A hospital based study on the usage pattern of Child Health Development Record as an information source on infant and young child feeding

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Abstract

Objective: To assess the usage pattern of child health development record (CHDR) as an information source by the mothers of children aged 6-24 months admitted to a ward in Lady Ridgeway Hospital (LRH) and to assess their level of knowledge and practices on infant and young child feeding (IYCF).

Method: A cross-sectional study was conducted in a paediatric ward in LRH from 1st February to 31st August 2009 on mothers with children aged 6-24 months. Feeding patterns, maternal knowledge on messages given in CHDR and selected socio-demographic factors were examined using a pre-tested interviewer-administered questionnaire. Association of feeding practices and socio-demographic characteristics were analyzed using non parametric tests. Ethical approval was granted by the ethical review committee of LRH.

Results: Of the 300 mothers administered questionnaires 5 were excluded due to incomplete data. Of the 295 mothers included in study, 36% had passed GCE ordinary level. Of the children, 72% started complementary feeding after 6 months. Nearly 50% of children had satisfactory diet in terms of quality, quantity and frequency. Maternal IYCF knowledge was significantly associated with maternal educational level and reading of CHDR feeding instructions.

Conclusion: Mothers have an acceptable level of knowledge on IYCF and satisfactory level of usage of CHDR as an information source. Reading CHDR has a significant impact on higher maternal IYCF knowledge and better IYCF practices.

(Key words: Infant & young child feeding; Child Health Developmental Record; maternal knowledge)

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Introduction

Child malnutrition remains a common problem in developing countries including Sri Lanka[1]. In many countries faulty complementary feeding practice is a major contributing factor to infant and young child malnutrition, growth failure, high morbidity and mortality[1-3]. Child rearing and caring practices vary according to socio-cultural background, maternal educational levels, poverty and many other factors[4,5]. Sri Lanka has adopted and started implementation of WHO/UNICEF global strategy on infant and young child feeding (IYCF) practices with the aim of promoting exclusive breastfeeding for 6 months and complementary feeding practices after 6 months[5].

For Sri Lankan mothers, the main sources of information on IYCF are public health midwife, family members, friends and mass media. The child health programme implemented by the Ministry of Health is responsible for growth monitoring and promotion through the field health staff at grass root level. Every child born in Sri Lanka is given a Child Health Development Record (CHDR) at birth and it is used to record growth and development[6]. In addition, this booklet is used as an information source or education material for communicating knowledge to caregivers regarding child caring and rearing. However, in practice, it is observed that mothers are not optimally utilizing the information provided in CHDR to improve their child's growth and nutrition. Therefore, the present study was planned with the aim of assessing the knowledge of mothers with regard to IYCF information provided in the CHDR and to explore to what extent mothers are using the CHDR as an information source.

Method

A descriptive cross-sectional survey was carried out in a paediatric medical ward in the Lady Ridgeway Hospital (LRH) on mothers of children aged 6-24 months admitted from 1st February to 31st August 2009. The exclusion criteria were children with more than 3 hospital admissions, children with congenital anomalies or chronic diseases, children with mothers/caregivers who do not understand Sinhala or if the bystander is not the mother of the child. LRH is

a tertiary care hospital to which patients with various socioeconomic and educational backgrounds are referred from all over the country. An interviewer administered questionnaire was used to collect data. The structured questionnaire was locally designed based on expert's comments, IYCF guidelines and CHDR. It was pretested and modified accordingly. The questionnaire was administered by two trained postgraduate trainees in paediatrics within two days of child's admission to the ward.

To obtain information on routine feeding pattern, a 24 hour dietary recall was done with regard to the day the child was last well. To get an idea about portion sizes, commonly available measures like tea cups, saucers and table spoons were used. Special attention was given to find out whether the mothers were able to read the feeding instructions of the CHDR and if they could not, the reasons. Level of knowledge on age appropriate feeding and myths regarding complementary feeding were examined. Regarding knowledge on IYCF, 15 closed questions were included and mothers were asked to respond as correct, incorrect and don't know. Each correct response was given one mark. Ethical clearance was obtained from the ethical review committee of LRH, Colombo. Permission for data collection was obtained from the Director of LRH and the Consultant paediatrician. Informed verbal consent was obtained from mothers before interviewing them. Refusal to participate was respected. Data was analysed using SPSS version 14. Frequencies were calculated for quantitative data. Associations between feeding practices and selected socio-demographic characteristics were analysed using Chi square test.

Results

Three hundred study units were collected serially according to inclusion and exclusion criteria. with a 100% response rate. Of them 5 were excluded from the analysis due to lack of CHDR (n=1), could not read the CHDR yet (n=2) and could not read / illiterate (n=2).

The age range of the children was 6-24 months with a mean of 13.6 ±5.3 months and 49% were males. Mean maternal age was 28.9 ±5.2 years, the youngest being 18 years. Majority (81%) belonged to Sinhala ethnic group and 52% declared that the current hospital admission was their first. Nearly 37% reported their gross monthly income to be between Rs.10,000/= and 20,000/= while 25% had an income of Rs.20,000/= to Rs.40,000/=.

Socio-demographic factors of the sample are shown in Table 1.

Table 1: Socio-demographic factors of sample

Socio-demographic factor	No (%)
Ethnicity	
Sinhala	239 (81)
Tamil	21 (07)
Muslim	35 (12)
No. of children in the family	
One child	164 (56)
Two children	96 (33)
More than two children	35 (12)
Maternal employment status	
Housewife	256 (87)
Employed	39 (13)
Maternal educational level[$]	
Up to secondary	81 (28)
Passed GCE O/L	104 (35)
GCE A/L & above	110 (37)
Age starting complementary feeding	
Before 4 months	04 (02)
4-6months	77 (26)
After 6 months	212(72)

One fourth of mothers gave either biscuits or commercially available cereals as the initial complementary food. Nearly 50% continued breast feeding while another 30% gave both breast milk and formula milk to their young children. Adequacy of complementary feeding pattern is shown in Table 2.

Table 2: ***Adequacy of complementary feeding pattern*** *(n=295)*

Interviewers comment on complementary feeding	No. (%)
Satisfactory	142 (48)
Satisfactory in frequency but not in quality	51 (17)
Satisfactory in quality but not in frequency/quantity	25 (09)
Unsatisfactory	77 (26)

For the question on information sources that mothers have used with regard to complementary feeding, 28% indicated Public Health Midwife (PHM) as the sole information source and another 8% the CHDR. Moreover, 49% stated family, mass media and PHM while 41% used the CHDR in addition to family and mass media. Of the mothers 44% admitted to reading the CHDR completely while another 54% have read it partially. We inquired on approximate time that mothers started reading CHDR. Nearly half (45%) reported to reading CHDR around the birth of the child and 25% around the first month. Nearly 50% of them have read the CHDR because PHM has asked them. Basically there are 7 major parts of the CHDR namely, neonatal health record with length and weight graph, immunization record, vision and hearing testing, developmental milestones, care for

the newborn, infant & young child feeding, measuring psychosocial & cognitive development, activities for child's psychosocial & cognitive development. We asked whether mothers were able to read these sections completely, partly or not at all. The results are shown in Table 3.

Table 3: Distribution on extent of reading of CHDR by mothers

	Section	Completely read No. (%)	Partly read No. (%)	Never read No. (%)
1	CHDR*	131 (44.4)	159 (53.9)	
2	Neonatal health record with length and weight graph	216 (73.2)	53 (18.0)	26 (08.8)
3	Immunization record	202 (68.5)	62 (21.0)	31 (10.5)
4	Vision and hearing	203 (68.8)	70 (23.7)	22 (07.5)
5	Developmental milestones	222 (75.3)	49 (16.6)	24 (08.1)
6	Care for the newborn	205 (69.5)	60 (20.3)	30 (10.2)
7	Infant & young child feeding[$]	179 (60.8)	95 (32.2)	17 (05.8)
8	Psychosocial & cognitive development	172 (58.3)	75 (25.4)	46 (16.3)

** missing=5* *[$]missing =4*

This shows 61% had read the section on IYCF completely while nearly 6% had never read it. When mothers were asked to spell out the reasons for reading the CHDR, more than three fourths have stated to gain new knowledge. Only 60% knew about the colour zones in weight graph. As the reasons for not reading the CHDR-feeding section completely; 53% (n, 34) said lack of time while 6.3% stated difficulties in understanding and not reader friendly. With regard to overall impression of CHDR; 60% stated "good", 15% said "some parts difficult to understand" while 12% said "too many details & no time to read".

Selected maternal socio-demographic factors were explored with reading of "feeding instructions" in the CHDR. Mothers with higher educational level read the "feeding instructions of CHDR" compared to mothers with lower educational levels. The difference was statistically significant. Reading IYCF instructions was not associated with maternal employment status (p=0.2), maternal age group (p=0.9), monthly income level (p=0.6).

Complementary feeding practices regrouped as "Satisfactory" and "Not Satisfactory" (as per dietary history) were analysed with selected maternal factors (Table 4).

Table 4: Association between young child feeding pattern and selected family factors

	Satisfactory feeding practices (%)	Unsatisfactory feeding practices (%)	Total	P value
No. of children in the family*				
One child	82 (58)	82 (54)	164 (56)	
Two children	45 (32)	51 (34)	96 (33)	P=0.6
More than two children	14 (10)	18 (12)	32 (11)	
Maternal employment status				
Housewife	119 (84)	137 (89.5)	256 (87)	P=0.7
Employed	23 (16)	16 (10.5)	39(13)	
Maternal age groups				
Less than 25years	33 (23)	44 (29)	77 (26)	P=0.3
25 years & more	109 (77)	109 (71)	218 (74)	
Maternal educational level[$]				
GCE O/L & above	105 (74.5)	108 (71)	213 (72)	P=0.6
Below GCE O/L	36 (25.5)	45 (29)	81 (28)	
Family Income per month				
= or< Rs.20,000	101 (71)	97 (63)	198 (67)	P=0.2
> Rs.20,000	41 (29)	56 (37)	97 (33)	
Maternal reading of IYCF section in CHDR				
Feeding part- read completely	124 (87)	115 (75)	239 (81)	P=0.006
Feeding part partially read or never read	18 (13)	38 (25)	56 (19)	

* missing =3 [$] missing =1

Univariate analysis shows that satisfactory complementary feeding practices were neither associated with number of children in the family (p=0.7), maternal employment status (p=0.2), maternal age (p=0.5) maternal educational level (p=0.6), nor average monthly income (p=0.2). Mothers who read the CHDR feeding instructions were having satisfactory IYCF practices (p=0.01). This was further confirmed by the multivariate analysis with adjusted Odds ratio of 2.4 (95%CI: 1.3-4.5). It means odds of having satisfactory IYCF practices among mothers who read IYCF part completely was 2.4 times greater than those who had read IYCF instructions partially or never read.

Of the mothers 95% knew about proper duration of exclusive breast feeding for 6 months and 86% said that the child should be given solid food by 8-9 months of age. Two hundred and sixty one mothers (88.5%) knew that it is better to introduce one food item at a time during complementary feeding. One fifth of mothers thought that it is good to start complementary feeding with commercially prepared cereals. Similarly 16% thought biscuits / baby rusks are better than rice while 47% think that it is not suitable to add meat or fish until the baby is 9-10 months old. Of mothers 16% think apples and grapes are better compared to bananas and papayas when it comes to fruits. It is interesting that still 74 mothers (25.1%) believe that offering rice during night is bad. One fifth of respondents answered affirmatively for the question on reducing meal frequency during illness while 14 (4.8%) did not know the answer.

Regarding knowledge on IYCF, the range of marks was 0 to 15 with a mean of 11.4 (SD, 2.31). Nearly 30% scored less than 10 marks and 12 (4.4%) mothers scored highest score of 15 marks. Since the frequency distribution showed skewed distribution, non parametric tests were used to measure differences between groups.

Maternal knowledge score was significantly higher among mothers with higher educational level and those who had read the CHDR IYCF instructions ($p<0.05$). However, maternal knowledge score was not associated with maternal age (p=0.2), maternal employment status (p=0.2), prior hospital admissions (0.3) or average monthly income of the family (p=0.7) (Table 5).

Table 5: Maternal knowledge score by maternal & family factors

	Mean knowledge score (SD)	M-W U test P value
No. of children in the family*		
One child	11.4 (2.4)	
Two children	11.6 (2.0)	P=0.7
More than two children	10.9 (3.2)	
Maternal employment status		
Housewife	11.4 (2.3)	P=0.2
Employed	11.6 (2.4)	
Maternal educational level$		
Below GCE O/L	10.5 (2.3)	P=0.001
Pass GCE O/L & above	11.8 (2.2)	
Maternal age groups		
Less than 25years	11.1 (2.3)	P=0.2
25 years & more	11.5 (2.0)	
Family Income per month		
= or< Rs.20,000	11.5(2.9)	P=0.7
> Rs.20,000	11.4(2.1)	
Number of previous hospital admissions		
None	11.6(2.1)	P=0.3
Once or more	11.3(2.2)	
Maternal reading of IYC feeding part in CHDR		
Feeding part- read completely	11.7(2.0)	P=0.001
Feeding part partially read or never read	10.3(2.8)	

Discussion

In summary, mothers included in the sample had a generally acceptable level of IYCF knowledge and usage of CHDR as an information source. Since this study was restricted to a hospital it may not be advisable to generalise the findings.

Use of an interviewer administered questionnaire facilitated inclusion of all eligible mothers despite

their education or literacy levels. Two trained registrars in paediatrics administered the questionnaire minimizing interviewer bias. However usage of 24 hour dietary recall during the day that child was last well could have introduced a recall bias. Some children would have been admitted to the ward after 1 or 2 days of illness while some would have been admitted after several days of illness. Child's diet was categorized as satisfactory or otherwise based on 24 hour dietary recall. It could have introduced a bias due to subjective interpretation of amount, consistency, quality and frequency of meals.

Almost all mothers (98%) have read the CHDR completely or partially. Higher maternal educational level with nearly three fourths achieving education levels above GCE O/L in this sample could have facilitated reading CHDR. In addition, nearly half of the mothers declared that the current hospital admission was their second or third which can influence the usage of CHDR. Mothers are usually advised by doctors and nurses in wards about the importance of reading CHDR. These best practices should continue to be promoted by all health staff in institutions as well as the field health staff and general practitioners. It is important to emphasize that although 98% admitted reading the CHDR, further analysis showed that there are deficiencies in comprehending some important sections like health record, immunization record and psychosocial development.

According to breast feeding policy, a child should be exclusively breast fed until completing 6 months of age. In the present sample, nearly 95% knew about correct duration of exclusive breast feeding while 72% had started complementary feeding after 6 months. Approximately 28% have started complementary feeding before recommended 6 months replicating previous findings[1,7,8]. One reason may be that 15% of mothers were employed and they may have to return to work after maternity leave[9]. However, 80% of mothers continued to breast feed with or without formula milk.

Undernutrition is a major problem among preschool children in Sri Lanka. Quality and quantity of complementary feeding has been highlighted as the main contributory factor for this nutrition problem[8,10]. Maternal education has been identified as a key factor in improving child nutrition[10,11]. However, in this study we failed to identify significant association between satisfactory feeding practices and maternal educational level.

Reading the CHDR has supported mothers on establishing satisfactory feeding (Table 4) stressing the importance of improving the CHDR in reader friendliness. It will facilitate reading as some mothers stated about difficulty in reading, comprehending and too many details. Reading CHDR was associated with higher maternal education level. The messages can be delivered in short, simple, specific and attractive manner using different colour codes according to sections to increase the reader friendliness and to facilitate reading by less educated mothers.

PHM has been identified as a source of information by 78% of mothers which has been showed in other studies[7,8]. It is significant to note that still some misconceptions about feeding exist such as delay in adding animal protein till 9-10 months, offering meals during night time and feeding during illness. The above findings emphasize the need of educating mothers on specific IYCF instructions where the knowledge gaps prevail.

Conclusions and recommendations

- Mothers included in this study sample had a generally acceptable level of knowledge with regard to IYCF and satisfactory level of usage of CHDR as an information source.

- Complementary feeding practices were not satisfactory in majority of the sample. Despite limitations in reader friendliness, majority had used CHDR as information sources and reading CHDR has a significant impact on higher maternal IYCF knowledge and better IYCF practices.

- Health authorities need to improve the reader friendliness of the CHDR as an information source to improve their IYCF practices.

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