

Assessment of Quality of Immediate Care after Birth for Babies with Gastroschisis at the Korle-Bu Teaching Hospital, Ghana

Joseph Kwasi Nkrumah^{a*}, Delali Adwoa Wuaku^b

^{a,b}*Ghana College of Nurses and Midwives, 114 Boulevard Street, West Legon, Accra, Ghana*

^a*Email: nkrumahj7@gmail.com*

^b*Email: delwaxs@gmail.com*

Abstract

Background: Quality nursing care continues to be a subject of intense criticism and debate although it is vital to patient outcomes and safety. The provision of quality nursing care for babies with gastroschisis immediately after birth is no exception. Gastroschisis is one of the commonest congenital anomalies increasing worldwide and Ghana is not excluded. Ghana records a high rate of newborn deaths from congenital anomalies such as gastroschisis. Studies revealed that proper nursing care immediately after birth is essential for the survival of babies with gastroschisis.

Objective: To assess the quality of immediate care after birth for babies with gastroschisis at the Korle-Bu Teaching Hospital (KBTH).

Methodology: A descriptive cross-sectional survey was employed using a quantitative research approach. The study employed the census method to collect data from eighty-four (84) midwives working at the two labour wards of the KBTH. Data was captured in Epi data version 3.5 and analyzed using descriptive statistics. The quality of immediate nursing care after birth was determined by calculating the total mean values from the responses of the midwives and compared with the American College of Healthcare Sciences grading policy.

Results: The findings from this study showed that only 38% of the midwives provided immediate nursing care for babies delivered with gastroschisis that was rated high in quality care.

Conclusion: The quality of immediate care after birth for babies with gastroschisis at the Korle-Bu Teaching Hospital was low since the overall quality mean score was below the expected threshold of 60%.

Keywords: Quality; immediate nursing care; Gastroschisis babies.

* Corresponding author.

1. Introduction

Gastroschisis is one of the commonest congenital anomalies which is increasing throughout the world [1]. In 2011, it was estimated that about 49,000 infants are likely to be born with this defect every year across the globe [2]. With treatment guidelines, babies born with gastroschisis have a good prognosis and long-term survival rate exceeding 90% in developed countries [3].

Some researchers observed that over the half-century, mortality from gastroschisis in High-Income Countries (HICs) has reduced from over 90% in the 1960s to less than 4% Wright and his colleagues [1]. Currently, the majority of gastroschisis survivors proceed to live a fully normal life. However, such improvements have not been realized in Low and Middle-Income Countries (LMICs) including Ghana [1]. The mortality rate for babies with gastroschisis has been reported as; 98–100% in Uganda, 100% in Cote d'Ivoire, 84% in Zimbabwe, 80% in Iran, 79% in Jamaica, 75% in Nigeria, 60% in Malawi, 34% in Turkey, 29–65% in South Africa, and 23–57% in China [4]. Similarly, a group of scientists observed that the mortality rate for babies born with gastroschisis in Ghana is 87% Abdul-Mumin and his colleagues [5]. Meanwhile, the actual cause for the increase in mortality is not known in Ghana [5]. Poor management at the initial stage may lead to the exposure of the bowel, contaminated and torqued at the vascular pedicle resulting in postnatal ischaemia and necrosis [4]. Babies with Gastroschisis require technical nursing, and medical and surgical interventions to ensure their survival due to the presence of hypovolaemia, hypothermia, and septicaemia [3].

At the Korle-Bu Teaching Hospital in Ghana, there was a yearly increase of 11% in the number of gastroschisis cases within the period of 2019 and 2020 [6]. The mortality rate within the same period was noted to be 22% [6]. During the first quarter of 2021, seven cases of gastroschisis were recorded at the Paediatric Surgical Ward with 3(43%) mortality [7].

A mortality audit for babies with gastroschisis at the Korle-Bu Teaching Hospital revealed that the quality of nursing care was a problem [7].

In addition, it was mentioned that the midwives did not follow the needed protocol in referring the baby to the Paediatric Surgical Unit [7].

Unfortunately, the nursing care for babies born with gastroschisis in lower and middle-income countries including Ghana has not been assessed about standard treatment guidelines [4]. This article, therefore, examines the quality of immediate nursing care after delivery for babies with gastroschisis at the Korle-Bu Teaching Hospital in Ghana to reveal the gaps in nursing care for babies with gastroschisis and to help improve the nursing care for such babies.

Figure 1 shows a baby with gastroschisis being managed at the Paediatric Surgical Ward of Korle-Bu Teaching Hospital.



Figure 1: A baby with gastroschisis being managed at the Korle-Bu Teaching Hospital.

Source: Field data 2022

2. Theoretical Perspective

The quality of immediate nursing after delivery for babies with gastroschisis depends on the care provided by Midwives geared towards ensuring that the baby's condition improves or leads to full recovery. Donabedian outlined quality health care as a Structure, Process, and Outcomes [8, 9]. The first module of the Donabedian model of quality nursing care is Structure, which refers to the midwives who provide nursing care to babies with gastroschisis [9]. The other elements in the structure model are equipment and infrastructure [incubators and protocols] for taking care of babies with gastroschisis.

The second model is the process. The process in the Donabedian model denotes the activities that take place in the care of babies with gastroschisis; in the form of immediate nursing care after delivery. The quality of health care is evaluated by the outcome of the nursing care. The outcome indicates whether the objectives of quality nursing care were attained [9]. The researchers indicated that outcomes originated from the process of caring and involved the babies getting cured Wuaku and his colleagues [9]. The independent variables in the conceptual framework are the socio-demographic characteristics and the dependent variables are those activities denoting quality nursing care for babies with gastroschisis immediately after birth. This is depicted in figure 2.

THE ADAPTED DONABEDIAN MODEL

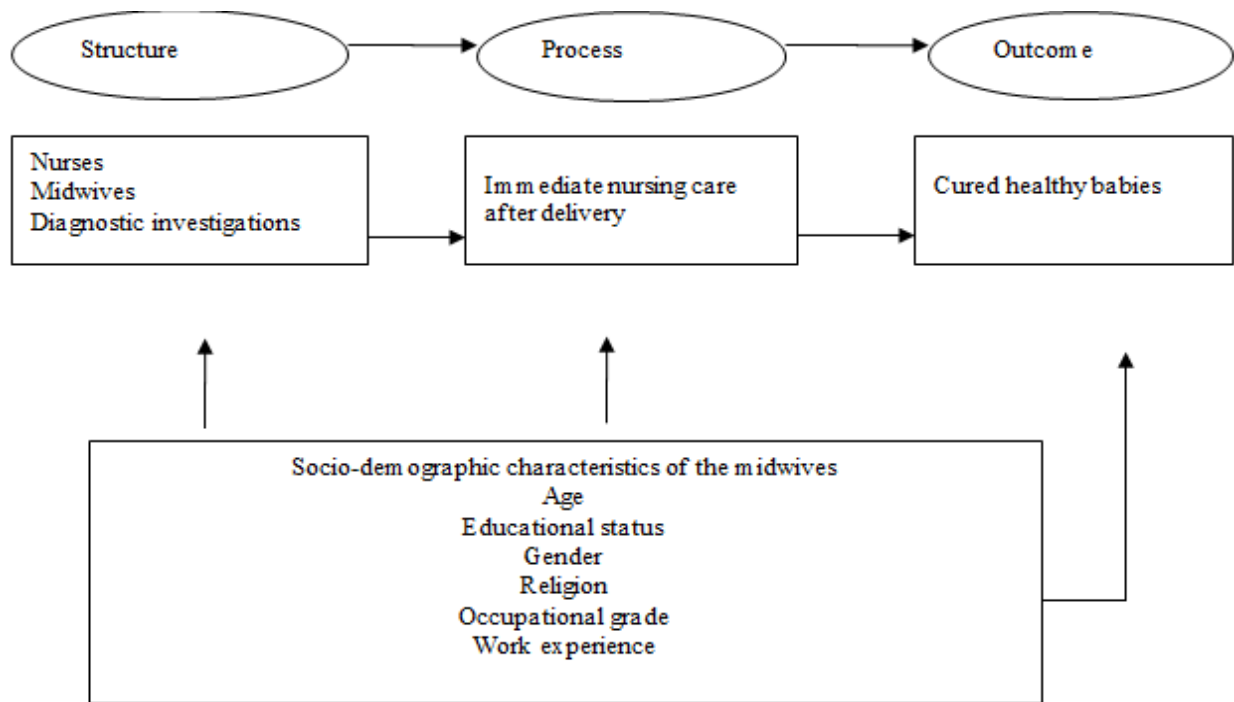


Figure 2: Donabedian Conceptual framework on quality health care [9].

3. Material and Methods

The study setting was the Korle-Bu Teaching Hospital in Ghana. Korle-Bu Teaching Hospital is located in the Ablekuma South Metropolitan District in Accra; the capital city of Ghana. The facility is a referral centre for managing babies with Gastroschisis. Approximately, Korle-Bu Teaching Hospital (KBTH) manages about 50-60 babies with gastroschisis per year [6].

A descriptive cross-sectional survey method was used to conduct the study for eighty-four (84) midwives at the two Labour wards of Korle-Bu Teaching Hospital using a quantitative approach. All 84 respondents in the inclusion criteria were used for the study. This was based on the census approach of sample size determination. The census strategy is the use of the entire population as the sample size when the study population is 200 or less [11]. Data was obtained through the administration of questionnaires.

Descriptive statistics was used to analyze the study participants' data. Data collected were captured in Epi-Data Version 3.5 for validation and cleaning. Stata version 15.0 was used to analyze the data to determine the measure of central tendency (Mean). The data were described in relation to relevant variables. The results were displayed in tables and bar charts according to the variables studied showing frequencies, percentages, and mean. In assessing the level of quality of postnatal nursing care for babies with gastroschisis, three levels of variables to represent quality nursing care were generated where the responses "Never" and "Sometimes" in the Likert Scale were rated as 0 representing Low quality, the response "Most of the time" was also rated as 1 representing Moderate level of quality and the response "Always" in the Likert Scale was rated as 2 representing

High quality. In addition, the quality of immediate nursing care for babies with gastroschisis after delivery was determined by calculating the total mean from the responses under each of the three levels of quality (i.e. Low, Moderate and High) using the formula; $Mean = \frac{Sum\ of\ all\ Scores}{Number\ of\ Scores}$ [11, 12].

The high-quality mean score was then compared with the American College of Healthcare Sciences grading policy to determine the overall quality of immediate nursing care. Adapting this grading policy, a mean score of 90% and above was graded as high-quality immediate nursing care, 60%-89% as satisfactory or moderate, and a grade of 59% and below as low-quality immediate nursing care [13, 14].

Ethical approval for the study was obtained from the Korle-Bu Teaching Hospital Ethics Review Committee (KBTH-ERC) and Korle-Bu Teaching Hospital Scientific and Technical Committee. The researcher ensured that the research was conducted by accepted principles of ethics in research practice. Moreover, permission was sought from the departmental and unit heads. An informed consent was also sought from the study participants before data collection began. The study participants were assured of anonymity and confidentiality in compliance with ethical principles. The study’s identification number is KBTH/MD/G3/22.

4. Study results

4.1 Background characteristics of respondents

The 84 midwives providing postnatal care to babies were all females (100%). Most of them 53(63%) were less than 31 years old. The majority of the respondents 62(73%) had diploma education. The respondents that were married were 33(39%). Most of the respondents 41(48%) had less than three years of working experience in the unit. The data are shown in Table 1 below.

Table 1: Demographic characteristics of respondents.

Respondents	Variables	Categories	Frequency	Percentage (%)
Midwives	Gender	Male	0	0.00
		Female	84	100.00
	Age (years)	< 31	53	63.10
		31-40	27	32.14
		41-50	2	2.38
		50+	2	2.38
	Religion	Christianity	82	97.62
		Islam	2	2.38
	Educational Level	Diploma	62	73.81
		Degree	18	21.43
		Post-Graduate	4	4.76
	Marital Status	Single	51	60.70
		Married	33	39.29
	Years of Experience	< 3	41	48.81
3-5		35	41.67	
6+		8	9.52	

Source: Field Data (2022).

4.2 Quality of nursing care rendered immediately for babies with gastroschisis by the midwives

The immediate post-natal nursing care for the babies were assessed among the midwives at the labour wards of the Korle-Bu Teaching Hospital. The responses were rated as low, moderate and high performed tasks.

The findings revealed that; the practice of drying the baby thoroughly immediately after birth was rated high among only 30 (35%) of the respondents. Also, cutting the umbilical cord up to at least 10cm long was highly performed among just 26 (30%) of the respondents, tying the umbilical cord of babies with gastroschisis with a ligature instead of a plastic cord clamp was practiced among only 10 (11%) of the respondents.

Furthermore, the practice of positioning the baby and bowel on the right side if defect is to the right of umbilicus was highly performed among only 8 (9%) of the respondents. Preparing the bowel bag with approximately 30mls of warm sterile normal saline was also high among only 17 (20%) of the respondents.

The results further showed that; not applying saline-soaked gauze to eviscerated bowel was highly performed among 49 (58%) of the respondents.

Putting the baby into a clean plastic non-adhesive bag up to the axilla from the foot end was performed among 22 (26%) of the respondents, and putting a diaper on before putting the baby into a plastic non-adhesive bag was practiced among just 20 (23%) of the respondents.

Moreover, midwives advocating for the baby to be referred to a paediatric surgery centre within 30mins post-partum was practiced among 44 (52%) of the respondents.

Also, for a midwife to accompany a baby with gastroschisis to the paediatric surgery unit was rated highly performed among 51 (60%) of the respondents. The findings are shown in Table 2 below:

Table 2: Quality of immediate nursing care rendered for babies with gastroschisis by the midwives.

Number of Responses (N) out of 84						
Variables Quality Indicators	Low Freq.	%	Moderate Freq.	%	High Freq.	%
1. Drying baby thoroughly	41	48.81	13	15.48	30	35.71
2. Cutting the umbilical cord up to at least 10cm long	38	45.24	20	23.81	26	30.95
3. Tying the umbilical cord with a ligature instead of a plastic cord clamp	62	73.81	12	14.29	10	11.90
4. Assessing temperature and risk of hypothermia and document	32	38.1	12	14.29	40	47.62
5. Assessing the colour, shape, and size of the bowel and document	34	40.48	12	14.29	38	45.24
6. Weighing baby and documenting birth weight	34	40.48	8	9.52	42	50.00
7. Utilizing sterile gloves when manipulating the eviscerated bowel	29	34.52	10	11.90	45	53.57
8. Positioning the baby and bowel on the right side if defect is to the right of umbilicus	61	72.62	15	17.86	8	9.52
9. Preparing bowel bag with approximately 30mls of warm sterile normal saline	45	53.57	22	26.19	17	20.24
10. Not applying saline soaked gauze to eviscerated bowel	24	28.57	11	13.10	49	58.33
11. Putting baby into a clean plastic non-adhesive bag up to the axilla from the foot end	48	57.14	14	16.67	22	26.19
12. Wearing baby diaper before putting into the plastic non-adhesive bag	41	48.81	23	27.38	20	23.81
13. Advocating for the baby to be referred to a paediatric surgery centre within 30mins post-partum	24	28.57	16	19.05	44	52.38
14. A guideline on referral is available and followed	30	35.71	24	28.57	30	35.71
15. A guideline on the care of the eviscerated bowel is available and followed	30	35.71	16	19.05	38	45.24
16. There is an accompanying midwife during the referral	23	27.38	10	11.90	51	60.71
Total Mean	37.25	44.35	14.88	17.71	31.88	37.95

Source: Field Data (2022).

The overall quality of immediate nursing care provided for babies delivered with gastroschisis that was rated as high were rendered by only 32 (38%) midwives. This is shown in figure 2 below:

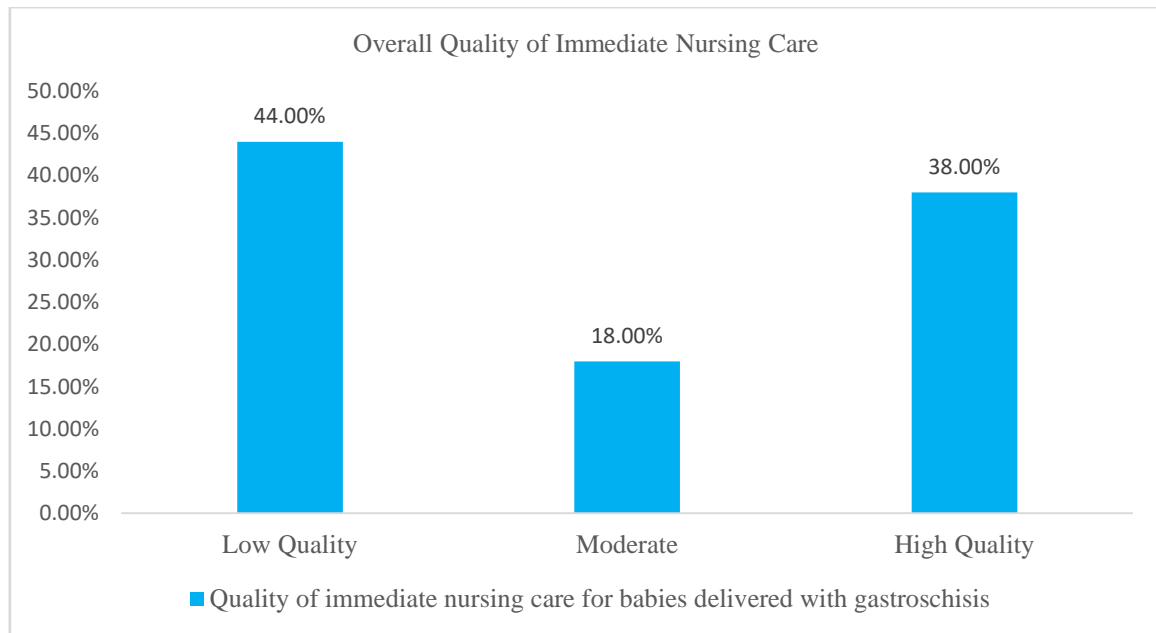


Figure 3: Overall quality of immediate nursing care for babies with Gastroschisis at the Korle-Bu Teaching Hospital.

Source: Field Data (2022).

5. Discussion

The discussion of the findings are related to existing literature and explained based on the Donabedian’s Model of Quality Practice.

5.1 Quality of immediate nursing care rendered for babies with gastroschisis

The immediate quality nursing care rendered to babies diagnosed of gastroschisis at the Korle-Bu Teaching Hospital revealed that the mean score on quality nursing care was 38% which is below the expected threshold of 60% [13, 14]. The 60% average mark threshold grading reflects the mastery in providing quality care. Unfortunately the nursing care provided at the Korle-Bu Teaching Hospital for these babies revealed that the midwives did not have the mastery to provide quality care for these babies. This deficiency in providing immediate quality postnatal care could lead to poor recovery of these babies and also lead to financial hardship to their mothers who have to stay longer for their babies to recover thereby incurring more hospital cost.

Similar study on quality of postnatal care offered to babies in healthcare facilities in Malawi was generally poor and below standard [15]. The low quality care was attributed to midwives not following the reproductive health standards on client examination such as failure to check vital signs for neonates and not assessing the emotional state of the mother [15]. Our study also found that most of the midwives do not assess temperature and risk of hypothermia for babies with gastroschisis, neither do they put babies into a clean plastic non-adhesive bag up to the axilla from the foot end and this could lead to evaporative heat loss leading to poor recovery or death. This may partly be attributed to the low level of knowledge and expertise in managing babies with gastroschisis by

the midwives. Some investigators also argued that in Sub-Saharan Africa not all cadres of skilled birth attendants are able to offer full range of services to babies born with gastroschisis since they require specialized and peculiar care as compared to other babies [4].

It is observed from this current study that the process phase of the Donabedian's model are not well practiced by the midwives caring for these babies. Such immediate postnatal care as with drying the baby thoroughly and cutting the umbilical cord up to 10 cm long soon after birth for babies with gastroschisis are not well practiced which may lead to infection and delay in the healing of the wound as well as failure of the suture-less closure. The current study revealed low quality postnatal care because most of the respondents in the study who are midwives do not have any specialized educational qualification in paediatric nursing to have adequate knowledge to nurse these babies. All the respondents have general midwifery care knowledge for adult care. General knowledge in adult care by the respondents in caring for babies with gastroschisis may not be the best practice to attain quality immediate nursing care for these babies after delivery. It is imperative that the midwives are taken through workshops to inculcate in them how to care for these babies as well as granting them the opportunity to acquire further studies in becoming specialist in paediatric care. These babies are very delicate and need nurses who have specialized training in these condition to provide quality nursing care to babies diagnosed of gastroschisis after delivery. In support with the current findings, the World Health Organization recommends that for babies with gastroschisis, the umbilical cord should be tied with a ligature instead of a plastic cord clamp to prevent perforating the bowel [16]. Meanwhile this is not adhered to by the midwives as found in this study. It could be that the midwives are not aware that for babies with gastroschisis it is much beneficial and life-saving to tie the umbilical cord with a ligature. This situation could also lead to poor quality of care received by babies with gastroschisis which would prolong their recovery and may lead to complications such as the plastic cord clamp perforating the eviscerated bowel. Additionally, these practice could cause a lot of infection among babies with gastroschisis affecting the quality of care rendered for these babies. This is why the Paediatric Society of Ghana experts its members to ensure that every child in Ghana has access to quality healthcare services [17]. This supports calls for the Ministry of Health to come up with training programs and short courses that will help equip nursing and midwifery staff working at newborn care areas in managing babies with congenital anomalies such as gastroschisis to ensure compliance with standards for offering this care.

This study also showed that although most of the midwives advocate for babies with gastroschisis to be referred to a paediatric surgery centre within 30mins post-partum with an accompanying staff; quite a number of them do not enforce this protocol which could be as a result of the midwives not aware of the impact of delaying the child at the labour ward without any proper interventions. Therefore, most of the cases are delayed at the labour ward making the condition complicated among 29% of the babies and this delays the healing process reducing the quality of care rendered for babies with gastroschisis. This situation could lead to poor outcome of care. Similarly, investigators found that midwives in Dedza district (Malawi) had serious gaps in knowledge and skills in managing babies with congenital anomalies and providing postnatal care to mothers [18].

This incidence of poor standard of immediate nursing care after delivery for babies with gastroschisis is an indication that the premier hospital in Ghana should sponsor nurses and midwives to further their education at

the Ghana College of Nurses and Midwives to become Specialist Paediatric Nurses to enhance their capacity in providing quality immediate nursing care after delivery for these babies since the graduate population at the department are not many (4.8%) to have positive impact on the care of these babies.

The General Assembly Resolution on the 2030 Agenda for Sustainable Development Goals also mentioned that activities leading to ensuring healthy lives and promoting the well-being for all ages is essential to sustainable development which among many other interventions seeks to end preventable deaths of newborns and children under 5 years of age by 2030 [19]. The report indicated that significant strides have been made in increasing life expectancy among newborns but this cannot be fully achieved without improving outcomes of babies with congenital anomalies such as gastroschisis [19]. The above policy would help improve the health of babies with gastroschisis at the Korle-Bu Teaching Hospital. The CEO of Korle-Bu Teaching Hospital could establish periodic programs for the midwifery staff to update their knowledge to meet the SDG 3.

6. Conclusion

Our study assessed the quality of immediate nursing care after delivery for babies with gastroschisis at the Korle-Bu Teaching Hospital in Ghana. The study revealed that a very small proportion (38%) of the respondents were highly performing various quality improvement indicators to standard in line with recommendations by WHO and evidence based literature.

This study used self-reported data which indicated that there is a low quality of immediate nursing care after delivery for babies with gastroschisis at the Korle-Bu Teaching Hospital since the overall high quality mean score of 38% was below the expected threshold of 60% for measuring quality.

7. Recommendations

This study revealed that quality of immediate nursing care for babies with gastroschisis was low. The Chief Executive Officer and management of the health institution should sponsor their nursing staff in paediatric education to improve the care for babies with gastroschisis.

8. Limitations of the study

The study findings were narrowed to immediate care after delivery provided to babies with gastroschisis and the study used quantitative approach which could not provide the reasons to the poor quality of care provided for these babies. However, these limitations did not affect the overall outcome of the study.

Acknowledgement

Special gratitude goes to the Chief Executive Officer and the Labour Ward Nursing Staff of the Korle-Bu Teaching Hospital.

References

- [1] N. J. Wright, A. J. Leather, N. Ade-Ajayi, N. Sevdalis, J. Davies, D. Poenaru, *et al.*, "Mortality from gastrointestinal congenital anomalies at 264 hospitals in 74 low-income, middle-income, and high-income countries: a multicentre, international, prospective cohort study," *The Lancet*, vol. 398, pp. 325-339, 2021.
- [2] P. F. Nichol, "Gastroschisis," vol. 343, ed: British Medical Journal Publishing Group, 2011.
- [3] A. Wesonga, M. Situma, and K. Lakhoo, "Reducing gastroschisis mortality: a quality improvement initiative at a Ugandan pediatric surgery unit," *World Journal of Surgery*, vol. 44, pp. 1395-1399, 2020.
- [4] N. Wright, F. Abantanga, M. Amoah, W. Appeadu-Mensah, Z. Bokhary, B. Bvulani, *et al.*, "Developing and implementing an interventional bundle to reduce mortality from gastroschisis in low-resource settings," *Wellcome Open Research*, vol. 4, 2019.
- [5] A. Abdul-Mumin, T. T. Anyomih, S. A. Owusu, N. Wright, J. Decker, K. Niemeier, *et al.*, "Burden of neonatal surgical conditions in northern Ghana," *World journal of surgery*, vol. 44, pp. 3-11, 2020.
- [6] Korle-Bu Teaching Hospital, "Paediatric Surgical Ward Annual Report," 2020.
- [7] Korle-Bu Teaching Hospital, "Paediatric Surgical Ward, First Quarter Report," 2021.
- [8] A. Donabedian, "The seven pillars of quality," *Archives of pathology & laboratory medicine*, vol. 114, pp. 1115-1118, 1990.
- [9] D. A. Wuaku, P. Aniteye, and A. Adomah-Afari, "Assessment of quality of healthcare among the elderly patients utilizing the Korle-Bu Teaching Hospital, Accra," *IOSR Journal of Nursing and Health Science*, vol. 11, pp. 40-50, 2022.
- [10] A. S. Singh and M. B. Masuku, "Sampling techniques & determination of sample size in applied statistics research: An overview," *International Journal of economics, commerce and management*, vol. 2, pp. 1-22, 2014.
- [11] P. Bhandari, "An introduction to quantitative research. Scribbr," ed, 2020.
- [12] W. W. Daniel and C. L. Cross, *Biostatistics: a foundation for analysis in the health sciences*: Wiley, 2018.
- [13] American College of Healthcare Sciences, "Grading Scale," 2022.
- [14] A. A. Lipnevich, T. R. Guskey, D. M. Murano, and J. K. Smith, "What do grades mean? Variation in grading criteria in American college and university courses," *Assessment in education: Principles*,

policy & practice, vol. 27, pp. 480-500, 2020.

- [15] M. Pindani, C. Phiri, W. Chikazinga, I. Chilinda, J. Botha, and G. Chorwe-Sungani, "Assessing the quality of postnatal care offered to mothers and babies by midwives in Lilongwe District," *South African Family Practice*, vol. 62, 2020.
- [16] World Health Organization, "Definition of skilled health personnel providing care during childbirth: the 2018 joint statement by WHO, UNFPA, UNICEF, ICM, ICN, FIGO and IPA," World Health Organization 2018.
- [17] Paediatric Society of Ghana, "About us", About Us – Paediatric Society of Ghana (pedsggh.com)
- [18] L. K. Chimtembo, A. Maluwa, A. Chimwaza, E. Chirwa, and M. Pindani, "Assessment of quality of postnatal care services offered to mothers in Dedza district, Malawi," *Open Journal of Nursing*, vol. 2013, 2013.
- [19] B. Alicia, C. Mario, R. Garcia-Buchaca, L. F. Yanez, and P. Ricardo, "United Nations, the 2030 agenda and the Sustainable Development Goals: an opportunity for Latin America and the Caribbean," (LC/G.2681-P/Rev.3), Santiago, 2018.