Enablers and Barriers to Adequate Complementary Feeding (CF) Practices in Pakistan; Secondary Analysis of Formative Research on National CF Assessment (NCFA)

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Abstract

Background

Malnutrition among children continues to be one of the major public health problems globally with majority of cases residing in Asia. Within this region, Pakistan is among the countries with the highest burden of child malnutrition as 28.9% children are underweight, 40.2% are stunted and 17.7% suffer from wasting. Among the key contributors towards malnutrition in early years of life, inappropriate breastfeeding and complementary feeding (CF) practices are most appropriate There is a need to explore the factors responsible for poor feeding practices to address the gaps for designing evidence-based interventions focusing on social, cultural, and economic aspects of CF practices.We, therefore, aimed to understand how the cultural and social context in Pakistan influences the CF practices and the key social, cultural and economic drivers of change that need to be considered when shaping future policies and development interventions.

Methods

We conducted secondary analysis on the qualitative data collected through formative research as a part of the National CF Assessment (NCFA) conducted in 2018 across Pakistan by United Nations Children's Fund (UNICEF) and the Pakistani Ministry of National Health Services, Regulation and Coordination (MoNHSR&C). In-depth interviews and focus group discussions conducted with mothers and fathers of children aged 6 to 23 months were included in the analysis. Framework analysis approach was applied to analyze the data.

Results

Financial barriers included limited finances and unemployment of the father, cultural barriers included restricted female mobility, heavy workload on mothers and dietary misconceptions whereas large family size, inaccess to food, inadequate knowledge and poor perception on CF, use of shelf foods, preference of child to certain foods, and harsh environmental conditions were reported as social barriers. Financial enablers included sound economic conditions of the household whereas joint family system, multiple sources of income, kitchen gardening, home based poultry, counseling by lady health workers and health care providers were among the social enablers.

Conclusion

Considering CF practices in Pakistan are inadequate therefore strategies are to be put on removing barriers to adequate CF. This can only be achieved if efforts are indicated from the policy level down to the community.

1. Background

Globally, malnutrition accounts for nearly half of all deaths in children under five years of age(1). Despite improvement in child nutrition globally (2) with prevalence of stunted children decreasing from 32% in 2000 to 21% in 2019(3),it is still a major public health problem in developing countries (2–4)where it accounts for 54% of all childhood deaths (5, 6). More than 70% of the such children live in Asia(7). Within this region, Pakistan is among the countries with the highest burden of child malnutrition(8) as 28.9% children are underweight, 40.2% are stunted and 17.7% suffer from wasting(9).

Inappropriate breastfeeding and complementary feeding (CF) practices are among the main causes of malnutrition during early years of life. (10) World Health Organization (WHO) defines exclusive breastfeeding as a practice in which an infant receives only breast milk and no other solid or liquid for the first six months of life(11) and CF as the process of feeding foods and other liquids along with breast milk to meet the nutritional requirements of infants(12).The CF period, starting from 6 months of age to 24 months is recognized as the critical window for a child's growth, development and health(13). The risk of malnutrition also increases significantly during this period (10, 11). Low food intake, insufficient food content and lack of specific nutrients lead to poor growth (16) with long term effects on cognitive performance, work capacity, reproductive outcomes, and health status during adolescence and adulthood(13–17).

In Pakistan, although CF indicators have declined over a period of time yet, it does not meet the acceptable level. According to National Nutrition Survey (NNS) of 2018, age-appropriate CF has been determined to be 51%. Additionally, minimum meal frequency (proportion of children aged 6–23 months; who receive solid, semi-solid, or soft foods at the minimum numbers of two and three times for children aged 6–8 months, and 9–23 months respectively(18)) has been found to be 56% and minimum acceptable diet (measuring both the minimum feeding frequency and minimum dietary diversity, as appropriate for various age groups) is 3.7%. Less than 1 in 20 children is provided with the minimum acceptable diet that is required for optimal growth and development. (19)

There is a need to explore the factors responsible for poor feeding practices to address the gaps for designing evidence-based interventions focusing on social, cultural, and economic aspects of CF practices. We, therefore aim to understand how the cultural and social context in Pakistan influences the perspectives of CF practices and what are the key social, cultural and economic drivers of change that need to be considered when shaping future policies and development interventions.

2. Methods

We conducted secondary analysis on the qualitative data collected through formative research as a part of the National CF Assessment (NCFA) conducted in 2018 across Pakistan by United Nations Children's Fund (UNICEF) and the Ministry of National Health Services, Regulation and Coordination (MoNHSR&C), with financial support from the United Kingdom Department for International Development (DFID).

The data in this formative research was collected across selective districts Pakistan from Baluchistan, Khyber Pakhtun Khwah (KPK), Punjab, and Sindh, Azad Jammu and Kashmir (AJK), Gilgit-Baltistan(GB),

Islamabad Capital Territory (ICT) and the Federally Administered Tribal Areas (FATA) which were subsequently merged into KP province to comprise the tribal districts of KP. One urban and one rural community was selected in each district through convenience sampling in that formative research exercise. Primary data was collected from four main categories of respondents who play a significant role in feeding practices for infant and young children (6–23 months).These were mothers, fathers, caregivers including grandmothers and older female relatives and service providers.

We conducted secondary data analysis of in-depth interviews (IDIs) and focus group discussions (FGDs) conducted with mothers and fathers of children aged 6 to 23 months on CF practices. Mothers were selected as they are usually the primary caregivers responsible for the child's diet and fathers because they are predominantly the main providers of the household. The data was available in the form hard copies of handwritten transcripts in Urdu and obtained from Oxford Policy Institute.

We analyzed a total of 178 IDIs (143 of mothers and 35 of fathers) and 177 FGDs (142 of mothers and 35 of fathers). Considering this was a secondary data analysis, therefore we could not consult the respondents for providing feedback on the reporting. Table 1 provides details of the numbers of IDIs and FGDs within each geographical region.

Table 1
Location wise distribution of dataset

Location	Mothers		Fathers	
	FGDs	IDIs	FGDs	IDIs
Punjab	36	36	9	9
Sindh	24	23	6	6
KPK	27	27	6	6
Baluchistan	24	24	6	6
AJK	12	12	3	3
GB	12	12	3	3
ICT	4	4	1	1
FATA	4	4	1	1
Total	143	142	35	35

Framework analysis approach was applied as it provides a systematic structure to managing and identifying themes(19). After familiarization with the data three researchers coded the initial interviews according to participant responses to each question based on the salient themes emerging across these interviews. This was an iterative process which involved conceptualization, categorization and examining relationships of the various responses with one another and with the various categories of respondents.

The initial coding framework was developed using both a priori and emergent themes. This coding of the initial set of interviews and discussions guided the development of a code book which also ensure inter-reader reliability. The data was analyzed based on these codes and the framework continued to be modified upon subsequent sorting of the data. Data was analyzed by 7 coders who read the transcripts line by line and thematically coded the data using the code book.

3. Results

Major themes were Barriers (economic, social, and cultural) and enablers (economic and social) to CF with further minor themes within each major theme as shown in Fig. 1.

The majority of the respondents were in the younger age group with mothers aged 25–35 years and fathers aged 30–40 years. Most of the mothers were uneducated whereas fathers had some level of formal education. The main sources of livelihood in rural localities were manual labor, farming, and small businesses (village shops, vendors, and maintenance shops, etc.). In urban localities, main sources of income included small businesses, private or government employment and manual labor. An alarmingly high rate of unemployment and lack of economic opportunities was found in most regions, especially amongst families dependent on daily wages.

Considering this is secondary data analysis, therefore, information on the research team that primarily collected data, their credentials, occupation, gender, relationship with participants, methodological theory, participant selection, sampling, non-participation, setting of data collection, presence of non-participants, interview guide, repeat interviews, recording, field notes, duration, data saturation, and transcription is reported elsewhere.

3.1. Barriers to adequate CF:

Within this theme, the main barriers identified were financial, cultural, and social as indicated below:

3.1.1. Financial barriers:

Financial barriers were identified to be due to two reasons: limited finances and unemployment.

3.1.1.1. Limited Finances:

The majority of the respondents reported financial constraints to be a major barrier to adequate CF. Low income of the family coupled with inflation were among the main reported contributors to limited finances.

“Us laborers can only give bread with tea to the child.” (Mothers’ FGD, Gilgit rural, GB)

Poor economic conditions restricted a large number of respondents from providing a balanced and diverse diet to the child. A mother expressing similar views said,

“We are poor. From where would we buy different food items? We don’t put such habits in our children; we just give them what we can afford in poverty.” (Mothers’ FGD, Tharparkar, Rural, Sindh)

3.1.1.2. Unemployment of fathers:

It was identified that under this theme there were two factors that led to inconsistencies to provision of adequate diet to children.

Effect of employment status:

The unemployment of the father was reported by most of the respondents as an important factor that caused fluctuations in the diet of children.

“It is difficult for us to provide sufficient food when we are unemployed.” (Fathers’ FGD, Kuzdar, Urban, Baluchistan)

It was also mentioned by most that certain food items such as meat and fruit were not given due to unemployment, especially for those who worked on daily wages. A father said,

“We sometimes give meat when we get good wages. Children eat what is cooked for all, not prepared separately for them. We do not have enough money to buy different food items. Our pocket does not allow us to give Cerelac or fruits daily.” (Father’s IDI, Peshawar, Rural, KPK)

It was also reported that unemployment of the father also affected initiation of CF. A few mothers continued breastfeeding as fathers were unemployed and could not afford food items.

“Semi solid diet should be given after 6 months but because the child’s father was unemployed during this period, so I continued giving breast milk till 8 months and did not give semi-solids because we were unable to afford.” (Mother’s IDI, Kohat, Urban, KPK)

Seasonal variation:

In areas such as GB and AJK, the winter season also affected the father’s employment whereby they were unable to obtain any work secondary to the restriction of movement due to the harsh weather.

“In the winter season, there is no source of income. So, we have to borrow money to run the household.” (Fathers’ FGD, Skardu, Rural, GB)

Inflation:

Inflation, which is a general increase in the prices of goods and services in an economy over some period of time, was mentioned by most of the respondents as a barrier to providing a diverse diet to the child. This was identified as a secondary effect of unemployment

“The biggest challenge is that the food items are expensive. Milk, fruits and meat are expensive, so we do not give these to the children.” (Mothers’ FGD, Dera Ghazi Khan, Urban, Punjab)

3.1.2. Cultural barriers:

3.1.2.1. Restricted female mobility:

It was reported by most of the respondents that most of the mothers of children are not allowed to go out on their own without permission from their husbands and depend on them to bring household items including food items for children. This was considered to affect the child’s health as they felt that fathers were not aware of child’s nutritional needs.

“Our women do not go outside. They stay at home, so they have difficulty in managing children’s diet.” (Fathers’ FGD, Turbat, Urban, Baluchistan)

“We cannot go anywhere alone. Fathers are unaware of the child`s diet, they are outside the home, they do not know anything. This is the responsibility of the mother to worry for the child.” (Mothers’ FGD, Khuzdar, Rural, Baluchistan)

Few of the mothers also linked restricted female mobility with the delay in providing food to the child.

“When the child’s father is at home, he brings the food but when he is not, we have to wait.” (Fathers’ FGD, Lora Lai, Urban, Baluchistan)

3.1.2.2. Heavy workload on mothers:

Most of the respondents mentioned that mothers had high burden of household chores. Additionally, few mothers also worked in the fields. Hence, they were not able to give proper attention to the child’s diet.

“I remain busy in household chores which are tiresome. I do not get energy to prepare something especially for my child. I give him whatever is already prepared at home.” (Mothers’ FGD, Mardan Rural, KPK)

3.1.2.3. Dietary Misconceptions:

Some of the respondents associated hot (*garam taseer*) and cold (*thandi taseer*) effects with food items and avoided giving specific food items in the summer or winter as these were believed to be difficult to digest or had a cooling effect on the body predisposing the child to health problems. Thus, certain food items were not used due to misconception created by family members or health care providers.

“Doctors tell us not to give meat as they produce worms in children, so we do not give although children like to eat it.” (Mothers’ FGD, Skardu, Rural, GB)

Majority of the mothers stated that they do not give meat and nuts to their children because they thought child would not be able to digest it as it is not a soft diet.

3.1.3. Social barriers:

3.1.3.1. Large family size:

Some of the mothers and fathers agreed that a large family size was a barrier to providing adequate and diverse diet to the children.

“Because income is low and the family size is big, diversity is not a priority. Quantity of items like wheat and rice is important.” (Mother’s IDI, Faisalabad Rural, Punjab)

Some of the issues associated with large family size were difficulty for the single earner, mostly father, to meet the needs of the entire family and increased responsibility of more children on mothers.

“If there is a single child, even poor people can give him proper diet but if there are more children and only one earning member then the diet of children gets affected” (Mothers’ FGD, Bannu Urban, KPK)

3.1.3.2. Inaccess to food:

Most of the respondents residing in rural areas considered in access to food and markets as a major barrier in providing a diverse diet to the children.

“There is difficulty as nothing is available here. The city is far from here; we cannot go there. Wheat and rice are our own products, that is why we eat these whole 12 months" (Mothers’ FGD, Tharparkar Rural, Sindh)

A mother of a 23 months old child substituted non-availability of adequate diet by complete breastfeeding said,

“When there is nothing in the house to eat, I give breast milk to my child, so she does not stay hungry. If markets would have been near, we could arrange money from somewhere and get food items from the market.” (Mothers’ FGD, Bannu Urban, KPK)

In a few rural areas, respondents had access to a single shop that had limited items and those were also sold at higher prices.

3.1.3.3. Inadequate knowledge and poor perceptions:

Majority of the respondents did not have adequate knowledge on CF and therefore were not able to provide adequate diet to their children.

“We cannot provide our children good diet due to lack of information. If we know about food groups and their benefits, our children would be in good health.” (Fathers’ FGD, Khuzdar Urban, Baluchistan)

“We lack information and we only need that; nothing else. We often don’t know what type of food items should be given to children and in what quantity.” (Fathers’ FGD, Lorelai Urban, Baluchistan)

Due to lack of knowledge, some of the mothers started CF too early and some delayed beyond 6 months. An educated mother of two children from Turbat, Baluchistan started giving semi solids at 2 months to make her child strong as the child was very weak but had to stop because the child fell ill. She started CF again at 4 months.

Majority of the respondents were also unaware of the dietary diversity based on different food groups and mostly relied on affordable and cheap food item.

"The aim is to fill the child's tummy. People do not bother which food has impact on the health. If one food item is missing, they will increase the amount of other. "(Fathers' FGD, Muzaffarabad Urban, AJK)

Some of the mothers gave child only one type of food item in the start, which was mostly porridge or Cerelac. In most of the cases, food items from the same group like rice cooked with lentils, porridge and wheat were given to children throughout the day. Similarly, Cerelac was considered as a healthy and balanced diet for the children by most of the respondents. A father from lower socioeconomic class perceived that the children of rich people are healthy because they use shelf foods like Cerelac.

3.1.3.4. Use of shelf foods:

Common use of shelf foods was reported by the majority of respondents. Most commonly used shelved items were Cerelac (brand name of an infant cereal), biscuits, rusk, and crackers (such as *Slanty* and *Kurkure*). Main reasons associated with the use of Cerelac were perceived as healthy diet, recommended by doctors, convenient to prepare, peer pressure and influence of television advertisements.

"Cerelac provides strength to the child as it contains milk and fruit extracts. It can be made by adding water or fresh milk." (Mother's IDI, Mirpur Rural, AJK)

3.1.3.5. Preference of the child

Child preference to certain food was another barrier to adequate and diverse diet in CF. Most of the mothers feed their children only those food items which they enjoy eating. Some respondents mentioned that while they do try to give different food items, but children eat according to their own choice and not much effort is put to change that behavior.

3.1.3.6. Socio-environmental factors:

Harsh weather conditions in some areas also limited the variation in the diet as parents either relied on stored food or the ones available at that time. In AJK, snowfall in winters causes mobility issues which impact the variety of food given to children. Similarly, in some parts of Baluchistan during summers, no fruit except dates was available.

Mother's behaviour to feed children was also affected by seasonal variations. Mothers in GB were not able to focus on child's diet in summers due to increased workload and in Baluchistan due to hot weather

“In summers I do not feel like getting up and prepare food for the child. No one goes to bring food for children from the city due to the warm weather.” (Mother’s IDI, Sibi Rural, Baluchistan)

3.1.3.7. Lack of facilities:

Respondents from Khyber agency, tribal area of KPK, considered lack of facilities, such as shortage of water, unavailability of gas and uncultivated land, a barrier in providing adequate diet to children.

3.2. Enablers to adequate CF:

Two major enablers to adequate CF were identified: Financial and Social

3.2.1. Financial enablers:

3.2.1.1. Sound economic conditions:

Respondents who had better economic status considered affordability an important factor in providing an adequate diet to the children.

“We do not face any barriers, thankfully. Financial conditions of the family are better, so we can have all kinds of food items.” (Mother’s IDI, Nawab Shah Rural, Sindh)

3.2.2. Social enablers:

Most of the respondents reported that easy access to the markets and availability of food items helped in arranging food items for the child.

“Everything is available near our home and we can buy it easily.” (Father’s IDI, Abbottabad Urban, KPK)

3.2.2.1. *Joint family system*:

Joint family system was considered an enabler for CF by some of the respondents. The reasons mentioned were help from other family members, mostly the grandmother of the children feeding the child, sharing of financial burden and guidance from the elders.

3.2.2.2. Multiple Sources of income:

Most of the respondents mentioned that if the mother is also earning along with the father then providing an adequate and diverse diet to the child is possible.

“Everything is available by the grace of God as we both (mother and father) are earning.” (Mother’s IDI, Turbat Urban, Baluchistan)

3.2.2.3. Kitchen gardening, home based poultry, and livestock:

Most of the respondents mentioned that eggs were easily available as the people had hens at home. Similarly, vegetables and grains grown either at home or locally were preferred. Mothers from Tharparkar mentioned excessive use of watermelons in summer as it is locally grown and available free of cost. Potatoes were grown in Gilgit and were preferred by parents to feed their children.

In a few cases, the meat of animals kept at home was consumed.

"We mostly feed children what we have available at our homes. We have vegetables at our home, other than that, chicken so we can get eggs. Potato is grown widely in our area, so we give boiled potato and chips." (Mother's IDI, Astore Urban, GB)

3.2.2.4. Counseling by lady health workers

Very few of the mothers also mentioned that lady health workers provided them information regarding initiation of CF and adequate age-appropriate food items.

3.2.2.5. Information provided by healthcare providers

Few of the respondents reported that information was provided by the healthcare provider regarding CF.

3.2.2.6. Motivation to provide good diet

Some of the fathers stated that despite of the financial hardships they try to provide them good food to eat because of the emotional attachment to their children and strong family bond.

"Even though our financial conditions are not good, we love our children so much that we can do anything to provide them food as per need. "(Fathers' FGD, Turbat Urban, Baluchistan)

3.2.2.7. Internet

Most of the respondents especially those residing in urban locations, considered internet helpful in providing adequate information on diet of children in terms of dietary requirements and balanced diet.

3.3. Nutrition Sensitive Linkages to CF practices:

3.3.1. Water, Sanitation and Hygiene (WASH):

The majority of the respondents were well aware of the importance of washing hands before preparing food for the child, using clean utensils and safe drinking water. However, people from lower socio-economic status were not able to follow such hygienic practices due to inaccessibility of clean water.

"It is important to clean your hands and utensils but, in our area, there are no such measures because most of the people are poor." (Mother's IDI, Khuzdar Rural, Baluchistan)

Most of the mothers mentioned that child's food is prepared separately in clean utensils while in some instances same utensils were used and no separate meals were prepared for children. Use of soap for washing hands was reported by the majority while a few did not use it.

Mostly children drank the same water as the rest of the family. Some mothers mentioned that boiled or filtered water was used for the child.

“In our area, water is supplied by the government and it is clean. We use it for drinking and children also drink the same.” (Mothers’ FGD, Sibi Urban, Baluchistan)

3.3.2. Social protection:

Very few respondents were BISP (Benazir Income Support Programme) beneficiaries (this is a social protection program launched in Pakistan to provide financial support to households living below poverty line). Most of them considered it financial support which helped them in buying food items such as meat, fruits, and eggs for children. Very few stated that BISP is ineffective in fulfilling the nutritional needs of the child as the amount is very less. A few also used it for other purposes.

“I receive funds from BISP. It helps me in managing household expenses. I do not spend it specifically on food, but other expenses are managed quite well. I pay school fees of my children and also made gold earrings for my daughter.” (Mothers’ FGD. Sukhur Rural, Sindh)

3.3.3. Food security:

The majority of respondents stated that access to and availability of required food items was not a major challenge as most food items were available in nearby markets. However, in areas where access was an issue, parents had to limit their children’s diet to whatever was available in their local shops.

In GB and AJK, food accessibility was an issue in winter as roads were blocked by snow. In some areas of Baluchistan, respondents had difficulty accessing food items in extremely hot weather.

Compared to five years ago, most of the respondents agreed that prices have increased while some also said that more attention is now paid to the nutritional needs of the child.

4. Discussion

Our study focused on identifying barriers and enablers to adequate CF in Pakistan. It was observed that barriers were more than enablers with social and cultural barriers among the contributors to this state. Whereas food insecurity is one area that needs attention, a lot can be done in terms of working on these cultural and social barriers. At the same time enhancing the impact of the enablers especially the ones associated with dissemination of knowledge can also be fruitful. Based on the findings of this analysis, both communication and non-communication focused interventions are recommended to improve the CF practices.

Counseling of mothers and caregivers by LHWs and community volunteers can provide individualized motivation, support and can solve problems. This could be done through regular face to face counseling sessions on initiation of CF at 6 months, age appropriate CF, food diversity, frequency, and quantity, use and preparation of appropriate local foods and methods to encourage children to eat healthy diet. One

recommendation to work on this is the establishment of a volunteer workforce which can be trained on correct knowledge dissemination and motivated through leadership, both community and political.

Another community-based approach involving influential people is in community meetings and group education programs. In a study in Iran, influential people in the community were involved to help change the social norms about feeding behavior. The study reported improvements in knowledge and attitudes of the mothers, enhanced cooperation from families, increased consumption of protein-rich foods and decreased prevalence of undernutrition (20). Counseling stations can be established at government hospitals, basic health units and local clinics to provide verbal information, printed educational material and age appropriate sample meal plans to the parents. While preparing these materials, the local context of the nutritious diets already consumed can be promoted and that material then concept tested.

Awareness programs on television, radio and social media platforms can promote utilization of locally produced and available food options to improve dietary diversity and to discourage the use of shelf foods as results did show that advertisements had such an influence that caregivers even remembered the exact catch phrases

Women's economic empowerment can bring a positive change in the feeding practices of the children as the findings suggest that women who were earning provided better and diverse diet to their children. Kitchen gardening was another enabler to CF. Promoting small scale farming can improve the economic status of the families thereby providing them an opportunity to feed their children better.

The major strengths of our study are that it is the first secondary analysis of its kind providing a nationwide perspective on barriers and enablers to CF. Another major strength was that considering none of the team members doing the analysis were primarily involved in data collection, therefore, there was no researcher bias, and no relationship was established between the respondents and the analysts. The major limitation is that considering this was a secondary analysis, therefore the transcripts did not contain very detailed information as they were not per verbatim and being hand written reading them was challenging because of variation in hand writing by various moderators.

Conclusion

Considering CF practices in Pakistan are inadequate therefore strategies are to be put on removing barriers to adequate CF. This can only be achieved if efforts are indicated from the policy level down to the community.

Abbreviations

AJK	Azad Jammu & Kashmir
CF	Complementary feeding
IDI	In-depth interviews
FGD	Focus group discussion
GB	Gilgit Baltistan
NCFA	National complementary feeding assessment

Declarations

Ethics approval and consent to participate

Not applicable. It is a secondary data analysis.

Consent for publication

Not applicable

AVAILABILITY OF DATA AND MATERIALS

The dataset supporting the conclusions of this article is included within the article and its additional file.

COMPETING INTERESTS

The authors declare that they have no competing interests.

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AUTHOR CONTRIBUTIONS

EAE(M), WK(M) and SS(F) conceived the idea for this work, which was developed with the support of HM(F) and SYS(M). HK(F) conducted analysis with HM and SYS and EAE, WK and SS provided feedback. HM, HK, and SYS wrote the first draft, and all other authors contributed to the manuscript.

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Figures

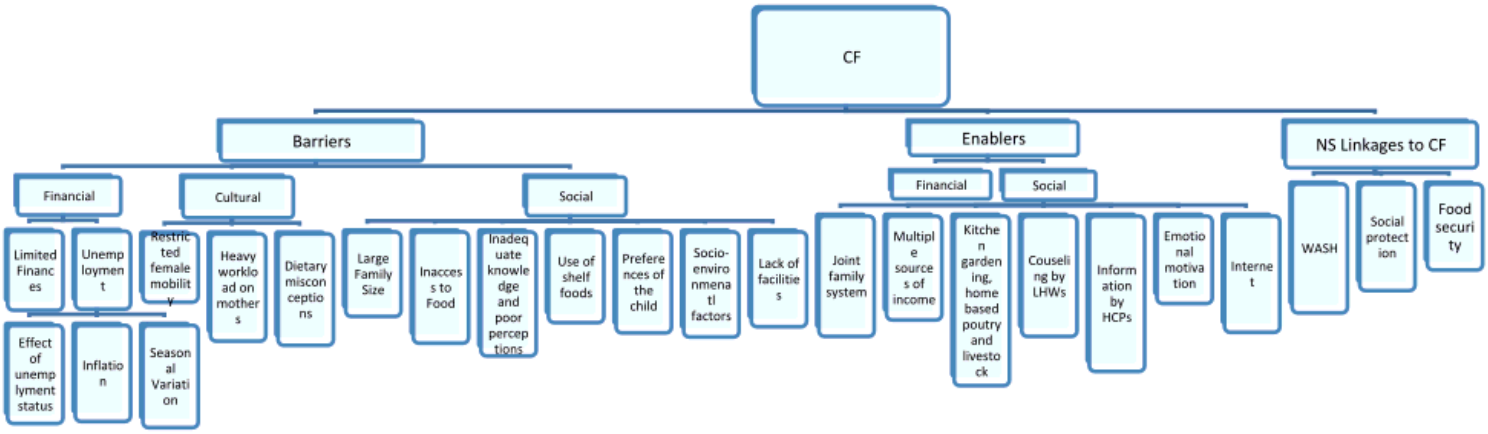

Figure 1

Coding Tree