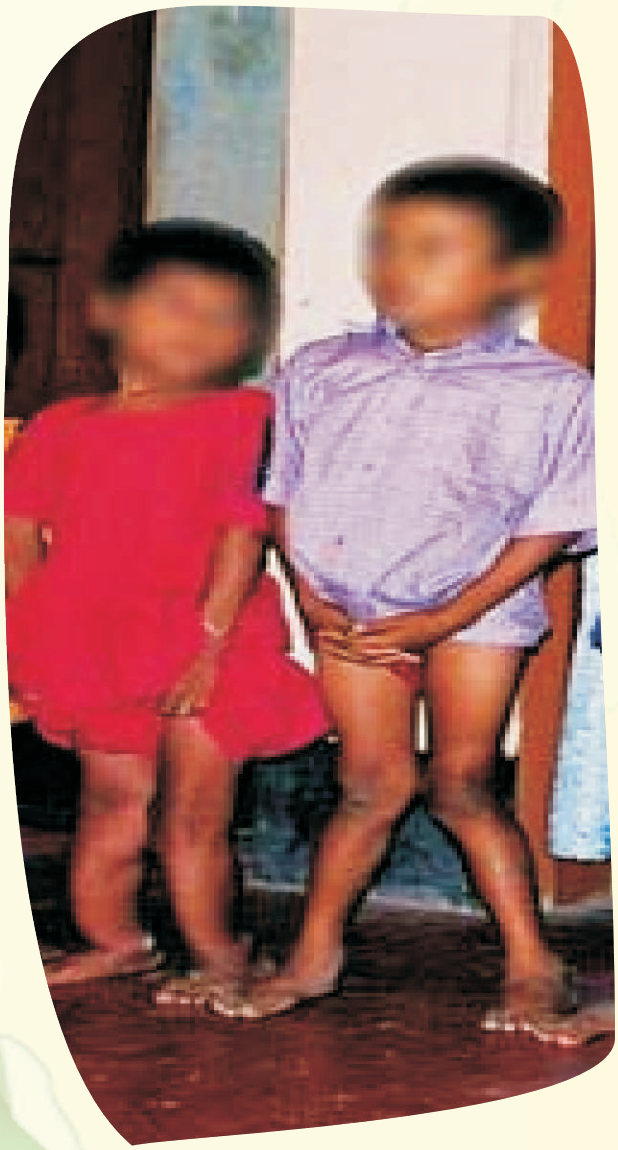
Childhood Rickets in Cox's Bazar 2010



Social Assistance and Rehabilitation for the Physically Vulnerable (SARPV), Bangladesh

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Childhood Rickets in Cox's Bazar 2010

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1. Foreword

Social Assistance and Rehabilitation for Physically Vulnerable (SARPV) Bangladesh is an advocating organization in the development arena. It has been working since 1989 to develop a society where persons with disabilities can enjoy their rights and opportunities as parts of the mainstream. Working on this issue SARPV Bangladesh has been trying to see the association between rickets and disability. Rickets was first brought before public attention in 1991 by SARPV personnel after visiting Chakaria Upazila where approximately 1% children had rachitic deformities. Initial studies suggested that Vitamin D deficiency was not the major cause of rickets in Bangladesh and calcium deficiency is assumed to be the etiological factor.

Rickets is preventable and curable if identified and treated at an early stage If detected at an early stage of deformities only nutritional advice and medicine can suffice. For more than 20 degrees of leg deformity, surgery or brace is used as needed. It is more important to raise mass awareness on rickets.

As SARPV Bangladesh dreams of a “Rickets-free Bangladesh”, it has undertaken “Prevention of Rickets through Nutrition Project” under its disability prevention program, with the assistance from UNICEF and AMD - Aide Medicale et Developpement, France (Medical and Development Aid), to materialize the dream. This is a pilot project with the aim of having rickets-free Cox's Bazar Sadar, Maheskhali and Chakaria Upazilas in Cox's Bazar district and increasing the use of iodized salt. The project duration is 3 years (2008 - 2010). Now the project is in its second phase.

This is the second time UNICEF has come forward to take an initiative to support the rickets prevention program through nutrition and raising awareness.

SARPV Bangladesh is trying to address the issue keeping a child-centered approach in mind. The children are the victims of this disease and if we do not take care of them at the right time, then rickets will turn it into disability.

Notable activities of the project include identifying ricketic signs among children below 5 years, educating mothers of rickets-affected children to form groups, encouraging to have calcium-rich vegetable, cooking rice with lime (chun) @1 mg chun in 1 kilo rice, and providing physiotherapy and assistive device.

The project is the result of help and co-operation of many. We would be failing our duties if their cooperation and valuable contributions are not mentioned and acknowledged.

First of all, the contribution of the children with Rickets and their families who accepted our nutritional intervention with a positive attitude deserve to be acknowledged.

Thanks are also due to the project team who diligently worked in the project areas and my colleagues at the head office of SARPV for their co-ordination and interaction with the donor, project team and the partners of SARPV, Media and all other stakeholders.

The officials of the government, NGOs and DPOs deserve appreciation and thanks for becoming sensitized on the issue of Rickets and being supportive to our activities to that end.

Last but not the least, UNICEF Bangladesh and AMD, France deserve special appreciation not only for taking active interest and enthusiastically coming forward to support the initiative to prevent rickets and to reduce the disability from the society, but also for extending guidance and moral support from time to time.

SARPV remains deeply appreciative of its members, funders, volunteers, and partners for their supports, without whom it would be, no doubt, absolutely impossible for SARPV to come upto this level.

Md. Shahidul Haque
Chief Executive
SARPV Bangladesh

2. Abbreviations & Acronyms

AEM	Ami des Enfants du Monde (AEM), France (Friends of the Children of the World)
AMD	Aide Medicale et Developpement, France (Medical and Development Aid)
BMA	Bangladesh Medical Association
CBBSH	Cox's Bazar Baitush Sharaf Hospital
CIMMYT	Centro Internacional de Mejoramiento de Maíz y Trigo (International Maize and Wheat Improvement Center)
CRG	Convergence Rickets Group
DFID	Department for International Development, UK
DPO	Disable Person's Organization
FGD	Focus group discussion
HKI	Helen Keller International
ICMH	Institute of Child and Maternal Health
KDM	Kinesitherapeute du Monde, France (Physiotherapists of the World)
MCH	Memorial Christian Hospital
NGO	Non Government Organization
NNP	National Nutrition Project
SARPV	Social Assistance and Rehabilitation for the Physically Vulnerable
USAID	United States Agency for International Development

3. Chronology of Rickets in Bangladesh

1991 : **I**dentification of a high prevalence of rickets in the children of Chakaria in Cox's Bazar district by Md. Shahidul Haque, Founder Secy, SARPV after the devastating cyclone.

1991-1993 : **S**ARPV raised campaigns through Newspapers, Dialogue forum, Letter correspondences, Annual reports and Workshops

SARPV treated 25 rachitic children at MCH

1993-1997 : **N**utritional survey on clinical and pathological examination of rachitic children by Ami des Enfants du Monde (AEM), France

Rapid prevalence-assessment by ICMH, UNICEF and SARPV.

1994 : **D**iagnosed as calcium deficiency rickets by Dr Cimma of AEM, France

1995 : **S**upplementation trial using different Calcium & Vitamin D doses by AEM (Dr J.P. Cimma)

1997 : **T**wo Bangladeshi boys were operated in France (AEM)

Formation of a Consortium on rickets in Chakaria, Bangladesh by SARPV, Cornell University, BRAC, ICDDRB, AEM, MCH, UNICEF, and ICMH

1998 : **C**onfirmation by the consortium - the rickets in Bangladesh is a Calcium deficient form.

Rachitic children clinically and pathologically examined by Cornell University, University of Dhaka, SARPV and MCH

Supplementation trial of Calcium on 2-5 years old children by Cornell University, CIMMYT and SARPV

Household Study on Food habit of the inhabitants of Cox's Bazar and Dinajpur districts by Cornell University

1999: **P**rodipaloy (an integrated school) was set up to supervise control children under rickets research by AEM, France

Physiotherapy training started for community level physiotherapists by KDM, France

2000: **R**apid Assessment on Rickets by BRAC and HKI under Rickets Consortium

2001 : **T**raining of Bangladeshi physiotherapists starts with 4 trainees by KDM jointly with SARPV and AMD.

2001-2003: **S**tudy on the role of Aluminium dishes on rickets by Shahidul Association.

2002 : **S**urgery begins at Cox's Bazar Baitush Sharaf Hospital (CBBSH) in collaboration with AMD, KDM, SARPV.

2003: **B**race center at Chakaria with support from AMD, France

200 children given nutritional treatment under close supervision

2004: **C**RG (Convergence Rickets Group) formed under the leadership of Dr. Craviari Thierry for concentrating and involving more expertise on rickets and sharing experiences.

2005: **O**peration of 128 Ricketic children in Bangladesh initiated by SARPV with the help from AMD, France and KDM, France under the supervision of Dr. Craviari Thierry

2006: **I**nternational Rickets Conference held at Dhaka, Bangladesh organized by SARPV with participation from USA, Nigeria, South Africa and France inaugurated by the French Ambassador to Bangladesh and the President of BMA.

2007: **R**ickets Interest Group (RIG) formed as a follow up of International Rickets Conference

Dr. Thierry proposes formation of Bangladesh Rickets Society.

2008: **P**revention of the Rickets program undertaken at Cox's Bazar district with the assistance from UNICEF.

National Prevalence Study on Rickets by ICDDR,B with supports from SARPV, CARE, UNICEF and NNP

National Consultation on Childhood Rickets in Bangladesh organized by SARPV Bangladesh and RIG with supports from UNICEF.

2009: **F**inding of National Prevalence Study on Rickets: 1% of the population below 15 yrs is suffering from Rickets .

2010: **S**ARPV Bangladesh conducts a baseline survey in Cox's Bazar, Gazipur and Sunamganj districts with supports from DFID and Healthlink Worldwide, UK.

Finding of baseline survey: Gazipur has the highest prevalence of Rickets (1.9%) among all the districts of Bangladesh.

4. Brief on Rickets in Bangladesh

PREVALENCE OF RICKETS IN BANGLADESH

Focus groups and local informants suggested that rickets was 'new' and had not been seen before the early 1970s. In 1991 SARVP brought national attention about the prevalence of Rickets in Chakaria under Cox's Bazar district. In 1994, a group of French physicians evaluated patients in communities from Chittagong to Moheshkhali and identified rickets in 4.5% of total children under 15 years old. Later it was revealed by experts that rickets was more common than suspected and it was not generally associated with vitamin D deficiency but related to dietary insufficiency of calcium.

The Institute of Child and Mother Health (ICMH) found in a survey in Chittagong division in 1998 that 8.7% of children had at least one clinical finding indicative of rickets; 4% had lower limb deformities suggestive of Rickets; 0.9% had radiological evidence of active rickets; and 2.2% had elevated serum alkaline phosphates levels.

Helen Keller International (HKI) found the highest prevalence (1.4%) of visible rachitic deformities in 1-15 year old children in the Cox's Bazar upazila in a nationwide survey in 2004.

SARPV found rickets in 0.9% of the total population surveyed in 2006 in Chakaria upazila. Interestingly, rickets has not been identified among the indigenous population living in the Chittagong Hill Tracts.

The National Rickets Survey in Bangladesh, done in 2008, was the largest initiation to screen, diagnose, and estimate the prevalence of childhood rickets in Bangladesh. A preliminary study observed that all rickets in Bangladesh may not be due to Vitamin D deficiency, and that calcium metabolism was an important cause, which may be much easier to prevent. This survey was conducted by the co-investigators collaboratively. The collaborators are (i) CARE Bangladesh (ii) UNICEF (iii) Government represented by NNP (National Nutrition Program) (iv) SARPV and (v) ICDDR,B. SARPV, because of its extensive experience in diagnosis and treatment of calcium deficient rickets in children was involved in project development. The national survey showed the prevalence of rickets to be 0.99% in children of 1-15 years. In Chittagong division, Chittagong and Cox's Bazar districts had the highest prevalence. In Cox's Bazar district, Chakaria, Maheskhali and Cox's Bazar Sadar Upazila were highly endemic for rickets.

In 2010, SARPV Bangladesh conducted a baseline survey in Cox's Bazar, Gazipur and Sunamganj districts with supports from DFID and Healthlink Worldwide, UK, which showed that Gazipur has the highest prevalence of rickets (1.9%) among all the districts of Bangladesh.

ETIOLOGY OF RICKETS IN BANGLADESH

In Bangladesh, initial studies suggested that vitamin-D deficiency was not a major causal factor in rickets in Bangladesh, and calcium deficiency is assumed to be the primary etiologic factor. Changing cropping patterns in Bangladesh may be contributing to a reduction in dietary intake of calcium: in the last two decades, rice production has greatly increased and crop rotation and milk production have decreased. While underweight and stunting in children have become less common, the diet is less varied than it was three decades ago, and the diet contains less calcium. Boys seem to be more likely to develop rachitic deformities than girls, and rickets is associated with larger family sizes and less maternal education. Rickets is associated with respiratory illness but not with malaria or anaemia. Similarly, toxins, food patterns, and overall nutritional status are not associated with the prevalence of rickets among Bangladeshi children. The relationship between rickets and diarrhoea remains controversial.

TREATMENT OF RICKETS IN BANGLADESH

From 2001 to 2007 Aide Médicale et Development (AMD), SARPV and the CRG treated and followed up more than 3000 rickets children in the Chakaria Disabled Centre. It has been proven that 77% of the children less than 6 years old who have an early stage of active rickets can be treated through nutritional advice. Only 17%, who have greater leg deformities, need medical treatment. Bracing or surgery is needed only for 6% of children with rickets.

5. Project Brief

PROJECT

Prevention of Rickets through Nutrition Project

VISION

Rickets-free Bangladesh

MISSION

Rickets-free Cox's Bazar

OBJECTIVES

- To raise awareness of the population of the three upazilas on various aspects of Rickets including prevention of childhood Rickets through dietary intake and referral services to special facilities for the Rickets affected children.

- To establish a benchmark, through a baseline survey, in the three project upazilas in identifying and describing the present status of knowledge and attitude about Rickets and related practices, and also of use of iodized salts.

AIMS

- At least 50% of households are aware of rickets in children, its early signs and consequences in terms of disability, its prevention through improved calcium dietary intake, and where to go for treatment.

- Children in 800 families per year (total 2400 families for the 3 years of the program) receive nutritional therapy for rickets.

- At least 50% of households are aware of how to prevent the rickets disease and at least two benefits of iodized salt for school children.

- Coverage of households using iodized salt increased from 21% to 50% in the project area for school Children.

PROJECT AREA

Cox's Bazar Sadar, Maheshkhali and Chakaria Upazillas of Cox's Bazar District.

PROJECT TENURE

3 years: 2008-2010.

DONOR

UNICEF

6. Project Activities (Jan 2010 - Sep 2010)

Group Formation

Groups were formed of members of ricketic and non-ricketic children's families in the project area. The purpose of group formation was to disseminate information on prevention of rickets through nutrition, benefit of iodizes salt, sanitation and cleanliness leading to overall livelihood.

Outcome: Families of rickets-affected children are using lime (chun) in rice. Families of both ricketic and non-ricketic children gave more emphasis on their living condition and food habit.

Training Program

Training was provided to School Teachers and Health Worker to build and raise awareness among the community people and other stakeholders on rickets and the possibility to prevent it through improved nutrition only by Ca supplementation, and on the benefits of using iodized salt. Participants of the training sessions included Teachers of Government and Non-Government institutions, Family Planning and Health Workers, Health Assistants, Nutrition Workers of NNP.

Outcome: Participants were able to identify the early signs of rickets and aware of prevention of rickets through nutritional supplementation.

Meeting with Stakeholders

Meetings with different stakeholders such as UP members, journalists, doctors, imams, teachers, students, village leaders were organized to build awareness on prevention of rickets and on how to identify the early signs of rickets.

Outcome: Participants of the meeting were more aware of prevention of rickets and the benefits of using iodized salt.

Video Show at Schools and in the Villages

SARPV Bangladesh organized Video Shows at different schools and villages for mass awareness in the project area.

Outcome: Through the video show community people were able to identify the early signs of rickets and understand how it could be prevented. Also, the message got spread through word of mouth.

Meeting with Health Department

Meetings were organized to share information with the staff-members of family planning department and the members of doctors' community on the prevention of rickets through nutrition and use of iodized salt. Meetings were organized at Upazila level as well. Health workers from Family planning department were sent to Chakaria site of SARPV,

Outcome: Health workers from Family planning department were able to identify early signs of rickets, and had information on how to prevent rickets.

Sharing Meetings at District Level

Meetings were organized at district level to share information with different govt. and non-govt. officials on the prevention of rickets through nutrition and on the use of iodized salt. Deputy Commissioner of the district, Upazila Nirbahi Officer, Civil Surgeon, District Information Officer, Social Welfare Officer, District Primary Education Officer and Upazila Health and Primary Officer took part in the meetings at different points in time.

Outcome: Good rapport was established with officials of different GOs and NGOs.

Seminars and Workshops

Seminars and Workshops were also organized to share information district level officers and civil society representatives on rickets and benefits of iodized salt.

Outcome: The participants of the seminars and workshops were aware of the ricketic situation and were responsive to work for the cause.

6. Project Activities (Jan 2010 - Sep 2010)

School Visit

Both government and non-government educational institutes in the project area were visited by the project staff to locate ricketic children and provide information on rickets and benefit of iodized salt

Outcome: Ricketic children were identified. School students became aware of rickets and use of iodized salt.

Stage Drama

SARPV staged live drama in the project area by the field workers to create awareness and to provide information to the grassroots people on rickets and benefit of iodized salt.

Outcome: Grassroots people became aware of rickets and benefit of iodized salt.

Meet the Press

Meetings were organized for journalists to create mass awareness on the issue through media. Project aims and targets were also shared with them in the meetings.

Outcome: Journalists became aware of the threat of rickets and showed interest to make news/coverage on the issue.

Project Activities at a Glance (Jan 2010 - Sep 2010)

#	Activities	Work done in 2010 (Jan to Sep)
1	Patients identified	692
2	Group Meetings held at patients house	241
3	Video Show (School)	24
4	Video Show (Village)	24
5	Meetings held with different stakeholders	3
6	Meetings held with health department	3
7	Teachers Training on Rickets and benefits of Iodized salt.	6
8	Health Workers Training on Rickets and benefit of Iodized salt	6
9	Sharing Meetings at District level (GO/NGO)	3
10	Meet the Press	3
11	Visits to Households for identifying Rickets patients	3191
12	Groups Formed	7
13	Live Drama	3

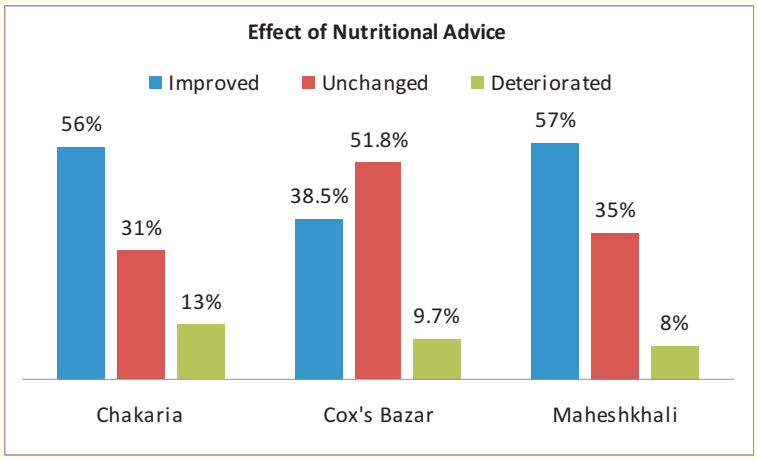
7. Project Findings

7.1 Rickets patients identified

Upazila	3rd Year (2010)		
	Boy	Girl	Total
Cox's Bazar	129	97	**226**
Chakaria	145	99	**244**
Moheshkhali	146	76	**222**
Total	**420**	**272**	**692**

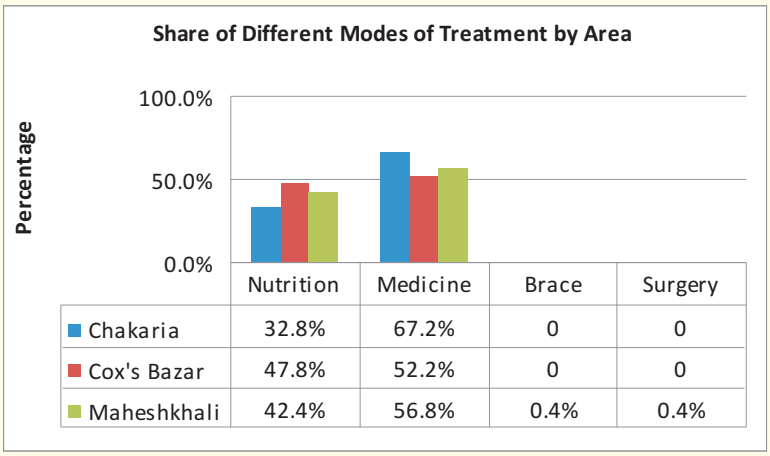
The table shows that prevalence of rickets in boys is higher than that in girls across the all three upazilas i.e.. Chakaria, Cox's Bazar Sadar and Maheshkhali.

7.2 Effect of Nutritional Advice



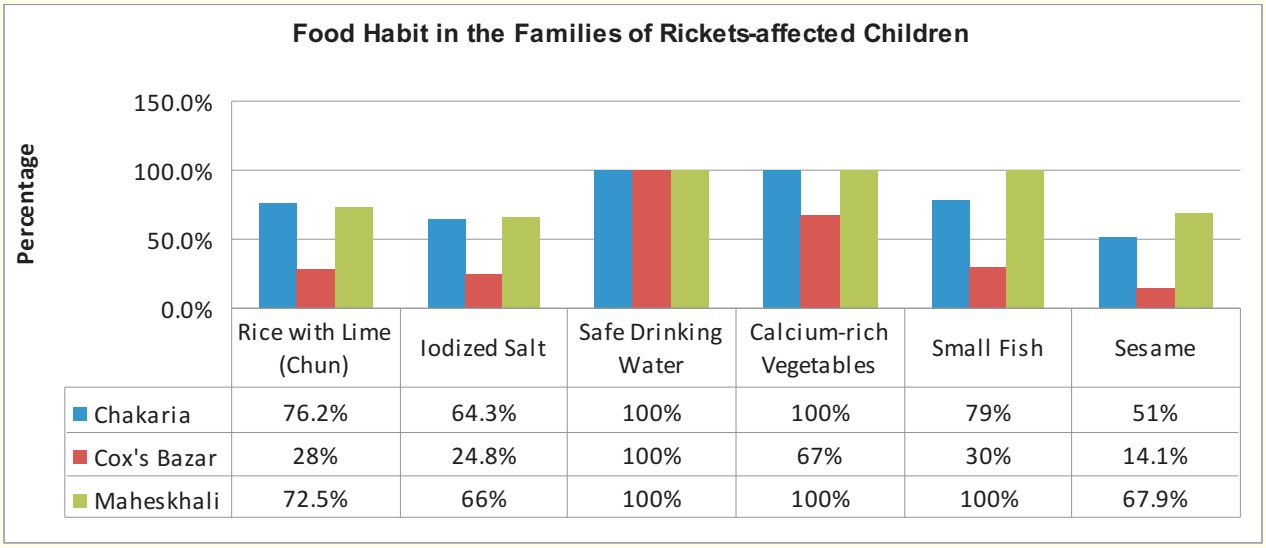
The chart shows that Chakaria and Maheshkhali have almost similar trends of status i.e. improved vs unchanged vs deteriorated as the effect of Nutritional Advice while Cox's Bazar has the status more towards unchanged than improved.

7.3 Share of Modes of Treatment vis-à-vis Area



Nutritional advice, medicine (calcium tablet), brace and surgery are different modes of treatment for rickets-affected children. If identified at an early stage, it can be prevented by nutritional advice with calcium tablets alone. It appears that the number of cases handled with nutrition and medication at an early stage is inversely proportional to the number of cases to be handled with brace or surgery.

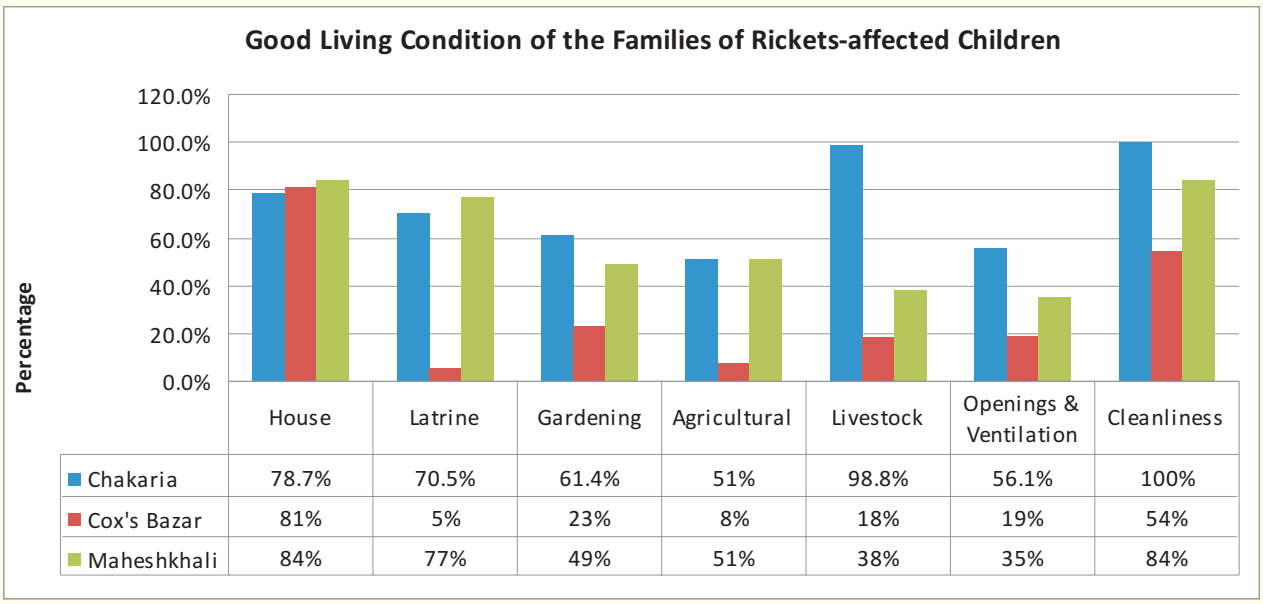
7.4 Food Habit in the Families of Rickets-affected Children



	Rice with Lime (Chun)	Iodized Salt	Safe Drinking Water	Calcium-rich Vegetables	Small Fish	Sesame
Chakaria	76.2%	64.3%	100%	100%	79%	51%
Cox's Bazar	28%	24.8%	100%	67%	30%	14.1%
Maheskhali	72.5%	66%	100%	100%	100%	67.9%

From the chart and table, it is noticeable that in terms of food habit Chakaria and Maheshkhali are much better than Cox's Bazar with an exception for safe drinking water that is used by all the families of Rickets-affected children in all three upazilas. Besides, 100% families took calcium rich vegetables in Chakaria and Maheshkhali, and 100% took small fish in Maheshkhali only. On the other hand, only 25% used iodized salt, and 14% took sesame in Cox's Bazar.

7.5 Good Living Condition of the Families of Rickets-affected Children



	House	Latrine	Gardening	Agricultural	Livestock	Openings & Ventilation	Cleanliness
Chakaria	78.7%	70.5%	61.4%	51%	98.8%	56.1%	100%
Cox's Bazar	81%	5%	23%	8%	18%	19%	54%
Maheshkhali	84%	77%	49%	51%	38%	35%	84%

From the chart and table, it appears that Cox's Bazar is far behind Chakaria and Maheshkhali in terms of good latrine, gardening, agriculture, livestock, openings & ventilation and cleanliness with an exception in house where Cox's Bazar stands after Maheshkhali and is followed by Chakaria.

8. Challenges faced

- Inadequate number of field staff. Six staff-members have been working in this project in 3 implementing areas. So it is not easy for the staff to regularly supervise ricketic children along with carrying out other awareness raising activities under the project.

- Chakaria, Maheshkhali and Cox's Bazar are the disaster-prone areas of Bangladesh. It is difficult for the people of these areas to make up their losses due to disasters and maintain a sustainable livelihood.

- Although Rickets is apparently a problem related to environment and food habit, due to lack of education and awareness people did not put emphasis on their food habit and living condition to address the issue of Rickets.

- Lack of transportation remains as another majorchallenge to overcome. Houses of a good number of patients are located in very remote areas. As a result it is difficult not only for the field staff to communicate with the patients but also for the patients to access the services from the project outlets.

- Poor families are not interested to use iodized salt as it is costly. One of the findings points out that the families whose monthly income is within 1,000 taka, they are not able to use iodized salt.

- People are more aware of Rickets now but they ask for food support along with medicine because of their inability to pay for the same.

9. Conclusion

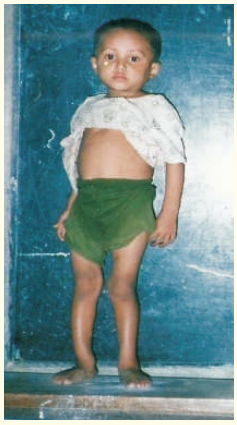
Rickets is one of the major causes to make the children disabled which is curable and preventable. SARPV Bangladesh has been working to prevent the disorder using nutritional therapy with the support of UNICEF. But the children who have clinical rickets received higher level of treatment like brace and surgery at the SARPV rickets and disability centre at Chakaria.

The awareness program has been going on with different groups of stakeholders at different levels including local level communities and GO-NGOs officials and health department personnel etc.

Due to resource limitations the project is being implemented in only 3 Upazilas of Cox's Bazar district Other parts of Cox's Bazar are yet to be reached where people are still in the dark in relation to knowledge about rickets and how to prevent it.

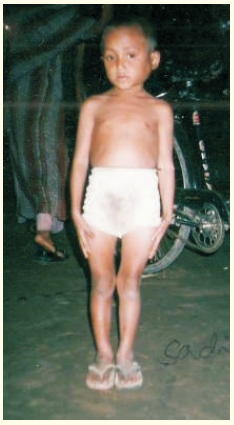
A disability-free childhood through timely intervention

Sadia Akhter is the youngest child of Abdul Maleq. Maleq is a day laborer and the only earning member of the family. His monthly income is 4,000 taka. Sadia's mother Sajeda Begum is a housewife. Sadia has three sisters and one brother. Now Sadia Akhter is 9 years old. 3 years back, she was identified by the field workers of SARPV as a ricketic child. As she was identified in the early stage she was given nutritional advice. Ever since, she has been taking calcium-rich vegetable, small fish, and also mixing lime while cooking rice. Now Sadia is cured and thus has been saved from the curse of disability.



Before Nutritional Advice

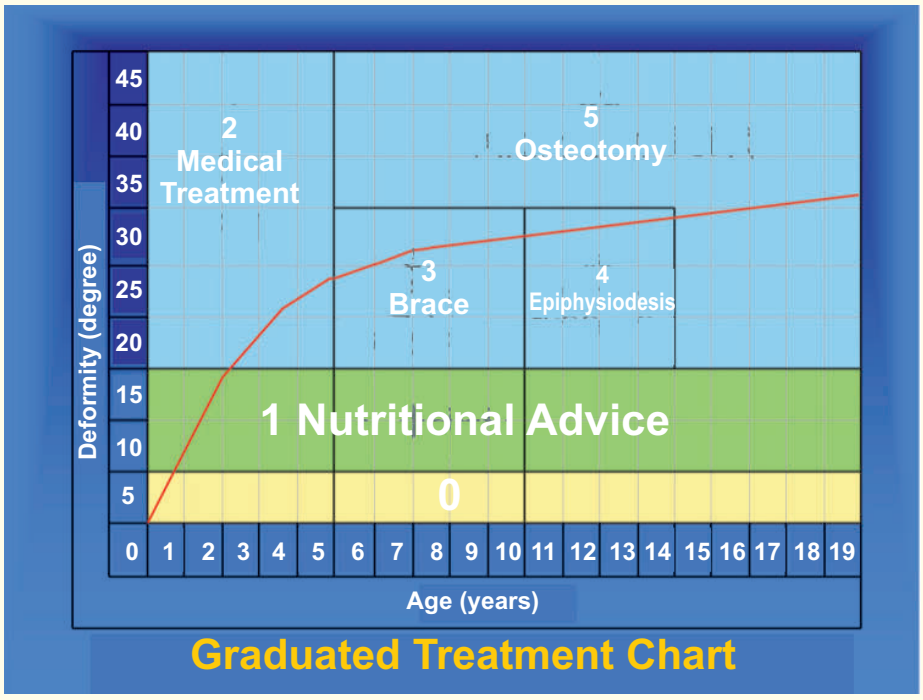
Improvement



After Nutritional Advice

Tools for Identification and Treatment Decision

THE GRADUATED TREATMENT



Graduated Treatment Chart

Using the chart, developed in 2005 by a group of international experts along with Dr. Thierry and his team from France, the course of action regarding treatment is determined considering the age and the degree of deformity of the patient. Modes of treatment include Nutritional advice, Medical Treatment, Long leg brace, Osteotomy (cutting bones) and Surgical Epiphysiodesis (leg lengthening or shortening)

Activities Album 2010

Secy of Ministry of Health Sheikh Altaf Ali, DG of Health Services Dr. Prof. Shah Monir Hossain and Civil Surgeon Dr. Kajol Kanti visit Ramu in Feb 2010

Video Show at school

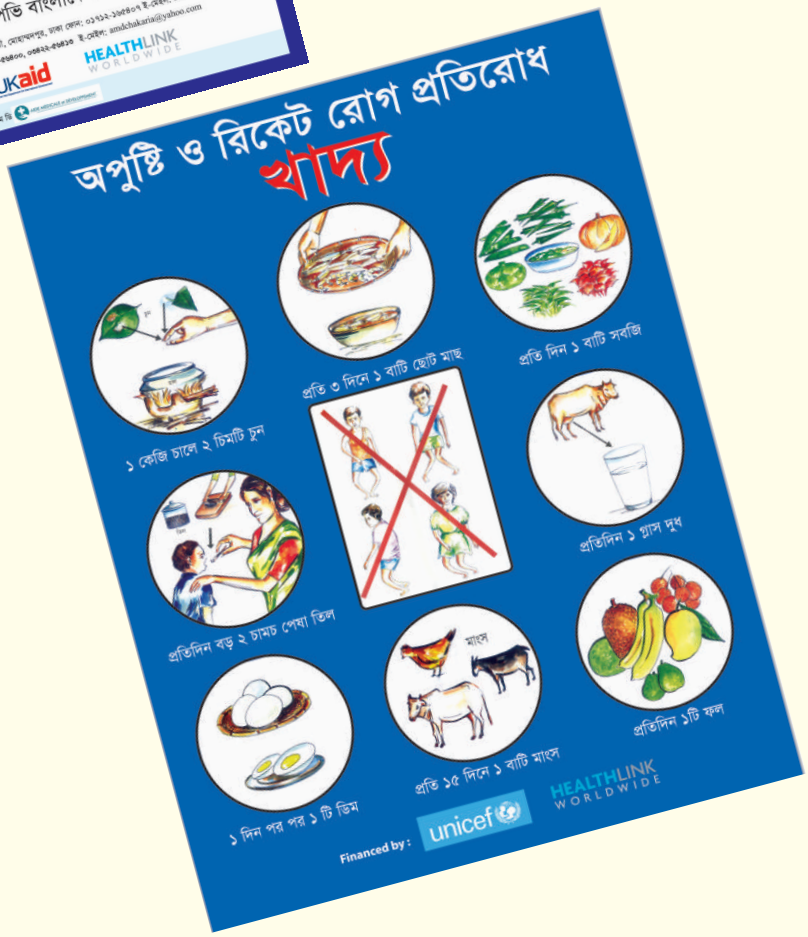
Live Drama being staged

Sharing Meeting with Govt and Non Govt officials

Press Conference

Training Session

SARPV IEC Material: Posters on Rickets in Bangla



SARPV IEC Material: Booklet on Rickets in Bangla

Contact for your copy

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