IBBJ

Autumn 2016, Vol 2, No 4

Original Article

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

Hari Prasad Kaphle[1]*, Shiva Poudel[2], Neena Gupta[1], Nirmala Neupane[2]

*1. Faculty of Health Sciences, Sam Higginbottom Institute of Agriculture, Technology and Sciences Allahabad, UP, India.*

*2. School of Health and Allied Sciences, Pokhara University, Lekhnath, Kaski, Nepal.*

*Submitted 1 Nov 2016; Accepted 22 Nov 2016; Published 25 Dec 2016*

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

*Correspondence: Faculty of Health Sciences, Sam Higginbottom Institute of Agriculture, Technology and Sciences Allahabad, UP, India.
E-mail: harikafle07@gmail.com

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

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.

**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.

**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-

**Table 4.** Association of selected variables with retention of CHC

| Variables | Yes | No (%) | $\chi^2$ | 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

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.

## References


1. Joint Expert committe on Nutrition, FAO/WHO. Report on the second session of the joint FAO/WHO. WHO/FAO;1951.
2. Pahari D P, Bastola S P, Paudel R. Factors affecting retention of child health card in a rural area. J Nepal Health Res Counc. 2011;9:154-8.
3. Iyanuoluwa O-B A, Esther A-O O, Adeleye A A. Primary health care workers' role in monitoring children's growth and development in Nigeria, West Africa. Glob J Health Sci. 2011;3:30.
4. Donald P R, Kibel M A. The child health card--a cornerstone of preventive and promotive paediatrics. S Afr Med J. 1984;65:423-5.
5. MoHP, DoHS. Infant and child nutrition counseling training manual for health workers 2065. Kathmandu: National Health Training Center; 2008.
6. MOHP, DOHS. National nutrition policy and strategy 2065. Kathmandu: Child Health Division; 2008.
7. Kitenge G, Govender I. Nurses' monitoring of the Road to Health Chart at primary healthcare level in Makhado, Limpopo province. S Afr Fam Pract. 2013;55:275-80.
8. Bhandari R, Adhikari M, Khanal V. Factors Associated with Child Health Card Holding among Mothers of Western Rural Nepal: A Cross Sectional Community Based Study. Int J Child Health Nutr. 2013;2:123-30.
9. Tarwa C, De Villiers F. The use of the Road to Health Card in monitoring child health. S Afr Fam Pract. 2007;49:15-d.
10. Ministry of Health and Population. Annual Report 2067/68. Kathmandu: Department of Health Services; 2010/2011. 399 p.
11. Ministry of Health and Population. New ERA, ICF International Inc. Nepal demographic and health survey, 2011. Kathmandu, Nepal: Ministry of Health and Population, New ERA, ICF International; 2012.
12. CARE Nepal, Child Survival Project. Knowledge and practice coverage Final survey in Kanchanpur District , Nepal. Kathmandu 2003 84 p.
13. CARE Nepal, Child Survival Project. Knowledge and practice coverage survey 2007. Kathmandu: CARE Nepal; 2008.
14. Mukanga D O, Kiguli S. Factors affecting the retention and use of child health cards in a slum community in Kampala, Uganda, 2005. Matern Child Health J. 2006;10:545-52.
15. Carvalho M F, Lira P I, Romani Sde A, et al. Monitoring of infant growth by health services in Pernambuco State, Brazil. Cad Saude Publica. 2008;24:675-85.
16. Simba D O. Towards a sustainable community database: taking advantage of the Road-to-Health cards to monitor and evaluate health interventions targeting under fives. Tanzan J Health Res. 2009;11:46-50.
17. Fagbule D O, Olaosebikan A, Parakoyi D B. Community awareness and utilization of growth chart in a semi-urban Nigerian community. East Afr Med J. 1990;67:69-74.
18. Al-Nahedh N, Bamgboye E A. Influence of mothers' characteristics on their perceptions and use of the growth chart. East Mediterr Health J. 2003;9:974-80.