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Child-centered approach to prevent disability: An empirical study in the country area of Bangladesh

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Abstract
Malnutrition is a common problem where the prevalence of malnutrition and other vulnerabilities is very high in Bangladesh as well as other low and middle-income countries. Among the vulnerabilities, Rickets is a common bone disorder where bones soften and become prone to fractures and deformity. It is a childhood disorder and rare in industrialized nations but relatively common in some developing countries. Rickets is a significant public health problem in Bangladesh for the past two decades, with up to 8% of children clinically affected in some areas. Rickets was identified in 1991 by workers from Social Assistance and Rehabilitation of the Physically Vulnerable (SARPV) after a devastating cyclone. A survey was conducted in a village, and approximately 1% of children had rachitic deformities. A collaborative assessment revealed that Rickets was more common than suspected in Chakaria; it was not generally associated with vitamin D deficiency but was related to dietary calcium insufficiency. Insufficiency of dietary Calcium is the underlying cause, and treatment with Calcium (350–1,000 mg elemental calcium daily) is curative. Despite this simple treatment, very little is known about the proper management of affected children's bone deformities, and further studies are needed to determine the treatment and specific intervention. For this purpose, a subtle assessment of a child-centered approach to preventing disability is the foremost priority.

Keywords: children, malnutrition, rickets, disability

1. Introductions

Study objective

The specific objectives of the study are as follows

- To assess the prevalence of Rickets in children of different age groups below 15 years of age in the sample areas.
- To identify the state of knowledge and attitude of the stakeholders regarding Rickets and disability in the area.
- To understand the level of existing knowledge, attitude, and practices of the caregivers (family members, services providers) with a particular focus on nutritional knowledge, recognition of symptoms, access to treatment and home-based care practices, and their understanding of child-centered care.
- Identify the local CSOs (Civil Society Organization) working on children, health, and disability in the areas and assess the level of their understanding about Rickets and to what extent they are currently engaged in advocacy of inclusion of Rickets in national health programs.

1.1 Methodology and sampling design

A combination of quantitative and qualitative approaches was followed to gather the necessary information outlined in the objectives. Objective-1 fully and objectives 2 and 3 partially have been addressed through the household survey and the remaining information gathered through the qualitative methods.

The household survey was designed to gather Independent data from each of the twelve project Upazilas falling under three districts. The sample size of each Upazila was statistically determined (160 per Upazila) to get reasonably reliable estimates that are comparable laterally and over the period. Thus, total survey households were 1920 from 12 Upazilas.

1.2 Drawing of survey households

For wider spread of the sample respondents, 8 spots/villages were selected from each upazila and 20 households were drawn for interview per spot. At first, two unions were selected at random from each upazila and 4 spots/villages from each union were then randomly selected consulting the list of villages of the unions. From each selected village, at least 60 households were listed having children 1 to 15 years. Twenty households were then selected from the list using systematic random sampling (SRS) technique for interview using a semi-structured questionnaire. Thus the sample households have been drawn from 3 districts, 12 upazilas and 96 villages/spots, and total number of household is 96x20=1,920.

2. Awareness and prevalence of rickets

2.1 Awareness of rickets

Only less than 5 percent of the respondents claimed that they had ever heard about Rickets. It was found from the survey, and higher awareness is noticed in Ramu (9%) and Pekua (7%). Only one out of six (16%) of those aware said they had seen a Rickets patient. Altogether they are 14 in number. 4 of them had Rickets patient in their own houses. Eleven out of 14 Rickets patients were identified in Cox's Bazar district. Asked how they were sure that the child had Rickets, most of them said their legs were curved from knee to ankle. Mothers could mention one or two additional symptoms from Ramu and Ukhia Upazilas.

Asked about reasons for having Rickets, 6 out of 14 expressed their ignorance. Others mentioned lack of nutrition, Calcium, and Vitamin-D. In another query, 11 of them said that Rickets could be cured through treatment. One said about massage as a means of cure.

The places of treatment mentioned were NGO clinics and specialized hospitals, which mentioned Rickets as treatable. A few of them also recommended giving a nutritious and Calcium-rich diet. They claimed to know this information from multiple sources, including relatives/neighbors, hospitals, and health workers.

All the five UHFPO or Graduate doctors interviewed, said no treatment on Rickets in their area. However, one NGO official from Teknaf (Action on Disability and Development, ADD) said that he knows one NGO named SARPV that treats Rickets patients.

Curved legs: Those who did not hear about 'Rickets' were asked whether there is any child in their locality with curved legs. About 18 percent of the respondents said that there are. A majority (69%) of these respondents thought it was a disease, and they named it differently. The more frequently mentioned names are: *Lengra*, *Kulbittor*, *Atur* and *Majur*. About treatment facilities, the majority expressed their ignorance or said that there is no such facility around.

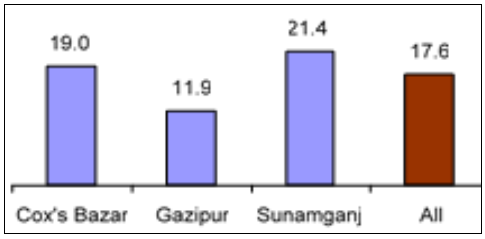

Chart 1: There is any child in their locality with curved legs

2.2 Prevalence of rickets

The total number of children aged 1-15 years in the survey households was 4,514. Among the households --

One child of the age group was	29%
Two children of the age group was	30%
Three children of the age group was	23%
Four or more children of the age group was	18%

Irrespective of the respondents' knowledge, the study enumerators identified Rickets patients in the survey households in the way they were trained. Out of the listed 4,514 children aged 1-15 years in the 1920 survey households, 58 were identified as Rickets patients, and detailed information about them was collected and supplied to SARPV. The above-mentioned 14 Rickets cases recognized by the parents themselves are included in this list (Table 1). The low Rickets prevalence Upazilas as seen from the table are Kutubdia, Jamalgonj, Pekua where the high prevalent upazilas: Klingon, Moheshkhali, and Gazipur Sadar. The male/female variation in the prevalence of Rickets in the total sample is not significant, but they vary by Upazila.

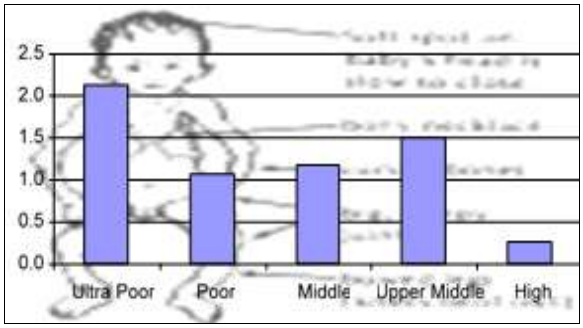

Chart 2: Prevalence of rickets by asset quintile

Table 1: Prevalence of rickets among 1-15 year age children, by Upazila

Upazila	# of children aged 1-15 years			% of children with Rickets		
	Boy	Girl	Total	Boy	Girl	Total
Pekua	201	226	427	1.0	0.4	0.7
Ramu	207	179	386	1.0	1.1	1.0
Ukhia	225	193	418	1.3	1.6	1.4
Teknaf	218	199	417	0.9	1.5	1.2
Kutubdia	233	184	417	0.4	0.0	0.2
Moheshkhali	187	201	388	2.1	2.0	2.1
Cox's Bazar Sadar	218	200	418	1.4	1.5	1.4
Total: Cox's Bazar	1,489	1,382	2,871	1.1	1.2	1.1
Gazipur Sadar	126	131	257	3.2	0.8	1.9
Klingon	146	131	277	2.7	3.1	2.9

Kapasia	148	139	287	0.7	1.4	1.0
Total: Gazipur	420	401	821	2.1	1.7	1.9
Sadar	235	208	443	1.7	1.0	1.4
Jamalgonj	213	166	379	0.9	0.6	0.8
Total:	448	374	822	1.3	0.8	1.1
Total	2,357	2,157	4,514	1.4	1.2	1.3
Number of identified Rickets patients				32	26	58

2.3 Early Symptoms of Rickets

The following five symptoms of Rickets were observed among the children 1-15 years of age who were not identified as Rickets patient. They are 4,514 – 58 = 4,456 children.

Symptom-1: Less than average height (Poor growth) concerning age
Symptom-2: Wrist joint is increased
Symptom-3: Feels pain in the leg while walking
Symptom-4: Ribs of the chest are raised
Symptom-5: Legs are curved from knee to ankle

It is commonly agreed that the first four symptoms are indicative of a Rickets suspect if one or more of them are visible to a child up to 5 years along with symptom-5. In other words, symptom-5 is a confirmatory symptom for a Rickets suspect. At lower age, the curve leg may not be sharply visible, and therefore, the first four symptoms should be carefully examined for them.

The table below shows curved leg (symptom-5) was found among 2 percent of the children aged 1-15 years (total 89 Nos.), which vary highly among the Upazilas. The variation ranged between zero (or none) in Kutubdia and 6.7 percent in Kapasia Upazila. The symptom was also very high in Klingon. Other symptoms observed among 1-5 year age children were relatively low except 'poor growth' (18%).

Table 2: Symptoms relating to rickets among the children aged 1-15 years

Upazila		Symptoms as per the list above					Symptom-5 and another	Symptom-5 and other two
		Symptom-1	Symptom-2	Symptom-3	Symptom-4	Symptom-5		
Pekua		20.8	0.5	0.5	0.7	0.7	0.2	0.2
Ramu		23.3	0.5	-	0.3	0.8	0.8	0.5
Ukhia		20.4	0.2	0.5	-	2.4	1.7	0.7
Teknaf		25.0	-	0.5	0.2	2.7	1.9	0.7
Kutubdia		20.9	-	0.2	0.2	-	-	-
Moheshkhali		27.9	-	1.3	-	1.8	1.8	1.1
Cox's Bazar Sadar		18.9	0.5	0.2	0.5	1.9	1.7	0.7
Total Cox's Bazar		22.4	0.2	0.5	0.3	1.5	1.2	0.6
Gazipur Sadar		14.3	-	0.8	0.4	1.6	0.8	-
Klingon		21.6	0.4	-	1.5	5.9	2.6	1.1
Kapasia		18.7	-	1.1	1.1	6.7	1.8	0.4
Total Gazipur		18.3	0.1	0.6	1.0	4.8	1.7	0.5
Sadar		3.0	-	-	0.2	0.9	0.5	0.2
Jamalgonj		2.1	0.3	0.8	0.5	1.1	0.5	0.3
Total Sunamganj		2.6	0.1	0.4	0.4	1.0	0.5	0.2
Total	%	18.4	0.2	0.5	0.4	2.0	1.1	0.5
	n	803	9	21	19	89	51	22
N		4,456						

3. Awareness, prevalence, and treatment of disability

The respondents were informed whom we say disable (*Protibondhi*) at least for this study. They are not physically and mentally like most ordinary people and need support to do their regular chores. The respondents were then asked seven questions on the perceived reasons, the prevalence of children with disability in the area, adequacy of treatment facilities and use, etc. The responses of the question are presented in the detailed set of tables by Upazila. The salient features of the findings follow:

3.1 Awareness of disability

The reasons (or processes) of becoming disabled as perceived by the respondents are Malnutrition (41%), congenital disabilities (31%), Due to disease (10%), and Absence of immunization/ polio (7%). However, a large proportion (42%) of the respondents could not mention any reason, although some could mention more than one reason. Malnutrition as a reason for disability was mentioned by more than 70% of the respondents in the Gazipur district.

Table 3: In your opinion, how many different ways a child or any member of a family could become disabled?

Reasons	Cox's Bazar	Gazipur	Sunamganj	All
Malnutrition/ Lack of calcium/vitamin	32.9	73.1	22.2	41.2
Congenital disabilities	31.5	29.2	32.2	31.0
From disease	4.4	20.6	11.6	9.6
Absence of immunization/ Polio	8.9	6.3	0.9	6.9
Accident/ disaster/ attack	2.8	4.2	3.1	3.2
Wrong treatment	1.7	2.7	0.9	1.8
Bad weather/ Sun	3.7	2.5	0.6	2.9

Lack of Iodine	1.0	1.0	0.6	0.9
Don't know	47.0	21.7	55.6	42.1
Others (Not giving colostrums/ Unsafe delivery practices/ Mismatch of parent's blood group)	0.3	0.6	-	0.4
Total (%)	134.1	161.9	127.8	140.0
N	1120	480	320	1920

3.2 Prevalence of disability

Overall, 6.6 percent (127 HHs) of the sample households had at least one person disable, including 4.3 percent with a disabled child aged 1-15 years (83 HHs). The proportion of households with a disabled person ranged between 3.1 percent in Klingon and 9.4 percent in Ukhia (Table 4). The table also shows the average number of disabled persons in each household by Upazila, which is 1.1 ranging between 1.0 and 1.3 in an Upazila. The total number of disabled persons in the 127 households is 142 (children 86 and adults 56).

Table 4: Prevalence of disabling in the households and number, by Upazila

Upazila	% of HHs with disability			Avg. # of disables in those HHs		
	> 15 yrs	1-15 yrs	All	> 15 yrs	1-15 yrs	All
Pekua	3.8	3.1	6.9	1.0	1.0	1.0
Ramu	4.4	3.8	8.1	1.3	1.0	1.2
Ukhia	3.1	7.5	9.4	1.0	1.2	1.3
Teknaf	1.3	3.8	5.0	1.0	1.0	1.0
Kutubdia	3.8	5.6	7.5	1.2	1.0	1.3
Moheshkhali	0.6	4.4	4.4	1.0	1.0	1.1
Cox's Bazar Sadar	2.5	1.9	4.4	1.3	1.0	1.1
Total: Cox's Bazar	2.8	4.3	6.5	1.1	1.0	1.1
Gazipur Sadar	2.5	3.8	6.3	1.0	1.0	1.0
Klingon	0.6	2.5	3.1	1.0	1.0	1.0
Kapasia	3.8	5.6	9.4	1.2	1.0	1.1
Total Gazipur	2.3	4.0	6.3	1.1	1.0	1.0
Sunamganj Sadar	3.8	4.4	8.1	1.2	1.1	1.2
Jamalgonj	1.3	5.6	6.9	1.0	1.0	1.0
Total Sunamganj	2.6	5.0	7.5	1.1	1.1	1.1
Total %	2.6	4.3	6.6	1.1	1.0	1.1
Households	1,920			50	83	127
Total disable persons				56	86	142

Nature of disability: The distribution of the 127 persons with disability in the sample households is presented in Table 5 below. It shows that the majority (55%) of them are physically disabled, followed by 'deaf & dumb', 'blind' and 'multiple disabilities'. The proportion is seen to vary among the Upazilas, although the base is too small to compare.

Table 5: Nature of disability, by Upazila and district

Upazila	Mental	Deaf & dumb	Blind	Physical	Others	Multi	All %	N
Pekua	18.2	9.1	9.1	63.6	-	-	100.0	11
Ramu	-	30.8	7.7	38.5	-	23.1	100.0	13
Ukhia	-	26.7	-	66.7	-	6.7	100.0	15
Teknaf	-	25.0	-	62.5	-	12.5	100.0	8
Kutubdia	8.3	33.3	33.3	16.7	-	8.3	100.0	12
Moheshkhali	14.3	28.6	-	42.9	-	14.3	100.0	7
Cox's Bazar Sadar	14.3	42.9	14.3	28.6	-	-	100.0	7
Total Cox's Bazar	6.8	27.4	9.6	46.6	-	9.6	100.0	73
Gazipur Sadar	-	-	30.0	60.0	-	10.0	100.0	10
Klingon	-	-	40.0	60.0	-	-	100.0	5
Kapasia	13.3	13.3	6.7	46.7	13.3	6.7	100.0	15
Total Gazipur	6.7	6.7	20.0	53.3	6.7	6.7	100.0	30
Sunamganj Sadar	-	-	15.4	69.2	15.4	-	100.0	13
Jamalgonj	-	9.1	-	81.8	-	9.1	100.0	11
Total Sunamganj	-	4.2	8.3	75.0	8.3	4.2	100.0	24
Total	5.5	18.1	11.8	53.5	3.1	7.9	100.0	127
N=	7	23	15	68	4	10	127	-

3.3 Treatment facilities of persons with disability

About treatment facilities for persons with disabilities, very few (2%) said that there exist any. Others said 'no' or expressed their ignorance about it. Among those who said that treatment facilities are available (43 respondents), Govt. hospital at a distance was mentioned the highest (40%) followed by NGO clinic (21%), Local GOB (Govt. of Bangladesh) hospital (14%) and specialized hospital (12%). Even these respondents also felt that disable children are not getting proper treatment. Distance of facilities and high cost of treatment were the two prime reasons for saying so.

Table 6: Treatment facilities of disable people (Check)

Response	Cox's Bazar	Gazipur	Sunamganj	All
Govt. hospital (local)	14.3	12.5	16.7	14.0
Govt. hospital (away)	9.5	81.3	33.3	39.5
NGO clinic	33.3	12.5	-	20.9
MBBS Doctor/ Private clinic	14.3	6.3	-	9.3
Any specialized hospital	14.3	-	33.3	11.6
Kobiraj	-	-	16.7	2.3
No such facilities/ Don't know	23.8	6.3	16.7	16.3
N	21	16	6	43
Total (%)	109.5	118.8	116.7	114.0

4. Disease profile and health care facilities

4.1 Prevalence of sickness among children and cost treatment

Respondent mothers/caretakers were asked whether any of their children of the age group was sick during the interview and/or became sick within the past 3 months. In either case, the information on the sick children, if any, were collected regarding sickness/disease, present condition, days suffered/suffering, treated or not, and cost of treatment in three months. About 52 percent of the households had at least one sick child age 1-15 years in their house during the interview. Including those, 72% of the respondents reported that any of their children of the age group became sick during the past 3 months. On average, 1.5 children per household became sick during the past 3 months [Table 7]. Fever/cold was the most widely reported disease (63%) suffered by a child in the households, followed by diarrhea/dysentery (15%). Other more frequently mentioned diseases were: respiratory diseases, malnutrition, and skin disease. Gender-wise, hardly any difference is seen as regards sickness. The average expenditure for treatment combined was Tk.616/- with the highest Tk.1,027/- in Kutubdia Upazila and the lowest Tk.365/- in Jamalgonj Upazila.

Table 7: Prevalence of sickness among 1-15 year children and treatment expenses, by Upazila

Upazila	Present sickness of any child in the HH (%)	Sickness of any child in the HH within 3 months (%)	Fever/Cold (%)	Diarrhea and/or Dysentery (%)	Amount spent in 3 months (Avg. Tk.)	Avg. # of children got sick per HH
Pekua	58.1	75.0	64.4	16.3	843.0	1.6
Ramu	55.0	71.3	60.6	16.3	881.6	1.4
Ukhia	58.1	75.0	65.6	13.1	549.5	1.5
Teknaf	49.4	63.7	57.5	5.0	926.8	1.5
Kutubdia	50.0	66.3	60.0	16.3	1026.6	1.8
Moheshkhali	65.0	81.9	75.6	30.0	482.9	1.6
Cox's Bazar Sadar	50.6	81.3	76.3	28.8	468.7	1.5
Total Cox's Bazar	55.2	73.5	65.7	18.0	739.9	1.6
Gazipur Sadar	50.6	72.5	61.3	11.3	402.9	1.3
Klingon	48.8	76.3	66.9	15.0	404.6	1.3
Kapasia	56.3	82.5	75.6	16.3	464.0	1.3
Total Gazipur	51.9	77.1	67.9	14.2	423.8	1.3
Sunamganj Sadar	38.8	60.0	46.9	8.1	662.0	1.3
Jamalgonj	39.4	55.0	40.6	5.6	365.2	1.3
Total Sunamganj	39.1	57.5	43.75	6.85	513.6	1.3
Total	51.7	71.7	62.6	15.2	616.0	1.5

4.2 Health information and health care facilities

It is essential that there are some good health care facilities in every area and they know about them. When there are multiple sources, people choose one or more depending on various factors, including distance, nature of disease, dependability, perceived or actual cost and many others. Access to health information and facilities also are important determinant. The study inquired about the related issues from the respondents through asking several questions, the responses of which are available in the detailed tables. We present below some of the important ones. About health care facilities, the respondents were asked about the facilities where people of the area and the household members usually go at different health care needs. Naturally, they mentioned more than one source, and the frequency count is shown below, combined all areas (Table 8). The results represent their general tendency to choose better facilities and use low-cost and easily accessible treatment sources. Thus we see that while a visit to govt. facilities and qualified doctors are pretty high, pharmacy salespeople and Non-graduate Medical Practitioners (RMP/PC) are visited equally or even more. Low cost and easy accessibility have been the main reasons for opting for the sources. It was also supported in the IDI (In-depth Interviews) and KII (Key informant interviews).

Table 8: Health facilities where the people and household members usually take services

Health facility	Health facilities around where people usually take services	Health facilities where the HH member usually take services
Pharmacy salesmen	88.8	73.8
Govt. hospital/health center	80.7	50.5

RMP/ *Palli Chikitshak*	69.9	55.4
MBBS Doctor (private)	49.7	30.4
Homeopath	14.0	7.6
Private clinic	10.6	5.5
NGO clinic	4.3	2.2
Kobiraj/ Ayurved	4.3	1.4
Nurse	-	0.1
N= All HH	1,920	1,920
Total % (multiplicity)	322.4	226.8

Health information: About two-thirds (65%) of the households said to have access to any kind of health information or messages other than treatment. However, this varied among the Upazilas and was reported relatively low in Kutubdia, Moheshkhali, and Cox's Bazar Sadar Upazilas (all under Cox's Bazar district). Still, more than three-fourths (78%) of the respondents expressed their desire to receive further information (Table 9).

Table 9: Access to health information in general and further need, by upazila

Upazila	Have access to any source of health information	Need further information or advice on health
Pekua	59.4	83.1
Ramu	79.4	61.9
Ukhia	62.5	76.9
Teknaf	70.6	79.4
Kutubdia	20.0	84.4
Moheshkhali	16.3	88.1
Cox's Bazar Sadar	21.3	90.0
Total Cox's Bazar	47.1	80.5
Gazipur Sadar	77.5	84.4
Klingon	89.4	93.8
Kapasia	99.4	98.8
Total Gazipur	88.8	92.3
Sunamganj Sadar	93.1	45.6
Jamalgonj	89.4	49.4
Total Sunamganj	91.3	47.5
Total %	64.8	78.0
N= All HHs	1920	

5. Food habit and nutritional status

5.1 Food habit and 24-hour recall

Frequency of food taking: More than 90 percent of both males and females take meals 3 times a day. Others take either 2 times (2%) or more than 3 times (9%) a day. Upazila-wise the frequency differs moderately. Two times meal taking per day was recorded the highest among females in Gazipur (8%) and the least (none) both among males and females in Teknaf and Cox's Bazar sadar. On the other hand the highest 34 percent of the females in Ramu said that they take meal 4 times a day or more. In Kutubdia, Moheshkhali, Cox's Bazar Sadar, and Jamalgonj, none of the males and females take meals more than 3 times a day.

The frequency of food taking per day was reported higher among children than adults, women, or men. Overall, 56 percent of the children take meals three times a day and others more than 3 times. Only two households, one each in Moheshkhali and Gazipur Sadar, said that their children take 2 meals per day. Giving food more than 4 times is also rare. The food-taking frequency also differs slightly among the Upazilas.

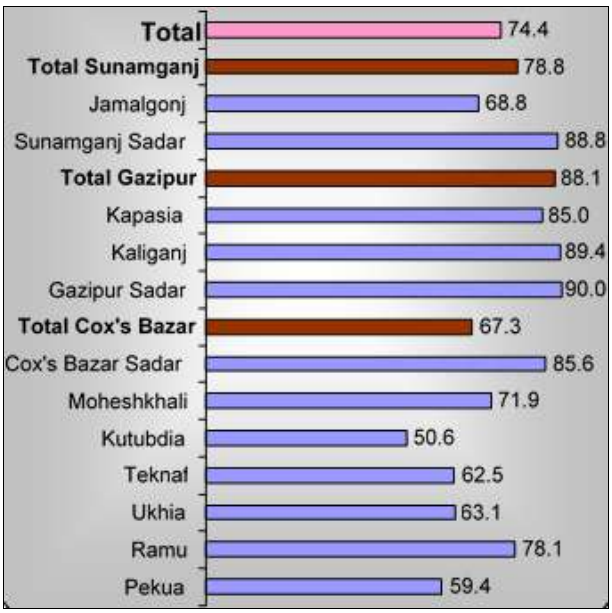

Chart 3: HH members get enough quantity of food each time

Adequacy of food taking: In addition to frequency, the respondents were asked whether the members, especially the children, could be given enough food each time. About three-fourth (74%) of the mothers said that they could give in full [Chart-3], and 19 percent could give moderately. The remaining 7 percent of the mothers admitted that they failed to give enough quantity while they gave. The critical ''No' response was recorded the highest in Jamalgonj (24%) followed by Teknaf (18%), Ukhia (13%), and Pekua (12%). None of the respondents from Kapasia and one each from Cox's Bazar Sadar, Gazipur Sadar, and Klingon said that they could not provide enough quantity of food while they gave. The respondents admitting not able to provide adequate food all the time to the members (especially children) said that on average, they faced food shortage for 4.1 months in a year. About a half of these households faced shortage up to three months and more than 4 percent for about the whole of the year.

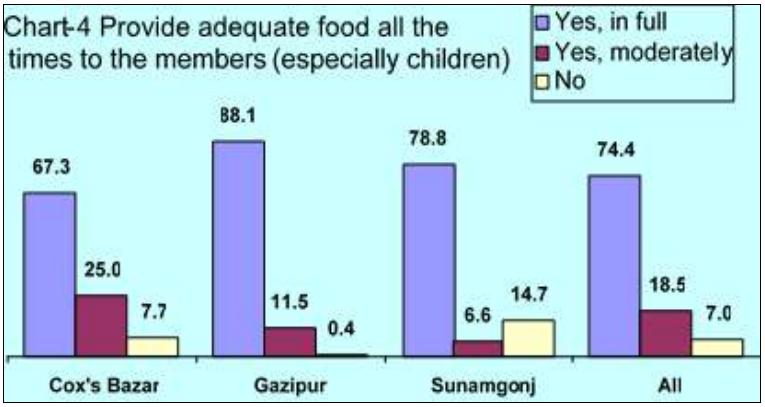

Chart 4: Provide adequate food all the times to the members (especially children)

5.2 Perceived reasons for malnutrition

The observation of 1-5 year age children reveals that 2 to 27 percent of the children in different Upazilas showed less growth concerning their age (average 18%). However, all the respondent mothers/caretakers were asked to mention at least three reasons why a child becomes malnourished. The prime reasons, they mention, are related to giving nutritious food, especially protein, green/leafy vegetables, fruits, vitamin-rich food, and unspecific improved diet, etc. Other reasons include: giving food in adequate quantity, breast milk, timely weaning, immunization, and cleanliness/ care. It may also be noticed that about 30 percent of the respondents could not mention any reason, with the highest 39 percent from Cox's Bazar district. [Table 10].

Table 10: Perception of respondents about the reasons for malnutrition

	Perceived reasons	Cox's Bazar	Gazipur	Sunamganj	All
1	Not taking Green/yellow/leafy vegetables	32.1	52.1	53.1	40.6
2	Not taking fish/meat/egg/milk	29.7	49.0	55.0	38.8
3	Not taking fruits	17.8	16.0	36.3	20.4
4	Lack of vitamin	14.2	20.8	1.3	13.7
5	Not giving breast milk	9.8	10.4	4.1	9.0
6	Lack of adequate food	7.3	15.4	0.9	8.3
7	Not giving improved diet	8.6	1.7	0.9	5.6
8	Not giving nutritious diet	5.5	5.6	3.4	5.2
9	Not taking proper care of children	4.3	6.3		4.1
10	From lack of cleanliness of child	4.0	4.6		3.5
11	Mother not taking extra/nutritious food during pregnancy	2.1	8.5	0.3	3.4
12	Not giving weaning food from 6 months	2.1	3.3	2.5	2.5
13	If not immunized	1.8	5.8		2.5
14	Other (disease, giving stale food, lack of calcium/iodine ….)	5.0	4.9	1.5	4.5
99	Don't know	38.8	12.5	22.2	29.5
	Total %	182.9	217.1	181.6	191.3
	N = All HHs	1120	480	320	1,920

5.3 Perceived health problems faced by the malnourished children

The respondent mothers/caretakers were found fairly responsive as regards the health hazards caused due to malnutrition. About a half of the mothers felt that children become sick and get weak and about 28 percent added that they are attacked with various diseases, including diarrhea. [Table 11]

Table 11: Perceived health problem faced by the malnourished children

	Perceived reasons	Cox's Bazar	Gazipur	Sunamganj	All
1	Gets sick/ becomes weak/ lacks strength	44.9	54.4	58.8	49.6
2	Reduces immunity to diseases/ attacked with various diseases/ diarrhea	20.8	40.2	32.8	27.7
3	Cannot move or play	9.3	18.5	15.3	12.6
4	Cannot eat and/or digest	5.4	24.8	15.6	11.9

5	Lacks weight	5.9	22.1	4.4	9.7
6	Become physically disable/ legs becomes bent	5.4	7.5	12.8	7.2
7	Develop night blindness/ Lose vision	3.4	13.5	10.9	7.2
8	Lack of knowledge/ Become mentally retarded	3.9	9.4	2.5	5.1
9	Arms and legs become skinny	1.7	6.9	0.6	2.8
10	Head and stomach becomes bigger	1.6	4.0		1.9
11	Other (Looks sick, can't talk/.....)	2.5	5.2	-	2.9
12	Don't know	39.7	13.5	22.2	30.3
13	Total %	144.6	220.0	176.6	168.8
14	N = All HHs	1120	480	320	1,920

5.4 Colostrums and exclusive breast feeding

The respondents were asked about giving colostrums and exclusive breastfeeding (EBF) of their youngest child. The findings are presented below. It may be seen that in at least five Upazilas 12-17 percent of the mothers did not give colostrums to their last child. Exclusive breastfeeding up to six months of age is still lacking in many Upazilas. In 5 out of 12 Upazilas, the EBF is less than 40 percent.

Table 12: Colostrums and Exclusive Breast Feeding (EBF) to the last child, by Upazila

Upazila	Given colostrums to last child (%)	Avg. period given EBF (months)	Exclusive breast milk given for at least six months (%)
Pekua	93.1	4.0	26.9
Ramu	97.5	4.7	41.3
Ukhia	98.1	4.3	31.3
Teknaf	98.1	4.3	38.1
Kutubdia	93.8	5.0	48.1
Moheshkhali	99.4	5.7	69.4
Cox's Bazar Sadar	98.1	5.7	72.5
Total Cox's Bazar	96.9	4.9	46.8
Gazipur Sadar	85.0	5.1	43.8
Klingon	85.6	5.2	53.8
Kapasia	88.1	5.2	56.3
Total Gazipur	86.3	5.1	51.3
Sunamganj Sadar	83.1	4.5	34.4
Jamalgonj	83.8	4.7	38.8
Total Sunamganj	83.4	4.6	36.6
Total %	92.0	4.9	46.2
N	1920		

6. Findings from the qualitative investigations

As described in Section-1.2, the qualitative investigations were carried out in 6 out of 12 projects Upazilas. The task comprised 36 In-depth Interviews (IDI), 34 Key Informant Interviews (KII), 14 Case studies, and 8 FGDs with fathers of 1-15 age children. The discussion mostly focused on a) Awareness of Rickets among the stakeholders and caregivers outside homes, b) Suggestion on increasing Rickets awareness; c) Treatment facilities in the area and the health-seeking behavior, and d) Identifying NGOs/ CSOs working on nutrition. A detailed compilation of the findings is attached. The summary of the findings for each kind of investigation are presented below:

6.1 Awareness of rickets

Like the general people, awareness of Rickets was found relatively low among all the stakeholders. Only the qualified doctors, relevant NGO officials, and a few other enlightened persons from different professions and groups were reasonably knowledgeable. Others described the disease with shallow or partial knowledge. Following are some details

- Naturally, the qualified doctors were generally found knowledgeable about Rickets, disability, and nutritional issues. They all mentioned that Vitamin-D, Calcium, and phosphorus deficiency in children makes the bone soft and weak and deformities occur. One pediatrician said that Rickets might also occur due to congenital disabilities; two UHFPO mentioned that Rickets might cause by kidney disease and lack of pregnancy care.
- Seven out of 12 non-graduate medical practitioners (RMP/PC) were ignorant about Rickets. Others could only describe the reasons and symptoms of the disease partially. Out of 11 field-level health/FP workers, only 3 could say that Rickets is a bone disease (*Haarer rogh*) and causes due to shortage of Calcium and Vitamin-D in a child's body
- Five out of 6 Upazila level GoB officials were found aware of Rickets, and one could elaborate. Two NGO officials out of three are also fairly knowledgeable about the disease.
- All the 6 teachers interviewed know about Rickets, and only 2 of them could say that it causes due to a shortage of Calcium and Vitamin-D in a child's body.
- Only 2 out of 12 CSO representatives could relate Rickets as a disease of bones and said that bones remain soft (not strong) and is a children's disease. Others were totally ignorant. Only one out of 6 UP Chairman/member could only say that Rickets is a childhood disease. The 6 Imams interviewed were also totally ignorant about Rickets.
- In 6 male FGDs 68 fathers of 1-15 year age children attended. None of them could say anything about Rickets. However, 2 FGDs with field health/FP workers some of the 17 participants in both groups could

explain Rickets and said they knew it from their training.

6.2 Suggestion on increasing rickets awareness

In both individual and group discussion the respondents were informed about Rickets in children and the purpose of the study after knowing how much they are aware about the same. Then specific suggestions were sought about increasing Rickets awareness among the people. All the respondents and FGD participants thought it was necessary to increase awareness and came up with some suggestions. Stakeholder-wise the findings are compiled and are presented below in brief:

- The qualified doctors came up with the following five suggestions which seems to form a guideline to follow. These are: 1) <ass media campaign on Rickets has to be done like that of TB and malaria; 2) People's food habit should be modified and in doing that recommended food basket should be propagated including calcium and Vitamin-D rich food; 3) All staff and officials of the health sector should be trained on Rickets; 4) Other officials, teachers, Imams and local govt representatives should be reached with the messages on Rickets through seminar, and The pregnant mothers should be fed Vitamin-D, Calcium and Phosphorus rich food.
- The NGO officials echoed the suggestions of the qualified doctors and elaborated further specially the kind of mass media to be used. They suggested to organize Rally, distribute leaflets, erect hoarding and bill board at important places, and organize mobile film show and street drama at different remote places. They also suggested to talk about Rickets by important officials in different meetings and gatherings.
- The GoB officials emphasized about TV and Newspaper programs and advertisements, more field visits courtyard meeting through appointing more field workers and Informing the Scouts/ Girl guides during their campaign.
- The teachers emphasized on mass awareness building on Rickets through more involvement of the GoB health facilities and NGOs and use of mass media.
- The CSO representatives suggested to involve the clubs, social groups and the youth in awareness building side by side ensuring proper work by the relevant organizations.
- The non-graduate medical practitioners (RMP/PC) emphasized on raining including them and also suggested to appoint qualified doctors to treat such patients.

6.3 Treatment facilities in the area and the health seeking behaviour

The respondents across the groups mentioned two types of health service providers, Upazila Health Complex (UHC) and the RMP/PC whom people usually visit for treatment of general diseases. They appreciate the differential advantage of both sources. Other sources of treatment more frequently mentioned are: Private MBBS doctors, Pharmacy, Homeo doctor, Kabiraj (herbal practitioner), district/Dhaka hospitals and Union level FWC.

The majority of the respondents in different stakeholder groups said that UHC is better as there are qualified doctors, no fees are charged, and medicine is often given free. The majority of the CSO representatives, UP chairman/member and RMP/PCs and one or more from all others stakeholder groups said that people like to go to the RMP/PCs as they are readily available and even called at home quickly, no transport cost, no consultation fees, at times the medicine can be taken on deferred payment, and they refer to UHC or private MBBS doctors, and at time they take the patient along. Some said that the Palli doctors visit houses and inquire about their health.

6.4 Identifying GoB and NGO programs working on nutrition and disability

The information is partial as the qualitative team only visited 6 upazilas. In none of them any major GoB program was in place. However, in the following four upazilas one or more NGOs were working on nutrition which is likely to address disability and Rickets at least partially. No such NGO was named in Moheshkhali and Gazipur Sadar upazilas.

Pekua	--	SARD
Klingon	--	BRAC
Jamalgonj	--	CNRS, IDEA
Teknaf	--	BRAC, ACF

In addition the following NGOs were named by the participants who work on disability among the six Upazilas covered under qualitative assessment

Moheshkhali	--	SARPV Bangladesh (treatment, education, …)
Teknaf	--	Baitul Barak Hospital (treat blinds and vision disables)
	--	Action on disability and development, ADD (Capacity building, income generation, supply of equipment)
	--	Handicraft international (on rehabilitation, campaign and treatment)
Pekua	--	COAST (supply special tools, support education)
Jamalgonj	--	IDA (Social networking, on rehabilitation, management and participation & rights)
	--	VARD (Service range could not gather)

6.5 Findings from different stakeholders of Teknaf

All the stakeholders are aware and concerned about the problem of malnutrition in their community, and some of them relate it with a disability, especially night blindness, weak growth, and repeated illness. The non-medical persons are almost ignorant about Rickets and its symptoms, which partially exist in the medical persons. The fathers are less concerned and knowledgeable about disability and Rickets and do not find the problem around. They tend to feel that the nutrition problem is only related to income and that if one has enough money, he or she can buy good and nutritious food from the market and solve the problem. The Imams and teachers talk about nutrition, cleanliness, and hygienic practices in their own ways, but they hardly talk about disability and Rickets.

Therefore, we may conclude that almost all segments of the people lack specific knowledge about nutrition, factors contributing, consequences of malnutrition, and especially its relationship with disability and Rickets. Many of them are also ignorant of the prevalence of preventable disability and their early symptoms. Therefore the problem is mainly remaining indoor, taking lots of toll on the affected persons and their families.

7. Summary of findings

A representative group of rural households in 12 Upazilas under 3 districts has been surveyed. Other stakeholders from six Upazilas interviewed/discussed to collect relevant information to address the four study objectives. In almost all areas, the stakeholders and the health service providers reported that many poor households live in their area, although the estimated proportion mentioned by them varied widely, even within one Upazila. However, from the survey, we can get a comparative poverty status by Upazila analysis. It is found that, in at least five project upazilas of Cox's Bazar district, the hardcore poor are quite high. Including this hardcore poor, a large proportion of households are living in a subsistence economic condition. Among others, they need basic information on primary healthcare and nutrition, motivation to follow the advices and availability of food and health care services around to meet the basic minimum needs for the family members, especially for the children. The analysis of the reported food intake in the last 24 hours reveals that the mere presence of some desired food items (like leafy vegetables, milk, egg, lentil, and fruits) in the entire sample is relatively low, although many of them claimed that they eat these foods usually. It has been observed that the food intake is further low among the poor and in specific areas (Section 6.1). As we all know, a balanced diet means the presence of minimum quantity of different food items. Likely, the expensive food items fall short of quantity in the diet, especially among the poor. This information could not be gathered in this study. However, the perception of the mothers about various nutritional issues was found low to moderate, and they had no much of misconception other than that expensive food item and imported fruits are better and have more vitamins. A related factor is an access to health information which is very low in the Cox's Bazar district (especially in Kutubdia, Moheshkhali, and Cox's Bazar Sadar) than the other two districts (Section 5.2). The reasons should be explored to increase access to health information of the mothers and caretakers of children. However, one major reason for higher access to health information could be any unique program (like the nutrition program in Kapasia Upazila described in Section 6.4).

Against this backdrop, the households and communities have been found to be either ignorant or inattentive about the children with disability, although such children are significant in number and living within them. Thus the total burden of the disabled is borne mainly by the households with hardly any social and institutional support. The treatment facilities for persons with disabilities are almost non-existent, and people also know very little about it. Although a few could mention, the distant facilities are either inaccessible or unaffordable to most of the victims. As a result, the patients and the households have little to do and accept the situation as their fate.

As for Rickets and its symptoms, very few people know about it and do not say about its prevention and remedy. It is quite logical as the present health system talks very little about it. Although the mothers can generally relate a part of the disability and the Rickets-like symptoms with the nutrition of mother and child, and also can mention some of the 'do's and don'ts, they lack specific knowledge of the disease symptoms and consequences. Out of 58 Rickets patients diagnosed by the field interviewers during the survey, only a few mothers/caretakers could mention that their child has had Rickets.

8. Conclusion

The long-awaited child-centered approach of comprehensive care for children's natural and healthy growth is still a long way to achieve at least in the survey areas and specific areas like Cox's Bazar region. Not only this concept is less understood by the mothers/caregivers, the community leaders and the health administration is also failing to demonstrate the value of such an approach in rendering their services. As a result, the children are growing with all the risks around them and the burdens on their parents. The worst victims are the children already affected due to malnutrition and other deficient services in the process of their birth and childhood growth. Percentage-wise the preventable disability cases may look small. Still, they are many in every community, and the danger is that these preventable disability cases are often overlooked by the larger community and the health system. The victim's households often have a bitter experience with the treatment of their children.