Do Rural Mothers Comprehend the Growth Chart

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SUMMARY

Background: Growth chart is an educational tool to motivate mothers to take appropriate action to maintain and or improve their child's nutrition. Its ability to perform this function depends on maternal comprehension

Objective: To determine maternal comprehension of the growth chart, and also identify factors that influence it.

Method: This cross-sectional descriptive study assessed the comprehension of 362 mothers of under-five children. The tool was an interviewer-administered pre tested questionnaire and analysis was done using SPSS version 11.0 Statistical package.

Results: Twelve point Two percent of the mothers had good comprehension of the growth chart. Education (P= 0.58), occupation (P = 0.08) and parity (P = 0.49) did not influence maternal comprehension. Mothers with good comprehension had better nourished children (P= 0.04). Health workers were virtually the only source of information about growth chart (90.3 %), while language barrier (45.3%) and difficult terminologies (43.4%) were the major reasons mothers did not understand the explanations about growth chart.

Conclusion: Mothers in this area do not comprehend the growth chart; this is probably because health workers are poorly trained and growth monitoring is not well promoted.

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INTRODUCTION

The growth chart, which is called the 'child's road to health,' can be described as a child's passport to the primary health care system. [1,2] It is also the main stay of the home based record system.[2] The mother keeps the chart which contains annotations of the child's illness with its impact on growth graphically represented. The growth chart therefore provides a visual representation of how well or otherwise a child is growing. For the health workers, it is an early detector of growth faltering from whatever cause for intervention.[3]For the mothers, it is an educational tool for monitoring the child's growth and motivating her for appropriate intervention in case of growth faltering.[3,4] However, for a mother to do this she must comprehend and interpret the changes in the growth chart.[5,6] This is more pertinent in rural areas where due to poverty and illiteracy, malnutrition and infection are prevalent.[7] In spite of the wide spread use of the road to health chart in this country, malnutrition still remains prevalent especially in rural areas.[8] There is so far no study to determine the comprehension of this chart among rural mothers in this country, and their attitude towards it's use. This study is undertaken to bridge this gap in knowledge.

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MATERIALS AND METHODS

This cross –sectional descriptive study was carried out between March and May 2004 at the Primary Health Care Practice centre of the department of community medicine, Ebonyi State University Teaching hospital (EBSUTH) Abakaliki. This is located at Nwaezenyi, Igbeagu Izzi local government area (LGA) of Ebonyi State. Nwaezenyi is a rural village about 30 kilometres Northeast of Abakaliki, the capital of Ebonyi state. Majority of its inhabitants are Igbo speaking, comprising mainly of farmers. The study population consisted of 362 consecutively recruited mothers of under- five children who presented at the health centre for immunization and or treatment.

Informed verbal consent was obtained from the mothers before recruitment. The ethical committee of EBSUTH, Abakaliki approved the study. The study tool was a pre-tested structured questionnaire. Maternal comprehension was determined by their knowledge of five sets of questions aimed at identifying normal growth, growth faltering, and or growth failure, using imaginary curves of fictitious children, aged 1-2 years on the chart. They were scored 0 –5 on a Likert- type scale. A score of 0 implies no knowledge, 1 –2 poor knowledge, while 3 –5 was good knowledge. This is in line with the suggestion of Senanyake et al.[9] The authors recorded the children's weight, to the nearest 0.1kg.The weight for age data was used to determine the nutritional status of the children. Children whose weight were less than 80% of expected (weight for age) were regarded as being malnourished.[10] The questionnaires were interviewer-administered, and explanations made in Igbo language where necessary. Analysis was done using SPSS 11.0 statistical package using tables and percentages. Differences in proportions were tested for statistical significance using the Chi Square statistic. Significance level was set at $P<0.05$

RESULTS

Demographic Characteristics: This study involved 362 women,

aged between 20 –49 years. Majority of the mothers were of low educational attainment as 290 (80.1%) either completed only primary school or had no formal Education. Most of them were either farmers 196 (54.1%) or artisans 101 (27.9%). Fifty-eight point five percent (210) of the mothers were grandmultiparous. Majority of the children (325 or 89.5%) were < 12months old and 21.3% of the children who had their weights recorded were undernourished. See Table I.

Awareness of the Growth Chart: Many mothers 231 (63.8%) had heard of the growth chart. However, when the growth chart was shown to them, as many as 343 (94.8%) affirmed that their children had it, and up to 323 (89.2%) had the charts with them there. This means that as many as 31% had the growth chart without knowing what it is.

Knowledge of the Uses of the Growth Chart: *Only* 73 (20.2%) of the mothers knew that the growth chart is used to assess a child's growth. Majority of them (46.7%) perceived it as a passport for immunization. (Table II).

Comprehension of the Growth Chart:

Similarly, a small proportion of mothers (44 or 12.2%) had a good comprehension of the different growth curve patterns. Most had poor or no knowledge as shown in (Table III). Maternal comprehension was not significantly influenced by education ($X^2 = 4.75$, df=6, P = 0.58), occupation ($X^2 =14.01$, df=8, P = 0.08) or parity ($X^2 =3.45$, df=4, P =0.49). However, nutritional status of children whose mothers had good comprehension of growth chart was significantly better than those with poor comprehension ($x^2 = 6.66$, df=2, P=0.04) (Table IV).

Sources of Information on the Growth Chart: Growth chart was explained to 267 (73.8%) mothers. Health workers were the major source of information to mothers as 241 (90.3%) of those who received explanation got it from them. See Table V. Of those who received explanation, 214 (80.1%) claimed they understood the explanations, while 53 (19.9%) said they did not understand the explanations. Comprehension of the growth chart was significantly better among mothers who understood the explanations (X^2=7.86,df=2,P=0.02). The reasons given for not understanding the explanations are Language barrier 24 (45.3%) and difficult terminologies 23 (43.4%). See Table V.

Table i: Demographic Characteristics of mothers and their Children.

(a.) Education Attainment	Frequency (%)
No formal Education	116 (32)
Primary school	174 (48.1)
Secondary School	58 (16.0)
Tertiary Education	8 (2.2)
No response	6 (1.7)
(b.) Occupation of Mothers	
Farming	196 (54.1)
House Wife	12 (3.3)
Civil Servant	16 (4.4)
Artisan	101 (27.9)
Student	23 (6.4)
No response	14 (3.9)
(c.) Parity of the Mothers	
Primps	72 (19.9)
Multiparous	55 (15.2)
Grand multiparous	210 (58.0)
No response	25 (6.9)
(d.) Age of the Children	
< 12 months	325 (89.5)
≥12 months	19 (5.2)
(e.) Weight of the Children:	
< 80% Expected Wt. for age	44 (21.3)
≥ 80% Expected Wt. for age	153 (78.7)

Table II: Knowledge of what the chart is used for.

Response	Frequency (%)
Requirement to see Doctor	19 (5.2)
To assess a child's growth	73 (20.2)
Access to Immunization	169 (46.7)
To Obtain Medication	6 (1.7)
Do not Know	85 (23.8)
Others	10 (2.8)
Total	362 (100)

Table III: Comprehension of Growth Chart Change.

Response	Frequency (%)
No Knowledge	252(72.4)
Poor Knowledge	55 (15.2)
Good Knowledge	44 (12.2)
No response	1 (0.3)
Total	**362 (100)**

Table IV: Relationship Between Maternal Comprehension of Growth Chart and Child's Nutritional Status.

	Maternal Comprehension Knowledge			
Child's Nut.	**No**	**Poor**	**Good**	**Total**
Under Nutrition	34	10	0	44
Normal Nutrition	110	31	22	163
Total	144	41	22	207

X^2 =6.66, df = 2, P = 0.04

Table V: Source of Explanation and reason for not understanding the Growth Chart.

(A.) Source of Explanation	Frequency (%)
Health workers	241 (90.3)
Radio	3 (0.01)
Church	2 (0.01)
Neighbours	1(0.004)
Television	0 (0.00)
Others	2 (0.01)
No response	18 (6.7)
Reason for not understanding	
Explanation	**Frequency (%)**
1. Language barrier	24 (45.3)
2. Hurried explanation	3 (0.06)
3. Difficult Terminologies	23 (43.4)
4. Difficult Chart design	2 (0.04)
5. Others	1 (0.02)

DISCUSSION

Long ago Morley[11] advocated the use of the growth chart both as a preventive and a curative tool. However, the effectiveness of this depended on trained health workers and maternal comprehension.[5,6] Maternal comprehension of the growth chart in this study is low(12.2%). Similarly, a low level of comprehension was reported at Ilesha (6%),[12] but higher levels of comprehension of 62% were obtained in Afghanistan[6] and Sri lanka.[9] The reason for the low level obtained here may be because growth monitoring is poorly promoted in this country. This is highlighted by the fact that a significant proportion of the mothers (31%) had the chart but did not know it is the growth chart. Moreover, only 20% of them knew that it is used to assess a child's growth. The other possible reason could be because of inadequate training of health workers which has been found to be a major cause of sub-optimal comprehension in Saudi Arabia.[13]

Level of educational attainment had no influence on maternal comprehension in our study. This agrees with the findings in Somalia,[14] and Lesotho,[15] but differs from some others.[6,9,12] In Lesotho, Reul et al[15] posited that the lack of association with educational attainment was because of the high female literacy level and good training of their health workers. This is not the case in our study since majority of our subjects (80.1%) were uneducated. Further research is needed to assess the health workers' comprehension of the growth chart in this environment. Mothers in this study felt that growth chart is a passport for immunization. This finding has been severally reported.[6,9,13,15] In Nigeria, childhood immunization is well promoted,[16] unlike growth monitoring and the growth charts are asked for by health workers during immunization visits.

One of the major criticisms of growth monitoring is that health workers do not have the training to impart the growth monitoring knowledge to the mothers and or individualize their advice.[17,18] Our finding agrees with this. Health workers explained the growth chart to 73.8% of the mothers, out of which 80% claimed they understood the explanation. However, in practical terms, only 12.2% could actually comprehend the growth chart. Apparently their explanations were not effective. Language barrier and difficult terminologies were the major reasons why mothers could not understand the growth chart explanations. These were also the major constraints in Saudi Arabia.[13] Based on these, they advocated training and regular supervision of health workers as a means of over coming these barriers.[13] We agree with this suggestion, because mothers who understood the explanations given by health workers were better able to comprehend the changes in the growth charts. Routine growth monitoring has been criticized for not having any effect on nutritional outcome. [6,19,]Garner et al [19] did not notice any nutritional advantage in growth monitoring, while Grant and Stone[6] did not find any relationship between improved maternal comprehension of growth chart and growth in children. Our finding differs from these. Mothers with good comprehension had better nourished children. Similar findings and the need for early detection of growth faltering for therapeutic intervention are the major reasons for advocating growth monitoring.[1-4]

Health workers were virtually the only source of information on growth chart. This is poor, compared to oral rehydration therapy, breast-feeding promotion and childhood immunization which are well publicized and promoted.[16,20] Growth monitoring is the least promoted aspect of the child survival strategy (GOBI) probably because it's therapeutic effect is not as dramatic as ORT, it's economic impact is not as obvious as breast-feeding promotion, and its preventive benefit is not as easily quantifiable as that of childhood immunization.

In conclusion, mothers in this rural area do not comprehend the growth chart. This is probably because health workers in that setting are poorly trained, and there is inadequate promotion of growth monitoring. However, growth monitoring is still relevant in the prevention of malnutrition. We therefore recommend that:

- Health workers should routinely use the growth chart when mothers bring their children to the Clinics
- Health workers should be well trained to be able to impart the knowledge of the use of the growth chart to the mothers, and should be closely supervised in doing this.
- Growth monitoring as a component of the child survival strategy should be as well promoted as the other components such as immunization and breast-feeding.

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