Original Research Article

Chronic Energy Deficiency with Socio-Demographic Characteristics, Anthropometric Measurement among Reproductive Age Non-Lactating and Non-Pregnant Women Residing in Prayagraj, Uttar Pradesh, India

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ABSTRACT

Introduction- Malnutrition is major health challenges persistent in developing countries such as Asia and Africa. In present era prevalence of over nutrition obesity and undernutrition and also major health concern in the world. Chronic Energy Deficiency during reproductive age is greater risk for mortality, morbidity, low birth rate, falls in body fat, falls in metabolic rate and poor physical working capacity etc.

Objectives- To assess chronic energy deficiency with socio demographic Characteristics and Anthropometry in reproductive age non- lactating and non-pregnant women reproductive age 15-49 year of age.

Methodology- A total no of 310 of female respondents selected in study, conducted January 2019 to December 2020. According to respondents' weight and height, recorded their BMI to assessment undernutrition in female respondents according to WHO parameter of BMI.

Result – A total of no of the respondents in this study relationship between BMI and height and weight was positive while negative relation found between BMI and WHR

Discussion – Chronic Energy Deficiency among female reproductive age women was major health problem. Socio economic status, occupation, marital status, educational qualification was play vital role in CED. It should be required to monitor and nutrition intervention being applied and should give focus on reproductive age women to combat CED.

Conclusion- CED and socio-demographic characteristics and Anthropometry was significantly related to each other according to this study.

Keywords- Chronic Energy Deficiency, BMI, food consumption pattern, reproductive age, non-pregnant, non - lactating.

INTRODUCTION

Reproductive age group women are more prone or susceptible to Chronic Energy Deficiency. Malnutrition is most challenging globally public health problem. It includes over nutrition, obese and undernutrition as well as diet related nutrient deficiency. Over nutrition defines

as excessive intake of energy in diet Obesity is a complex disease involving an excessive amount of body fat. It is a medical problem that increases the risk of other diseases and health problems, such as heart disease, diabetes, high blood pressure and certain cancers. Undernutrition divided into Protein Energy Malnutrition (PEM) and Micronutrient deficiency. Undernutrition or Chronic Energy Deficiency define as a steady- state at which a person is in energy balance, although at a "cost" either in terms of health risk or as impairment of function and health. It causes fatal to women such as poor health, low birth weight, maternal mortality rate, morbidity etc. CED also be defined based on Body Mass Index (BMI) as <18.5 kg/m^2 Chronic energy deficiency (CED) and anemia are important manifestations of poor nutritional health. Both conditions are major problems in low to middle income countries with developing economies, including India; a country that has approximately 217 million (26%) of the World's undernourished population. The United Nation set the sustainable development goal (SDG) targets reduction of Malnutrition. The World Health Organization (WHO) also sets a policy brief called double-duty actions for nutrition to end all burden of malnutrition. By 2030.

MATERIALS AND METHODS

This study is based on cross sectional study in Prayagraj district conducted January 2019 to march 2020. Total 310 of the respondent's age from 15 to 49 reproductive age group was included in present study. In this study ethical approval for the study was taken from the ethical committee Institute of Medical Science, Banaras Hindu University. Socioeconomic status include

Age, marital status, women educational status, women occupation, husband educational status, family monthly income, family size, head of family, place of residence, religion. Anthropometric measurement including height, weight, WHR. BMI was classified according to the

proposed criteria of WHO (CED III<16, CED II = 16.0 − 17.0, CED III - 17- 18.5, Underweight - <18.5. The respondents were interviewed with the help of pre testing and pre designed Performa. Modified B.G Prasad Scale 2019 was used to study socio economic status the height and weight of the respondents were measured by using standard procedures. For measuring weight, a standard weighing scale was used and the height was recorded on standing erect and bare feet on the floor against the wall, with feet parallel and shoulders and back of head touching the wall then measuring scale was put on the top of their heads across the wall and height was measured in centimeter up to nearest of 0.1 cm.

Statistical analysis – Statistical procedure was done by SPSS version 16.0. Mean, Standard deviation, Chi square etc. were used to examine data.

Exclusion criteria – pregnant women, lactating women, women not willing to participate.

RESULT
Demographic determinants

Table no. 1 Distribution of respondents on the basis of their age, educational Status and marital status

Sl. No.	Age	Number	Percentage (%)
1	Up to 24	158	51.0
2	25-34	87	28.1
3	35-45	65	20.9
Total		310	100.0
Average age ± SD = 26.18 ± 8.14, Range = 17-45			

From table 1.2 shows that majority of the respondents i.e., 51% belonged to age group up to 24 year 28.1% females were in 25-34 years and only 20.9% females' respondents were belonged to 35-45 years of age. Average age of the respondents was found 26.18 ± 8.14 years.

Educational status

Sl. No.			
1	Illiterate	97	31.3
2	Primary	13	4.2
3	Middle	33	10.6
4	High- School	48	15.5
5	Intermediate	66	21.3
6	Undergraduate	50	16.1
7	Postgraduate	3	1.0

From the table 31.3% females were illiterate 21.3% were passed intermediate, 21.3% females were passed intermediate, 16.1% were passed undergraduate 15.5% were passed high school 10.6 % passed junior high school, 4.2% were females passed primary and only 1.0% were passed postgraduate respectively.

Marital status

1	Unmarried	134	43.2
2	Married	171	55.2
3	Widow	5	1.6

From the given table it was revealed majority of the female respondents about 55.2% were married 43.2% were unmarried whereas only 1.6% were widow which were very low in number.

Distribution of respondents according to their family socio economic status

Socio economic status	No.	Percentage
Lower	214	69.0
Upper- lower	89	28.7
Lower middle	7	2.3
Total	310	100.0

Socio economic data indicated that a 69% had come to low socio-economic group followed by 28.7% from upper lower group and only 2.3% informed lower middle group respectively.

Table no- 1.1 Distribution of respondent's occupation along with occupation of their family household

Occupation	Self		Head of family	
	No.	Percentage	No.	Percentage
Labor	-	-	98	31.6
Agriculture	23	7.4	95	30.7
Shopkeeper/business	-	-	41	13.2
Govt. job	1	0.3	7	2.3
Private job	12	3.9	68	21.9
Housewife	164	52.9	1	0.3
Students	110	35.5	-	-
Total	310	100.0	310	100.0

Above table indicated occupation of the respondents and their head of the family members. Majority of the respondents were housewives (52.9%) whereas a very small percentage i.e., 0.3% were working in government sector according to their self-occupation. Major occupation of the head of the family was working as laborer (31.6)

and only 2.3% were working in Government sector. Nutrient intake and food consumption pattern

Table – 1.2 Distribution of respondents according to frequency of food intake

Frequency of taking meal in a day	No.	Percentage
One time	6	1.9
Two time	172	55.5
Three time	127	41.0
Four Time	5	1.6
Total	310	100.0

Above table represented meal frequency in the respondents it showed half of the study subjects were taken their meal twice in a day (55.5%), 41% were three times, 1.9 % in a one time and 1.6% were in four time in a day based on the present study.

Table no 1.3- Distribution of respondents responds regarding meal skipping along with their skipping status

Skipping	No.	Percentage
Yes	188	60.6
No	122	39.4
Total	310	100.0

Table 1.4 represented skipping meal status 60.6% skipped meals and Time of skipping

Breakfast	157	83.5
Lunch	28	14.9
Dinner	3	1.6
Total	188	100.0

In case of regarding meal skipping, it was recorded that almost half of the study i.e., subjects said 60.6% was taking salad included with meal while remaining 39.4% were not included salad in their diet. In case of skipping of time 83.5 of the study of the group were skipping breakfast daily 14.9% were skipping lunch and only 1.6% were skipping their dinner daily.

Table no 1.5 Distribution of respondents according to inclusion of salad in their food along with frequency.

Intake of salad	No.	Percentage
Yes	252	81.3
No.	58	18.7
Total	310	100.0

On the basis of inclusion of salad in food, 81.3% said that they were included salad in their diet and 18.7% said no salad included in diet.

Frequency of taking salad

Daily	22	8.7
Sometime	230	91.3
Total	252	100.0

Frequency of taking tea

One times	133	51.4
Two times	182	31.7
Three times	33	12.7
Four times	11	4.2
Total	259	100.0

According to frequency of taking salad approx. 91.3% of the respondents were having salad in the diet only 8.7% of the respondents did not have salad in their diet.

Table no 1.6 Distribution of respondents according to quantity of drinking water, and frequency of taking tea

Intake of drinking water (in glass)	No.	Percentage
Four	102	32.9
Six	122	39.4
Eight	86	27.7
Total	310	100.0
Average water intake = 5.90 ± 1.56, Range (428) glass		

Habit of taking tea	No.	Percentage
Yes	259	83.5
No.	51	16.5
Total	310	100.0

The above table depicted that quantity of drinking water approx. 39.4% respondent's daily inta51.4ke of water having 6 glasses of water, 32.9% having 4 glasses water, 27.7% were having 8 glasses of water and average water intake is 5.90 ± 1.56. in case of habit of taking tea more than half of the respondents having taken tea regularly only 16.5% were not take n tea regularly in case of frequency of taken tea 51.4% of the study subjects' frequency of taken tea were in on time only whereas only 4.2% were frequency of taken tea were in four time

Table no 1.7 Distribution of respondents according to their addiction/ habit

Type of addiction	Yes		No.		Total	
	No.	Percentage	No.	Percentage	No.	Percentage
Tobacco	68	21.9	242	78.1	310	100.0
Pan masala	54	17.4	256	82.6	310	100.0
Cigarette/ bidi	08	2.6	302	97.4	310	100.0
Total	66	21.3	244	78.7	310	100.0

Findings from the study regarded of habit or addiction showed that 21.9% of the rural subjects were habituated to chewing tobacco 17.4% were addicted to pan masala and only 2.6% were smoking bidi.

Distribution of food consumption pattern of selected respondents

Consumption Pattern						
	Daily	Alternative	Weekly	Monthly	Sometimes	Never
Cereals	310 (100.0)	-	-	-	-	-
Pulses	286 (92.3)	13(14.2)	7(2.2)	4(1.3)	-	-
Roots & tubers	186 (60.2)	35 (11.3)	46(14.8)	18(5.8)	25(8.1)	-
Green Leafy Vegetables	7(2.3)	10(3.2)	49(15.8)	110 (35.5)	134 (43.2)	-
Other veg	17 (5.5)	9(2.9)	35(11.3)	108(34.8)	141 (45.5)	
Fruits	1(0.3)	1(0.3)	8(2.6)	73(23.5)	227(73.3)	-
Milk & Milk Products	2(0.6)	4(1.3)	14 (4.5)	84 (27.1)	206(66.5)	-
Meat, egg, fish	-	-	2(0.6)	54(17.4)	86(27.7)	168(54.3)
Sugar & Jaggery	308(99.4)	-	-	-	2(0.6)	-
Fat & Oils	310(100.0)	-	-	-	-	-
Nuts	-	-	2 (0.6)	20 (6.5)	278(89.7)	10(3.2)
Beverages	291(93.9)	-	-	-	13(4.2)	6(1.9)
Junk food	-	-	8 (2.6)	42(13.5)	252(81.3)	8(2.6)

It was revealed from the table that among all of the rural subjects consumed cereals daily especially in the form of rice and wheat flour about 92.3% of the study group consumed pulses daily rest of the respondents as 42%, 2.2% and 1.3% were alternative weekly and monthly consumed pulses. 60.2% consumed root and tubers in form of potato and onion etc. and remained 14.8%, 11.3%, 8.1%, 5.8% used as weekly,

alternatively, sometimes and monthly successively. Green leafy vegetables 43.2%, 35.5%, 15.8%, 3.2%, 2.3% were among the respondents consumed GLF sometimes, monthly, weekly, alternative and daily respectively. In case of other vegetables 45.5% consumed sometimes rest of respondents 34.8%, 11.3%, 5.5% and 2.9% consumption pattern monthly, weekly, daily and alternatively. In case of fruit consumption, it was observed about 73.3% respondents consumed sometimes on the contrary 23.5%, 2.6%, 0.3%, respondents consumed monthly, weekly, alternatively, and daily basis. Majority of the women 66.5% of the study subject consumed milk on a basis of sometimes and only 0.6% consumed milk on a daily. Consumption of meat egg and fish it was found that 27.7% consumed it sometimes only 0.6% consumed in weekly basis. In case of sugar and jaggery 99.4% consumed sugar daily. In case nuts 89.7% consumed nuts. in case of beverages most of all of the respondents 93.9% consumed in the form of tea daily in basis 4.2% consumed as sometimes and 1.9% never consumed beverages. 81.3% consumed junk food as samosa, fritters etc. sometimes 13.5 said weekly 2.6 said alternative and never consumed junk food

Anthropometric measurement

Table no 2- Correlation matrix among different stated Anthropometric measurement

Variable	Anthropometric measurement			
	Weight	**Height**	**BMI**	**WHR**
Weight	1			
Height	.427***	1		
BMI	.935***	.080	1	
WHR	-.116*	-.080	-.099	1

The findings of the table significant positive relationship found height, BMI (P<0.01) in spite of negative correlation between BMI and WHR

DISCUSSION

CED among women is one of the significant health crises and also plays important role to mortality as well as morbidity in form of mild moderate and severe nutritional grade. According to their

Socio demographic characteristics (age-Average age ± SD 26.18), educational status was relatively less, more than half of the study subjects were married, according to their socio-economic status half of the respondents belonged to lower class group, on the basis of their occupation 52.9% of the female housewives and occupation of their head was mainly work as labor. In case of food consumption of the study subject 55.5% were consuming meal 2 times in a day, skipping percentage was 60.6% mostly meal skipping in morning breakfast similarly in case of salad consumption 81.3% were consuming salad in sometimes, frequency of taking water 6 times in a day common. Average water intake 5.90 ± 1.58, 83.5% was taking tea, addiction with tobacco i.e. 21.9% likewise their consumption pattern majority of the respondents consume cereals, pulses root and tubers in major amount on daily basis rest of food consume in less amount in daily basis or alternatively, weekly, monthly and sometimes.

Accordingly, their correlation between variables of anthropometry it was found that positive relationship between height weight BMI (P<0.01) but negative correlation found in case of WHR.

CONCLUSION

According to this study sociodemographic pattern and Anthropometric was play significant role in Chronic Energy Deficiency in non-pregnant and non-lactating reproductive age women it was found CED was more prevlant in this age group

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