.

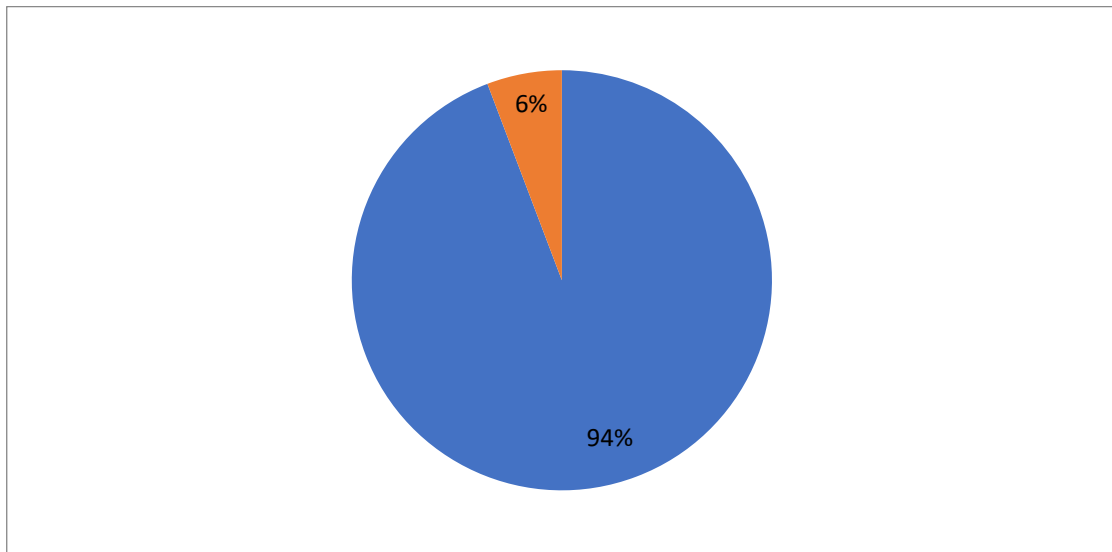


Figure 16: Preterm Babies need Help Breathing Either by a Ventilator or a Positive Airway Pressure Machine (CPAP)

Figure 16 indicates that out of 52 respondents, 49 (94%) participants believe this statement to be true while 3 (6%) believed it to be false.

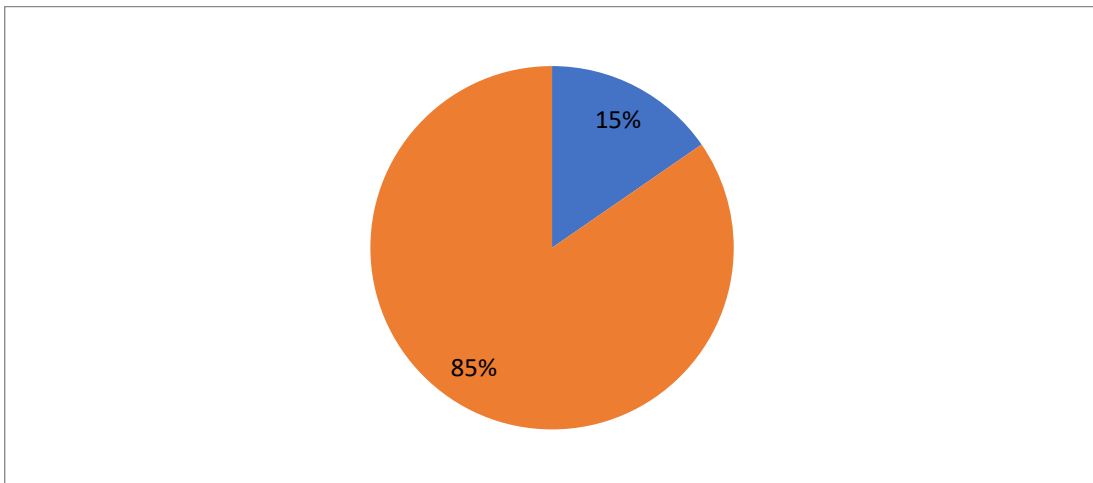


Figure 17: Preterm Babies Should be Fed 6 Hourly

Figure 17 indicates that out of 52 respondents, 8 (15%) participants believed that preterm babies should be fed 6 hourly, while 44 (85%) participants believed this statement to be false.

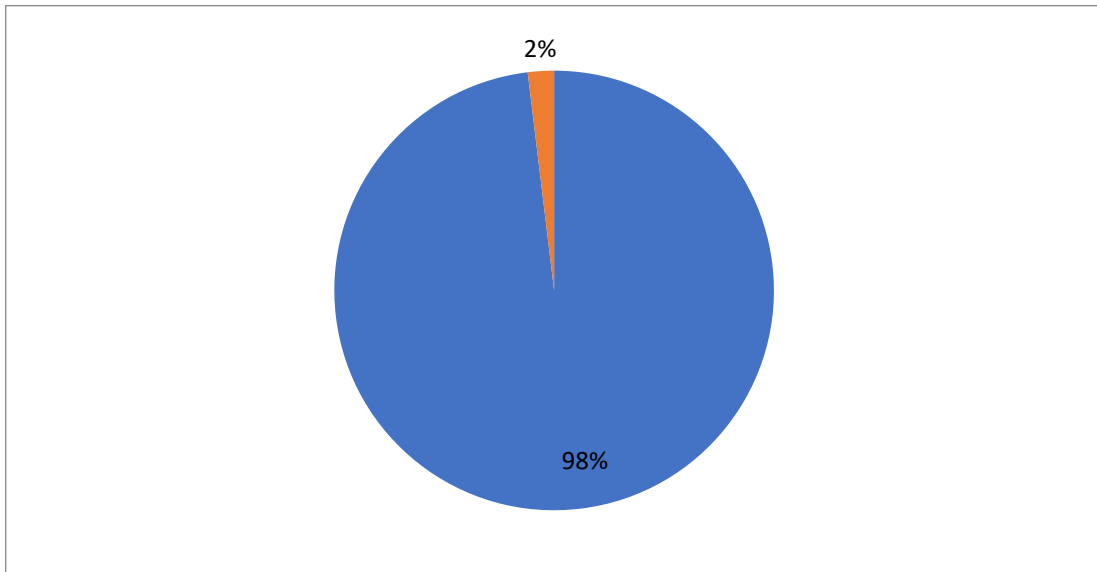


Figure 18: The Management of Preterm Babies Include Monitoring the Weight of the Baby

Figure 18 indicates that 51 (98%) students said that the above-mentioned statement is true, while only 1 (2%) participant said the statement is false.

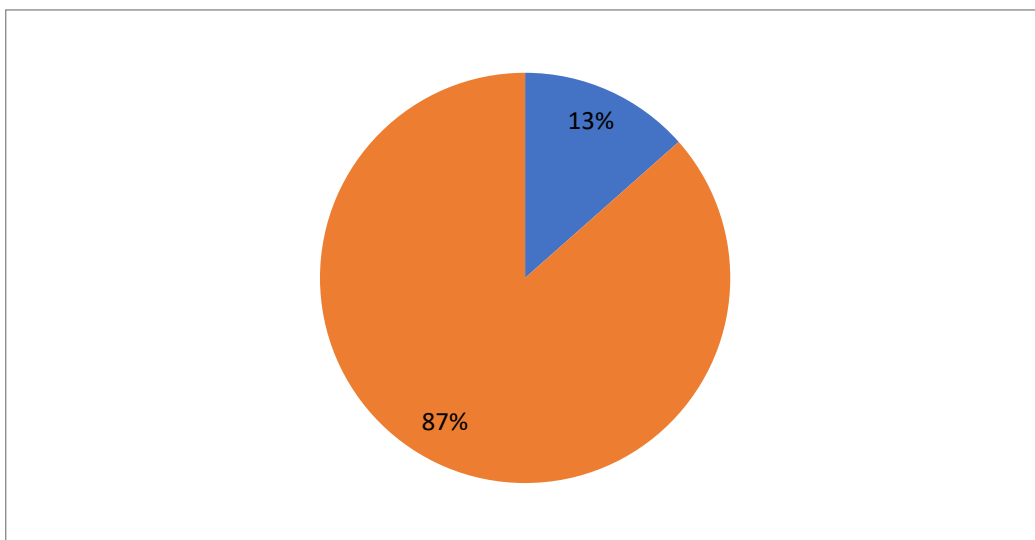


Figure 19: The Baby does not Need to be Monitored for Respiratory Distress Syndrome

Figure 19. Participants believed this statement to be false.

10. Discussion

The researcher collected data using a quantitative method (questionnaire). This questionnaire was distributed to 73 of the selected sample size, whereby only 52 (71%) students successfully completed the questionnaire. The remaining 21 (29%) students could not complete the questionnaire due to absence at the time the study was conducted.

Even though, the entire population did not complete the questionnaire, this did not materially affect the outcome of the test result as the percentage of the population that did not complete the questionnaire is inconsequential and is therefore accepted as reasonable [9].

• Section A: Demographic Data Sex

The study revealed that the majority of participants 51 (98%) were females and the remaining 1 (2%) were a male. It is an industry fact that more females pursue medical professions than males.

Age

The researcher found that 48 (92%) participants were in the age range 19 – 25 (92%) while 3 (6%) were in the age range of 26 – 32 and (2%) were in the age group 33 – 39. This is evident that a higher percentage of students pursue their studies directly after high school while fewer tend to do so after 26 years of age.

Working Experience in a Premature Unit

The results for any working experience in a premature unit indicated that 35 (67%) students have previous experience, while the remaining 17 (33%) do not have experience working in a premature unit.

• Section B

Knowledge on the Causes of Preterm Birth

The findings reveal that majority of the students have good knowledge regarding the causes of preterm birth. Few students have poor knowledge on the causes of preterm birth.

The findings reveal that smoking of tobacco may lead to premature birth. All 52 (100%) participants agreed with the statement of smoking tobacco substances may lead to premature birth. Literature supports this statement by stating that smoking is linked to preterm birth [10].

Regarding whether premature birth can be prevented or not, the majority of the respondents, 43 (83%) agreed with this statement. The remaining 9 (17%) disagreed and said premature birth cannot be prevented. Tommy's (2021) states methods used to prevent early labor, thus premature can be prevented [1].

Another finding in this study is that the respondents of 4 (8%) agreed, and 48 (92%) respondents disagreed with the statement that premature birth only happens when a pregnant mother does something wrong. Premature birth can occur not only when the mother does something wrong, but it can occur when the mother or the baby has a health condition [1].

The study reveals that participants of 46 (88%) agree, and 6 (12%) participants disagreed with the statement that preterm birth can be caused by urinary tract infections. In pregnancy, asymptomatic urinary tract infection is very common and is linked with preterm delivery [9].

In this study, 38 (73%) of the participants agreed that diabetes contribute to preterm birth while 14 (27%) disagreed with this statement. According to Murray (2021) the complications caused by elevated blood sugar levels can increase the risk of premature birth [11].

This study reveals that 7 (13%) participants indicated that multiple pregnancies may not be a cause of premature birth, while 45 (87%) of the participants disagreed and said that multiple pregnancies may be a cause of premature birth. Tommy's (2021) supported this statement by indicating that carrying more than one baby may contribute to preterm birth [9].

The findings reveal that 8 (15%) participants agreed with the statement that preterm birth is when the baby is born after 37 weeks of gestation. The remaining 44 (85%) disagreed with this statement. Literature supports this by stating that a premature baby is born alive before 37 weeks of pregnancy is completed [2].

The majority of the participants, 49 (94%) agreed with the statement that stress can be associated with preterm birth, while

the remaining 3 (6%) participants disagreed and said stress cannot be associated with preterm birth. Gomez-Lopez et al. (2020) supported this statement by saying that maternal stress is a well-established risk for preterm birth [12].

This study found that 42 (81%) participants agreed with the statement that preterm birth can be caused by Bacterial Vaginosis while the remaining 10 (19%) disagreed. This indicated that the majority of the students understand that premature birth can be caused by Bacterial Vaginosis and Dingens (2016) supported this statement by saying that Bacterial Vaginosis contributes to the preterm delivery [13].

Regarding the statement 'Preterm birth can be caused by maternal malnutrition, 49 (94%) participants agreed with this statement while the remaining 3 (6%) disagreed and said preterm birth can be caused by maternal malnutrition. An imbalance in maternal nutrition may be one of the key factors associated with preterm birth [14].

• Section C

Management of Preterm Babies

The findings reveal that 45 (87%) participants agreed with the fact that the management of preterm babies includes monitoring of fluid and electrolyte balance while just a few, 7 (13%) said this statement is false. This is evident that the majority of students are aware of the monitoring of fluid and electrolyte balance in a premature baby. All 52 (100%) participants believed it to be true to place a premature baby in an incubator. 13 (25%) of the participants said that management of a preterm baby includes 5hourly feeding while the majority 48 (75%) said that this statement is false. Literature supports that the majority participants are correct due to research done that are saying preterm babies should be fed every two to three hours [15].

Responding to whether a premature baby must have a feeding tube inserted, 40 (77%) responded true while 12 (23%) said this statement is false. Neil et al (2022) supported this statement by saying that preterm babies might not be able to suck or swallow well enough to bottle or breastfeed, thus a feeding tube is inserted for these preterm babies to help with feeding. When asked whether preterm babies receive blood transfusions, 39 (75%) said this statement is true while 13 (25%) believed the statement to be false [16]. Many premature babies, especially those with a low birth weight are given blood transfusions during their first weeks of life [17]. The findings reveal that 5 (10%) of the respondents said it is true that a normal body temperature is not necessary to be maintained by preterm babies while 47 (90%) said this statement is false.

The majority 49 (94%) of respondents believed that the statement is true that preterm babies need help breathing either by a ventilator or positive airway pressure machine while only 3 (6%) respondents said this statement is false. Bird (2022) stated that a ventilator is used when a preterm baby is too weak to breathe on his/her own while a CPAP machine is only used when a preterm baby can breathe on its own. When asked about feeding times of premature babies again, 8 (15%) said that preterm babies are fed

every 6 hours while 44 (85%) respondents said this statement is false [15].

The findings reveal that 51 (98%) respondents said that the management of preterm babies includes monitoring the weight of the baby while only 1 participant (2%) said the answer is false. This statement is supported by Neil et al (2021) by saying that in the NICU, the weight for preterm babies is taken daily [16]. 7 (14%) of the respondents said it is not necessary to monitor the premature baby for respiratory distress syndrome while 45 (87%) believed this statement to be false.

11. Limitations

Research limitations are those characteristics of methodology or design that influenced the interpretation of the findings from the research [18]. All research studies have limitations and this study is no exception. One of the limitations of the study is the generalizability of the results. The participants were from the University of Namibia and they were only 3rd year degree nursing students from the main campus in Windhoek. Another limitation of the study is that due to the nature of some questions in the questionnaire some of the students who were unsure of the answers may have been persuaded to choose right answers rather than their actual choice.

12. Conclusion

• Objective 1

To assess the knowledge of the causes of preterm babies amongst 3rd year nursing degree students at the University of Namibia, Windhoek.

The results reveal that 46 (88%) of the participants knew the causes of preterm birth. However, there are participants of 6 (12%) that have poor knowledge regarding the cause of preterm birth.

• Objective 2

To assess the knowledge of the management of preterm babies amongst 3rd year nursing degree students at the University of Namibia, Windhoek. The results reveal that the average of 45 (87%) of the participants knew the management of preterm babies. However, there are 7 (13%) of the respondents with poor knowledge on the management of preterm babies.

13. Declarations

Ethics Approval and Consent to Participate

Written informed consent was obtained from the participants prior to data collection to partake in this study. Ethical clearance was obtained from the School of Nursing and Public Health at the University of Namibia research ethics committee to conduct the study. The following ethical principles, respect for a person, justice, maleficence and beneficence were adhered and respected throughout the study according to guidelines.

Consent for Publication

None

Competing Interest

The authors declared no conflict of interest.

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Authors Contribution

Sune Karsten was responsible for the original draft preparation, data collection and analysis, Joseph Galukeni Kadhila was responsible for supervision, review and editing of manuscript.

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Availability of Data and Materials

Data is available on request from the corresponding author Joseph Galukeni Kadhila.

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