

# Determinants of Breastfeeding Practices among Working Mothers in Solwezi District of Zambia

Twaambo Mwiza<sup>1\*</sup>, Dorothy Chanda<sup>2</sup>, Emmanuel Musenge<sup>2</sup>

<sup>1</sup>Solwezi Schools of Nursing and Midwifery, Solwezi General Hospitals, Solwezi, Zambia

<sup>2</sup>School of Nursing Sciences, University of Zambia, Lusaka, Zambia

Email: \*mwizatwaambo@gmail.com

**How to cite this paper:** Mwiza, T., Chanda, D. and Musenge, E. (2023) Determinants of Breastfeeding Practices among Working Mothers in Solwezi District of Zambia. *Open Journal of Obstetrics and Gynecology*, **13**, 465-480.  
<https://doi.org/10.4236/ojog.2023.133043>

**Received:** February 1, 2023

**Accepted:** March 19, 2023

**Published:** March 22, 2023

Copyright © 2023 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

## Abstract

**Background:** As one of the strategies to reduce infant morbidity and mortality, the World Health Organization recommends early initiation of exclusive breastfeeding and timely introduction of complementary feeding with continued breastfeeding for up to two years or beyond. Although breastfeeding is a natural process, it is influenced by different socio-cultural factors, habits, standards, and behaviours. Rapid industrialization and changes in lifestyle have seen increasing numbers of women in the labour force, and associated poor Exclusive Breastfeeding practices among working mothers. The aim of this study was to identify the determinants of breastfeeding practices among working mothers in Solwezi District of Zambia. **Methods:** This was a cross-sectional comparative survey comparing determinants of breastfeeding practices among working mothers aged 15 - 49 years in urban and rural areas of Solwezi District. The study was carried out in the Under-five Clinics at Solwezi, Kimasala and Mushitala Urban Clinics, as well as St. Francis, Kapijimpanga and Kisalala Rural Health Centers. Eighty-seven participants were successfully recruited using convenience sampling. A researcher-assisted questionnaire was used to collect data. Data analysis was done using SPSS version 27.0. Descriptive statistical analysis was done using numerical measures such as measures of central tendency and dispersion. The Pearson Chi Square test, correlation and linear regression analysis were performed to test association between the variables at the 0.05 level of significance. Are you assessing exclusive breastfeeding alone or what? **Results:** The mean age of respondents was 27.44 years (SD = 6.042 years) and the majority of the respondents were married (71.3%, n = 62). Forty-three percent of the respondents were self-employed while the rest were in formal government or private sector employment. Overall, 97.7% of the respondents had heard of exclusive breastfeeding, with health facilities being the most frequent source of information (64.4%). Attitude towards exclusive breastfeeding was generally positive. Fif-

ty-eight percent of respondents exclusively breastfed while the rest were on mixed feeding. Seventy-one percent of respondents reported that their workplaces did not have breastfeeding facilities at work. Only 11.5% of the respondents reported having cultural beliefs restricting breastfeeding. Statistically significant associations were obtained from cross-tabulation analysis between respondent's occupation and baby feeding type ( $p < 0.001$ ); workload and feeding type (0.024); as well as knowledge of EBF and feeding type ( $p < 0.001$ ). **Conclusion:** Majority of the respondents demonstrated good knowledge and positive attitude towards exclusive breastfeeding. This study recommends sensitization campaigns in communities to raise awareness about the importance of breastfeeding, and foster behaviour change that promotes breastfeeding.

### Keywords

Determinants, Exclusive Breastfeeding, Working Mothers, Practices

---

## 1. Introduction

Breastfeeding is a complex adaptive process that bonds a mother and her new born baby during which physical, biochemical, hormonal, and psychological exchanges occur to facilitate the transfer of all the necessary nutrients needed by the infant for growth, development, and infant protection from diseases [1] [2].

Tampah-Naah *et al.* [3] categorized breastfeeding practices into two broad aspects: exclusive breastfeeding (EBF) and complementary feeding. According to Greiner [4], EBF is defined as the type of breastfeeding practice in which the infant receives only expressed breast milk and no other liquids, or solids, with the exception of drops or syrups consisting of vitamins, minerals, supplements, or medicines; while contemporary feeding is a combination of breastfeeding and complementary foods. The World Health Organization (WHO) recommends early initiation of EBF, as early as one hour after birth, and timely introduction of complementary feeding with continued breastfeeding for up to two years or beyond [5]. In addition, the colostrum, which is rich in vitamin A, antibodies and other protective factors, is often considered as the baby's first immunization.

Globally, rates of EBF are far lower than is needed to optimally protect the health of women and their children. Less than half of newly-born babies begin breastfeeding in the first hour after birth [6], and only 41% of infants less than 6 months of age are exclusively breastfed [6]. This is still by far short of the 2030 global target of 70% [6]. In sub-Saharan Africa, breastfeeding is reported to be universal where approximately 97% of infants are being breastfed for a median duration of 21 months, and Exclusive Breast Feeding up to six months estimated around 49% - 59% with country variations [6]. In some settings, Exclusive Breastfeeding Feeding is reported to be rarely practiced at all due to ignorance, negative attitudes and cultural beliefs [7]. In Zambia, although the target

for Exclusive Breast Feeding is 60%, the current practice of Exclusive Breast Feeding is at 61% [6].

Rapid industrialization, changes in lifestyle and other socio-cultural practices have been found to be the major factors influencing breastfeeding practices [8] [9]. Today, there are increasing numbers of women in the labour force, and generally poor Exclusive Breast Feeding practices among working mothers associated with increased risk for poor child health and development, as well as increased infant morbidity and mortality [1] [2]. Exclusive breastfeeding is one of the strategies that have been identified to reduce infant morbidity and mortality.

## 2. Methodology

### 2.1. Study Design

This was a cross-sectional comparative survey comparing determinants of breastfeeding practices among working mothers in urban and rural areas of Solwezi District.

### 2.2. Study Setting

The study was conducted in the Under-five Clinics at Solwezi, Kimasala and Mushitala Urban Clinics, as well as St. Francis, Kapijimpanga and Kisalala Rural Health Center. This study was conducted from January to December 2022.

### 2.3. Study Participants

The target population was lactating working mothers aged between 15 and 49 years who attended Under-Five Clinics at Solwezi, Kimasala and Mushitala Urban Clinics for urban population and St. Francis, Kapijimpanga and Kisalala Rural Health Centers for rural population. The age range of 15 - 49 years was important in studying pregnancy-related conditions as it represents the reproductive age during which women are most likely to get pregnant.

### 2.4. Sample Selection

Convenience sampling was used to select participants as and when they came to the clinics.

### 2.5. Sample Size

A sample size of 66 lactating working mothers was computed using the Cochran formula for two proportions as follows:

$$\begin{aligned} n &= (1.28 + 1.96)^2 \left[ \frac{25(100 - 25) + 10(100 - 10)}{(25 - 10)^2} \right] \\ &= 10.4976(1875 + 900)/225 \\ &= 10.4976 \times 2575/225 \\ &= 27031.32/225 \\ &= 120.1392 \end{aligned}$$

Adding 10% for the non-responsive participants  $120 + 12 = 132$  participants.

The aim of this study sought to identify determinants of breastfeeding practices among working mothers in Solwezi District of Zambia. This study was necessitated by the observed reduction in Exclusive Breast Feeding practice among women in employment and the need to address the associated poor health in their infants. Understanding the determinants of breastfeeding practices among working mothers is the first step in improving Exclusive Breast Feeding practices and reducing infant morbidity and mortality.

## 2.6. Data Collection

Data was collected using a researcher-assisted structured questionnaire with some of the copies translated in local language (Kaonde) to cater for lactating working mothers who were not have been able to write, read or comprehend English very well. The questionnaire was divided into four sections: Section A collected socio-demographic information such as respondent's age, marital status; parity; area of residence, level of education, and occupation. Section B collected data on breastfeeding practices among working mothers. Knowledge was assessed by asking participants a set of questions to do with breastfeeding. Scores of more than 50% were regarded as being good; and less than 50% as poor knowledge. Section C collected data on attitudes of working mothers towards breastfeeding which was measured using five-part Likert scale using which participants were required to either strongly agree, agree, feel neutral, disagree or strongly disagree with. Agreeing to more than 50% of the statements was regarded as being positive attitude. Section D assessed breastfeeding practices among working mothers as a self-reported account from the lactating working mothers.

Participants were explained to regarding the study objectives and assured of their voluntary participation and right to withdraw from the study at any time. Participants who agreed to take part in the study were then asked to sign a consent form and given a questionnaire. The researcher and participants agreed upon a time for collection of completed questionnaires. Ethics approval for the study was granted by the University of Zambia Biomedical Research Ethics Committee and National Health Research Authority. The researcher also sought written permission from the Solwezi District Health Office to conduct the study in Solwezi District.

## 2.7. Data Management and Analysis

Submitted questionnaires were checked for completeness and stored securely in a box file to which only the researcher had access. The questionnaires were then sorted, coded, and data entered in the statistical Package for Social Sciences (SPSS) version 27.0 for Windows where descriptive and inferential statistical analyses were performed. Descriptive statistical analysis was done using numerical measures such as measures of central tendency and dispersion. The Pearson Chi Square test, correlation and linear regression analysis were performed to test association between variables at the 0.05 level of significance.

## 3. Results

### 3.1. Respondents' Socio-Demographic Data

Eighty-seven expectant mothers participated in this study. The age of respondents ranged from 16 to 48 years (mean = 27.44 years, SD = 6.042 years). Majority of the respondents were married (71.3%, n = 62) while the rest were single (16.1%, n = 14), separated (5.7%, n = 5), divorced (3.4%, n = 3) or widowed (3.4%, n = 3). Forty-three percent of the respondents were self-employed while the rest were in formal government or private sector employment. In terms of weekly workloads, the range of weekly working hours ranged from 12 to 102 hours per week, as shown in **Table 1** below.

### 3.2. Knowledge of Breastfeeding

Overall, nearly all the respondents (97.7%, n = 85) had heard of exclusive breastfeeding, with the health facilities being cited as the most frequent source of information (64.4%). **Table 2** below summarizes knowledge of respondents regarding exclusive breastfeeding.

### 3.3. Attitude of Working Mothers towards Breastfeeding

Over three-quarters of the respondents strongly agreed that they intended to breastfeed their babies. Respondents also strongly agreed that they would advise other mothers to breastfeed their babies, and that breastfeeding was important for the health and wellbeing of the baby. In terms of work, more than two-thirds of the respondents felt that their work did not have to interfere with breastfeeding schedules, and that they would breastfeed while at work during a break in a designated area. This is summarized in **Table 3** below.

### 3.4. Breastfeeding Practices

Majority of the respondents reported that their babies were on exclusive breastfeeding (57.5%, n = 50) while the rest were on mixed feeding (33.3%, n = 29) or formula (8%, n = 7), for a period ranging from 2 to 60 months. In terms of people who assisted respondents in caring for the baby while at work, 37.9% of the respondents reported that they were assisted by sibling or relative; 33% by a babysitter; 11% by respondent's parent; 5.7% by partner or spouse; and 9.2% cared for their babies themselves. The mean time of returning to work following delivery was 5.061 months. The period of maternity leave was reported to be from 2 weeks to 24 months after delivery. About 11.5% of the respondents indicate that they did not have fixed maternity leave as they were in self-employment. Seventy-one percent of the respondents reported that their workplaces did not have breastfeeding facilities where mothers could breastfeed their babies during breaks at work. While the majority of the respondents did not have any cultural or religious beliefs about breastfeeding, 11.5% did report having belief about breastfeeding, as shown in **Table 4** below.

**Table 1.** Respondents' socio-demographic data.

Characteristics		Proportion (n)	Percentage (%)
<b>Respondents' age groups</b>		Minimum = 16 years	
		Maximum = 48 years	
		Mean = 27.44 years	
		Standard deviation = 6.042 years	
<b>Respondent's marital status</b>	Single	14	16.1
	Married	62	71.3
	Separated	5	5.7
	Divorced	3	3.4
	Widowed	3	3.4
<b>Respondent's highest level of education attained</b>	None	5	5.7
	Primary	4	4.6
	Secondary	19	21.8
	Tertiary	58	66.7
<b>Respondent's occupation</b>	Government employment	31	35.6
	Private sector	17	19.5
	Self-employed	38	43.7
<b>Respondent's spouse's occupation</b>	Government employment	34	39.1
	Private sector	22	25.3
	Self-employment	7	8
	Informal employment	3	3.4
	Unemployed	4	4.6
	Not applicable	16	18.4
<b>Respondents' working hours per day</b>		Minimum = 3 hours	
		Maximum = 17 hours	
		Mean = 6.28 hours	
		Standard deviation = 2.250 hours	
<b>Respondent's wealth index</b>	High	22	25.3
	Middle	57	65.5
	Low	6	6.9
<b>Respondent's area of residence</b>	High-class residential	38	43.7
	Densely populated compound	41	47.1
	Village/rural setup	8	9.2
<b>Respondent's number of children</b>		Range: 1 - 7	
		Mean = 2.53	
		Standard deviation = 1.34	
<b>Age difference between current baby and immediate sibling</b>		Range: 0 - 108 months	
		Mean = 21.05 months	
		Standard deviation = 23.29 years	
<b>Singleton or twin baby status</b>	Singleton	77	88.5
	Twins	9	10.3

**Table 2.** Respondents' knowledge of breastfeeding.

Knowledge area	Yes	Not sure	No
Breastfeeding increases the bonding between mother and baby	92%	4.6%	3.4%
Breastfeeding improves immunity in the baby	86.2%	12.6%	1.1%
Breastfeeding in the first 24 hours is important	88.5%	10.3%	1.1%
Exclusive breastfeeding should be done in the first 6 months	83.9%	12.6%	3.4%

**Table 3.** Respondents' attitude towards breastfeeding.

Statement	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
It is my intention to breastfeed my baby	79.3%	18.4%	2.3%	-	-
I would advise other mothers to breastfeed their babies	52.9%	42.5%	3.4%	-	-
I feel that I would breastfeed at work during a break in a designated area	24.1%	55.2%	11.5%	3.4%	3.4%
I believe breastfeeding is important for the health and well-being of the baby	71.3%	21.8%	6.9%	-	-
My work need not interfere with the way I breastfeed my baby	35.6%	41.4%	10.3%	10.3%	-
I would not be too busy to breastfeed my baby	47.1%	43.7%	6.9%	2.3%	-

**Table 4.** Cultural/religious beliefs about breastfeeding.

Belief	Proportion (n)	Percentage (%)
Breastfeeding can make the baby ill	7	8
Breastfeeding delays the baby from being strong	1	1.1
Breastfeeding away from home such as at work is a taboo	2	2.4
No cultural beliefs reported	77	88.5

### 3.5. Cross Tabulation Analysis

Based on the significance level of 0.05, cross tabulations were performed on different variables. The Chi Square Pearson coefficients (p-values) obtained indicate statistically significant associations between respondent's occupation and baby feeding type ( $p < 0.001$ ); workload and feeding type (0.024); as well as knowledge of EBF and feeding type ( $p < 0.001$ ). Other cross-tabulation results are summarized in **Table 5** below.

All cross tabulations in **Table 5** were significant except the 3 with p-values of  $>0.05$ .

**Table 5.** Cross tabulation of variables.

Cross tabulation variables	p-value	Degrees of freedom (df)
Maternal age and baby feeding type	0.378	66
Maternal occupation and baby feeding type	0.000	9
Maternal workload and baby feeding type	0.024	69
Marital status and baby feeding type	0.000	15
Knowledge of EBF and baby feeding type	0.000	6
Level of education and baby feeding type	0.000	12
Occupation and baby feeding type	0.000	6
Number of children and baby feeding type	0.732	18
Cultural beliefs and intention to breastfeed	0.000	6
Intention to breastfeed and age of youngest child	0.000	66

#### 4. Discussion

The importance of adequate and consistent breastfeeding among lactating mothers cannot be overemphasized. However, challenges in breastfeeding still remain for working mothers. This study set out to identify determinants of breastfeeding practices among working mothers in Solwezi District, in North-western Zambia between June and September 2022. Eighty-seven breastfeeding mothers were successfully recruited and assessed using a researcher-administered questionnaire.

The age of working breastfeeding mothers in this study was 16 - 48 years (mean = 27.44 years). A related study done in Nigeria by Kabir and Ezenkiri [10] reported that their study participants were aged 15 - 35 years. The difference in the upper limit age could be attributed to differences in the study settings. No statistically significant association was obtained between maternal age and baby feeding type ( $p = 0.378$ ). Similar findings have been reported in India where Raju [11] found no significant difference in the practice of EBF among mothers based on their age.

Over two-thirds of respondents in this study reported having had attained tertiary education. A statistically significant association was obtained between maternal level of education and baby feeding type ( $p < 0.001$ ). This finding contradicts findings of earlier studies done in Zambia which concluded that there was no relationship between education levels and exclusive breast feeding [12]. Education is an important determinant in the practice of Exclusive Breast Feeding as it is one way of empowering breastfeeding mothers to make informed health choices.

Majority of the respondents were married hence this study found that marital status was significantly associated with baby feeding type. This finding tallies with that of Kabir and Ezenkiri [10] done in Nigeria, sub-Saharan Africa. It is



the researcher's view that marital status is an important influence on baby feeding practices as it creates good social support systems for breastfeeding working mothers. This is an indication that the presence of a husband can have positive influence on breastfeeding.

Forty-three percent of the respondents were self-employed while the rest were in formal government or private sector employment. The association between maternal occupation and baby feeding type was shown to be statistically significant in this study ( $p < 0.001$ ). This finding is in agreement with those of previous studies which found that mothers' employment was negatively associated with breastfeeding, as babies whose mothers worked had a lower likelihood of being exclusively breastfed at 6 months of age than those whose mothers were not in employment [13] [14]. Incongruent findings were obtained in a related study by Nchimunya *et al.* [12] who demonstrated that occupation level was not associated with Exclusive Breast Feeding practice. This discrepancy could be attributed to the differences in the study settings, namely Lusaka and Solwezi. This is because women in full-time employment tend to express breast milk for their babies in feeding bottles because of work schedules. There is need to create conditions of service that promote exclusive breastfeeding among working mothers.

In terms of weekly workloads, in this study the weekly working hours ranged from 12 to 102 hours per week. This study demonstrated that maternal workload was significantly associated with feeding type ( $p = 0.024$ ). An earlier related study, Elyas *et al.* [15] also found that employed mothers who spent considerable amount of time at work had a lower opportunity to stay at home, compromising exclusive breastfeeding. Mothers also may have to leave their babies to search for a job. Adjustments in workload policies for nursing mothers could be considered by employers so that working mothers can be given adequate opportunity to adopt recommended breastfeeding practices.

Sixty-six percent of the respondents reported to be in the middle-income bracket. In this study, socioeconomic status did not statistically significantly affect breastfeeding practices among working mothers. On the contrary, previous studies found that mothers from socioeconomically privileged households were likely to initiate breastfeeding than those from lower socioeconomic homes [10].

#### **4.1. Knowledge of Breastfeeding among Working Mothers**

Nearly all of the respondents in this study reported having knowledge of exclusive breastfeeding, with health facilities being the most frequent source of information. Comparable findings have been reported in Ethiopia by Elyas *et al.* [15]. Furthermore, our study concluded that knowledge of EBF was a significant determinant of EBF. In contrast, Elyas *et al.* [15] found that despite the good knowledge among the study participants, knowledge did not have a significant association with practice of breastfeeding. The implication is that healthcare providers should enhance health promotion efforts that do not only aim at sensitization but foster behaviour change with regards to breastfeeding practices.

## 4.2. Attitudes of Working Mothers towards Breastfeeding

Over three-quarters of the respondents strongly agreed that they intended to breastfeed their babies. Respondents also strongly agreed that they would advise other mothers to breastfeed their babies, and that breastfeeding was important for the health and well-being of the baby. In terms of work, more than two-thirds of the respondents felt that their work did not have to interfere with breastfeeding schedules, and that they would breastfeed while at work during a break in a designated area. These findings are congruent to those of a study done by Ekanem *et al.* [16] that only few participants had negative opinions towards breastfeeding, seeing it as embarrassing in the public; being unwilling to carry fallen breast which are likely to come after exclusive breastfeeding; and being afraid of pains associated with breastfeeding. Therefore, there is need for efforts for encouragements and support from health facilities, communities, and families, as well as proper counselling towards attitudinal change in favour of Exclusive Breastfeeding.

## 4.3. Breastfeeding Practices

Fifty-seven percent of respondents in this study reported that their babies were on exclusive breastfeeding. Other studies have found much lower prevalence of Exclusive Breastfeeding Feeding such including 44% in Ethiopia [15]; and 17.5% in Karnataka [17]. A much higher prevalence of Exclusive Breastfeeding Feeding of 61% was reported in a prior study done in Luangwa District in Zambia [8].

The mean time of returning to work following delivery was 5.061 months with maternity leave periods ranging from 2 weeks to 24 months after delivery. The study further established that mothers who returned to work sooner after delivery were less likely to breastfeed consistently or at all. Similar finding were reported by Che'Muda *et al.* [18]. The implication of this finding calls for the need by employers to provide longer maternity leave for breastfeeding mothers in order to improve breastfeeding practices and health outcomes for breastfeeding children. WHO [9]) reiterates that breastfeeding-friendly support and the promotion of breastfeeding policies for working mothers is one of the potentially effective ways to motivate working mothers to breastfeed, but it needs a lot of effort by all stakeholders. This study established that about 71% of the respondents reported that their workplaces did not have breastfeeding facilities where mothers could breastfeed their babies during breaks at work. However, workplace breastfeeding facilities did yield a significant association with breastfeeding practices ( $p = 0.012$ ). This finding resonates with that of Che'Muda *et al.* [18] who found that breastfeeding was poor among working mothers. It is the researcher's view-point that workplaces should provide conducive facilities and conditions of service that facilitate breastfeeding for working mothers. The majority of the respondents did not have any cultural or religious beliefs about breastfeeding. However, there is need to provide health information to breastfeeding mothers on a consistent basis to empower mothers with knowledge that

would help them make informed health decisions based on knowledge acquired.

#### 4.4. Key Findings

The age of respondents ranged from 16 to 48 years (mean = 27.44 years, SD = 6.042 years). Majority of the respondents were married (71.3%, n = 62). Forty-three percent of the respondents were self-employed while the rest were in formal government or private sector employment. In terms of weekly workloads, the range of weekly working hours ranged from 12 to 102 hours per week. Nearly all of the respondents in this study reported having knowledge of exclusive breastfeeding, with health facilities being the most frequent source of information. Generally, attitude towards breastfeeding among working mothers was positive. In terms of practices, only 57% of the respondents exclusively breastfed their babies. Statistically significant associations were obtained between variables from the following cross-tabulations: Maternal occupation and baby feeding type ( $p < 0.001$ ); Maternal workload and baby feeding type ( $p = 0.024$ ); Marital status and baby feeding type ( $p < 0.001$ ); Knowledge of Exclusive Breast Feeding and baby feeding type ( $p < 0.001$ ); and Occupation and baby feeding type ( $p < 0.001$ ), among others.

#### 4.5. New Findings from this Study

An unanticipated finding was noted in that among those who held cultural beliefs against breastfeeding, a small proportion of respondents reported that breastfeeding at work could make the baby ill. This finding was not found in other related studies reviewed.

### 5. Conclusion

Majority of the respondents demonstrated good knowledge and attitude towards breastfeeding. However, the practice of breastfeeding was not as high as...? Several factors were found to be significantly associated with breastfeeding among working mothers including marital status, maternal occupation, maternal workload, knowledge of Exclusive Breast Feeding, and cultural beliefs, among others. There is still need to conduct sensitization campaigns in communities to raise awareness about the importance of breastfeeding, and foster behaviour change that promotes breastfeeding.

### 6. Recommendations

The study made the following recommendations:

- 1) In future, a study could be carried out using qualitative methods in order to gain in-depth insight into the determinants of breastfeeding practices among working mothers.
- 2) A national study could be conducted in various facilities and settings in order to obtain a better and clearer understanding of the determinants of breastfeeding practices among working mothers.

3) The study recommends that employers and other stakeholders work together in order to improve work conditions and work environment for breastfeeding working mothers.

4) Communities should work together to promote awareness and behaviour change relating to breastfeeding practices.

## 7. Limitations

A number of limitations were noted in this study including the following: The information on breastfeeding practices among working mothers was obtained from mothers who were attending postnatal care. This could have led to volunteer bias as potential participants were already motivated to take part in the study. This was mitigated against by collecting data from three study sites located in different parts of the district to maximize representation. The study was done during the period of the COVID-19 pandemic. This could have reduced the number of potential participants especially in rural health centers where there was more significant lockdown.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- [1] Motee, A. and Jeewon, R. (2014) Importance of Exclusive Breastfeeding and Complementary Feeding among Infants. *Current Research in Nutrition and Food Science Journal*, **2**, 56-72. <https://doi.org/10.12944/CRNFSJ.2.2.02>
- [2] Salami, L. (2011) Factors Influencing Breastfeeding Practices in Edo State, Nigeria. *African Journal of Food, Agriculture, Nutrition and Development*, **6**, 1-12. <https://doi.org/10.4314/ajfand.v6i2.71755>
- [3] Tampah-Naah, A.M., Kumi-Kyereme, A. and Amo-Adjei, J. (2019) Maternal Challenges of Exclusive Breastfeeding and Complementary Feeding in Ghana. *PLOS ONE*, **14**, e0215285. <https://doi.org/10.1371/journal.pone.0215285>
- [4] Greiner, T. (2014) Exclusive Breastfeeding: Measurement and Indicators. *International Breastfeeding Journal*, **9**, Article No. 18. <https://doi.org/10.1186/1746-4358-9-18>
- [5] World Health Organization (WHO) (2012) 10 Facts on Child Health. World Health Organization, Geneva.
- [6] UNICEF, WHO (2018) Global Breastfeeding Scorecard, 2018: Enabling Women to Breastfeed through Better Policies and Programmes. UNICEF, WHO, New York, Geneva.
- [7] Mgongo, M., Hussein, H.T. and Gilbert, J. (2014) Determinants of Exclusive Breastfeeding in Kilimanjaro Region. *Tanzania Journal of Science*, **2**, 631-635.
- [8] Tembo, C., Ngoma, M.C., Maimbolwa, M. and Akakandelwa, A. (2015) Exclusive Breast Feeding Practice in Zambia. *Medical Journal of Zambia*, **42**, 124-129.
- [9] World Health Organization (WHO) (2015) Breastfeeding Practices. <https://www.who.int/health-topics/breastfeeding>

- [10] Magaji, K. and Justin, E.N. (2015) Some Factors Affecting Exclusive Breastfeeding (EBF) among Mothers in Dutsin-MA Community of Katsina State, Nigeria. *PEOPLE: International Journal of Social Sciences*, **1**, 1223-1238. <https://doi.org/10.20319/pijss.2015.s21.12231238>
- [11] Raju, T.N.K. (2011) Breastfeeding Is a Dynamic Biological Process—Not Simply a Meal at the Breast. *Breastfeeding Medicine*, **6**, 257-259. <https://doi.org/10.1089/bfm.2011.0081>
- [12] Nchimunya, C., Halwindi, H., Allan, M., Hazemba, A. and Chimfwembe, K. (2015) Factors Affecting the Adoption of Exclusive Breastfeeding by Mothers in Chelstone, Lusaka. *International Invention Journal of Medicine and Medical Sciences*, **2**, 73-79.
- [13] Alzaheb, R.A. (2017) Factors Influencing Exclusive Breastfeeding in Tabuk, Saudi Arabia. *Clinical Medicine Insights: Pediatrics*, **11**. <https://doi.org/10.1177/1179556517698136>
- [14] Amin, R.M., Said, Z.M. and Sutan, R. (2011) Work Related Determinants of Breastfeeding Discontinuation among Employed Mothers in Malaysia. *International Breastfeeding Journal*, **6**, Article No. 4. <https://doi.org/10.1186/1746-4358-6-4>
- [15] Elyas, L., Mekasha, A., Admasie, A. and Assefa, E. (2107) Exclusive Breastfeeding Practice and Associated Factors among Mothers Attending Private Pediatric and Child Clinics, Addis Ababa, Ethiopia: A Cross-Sectional Study. *International Journal of Pediatrics*, **2017**, Article ID: 8546192. <https://doi.org/10.1155/2017/8546192>
- [16] Ekanem, I., Ekanem, A., Asuquo, A. and Eyo, V. (2012) Attitude of Working Mothers to Exclusive Breastfeeding in Calabar Municipality, Cross River State, Nigeria. *Journal of Food Research*, **1**, 71-75. <https://doi.org/10.5539/jfr.v1n2p71>
- [17] Chhetri, S., Rao, A.P. and Guddattu, V. (2018) Factors Affecting Exclusive Breastfeeding (EBF) among Working Mothers in Udupi Taluk, Karnataka. *Clinical Epidemiology and Global Health*, **6**, 216-219. <https://doi.org/10.1016/j.cegh.2018.06.008>
- [18] Che'Muda, C.M., Ismail, T.A. and Johar, N. (2018) Maternal Factors Associated with the Initiation of Exclusive Breastfeeding among Mothers at One Week after Delivery in Two Selected Hospitals in Kelantan, Malaysia. *Malaysian Journal of Medical Sciences*, **25**, 112-121. <https://doi.org/10.21315/mjms2018.25.4.11>

## Appendix I. Data Collection Tool

University of Zambia  
School of Nursing Sciences

**Determinants of Breastfeeding Practices among Working Mothers in Solwezi District of Zambia.**

By  
**Twaambo Mwiza**

### Instructions to the Researcher

- 1) Introduce yourself to the respondent
- 2) Explain the purpose of the study

Questionnaire No: -----

Date: dd/mm/yyyy

### Section A: Sociodemographic Data

- 1) How old are you? .....years?
- 2) What is your marital status?  
1 Single       2 Married       3 Separated       4 Divorced   
5 Widowed
- 3) What is the highest level of education you have attained?  
0 None       1 Primary       2 Secondary       3 Tertiary
- 4) What is your occupation?  
1 Government       2 Private Sector   
3 Self-employed       4 Informal employed
- 5) How many hours per day do you work?
- 6) How many days per week do you work?
- 7) What is your partner's/spouse's occupation?  
1 Government       2 Private Sector       3 Self-employed   
4 Unemployed       5 Not applicable
- 8) Which of the following best describes your socioeconomic status?  
1 High (able to meet basic needs with surplus)   
2 Middle (able to meet basic needs)   
3 Low (not able to meet basic needs without difficulty)
- 9) What is your tribe?  
1 Kaonde     2 Lunda     3 Luvale     4 Chokwe     5 Luchanzi   
6 Mbunda     7 Bemba     8 Nyanja     9 Tonga     10 Lozi   
11 Any other
- 10) What type of area do you live in?  
1 High-class residential area   
2 Densely-populated compound   
3 Rural/village setting

**Section B: Knowledge of Breastfeeding**

11) Have you ever heard of exclusive breastfeeding?

- 1 Yes       2 No

12) What is your source of information on breastfeeding?

- 1 Media       2 Health facility       3 Peers

13) In your own words, what is exclusive breastfeeding?

- 1 breast feeding within less than 6 months with sips of water  
 2 breast feeding only after 6 months after birth of a child  
 3 breast feeding only within 6 months after birth without any other food or water

14) Does breastfeeding increase bonding between baby and mother?

- 1 Yes       2 Not sure       3 No

15) Does breastfeeding increase the immunity of the baby or help prevent any infection?

- 1 Yes       2 Not sure       3 No

16) Do you know if it is important to breastfeed in the first 24 hours?

- 1 Yes       2 Not sure       3 No

17) Do you know if it is important to breastfeed exclusively in the first 6 months?

- 1 Yes       2 Not sure       3 No

**Section C: Attitude towards Breastfeeding**

For the following questions, kindly answer according to your level of agreement or disagreement with the following statements by ticking or placing an “X” accordingly:

Q/N	Statement	1 Strongly agree	2 Agree	3 Not sure	4 Disagree
18	It is my intention to breastfeed my baby				
19	I would advise other mothers to breastfeed their babies				
20	I feel that I would breastfeed at work during a break in a designated area				
21	I believe breastfeeding is important for the health and wellbeing of the baby				
22	My work need not interfere with the way I breastfeed my baby				
23	I would not be too busy to breastfeed my baby				

**Section D: Breastfeeding Practices**

- 24) How many children do you have?
- 25) How old is your youngest child in months?
- 26) What is the age difference in months between the youngest child and the older sibling?
- 27) Is your current child singular or twin?  
1 Twin       2 Single
- 28) Who assists you in caring for the baby when you are at work?  
1 Parent       2 Baby sitter       3 Sibling/relative   
4 Partner       5 Self
- 29) What kind of feeding is your baby on?  
1 Exclusive breastfeeding       2 Formula       3 Mixed
- 30) How long has the baby been on the feeding type listed above?
- 31) How soon did you get back to work after delivery?
- 32) Does your workplace offer breastfeeding facilities such as separate room, flexible time, or refrigerator to store breast milk?  
1 Yes       2 No
- 33) What is the duration of maternity leave at your workplace?
- 34) What religious or cultural beliefs do you hold about breastfeeding, if any?  
1 Yes       2 No

**Thank You for Your Participation**