

**PERSISTENT PREVALENCE OF
MALNUTRITION IN CHILDREN 0-5 YEARS IN
BIRIM SOUTH DISTRICT.**

BY



DR. SALLY ANSAH

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Declaration

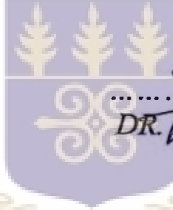
I Dr. Sally Ansa do declare that this dissertation has been the result of my independent field research where material other than mine have been used. Specific references have been made thereto. This work has neither been submitted towards the award of any degree nor is it being submitted concurrently in candidature for any other degree.

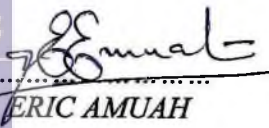
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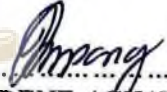


.....
DR. SALLY ANSAH

Academic Supervisors




.....
DR. ERIC AMUAH


.....
DR. IRENE AGYAPONG

DEDICATION

This work is dedicated to my dear husband Isaac Kofi Nketiah, and daughters Fiona, Daisy and Shirley Obeng Agyei who have made significant contribution in my life for standing by me when the going became very rough.

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Finally I will thank my sponsors, Ministry of Health and the Academic Staff of the School of Public Health, University of Ghana, Legon-Accra for making my dreams come true.

List of Abbreviation

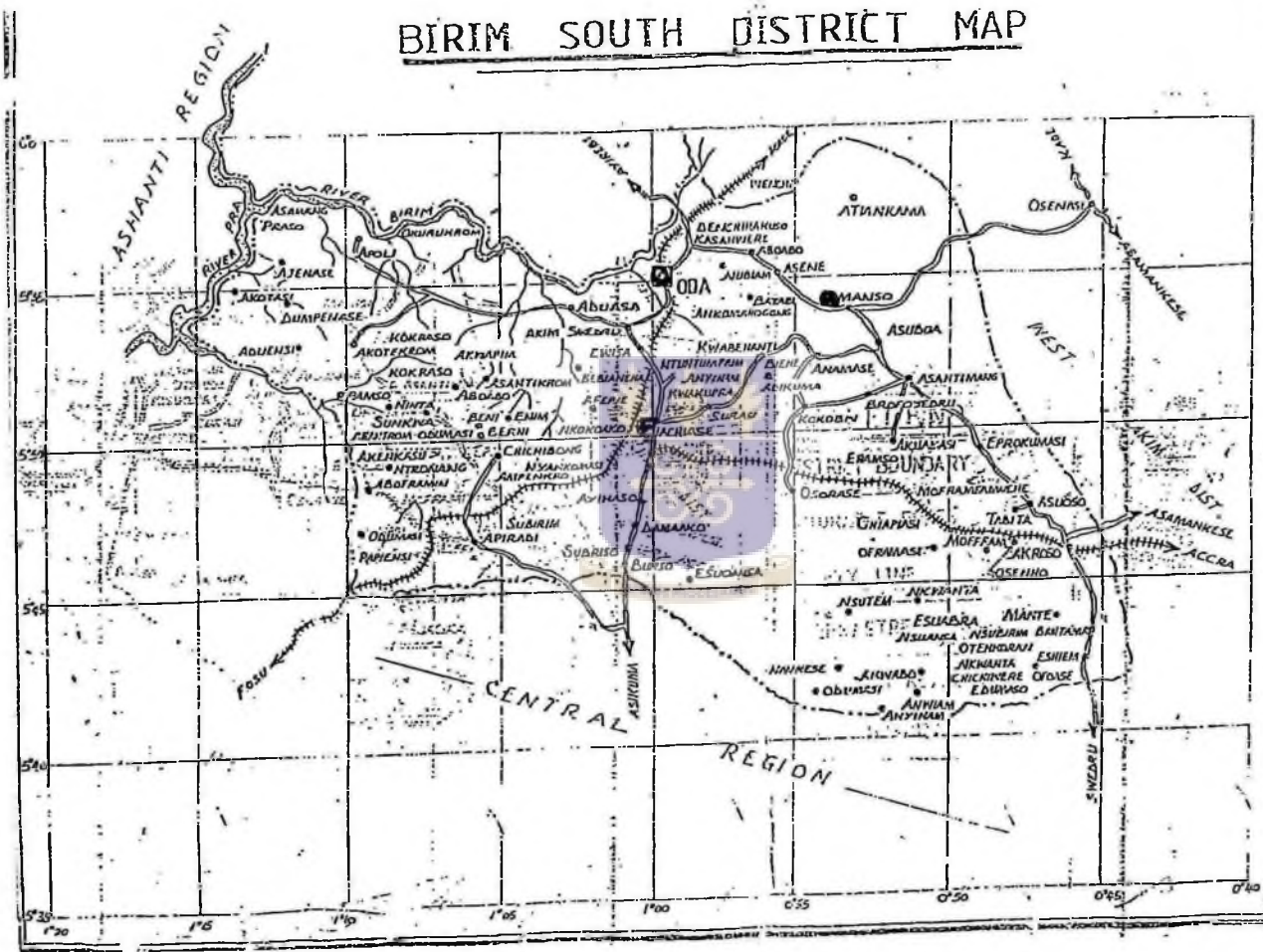
ACC/SCN	–	Administrative Committee on Co-ordination (of the United Nation)/Sub-Committee on Nutrition
ANC	–	Ante-Natal Clinic
BSDHA	–	Birim South District Health Administration
CWC	–	Child Welfare Clinic
DALYS	–	Disability Adjusted Life Years
DCU	–	Disease Control Unit
DDHS	–	District Director of Health Services
DHMT	–	District Health Management Team
EBF	–	Exclusive Breast Feeding
EU	–	Environmental Unit
FP	–	Family Planning
GDHS	–	Ghana Demographic and Health Survey
HW	–	Health Workers
KABP	–	Knowledge Attitude Behaviour and Practice
KVIP	–	Kumasi Ventilated Improved Pit.
MCH	–	Maternal Child Care
MOH	–	Ministry of Health
OPD	–	Out Patient Department
PEM	–	Protein Energy Malnutrition
TB	–	Tuberculosis.

TBA – **Traditional Birth Attendance**

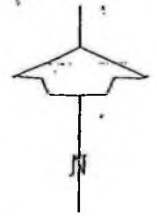
VIP – **Ventilated Improved Pit**



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BIRIM SOUTH DISTRICT MAP



LEGEND

- DISTRICT BOUNDARY
- MOTORABLE ROADS
- RAILWAY LINE
- RIVERS/STREAMS
- HEALTH CENTRE/POST
- GOV* T. HOSPITAL
- MISSION HOSP/CLINIC

LEGAT JMB
L.P.D. FOR N
KORUMU
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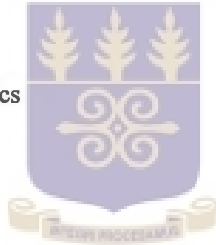
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ABSTRACT

Following the persistent high prevalence of malnutrition in children 0-5 years in the Birim south district over the past years, this study set out to find why this problem exists despite continuous health education on malnutrition.

With the permission of the District Health Management Team the study was conducted in response to a felt need. A comparative cross sectional study was conducted using structured questionnaires and observation methods to interview mothers with children 0-5 years to identify reasons why malnutrition is persistently prevalent in the district and the knowledge, attitude practice and behaviour concerning malnutrition.

The study revealed the knowledge of respondents on exclusive breast-feeding but not practising it. Inadequate food supply in households, insufficient and quality food intake by the children had significant effect on the nutritional status of the children. The study also revealed that improper care of the child by having many children under 5 contributed to the child being sick e.g. anaemia, diarrhoea, measles which led to malnutrition. It was found that unhygienic and improper sanitary conditions also cause diseases like anaemia from worm infestation, diarrhoea etc., which leads to malnutrition.

In the study, respondents of both communities rated education on malnutrition as very poor even though they receive health education on malnutrition. Late and early weaning also influenced the nutritional status of the child. Colostrum the first yellowish substance had significant effect on the factors influencing the persisting prevalence of malnutrition in this district. Based on the findings of the study, the following key recommendation would be made to the relevant authorities.

1. Education should stress on good nutrition for the child
2. Exclusive breast-feeding should be stressed
3. Appropriate weaning period should be emphasised to the mothers
4. Colostrum the first yellowish substance should be encouraged
5. The minds of mothers should be disabused on Oseram (the work of the devil) as an ordinary insufficient nutritional or improper food intake of the child.

CHAPTER ONE

INTRODUCTION

1.0 BACKGROUND

Malnutrition is the physical and mental disability that results when the body does not get the nutrients it needs to function and grow.

Nutritional, biological and environmental factors variously impact the survival of children immediately after birth, during infancy and throughout their childhood. Good nutrition is a prerequisite for proper growth and development, especially in children and it is also generally a requirement for health; health in turn is a socio-economic development. Malnutrition unfortunately, is so widespread that it still represents a major public health problem within Urban and rural communities in many developing societies (Lucas, A. O. Gilles 1990). A new Short Textbook on preventive Medicines in the Tropics.

Children are more often the victims of malnutrition especially during periods of acute food shortage. Children living under condition of poverty and deprivation are always at risk of becoming malnourished even if there is the over-all image of society's prosperity and general well being.

A multi-country survey by the (World Bank in the 1970's,) revealed a fall in average energy consumption in some countries, especially the least developed. A more recent United Nations review of the trends in global nutrition concluded that nutrition in most regions has generally improved.

Information available from countries that have conducted anthropometrical survey show that, alarming high proportions of children under 5 in the developing world suffer the effect of malnutrition. According to data obtained from the survey conducted in 1987 and 1998, two out of five children in the developing world are stunted and one in three is underweight. One in ten is wasted.

The (World Health Organization) in the World Health Report of (1995), Bridging the Gaps, observed that about 200 million children under 5 are affected by protein-energy malnutrition (PEM). About 36% of the children in the developing world are under weight.

Protein Energy Malnutrition (PEM) is one of the serious nutritional problems, which is caused by inadequate intake of bodybuilding or energy foods and is usually accompanied by nutritional

anaemia. Kwashiorkor and marasmus are two types of (PEM). Illness affects the amount of food eaten and body's ability to digest and use food.

Diarrhoea a good example of illness causes malabsorption as well as reduce food intake. In some countries children with Diarrhoea may be taken off food during bouts of Diarrhoea, while the body actually requires more nutrients to fight infection, and illness deficiencies also causes malnutrition.

Anaemia (iron) xerophthalmia (Vitamin A), Rickets (Vitamin D) and Goitre (Iodine) are also related to vitamin or mineral deficiencies and some of these deficiencies occur with protein energy malnutrition. Low birth weight, which is a contributing factor to malnutrition, has been found to be a single predictor of malnutrition.

Birth weight below 2500 grams is associated with poor growth not just infant but also throughout childhood in the world. Low birth weight babies account for one of the major causes of infant death. Those who survive have less than normal physical and possible mental development.

It is known that the critical period for the growth and development of the brain and other components of the Central nervous system appears to begin during the last month of uterine life and extend into the early postnatal years so caretakers must be serious in their growing children. Malnutrition impairs the body's defence system to fight infection meaning the malnourished often become sick and suffer more from illness than the well nourished

This vicious cycle of malnutrition and infection tends to reduce productivity of workers, high dropout, repeater rates among school children, a greater demand for health and hospital care, high expenditures by the government and waste of human life.

In rural areas the amount and quality of a family's land, its income and its equipment affect the foods available for child feeding.

The knowledge of farmers also affects the variety of foods they grow and their harvests.

Environmental factors (i.e. rainfall, insects etc) have an effect on food supply. In urban and increasingly in rural areas, cash income is an important factor in a family's ability to buy food for child feeding than it does produce.

Inadequate maternal and childcare practices are another factor that causes malnutrition because the mother has no time so often the child is left in the care of caretakers who don't take proper care about adequate dietary intake and sanitary practices.

Recent studies in Ghana revealed that 26% of children under 5 years are chronically malnourished. These children are too short for their age (stunted). Under 5 mortality from malnutrition are 108 per 1000 live birth (Ghana Demographic and Health survey 1998).

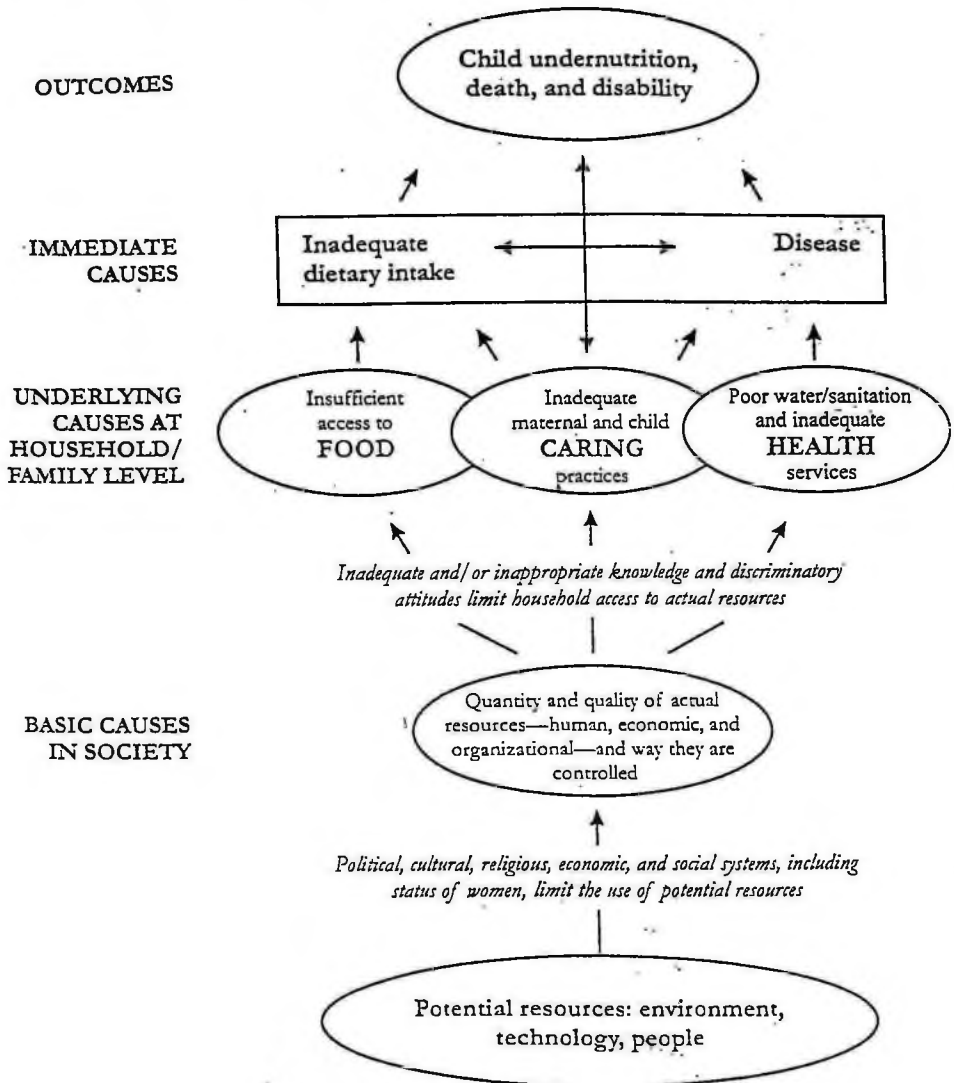
The population of children who are stunted are 11 times the level expected in a healthy and well-nourished population.

Acute malnutrition in a child manifest by wasting which result in a child being too thin for his age. This situation affects 10% of children, which is 4 times the level expected in a healthy population. About 20% of children less than 5 years are underweight for their age, this is also 11 times higher than the level expected in a well-nourished population. (Nutrition of young children and mothers in Ghana 1998).

Malnutrition is a contributing factor to many of the infant mortality in the district. It is the result of multiple factors like poor socio-economic conditions, inadequate nutritious food, short spacing of children, high fertility rate and large number of children. Ignorance about feeding practices, breastfeeding and weaning, repeated infection and failure to patronize the health facilities in the communities.



FIGURE 1. Causes of child undernutrition



Source: Adapted from 1.

REFERENCE

1. UNICEF (1998) *The State of the World's Children 1998*. Oxford: Oxford University Press.

1.1 PROBLEM STATEMENT

Malnutrition has been on the increase in the district and this has been noted with much concern in the annual reports of 1998 and 1999. In the 2000 annual report it stated that 7339 children under 5 were seen at the rehabilitation centre and out of these a total of 1,752 (23.9%) were children at risk of mild malnutrition. 850 (11.6%) were moderate or chronic malnutrition and 659 (8.9%) were severely malnourished.

For the past years malnutrition has been identified as a major public health problem in the district. (District annual report) However, this is not included in the top 10 diseases of the district because mothers feel stigmatised to carry these children on their back to the hospital. Due to this, most of these cases are not seen and recorded in the health records. Mothers feel people might think they or their partners have been unfaithful that is why they have malnourished children and so would rather not send these children to hospital. This has been the reason why malnutrition is under reported in the health records.

Due to these problems malnutrition has been persistently high and various interventions like health education and health promotion, which the Public Health Nurses are encouraging mothers to practice but have not yielded much results. Home visits are also being done by the Community Health Nurses on outreach programs and health talk by the Maternal and Child Health Care Nurses when mothers send their children for weighing. Those who manage to report to the rehabilitation centre are given supplementary food and proper nutritional health education. The children who improve on the feed relapses when the feeds at the centre get finished.

Mothers are taught on how to prepare weanimix but yet still children get malnourished. Possible factors, which influence this problem, are ignorance, low level of nutritional education, lack of income and adequate food in the house and proper caring of children so they do not get sick.

They also have limited access to health services due to financial constraints. Mothers believe that their malnourished children have been bewitched which they call the evil eye that means the mother was bewitched whiles pregnant or during early birth. It is also called Osram, which means work of the devil. Due to this, they do not send these malnourished children to health facilities and leave the children to deteriorate and die. Children are denied protein rich food like eggs and meat, which not only put the child at risk but also decreases the child's resistance to infection.

Children in most of the communities are stunted for their age. At the district rehabilitation centre, 105 children were admitted and out of these a total of 46.6% were Kwashiorkor cases, 31% were marasmus and 20% were marasmic kwashiorkor with two deaths. (Nutritional records Brim South). In most of the infants' mortality in the district, malnutrition is a contributing factor though not recorded.

1.2 RATIONALE FOR THE STUDY

In Ghana, Chinabua in (1998) carried out a study in Cape-Coast on the increase cases of malnutrition and found out that, malnutrition is a multi-factorial with social and economic determinant therefore; a multi-factorial approach should be applied to solve the problem.

In Accra, Grumble (1981) also carried out a study on malnutrition and found out that, dirty environment does not dramatically change the pattern of malnutrition; rather they cause an earlier precipitation of PEM. And urbanization does not lead to PEM but rather increase economic and nutrition appears to likely cause the change.

In Brim South district, mild malnutrition from community survey was 28% in 1998 and 31% in 1999. Moderate malnutrition was 8.5% in 1998 and 12.5% in 1999. Severe malnutrition in 1998 was 3.4% and 3.9 in 1999.

Records from nutritional rehabilitation centre showed that infants who were affected suffered from stunted growth and deficiency disease such as anaemia, which is 3rd of the top 10 diseases, which causes mortality of children under 5 years in the district.

While in the sub-district, the questions that came to mind after seeing these children were: -

- Who are these getting malnourished and why?
- Are they coming from the sub-district, the communities?
Are there any reasons why these children are getting malnourished?
- Are there really such large numbers of cases seen in the sub-district, at the various health centres, OPD? The child welfare clinics and at the nutritional rehabilitation unit?

To answer these questions and in consultation with the DHMT I was compiled to do this survey. The outcome information will provide the basis for planning an intervention by the DHMT with

the rehabilitation unit in particular, midwives, MCH/FP and the community health nurses in a new strategy of education and health promotion in their outreach programs.

OBJECTIVE OF THE STUDY

1.3 GENERAL OBJECTIVE

To identify reason why malnutrition is persistently prevalent in the district despite continuous health education on malnutrition.

1.4 SPECIFIC OBJECTIVES

- To identify the knowledge level and perception of caretakers about good nutrition and bad feeding practices of children under 5
- To examine the cultural beliefs of guardian on malnutrition in the district
- To identify the relationship between environmental sanitation and nutritional status of children in the district
- To identify the relationship of socio-economic status of guardian and nutritional status of children under 5.



CHAPTER TWO

LITERATURE REVIEW

2.0 PREGNANCY

Pregnancy increases a woman's need for food. She is eating for two people, herself and the baby inside of her. If she does not eat the foods she needs, her baby may be born weak and sick, and her own body and health may suffer. Even under optimal conditions after birth, infants who have been retarded in growth during foetal life sometimes continue to grow slowly for many years. They may also show a tendency towards poorer intellectual performance, compared with infants in women who were normal before birth.

Mothers from poor sectors of society frequently have only inadequate diet available and have very limited opportunities for poorer antenatal care, including the prevention and treatment of anaemia, malaria and other infections. This largely, explains why lower birth weights are found in these groups. Poor diet may be caused by low income, inadequate food production and lack of knowledge about nutrition or food taboos imposed during pregnancy. Many women continue to till the soil, carry wood and water and take part in other strenuous jobs until delivery.

To insure the best foetal growth and give every child a good start in life, it is important to prevent and treat infectious diseases and high blood pressure during pregnancy and to make the mother and father understand the importance of a good and sufficient diet during pregnancy. In addition, both parents should understand the need to slow the mother's work pace. This allows her to have sufficient rest before delivery.

2.1 BREAST FEEDING, WEANING AND EARLY TERMINATION OF BREAST FEEDING

Research has confirmed the universal superiority of mother's milk both nutritionally and from an anti-infective point of view. Breastfeeding is also valued for child-spacing and emotional bonding between mother and baby.

Breastfeeding should begin as soon as after birth as possible. Colostrum, the first milk produced by the breasts after delivery provides important protection against infection as well as nutrients for the growing infant. To insure adequate breast milk production and growth of the infant, breast should be "on demand." Breast milk alone is sufficient for an infant from birth through to

six months of age. Breastfeeding should continue as long as possible (2-3) years to provide continued protection from illness and important nutrients for growth and development.

Good maternal nutrient is important during the breastfeeding period. Additional food and liquid should be consumed as in pregnancy. If the lactating woman's diet is inadequate, nutrition of the mother and of course the quality of breast milk affects the growth of the infant. The declining Pattern of breastfeeding is one of the world's most serious nutritional problems. It has been estimated that some 10 million cases of infant marasmic diarrhoea occur in developing countries each year, many as a result of early termination of breastfeeding and introduction of feeding bottles and breast milk substitutes.

2.2 WEANING

From six months to two years of age, breastfeeding should continue, but a growing child also needs to eat other foods in sufficient quantities to meet his body's requirements. This is called weaning period when new foods are gradually added to the infant's diet. It is a critical period in the life of the child, because new food and exposure to contaminated foods, water and utensils mean that weaning age children are more likely to become sick from diarrhoea and other infections. This is also a period of rapid physical and mental development. If children are not given sufficient amount of food and diet rich in bodybuilding, energy and protective foods during these critical years, they will stop growing. They may become sick more often than well-nourished children and some will die. Those who live, but have been severely malnourished during the period, may never reach their physical and mental potential during life.

This has become a problem in developing and developed countries in recent years. Urban areas, as well as some rural areas are increasingly bombarded with advertising promoting the use of feeding bottles and infant formulas. Middle-and upper-class women who have tended to accept this advertising are poor role models for their rural and less advantaged "sister". The lack of financial resources needed to purchase breast milk substitutes, the lack of water in most areas and poor environmental hygiene combine to make bottle-feeding a deadly practice. All mothers should be encouraged and helped to breast feed their infants, those who cannot breast-feed, should be taught hygienic practices and the use of cup and spoon for feeding their small children.

2.3 INFECTION AND MALNUTRITION

One of the greatest dangers of the weaning period is the change from sterile breast milk to animal milk, semi-solid and solid foods, which are often acquired, stored and fed on unsanitary conditions. The weaning process is associated with the highest rate of infection, particularly of the gastrointestinal tract, that the child will experience in its entire lifetime. Infection in turn, prepares the way for malnutrition and increases the negative effects of an inadequate diet.

Diarrhoea is the most common infection of the weaning period; it is also the disease that kills more children in the world today than others. A malnourished child will get diarrhoea an average of four times as often and is more likely to die from a diarrhoea infection than a well-nourished child.

Diarrhoea, tuberculosis, malaria, whooping cough and parasitic infections also have very detrimental effects on young children during infancy and weaning. These illnesses are both made more serious by malnutrition and can contribute to malnutrition.

Immunization and improved nutrition are the keys to preventing measles, tuberculosis, whooping cough and other serious childhood illness that can cause and make malnutrition worse.

2.4 CHILD SPACING AND MALNUTRITION

The amount of time between births is very important for the children, as is the total number of birth in a woman's lifetime. Infants are more likely to survive if at least three years are allowed between births. This gives a woman's body the chance to rest after pregnancy and breastfeeding, before beginning this demanding cycle again. Adequate spacing between births helps to avoid depletion of the woman's body and deprivation of the growing foetus.

2.5 POVERTY/HYGIENE AND MALNUTRITION

This has been found to be another major basic cause of malnutrition in Africa and especially higher in South Asia. Poverty results in provision of insufficient food for the household so the child gets very little to eat. Good hygiene improves with income and for the poor, maintaining high standard is difficult. For the over crowded poor it is virtually impossible.

In personal hygiene the understanding is transmission of infection from one person to another by unclean habits and using appropriate methods to avoid them. Infection can be avoided by clean environment, hand washing after defecation, keeping food covered, safe refuse disposal, cleanliness of clothing or the over all condition of the home.

Poor hygiene increases the burden of illness and constitutes the second major reason for significantly high level of malnutrition. In South Africa the poorest 20% of the population share only 2% to 4% of the national income in Kenya and Zimbabwe as opposed to 8% to 9% in Bangladesh, India and Pakistan. (Malnutrition in South Asia; A regional profile)

The government of India has sustained the largest effort in history to improve the nutrient standard through the integrated child development services program, which was started in over 20 years ago and now operate in 400,000 of the country's 600,000 villages. Chronic poverty is found to be reflected by the prevalence of food shortages.



2.6 FOOD/DISEASE AND MALNUTRITION

For most poor families the real food problem is not lack of food on the table but the inordinate in money, time and energy of putting it there, meaning there is too little of any of these resources left over to invest in other aspects of life. Adequate food is necessary for a normal growth of a young child but it is not enough. Feeding practices more usually determines good nutrition in the early month of life. Whether the right food is given at the right time and in the right way and by the frequency, severity and duration of the disease. Disease depresses appetite; it inhibits the absorption of nutrients. It consumes calories in fever and in fighting off infection. It draws away nutrients in vomiting and diarrhoea. All illness is therefore an attack on the child's growth and such illnesses occur after they have not been properly managed. This compromises the child's defences by causing mucosal damage and lowering of immunity. This results increases

vulnerability to illnesses during which nutritional reserves are further depleted, so proceeds the downward spiral of frequent infection and poor growth leading to long term stunting and for most children an early grave. It is interesting to note that most food restrictions apply to those who need food the most, e.g. women, young children and people who are sick; these are the groups who most often become malnourished.

2.7 CULTURAL BELIEF

Beliefs about the causes of malnutrition in children also affect how families treat malnourished children and whether or not they will accept advice from outsiders. Most cultures have beliefs about what causes severe forms of malnutrition and they often have a special name for the disease. Some groups believe that malnutrition comes from “the evil eye”; others believe an unfaithful husband or wife has caused it, still others believe that pregnant woman or another malnourished child has contaminated malnourished children.

2.8 BELIEF AND PRACTICES

- Belief and practice are considered helpful and should support if it encourages giving extra food and liquid, even if it is not based on scientific fact.
- Harmful beliefs and practices are those that restrict food from the vulnerable groups.
- It is always best to encourage positive traditional beliefs and practices while trying to change harmful practices through education and example.

2.9 FOOD SUPPLY

In rural areas, the amount and quality of a family’s land, its income and its equipment affect the foods available for child feeding. The knowledge of farmers also affects the variety of foods they grow and their harvests. Environmental factors (i.e. rainfall, insects, etc) have an effect on food supply, as does demand for certain type of cash crops in the market place. In many areas, the switch from subsistence crops to cash crop has had a very negative effect on the amount and the kind of food available in rural areas. A regular hungry season each year before the harvest can

also be a serious problem. In urban and increasingly in rural areas, cash income is an important factor in a family's ability to buy food for child feeding that it does produce.

2.10 TIME AVAILABLE FOR CHILD CARE AND FEEDING

This is one of the factors that is most often overlooked when thinking of child health and nutrition. In most societies, the mother is the individual responsible for the care and feeding of the family's young children. She is often responsible for a variety of other tasks at home, in the fields and in the market place as well.

We know that young children must eat more frequently during the day than older children and adults (four meals per day). If family meals are normally prepared only twice each day, it may be difficult for a mother who is working in the fields, gathering firewood and food for the animals or fetching water to feed her young children as many times each day as she should. To save time she may feed the baby foods that are of the same consistency as those of the adults, or the baby may be given to an older sister who is sharing a bowl with the rest of the children while trying to feed herself and the baby.



2.11 WOMEN'S HEALTH

It is estimated that about half of non-pregnant and two-thirds of pregnant women in the developing world suffer from iron-deficiency anaemia (WHO, 1979). Anaemia affects a woman's ability to care for herself and her young children. This makes her feel tired and weak. Anaemia during pregnancy and breastfeeding can have serious effects on urban or breastfeeding infants. Other common conditions that affect a woman's ability to care for herself and her young children include malaria, gastrointestinal disorder and parasitic infections. The availability of health and nutrition of their children.

2.12 WOMEN'S STATUS AND EDUCATION

Attitudes towards women's roles in the family and in society affect all aspects of their lives; education and income can have positive effects on their decision-making, roles in the family and on the nutrition and health of their children.

2.13 LARGE FAMILIES AND POOR BIRTHS

The entire problem of food availability and time for childcare worsened when there are many children to feed and care for. In addition, a woman who has many pregnancies (more than five) has a good chance of being sick herself, with little energy to meet the demands of her family. Traditional beliefs play an important role in determining family size and spacing of births. Attitudes towards male and female roles, the values of male children as security in old age are unimportant. Competing wives in polygamous situation also affects family size.

2.14 ACCESSIBILITY OF HEALTH INFORMATION AND SERVICES

Preventive and curative health care facilities are often located at a distance from the rural village, implying long walks and/or transport costs. Women may have little time to participate in the activities of the health centre even when available and health workers are located at reasonable distance. Health information may not be available to families for the same reason given above or because ethnic and class barriers make it difficult to seek understanding from such information.

2.15 SOCIO-CULTURAL, TRADITIONAL BELIEFS AND FOOD HABITS OF MALNUTRITION

Factors affecting food availability and use within the family will determine how we go about introducing new ideas and practices to improve nutrition.

Every culture in the world has beliefs about food and certain practices that affect the food people eat some of these beliefs and practices help people to stay healthy, others can be harmful.

Beliefs or practices, which block food from women and children, are harmful and should be discouraged through education and example. These include any beliefs or practices that restrict foods or liquids from:

- Pregnant and breastfeeding women.
- Anyone with diarrhoea, especially a young child.
- Weaning-age children.
- Anyone who is sick.

Some specific examples include:

- Trying not to eat during pregnancy so that baby will be small and the delivery easy.
- Not giving colostrum to newborn infants.
- Withholding specific food from children because they are believed to result in an illness like worms etc.



CHAPTER 3

STUDY AREA AND RESEARCH METHODOLOGY

3.0 STUDY AREA

Birim South district is situated on the South Western part of the Eastern Region. It is bounded on the West by North Brim district, South by Central Region and East by West Akim district.

The district covers an area of about 400,200sqmm. It is lowland and has tropical vegetation. There are two rainfall seasons in the district. The average rainfall recorded is 125mm. The main rainy season falls between April/June. The district-projected population for 2001 was 184,580. About 70% of the population lives in the rural community whiles the rest reside in the urban communities.

Literacy rate in the district for both sexes is very high. Malnutrition is a big problem in the district affecting both sexes and most especially children from 0 - 5 years and above.

3.1 HEALTH FACILITIES AND SERVICE PROVIDERS IN THE DISTRICT

Birim south has 6 sub- district and 93 health facilities made up of

- 1 Government Hospital
- 1 District Health Administration, which houses the rehabilitation Center, provides nutritional activities.
- 1 Mission Hospital
- 1 Private Clinic
- 3 Private Maternity Homes
- 2 Health Centers
- 15 Maternal and child health/family planning units and Community Clinics
- 63 Trained birth attendants.

These health facilities play a major role in the delivery of health services including nutritional and health promotion /education to pregnant mothers, postnatal and children from 1 month to 5 years.

3.2 ECONOMIC ACTIVITIES

Their economic activities are farming, trading, industrial workers, mining and civil servants. The main cash crops are cocoa, palm oil, cassava, plantain and vegetables.

3.3 DIAGRAM OF ECONOMIC ACTIVITIES

Table One

CATEGORY	% OF POP
Farmers	30
Traders	20
Industrial workers	20
Public sector	20
Unemployed	10

3.4 TRANSPORT AND COMMUNICATION

In transport and communication, they have major trunk roads which pass through the District. They have rail services, which also pass through the sub-district. The roads are accessible making it possible for outreach and other health promotion programs. The houses in the districts are thatched and the average size is about 10 people in a household. Overcrowding is one of the housing problems in the district and this is an easy way of transmitting some of the communicable diseases

3.5 WATER AND SANITATION

With water and sanitation, Oda Township and its surrounding towns/villages have pipe borne water. Villages away from the district capital have boreholes and some use streams as their source of drinking water

3.6 RESEARCH METHODOLOGY

3.7 Type of Studies

This was a cross sectional comparative study which provided information on the nutritional status of children 0-5 years in the district. Cross sections of the children were randomly selected and compared their nutritional status. This provided information on their feeding practices, kind of food, time and way these children were fed. This identified the significant factors that determined the high prevalence of malnutrition among this age group.

3.8 VARIABLES

3.8.1 Dependent variables

Malnourished and well-nourished children

3.8.2 Independent variables

Age of mothers

Marital status

Occupation

Region

Socio- economic status

Breastfeeding and weaning

Parity

Education

Customs Beliefs

Nutritional status

3.9 Study populations

The study population comprised of mothers with children 0-5 years.

3.10 Sample size

DISTRICT POPULATION = 184,576

PREVALENCE OF MALNUTRITION IN THE DISTRICT = 31%

$$S = Z (Z) \frac{\{P (1-P)\}}{D (D)}$$

$$\begin{aligned} Z &= 1.96 \\ D &= 2.5\% (0.025) \\ P &= 0.31 \end{aligned}$$

Where S = Sample size required
Z = Normal value at 95% confidence level

$$S = \frac{1.96 (1.96) \{0.31 (1-0.31)\}}{0.025 (0.025)}$$

$$0.000625$$

$$S = \frac{3.8 (0.214)}{0.000625}$$

$$S = \frac{0.8132}{0.000625} = 1.315 = 438$$



P = Proportional / Prevalence of Malnutrition in the district = $3.8\{0.31 (0.69)\}$
D = Standard error.

The above sample size could not be used because of time, logistics and financial constraints so a sample size of 102 for three communities was used that means thirty-four respondents to a community.

3.11 DATA COLLECTION TECHNIQUES

The data collected involved using structured questionnaire containing closed and opened ended questions for mothers with children 0-5 years. Trained research assistants administered the questionnaires to eligible respondents. An observation technique was also used in the data collection and measuring of weight for age of the children 0-5 years

3.12 SELECTION PROCEDURE

Selection of the communities was purposeful, simple random techniques was used Three communities were chosen

3.13 IDENTIFICATION OF RESPONDENTS

In the communities selected, a team of research assistants led by the principal investigator located the centre of the community and standing there, span a pen. The principal investigator followed the direction of the tip of the pen and all the houses in the direction of the pen were counted and numbered and a simple random sampling was used to choose the house. This house was entered and the questionnaires administered to eligible respondents. The next house identified by locating the entrance of the house facing the preceding house was followed. This was repeatedly done till the required samples were obtained.

3.14 PREPARATION FOR DATA COLLECTION

A plan was developed to train 8 research assistants. The training dealt with communication skills, translation of locally acceptable words and how to administer the questionnaires.

3.15 PRE-TESTING

Pre-Testing of the data collection tools was done in two of the sub-district not selected for the study before the main study was carried out. The purpose of the pre-testing was to determine respondents understanding of the questions and also to determine the efficiency of the research assistants. After pre-testing, questions were modified where appropriate before the final questionnaire was provided for the main study

3.16 QUALITY CONTROL OF DATA

All data collected by an interviewer were checked by him / her to ascertain whether the questionnaire was properly filled in before the interview was done to ensure that the questionnaires were properly filled. Also the principal investigator made sure that after each day's field work, data collected for the day were complete, accurate and considered by going through the questions.

3.17 DATA ANALYSIS

The questionnaires collected were analysed by using EPI info 6-computer software to obtain and to provide frequencies, means and cross tabulation. The chi-square statistics was used to find the relationship between variables.

3.18 ETHICAL CONSIDERATION

Participation in the study was voluntary and consent was sought from respondents before all interviews were conducted. Confidentiality and anonymity of respondents was assured. Names of respondents and participants were not recorded.

3.19 LIMITATION OF THE STUDY

The principal language spoken in these 3 communities is Akyem or Twi. The principal investigator actively participated in the interviews. The study collection staff had to translate the questions from English to Twi and answers fit to the questions were filled.

The key findings to the research are presented in this section as follows

A total of 102 respondents with children 0-5 years in three selected sub-district were interviewed

4.0 The Background Characteristics

The characteristics of respondents are presented in table 2. The mean age of respondents Were...16.5...years for Manso, 16.5 years for Achiase, and 16.5 years for Oda Township respectively. From all communities there were more male than female malnourished children.

4. 1. DEMOGRAPHY

Table Two

4.1.1 AGE DISTRIBUTION OF MOTHERS WITH CHILDREN 0-5

Age range (years)	Number	Percentage (%)
* 14-19	11	10.5
20-35	74	73.3
36-45	14	13.5
45+	3	2.7
Total	102	100

From table 2, 73.3% of the respondents fell within the ages of 20-35 years. Teenage mothers (14-19 years) formed only 10.5% of the respondents, 13.5 were mothers between 36-45 years and 2.7 % were ages from 45+. (The mean age calculated was 16.5 years).

4.1.2 MARITAL STATUS

Out of the 102 respondents, 89.2% were married, 5.8% were single, and 2.0% was divorced, 1.0% was separated and 2.0% was widowed.

Table Three**MARITAL STATUS**

Marital Status	No	%
Married	91	89.2
Single	6	5.8
Divorced	2	2.0
Widowed	1	1.0
Separated	2	2.0
Total	102	100

From the 102 respondents 70 had well nourished children and out of this, 61 of the mothers were happily married while 9 of them were single. The remaining 32 had malnourished children and out of the 32, 29 were married whilst only 3 respondents with malnourished children were single.

4.1.3 RELIGION

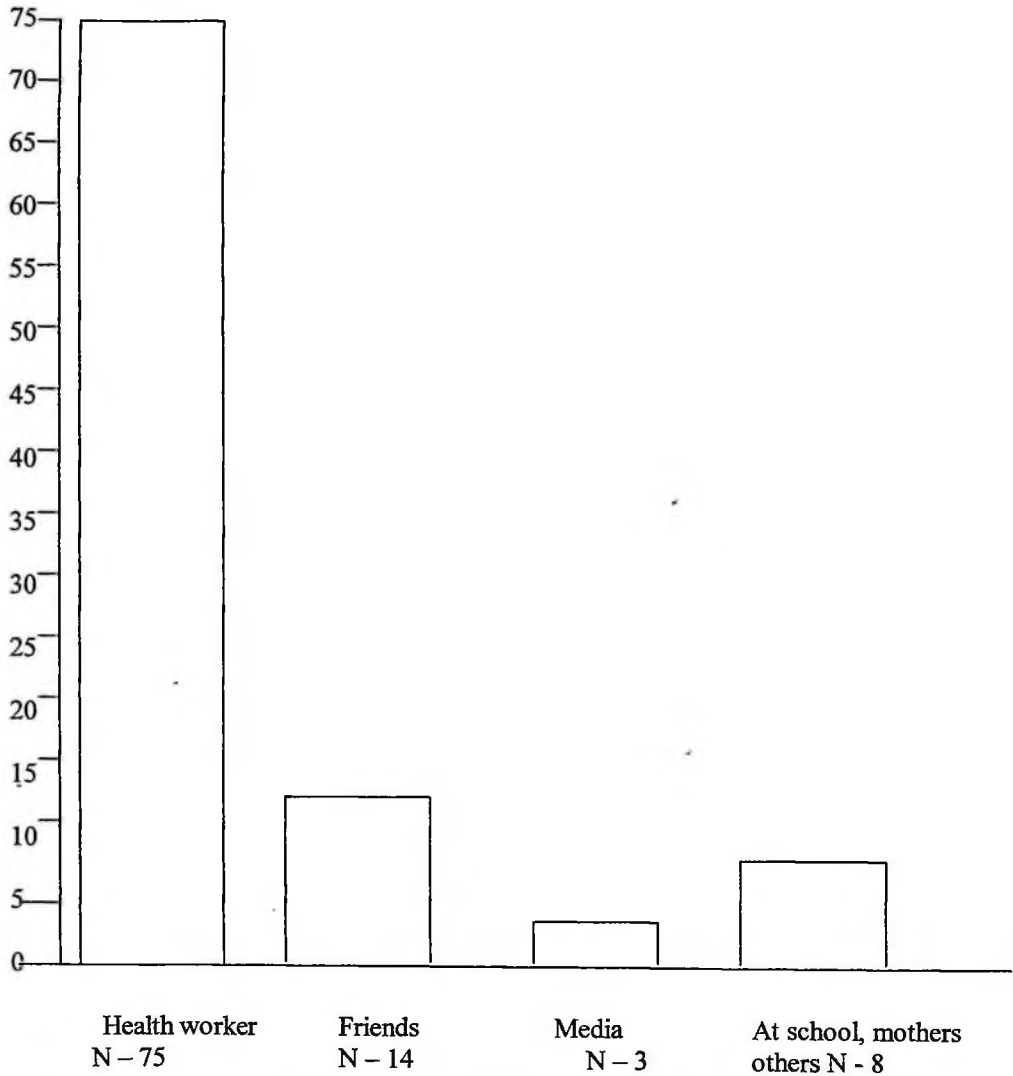
Majorities (85.7%) of the respondents were Christians, 2.9% were traditionalist, and 4.8% were Moslems, 6.6% were Traditionalist.

4.1.4 OCCUPATION

Of the 102 respondents, 70 had well nourished children while 32 of the remaining had Malnourished children. 61 of the 70 were gainfully employed and the other 9 were housewives and unemployed.

DIAGRAM ON SOURCE OF INFORMATION ON MALNUTRITION

Figure 2



The Fig above indicates that majority 75% of the respondent who had information about malnutrition got it from health workers. Other sources were friends 14%, from media 3%, mothers and at school were 8%.

Table Six

2 X 2 CONTINGENCY TABLE ON FEEDING PRACTICES

Feeding Practices	Well nourished	Malnourished	Total
Balanced diet	34	16	50
Unbalanced diet	12	14	26
Totals	46	30	76

Chi 5.35

P 0.206790

This shows that feeding practices of children 0-5 years have significant effect on malnutrition

4.1.7 KNOWLEDGE ON EXCLUSIVE BREASTFEEDING

From the study it was revealed that 98.0% have heard about exclusive breastfeeding while only 2% have not heard about exclusive breastfeeding. 72.5% practice exclusive breastfeeding while 27.5% do not practice exclusive breastfeeding.



Table Seven

AWARENESS ON EXCLUSIVE BREASTFEEDING

AWARENESS	NO	%
Has Heard	100	98
Not Heard	2	2
TOTAL	102	100

Out of the 102 respondents 98% were aware of exclusive breastfeeding and only 2% said they were not aware of exclusive breastfeeding.

Out of the 102 respondents 98% were aware of exclusive breastfeeding and only 2% said they were not aware of exclusive breastfeeding.

4.1.8 SOURCE OF INFORMATION ON EXCLUSIVE BREASTFEEDING

The 98% Respondents expressed their source of information from

Media

Nurses

Health workers

Relative/ neighbors

Table Eight

DIAGRAM ON SOURCE OF INFORMATION

Source	No	%
Media	1	1
Nurse	70	69.5
Health worker	28	27.5
Relative/ neighbors	3	2.9
Totals	102	100

As shown in the table above, mothers indicated their various source of information on exclusive breastfeeding.

4.1.9 BENEFIT OF EXCLUSIVE BREASTFEEDING

Respondents view about exclusive breastfeeding are as follows

1. Promotion of health and prevention of diseases LACTATIONAL
2. Delay in the resumption of menstruation. AMENORRHOEA
3. Provision of energy, protein and vitamins. NUTRITIONL
4. Babies become healthy and strong.

4.1.10 REASONS FOR PRACTICING EXCLUSIVE BREASTFEEDING

Of the 72.5% respondents who practice exclusive breastfeeding, 27.6% said it was convenient. 42% said it was simple to practice, 8.2% claimed it was easy to practice, 7.1% said it was not expensive, 14% said baby does not get sick and makes baby intelligent, smart and active.

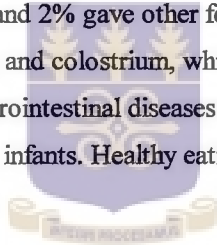
4.1.11 VIEWS ABOUT PERIOD OF PRACTICING EXCLUSIVE BREASTFEEDING

The respondent expressed divergent view about the period that exclusive breastfeeding should be practiced.

Most mothers 40% stated 4-6 months, 10% stated 2-4 months and 45% mentioned above 6 months whilst 5.0% stated until 24 months.

Describing how EBF should be done, 50 % said by giving only breast milk without water and food, 10 % describe it as giving breast milk with water and 38 % stated giving the child breast Milk with mashed kenkey or porridge and 2% gave other feeds like Lactogen and others.

Breast milk is the ideal food for infants and colostrum, which is the first milk produce, fights diseases and prevents infants from gastrointestinal diseases as well as other infections. Few allergic diseases occur in breastfeeding infants. Healthy eating during pregnancy and lactation contribute to successful breastfeeding.



4.1.12 COLOSTRUM GIVEN

Table Nine

Colostrum	No	%
Given	86	84.3
Not given	16	15.7
Totals	102	100

From the study 84.3% of the respondents have given colostrums, the first yellowish substance to their babies while 15.7% have not given the colostrums to their babies instead gave water and considered that essential from the first day. Others gave supplementary bottle-feeding during the first week.

2 x 2 CONTINGENCY TABLE ON COLOSTRUM**Table Ten**

Colostrum	Well nourished		Malnourished	
Given	64	91.4%	23	71.9%
Not given	6	8.6%	9	28.1%
Total	70	100	32	100

Chi sq 5.23

P 0.022252

Above table shows that colostrums has significant effect on the factors influencing the persistent Prevalence of malnutrition in the district.

4.1.13 COMPLEMENTARY FEEDING

Most mothers introduced complementary feeding from 3 months by giving water, porridge (Kooko), mashed kenkey, and baby foods like lactogen, cerelac and weanimix

With this 29% of the respondents prepare their own food and feed their own children. Out of the 70 respondents who had well-nourished children, 64 of them prepared separate food for their babies aged 4-6 months using the right nutrient of protein, carbohydrate and vitamins whilst 43% fed their babies from 4 months on same food like adults using a lot of carbohydrate and less protein and vitamins.

4.1.14 REASONS GIVEN FOR USING COMPLEMENTARY FEEDS

Breast milk alone was not sufficient 43.5%

Baby cries after breastfeeding 13.0%

Baby's mouth becomes dry after breastfeeding so needs water 8.7%

Baby's heart will stop functioning. 5%

Not good to deny baby what he wants 8%

4.1.15 WEANING

The introduction of complementary food is given either too early or too late.

Table Eleven**2X2 CONTINGENCY TABLE ON EARLY OR LATE WEANING**

WEANING	WELLNOURISHED	MALNURISHED	TOTAL
EARLY	10	16	26
LATE	31	11	42
TOTAL	41	27	68

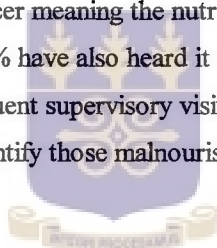
Chi sq 6.97

P 0.0082894

This shows that early or late weaning has significant influence on the nutritional status of the child.

4.1.16 WEANIMIX.

From the study 85% of the respondents have heard about weanimix a supplementary feed from a Community health nurse on outreach programs while 7% didn't know anything about it. Only 5% have heard it from a nutrition officer meaning the nutritional rehabilitation unit's health education is not really working and 3% have also heard it from the media. There is the need to intensify nutritional education by frequent supervisory visits to the communities by the nutritional rehabilitation officer to identify those malnourished children and to give proper nutritional education to them.

**4.1.17 SOURCE OF INFORMATION**

From nutrition officer 5%
 From media 3%
 Health workers 85%
 Not heard 7%

The fact that the nutrition officer is maybe not giving proper health education, there is the stigmatisation attached to malnourished children so mothers keep away from the rehabilitation centre for proper nutritional advice.

4.1.18 IMMUNISATION

Most of the respondents (88.2%) had road to health card whilst 11.8% did not have road to health cards. Out of the 102 respondents who took part in the study, 25.5% did send their under 5 children to receive vitamin A supplementation. Of the 70 respondents who had well-nourished children, 51% had sent their children to receive vitamin A supplementation whilst 27% with well nourished children had not finished receiving the vitamin A supplementation and 9.9% were not due.

The 32 respondents with malnourished children, 46% had sent their children to receive vitamin A supplementation and 34% had not completed their immunisation schedule. 18% of the malnourished children were not due.

Those who did not receive the vitamin A supplementation gave reasons like

Child was not sick	72.5%
Have not heard about it	5.9%
Children can do without it	2.0%
Different reasons	9%

4.1.19 IMMUNISATION SCHEDULE

Table Twelve 2X2 CONTINGENCY TABLE ON IMMUNISATION

Immunization	Well nourished	Malnourished
Complete	39	13
Incomplete	23	13
Total	62	26

This diagram shows that, 70 respondents who had well nourished Children, 8 did not have any immunization and with the malnourished children, 6 did not get any Immunization.

Chi	1.26
P	0.261339

From the calculation of the 2 x 2 table it can be seen that there is no significant relationship between immunization and nutritional status of the children 0-5 years in the district.

4.1.20 FAMILY PLANNING

Number of children under 5 years

Table Thirteen

NUMBER OF CHILDREN UNDER 5 YEARS

NO OF CHILDREN UNDER 5 YEARS FROM A MOTHER	NO	%
1	43	52.4
2	36	43.9
3	3	3.7
Totals	82	100

Out of 102 respondents, 52.4% had 1 child less than 5-years. 43.9 % had 2 children less than 5 years and 3.7 % had 3 children under 5 years.



Table Fourteen

NO. OF CHILDREN

2 X 2 CONTINGENCY TABLE

CHILDREN	WELLNOURISHED		MALNOURISHED		TOTALS
2 or more	27	38.6%	14	46.7%	41
1	43	61.4%	18	63.3%	61
Totals	70	100	32	100	102

Chi sq = 0.24

P = 0.62023

This table also shows no significance to number of children a mother have to nutritional status of the children.

Of the 70 respondents with well-nourished children, 38.6% had 2 or more children under 5 years whilst 61.4% of respondent with well-nourished children had only 1 child under 5 years. 46.7% of the respondent with malnourished children had 2 or more children under 5 years and 63.3 % of respondents with malnourish children had only 1 child under 5 years.

4.1.21 ENVIRONMENTAL SANITATION

WATER

Table Fifteen

SOURCE	F	%
Pipe borne	40	39.2
Bore hole	21	20.7
Rain water	2	1.9
Well/stream	39	38.2
Total	102	100.0

From the table above 39.2% of the respondent used pipe borne water for the household uses. 20.7% uses bore hole as their source of drinking water 1.9% used rain water at times and 38.2% use well, streams and lakes as their source of drinking water.

Table Sixteen

2X2 CONTINGENCY TABLE ON SOURCE OF WATER

SOURCE OF WATER	WELLNOURISH	MALNOURISH	TOTAL
Pipe borne	44	20	64
Other source Well/stream	26	12	38
Total	70	32	102

$$X^2 = 0.07$$

$$P = 0.787329$$

From above 2x2 table, there was no significant relationship between source of drinking water and nutritional status of the children. 44 of the respondents with well-nourished children use pipe born water whilst 26 of them use other source of water like streams, wells, lakes and rainwater. With mothers of malnourished children, 20 used pipe borne water and 12 used streams, wells, lake and rainwater.

Table Seventeen**TOILET FACILITIES**

TOILET	N	%
Pit latrine	43	42.2
Water closet	4	3.9
V.I.P	27	26.5
K.V.I.P	15	14.7
Pan latrine	12	11.8
Bush	1	0.9
	102	100

From the table above 42.2% uses pit latrine, 3.9% uses water closet, 14.7% uses KVIP, 26.5% uses VIP latrine, 11.8% uses the pan latrine and 0.9% used the bush.

These toilet facilities could also not establish any significant relationship to malnutrition in the study although improper hygienic condition, like defecating around if there is no water closet or proper toilet facilities, this will definitely cause infection like cholera, which will malnourish the child and causes death.

4.1.22 SIGNIFICANT OF THE STUDY

The findings from the study will be relevant to all health workers especially the nutritional rehabilitation centre, the maternal and child health care staff, midwives and non-governmental organisations. Also, it can serve as basis for future studies by other researchers.

Furthermore, the District Health Management Team (DHMT) as well as other planners will use the outcome of the study to plan appropriate intervention to help solve the problem.

Chapter Five**5.0 DISCUSSION AND FINDING ON MALNUTRITION**

In the study majority of the age group were between 20-35 years while teenage mothers formed 10.5% of the respondents. 13.5% were respondents between 36 to 45 years and 2.7% were respondents between 45 years and above. Most respondent 93% were married and 85.7% were Christians. Traditionalist were 2.9% while 4.8% were Moslems

The study revealed that formal education had no impact on nutrition. Majority of mothers who practice good nutrition had some form of formal education. This showed that the educated mothers were likely to be involved in economic activities away from home. The practice of Nutritional feeds were higher (45%) among traders and fishmongers than the rest of the occupation.

Although occupation and formal education had no relationship on malnutrition, their affect on the low practices could not be established since there has not been a proper baseline study for comparison.

Another interesting outcome of the study was the effect of knowledge on practice of nutrition Mothers who have well nourished children had had good knowledge on the subject.

The practice of good nutrition had some effect on the good nutritional status but was not well established.

Majority of the respondents have heard about malnutrition and their main source is from a health worker 75%, Friends 14%, at school and mothers 8% and media 3%. This shows that the health talk, counselling and home visits are having significant impact

It also showed that babies who were well fed were from respondent with well-nourished children The study showed that early or late feeding practices had significant influence on the nutritional status of the children 0-5 in the district

. This confirms the study in Bangladesh, which concluded that too early or late feeding of complementary foods, was a leading factor in malnutrition of young children (Haider Islam, Kabir and Habte 1996).

About 84.3% respondents gave Colostrium the first yellowish substance whilst 15.7% have discarded it and not given to the babies.

Reasons given are:

That there was no need.

Mothers should be educated and advised on the importance of Colostrum, the first yellowish milk produced by the breast after delivery, that it provides important protection against diseases and prevent infant from gastrointestinal and other infection. Though few allergic diseases occur in breastfeeding infants and lactation also contributes to successful breastfeeding.

From the survey colostrum had a strong significant effect on malnutrition. 15.7% of the respondents denied their children the colostrum whilst 84.3% gave out the colostrum to their babies.

Nurses/midwives should educate mothers to put infants to the breast as soon as possible after birth, and that breast milk should be on demand.

Misconception about the use of colostrums should be corrected through health education and the benefit of immunoglobulin in colostrum, which protects the infants, should be made known to mothers.

In the study it was found that some of the children were not fully immunized but yet still Immunisation could not also have any impact on the nutritional status although vitamin A deficiency has been found to be related to malnutrition.

Size and interval between children also could not establish any relationship in the study despite the fact that large numbers of children with short spacing have significant effect on the feeding practices of children and mothers health

Environmental sanitation had no relationship between malnutrition e.g. water and toilet facilities. Inadequate sanitation facilities result in an increase risk of diarrhoeal diseases, which contribute to malnutrition..

Almost all the mothers had no knowledge about the type of food groups and the role in the child's growth.

Focuses on improving maternal nutrition are urgently required as nutrition at pregnancy determines birth weight and subsequent breastfeeding determines infant's health.

It is important at least for health centres that carry out both preventive and curative services, to keep sufficient detailed records on condition that has been noted to be a problem in the district.

In the study it was found that about 38.2% of the respondents uses well and streams as their source of drinking water and this same streams are being used for washing and bathing and as such get contaminated.

A household source of drinking water is associated with the socio-economic status. Poor households are more likely to obtain drinking water from contaminated source such as surface water or open wells as stated above.

Without an adequate supply of good drinking water, diarrhoeal disease occurs and malnutrition rises.

The type of toilet use by a household reflects its wealth and poor households are likely to have inadequate toilet facilities, which will lead to indiscriminate defecating around households, which causes infection, that leads to malnutrition.

- From the available records it was difficult to determine if malnutrition cases seen at facility level are accurately reported to the district level since many required records were not available.
- Trends described were mainly for the nutritional rehabilitation unit since their records were the only complete or detailed ones at hand.

Most of the mothers were married. Few were literate and semi-literate and majority were illiterates. Most mothers received financial support from their husbands but in most cases not adequate and regular.

- The children seen were mostly fed same food like adult in the house. That means children are not properly fed, only few times a day and not when child needs the food. So this could be a major contributory factor to the under 5 getting malnourished. Breast-feeding is heard by almost everybody in the district, they practice it but not exclusive in most of the respondents. This points to the fact that more work needs to be done to get the women to understand the importance of exclusive breast-feeding.

Knowledge about malnutrition and various food groups and their roles in the child's growth was poor. Mothers should be made to understand the importance of different food groups and understand their nutritional values and roles.

Introduction of complementary feed is not given properly either it is given too early or too late. This had significant effect on the factors influencing the persisting prevalence of malnutrition in the district.

*Chapter 6***6.0 CONCLUSION AND RECOMMENDATION**

From the study it could be noticed that the wellnourished children were from the literate and semi-literate respondents.

Nurses and health institution should promote the WHO policy on breast-feeding, as it is beneficial in the control of diarrhoea in infants.

Higher education has a positive outcome in terms of malnutrition in infants. Mothers should be motivated to educate themselves and to patronise the rehabilitation centre for the benefit of their children.

Focuses on improving maternal nutrition are urgently required as nutrition at pregnancy determines birth weight and subsequent breast-feeding determines infant health.

It is important at least for health centres that carry out preventive and curative services to keep sufficient detailed records on condition that has been noted to be a problem in the district.

Cultural practices such as giving prelacteal feeds, the use of non-human milk and lack of breastfeeding regularly have a negative outcome on infants.

Attention should be given to cultural practice that are detrimental to the health of infants and health education in the media should be encourage regarding safe feeding practices

Generally the prevailing feeding practice among infants was breastfeeding, though early supplementation within the first 3 months of life was common practice. Mothers should therefore be encouraged to breastfeed regularly

WHO Regulation on exclusive breastfeeding up to at least 6 month should be stressed and encourage mothers to practice it effectively After this age semi solid foods can be added to the breast milk.

Child welfare clinics whose main emphasis is on growth monitoring should at least have a register of children seen within the catchment areas who are not doing well.

The timing of introduction of complementary feeds should at least start from four months and not later than six months as the child growth failure mirrors the delay in complementary feeding.

With sanitation a household's source of drinking water is associated with the socio – economic status. Poor households are more likely to obtain drinking water from contaminated source such as surface water or open wells. Without an adequate supply of good quality water the risk of food contamination, diarrhoea diseases leads to malnutrition. The district Assemble should be

informed about this problem in order to assist the communities who do not have proper drinking water for a borehole to be constructed for them.

Infants and children from household not having a private tap are at a greater risk of being malnourished than those from household with these amenities because they are not properly kept. Inadequate sanitary facilities result in an increased risk of diarrhoeal diseases, which contribute to malnutrition.

On the whole, the present study forms a contribution to the information available concerning the Persisting prevalence of malnutrition in the Birim South District

7.0 RECOMMENDATION

The nutritional rehabilitation centre

After critically analysing the situation in the Birim South district the following are recommended; WHO should attach great importance to malnutrition in infants.

Service providers should give IE&C to mothers on outreach programs.

There should be a teaching manual for mothers about food and their nutritional value. The nutritional technical officer and the district public health nurse must be serious or encouraged to draw up the teaching manuals on food and their nutritional value, and all mothers be made to go through this course before they are discharge from the centre.

7.1 Health centres and district hospitals

At the facility level

An extra column should be created in the registers used in the child welfare clinics. It should be made to reflect children diagnosed at that level as either at risk or malnourished.

Possible home addresses of all children should be fairly detailed to facilitate follow up during home visits.

- Advice given to mothers should be written on the road to health card to make monitoring easier.
- Short statements such as “doing well continue, losing weight, was ill, advised on diet or refer to nutrition unit will be more than adequate.
- Community health nurses should continue to give nutritional talks to mothers of children 0-5 at post-natal, child welfare clinics and during home visits.
Outreach to communities with relatively higher incidence of malnutrition should be organised.
- There should be frequent well-organised health education talks on nutritional values on some local foods in the local FM station.
- There should be demonstration of various weaning foods and how they are prepared at every CWC in all the sub-districts.

Nurses/ midwives should encourage mothers to put infants to the breast as soon as possible after birth.

- Misconception about the use of colostrums should be corrected through health education and the benefit of immunoglobulin in colostrums that protect the infants from diseases should be made known to mothers.

- Cultural factors such as giving pre-lacteal feeds, the use of non-human milk and lack of breast milk at night has negative health outcome on infants and must be discouraged.
- Health education should be given to mothers regarding safe feeding practices
- Cultural beliefs that malnutrition is the work of the devil or unfaithfulness from either of the partners have a negative health outcome on the infants and must be discouraged.
- Cultural behaviors that will improve the health of the infants must be promoted
- Proper environmental sanitation and personal hygiene must be observed by mothers as poor
- The government of Ghana should learn from the government of India in sustaining and improving the nutritional standard of children through the implementation of the integrated child development services program in the country, as it has been started in India over 20 years ago and operate in 400,000 of the countries 600,000 villages.

Hygiene increase the burden of illness, as this constitutes to one of the causes of malnutrition

- Better access to modern medical care as this is to give access to good medical treatment.

If given the mandate, the DHMT should negotiate with the communities that have corn-mills to raise an initial seed capital for the preparation of the weanimix to be sold at no profit.

The money will then be revolving nutritional fund.

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APPENDIX 1

QUESTIONNAIRE

UNIVERSITY OF GHANA

SCHOOL OF PUBLIC HEALTH

DATE OF INTERVIEW

PLACE OF INTERVIEW

NAME OF INTERVIEWER

A GENERAL INFORMATION

1) Age of Respondents

14-19

20-35

36-45

45 and above

2) Marital Status

Married

Single

Divorce

Widowed

Separated

3) **Religion**

Christian

Moslem

Traditionalist

Others specify

SOCIO ECONOMIC STATUS

4) Education

Have you been to school?

Yes No

5) If Yes which Level

Kindergarten/primary

Middle/JSS

Second circle

Tertiary

Others

6) Occupation

Farmer

Trader

Government worker

Hairdresser/seamstress

Others

7) KABP

Have you heard of malnutrition?

Yes No

8) If yes source

Health worker

Media

Friends

Others

BREASTFEEDING

9) Did you give the first yellowish substance (Colostrum) to your baby?

Yes No

10) Have you heard about exclusive breastfeeding?

Yes No

11) If Yes, Source

Media

Nurse

Other health worker

Relative

12) Do you practice exclusive breastfeeding?

Yes No

13) If Yes why

Convenient

Simple

Easy to practice

Not expensive

Others

COMPLIMENTARY FEEDING

14) What do you give to your child for the first 6 months?

Breast milk (exclusive)

Breast milk with water

Breast milk with mashed kenkey, porridge

Others

WEANING

15) When do you introduce complimentary feeding?

0-3 month

4-6 month

Above 6 month

Others

16) Have you heard about weanimix?

Yes No

17) SOURCE

Media

Nutrition Officer

Community Health Nurse

Other health worker

18) How is it prepared?

4-part cereals, halve beans, and halve groundnut mix together

Don't know

Others

19) IMMUNISATION

Have you send your under 5 to receive vitamin A supplementation

Yes No

If No why

Child not sick

Have not heard about it

Child can do without it

Others

20) Do you have road to health card

Yes No

21) IMMUNISATION SCHEDULE

Complete for age

Incomplete for age

22) FAMILY PLANNING

How many children do you have?

What is the average interval between them?

How many are under 5

Specify

23) ENVIRONMENTAL SANITATION

What source of water do you use?

Borehole

Pipe borne water

Rainwater

Well/stream, river

24) What toilet facility do you use?

Pit latrine

Water Closet

KVIP

VIP

Bush

25) FOOD SECURITY

What kind of food is commonly grown in your community?

Staple food, vegetables, live stock poultry

Cocoyam, Kontomire Sheep

Cassava Garden eggs Goat

Tomatoes Okro Cow

Rice

Plantain Maize

26) FEEDING PRACTICES

Who prepares family food?

Mother

Caretaker

27) How often do you feed your child?

4-6 times

When child demands

When family is eating

When mother feels like

28) Do you prepare separate food for your under 5

Yes No

29) What ingredients do you use?

Vegetables with proteins and carbohydrates

Other ingredients like adults

Only koko with milk