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Original Article

Maternal Awareness on Child Health Card and Factors Associated with it's Retention in Salyan Village Development Committee of Kaski, Nepal

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It is crucial to monitor the growth and development of a child in early stage of life to take early corrective action in time to ensure normal growth. Child health card (CHC) is a tool used to maintain records and monitor the under five children. The objective of this study was to find out the maternal awareness on CHC and factor associated with its retention. This was a cross sectional analytical study conducted among 198 mothers having <3 years children in Salyan VDC, Kaski, Nepal. The study found 61.1% retention of CHC. Only about one-fourth (25.8%) of the mothers had adequate level of awareness on different aspect of CHC. Of the 24 different independent variables studied; only nine (age of the child; place of delivery; antenatal and postnatal care services utilized; first choice health institution for treatment; maternal awareness on CHC; place of immunization; taking CHC regular to health facility and health worker ever counseled on CHC) were found positively associated with retention of CHC ($P < 0.05$). This study showed retention of CHC only in six-out of-ten studied cases. The study also revealed poor level of awareness on CHC in the study area. The study also highlighted on positive association of retention of CHC with counseling by health workers and increased use of health services.

Keywords: Awareness, retention, child health card, Nepal

It is necessary to monitor the growth and development of a child in early stages of life to take early corrective actions in time to ensure normal growth. Since 1951 this issue has been an interest of the world health organization (WHO) (1). The concept of a special health and weight chart to monitor child growth and development was first promoted by David Morley in 1962 (2).

In 1986, WHO defines growth monitoring and promotion (GMP) as "a nutritional intervention that measures and charts the weight of children from 0 to 5 years of age and uses this information to counsel parents so that they take corrective actions to improve child's growth" (3).

Child health card (CHC) is a tool used in health management information system of Nepal to

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maintain records and evaluate health status of under five children. The card includes records on monitoring growth, immunization, Vitamin A supplementation, de-worming and other illnesses (4).

This card is issued to every child attending a public health institution or outreach clinic at first time. The mother should keep the card at home safely and bring it to the health facility on each and every visit about the child (5). Distribution and plotting of CHC is the major strategy of health sector in Nepal to address protein energy malnutrition (6). The anthropometric indices are the components of CHC, which allows visual comparison of the growth progress over time (7). CHC is a useful summary record regarding a child's health during the first five years of life (8).

CHC assists in the screening of children at risk of malnutrition and provides a simple, practical, cost-effective and convenient method of monitoring a child's growth. It also helps to improve health through vaccination compliance. This simple tool acts as a reference for both caregivers at home and health workers during consultations (9).

CHC helps in early detection of any deviation from the growth curve reference line. The direction of growth curve line indicates whether it is rising in parallel to the reference curve (a good sign), remaining flat (an early warning sign), or falling or descending (dangerous) (10). Four important conditions for growth charts to be useful are the data on the weight and the age of a child must be accurate; health workers must be able to understand and interpret the growth charts properly; health workers must be able to identify the appropriate action based on growth curve and mothers must also be able to understand the growth chart and the message that it provides (11).

But implementation of CHC has lagged behind the objectives of WHO and UNICEF. Despite various strategies (such as UNICEF's GOBI-FFF (growth monitoring, oral rehydration therapy, breastfeeding promotion, immunization, food supplementation, family planning, and female education); integrated management of childhood illness; and millennium development goals; the implementation of CHC is still very poor in developing countries (12).

The aim of this study was to determine the level of maternal awareness on CHC and factors associated with its retention in Salyan village development committee (VDC) of Kaski district, Nepal.

Materials and methods

The study was a cross sectional analytical type involving quantitative approach. It was conducted among mothers having less than three years children in a Salyan VDC of Kaski district of Nepal in July, 2013 to February, 2014. A total number of 198 sample size was determined based on the 42% retention of CHC in a similar study conducted in 2010 (2). The study adopted the stratified random sampling in which the VDC was divided into nine strata according to administrative units (wards). The required number of respondents from each stratum was determined proportionate to the population size. The sample frame was prepared from the immunization register of three consecutive years with necessary adjustment. After preparing the sample frame individual respondent was selected by lottery method. A pretested structured interview schedule was used to collect the data from the respondents. Maternal awareness on CHC was measured regarding its use on different propose, frequency of growth monitoring, meaning of growth directional line and interpretation of reference curve. Retention of child health card was dependent variable with other independent variables– socio-economic and demographic variables, awareness on

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CHC and utilization of maternal child healthservices. Anonymity, confidentiality, and voluntary participation and termination were highly emphasized and adopted to make the study more effective. Written approval was taken from district public health office of Kaski and Salyan VDC prior to the survey. The Data were compiled in Microsoft Excel 2007 and analyzed by using SPSS 16 and appropriate statistical tests were performed to draw the inference. $P< 0.05$ was considered as statistically significant.

Results

Socio demographic information

The majority of the respondents were of age group 25-29 (40.4%) years followed by 20-24 (36.9%) years with mean age 25.78± 4.068 years. More than half of the respondents (52.5%) had male child as the last child. More than one-third of the respondents (36.9%) had 24-35 months last child. Just above half of the respondents (51.5%) were belong to nuclear family. Most of the respondents (91.4%) were belong to Hindu religion. Very few of the respondents (1.5%) were illiterate (Table 1).

Table 1. Socio-demographic information (n=198)

Variables	Frequency	Percent
Maternal age		
< 20 years	6	3.0
20 - 24 years	73	36.9
25 - 29 years	80	40.4
30 - 34 years	32	16.2
≥ 35 years	7	3.5
Gender of the child		
Male	104	52.5
Female	94	47.5
Age of the child		
0 to 11 months	62	31.3
12 to 23 months	63	31.8
24 to 35 months	73	36.9
Family type		
Nuclear	102	51.5
Joint	96	48.5
Religion		
Hindu	181	91.4
Buddhist	15	7.6
Christian	2	1.0
Maternal education		
Illiterate	3	1.5
Read and write	16	8.1
Primary	49	24.7
Secondary	81	40.9
Higher secondary	36	18.2
Bachelor and above	13	6.6

Information regarding maternal child health factors

More than half of the children (51%) were either second or third child as their birth order. Most of them (94.4%) were full term as gestational age at birth. About two-third of the respondents (63.6%) had attended 4 or more antenatal care (ANC) service during their last pregnancy. More than half of the respondents (56.6%) reported that they have delivered their last child in health institution. Only two-out of-ten attended 3 or more postnatal care (PNC) service. Below half of the children (46.5%) were suffered from various illness within last three months. Most of the respondents (87.0%) visited health facility within last three months. Below one third of the respondents (28.3%) reported primary health care health institutions as their first choice institution for treating their children. Only one- third of the respondent's (33.3%) first choice health facility was within 30 minutes walking distance (Table 2).

Maternal awareness on CHC

Maternal awareness on different aspects of CHC is presented in Table 3. Only about one-fourth (25.8%) of the mothers had adequate level of awareness on different aspects of CHC.

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Table 2. Information regarding maternal child health factors (n=198)

Variables	Frequency	Percent
Birth order		
First child	70	35.4
Second or third child	101	51.0
≥Fourth child	27	13.6
Gestational age of the last child		
Preterm	9	4.5
Full Term	187	94.4
Post Term	2	1.0
Frequency of ANC check-up		
≥ 4 times	126	63.6
1 to 3 times	57	28.8
Not at all	15	7.6
Place of last delivery		
Home	86	43.4
Institution	112	56.6
Frequency of PNC check-up		
≥ 3 times	43	21.7
1 to 2 times	106	53.5
Not at all	49	24.8
History of illness in last 3 months		
Yes	92	46.5
No	106	53.5
Types of health problems (n=92)		
Diarrhea	13	14.1
ARI	52	56.5
Fever	57	62.0
Injury	25	27.2
Other problems	15	7.6
Visited HF in last 3 months (n=92)		
Not at all	12	13.0
1 times	37	40.2
2-3 times	41	44.6
>3times	2	2.2
First choice of HF for treatment		
HP/PHC/SHP	56	28.3
Private clinic/hospital	89	44.9
Government hospital	53	26.8
Distance of that health HF		
≤30 minutes' walk	66	33.3
31-59 minutes' walk	45	22.7
≥60 minutes' walk	87	43.9

ANC: antenatal care; ARI: acute respiratory infections; HF: health facility; HP: health post; PHC: primary health center; PNC: postnatal care; SHP: sub health post.

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Table 3. Maternal awareness on child health card (n=198)

Variables	Frequency	Percent
Awareness on use of CHC		
Recording immunization status	162	81.8
Recording growth monitoring	99	50.0
Recording Vitamin A supplementation	35	17.7
Recording Albendazole supplementation	31	15.7
Gaining knowledge on breast feeding	20	10.1
Record sickness information	11	5.6
Gaining knowledge on complementary feeding	8	4.0
Gaining knowledge on types of curve.	7	3.5
Recording adverse events following immunization	0	0.0
Awareness on frequency of growth monitoring		
Once in a month during 0-11 months	94	47.5
Once in every two months during 12-23 months	8	4.0
Once in every three months during 24-35 months	18	9.1
Awareness on growth directional line		
Directed up-ward	118	59.6
Directed down-ward	103	52.0
Horizontal	64	32.3
Awareness on reference curve		
Deviation of plotted line above the upper reference curve	34	17.2
Deviation of plotted line below the lower reference curve	58	29.3
Meaning of plotted horizontal line in between upper & lower reference curve	35	17.7
Level of awareness		
Adequate	50	25.2
Fair	78	39.4
Poor	70	35.4

Association of retention of CHC with different variables

Of the 24 different independent variables studied; only nine (age of the child; place of delivery; ANC and PNC services utilized; first choice health institution for treatment; maternal awareness on CHC; place of immunization; taking CHC regular to health facility and health worker ever counseled on CHC) were found positively associated with retention of CHC ($P < 0.05$) (Table 4).

Discussion

This study found 61.1% retention of CHC which was higher than the study conducted in Divyapuri VDC, Nawalparasi, Nepal in 2010 (42%) (2) and the study conducted by CARE Nepal in 2007 in one Terai district (Kanchanpur-51.2%) and three hills districts (Doti, Bajhang & Dadeldhura-16.3%) (13). Studies from other developing countries showed retention of CHC as 66% in Uganda, 74.3% in Tanzania, 81.2% in Brazil and 55.8% in Nigeria (14-17).

Similar to the study of Divyapur VDC, Nawalparasi; there was a positive association of younger age of the child with retention of CHC (2). It might be because many mothers do not keep records carefully once the children complete the vaccination schedule at the age of about one year or might be due to their poor knowledge regarding the use of CHC for growth monitoring after 12 months of age (2) or might be due to the poor or no couns-

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Table 4. Association of selected variables with retention of CHC

Variables	Yes	No (%)	χ^2	p value	OR	95% CI
Age of child						
0-11 months	45 (72.6)	17 (27.4)	12.555	0.002*	3.209	1.556-6.616
12-23 months	43 (68.3)	20 (31.7)			2.606	1.291-5.262
24-35 months	33 (45.2)	40 (54.8)			1	
Place of delivery						
Institution	77 (68.8)	35 (31.2)	6.331	0.012*	2.100	1.174-3.757
Home	44 (51.2)	42 (48.8)				
ANC service						
4 or more times	87 (69.0)	39 (31.0)	10.722	0.005*	4.462	1.430-13.923
1 to 3 times	29 (50.9)	28 (49.1)			2.071	0.629-6.826
Not at all	5 (33.3)	10 (66.7)			1	
PNC service						
3 or more times	35 (81.4)	8 (18.6)	14.317	0.001*	5.833	2.247-15.143
1 to 2 times	65 (61.3)	41 (38.7)			2.114	1.063-4.205
Not at all	21 (42.9)	28 (57.1)			1	
First choice for treatment						
Health Post	42 (75.0)	14 (25.0)	6.618	0.037*	2.679	1.191-6.023
Private clinic	51 (57.3)	38 (42.7)			1.198	0.605-2.374
Hospitals	28 (52.8)	25 (47.2)			1	
Level of awareness						
Adequate	43 (86.0)	7 (14.0)	18.390	<0.001*	6.504	2.576-16.422
Fair	44 (56.4)	34 (43.6)			1.370	0.717-2.620
Poor	34 (48.6)	36 (51.4)			1	
Place of immunization						
Health Post	83 (68.0)	39 (32.0)	6.892	0.032*	2.261	1.223-4.181
Hospital	6 (60.0)	4 (40.0)			1.594	0.411-6.173
Out Reach Clinic	32 (48.5)	34 (51.5)			1	
Taking CHC regularly to HF						
Yes	54 (83.1)	11 (16.9)	17.857	<0.001*	4.543	2.179-9.470
No	67 (51.9)	62 (48.1)				
Health worker ever explained about CHC						
Yes	105(71.9)	41 (28.1)	22.915	<0.001*	5.122	2.543-10.317
No	16 (33.3)	32 (66.7)				

ANC: antenatal care; HF: health facility; PNC: postnatal care; * statistically significant

eling by health workers for regular growth monitoring to their parents/caregiver.

Similar to the study of Uganda and different to the study of Divyapuri VDC of Nepal, place of delivery was significantly associated with retention of CHC (2, 13). Similarly, the utilization of ANC and PNC services were seen as determinants of retention of CHC which was quite different from the result of a similar study in Divyapuri VDC of Nawalparasi, Nepal (2). This may be because these opportunities had been utilized properly in the health facility to educate mothers on importance and advantages of CHC.

This study found that the place of immunization was significantly associated with retention of CHC. The level higher the health

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institution, the higher retention of CHC was also reported by some international studies (9, 17). Similarly, first choice health institution for treatment of child was also statistically significant with retention of CHC. It may be due to the fact that health post is closer to the door of the community people than other institutions.

Taking CHC regularly while visiting the health facility was also statistically significant with retention of CHC in the study area. Similar association was observed in the studies from Egypt and Nigeria (17-18). Health worker ever explanation about CHC was statistically significant with retention of CHC in the study area. The role of education and training on retention and use of CHC was found effective in improving maternal knowledge and use of CHC (2). This also indicates the need of training and orientation to health workers to use CHC for education purpose.

Similar to the result of the study conducted in Divyapuri VDC of Nepal (2), maternal awareness on CHC was statistically significant with retention of CHC but this study being a cross sectional study, the temporality of association, whether the knowledge level had increased the retention of CHC or retention of CHC had increased the knowledge level of mother was very difficult to ensure. In the present study both possibilities are plausible.

In conclusion, this study showed retention of CHC only in six out of ten studied cases. The study also revealed poor level of awareness on CHC in the study area. The study also highlighted on positive association of retention of CHC with counseling by health workers and increased use of health services.

Conflict of interest

The authors declared no conflict of interest.

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