Maternal Employment, Child's Caring Practices and Nutritional Status in Northern Ghana

Sixtus Aguree[1*], Juventus B. Ziem[2], Amos Issah[1], Theophilus Akrugu[1] and Ali Joseph[1]

[1]*Department of Community Nutrition, School of Medicine and Health Sciences, University for Development Studies, P.O. Box TL 1883, Tamale, Ghana, West Africa*

[2]*Department of Clinical Laboratory Sciences, School of Medicine and Health Sciences, University for Development Studies, P.O. Box TL 1883, Tamale, Ghana, West Africa*

Abstract: Mothers as caregivers exert strong influence over child feeding and caring practices. Maternal employment may influence child caring practices thus affecting the child's nutritional status. The purpose of this study was to examine the effect of maternal employment status, on child caring practices and the nutritional status of children under-5 in Savelugu, Northern Ghana. This was a cross-sectional survey involving 400 mothers and their children under-5 years old. Data collection took place between February and May, 2013 through a house-to-house visit using a structured questionnaire designed for the study. Information collected included employment status, occupation type and mothers working hours away from home, feeding and caring practices and anthropometric measurements of their children. About 85.8% of respondents were employed. Together farmers and traders made approximately 76% of the respondents. Approximately 55% of Mothers had at least primary education. Around 85.1% of the employed mothers look after their children whiles carrying out their daily work. Employed mothers spent between 5 to 6 hours/day away from home without their children but unemployed mothers were mostly with their children. Occupation status has a significant effect on child caring practices with those unemployed being better ($P<0.05$). About 72.0% and 70.3% respectively of unemployed and employed mothers indicated they introduced complementary feeding at 6months. Child caring practices were better among unemployed mothers compared to employed mothers among the study population. Stunting and wasting rates were high among children of both employed and unemployed mothers.

Keywords: Stunting, northern Ghana, maternal employment, and feeding practices.

INTRODUCTION

Globally, urbanization has led to an increased pressure on the income of households and families, this has resulted in a rise in the number of mothers seeking jobs to enable them support their families [1]. As a result more mothers are a part of the labour force. Maternal employment status exerts strong influence over child feeding practices [2-4], thus; it reflects child nutrition status since food intake of children is associated with mothers not fathers [5]. Other findings have showed that maternal employment has a negative effect on the child nutrition [6, 7]. Child caring practices play a crucial role in child health and nutrition. Nutritional status in particular, can be significantly improved through proper childcare and feeding practices [8]. Increased maternal employment substantially reduces the amount of time available for the mother to allocate between housework and leisure, while increasing household income [1]. It could potentially reduce time available for childcare including child nutrition. Improvement in childcare and feeding practices could positively impact nutritional status of children [8].

A study by Hawkins *et al*. [9] shows that children of employed mothers are more likely to have poor dietary habits. Other studies [10, 11] also reported that employed mothers had a shorter duration of breastfeeding, and this was associated with lower healthcare access. Studies on the effects of maternal employment on child nutritional studies, is inconclusive. In Ghana, employment rate among current active persons is over 96% among female 15 years and above. The report further added that more half of the "currently employed persons aged 15 years and older are engaged as skilled agricultural, forestry and fishery workers" (Ghana living standard survey round 6, GLSS6) [12]. About half of all employed females were found in skilled agricultural, forestry and fishing. Similar pattern were seen among their males counterparts. The definition of work as used here is from GLSS6, work is defined as any economic activity that is performed by the respondents, in this case, mothers, which contributes to economic production of goods and services, either in the formal or informal sector. Examples are farming, trading, working for the government or private sector. According to GLSS 6 report, agriculture, forestry and fishing; wholesale and retail trade; and manufacturing account for over three-quarters (77.2%) of the employed population in Ghana [12].

The present study assessed the influence of maternal (caregiver) employment status on child's

*Address correspondence to this author at the Department of Community Nutrition, School of Medicine and Health Sciences, University for Development Studies, P.O. Box TL 1883, Tamale, Ghana, West Africa;
Tel: +233-200230733; E-mail: bayeld@gmail.com

E-ISSN: 1929-4247/15

nutritional status and caring practices-as measured by time spent with the child, in Savelugu, northern Ghana.

MATERIALS AND METHOD

Study Design and Setting

This was a cross-sectional survey conducted among selected mothers in the Savelugu municipality of the northern region of Ghana. The Savelugu Municipality is about 25 kilometres north of the Northern Regional capital, Tamale. The inhabitants here are predominantly the native Dagombas. The municipal assembly finds itself in the interior (Guinea) Savannah woodland which could sustain large scale livestock farming, as well as the cultivation of staples like rice, groundnuts, yams, cassava, maize, cowpea and sorghum [13]. The sample consists of 400 breastfeeding mothers; 57 unemployed mothers and 343 employed mothers who were purposively selected through a house-to-house visit. Occupation was defined according to the GLSS6, occupation refers to the type of work the person was engaged in at the establishment where he/she worked [12]. They report further noted that, among the working population 15 to 60 years about three-quarters (77.4%) are economically active with 98.1 percent employed. We however, could not find the distribution of employment at the district level where the study was conducted, so we performed purposive sampling based on the information we had at the time, we estimated that the prevalence of the overall employment rate could be a little higher than three-quarters of the population. The sample consists of 400 breastfeeding mothers; 57 unemployed mothers and 343 employed mothers who were purposively selected through a house-to-house visit. We also had no idea of the number of women who had children under five in this study area; health records of this group is poorly documented since most women cease to come for post-natal services, after the first year, whereby their children would have received all the necessary vaccinations and immunizations required by the Ghana Health Service, which keeps the child health records. So, any woman who resided in the study area for more than six months and with a child under-5 years qualified to take part in this study. Using the child's health records booklets (given to mothers by the Ghana Health Service) or the birth certificate, we determined the age of child and if less than 5years the mother or caregiver was invited to participate in the study. Participants were recruited through a house-to-house visit.

Written informed consent was obtained from the participants after explaining the study objectives. Consented participants were interviewed using a questionnaire developed for this study. The participants were free to withdraw at anytime without giving any reason. Strict confidentially was maintained throughout the process of data collection, entry and analysis. All efforts were made in this study to fulfil the ethical considerations in accordance with the Ethical principles for medical research involving human subjects' of Helsinki Declaration. Data collection from this study took place between February and May, 2013. A structured questionnaire was pre-tested and used for the data collection. Information on feeding practices and time spent with the child were collected as well as anthropometry data.

Anthropometry

The following anthropometric measurements were taken using standard procedures:

The dates of birth of all children were taken at the start of anthropometry data collection. The height and weight measurements were taken for all children for this study to help assess their nutritional status. Height/length measurements were done using the stadiometer/infantomer with subjects wearing light clothing. The stadiometer was placed on a flat surface. For subjects' height to be measured they were made to stand upright on the stadiometer. They were made to stand such that the subject's shoulders, buttocks, heels and back of their head touching the vertical board of the stadiometer. Each subject was made to position his/her head in the Frankfurt horizontal plane. Each subject was then made to breathe in and hold his/her breath. Then the headboard of the stadiometer was lowered and placed on the crown of the subject's head and the reading taken. For subjects who had a lot of hair on their heads the headboard was pressed firmly on the head just to compress the extra hair so as to obtain a measure of their actual heights. For children younger than two years, the length was measured using the infantomer. Measurements were recorded to the nearest 0.1cm.

The weight of each the children was measured using digital SECA scale. The scale was placed on a level horizontal ground/floor. Subjects wore minimum clothing which could not influence the their weights as measured by the scale. They had their shoes removed, and stood on the scale with their feet fully on the scale and their weight evenly distributed on both feet. They

stood upright, hands by their sides and head leveled with eyes looking straight. The displayed reading was allowed to be stable before being recorded to the nearest 0.1kg.

Data Collection

Three undergraduate nutrition students were trained on the use of the data collection instruments; Seca scale, stadiometer/infantometer and the questionnaire. This was done to standardize the process so as to minimize the inter-personal and intra-personal errors in data collection. The term feeding practice as used here, referred to mother's attitude towards appropriate child feeding, e.g. introduction of complimentary feeding. Time spent with the child (occasion with child) as used in this study refers to time (estimated in hours by mother/caregiver) within day when the child is under attentive care (as defined by the mother/caregiver) of the mother; that is the mother/caregiver attention is on the child. Caring practice largely meant the time spent with the child with the assumption that the mother will be available to practice on-demand feeding, detect cues/signs of hunger, response promptly to child illnesses and generally prevent the child from harm. Complementary feeding was defined to mean any liquid or solid food given to the child besides breast milk. This did not include prescribed medications and supplements by doctors.

Data Analysis

Data were entered into SPSS version 18.0 for analysis. Anthropometry data were entered into EPI info version 3.5.3 software for nutrition to generate Z-scores. The Z-score values were then transported to SPSS for further analysis. A Z-score of less than -2SD was considered; wasted for weight-for-height, stunted for Height-for-Age and underweight for Weight-for Age. Data were categorized into frequencies and percentages and tabulated. We did not find outliers from the data, so all children were included in the final data analysis. All results are crude and we did not adjust for confounding variables. A 5% error bars were used for the bar charts. The results were then presented in tables and graphs as shown in the results section.

RESULTS

The results revealed that 93.2% of respondents were Muslims; and 82% of respondents were Dagombas. The ages of respondents were within the range of 18 and 45 years with mean age of 28.0 ± 4.6 year. Approximately, 45.3% had no formal education with only 6.2% having post secondary/ senior high school education. About 85.8% (n=343) were employed; where 75.8% were either traders or farmers (1.46% was farmers, 74.34% were traders) the rest were engaged in other jobs such as seamstress, teaching, hairdressing, banking, nursing and cleaning services. A few others were employed in the teaching and health sectors. Also, 53.5% (n=214) of the children were boys. Unemployed mothers usually spend all their time with their children whiles employed mothers may have the child them whiles working or divide working time between the child and work-related activities during working hours of the day, as shown in Table **1** below. Figure **1** presents the average number of hours mothers (caregivers) spent with the index child during day. From Figure **1**, we realized that unemployed mothers spent more than seven (7) hours a day with their children whiles employed mothers spent at most 5-7 hours with their children. On the average, mothers introduce complementary feeding around the sixth month (Figure **2**). Figure **3** presents the nutritional status information of children, based on mother's/caregiver's employment status whiles Table **2** shows the nutritional status category by the main occupation types of mothers/caregivers. Severe stunting, underweight and wasting rates among the children were respectively 16.6% and 14.0%, 10.7%

Table 1: How Mothers Combine Work and Child Care

Occasion/Time with Child	Employed Mothers	Unemployed Mothers
	n (%)	n (%)
Child is with mother when she is carrying out work activities	153 (44.6)	57 (100)
Mother carry out activities for a short time and return to the child	139 (40.5)	0(0)
Others	47 (13.7)	0(0)
*Missing	4(1.2)	0(0)
Total	339(98.8)	0(0)

*Mother refused to answer or could not answer.

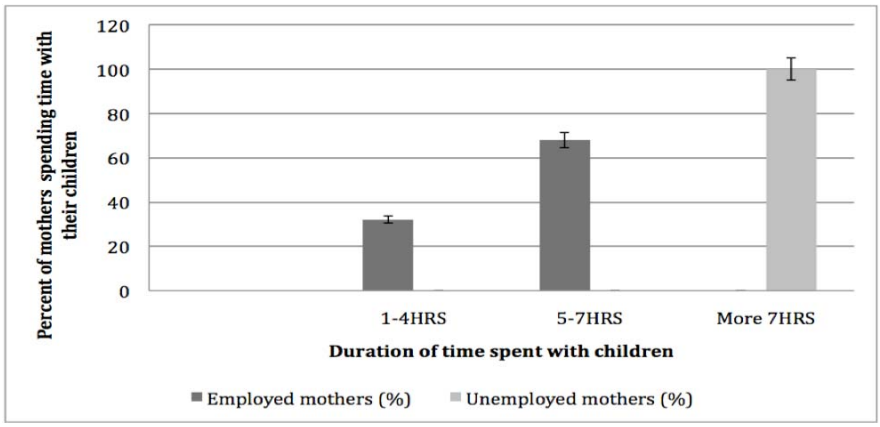

Figure 1: Average time mothers' spent with children/day between 6A.M to 6pm.

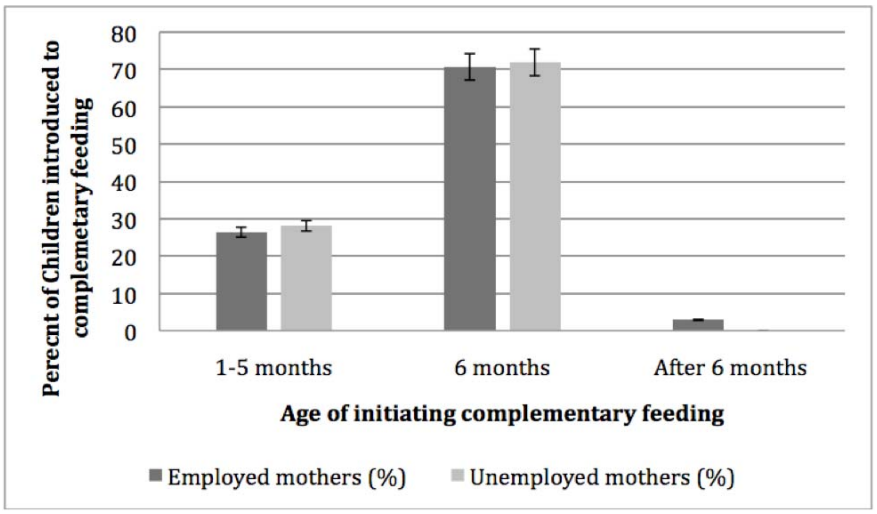

Figure 2: Time of introduction of complementary feeding.

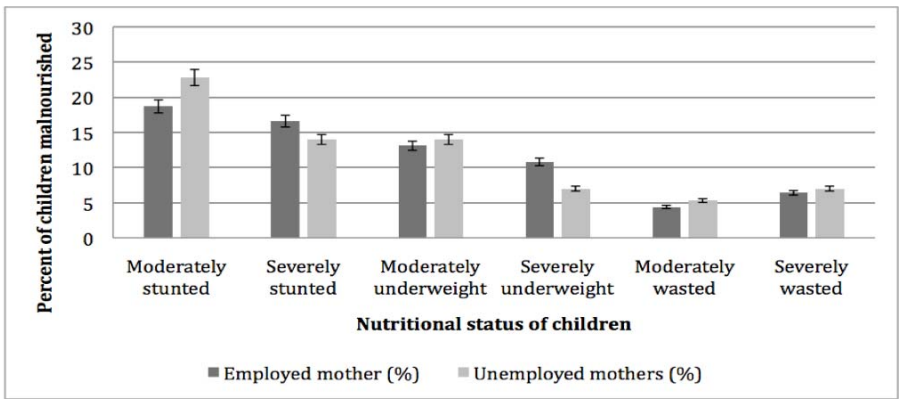

Figure 3: Comparing the nutritional status of children by the employment status of their mothers.

and 7.0%, and 6.4% and 7.0% for employed and unemployed mothers (Figure **3**).

DISCUSSION

The study was conducted in a predominantly Muslim setting with majority of them being the native Dagombas. The results of the study reflects the high level of illiteracy in the Savelugu municipality [13], about 45.3% had no formal education with less than 10 percent of the respondents with a tertiary education. With this low level of formal education most of them were found in informal sector including; trading, farming, tailoring, shea fruits picking and other minor

Table 2: Nutritional Status of Children by Occupation Types of their Mothers

Nutritional Status		Trading	Farming	Others[1]
	N	n (%)	n (%)	n (%)
Weight-for-age				
Normal weight	174	128 (50.2)	4 (80)	42 (50.6)
Mildly underweight	87	62 (24.3)	1 (20)	24 (28.9)
Moderately underweight	45	38 (14.9)	0 (0)	7 (8.4)
Severely underweight	37	27 (10.6)	0 (0)	10 (12)
Weight-for-height				
Normal weight	250	181 (71)	4 (80)	65 (78.3)
Mildly wasted	56	43 (16.9)	1 (20)	12 (14.5)
Moderately wasted	15	13 (5.1)	0 (0)	2 (2.4)
Severely wasted	22	18 (7.1)	0 (0)	4 (4.8)
Height-for age				
Normal height	147	110 (43.1)	3 (60)	34 (41)
Mildly stunted	75	55 (21.6)	1 (20)	19 (22.9)
Moderately stunted	64	48 (18.8)	1 (20)	15 (18.1)
Severely stunted	57	42 (16.5)	0 (0)	15 (18.1)

[1]Nurses, teachers, seamstresses/tailors, shea pickers.

Table 3: Logistic Regression Analysis for Relationship between Maternal Working Hours and Nutritional Status of Child

Model		Unstandardized Coefficients		t	Sig.	95% CI B	
		B	SE			Lower Bound	Upper Bound
1	Constant	2.453	0.301	8.139	0.000	1.860	3.046
	Underweight	-0.161	0.078	-2.069	0.039	-0.314	-0.008
2	Constant	2.758	0.333	8.292	0.000	2.104	3.412
	Stunting	-0.175	0.086	-2.041	0.042	-0.344	-0.006
3	Constant	1.549	0.252	6.156	0.000	1.054	2.044
	Wasting	-0.028	0.065	-0.427	0.670	-0.156	0.100

activities. This is consistent with the GLSS6 report where they found that majority of the study participants in Ghana with below tertiary education were employed in the informal sector of the economic [12]. A few of participants were employed as teachers and nurses in the formal sector. Overall, about 85.8% were employed in either informal or the formal sector. About 14.3% were not employed in any of the above sectors but perform only domestic chores. This finding is consistent with that of the Ghana living standard survey [12] report on occupation. Given that the setting is more rural than urban.

Generally, the unemployed mothers spent more time with their children than that of the employed (formal or informal employment) mothers. Whiles the unemployed mothers spent the whole day together with their children and attending to their needs, just a little more than four in ten of the employed mothers spent the whole day with their children as they carry out their daily activities. About one-third of the employed mothers spent between one to four hours (excluding night) within the day with their children. The GLSS6 report indicates that the mean time spent by the economically active population 15 years and older within a week (7days) across all activities is 37.3 hours [12]. Given this, it is believed could negatively reduce the time that they spend with their children. There was a correlation between maternal employment status and

child caring practice with respect to time spent with the child (r=0.423, P<0.05). Unemployed mothers spent a significantly higher amount of time with their children than employed mothers. Maternal or caregiver time spent with child appears to be associated with nutritional status of the child (Table **3**). Nair *et al*. [1] reported similar findings among working mothers in Dungarpur district in the Indian state of Rajasthan. Improvement in childcare and feeding practices has been noted to improve child nutrition [8]. We however, did not find that this time spent with the children significantly improve all nutritional status indicators. Other factors like general household wealth, sanitary practices and general knowledge of nutrition and health related factors could have influence on the nutritional status of their children just like it does to the children whose mothers were employed.

The age at which complementary feeding was introduced in both groups was encouraging, given that more than seven out of ten mothers did so at the sixth month. This is an improvement from the median duration of 3.3 months national duration for exclusive breastfeeding [14], marking the introduction of complementary feeding. This improvement may be attributed the efforts by the Ghana Health Service and other stakeholders aimed at increasing appropriate breastfeeding practices. A few number of the employed mothers introduced complementary feeding later than six months as recommended by WHO. The results did not tell us whether this has something to do with their jobs. There was also higher rate of severe stunting and underweight among children of the employed mothers as compared to the unemployed. Chronic malnutrition rates for both groups were about the same as the regional average [14,15]. Wasting rates in both groups are similar to the regional average but higher than the national average of 9%. Wasting prevalence of both groups was lower than the regional average of 27% but higher than the national rate [14]. The lack of differences in wasting rates between children whose mothers were employed could be attributed to factors other than employment status. The lack of difference in the wasting rates of children in the two groups, children of employed mothers and those of unemployed mothers could be attributed to other maternal and household factors [16] rather than time spent with children. This finding of the study is consistent with Fertig *et al.* [17], whose study found no association between maternal employment and child nutritional status. According to Shubh *et al*. [18], the mother's satisfaction of her family life, her ability to access the world of information from the media (radio programs), and her ability to get good prenatal care (and avoid low birth weight) were found to be among the key maternal care indicators for child nutrition outcomes. When compared by occupation types, we found higher rate of wasting among traders' children. The difference could be attributed to the nature of their job as they spend a significant among of their away from home which could influence meals preparation and general caring practices.

CONCLUSION

The study did not find any difference in employment status of mothers and timely introduction of complementary feeding. Unemployed mothers spent more time with their children than employed mothers. We are unable to say if employment status of a mother influence child's nutritional status because several confounding variables were not measured. Stunting and wasting prevalence were generally high among children whose mothers were employed and those whose mothers were unemployed.

STRENGTHS AND LIMITATIONS

This study adds to existing literature on how maternal employment could possibly influence child nutritional status probably through limited contact time with the children during working hours. It also adds to literature non-formal sector employment, which is always given little attention. The results of this study however, may not compare well with a setting where most employed mothers work in a formal setting, white collar-job. The sample size of this study was small and was not powered to determine statistical significance for many variables. We also did not measure many socio-demographic variables of the mother such as fathers employment status and household income, which could have confounded the relationship between maternal occupation and time spent with the child. We are however, positive that time spent with child could influence maternal caring practices with respect to child feeding; this could in itself influence the nutritional status of the child.

We believe multivariable logistic regression analysis could have helped improve the quality of our findings but we could not perform it because of the limited data we collected from the field. We did not collect such information as it was beyond the scope of our investigation. Future studies should also consider increasing the sample size to include more

respondents from both categories of employed and unemployed mothers. Furthermore, such studies should also look at the maternal age, education, spouse /father's employment status, household include and how different types of occupation influence child nutrition and caring practices.

ACKNOWLEDGEMENTS

We are grateful to the staff of the Savelugu Municipal Health Directorate for providing us with useful information about the municipality that facilitated the smooth conduct of this study. Our sincere gratitude also goes to the mothers and children that took part in this study.

CONFLICT OF INTEREST

There is no conflict of interests.

REFERENCES

[1] Nair M, Ariana P, Webster P. Impact of mothers' employment on infant feeding and care: a qualitative study of the experiences of mothers employed through the Mahatma Gandhi National Rural Employment Guarantee Act. BMJ Open 2014; 4: e004434. http://dx.doi.org/10.1136/bmjopen-2013-004434

[2] Ahmadi M, Moosavi SM. Evaluation of occupational factors on continuation of breastfeeding and formula initiation in employed mothers. Global J Health Sci 2013; 5: 166-71. http://dx.doi.org/10.5539/gjhs.v5n6p166

[3] Brown CR, Dodds L, Legge A, Bryanton J, Semenic S. Factors influencing the reasons why mothers stop breastfeeding. Can J Public Health 2014; 105: e179-85. http://www.ncbi.nlm.nih.gov/pubmed/25165836

[4] Mirkovic KR, Perrine CG, Scanlon KS, Grummer-Strawn LM. In the United States, a Mother's Plans for Infant Feeding Are Associated with Her Plans for Employment. J Hum Lact 2014; 30: 292-297. http://dx.doi.org/10.1177/0890334414535665

[5] Shuhaimi F, Muniandy ND. The association of maternal employment status on nutritional status among children in selected kindergartens in Selangor, Malaysia. Asian J Clin Nutr 2012; 4: 53-66. http://dx.doi.org/10.3923/ajcn.2012.53.66

[6] Choudhary M, Jain S, Saini V. Nutritional status of children of working mothers. Indian Pediatr 1986; 23: 267-70.

[7] Lamontagne JF, Engle PL, Zeitlin MF. Maternal employment, childcare, and nutritional status of 12–18-month-old children in Managua, Nicaragua. Soc Sci Med 1998; 46: 403-14. http://dx.doi.org/10.1016/S0277-9536(97)00184-6

[8] Ramji S. Impact of infant & young child feeding & caring practices on nutritional status & health. Indian J Med Res 2009; 624-6. http://icmr.nic.in/ijmr/2009/november/1124.pdf

[9] Hawkins SS, Cole TJ, Law C. Examining the relationship between maternal behaviours in 5-years-old British children. J Epidemiol Commun Health 2009; 63: 999-1004. http://dx.doi.org/10.1136/jech.2008.084590

[10] Mandal B, Roe BE, Fein SB. The differential effects of full-time and part-time work status on breastfeeding. Health Policy 2010; 97: 79-86. http://dx.doi.org/10.1016/j.healthpol.2010.03.006

[11] Rivera-Pasquel M, Escobar-zaragoza L, Gonzalez de Cosio T. Breastfeeding and maternal employment: results from three national nutritional surveys in Mexico. Matern Child Health J 2014 Nov 4. http://dx.doi.org/10.1007/s10995-014-1622-9

[12] Ghana Statistical Service (2013), Ghana Living Standards Survey: Report Of The sixth Round (GLSS6). Accra, Ghana. pp. 1-12. http://www.statsghana.gov.gh/docfiles/glss6_report.pdf

[13] Savelugu/Nanton municipal assembly. *District profile.* District planning and coordinating unit. 2012). http://www.ghanadistricts.com/districts/?news&r=6&_=87

[14] Ghana Demographic and Health Survey (GDHS) (2008) Ghana Statistical Service, Accra, Ghana Macro International Inc. Calverton, Maryland, USA September 2009. Pp 182-184. http://dhsprogram.com/pubs/pdf/FR221/FR221[13Aug2012].pdf

[15] Ghana Statistical Service (2011). Ghana Multiple Indicator Cluster Survey (MICS) with an Enhanced Malaria Module and Biomarker, 2011, Final Report. Accra, Ghana. http://dhsprogram.com/pubs/pdf/FR262/FR262.pdf

[16] Espo M, Kulmala T, Maleta K, Cullinan T, Salin ML, Ashorn P. Determinants of linear growth and predictors of severe stunting during infancy in rural Malawi. Acta Paediatr 2002; 91: 1364-70. http://dx.doi.org/10.1111/j.1651-2227.2002.tb02835.x

[17] Fertig A, Glomm G, Tchernis R. The connection between maternal employment and children obesity: Inspecting the mechanisms. Rev Eco Household 2009; 7: 227-55. http://dx.doi.org/10.1007/s11150-009-9052-y

[18] Shubh K, Kumar R, Ruchira N, Saroj B. Child care practices associated with positive and negative nutritional outcomes for children in Bangladesh: a descriptive analysis. Discussion paper no. 24, Food Policy Research Institute Washington, D.C. 1997; p. 42.

Received on 26-11-2014 Accepted on 30-01-2015 Published on 27-02-2015

http://dx.doi.org/10.6000/1929-4247.2015.04.01.6