

Socioeconomic Characteristics of Child-Bearing Mothers and Feeding Practices of Under-Five Children in Kori Chiefdom, Sierra Leone

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Abstract

Introduction: The use of proper feeding practices is key for the overall development of children. Generally, breastfeeding and complementary feeding make up the diet and therefore the nutritional status of children. However, the degree to which mothers adhere to the recommendations of the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) regarding breastfeeding and complementary feeding is key to the nutritional status of children. Again, the adherence to this dietary recommendation is contingent on the socio-economic conditions of the child-bearing parents, especially the mothers. Here in this study, the socio-economic characteristics were analyzed along with the feeding practices of children not more than five years old in rural Sierra Leone. **Method:** Data were collected in 2017 on representative mothers with children within 0 - 5 years old. A total of 10 communities and 200 respondents were randomly covered in the Kori Chiefdom of Moyamba District, Sierra Leone. The data collection instruments included structured questionnaire, inter-personal interaction, personal observation and experience. The collected data were analyzed in Microsoft Excel and SPSS and the results presented in simple graphs. **Results:** A large number of the respondents were married teenage mothers with 1 - 2 children and living under extreme hardship by the United Nations (UN) standard. Also, most of the mothers were illiterate and started breastfeeding their children within the very hour of birth. Because complementary feeding was started all too early, exclusive breastfeeding last for not more than two months for most of the respondent mothers. Also, because rice is by far the most widely eaten the staple food in Sierra Leone, complementary food was mostly powdered rice mixed with salt and oil. Hardly was protein food supplement used as complementary food, prob-

ably due to the economic conditions of the poor rural women. **Conclusion:** The study has thrown sufficient light on the socio-economic characteristics and adopted feeding practices of children in poor rural Sierra Leone. In this sense, the study has laid the basis for sufficient for in-depth correlativity studies on the factors driving feeding practices of children and how it in turn impacts nutritional status of children in poor rural Africa. From here, practically adoptable recommendations can be advanced for the attention of the governments, public institutions, the private sector and the individuals of the society.

Keywords

Child-Bearing Mother, Infant/Young Child, Feeding Practice, Socio-Economic Factor, Kori Chiefdom

1. Introduction

Feeding habit can influence the state of nutrition, health and development of children in the first 24 months of birth [1] [2] [3]. The overall health of children is a reflection of their nutritional state. This is crucial especially for the survival of children with low birth weight [4]. When children are well-cared for and with access to adequate food, cases of illness are minimal and the tendency to reach growth potential is high [5]. Although the period from birth to 24 months is critical for optimal development of children, it is often marked by nutrient deficiencies, illnesses and faltered growth [6].

According to World Health Organization (WHO) and United Nations Children's Fund (UNICEF), breastfeeding should be initiated in one hour of birth and continued exclusive for the first 6 months. Then nutritionally-adequate and safe complementary (semi-solid or solid) foods should be introduced in the sixth month of birth, and breastfeeding also continued up to 24 months or beyond [7].

Contrary to this, however, hardly are many infants and children fed as recommended by WHO and UNICEF. For instance, in 2017, an estimated 78 million (42%) of newborn babies only tasted breast several hours after birth. In this global ranking of early initiation of breastfeeding report, Sierra Leone was ranked 36th and rated 53.8% in 2005. The highest rate (65%) was in Eastern and Southern Africa and lowest (32%) in East Asia and the Pacific [8]. In the case of exclusive breastfeeding, in 2021, only about 44% of infants aged 0 - 6 months worldwide were exclusively breastfed over the period of 2015-2020 [9]. In Sierra Leone, only 59.6% of children aged 0 - 23 months were appropriately breastfed. Of those aged 0 - 5 months, only 52.2% receiving exclusive breastfeeding. Then 62.1% of those aged 0 - 23 months were breastfed and received solid, semi-solid or soft food supplements in 2017 [10]. Furthermore, only 24.2% of children aged 6 - 23 months received the basic dietary diversity, 42.7% basic meal frequency and 9.5% basic acceptable diet. According to the 2018 Sierra Leone demographic

and health survey, only 54% of children aged 0 - 6 months were exclusively breastfed. Although still low, it was, however, far higher than the 32% reported in 2014 [6] [11].

The situation worsens with increasing age as nutritional intake of rural dwellers (especially children) is often much depraving. In developing countries, complementary feeding is mostly inadequate and it is often introduced much earlier than recommended [12] [13]. Rural communities have poor feeding practices than urban ones. Studies show that breastfeeding is introduced much later in rural areas and not only mothers practice exclusive breastfeeding, but complementary feeding practices are also grossly inappropriate [3] [9] [14].

These gaps in feeding practices requires broader studies on adopted feeding practices for infants and young children, especially in the rural areas of Sierra Leone. There is also the need to analyze the link between socio-demographic characteristics (e.g., age, education, marital status, access to nutritional information, household income and parity) to the practice of feeding infants and young children. This can build deeper understanding into the reasons behind the practices and seek solutions for mass adoption of best such feeding practices especially by rural mothers. The aim of this paper was to build strong data on the feeding practices for infants and young children in Kori Chiefdom in the southern province of Sierra Leone.

2. Methods and Materials

2.1. Study Area

Kori Chiefdom is in Moyamba District in the Southern Province of Sierra Leone. It is one of the 14 chiefdoms in the district, located in the north of the district with Taiama as the chiefdom headquarter town. The chiefdom is bounded by four other chiefdoms in the district—Fakuya, Kaiyamba, Dasse, Kamaje and Yoni. Kori Chiefdom presents a fair representation of especially the other four surrounding chiefdoms and Njala University is also located in the chiefdom (Figure 1).

2.2. Sampling Procedure

The sample frame consisted of all women in the reproductive age of 15 - 49 years with at least a child the last five years (2013-2017) and were fully resident in Kori Chiefdom. Of the 12 sections in the chiefdom, 5 (42%) were randomly selected; which included Taiama, Majehun, Mawonga, Mobai and Mokaba. Of the average of four communities in each section, two were further randomly selected for the study. The communities included Majehun, Mokonde, Taninihun, Bongameima, Njala Junction, Jenneh, Fullawahun, Seneihun, Mosongo and Mogbondo. This suggested that while the representation was 42% at the section level, it increased to 50% at the community level.

The total sample of women targeted for the study was determined from the sampling frame of all the women who had given birth, it was assumed that 2.1%

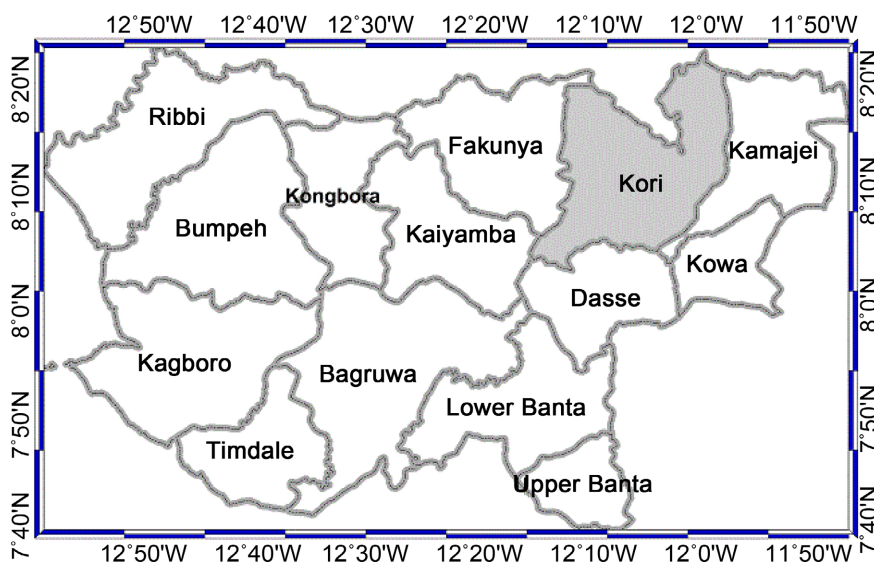


Figure 1. A map of Moyamba District depicting the Kori Chiefdom study area in grey where the 5 section within which the 10 communities were randomly selected.

of their children would have died as a result of various causes. With 95% confidence interval and precision level of 2% the study had a sample size of 197 women who had given birth.

$$\text{Sample size} = Z - \text{score} \times P(1 - P) / (\text{Margin of error})^2$$

where:

Z -score is the confident limit.

P is the proportion of children dead.

2.3. Research Variables

The dependent variable was complementary feeding, which basis nutritional status was estimated. All the other socio-economic and demographic variables covered in the study were treated as the independent variables.

2.4. Data Collection

A literature was done in desk research to guide the structure of the questionnaire for the study [5] [6] [7] [11]. Questionnaire was developed for administration. One section of the questionnaire sought data on the personal characteristics of the women with young children. This included age, marital status, educational status, access to information, monthly household income and five-year parity. The other section sought data on feeding practices (breastfeeding and complementary feeding) used for the children. A pre-testing of the questionnaire was done two days before the actual date of the survey. Ten percent (10%) of the questionnaire were taken to two villages (Kortiya and Bai-largo) which were not part of the sample. Feedback from the pre-test survey was used to develop the final questionnaire.

Data were collected over two days, involving 5 trained enumerators. To deal

with any ambiguity on the side of the respondents, the questionnaire was administered in the local dialects such as Krio and Mende and then transcribed in English by the enumerators.

2.5. Data Analysis

The data were screened for errors, put in Excel and uploaded into SPSS (Statistical Package for Social Sciences) version 23 × 64 for analysis. Univariate analysis was done to determine frequencies and percentages, which explained the contributions of the independent variables (socio-economic and demographic) to the dependent variable (complementary feeding as an indicator for nutritional status of infants and young children).

Multivariate analysis such as the Pearson correlation was next used to determine the associations between the investigated socio-economic factors and complementary feeding. It further showed how much of complementary feeding as an indicator for nutritional status was explained by the other variables.

Test of significance of the correlations also provided sufficient insight into the factors with the highest effect on complementary feeding as an indicator for nutritional status of infants and young children in the study area. The results of the study were presented in tables and graphs to ease insightful reading.

3. Results

3.1. Socio-Economic Factors

The socioeconomic factors presented in this work include respondent age, income, marital status, 5-year parity, educational level and access to information. These factors, presented in **Figure 2**, were sufficient to inform the discussions based on the objectives on which this study was laid.

Of the 200 respondent mothers with children covered in the study, 19.5% were in the age group of 15 - 19 years. This percentage increased with increasing age up to the age group of 25 - 29 years. After this age group, the percentage of respondents dropped with increasing age up to the age group of 40 - 45 years; for which there was only 2.5% of the respondents.

For household income, some 40.0% of the respondents earned 250,000 - 4,99,000 Sierra Leonean leones per year; the approximate equivalent of 25 - 49.9 United States dollars. Only 2.0% of the respondent mothers reported making over 1,000,000 leones (100 dollars) at the household level per year.

In terms of marital status, 9.5% of the respondents were unmarried single mothers. Another 6.0% were divorced single mothers and 9.0% widowed single mothers. Then 16.0% were in consensual union and 59.5% were married.

The next socio-economic factor analyzed in the study was five-year parity in terms of the number of children a mother gave birth and is nursing during the period 2013-2017. For this variable, 76.0% of the respondent mothers had only one child for that period. Some other 23.5% two children and a negligible number of only 0.5% had three children.

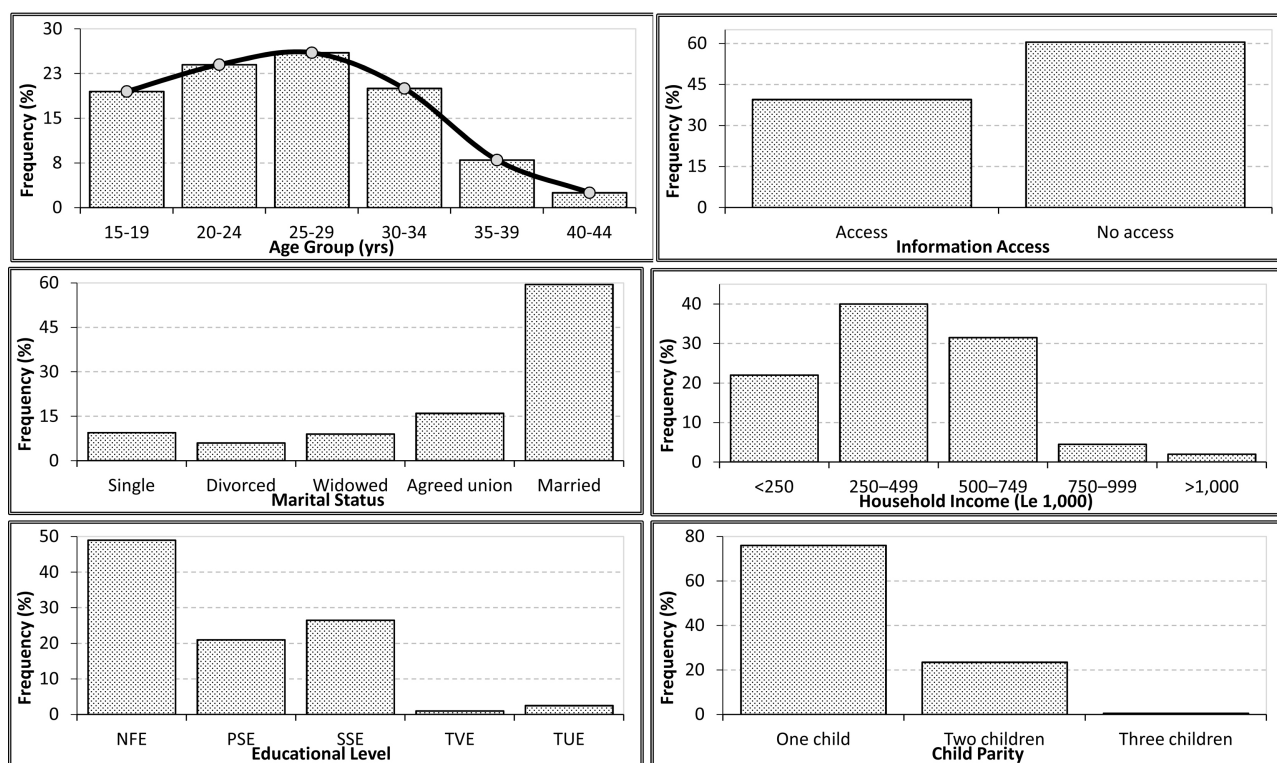


Figure 2. Plots of distributions of respondent mothers by key socio-economic characteristics in the Kori Chiefdom study area. Note that NFE is no formal education, PSE primary school education, SSE secondary school education, TVE is tertiary education at vocational level and TUE is tertiary education at university level.

Across the categories of education, the majority (49.0%) of the respondent mothers did not go to school at all. Then while 21.0% and 26.5% respectively had primary and secondary school education, only 1.0% and 2.5% respectively had tertiary education at vocational and university levels.

For access to information, most of the respondent mothers (60.5%) had no access to information and the remaining 39.5% reported having access to information in one way or another. Again, see **Figure 1** for full description of the socio-economic characteristics covered above.

3.2. Potential Nutritional Status

Figures 3-5 plot variables covered in this study that are key indicators for nutritional status of children. These include breastfeeding, complementary feeding and protein foods. Of the key variables of potential nutritional status of children, **Figure 3** covers: 1) the time a mother starts breastfeeding her child after birth; 2) the period of time the child is exclusively on breastfeed; 3) the period of time for which the child is breast fed; and 4) the time a mother starts giving her child a complementary food.

For the first variable, (the time a mother starts breastfeeding her child after birth), almost all the investigated mothers (81.0%) started breastfeeding their children within one hour after birth. Then while some 12.0% of the respondent mothers started breastfeeding their children within 6 hours of after birth, only

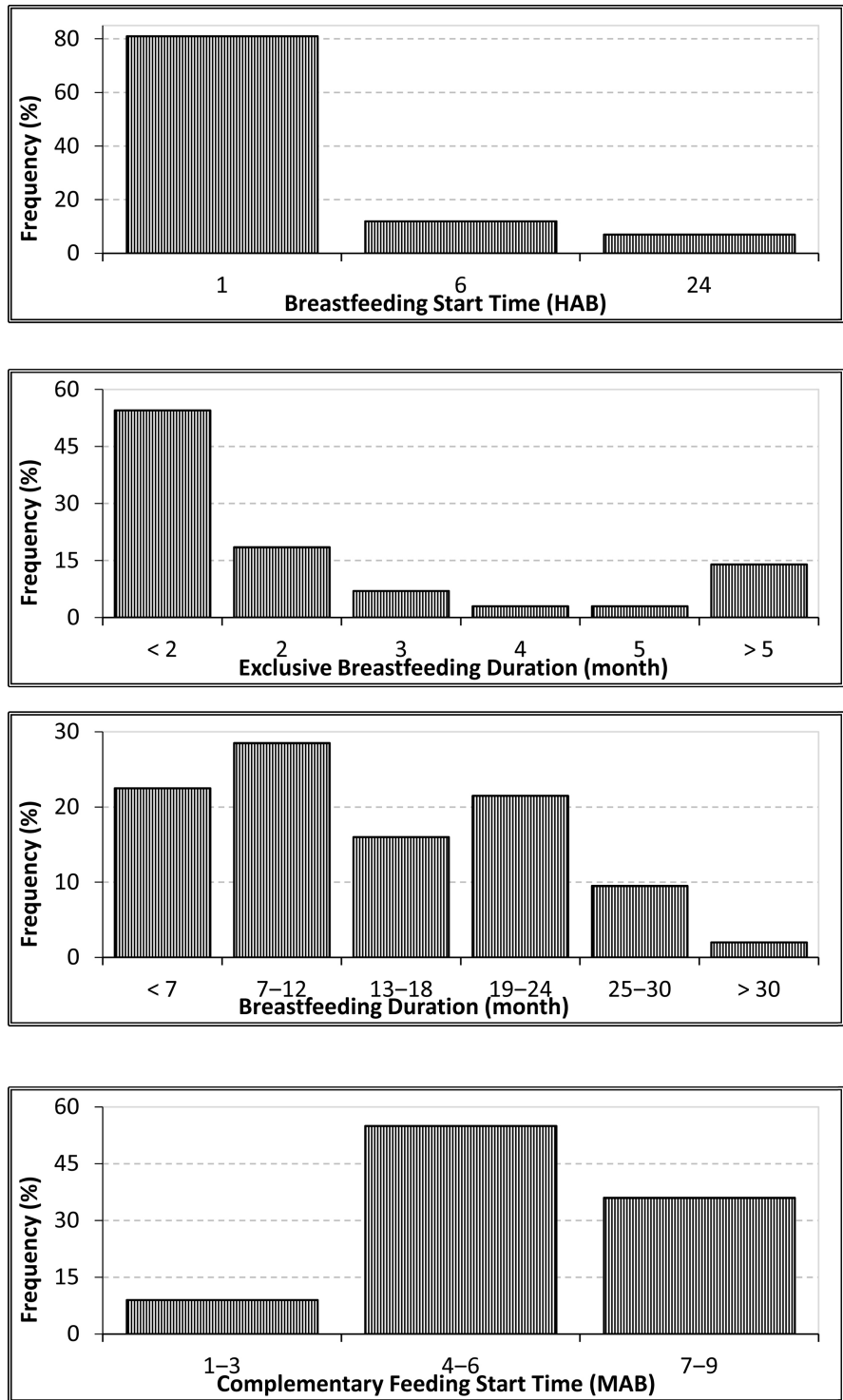


Figure 3. Plots of distributions of respondent mothers by breastfeeding practices for children in the Kori Chiefdom study area. Note that HAB is hours after birth and MAB is months after birth.

7.0% did so within 24 hours after birth.

Regarding exclusive breastfeeding, over one-half of the respondent mothers (54.5%) kept their children exclusively on breastfeed for less than two months.

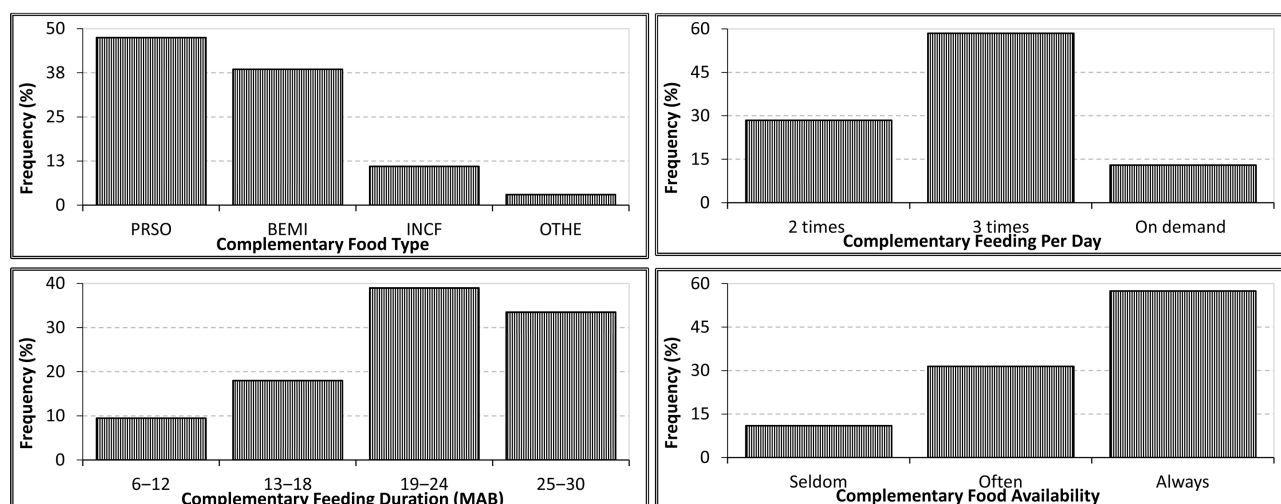


Figure 4. Plots of distributions of respondent mothers by complementary feeding practices for children in the Kori Chiefdom study area.

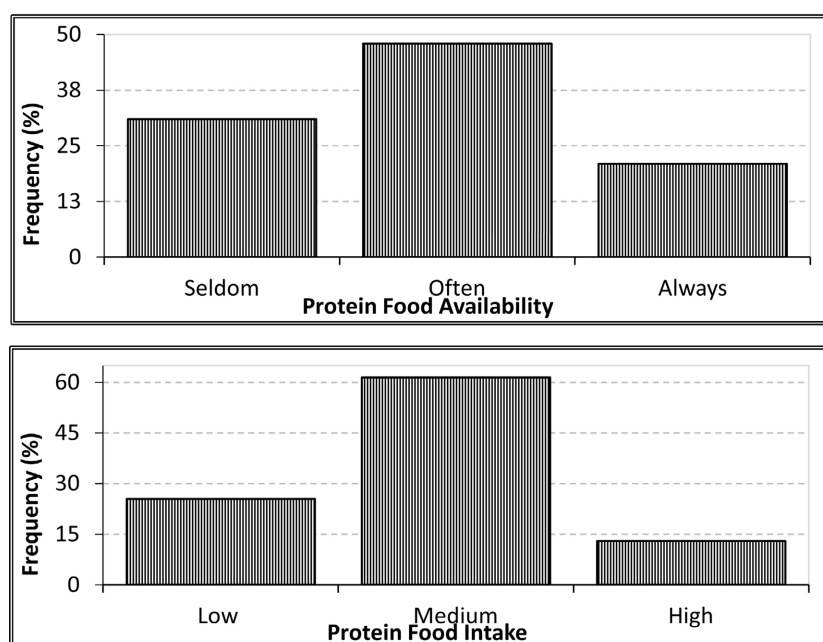


Figure 5. Plots of distributions of respondent mothers by protein food access and use in the Kori Chiefdom study area.

About 18.5% did so for two months, 7.0% for three months and 14.0% for more than five months.

On the issue of the period of time during which the children were breastfed, it was somewhat very much spread out. Some 22.5% kept their children on breastfeed for less than seven months. Another near-equal number of respondent mothers (28.5%) breastfed their children for 7 - 12 months, 16.0% for 13 - 18 months and 21.5% for 18 - 24 months. Only 9.5% breastfed their children for 25 - 30 months and yet another fewer number of the respondent mothers (2.0%) breastfed their children for over 30 months.

The time of introduction of complementary food is critical to the nutritional status and therefore the health of a child. For this element, only few mothers started complementary feeding within 2 (4.0%), 3 (5.0%) and 4 (8.0%) months of birth. Much higher numbers of mothers introduced complementary feeding within 5 (11.0%), 6 (36.0%), 7 (22.5%) and 8 (12.0%) months after birth. Only 1.5% of the respondent mothers delayed the use of complementary feeding till 9 months after birth.

The other set of the key variables on potential nutritional status of children are plotted in **Figure 4** and this includes: 1) type of complementary food; 2) availability of complementary food; 3) duration of complementary feeding; and 4) the number of times per day a child is fed complementary food.

On the type of complementary food fed to the children, the spread was fairly fine. Some 47.5% of the respondent mothers used powdered rice with salt and oil (PRSO), 38.5% used benni mix (BEMI) and 11.0% used infant cereal formula (INCF). Only 3.0% of the respondent mothers in the study area used other types of complementary food. This included porridges of banana, plantain, potato, rice, foofoo and other easily accessible foods in the local environment.

Regarding the availability of complementary food, 57.5% of the respondents in the study area reported that complementary food was always available in their communities, 31.5% said it was often availability and only 11.0% noted that complementary food was seldom available.

For the period of time the children were given complementary food, that is the concurrent use of breastfeed and other foods, only 9.5% did so for 6 - 12 months. The rest did so for over 12 months—18.0% for 13 - 18 months, 39.0% for 18 - 24 months and 33.5% for 25 - 30 months.

The plot of the percent distribution of the frequency of complementary feeding per day shows that most of the respondent mothers (58.5%) fed their children three times per day, 28.5% did so two times per day and 13.0% of the mothers only fed complementary food to their children on demand.

The last set of the key variables on potential nutritional status of children in the study area is plotted in **Figure 5** and it includes: 1) the availability of protein food; and 2) the level of intake of protein food. The protein foods considered in this study includes milk, meat, egg, etc. as part of the diet of the children.

Based on **Figure 5**, protein food was often available to 48.0% of the respondent mothers, seldom available to 31.0% and always available to 21.0% of the respondent mothers in the study area. Regarding protein food intake, the general trajectory was the same as that of protein food availability. Some 61.5% of the children of the respondent children had an average level of protein food intake, 25.5% had low protein food intake and 13.0% of the children had high protein food intake in the study area.

4. Discussions

In this study, the socio-economic characteristics of women with children not more than five years old and the nutritional status of the children was investigated in

10 chiefdom communities in Moyamba District. The socio-economic characteristics covered included age, household income, marital status, five-year child parity, educational level and access to information.

For these characteristics, the study showed that a fairly good number (19.5%) of the respondents were teenage mothers of age 15 - 19 years. Another 24.0% were in the early twenties (20 - 24 years). The first age group is actually a school-going age and this high number of girls with children could only point to early sex and teenage pregnancy, both of which are not good for national development. In fact, studies show that this age group (15 - 19 years) is sexually more active today than it any time in the past [15]. The second age group (20 - 24 years) is typically a tertiary-education age, who have instead become mothers in rural communities. These teen mothers often take risk and get involved in unprotected sex and end up caught up in unplanned pregnancy and unwanted motherhood and marriage, which are all common occurrences across the developing world [16].

For household income, all the respondent mothers live below the extreme poverty line of the United Nations, which is one dollar per day. Although very disturbing, poverty is also a common thing across the developing world, especially so on the African continent [17]. It is a major factor responsible for the high teen motherhood in the study area.

Breastfeeding was shown to be a common practice among the mothers [18] [19], and initiation of breastfeeding in a good time. Some 81.0% of the respondents started breastfeeding their children within the first hour of delivery [20] [21] [22]. The figure in this study is higher than what was reported for rural Sierra Leone by MICS in 2010 (46%) and recently again in 2017 (54.5%)—[5] [10]. It is also higher than what was reported for other African countries like the 34.7% - 78.3% in Nigeria [23] [24], 51.8% in Uganda [25] and 66.5% in Ethiopia [26]. However, it is slightly lower (87.2%) than what was noted in a study in Eastern Sudan [27].

All the respondent mothers breastfed their children, with 82.0% initiating it within one hour of birth and 6.8% not doing so until some 24 hours later. Much as noted here, studies also suggest that some 76.8% - 90.0% of mothers start breastfeeding in the very hour of birth [2] [28]. This high percentage could be due the fact that there in an increasing awareness that breastmilk is good not only as food, but also as immunity booster for newborn babies [20] [27].

While over one half (54.5%) of the mothers exclusively breastfed their children for only one month after birth, 14.0% did so for up to six months. For about 28.5% of the children, breastfeeding was terminated within 7 - 12 months and only 21.5% breastfed for up to 18 - 24 months. Generally, breastfeeding was not sustained after the introduction of complementary feeding for most of the children [29] [30].

Even though many initiated breastfeeding in time, not many exclusively breastfed for a long time [18] [31]. For many children also, the duration of breastfeed-

ing was also not as recommended by WHO and UNICEF [7]. The majority of the children (54.5%) were exclusively breastfed for not more than a month after birth. This could be because the society believes that breastfeeding alone is not enough or even good for the well-being of children, especially for child older than one month. Also, about one half (51%) of the were not breastfed for up to 18 months. This was slightly higher than what was reported by Statistics Sierra Leone [10], but much in tune with the country's 2018 Demographic Health Survey report [11].

For 36.0% of the children, complementary feeding was introduced in time. But some 22.5% of the respondents did not introduce complementary feeding until the seventh month. At about six months after birth, over 70% of the children were introduced to complementary feeding. This suggested that the six months recommended by [7] before the introduction of solid or semi-solid food was followed, although some 13.5% started even much later. Other studies note that most children are introduced to semi-solid foods before 6 months [32]. Generally, poverty hastens the early introduction of solid or semi-solid foods as the mothers themselves could be underfed and therefore cannot sustain long periods of breastfeeding [33] [34].

Complementary feeding was initiated at the age of six months for only 36.0% of the children. While a small 4.0% of the respondents introduced complementary feeding as early as two months 1.5% did so as late as 9 months. In Ethiopia, some 53.40% introduced complementary feeding on time, 30.17% did so early and 16.42% late [35].

Powdered rice with salt and oil (PRSO), but more specifically other foods such as foofoo are very low in nutrients other than carbohydrate. However, close to 50% of the children were fed these foods. Benni mix, which contains all the food nutrients, was fed to only 38% of the children. In order to understand the dietary spread of the children, further questions were asked on protein foods such as eggs, milk or meat and fish. It was noted that these protein foods were always part of the food supplement for 48.0% of the children and often so for 31% of the children. The quantity fed was moderate for 61.0% and low for 25.5% of the children.

This agreed with the findings of other studies on complementary feeding [10] [11] [36]. For over one half (57.5%) of the children, complementary food was always available. The frequency of intake was also high for most of the children. This suggested that people preferred to put their children on complementary feeding than breastfeeding. The study also noted that most children (58.5%) were fed three times per day, with 13% fed on demand [10] [34] [37]. Complementary feeding is expected to continue up to 24 months for young children. However, this was hardly the case. The study showed that only 39% of the children were given complementary food for 18 - 24 months and 33.5% stopped it much latter (25 - 30 months). Then for 27.5% of the children, complementary feeding was stopped before 18 months.

5. Conclusions

In this study, the socio-economic characteristics of women with children not more than five years old were investigated along with the adopted feeding practices of the children in the Kori Chiefdom study area in Sierra Leone. Based on the study, a good number of the women were teenagers of school-going age. While also most of the women had more than one child in five years, analysis of annual household income suggested that pervasive poverty existed throughout the study area. Also, most of the mothers did not have any formal education and had little access to information.

One good thing was that almost all the mothers started breastfeeding their children with the very hour of birth, but few continued exclusive breastfeeding after two months. Although the overall spread of the duration of breastfeeding was good, most of the mothers gave it up at 12 months after birth. Within one to two months after birth, most of the women introduced complementary feeding, must against the recommended time by WHO and UNICEF. As Sierra Leone is predominantly a rice-eating nation, powdered rice with salt and oil was most used complementary food. Little protein foods were used as complementary food and even more less of it was fed to the children. For most children, complementary feeding lasted for 24 months.

The summary presented here in this study lays the basis solid enough for the study of the factors driving the state of nutrition of especially under-five children in rural Sierra Leone. On this basis, the next level of analysis or study will target a lot more factors (independent variables) and who the factors relate to nutritional status of children (dependent variable). These stages of analysis will lay most explicitly the circumstances surrounding the livelihood of women teenagers and children in rural communities in Sierra Leone. This will be useful for purposes such as developing targeted projects to improve living conditions in rural areas.

Limitation

The study had a key limitation of recall bias, as mothers of children aged up to two years were asked for early infant feeding detail.

Conflicts of Interest

The authors declare that there is no conflict of interest related to this work.

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