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A cross-sectional study on Nutritional status of Pregnant and lactating mothers of Shuklaphanta Municipality of Kanchanpur District of Far-west Nepal.

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Abstract:
Introduction: Adequate nutrients are pivotal to growth and development and vital for our immune system to function at its best. Especially during pregnancy and lactation, energy needs increase along with the greater requirement for macronutrients and micronutrients to support fetal growth and reduce birth defects in newborns. The cornerstone of a child's survival, growth, and development is good nutrition. Children that are properly nourished perform better academically, socially, and physically in their communities. In the midst of disease and catastrophe, they are considerably stronger. Aims: The objective of this research was to determine the nutritional health of pregnant and lactating women, as well as the risk factors that may be associated with it. Methodology: The study area was Shuklaphanta municipality of Kanchanpur district of far west Nepal. Fully structured questionnaire was used in this study. This is a cross-sectional study having the sample of 227 respondents. Fully structured questionnaire was used in the study. Findings: As a key finding regarding the BMI almost 47.1% were under nourished which is huge amount. Similarly, regarding the MUAC 29.1% were under nourished and almost 27.8% of the respondents were at the risk. These factors might be matter of concern for the municipality. Almost 70.1% of the respondents were having very good level of knowledge and the significant association was seen among the smoking, fluid intake, health facilities visit, food consumption patterns. Conclusion: the nutritional status of pregnant women and lactating mothers in the Shuklaphanta municipality is matter of concern.

Keywords: Pregnant women, Lactating mothers, BMI, MUAC, Shuklaphanta Municipality

Executive summary:

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Findings: As a key finding regarding the BMI almost 47.1% were under nourished which is huge amount. Similarly, regarding the MUAC 29.1% were under nourished and almost 27.8% of the respondents were at the risk. These factors might be matter of concern for the municipality. Almost 70.1% of the respondents were having very good level of knowledge and the significant association was seen among the smoking, fluid intake, health facilities visit, food consumption patterns.
Conclusion: the nutritional status of pregnant women and lactating mothers in the Shuklaphanta municipality is matter of concern.

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Introduction

Adequate nutrients are pivotal to growth and development and vital for our immune system to function at its best. During every stage of life, a well-balanced diet is a prerequisite for sound health, robust strength, and the longevity of our body. Especially during pregnancy and lactation, energy needs increase along with the greater requirement for macronutrients and micronutrients to support fetal growth and reduce birth defects in newborns. (1)

In accordance with a 2016 survey, the incidence of malnutrition is higher in Nepal, around 18% of Nepalese women belonging to reproductive age are malnourished. Particularly, 41% of those surveyed were anemic, with a greater frequency (46%) among women who were pregnant and lactating. (2)
In comparison to the development region of Nepal, the far western part is slightly backward, particularly the Shuklaphanta municipality. This municipality features twelve wards, with the majority of its residents living in remote regions. Due to their physiology, environment, and socioeconomic status, the majority of women and girls in this region are at a significant risk of malnutrition. (3)

As per the RDA report of ICMR 2020, the requirement of macronutrient i.e., carbohydrate during pregnancy and lactation is 175gm/d and 200gm/d respectively. Likewise, protein requirement during pregnancy is 45.7+9.5gm/d (2^{nd} trimester) and 45.7+22.0gm/d (3^{rd} trimester) and lactation is 45.7+16.9gm/d (0 to 6m) and 45.7+13.2gm/d (6-12months). For the essential micronutrients, the nutrient requirement for pregnancy and lactation is 1000mg and 1200mg for calcium, 40mg and 23mg for iron, 14mg and 14.5mg for zinc, 250ug and 280ug iodine and 570ug and 330ug folate respectively. (4)
During the lactating phase the mother provides the milk to her young ones. (5) The nutrients that she consumes is circulated to the infants or fetus and plays a substantial role in their nutritional status. The cornerstone of a child's survival, growth, and development is good nutrition. Children that are properly nourished perform better academically, socially, and physically in their communities. In the midst of disease and catastrophe, they are considerably stronger. (6)

The macro nutrient deficiency can be detected quickly as compared to that of the micronutrient deficiencies, this might be due to the morphological changes can be seen in the macro nutrient deficiency. (7) Even though the quickly reviled malnutrition can solved in time but in case of the micronutrient deficiency it's difficult to detect at the beginning and once it is detected it took a long to mitigate the problems. (8)

The aim of this study was to assess the nutritional status and associated factors of pregnant women and lactating mothers of the Shuklaphanta municipality. The independent variables were demographic profile, agricultural profile and Micro Nutritional Assessment (MNA).

Methods and Materials:

The cross-sectional descriptive was conducted on the Shuklaphanta Municipality of Kanchanpur district of far west Provence of Nepal. This was the quantitative study and fully structured questionnaires were used, along with the questionnaires Micro Nutritional assessment (MNA) was done through the Body Mass Index (BMI) and Mid Upper Arm Circumference (MUAC-Pregnant and lactating). The normal value of MUAC for the normal women was taken 23cm and below it was considered as under nourished. (9)
Regarding the sampling technique the snowball sampling was used, this was taken due to the reason that Shuklaphanta municipality is large in area and population density on the municipality is low, the research team has taken the guidance of the (Female Community Health Volunteers) FCHV in the area.
The sample was 227 respondents. The prevalence of malnutrition among the women as taken which was 18 % age. The confidence level of 95% and margin of error 5% were taken in the study. The data were collected through the interview techniques. Thus, collected data were entered in to the MS-Office excel 16 and thus entered data were analyzed in to the SPSS version 22.

Major findings

Socio demographic status

Indicators	**Respondents**	**Frequency**	**Percentages**
Ethnicity	**Brahmins**	**77**	**33.9**
	Chhetries	58	25.6
	Tharus	57	25.1
	Dalits	35	14.4
age category	15-20	29	12.8
	21-25	**82**	**36.1**
	26-30	63	27.8
	31-35	39	17.2
	36-40	11	4.8
	40-49	3	1.3
Category	pregnant women	97	42.7
	lactating mothers	**130**	**57.4**

Occupations	**Agriculture**	**116**	**51.1**
	Others	111	48.9
income of the respondents	20000-50000	59	26
	50000-10000	**78**	**34.4**
	100000-200000	59	26
	above 200000	31	13.7

Table 1: Demographic status of the respondents

The table above indicates the demographic status of the respondents which shows the Brahmin were the maximum ethnic group consists of the 33.9%, 57.4% were the lactating mothers, regarding the age categories maximum of the 36.1% of the respondents were in between 21-25 years of age and maximum of the respondent's annual income was in between 50000-100000 with the 34.4%.

Substance abuse

indicators	Responses	Frequencies	Percentages
Smoking	Yes	5	2.2
	No	221	97.4
	Occasionally	1	0.4
Alcohol Consumption	Yes	6	2.6
	No	215	94.7
	Occasionally	6	2.6

Table 2: substance abuse among the respondents

Regarding the substance abuse of the respondents only2.2% of the respondents were smokers and regarding the alcohol consumption 2.6% of the respondents used to drink alcohol.

Nutritional knowledge

Scores	Level Of Knowledge	Frequencies	Percentages
0-4	Poor	2	0.9
5-8	Good	66	29
9-12	Very Good	159	70.1

Table 3: level of knowledge

Regarding the level of knowledge 0.9% of the respondents were having the poor level of knowledge, followed by 29% of good and 70.1% were having the very good level of knowledge level.

Mini Nutritional Assessment (MNA)

Indicators	Results	Frequencies	Percentages
Mid Upper Arm Circumferences (MUAC)	Normal	80	35.2
	At risk	63	27.8
	Obese	18	7.9
	Under Nutrition	66	29.1
Body Mass Index (BMI)	Normal	77	33.9
	Under Nutrition	107	47.1
	At risk	30	13.2
	Over weight	13	5.7

Table 4: Micronutrient assessment of the respondents

According to the anthropometric measurement of the Mid Upper Arm Circumference (MUAC) maximum of the respondents 35.2% were normal, followed by 29.1% were under nourished, 27.8% were at risk and 7% were obese. Similarly, regarding the Body Mass Index 47.1% were under nourished followed by 33.9% normal, 13.2% were at risk and 5.7% were overweight.

Association between Nutritional status and different variables

variables	Indicators	Normal %	At risk %	Obese %	under Nutrition %	Chi-square Value	D.F	P-Value
Smoking	Yes	1.3	0.4	0	0.4	13.16	3	0.04
	No	33.9	26.9	7.5	28.7			
fluid Intake	more than 4 cups per day	29.1	21.1	7	20.7	9.6	3	0.02
	depends upon the seasons	6.2	6.6	0.9	8.4			
health center visits	Yes	7.5	27.8	7.9	26	8.4	3	0.038
	No	2.2	0	0	3.1			
	two times a day	7	8.40	0.90	8.80	15.5	3	0.035

Food consumption habits	more than two times a day	28.2	19.4	7	20.3			
Occupation	Agriculture	10.1	7.5	0.9	7.5	13.16	3	0.155
	Non Agriculture	35.2	20.3	7	21.6			

Table 5: Association between variables and nutritional status

The table above demonstrates the association among the different variables and nutritional status. According to the major findings in the degree of freedom (D.F) 3, smoking, fluid intake, health center visit, food consumption had shown the significant association as they have the P-Value less than 0.05 and occupation of the respondent have shown a association with the p-value 0.155 which is greater than that of the 0.05.

Discussion:

The study was conducted in the farwestern part of Nepal. The study consists of the 227 respondents as a study sample. The discussion of these finding seems to be so interesting.

To begin with the demographic profile Brahmin were 33.9%, followed by the chhetries 25.16%, tharu 25.2% and dalit 15.14. This finding reveals that Brahmin has a high population even though the terai area is an endogenous place for the tharu community. The finding may says that there might be low pregnancy rate among the tharu communities. In contrast to it another reason might be most of the tharu population has migrated from Shuklaphanta Municipality to the Laljhandi rural Municipality.

It was seen that 70.1% respondents were having very good of knowledge reagarding the nutrition, 29% were having a good level of knowledge and only 0.9% of the respondents were having poor level of knowledge. This might be due to the reason that Shuklaphanta Municipality lies in the terai belt of Nepal and terai is quite accessible to the educational institute and educational institution along with it they seems to quite accessible with the health communication materials like radio, television, tiktok and Facebook in which they can get enough knowledge regarding the nutrition during pregnancy and lactating phase.

The significant association was seen among the smoking, fluid intake, health facilities visit, food consumption patterns, which means there was no evidence to accept the null hypothesis. The study conducted by the Bhandari and Shiva, 2014 shows the quite similar significant association such as dietary intake, health facilitation visits regularly, level of knowledge and family income most of the component seems to be similar.(1)

The BMI value and MUAC value shows the difference in the results, regarding the MUAC 29.1% of the respondent were under nourished which means the MUAC value less than 23cm and BMI shows the 47.1% under nourished. As there is gap of almost 18% this might be due to the physiology of the respondents, in the MUAC we take the circumference of upper arm of women but MUAC doesn't have a relation with the body weight. Due to the height and weight there variation there might a gab among the respondents.

Limitations of the study

The main limitation of the study is that this study was conducted in the Shuklaphanta Municipality and the duration of the study was just three months. Along with the time no source of funding was provided by any source.

Conclusion

The study are has the highest number of Brahmin respondents followed by Chhetri, tharu and dalit community. It seems that there is a diversity among the respondents. The major of the municipality seems to be agriculture.

The overall nutritional status of the mothers doesn't reveal to be well, regarding the BMI almost 47.1% were under nourished which is huge amount. Similarly regarding the MUAC 29.1% were under nourished and almost 27.8% of the respondents were at the risk. This factors might be matter of concern for the municipality.

Regarding the positive output of the study 70.1% of the respondents were having the good level of knowledge which represents that the municipality public are having good level of knowledge regarding the nutrition.

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