

**UTILITY OF GROWTH
MONITORING:
ITS RELEVANCE IN THE
PROMOTION OF CHILD
HEALTH**

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Anthropometry has been widely used in nutrition surveys of communities. Most pediatricians and nutrition scientists rely on growth measurements for the assessment of health and nutritional status. The concept of growth monitoring as envisaged by David Morley in 1963 was a system of periodic (longitudinal) growth measurements of individual children and charting their growth as an integral part of routine primary health care at the community level(1).

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What is Growth Monitoring?

As defined now, Growth Monitoring (GM) is an operational strategy for the promotion of health, which enables mothers to visualize growth or the lack of it in their children and to obtain specific relevant and practical guidance to assure continued regular growth and health in their children. The aim of all growth monitoring activities is to achieve behavioral changes in the mother with respect to child feeding, appropriate response to illness and an understanding of the various factors which influence the growth and development of the child and the adoption of methods in the community to promote optimal health.

The broad objectives of the programme are: (i) To detect early growth faltering; (ii) To promote optimal growth through effective nutrition and health education; (iii) To create awareness about growth amongst mothers of children; (iv) To enhance the delivery of primary health care intervention; and (V) To identify those 'at risk*' for malnutrition and to provide appropriate services to them.

Growth Charting

A variety of anthropometric measures can be used to assess child growth. Among the most studied are weight, height, mid upper arm circumference, chest circumference and head circumference. Careful analysis of these has led to the conclusion that weight for age is one of the most suitable parameters for measuring a child's growth at the field level(2). It is an easy practical and suitable method for growth monitoring. The weight for age curve is regarded as being very sensitive to change. As a result

of studies in West Africa in 1968, Morley introduced the concept of a growth chart(3). It has been subsequently modified on a number of occasions for a simpler format. The growth chart incorporates in it a reference growth trajectory, allowing comparison of a child's growth curve with that of the reference population. A growth disturbance is noted by comparing the gradient or slope of the child's growth curve over two or more measurements with that of the reference lines drawn on the charts.

Types of Charts

Preventive growth charts have been useful in the developing countries as they are simple to comprehend for a health worker with limited training. These are used to encourage adequate growth among all children.

The curative growth charts have been used in the developed world to monitor children with growth dysfunction. These are more complex as they use the decimal system to record age. They are mostly retained by the pediatricians(4). Studies conducted to assess the perceptions about growth charts amongst peripheral functionaries and mothers have revealed that the accurate use of the chart was contingent upon formal education and training/experience which included specific instructions on the use of graphs(5,6).

The growth chart is a record of periodic weighments of the child. The growth velocity of a child can be measured most efficiently by changes in weight. Other anthropometric measurements like height and mid-upper arm circumference do not exhibit drastic visible changes attributed to alteration in growth status. Conversely, weight measurements are more sensitive to short durations of malnutrition, and are thus widely accepted indicators for growth monitoring.

The growth chart also provides the mother with information on the visual record of nutrition and health of her child, immunization, advice on breast feeding, introduction of supplementary feeds, child spacing, *etc.* It facilitates participation of the mother in child care activities. The card is thus a potential tool in preventive health care(6). The growth card is retained by either the mother or by the health worker. It is commonly seen that in case of centre or clinic based GM, the coverage of children is not complete(7). Conversely, programs with home based monitoring, alone or with clinic based monitoring are able to cover children of all age and sex groups, irrespective of their place of residence from the centre. In both clinic based monitoring and home-based monitoring, mothers compliance is a major factor limiting the access to children for weighing. Besides being bound to the issue of 'mother's time', it is also related to the cultural acceptability of weighing. Growth charts lose their value as tools for identifying high risk children unless weighing is accurate, frequent and regular.

The complete schedule of activities carried out under the package of growth monitoring include(7): (i) Weighing; (ii) Maintaining growth charts; (iii) Health promotion advice to mothers; (iv) Follow up by health worker; (v) Mothers meetings; (vi) Health care activities such as immunization, oral rehydration therapy (ORT), birth spacing, *etc.*; and (vii) Home visits by health worker

Why Growth Monitoring?

Growth monitoring is an excellent tool for assessing the growth and development of a child and for detecting the earliest changes in growth to enable one to take appropriate action at the earliest. The objectives of growth

monitoring and growth surveillance are different but complementary.

GM is often misunderstood and confused with periodic nutritional assessment, *i.e.*, periodic weighing and slotting into various nutritional status categories. It is clear that periodic weighing of children cannot by itself bring about an improvement in child health/nutrition. Obviously weighments cannot confer any biological benefit. All that is claimed in favor of GM is that periodic weighments can be useful in facilitating measures which could directly and positively contribute to the betterment of the nutritional status of children.

The argument for GM is that because developing countries have scarce resources, there must be a selection process which would help to identify those in special need so that the scarce resources may be targeted towards them. The real merit of GM is that it could provide valuable direction and support to the health worker in her effort to: (i) improve child health; (ii) improve interactions with mothers and community; (iii) bring about nutrition education; and (iv) assess the impact of her efforts on the child's nutritional status and in demonstrating the impact to the mother.

Current Status

At present, GM programs are being undertaken in a number of developing countries. Small scale programs being carried out under dedicated supervision have provided valuable insights in the operational constraints involved in growth monitoring.

GM operations are effective in India, Philippines and Indonesia. Although on a relatively smaller scale than their counterparts in Asia, certain African countries like Kenya, Lesotho, Botswana, Gambia and Santa Lucia are also implementing GM activities.

Programs are also under progress in Thailand, Nepal and Bhutan.

The Indian Perspective

In India, GM is being undertaken on a large scale in the Integrated Child Development Services (ICDS) Scheme, covering one-third of the country's administrative blocks. In addition, there are several programs like those in Ludhiana, Jamkhed, Vellore which are in operation under the leadership of health scientists. GM is also implemented in the Tamil Nadu Integrated Nutrition Program (TINP), the Rural Unit for Health and Social Affairs (RUHSA), and the Child in Need Institute (CINI)(8,9).

The Integrated Child Development Services (ICDS) Scheme, is the largest national nutritional programme aimed at promotion of child health and nutritional status. It is being implemented in 2600 blocks of the country. The Anganwadi worker (AWW) is the most peripheral functionary of the ICDS and conducts GM in children in a population of 1,000(10). It has been reported that AWWs perform excellently in the area of assessment of nutritional status. However, it has been observed that growth and growth faltering particularly are not provided the requisite attention. There is more stress on the recognition and treatment of severely malnourished children(11,12).

Studies on the assessment of knowledge and skills about GM amongst Child Development Project Officers (CDPO) found that all the CDPOs who had undergone 4 months of preplacement training, in which GM was covered in detail, had correct knowledge about the objectives of GM(13,14).

A comparative analysis of efficiency of GM in the states of Gujarat and Maharashtra(15), showed that most AWWs could

correctly interpret the growth curve but only very few mothers could do the same. When the AWW had correct knowledge regarding GM, a high proportion of growth cards were maintained efficiently. It was also observed that knowledgeable mothers had children who were nutritionally better off than their ignorant counterparts. However, it was found that GM did not have any additional effect on the nutritional and health status of children over and above that produced by other nutrition and health services like immunization, supplementary food, mega dose of vitamin A and health check ups.

Case studies on the status of GM in India are available(16). Positive and futuristic insights have been provided in these studies. It was observed that in most projects, clinic-based GM was practiced. It was only in the ICDS and in the RUHSA project that the ideal combination of both home and clinic based GM was being implemented. In all projects, GM was being implemented as an integral part of the health services. These studies identified that the factors which contributed to successful GM were: (i) the identification of early growth faltering; (ii) GM being a part of the primary health care package; (iii) adequate supply of weighing scales and charts; (iv) nutrition and health education; (v) community support; and (vi) the provision of referral services.

An evaluation of 17 selected ICDS projects(2), revealed that although growth charts were available in 70.5% of the selected AWCs, they were used only in 51%. The main reason of not using was the lack of skills. Weighing, age assessment, plotting of charts and interpretation of growth charts were carried out inadequately by the AWW. Conversely, in the TINP and CINI the health workers were efficient at weighing and plotting of charts. In TINP over a

span of 5 years a 17% reduction in the number of children needing supplementary feeding has been reported due to efficient implementation of GM activities(17). A subsequent evaluation of TINP(17), has revealed that benefits of GM may exist over supplementary feeding.

In the CINI project all the mothers realized the importance of GM. However, only in 70% of the mothers in the ICDS appreciated the importance of GM. A majority of mothers in the TINP project could correctly identify growth faltering (85%). This was true of 45% in the CINI and only 15% in the mothers of the ICDS blocks. None of the mothers of children attending the ICDS could weigh the child or plot on the growth chart. A marginal proportion of mothers in other projects were capable of these activities(17).

A strong involvement and motivation of the community was observed in the TINP and* CINI project where Mahila Mandals and mothers groups were working along with the health worker. However, in the ICDS this important component of community participation was lacking.

At Ludhiana, the system of GM was introduced as a part of family folders. The mothers participation and community involvement were the positive factors of the project.

Strengths and Weaknesses in Current GM Activities

It is obvious from the above discussion that though GM activities are being implemented on a large scale in India, there is variability in the quality of GM conducted in different centres.

In most projects, GM is a part of the package of health and education services. However, major drawbacks in the implementation of the activities are in the commu-

nication aspect, the training of health workers and the lack of follow up. In many instances detection of early growth faltering is not given its due importance. In basic training of workers, the orientation about repair and replacement of weighing scales is lacking. Number of personnel for the supportive supervision and the management aspects need to be strengthened. For successful GM the following are essential: (i) A well thought-out policy; (ii) Objective oriented training and supervision; (iii) Action oriented educational material; and (iv) Detailed guidelines for the implementation of programme at the field level.

Future Strategy

It is surprising to observe that in most studies which have claimed successful GM, the criterion of success has been that the workers were adequately trained in recording and plotting of weights. What is often not assessed is whether such successes in weighing efficiency are reflected in an improvement in the child's health and nutritional status or not. Future research action needs to be directed in this way (18).

The importance of GM is thus apparent. However, it has been observed that growth promotion through weighing and charting is a resource demanding method. It is therefore, suggested that growth promotion without weighing followed by selective weighing and plotting could be done only in specific cases (19). Simple, inexpensive and less time consuming GM strategies are needed. The following recommendations for futuristic planning of GM activities have been made: (i) GM should not be allowed to dominate child health/nutrition operations as a compulsory, time consuming ritual; (ii) In order to achieve successful GM, rapid follow up of cases is essential; (iii) Basic training of

AWWs and ANMs needs to be strengthened with emphasis on GM activities; (iv) Maintenance and accuracy of weighing scales should be monitored regularly; (v) Strengthening of the communication aspect between health workers and mothers for GM activities; and (vi) The community needs to be motivated and involved in GM activities.

It is imperative to view GM activities keeping in mind the above considerations, and there is a need to develop a new and inexpensive strategy on GM. GM short of its current colorful but expensive and cumbersome trappings, may prove more feasible and less misleading even in the hands of workers of average abilities, and may merit a legitimate place in primary child health care.

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