Knowledge Regarding Childhood Anemia among Mothers of Under Five Children in a Maternal and Child Health Clinic of a Tertiary Hospital

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Abstract

Introduction: Anemia is the commonest nutritional problem in the world, mostly in developing countries. In Nepal, more than half of children aged six to 59 months are anemic. Anemia causes a lot of morbidity and mortality in children under five years. Thus, objective of this study is to find out the level of knowledge regarding childhood anemia among mothers of under five children.

Methods: This is a cross sectional descriptive study among mothers having children under five years of age selected by using non-probability purposive sampling method. Structured questionnaire in Nepali version were used to interview with mothers in a Maternal and Child Health Clinic of Tribhuvan University Teaching Hospital, Kathmandu, Nepal. The study was conducted for 12 weeks. Results were analyzed by using descriptive (frequency, percentage, mean, standard deviation, median, interquartile range) and inferential statistics (Chi Square test) in SPSS version 20.

Results: Total 206 mothers participated in the study. Nearly two third (62.1%) had high level of knowledge regarding childhood anemia among mothers of under-five children. There is statistical association between level of knowledge and occupation of mothers ($p < 0.05$).

Conclusions: The level of knowledge is high in nearly two third of mothers of under five children regarding childhood anemia. Therefore, health education program should be launched by management committee to increase the knowledge of the mothers.

INTRODUCTION

Anemia is the commonest global nutritional problem which has caused a lot of morbidity and mortality in under five years children. There is increased iron needs due to accelerated growth and development in under-five children, however, low consumption and malabsorption of iron-rich foods in this age-group lead to the high prevalence of anemia.[1]

Anemia causes depression of the immune system with increased tendency for infection and reduction of cognitive function, growth and psychomotor development which leads to difficulties in learning and reduced physical capacity in under five children.[2] Anemia is also associated with socioeconomic, biological, environmental and nutritional factors.[3] In developing countries, about 12 million children under five years old die each year from preventable causes, out of which over six million are either directly or indirectly attributed to malnutrition, mainly under-nutrition that leads to anemia and constitutes a high percentage of infant and child mortality.[4]

There is high variability in the reported prevalence of anemia across the continent of Asia and Africa.[5] In Nepal, the prevalence rate of anemia among children under-five is very high (53%).[6] Many studies have conducted regarding anemia in under five children which are more focused on finding the prevalence and factors associated with anemia in children. The knowledge of childhood anemia among mothers of under five children are scarce. The aim of the research was to study on knowledge regarding childhood anemia among mothers of under five children.

METHODS

The study was conducted in the Maternal and Child Health (MCH) clinic of Tribhuvan University Teaching Hospital (TUTH) situated at Maharajgunj, Kathmandu, Nepal. Cross-sectional descriptive research design was used to find out the knowledge of childhood anemia among mothers of under five children. Nonprobability purposive sampling technique was used to select the study sample. The sample size was 206, calculated at 95% confidence interval, taking 5% allowable error. The study was ethically approved by IRC, TU, IOM, Letter no {279(6-11) E2 077/078} on February 9, 2021 and permission from TUTH was also obtained.

A structured questionnaire related to knowledge regarding childhood anemia among mothers of under-five children was developed by the researcher after extensively reviewing the related literature. The instrument was divided into two parts: Part I: Questions related to socio-demographic characteristics. It included 10 questions. Part II: Questions related to knowledge regarding childhood anemia among mothers of under five children. It consisted of 30 questions. For each correct response 1 score and incorrect response 0 score was given. The maximum score was 65. The content validity of the research instrument was maintained through review of literature, subject matter experts and research experts. The questionnaire was translated into Nepali language and back translated into English language with the help of bilingual subject experts. Data collection was initiated after ethical approval and permission from TUTH. Before data collection, verbal consent was taken from respondents after explaining objectives of the study. Face to face interview for 15 - 20 minutes was done with maintaining confidentiality. Respondents' dignity was maintained by giving right to discontinue from the study at any time. Finally, researcher thanked the respondents as well as related departments for their cooperation and coordination. Data analysis was done using SPSS version 20 for windows. Data was analyzed by using descriptive statistical method like frequency, percentage, mean, standard deviation, median, interquartile range and inferential statistics like chi square was used to measure the association between knowledge and socio demographic variables. The research was conducted for a duration of 12 weeks from 2021 Jan until Apr.

RESULTS

Total 206 mothers were interviewed for data collection. The mean age of the respondents was 27.26 ± 4.35 years. Nearly half (42.7%) of them were Janajati. Most of the (93.2%) were literate and more than half (54.3%) of mothers completed up to secondary education. Majority (75.2%) of the participants were home maker. More than half (60.6%) of the mothers had single children and more than half (51%) of the mothers had youngest children age below 14 months.

It was observed that almost all (95.1%) attended ANC clinic more than four times during pregnancy. Most of the mothers (96.1%) had their delivery in Health Institutions. According to child's age, 92.2% immunized their children as per schedule of Expanded Program of Immunization and only 25.7% mother had given deworming tablet to their children who were above 12 months.

Table 1. Mothers Knowledge on Meaning and High-Risk Group of Childhood Anemia

Variables	Number	Percent
Heard about childhood anemia		
Yes	185	89.8
Meaning of anemia		
Decrease hemoglobin level in blood	25	12.1
*High risk group Anemia in pregnancy	138	76.2
Low birth weight	120	66.3
Twins	113	62.4
Preterm	101	55.8

* Multiple response

Most of the mothers (89.8%) had heard about childhood anemia (Table 1). Only 12.1% mothers were able to describe anemia in a correct manner and majority (85.9%) mentioned that anemia is not communicable. Regarding knowledge on high-risk group, majority (76.2%) had mentioned anemia in mother during pregnancy.

Table 2. Mothers' Knowledge on Risk Factors and Causes of Childhood Anemia

Variables	Number	Percent
*Risk factor Insufficient iron and vitamin diet	168	90.3
Chronic illness	101	54.3
Loss of appetite	68	36.5
Fast growth and development	22	11.8
*Causes		
Malnutrition	172	91.0
Inadequate breast feeding	151	79.8
Diarrhea	129	68.2
Worms' infestation	101	53.4
Delay Weaning	78	41.2
Malaria	45	23.8
Feeding cow milk only	18	9.5

* Multiple response

Regarding knowledge on risk factor, almost all (90.3%) of the mothers viewed as insufficient iron and vitamin in diet of children and almost all mothers (91.0%) had viewed malnutrition as causes of anemia (Table 2).* Multiple response

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Table 3. Mothers' Knowledge on Signs and Symptoms of Childhood Anemia

Variables	Number	Percent
*Signs and symptoms		
Pale face	178	95.1
Lethargy / Fatigue	159	86.8
Anorexia	110	60.1
Pale conjunctiva	108	57.7
Whitish nail bed	73	39.0
Headache	22	12.0
Eating soil, paper	17	9.2

* Multiple response

Almost all (95.1%) mothers were able to identify pale face as the sign of anemia in children (Table 3).

Table 4. Mothers' Knowledge on Management of Childhood Anemia

Variables	Number	Percent
*Management		
Attained health center	175	92.5
Iron and vitamin rich in diet	140	74.0
Iron supplementation	53	28.0
Type of food		
Iron and vitamin source	168	81.5
Iron supplementation	169	82.0
Drinks that enhance function of iron (n = 169)		
Fresh juice	9	5.3
Care after iron supplementation (n = 169)		
Brushing teeth or gargle	72	42.6
Blood transfusion		
Severe anemia	180	87.3

* Multiple response

Almost all (92.5%) had preferred to seek medical services (Table 4). Regarding knowledge on necessity of iron supplement on childhood anemia, most (82.0%) had positive response. Very few (5.3%) mothers knew that fresh juice enhances the function of iron. Regarding knowledge on care of child after iron supplementation, more than one fourth (42.6%) had mentioned brushing teeth or gargle the child mouth. Regarding knowledge on blood transfusion, most of the (87.3%) mothers agreed on severe anemia.

Table 5. Mothers Knowledge on Preventive Measures of Childhood Anemia

Variables	Number	Percent
Preventive measures*(n=188)		
Balance diet	186	98.9
Exclusive breast feeding	166	88.2
Immunization	152	80.8
Timely weaning	117	62.2
Use of Iron during pregnancy	117	62.2
Deworming	114	60.6
Maintaining personal hygiene	110	58.5
Preventing Malaria	50	26.5
*Rich iron food		
Green vegetables and fresh fruits	199	98.0
Milk and milk product	136	67.0
Meat, fish, egg	156	76.8
Vitamin for iron absorption		
Vitamin C	34	16.5
Source of vitamin C		
Lemon/ Orange/ Amala	130	63.1
Duration of exclusive breast feeding		
Up to 6 months	198	96.1
Right age of weaning		
6 months	194	94.1

*Multiple response

Almost all (98.9%) mothers seemed to be aware about the need of balanced diet to prevent anemia (Table 5). Regarding iron rich food, almost all (98.0%) were aware about high iron content of green vegetables and fruits. Similarly, very few (16.5%) had knowledge of vitamin C. Relating to knowledge of exclusive breast feeding and suitable age of weaning to mothers, almost all (96.1%) and (94.1%) mothers agreed on six months, respectively. Also, almost all mothers viewed that anemia can lead to life threatening condition and few mothers were aware that anemia causes delayed mental growth and development in children. Nearly two third had high level of knowledge and more than one third (37.9%) had inadequate knowledge regarding childhood anemia. There was significant association between knowledge of mother on childhood anemia and occupation of mothers (p=0.006).

DISCUSSION

This study attempted to measure the association between levels of knowledge and socio-demographic variables. Regarding definition of anemia, majority of the mothers had heard about childhood anemia and among them very few mothers correctly answer that decrease hemoglobin level in blood is anemia. This finding is consistent with the finding of Abdel et al[8] where 14.9% mother gave correct and enough answer on meaning of anemia in children. Regarding risk factors and causes of childhood anemia, most of (91%) the mothers mentioned malnutrition similar to the studies done by Ajala OJ et al[4] which showed that almost all (92.5%) mother agreed malnutrition was the cause of anemia in children.

This study showed that majority of mothers agreed that anemia in pregnancy can lead to anemia in child during infancy. This was in contradiction with the finding by Ngimbudzi et al[9] where small portion of participants (17.5%) knew the connection between maternal anemia and infant anemia. These differences may be because of low sample size and level of education where 40.0% were illiterate and more than half (55.0%) had only primary education. Regarding the signs and symptoms, most of the mothers had knowledge of pale face followed by lethargy / fatigue, anorexia and pale conjunctiva. This finding was in contradiction with the findings of Ughasoro et al[10] which revealed that only 20.3% mother detected anemia from skin color, 15.6% checked the eyes whereas only 8.1% mother checked palm and finger.

Our study showed that most of the mothers attained health center and consumed iron and vitamin rich diet, took iron supplements and significant proportions had knowledge about the blood transfusion in severe anemia. This finding was in contradiction with the study by Guedenon et al[11] which revealed that around 70.0% mother took their children to health center for anemia treatment, most frequently (45.0%) cited iron folic followed by transfusion (28.0%). This can be explained by the differences in geographical variation and sample size.

Regarding prevention of childhood anemia, most of the mothers had knowledge of prevention of childhood anemia where almost all agreed on the balanced diet and two third of the mother had knowledge about deworming. The proportion of knowledge in our study was higher than with the finding of Kumari et al[12] where majority (71.0%) of the mother had knowledge on anemia and it could be prevented with nutritious food and half of the mothers stated deworming for prevention of childhood anemia. Regarding knowledge on complications of anemia, most of the mothers agreed on delayed physical and mental development, less than half stated about the heart problems and less than one fourth about the problem in

communication and learning. Similar complications were mentioned in the study by Al-Jamri A et al[13] where 64.7% mentioned speech delay, 41.8% poor concentration, 39.0% growth delay, 31.0% learning difficulty, 18.1% heart problems.

The study result showed that nearly two third of the mothers had high level of knowledge regarding anemia. The finding is inconsistent with the finding of Ismail A et al[14] which showed that more than one fourth (28.6%) mothers had high level of knowledge regarding iron deficiency anemia. Another study finding of Abdinia et al[15] showed that 15.0% of mother had high level of awareness on anemia. This may be due to differences in sample size and setting of the study. In this study, there is statistically significant association between level of knowledge and occupation of mother which is similar to the study conducted in India by Kumari S et al[12] where the significant association was found between knowledge of anemia and occupation of mother ($p < 0.01$).

This study was carried out in only one MCH clinic and nonprobability purposive sampling technique was adopted to select the samples so that generalization of the findings cannot be done. The findings of the study would provide the baseline data regarding knowledge of childhood anemia among mothers of under five children. It might be beneficial to the health personnel for providing knowledge on childhood anemia to the mothers and family while providing MCH services in the hospital. Likewise, the findings may serve as a reference for the future researcher.

CONCLUSIONS

This study concluded that very few mothers knew the exact meaning of anemia and almost all mentioned malnutrition as common cause of childhood anemia. The knowledge level on childhood anemia was high in nearly two third of mothers of under five children. There is statistically significant association between level of knowledge and occupation of mothers.

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