Original Research Article

Correlation of weight for age of children and knowledge about growth chart among mothers

Aruna P. Tubachi[1]*, Shalini Nooyi[2], N. S. Murthy[2]

Department of Community Medicine, [1]RVMMIM & RC, Laxmakkapally, Telangana, [2]Ramaiah Medical College, Bangalore, Karnataka, India

*Correspondence:
Dr. Aruna P. Tubachi,
E-mail: aruna.tubachi@gmail.com

ABSTRACT

Background: India is developing country, even with vast improvement in country's economy malnutrition remains a challenge. Growth chart gives easy way of monitoring the growth of the child and hence help in early diagnosis and early correction of malnutrition. This study is intended to assess the knowledge of mothers about the growth chart and educate them in the same.
Methods: A hospital -based, cross-sectional descriptive study. Conducted among mothers of children aged less than five years attending health centres for immunization during July and August 2013 by complete enumeration till sample size is met.
Results: The study shows 28.4% of the children were underweight. The figure is similar to NFHS 3 results. Only 20 i.e. 14.9% of mothers had seen the growth chart before. Only 5 could tell the use of growth chart. None of the mothers were able to name the chart. Only one mother knew how it is used and could interpret the colors. Attitude and practice regarding growth chart is very poor. The study shows that mother's occupation and father's education had significant effect on weight of the child.
Conclusions: The present study shows poor knowledge regarding the use of growth chart among mothers. With the high percentage of under nutrition among under 5 one of the easy and cheap method of monitoring the weight is by explaining mothers how to monitor the weight of the child. Further there is need to motivate health workers to help mothers in understanding the same.

Keywords: Growth chart, Weight for age, Undernourished

INTRODUCTION

India is developing country, even with vast improvement in country's economy malnutrition remains a challenge. Nearly half of the children in India are malnourished according to NFHS.[1] The amount of malnourishment has hardly shown any improvement from NHFS 2 to NFHS 3.

To combat with malnutrition Governments have implemented many measures like providing food to the antenatal mothers and children, fortifying of the food, immunization, free maternal and child care services. For growth monitoring WHO introduced simple and effective tool called growth charts.

The growth chart is essentially visual and provides the nurse with a useful instrument for educating the mother and the family.[2]

Monitoring of growth started in 1950s. Weighing and the charting of a weight-for-age graph was started in West Africa in the late 1950s (Morley, 1960). In this birth

month of the child was plotted against which the weights. These charts were home-based and held by the mother of the child. During the 1970s became part of the growth monitoring, oral rehydration, breastfeeding and immunization (GOBI) effort initiated by UNICEF to prioritize primary health care. UNICEF and NGOs made large investments to provide dial weighing scales, distribute growth charts and train personnel.[3]

It is recommended that the weight of the child should be recorded every month in first year, every two months in second year and every three months thereafter.[4]

There are many growth charts which are used according to the zones. But most popular one is WHO growth chart which has been adopted by many countries and modified according to the areas. Many countries adopted these growth chart and introduced in mother and child protection card. But unfortunately it is rarely used by mothers. Literature produced by international organizations and major NGOs rarely mention growth monitoring. Studies of food and nutrition made by the WHO(1998), United Children's Fund and FAO make little mention of growth faltering and do not refer to growth monitoring. Involvement of mothers and families in growth monitoring will help in promoting better nutrition.

Hence this study is intended to assess the knowledge of mothers about the growth chart and educate them in the same to improve the nutrition among children.

Objectives

1. To study the association between weight for age of under five children attending health centres and knowledge about the growth chart among mothers.
2. To study the association between weight for age of under five children attending health centres and socio-demographic factors.
3. To assess the knowledge about growth charts in mothers of under five children attending B K Nagar, Cholanayakanahalli urban health centres, M. S. Ramaiah field practice area.

METHODS

Study design

A hospital-based, cross-sectional descriptive study in Cholanayakanahalli and B. K. Nagar, two Urban Health Centres of M. S. Ramaiah Medical College. Conducted among mothers of children aged less than five years attending health centres for immunization during July and August 2013 by complete enumeration till sample size is met.

Study area

Cholanayakanahalli and B. K. Nagar are two Urban Health Centres which are field practice area of M. S. Ramaiah Medical College. Cholanayakanahalli urban health centre has two wards. Ward 21 has population of 33,061 and ward 22 has 52,453 population. Number of children between 0-5 years in each wards is 2302 and 1851 respectively. B K Nagar has two wards 17 and 36. Populations in each ward are 49,936 and 37,323 respectively.

Study population

Mothers of under five children attending two urban health centres.

Inclusion criteria

Inclusion criteria were all mothers of under-five children attending two urban health centres for immunization.

Exclusion criteria

Exclusion criteria were mothers not willing to participate; mothers of children with chronic illnesses and or undergoing treatment in hospitals.

Sampling technique

Complete enumeration of all the mothers of under five children attending two urban health centres for immunization with no history of chronic illness are enumerated till sample size is attained.

Sample size

In absence of any previous study in the state a pilot study was conducted to know the knowledge of mothers about the growth chart. Proportion of mothers with knowledge was 12%. With absolute precision of 5.5% and confidence limit of 95% sample size was calculated to be 134.

Study period: July and August 2013.

Ethical clearance was obtained from the ethical committee. Informed consent was taken from study population. Pre designed semi structured questionnaire was administered to all mothers of children below five years of age who attend immunization sessions in B K Nagar and Cholanayakahalli health centres after pilot testing.

Socio-demographic characters like age, education, occupation of mother and father was taken. Socioeconomic status was calculated using Modified Kuppuswami classification.

Growth chart approved by Government of Karnataka which is adopted from WHO was used for assessing the knowledge. This is the chart that is being used at present and which the mothers are expected to be familiar with

Weight is calculated using Salter's scale. Weight was measured with an "Indian Standards Organization" certified Salter weighing scale with minimum clothes and without footwear with an accuracy of upto 100 gms.

Education about the growth chart like how it should be used and how it is interpreted was taught. Awareness about the importance of maintaining the chart for each child will be ensured.

The importance of periodically rising line and dangers of flat line or dipping line was taught.

Statistical analysis

Descriptive statistics was used to summarise the quantitative variables such as age, weight etc. Qualitative variables were expressed in terms of proportion and 95% confidence interval. Chi-square test/Fischer's exact test was used to test for difference in knowledge of the mothers about understanding the growth chart in two centres studied.

RESULTS

Table 1: Demographic details.

		Frequency	%
Type of family	Nuclear	99	73.9
	Joint	18	13.4
	Three generation	17	12.7
Number of children	1	62	46.3
	2	58	43.3
	3	11	8.2
	4	3	2.2
Occupation of mother	Employed	14	8.2
	Housewife	123	91.8
Gender of the child	male	86	64.2
	female	48	35.8
Mother's age (yrs)	≤20	16	11.9
	21-24	67	50.0
	25-28	31	23.1
	29-32	15	11.2
	>32	5	3.7
Education of mother	Not literate	12	9.0
	Primary school	22	16.4
	High school	56	41.8
	Pre university	33	24.6
	Graduation	11	8.2

Study showed that most of the study population (73.9%) belonged to nuclear family. Most of the family had one or two children. 50% of mothers were in the age group of 21-24 years 91.3% of the mothers were housewives. Only 9% of the mothers were not literate.

Table 2: Age distribution of children.

		Frequency	%
Age of the child (in months)	<6	69	51.5
	7-12	27	20.1
	13-24	26	19.4
	25-36	7	5.2
	49-60	5	3.7

Above table shows age distribution of the children in months. 51.5% of the children were below the age of 6 months.

Table 3: Weight for age of children according to colour zoning.

		Frequency	%
Color category of weight of the child	Green	79	59.0
	Yellow	30	22.4
	Red	8	6.0
	Above green	17	12.7

The study shows 28.4% of the children were underweight. 6% of total children were severely malnourished.

Table 4: Knowledge regarding utilization of growth chart.

		Frequency	%
Seen chart	Yes	20	14.9
Can tell its use	Yes	5	3.7
Where growth chart was seen	Not seen	114	85.1
	Anganwadi	4	3.0
	UHC	2	1.5
	MCP card	13	9.7
	Other cards	1	0.7
Knowledge on how it is used	Yes	1	0.7

The mothers had were poor knowledge regarding the growth chart. Only 20 i.e. 14.9% of mothers had seen the growth chart before. Only 5 could tell the use of growth chart. None of the mothers were able to name the chart. Only one mother knew how it is used and could interpret the colors. Mothers had mainly seen it in the MCP cards. It was observed that healthcare workers did not create awareness about growth chart among mothers.

As knowledge itself was very poor attitude and practice regarding growth chart was not satisfactory. Only 3 mothers agreed that it should be used for growth monitoring. Only one mother used growth chart for monitoring the weight (Table 5).

The study shows that mother's occupation and father's education had significant effect on weight of the child. Whereas mother's age, birth order, gender of the child did not show difference in nourishment of the child (Table 6).

Table 5: Attitude and practice regarding growth chart for growth monitoring.

Attitude		Frequency	%
Chart should be used for growth monitoring	Did not know	131	97.8
	Agree	3	2.2
	Total	134	100.0
Practice	Not used	133	99.3
	Always	1	0.7

Table 6: Association of weight with socio-demographic factors.

			Undernourished	Normal	P value
Mother's occupation	Professional	Count	0	1	0.007*
		% of total	0.0%	0.7%	
	Semi professional	Count	5	1	
		% of total	3.7%	0.7%	
	Clerical/farm/shop	Count	1	2	
		% of total	0.7%	1.5%	
	Skilled	Count	1	0	
		% of total	0.7%	0.0%	
	Unskilled	Count	31	92	
		% of total	23.1%	68.7%	
Father's occupation	Professional	Count	3	6	0.855*
		% of total	2.2%	4.5%	
	Semi professional	Count	7	15	
		% of total	5.2%	11.2%	
	Clerical/farm/shop	Count	4	8	
		% of total	3.0%	6.0%	
	Skilled	Count	24	67	
		% of total	17.9%	50.0%	
Gender	male	Count	28	58	0.167
		% of total	20.9%	43.3%	
	female	Count	10	38	
		% of total	7.5%	28.4%	
Mother's age (years)	<20	Count	2	14	0.191
		% of total	1.5%	10.4%	
	21-24	Count	25	42	
		% of total	18.7%	31.3%	
	25-28	Count	6	25	
		% of total	4.5%	18.7%	
	29-32	Count	4	11	
		% of total	3.0%	8.2%	
	>32	Count	1	4	
		% of total	.7%	3.0%	
Father's education	Professional degree	Count	7	5	0.002*
		% of total	5.2%	3.7%	
	Graduate	Count	12	10	
		% of total	9.0%	7.5%	
	Intermediate/diploma	Count	12	44	
		% of total	9.0%	32.8%	
	High school	Count	5	28	
		% of total	3.7%	20.9%	
	Middle school	Count	2	9	
		% of total	1.5%	6.7%	

Continued.

Seen chart			Undernourished	Normal	P value
	No	Count	28	86	0.030
		% of total	20.9%	64.2%	
	Yes	Count	10	10	
		% of total	7.5%	7.5%	

*Fischer's exact test.

DISCUSSION

There is lack of such similar studies done. There is need for creating awareness among mothers for growth monitoring as well as increasing awareness among healthcare workers to help mothers understand growth chart. A study done in Ethiopia shows 53% of mothers found to have poor knowledge and 42.6% of mothers had poor attitude.[5] The study shows very poor knowledge, attitude and practice regarding growth chart among mothers. It shows that undernourishment is high among under 5 children. There is great need to improve nutrition.

CONCLUSION

The growth chart offers simple and inexpensive means of monitoring child health and nutritional status, and can be used by community health workers with very little supervision. Even though many such low cost interventions are developed by Government for better health of society its utilization is very poor. Hence there is need to increase awareness among the population to make use in their life. With malnutrition being so widespread simple measures like monitoring baby's weight by mother will give lot of head start in preventing malnutrition and promoting health.

REFERENCES

1. United Nations Children's Fund National Institute of Medical Statistics UNICEF, New Delhi 110029. Available at URL www.unicef.in. Accessed on 23 July 2013.
2. Nombe E. An Investigation Into The Knowledge Mothers Have About Children's Growth charts. Curationis. 1992;15(1):26-8.
3. Morley D, Elmore-Meegan M. Growth monitoring a forgotten subject. Available at: www.fao.org/docrep/003/x8576m/x8576m03htm. Accessed on 12 July 2013.
4. Park K. Park's textbook of preventive and social medicine. 22nd ed. Bhanot publications, Jabalpur; 2009.
5. Daniel B, Tesfaye N, Mekonin E, Kassa A, Mensur K, Zerihun E, et al. Knowledge and Attitude on Growth Monitoring and its Associated Factors among Mothers/Guardians of Children Less than Two Years in Areka Town, Southern Ethiopia, 2017. J Nutr Disorders Ther. 2017;7:3.