



Knowledge Levels and Practice Regarding Breastfeeding among Mothers with Children under 2 Years Admitted in the Pediatric Ward at Mnazi Mmoja Hospital, Zanzibar

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Authors' contributions

This work was carried out in collaboration among all authors. Authors FAS and CJO designed the study, performed the statistical analysis, wrote the protocol and the first draft of the manuscript. Authors SAY, AAA, KAA, SAM, UC, AAH, SSK, and AAH managed the analyses of the study and the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Breastfeeding (BF) has been a proven means of providing young infants with the nutrients required for healthy growth and development. The process has also been known to reduce common childhood infections, which are the causes of high mortality and morbidity. Hence in achieving the best practice of BF, both knowledge and techniques are essential. Therefore, the study aims to

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assess the knowledge and practice on BF among mothers whose children were admitted at Mnazi Mmoja Hospital, Zanzibar. The study was a cross-sectional descriptive hospital-based carried out in the pediatric ward of MMH from April 2020 to July 2020 after approval by the hospital's health and ethics committee. Questionnaires were deployed to interview all consenting participants who were mothers aged from 18 to 50 years, breastfeeding a child, and having at least one previous child who had been breastfed earlier (Above 2 years) at the time of the study. Selected questions were used to assess and categorized a total of 199 mothers who were recruited into the study as those with knowledge, those without knowledge on Exclusive breastfeeding (EBF), breastfeeding (BF) for 2 years, and breastfeeding techniques (BFT). Data were analyzed using Statistical Package for Social Sciences version 16. Differences at $P < 0.05$ were considered significant. About 76.9% of the mothers studied had knowledge of EBF, while 65% had knowledge of BF for two years. A total of 42 (21.1%) had children below 6 months and were still BF, with the remaining 157(78.9%) having children above 6 months. Among the 157, only 58 (37%) practice EBF for 6 months. Also, 130 (65.3%) mothers breastfed their children up to 2 years in their previous child's upbringing. Most of them (42%) stopped because they became pregnant. The breastfeeding technique (BFT) was affected by the mother's age but not education level, as more of the older mothers had good positions and attachments than the younger ones. On overall techniques, 58.5% had good attachment compared to 49.7% who had proper position. Although most mothers were aware of the knowledge of EBF for 6 months, the practice is still low. However, older mothers, particularly the age group 31-40, have good BFT compared to younger mothers. There is a need for more education on EBF, BF, and BFT among women during Antenatal Clinic (ANC) and after delivery during the monthly clinic.

Keywords: Exclusive breastfeeding; knowledge and practice; breastfeeding techniques.

1. INTRODUCTION

The medical, emotional, and economic benefits of breastfeeding are significant and overwhelming. It reduces common childhood infections, which are the causes of high mortality and morbidity, including diarrhea and respiratory tract infections [1,2]. The mother reduces the risk of breast and ovarian cancer [3]. Thus, poor early childhood nutrition causes negative impacts on the child's physical and emotional development in both the short and long term and limits adult achievement and productivity. Inadequate feeding practice is the major contributor to the high burden of childhood morbidity and mortality in many countries [4].

The Innocent Declaration on Protection, Promotion, and Support of Breastfeeding 1990 recognized that breastfeeding was a unique process with manifold advantages. Breast milk contains all the nutrients, antibodies, hormones, and immune factors that a baby needs. On the 18th of May 2001, the World Health Organization (WHO) endorsed exclusive breastfeeding (EBF) until an infant is 6 months of age [5]. If the drive for universal BF in the first 6 months is accomplished, an estimated 1.5 million lives could be saved each year [6].

Despite the campaign and awareness on exclusive breastfeeding in general, infants' EBF

up to 6 months of life is rare. Reported rates of EBF, especially in developing countries, are still low [2]. Epidemiological studies show that in most low- and middle-income countries, the quality of EBF for infants less than six months is around 30% [7]. A recent report in Tanzania indicated that 17% of infants less than 6 months of age were predominantly breastfed and rare in rural areas [8]. The national duration average of 2.4 months being longer in rural areas than in urban areas (2.5 and 1.9 months, respectively). Practices of feeding infants during the first six months and beyond are diverse based on geographical, economic, and cultural settings. However, the main concerns are when mothers initiate breastfeeding, the duration of breastfeeding, and the age at which infants are weaned [9]. Based on other studies, many mothers who did not exclusively breastfeed their children or interrupted exclusive breastfeeding alleged that breast milk was insufficient. Relatives advised others to begin complementary feeding immediately, while others reported stopping due to work commitments [10,11]. The main diet during this period was maize or cassava porridge, as stated by the mothers [9].

Furthermore, proper positioning and good attachment of the baby to the breast are essential for effective suckling. Performing effective breastfeeding techniques (BFT) is critical to establishing breastfeeding, ensuring

milk transfer, and preventing breastfeeding problems [12]. Mothers can avoid most difficulties of breastfeeding if suitable attachment and positioning can be achieved at the first and early feeds. The word “attachment” describes how the baby’s mouth takes the breast, and “positioning” describes how the baby’s body is put near the mother’s body [13]. A strong correlation between the onset of sore nipples and the practice of ineffective breastfeeding techniques among nursing mothers has been described [14,15]. Thus, it is one of the major contributors to causing early cessation of breastfeeding practice. A small localized-based study in India indicated that ineffective BFT was present in about 57% and 63% of children suffering from diarrhea and ARI [12]. Ineffective BFT results in insufficient breast milk intake, which will cause poor weight gain and stunting, and the baby may also become difficult to feed. Poor positioning, attachment, and suckling also lead to a sharp reduction of exclusive breastfeeding practice and increased breastfeeding problems. Poor BFT was the leading cause of cracked nipples among breastfeeding mothers. Nipple damage and mastitis were more common among mothers with poor positioning and attachment. Furthermore, breastfeeding problems were 2.44 times more common among mothers who practice ineffective BFT than those who had effective BFT practice [12].

The American Academy of Pediatrics (AAP) recommends EBF for six months and continue BF for at least 12 months [16]. After that, it can be continued for as long as the mother and baby desire. World health organization (WHO) recommends exclusive breastfeeding for the first six months of life and provides adequate and safe complementary food with breastfeeding for up to 2 years and beyond. Still, EBF remains uncommon in most countries (both developed and developing countries) [17]. EBF rates in infants less than six months of age varied from as low as 20% in central and eastern European countries to 44% in South Asia [18]. More than 95% of infants are currently breastfed in Africa, but feeding practices are often inadequate; feeding water and other liquid to breastfed infants is widespread [19].

In Tanzania (Tz, demographic health survey (2015)), only 59% of children are exclusively breastfed in their first six months of life [20,21]. The government established an essential newborn care package program that started

about 10 years ago to create more awareness. Knowledge, positioning, and attachment training on BF are provided to the health workers to teach mothers to ensure effective breastfeeding among mothers.

Different studies have been previously done in Zanzibar, most of which looked at EBF practice for six months without assessing proper position and attachment, which are essential for good BM production and effective BF, especially in children under 6 months [22,23,24]. Additionally, those studies did not look at BF practice for 2 years as recommended by WHO and UNICEF. Therefore, this study set out to cover this gap by assessing the proper BF technique among mothers and BF for 2 years. Hence the main objective of this study was to assess the knowledge and practice of breastfeeding among mothers with children under 2 years old admitted to the pediatric ward at Mnazi Mmoja Hospital (MMH).

2. RESEARCH METHODOLOGY

2.1 Study Design

This was a cross-sectional descriptive hospital-based study done among women whose children were admitted to the pediatric ward of Mnazi Mmoja Hospital (MMH).

2.2 Study Area

The study was conducted at pediatric ward Mnazi Mmoja Hospital in Zanzibar, the main referral government hospital located in Unguja Island, the largest inhabitable island of Zanzibar archipelago that serves approximately 1.5 million people. The hospital has an outpatient clinic, specialized clinics as well as several wards for inpatient services. It attends to over 600 outpatients, 71 admissions, and 40 deliveries daily. The pediatric department has 2 wards. One ward admits children 0-3years, and the other one admits children 3-13 years old.

2.3 Study Population

The study population includes mothers whose children were admitted into the Pediatrics ward during the study. Such mothers must have a child from 0-2 years on breastfeeding and a previous child above two years. This was necessary to justify the experience of the mother in breastfeeding.

2.4 Scope and Determination of Study

This study focused on the mothers and their children admitted at pediatric ward MMH; this study used questionnaires provided to the mothers. The primary purpose was to assess their knowledge and practice of BF.

2.4.1 Inclusion criteria

- All mothers whose children were 0-2 years were breastfeeding at the time of study and have another child above 2 years.

2.4.2 Exclusion criteria

- Mothers who have a first child
- Mothers who refused to participate
- Mothers who have under 2 years children but are not breastfeeding.

2.4.3 Sample size

The sample size was calculated from the following formula.
 $N = Z^2 pq / d^2$

Where;

- N=minimum sample size for a statistically significant survey
- Z=normal deviation at the position of 95%, the Confidence interval is 1.96
- q= 1-p
- p= prevalence in population
- d= margin of error acceptable measure of precision (0.05)
- p is 50% from a recent study done by [Ali N 24]

Therefore, the estimated sample from the above formula was 384, but the data obtained were 199 due to the following reasons,

- 1) Most of the mothers admitted were prime
- 2) There are mothers with children below two years but are not breastfeeding
- 3) The number of admissions has been reduced due to the Coronavirus outbreak.

2.5 Study Procedure and Data Collection

The researchers collected the data from all consenting participants who had received the questionnaires that were evenly distributed. Data was collected on alternative days at any time of the day but mostly in the evening. Before collecting the data, mothers were screened for eligibility, and eligible ones were informed about the objectives of the research; the informed

consent was verbal and written. Then mothers were interviewed face to face, collecting data by filling of questionnaires. Finally, an assessment for position and attachment was done. All forms were reviewed for errors omission at the end of data collection, then entered into a computer. The data was entered for 3 days and secured well.

2.6 Study Variables

- Dependent variable: knowledge and practice of breastfeeding
- Independent variables: age, education level.

2.7 Data Analysis

- Statistical packages for social science (SPSS) were used for the analysis of the study.
- The socio-demographic data of mothers and infants were summarized using univariate statistics. Descriptive analysis was done for continuous variables and presented in terms of median whenever appropriate for the study.
- The frequency was reported in terms of numbers and percentages using tables and graphs.
- Bivariate analysis established the association between dependent and independent variables, using Chi-square statistics for categorical variables.
- Here the variables are the identified factors during the study that affect breastfeeding. The frequencies and percentages of breastfeeding and exclusive breastfeeding were calculated and presented. Statistical significance was based on an alpha level of 0.05.

2.8 Study Instruments

The researchers developed research instruments consisting of questionnaires and interview schedules to collect data that will access the knowledge and practice of breastfeeding on these respondents.

2.9 Criteria Used For Positioning, Attachment, And Good Breastfeeding Technique

The women were meant to get all the criteria for positioning and attachment correct to have a good breastfeeding technique.

POSITION: 4 points = proper position; Less than 4= poor position

ATTACHMENT: Score: 4 points = good attachment; Less than 4 = poor attachment

GOOD BREASTFEEDING TECHNIQUE: Total Score: 8 points = proper BFT; Less than 8= poor BFT

3. RESULTS

The total number of mothers interviewed were 199 with age categories as 15(7.5%) in 18-20 years category; 101(50.8%) in 20-30 years categories; 68(34.2%) in 30-40 categories; and 15(7.5%) in 40-50 years respectively. Similarly, their level of education ranges from primary 42(21.1%), secondary 112(56.3%), degree 28(14.4%), while 17(8.5%) had no formal education, respectively.

Among 199 mothers interviewed, 42 (21.1%) had children below 6 months at the time of the study, and they were still on EBF, while out of the remaining 157 (78.9%) who had children above 6 months, 58(37%) of them practiced EBF for 6 months, and the remaining 99(63%) of them did not practice EBF for 6 months.

A total of 130 (65.3%) of the mothers BF their children up to 2 years the remaining 69(34.7%) mothers did not BF their children for 2 years with a lot of reasons including (42%) was because

mother became pregnant; (24.6%) because mother was working; (17.4%) was due to inadequate breast milk; (11.5%) was because Mother was sick; (2.9%) said Child refused; (1.4%) was because the child was sick.

In assessing the position of the baby during BF. The result showed 99 (49.7%) of the mothers scored all 4 points for proper position, and 100 (50.3%) scored less than 4 points of proper position during BF.

The result showed 117(58.8%) had good attachment by the practice of all 4 requirements for good attachment, and 82 (41.2%) scored less than 4 points of good attachment. Many mothers had good attachment compared to position during BF.

Mothers who scored 8 points had a good practice, and those who scored below 8 had poor practice on position and attachment. The result showed 112/199 (56.3%) of the mothers had proper position and attachment, and 87/199(43.7%) had poor position and attachment.

The result showed that breastfeeding technique was seriously affected by the age of mothers as more of the older mothers had good position and attachment compared to the younger ones.

The result clearly showed that the BFT was not affected by the mothers' level of education.

Table 1. Demography characteristics of the study population

Characteristics	Frequency	Percentage
Age Categories (n=199)		
18 -20 Yrs	15	7.5
21-30 Yrs	68	34.2
31-40 Yrs	101	50.8
41-50 Yrs	15	7.5
Educational Level		
Primary	42	21.1
Secondary	112	56.3
Degree	28	14.4
Non-formal	17	8.5
Knowledge of BF Concept		
Knowledge on EBF	YES = 153	76.9
	NO = 46	23.1
Knowledge of BF for Two Years		
	YES =129	65
	NO = 70	37

Table 2. Exclusive breastfeeding technique practice among the study population

Age of Children (n==199)	Number of Children	EBT Practice	No EBT Practice
Below 6 Months	42 (21.1%)	42 (100%)	0 (0%)
Above 6 Months	157 (78.9%)	58 (37%)	99 (63%)

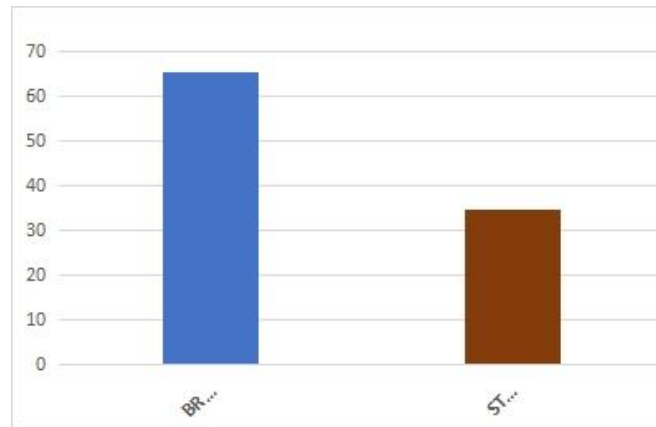


Fig. 1. Two years Breastfeeding Status of Mothers

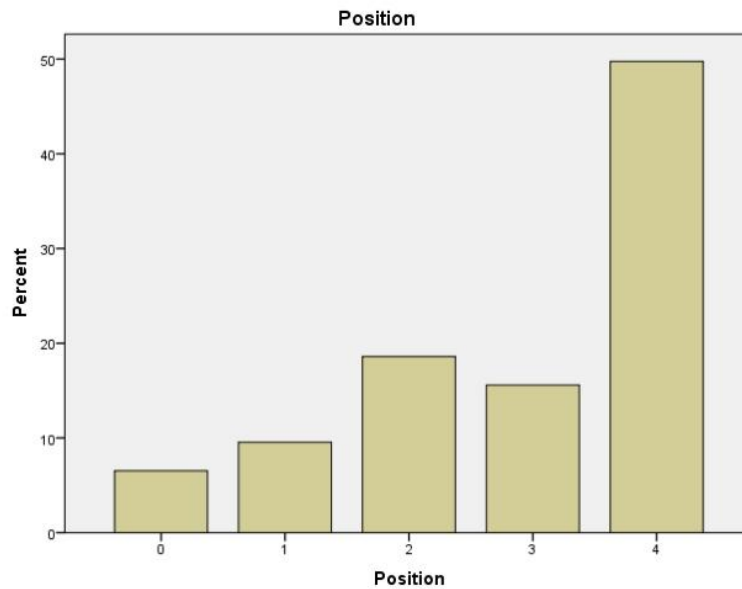


Fig. 2. The knowledge of the mothers on proper positioning during breastfeeding

Table 3. The comparison of age of mothers and Breastfeeding technique [Good breastfeeding technique (GBFT) and Poor breastfeeding technique (PBFT)]

Age of Mother	GBFT	PBFT	Total
<20	7 (8.44) [0.25]	8 (6.56) [0.32]	15
21-30	30 (38.27) [1.79]	38 (29.73) [2.30]	68
31-40	67 (56.84) [1.81]	34 (44.16) [2.34]	101
41-50	8 (8.44) [0.02]	7 (6.56) [0.03]	15
Total	112 (56.3%)	87 (43.7%)	199 (100%)

$\chi^2=8.8557, DF= 3, p\text{-value} = 0.03127$

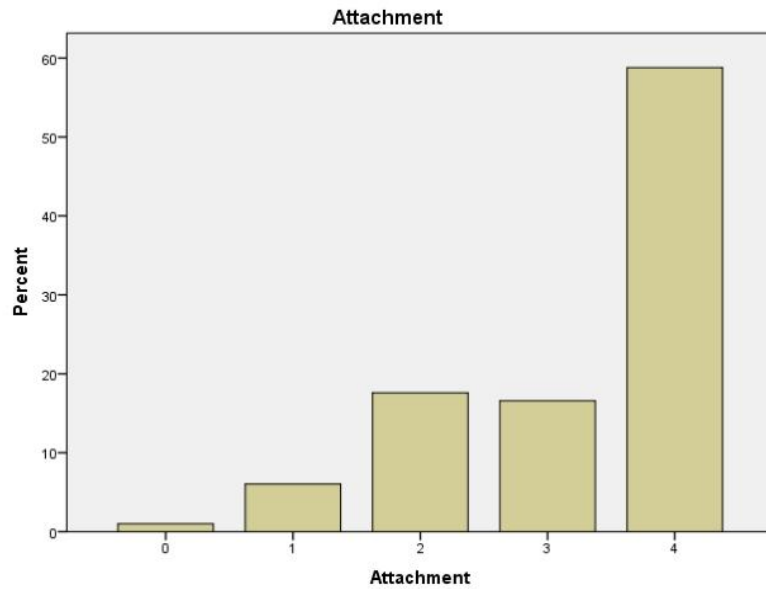


Fig. 3. The mothers' knowledge on proper attachment during Breastfeeding

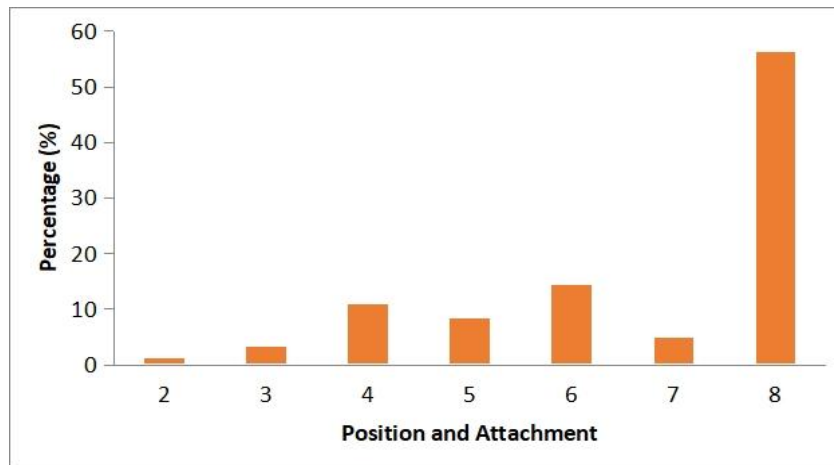


Fig. 4. Mothers practice regarding position and attachment by grading the practice of Breastfeeding Techniques

Table 4. The comparison of the levels of education of mothers and Breastfeeding technique [Good breastfeeding technique (GBFT) and Poor breastfeeding technique (PBFT)]

BFT	Degree	Primary	Secondary	Uneducated	Total
GBFT	12 (11.12) [0.07]	14 (16.67) [0.43]	47 (44.66) [0.14]	6 (6.75) [0.08]	79
PBFT	16 (16.88) [0.05]	28 (25.33) [0.28]	65 (67.54) [0.10]	11 (10.25) [0.05]	120
Total	28	42	112	17	Grand Total 199

$X^2=1.2055, DF= 3, p\text{-value} = 0.75169$

4. DISCUSSION

This study's primary focus was on BF's knowledge and practice using data collected from 199 mothers aged between less than 20 to 50 years admitted into Mnazi Mmoja Hospital's pediatric ward. All the respondents who were of mean age 20-30 years had a breastfeeding child and a previous one above 2 years at the time of the study.

Our study found that 76.9% of the mothers had knowledge of EBF, and 65% had BF knowledge for two years. Our result correlates with other studies done in Unguja by Kinabo J et al. [23], showing that 73.8% had knowledge of BF. Also, the study done in Nigeria by Omuemu U.O showed 66.3% had knowledge of BF [25]. Most mothers were aware of BF because they are usually given education when attending an Antenatal clinic, after delivery, and in the hospital when their babies are admitted. Also, it was found that mothers had knowledge of EBF and BF techniques affected by their age but not their level of education as more of the older mothers had good positions and attachments compared to the younger ones. This may be attributed to the experience gathered with an advance in age.

Despite mothers having knowledge of EBF for 6 months and BF for 2 years, EBF practice among mothers is still very low whereby, only 37 % practice EBF for 6 months and 63 % started weaning less than 6 months hence is still no improvement in practice on EBF. Our report of only 37% practice EBF for 6 months was particularly lower than a previous report at MMH in Zanzibar by N. Ali [24], showing that EBF for 6 months was 48.6% a value very close to the national rate of EBF which is 50%. On the contrary, we reported a higher value than the study done in Kilimanjaro in 2015 by Hussein et.al [26] which showed only 20.7% of the mother's practice EBF for 6 months. These differences are not unconnected to the fact that EBF practice differs in the direction from one setting to another, with many factors influencing the practice; hence, there is the need to set specific data [27].

Additionally, our study found that mothers who completed Breast Feeding of their children for 2 years recommended by WHO were 130 (65.3%). Of the remaining 69 that couldn't complete the 2 years breastfeeding, 42% gave the excuse of early pregnancy, which was the commonest reason for stopping BF before 2 years. Other reasons were working mothers (24.6%),

inadequate breast milk (17.4%), sick mothers (11.5%), a child refusing (2.9%), and a child being sick (1.4%). However, our results differ from study done in Abu Dhabi by Al Ketbi et al [10], who reported that the most common reason for stopping BF was insufficient Breast milk and inadequate maternity leave among working mothers. Furthermore, mothers who were able to BF properly (by following proper position and attachment were 56.3%) with BFT were noted to be affected by age and not the mother's level of education. The age group most involved was 31-40 years. This could be related to the experience and multiparity within this age group compared to other age groups. The level of education did not have any significant impact on our study. However, this finding did not correlate with another study done in Ethiopia [12] that found that BFT was 2.3 times higher among women with at least secondary school education.

Another factor that influences BFT among the mothers was their age as we observed that mothers of 30-40 years had proper BFT compare with younger mothers; this is probably because most of the older mothers would have had multiple children and gained experience from breastfeeding them compared to younger mothers less than 30 years that possibly just started family life. Out of the two primary breastfeeding techniques assessed in this study, the attachment technique during BF was more effective. More than half of the mothers (58.8%) had good attachment compared to proper BF positioning technique, which was among 49.7% of the mothers. This shows that more emphasis should be made on appropriate BFT when educating mothers.

5. CONCLUSION AND RECOMMENDATION

Although most mothers had knowledge of duration of EBF and continuation of BF for 2 years, the practice is still low. Also, most mothers were unable to BF their children by proper technique as recommended by WHO. BFT is affected by the mother's age as older mothers particularly age group 31-40, had good BFT compared to younger mothers. Early pregnancy before previous child reaches 2 years is the commonest reason for mothers stopping BF of their children before 2 years. Therefore, healthcare providers need to adopt new educational strategies on EBF and BF among mothers when they attend ANC, after delivery, and during monthly follow-up visits to clinics.

Such detailed education should capture Family planning since most mothers stopped breastfeeding their children because they got pregnant before their previous children reached 2 years. Friendly Breastfeeding promotional policies of the government should be in place and easily accessible by all mothers.

6. STUDY CHALLENGES

The time of data collection was limited due to COVID 19 pandemic. There was a decreased number of admissions during this period, as well as restricted movements. Being more informed, mothers who come to the hospital may give the desired answers even if they don't practice it.

DISCLAIMER

The interviews were performed as private as possible. This was done to maximize the chances of the participants feeling comfortable and able to answer the questionnaire. Before beginning the interview, the researchers described the survey topic and the questionnaire's organization. They were assured that the interview was completely anonymous and that the data collected would be kept private.. The research team explained to the women that they would stop the interview without penalty, that the participation was voluntary, and that no payment would be given.

CONSENT

The verbal informed consent was collected, while some gave written consent. Also, the participants were assured of the confidentiality of their identity

ETHICAL APPROVAL

Ethical clearance for conducting this research was from the Zanzibar Health Research Institute, Ministry of Health Zanzibar, with the approval number: ZAHREC/03/ST/MARCH/2020/39

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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