SHORT ARTICLE

An explorative study of the differences in feeding patterns of children with and without disabilities in a rural community in Karnataka.

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Abstract

Background: Children with disabilities are nutritionally vulnerable due to feeding difficulties associated with disabilities. **Aim & Objective:** To investigate factors associated with feeding difficulties in children with/without disabilities. **Settings and Design:** A cross-sectional analytical study was undertaken in the rural field practice area of a medical college in Karnataka. **Methods and Material:** Data collected on 145 children with disability and 145 neighbors/sibling/ classmates of the child using a pretested semi-structured questionnaire was analyzed using SPSS 20.0 **Statistical analysis**: Difficulties faced by feeding children with/without disabilities were expressed in percentages. Chi-square test was used to determine the association between feeding time, challenges encountered, and need for assistance p (<0.05). **Results:** The mothers mostly assisted feeding. Significant differences in need for support among children with disabilities 19 (13.5%) and without disabilities 3(2.1%) during meals and time taken to feed were seen. The most common difficulty was the improper position 13(9.0%) among children with disabilities. **Conclusions**: Mother is the significant person involved in feeding children with & without disabilities. Help in feeding, improper position of the child, vomiting tendency while feeding was more common with children with disabilities than without disabilities.

Keywords

Disabled children, Intellectual disability, Vomiting, Caregivers.

Introduction

The Global Burden of diseases has estimated about 95 million (5.1%) children aged 0-14 years have disabilities. (1). As per the Census 2011, most of these children with disabilities live in rural areas (2) and with widespread malnutrition in general population. Optimum nutrition is considered as one

of the most vital determinants of wellbeing, growth, and development. (3) Children who are born with, or who acquire disability, face problems related to nutrition. (4)

Children with disabilities are perceived to have poorer nutritional status compared to their non-disabled peers. (5). Feeding difficulties such as improper feeding techniques, increased meal times, (4) medical conditions like Gastro-esophageal reflux disease, cerebral palsy, quadriplegia, Autism recurrent respiratory tract infections, constipation and behavioral problems aggravate their poor nutritional status. (5) In children with disabilities, this can get compounded, given the existing poor nutritional status of the general population. (6). Studies have shown that children with disabilities were more likely to experience changes in food consistency and taste and feeding difficulties compared to their non- disabled counterparts. However, very few studies have been undertaken to assess the problems associated with children with disabilities and how different these problems are in comparison to children without disabilities.

Aims & Objectives

To describe the pattern, frequency, and factors associated with feeding difficulties among children with and without disabilities in a rural area of Karnataka.

Material & Methods

A cross-sectional analytical study was undertaken as a part of a larger study in the rural field practice area of a tertiary care hospital in Karnataka. Institutional scientific committee and Ethical committee clearances from the college authorities, Block education officers, Child Development Project Officer (CDPO), Taluk Health Officer where the study was undertaken was sought before undertaking the study. The study population comprised of about 90 villages under three neighboring Primary Health Centers (PHC)'s covering about 60,000 people during the study period of one year, i.e., February 2014-February 2015. A minimum sample size of 138 children with disabilities was determined based on 62% prevalence of feeding difficulties in children with disabilities conducted by Yousofsai A et al. in 2003, (5) at 7% relative precision using nMaster v 2.0 which was developed by CMC Vellore, India. This sample was estimated based on an earlier study conducted in the area the number of children with disabilities was identified to be 194 children, A total of 290 children in the age group of 5-15 years residing in the study area for more than 6 months were recruited, of which 145 children were with disabilities (Locomotor disability/mental/visual and communication disabilities). The operational definitions to recruit children with any disability was as per "The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995" as shown in (Figure 1).

Along with 145 children with disabilities, a classmate or neighbor or sibling without such disabilities was identified and recruited consecutively using the proforma for Identification and needs assessment of beneficiaries of Community-Based Rehabilitation-3 initiatives by purposive sampling (7). Data was collected using a pre-tested and semi-structured proforma by a multi-pronged approach to identify children with disabilities and finalized after pilot testing the questionnaire on 15 children with and 15 children without disabilities. Details of the person who feeds the child, the time taken, feeding difficulties faced feeding the child for both children with and without disabilities were collected for both groups after assent of the children and informed written consent from the Parents/caregivers and school teachers. The children with disabilities unavailable for the interview, even after three consecutive planned visits were excluded from the study. Quantitative variables such as time taken by the individuals to feed the child, the age of children was expressed using descriptive statistics of the median and standard deviation. Qualitative variables such as meal consumption patterns, feeding difficulties due to improper positioning, tantrums while feeding, difficulty in chewing were expressed in terms of percentages. Chi-square test was done to determine the association the feeding difficulties and variables such as time taken, tantrums, improper positioning of the child during feeding.

Results

Among the children with disabilities, the feeding difficulties experienced have been depicted in the (Figure 2). The differences in feeding difficulties faced by male and females with disabilities were not found to vary significantly (P value<0.05). Among the males the most common feeding difficulty was tantrums during feeding which was 25(28.4%) among children with disabilities and 23(31.1.%). Among the females, the most common feeding difficulty was also found to be tantrums which was

11(19.3%) among disabled and higher among non-disabled 15(21.1%). Among males significantly higher need for modification of food in 6(6.8%), need for feeding 16(18.2%), vomiting tendencies while feeding in 6(6.8%) chewing difficulties in 5(5.7%), improper positioning of child in 8(9.1%) in children with disabilities compared to their non-disabled counterparts. Similar differences among females with disabilities were seen where the need for modification was 3(5.3%) Most of the children consumed meals on their own. The most common person who assisted the children with feeding was a mother among both the children with and without disabilities. The other significant people involved in the feeding of the children with and without disabilities included the grandparents, maternal aunts. However, these were not found to differ significantly. The median time taken for feeding among the children with disabilities was 15.0 (10.0-30.0) minutes when compared to 15.0 (10.0-20.0) minutes among children without disabilities. The proportion of children with disabilities who took more than 15 minutes were significantly higher 62(61.4%) when compared 38(38.6%) among children without disabilities. Our questionnaire looked at six most commonly occurring feeding-related difficulties. (Table 1) shows a comparison of the difficulties faced by children with and without disabilities.

The differences in need for assistance during eating, vomiting tendency while feeding, improper position of the child, and need for modification of the food prepared were found to vary significantly among children with and without disabilities, as shown in (Table 1). The children who were consuming meals before or after meals with disabilities were25(17.2%) whereas among without disabilities were 5(3.4%) and these differences also were found to differ significantly among the two groups.

The study further probed into the characteristics of children with disabilities whose caregivers reported feeding difficulties. The literature review showed that among children with disabilities, children with intellectual disability, multiple disability, and cerebral palsy had a higher percentage of feeding difficulties. (8,9). The results of subgroup analysis of the children with intellectual disabilities compared to children with other disabilities are shown in (Table 2). The median duration of the time taken to feed children with intellectual disabilities was 15(15.0-30.0) minutes, whereas children with other disabilities took a median time of 15.0(10.0-30.0) minutes. However, the differences in time taken to eat among the children with and without intellectual disabilities was not statistically significant as seen in (Table 2). The children with intellectual, multiple disabilities and cerebral palsy faced more difficulties in need for assistance while eating, in chewing, modification in the food preparation, vomiting tendencies compared to children with other disabilities which were found to differ significantly.

Discussion

To the best of our knowledge, this study is one of the few studies in India in recent years that have explored the feeding difficulties of children with disabilities compared to that of children without disabilities. In previous studies, it was estimated that 50% of reportedly healthy children and 80% of the children with developmental delays and disabilities have feeding difficulties.(10)Another study conducted by Sangermano (9) on 30 patients with the psychomotor delay in Italy showed that among the children aged two to 15 81% of the caregivers assisted the children in feeding using a spoon. The study conducted by Kuper H et al (11) in Kenya found that 59(19%) of the children with disabilities and 32(11%) of the children without disabilities had feeding difficulties and were 1.9(1.2-3.1) times more likely to have a difficulty. A review article published by Penangini F et al (12)showed that the 23(26%) of the children with Cerebral Palsy had difficulty in chewing, whereas only 7(12.7%) of the children without disabilities experienced any feeding difficulty which was comparable to our study findings. The study conducted by Kim HJ, Choi HN, Yin JE (13)showed that children with cerebral palsy the most frequent feeding problem encountered was need for assistance while eating which was similar to our study results where 18(32.7%) of the children with intellectual disabilities needed assistance while feeding.

Conclusions

The most common person involved in feeding children with and without disabilities is the mother. The problems faced in the feeding of children with disabilities is higher compared to children without disabilities. Among children with disabilities, children with intellectual disabilities have a higher proportion of feeding difficulties of difficulties in chewing and vomiting while eating

Recommendation

The mother is the most appropriate person to be educated regarding corrective measures to overcome feeding difficulties in both children with and without disabilities as she is the most commonly involved in feeding of the children. Since the proportion of feeding difficulties are higher among children with disabilities when compared to children without disabilities, an inquiry into the possibilities in feeding difficulties among them should be made. Additionally, in children with intellectual disabilities, a thorough history of feeding problems must be ascertained.

Limitation of the study

The proportion of children with disabilities who experienced feeding difficulties was less, and further exploration into feeding difficulties in each type of disabilities was not possible

Relevance of the study

This study highlights the similar feeding difficulties among children with and without disabilities in a rural setting of Karnataka.

Authors Contribution

AMJ: helped in conceptual framework, designing and manuscript editing, data acquisition, analysis and guarantor. SP, NBS, MRS: helped in conceptual framework designing and manuscript editing, RK: data analysis, designing and manuscript editing.

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Tables

TABLE 1 COMPARISON OF FEEDING DIFFICULTIES FACED BY THE CAREGIVERS DURING MEALS

Feeding difficulties faced by caregivers involved in feeding	Children with Disability (n = 145)	Children without disability (n= 145)	p-Value
At least one difficulty in feeding	55(37.9%)	38(26.2)	0.03*
Improper posture of the child	16(11.0%)	1(0.7%)	<0.001**
Vomiting while eating	17(11.7%)	2(1.4%)	
Assistance required while eating	19(13.1%)	3(2.1%)	

Modification in Food Prepared	9 (6.2%)	0(0.0%)	0.003*
Difficulties in chewing	7(4.8%)	2(1.4%)	0.09
Tantrums	36(24.8%)	38(26.2%)	0.788
Chi square test- * P value-<0.05, ** P value <0.001			

TABLE 2 COMPARISON OF FEEDING DIFFICULTIES FACED BY THE CAREGIVERS OF CHILDREN WITH DISABILITIES DURING MEALS

Feeding difficulties faced by caregivers involved in feeding	Children with Intellectual Disability (n = 56)	Children with other disability (n= 89)	P-Value
At least one difficulty in feeding	32(58.2%)	23(25.6%)	<0.001*
Modification in Food Prepared	7(12.7%)	2(2.2%)	0.027*
Assistance required while eating	18(32.7%)	8(8.9%)	<0.001**
Difficulties in chewing	7(12.7%)	0(0.0%)	<0.001**
Tantrums	16(29.1%)	20(22.2%)	0.353
Vomiting while eating	17(11.7%)	2(1.4%)	0.003*
Improper posture of the child	8(14.5%)	8(8.9%)	0.292
Chi square test- * P value-<0.05, ** P value <0.001			

Figures

FIGURE 1 FLOWCHART OF DATA ACQUISTION FOR THE STUDY

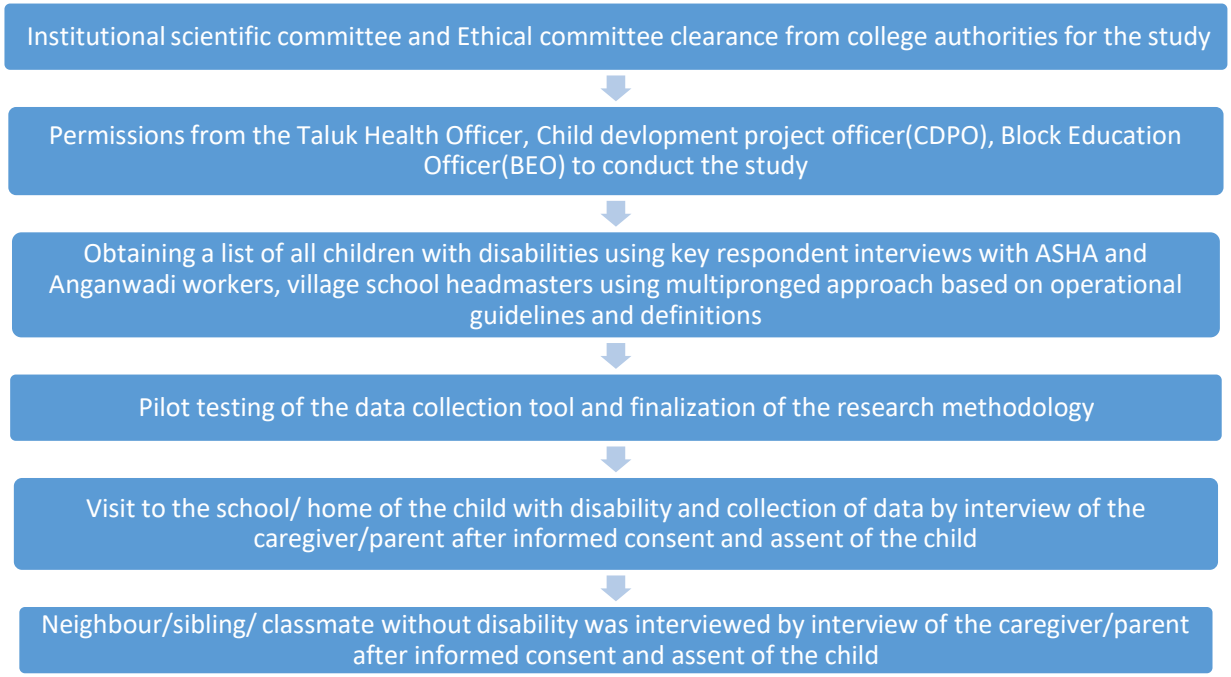

FIGURE 2: SEX WISE PROFILE OF THE FEEDING DIFFICULTIES AMONG CHILDREN WITH DISABILTIES