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Assessment of nutritional status and dietary pattern among women of reproductive age group (18-40 year) in an urban slum of Mumbai City- A community-based cross-sectional study

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ABSTRACT

Adults in the Asian country are stricken by the twin burden of deficiency disease, like over nutrition and undernutrition. The literature suggests that solely 52% of ladies and 57 % of men at a standard weight for his or her height. Women's health is connected to their status in society. Women's health is progressively recognized as a section that has emerged because of an increase in women's demand for distinctive health care services that contemplate gender, life circumstances, education & religion, economic & socio-cultural environments. The 3 major constructs related to comprehensive women's health outcomes embrace personal factors, the health system factors, and social, economic, and cultural factors. A community-based cross-sectional study was conducted semi-quantitative information assortment ways. The study concerned interviews employing a questionnaire, dietary intake, anthropometry, observations of clinical signs, and assessment of their public knowledge and awareness concerning health, nutrition, and sanitation. 100 ladies within the procreative cohort of 18-40 years residing at Mumbai urban slum were included. Analyses were finished with descriptive and inferential statistics. The mean BMI of the ladies was found to be 24((±10.19) kilogram / m2 with 20% of them being underweight and 36ys being overweight or obese. 28%of ladies had a waist-hip ratio of over 0.85. Dietary deficiencies additionally present in this woman reflecting their effects of the clinical signs like pale conjunctiva, menstrual problem, and maternity complications, etc. The mean general awareness score found to be 48.54 (±24.28) that mirrored that subjects possessed average information concerning health, nutrition, and hygiene. Higher prevalence of overweight and abdominal fatness was determined among urban slum women of the procreative cohort. Therefore, measures are required to reinforce diet quality and education for urban slum women so that they rise in economic status and are higher nourished. It's needed to conduct the tutorial programs on health and nutritional aspects. Nutritional programs like WIC (Women, Infant, and Child) for women ought to be conducted. Improve nutrition for ladies and adolescent girls through programs that support higher nutrition for ladies and girls, as well as fortification and salt iodization.

Keywords— *Urban Slum women, nutritional status, Dietary Pattern*

1. INTRODUCTION

The world Health Report identifies the highest 10 risks, globally & regionally, in terms of the burden of sickness they cause. The 10 leading risk factors globally are underweight, unsafe sex, high blood pressure, tobacco consumption, alcohol consumption, unsafe water, sanitation & hygiene, iron deficiency, indoor smoke from solid fuels, high cholesterol & obesity. Along this accounts for over one-third of all deaths worldwide. [1]

As per the 2017 census of India, the whole population of India is 1.34 billion out of that 697,000 are males and 652,000 are females. [2] Indian ladies have high mortality rates, significantly throughout childhood and in their procreative years. The health of Indian ladies is actually coupled to their status in society, particularly for those living within the slum. Research into ladies status in society has found that the contributions Indian women create to families are typically unnoted. Instead, they are typically thought to be economic burdens. There's a robust preference for sons in the Asian country as a result of they are expected to worry for aging folks. This son preference & high dowry prices for girl ends up in mistreatment of daughters. Indeed, Indian ladies have low levels of both education & formal labour -force participation. They generally have very little autonomy, living initial below the management of their fathers, then their husbands, and at last their sons. These factors damage the health status of Indian ladies. Poor health has effects not only for ladies, however additionally for their families. Ladies in poor health are additional a lot of to offer birth to low weight infants. They're less probably to be able to give food & adequate lookout of their kids. Finally, a woman's health affects the household's economic well-being as a result of a woman in poor health is less productive within the labor force. In slum wherever ladies are less educated &poor, their health condition is worse, within the context of health as outlined by World Health Organization – 'a state of complete physical, mental & social well -being and not

merely the absence of the disease of infirmity'.[3] One should raise however will this be achieved for Indian ladies. Several million individuals in low- financial gain & informal settlements in cities of our era face similar health challenges. As most of the urban slum dwellers live in tropical countries, their health is besides vulnerable by reasonably tropical diseases and influenced by social and environmental determinants. Health equity will solely be achieved by levelling up living conditions for the poor and by reducing completely differential exposure and vulnerabilities among different groups among the society. Health status is an outcome of the various factors: [4]

1. Poverty, food security, food valuation & deficiency disease.
2. Environmental pollution & degradation.
3. Occupational health issues.
4. Generative health issues.
5. Family economy & wages.
6. Economic development; delineated by per capita financial gain, urbanization & industrialization.
7. Social development; particularly literacy rates.
8. Costs of the private health care system.
9. Public health healthcare delivery system.

Contagious, infectious & waterborne diseases like diarrhoea, amoebiasis, typhoid, viral hepatitis, worm infestations, measles, malaria, T.B., infectious disease, respiratory infections, and reproductive tract infections dominate the morbidity pattern, particularly in slum areas. However, non-communicable diseases like cancer, blindness, mental illness, high blood pressure, diabetes, HIV/AIDS, accidents, and injuries are on the rise.

According to NFHS IV information, 22.9% of ladies have a BMI below 18.5, indicating a high prevalence of nutritional deficiency. Over 1/2 the ladies (53%) are anaemic as shown by the NFHS IV survey. The health status of Indians remains to cause serious concern, particularly that of the slum ladies. this is often mirrored within the life expectancy (68.7 years), the infant mortality rate (41/ 1000 live births), the maternal mortality rate (174/ 100000 live births) [5]; but, over a period some progress has been created. The govt. of India has been creating many efforts in developing health & population policies. However, there are many issues among the implementation of acceptable interventions as a result of economic conditions, gender discrimination, and illiteracy among the population. [6] According to the 2011 Census, 65.46% of Indian ladies were literate. The literacy level of ladies will have an effect on reproductive behaviour, use of contraceptives, health, and upbringing of kids, correct healthful practices, excess to employment & overall status of ladies among the society. An early wedding and giving birth could be a major determinant of women's health and is also in control of the prevailing wide variation among the social-economic status. Inadequate and improper utilization of health facilities and widespread anaemia among all the reproductive age ladies leading to high maternal mortality (122 maternal death per one lakh live birth according to Sample Registration System (SRS) 2015-2017 bulletin). [7]

According to National Sanitation Foundation of the USA; "Sanitation could be a way of life. It's the quality of living the standard expressed in a very clean home, clean firm, clean business, and clean community. Sanitation covers the whole field of dominant the surroundings to prevent sickness and promote health". [8] Hygiene is typically noted as cleanliness or conditions and practices that serve to promote or preserve health. Improved housing, improved nutrition and improved hygiene with improved access to safe water, sanitation, and sensible hygiene good the essential elements for the war against infectious diseases and bases for a clean setting, socio-economic development, and sound public health. [9]

Worldwide, a calculable 2.5 billion individuals lack access to basic improved sanitation, 780 million lack access to improved drinking water and 1.1 billion defecate in open areas.[10] In India, according to NFHS survey IV, the households with an improved drinking water supply is 89.9% and sanitation facility is 48.4%.[4]

2. IMPORTANCE OF THE STUDY

Nutritional status could be a sign of the well-being of a population. Adequate nutritional status of ladies particularly within the procreative cohort is significant for good health and enhanced work capability of ladies themselves conjointly as for the health of their offspring. Poor nutrition is indicative of bigger health risks to each mother and youngsters born to them. The synchronic incidence of overnutrition and undernutrition indicates that ladies in India are stricken by a twin burden of malnutrition. [11] Ladies play a major role in determining the health of the community since ladies are usually health caregivers and recipients at a similar time. Therefore, women's health should be a section a better priority in understanding women's health care desires. [12] The rural to urban inflow has resulted in the development of slums in several places among the city and its fringes with overcrowding, unhealthful and poor sanitary conditions, alongside economic-financial conditions, cause deficiency disease, and poor health condition. The city's urban population is calculable to be over 22 million, and thus the densely inhabited and environmentally unsafe slums and therefore the overall urban rate of growth is incredibly high (people living in slums is calculable to be as high as 41.3%). [13] It's clear that the health and nutritional status of the town individuals is not possible to spice up while not rising the health and nutritional status of the slum dwellers, particularly slum ladies. Therefore, an attempt was created to assess the nutritional profile of urban slum ladies of Mumbai town in India.

3. RESEARCH OBJECTIVE

The main objectives of the research study were:

- To assess the nutritional status of urban slum ladies of generative people (18-40 years) by assessing height, weight, waist, and hip circumference and calculation of BMI and WHR.
- To study the dietary pattern supported food frequency form

- To assess the association between nutritional status and food group consumption.
- To assess the overall awareness practices of urban slum ladies relating to nutrition, health, and sanitary practices.

4. REVIEW OF LITERATURE

India is that the second most overcrowded country of the globe and needs to amendment socio-political demographic and morbidity patterns that are drawing world attention in recent years. [13] Despite many growths, oriented policies adopted by the govt, the widening economic, regional, and gender disparities are posing challenges for the health sector. To get a detailed insight into the theme, the researcher reviewed the prevailing literature from numerous sources. The reviewed studies are reported in the following sub-categories:

• Dietary intakes and nutritional status of urban slum ladies
• General awareness and health practices among urban slum relating to health, nutrition, and sanitation

4.1 Dietary Intakes and nutritional status of urban slum ladies

Diet and nutrition are necessary factors in the promotion and maintenance of excellent health throughout the life cycle. Income, prices, individual preferences and beliefs, cultural traditions, additionally to geographical, environmental, social, and economic factors all acts in a very advanced manner to form dietary consumption patterns and have an effect on the morbidity and clinical status of ladies. A regular diet should embody daily foods from the various food groups in sufficient amounts to satisfy the necessities of an individual and to extend immunity. However, the dietary intake and nutritional status of our rural ladies are found to be poor as a result of numerous studies conducted on them.

Various studies are undertaken to look out the dietary intakes and nutritional status of urban slum ladies in India. Indian journal maternal & child health (2013), provided knowledge on Dietary Habits of female Urban Slum-dwellers in Mumbai, indicated that frequency of consumption of every of the food groups delineated on the FFQ. [14] Almost all the ladies consumed pulses, bread, rice and milk in tea a minimum of once each day. Fruit and GLVs were eaten daily by 43% and 30 % of ladies respectively. The foremost often consumed fruits were bananas and apples, fenugreek and spinach were the most frequently eaten GLVs. about 1 / 4 of ladies reported consumption fruit and GLVs 3 times or less per week. A fifth of ladies consumed milk products aside from in tea a minimum of daily however over half had milk products (other than in tea) but thrice per week and 39% had them however once per week. Non-vegetarian foods were consumed a minimum of once per week by 80% of ladies, of all non-vegetarian foods, fish was eaten most often.

There was very little variation in consumption per time of year for any of the food groups. Total fruit and GLV consumption were lower throughout the summer months however this distinction wasn't substantial.

The above-said study finished that staple foods for several ladies were rice and bread. Over half the ladies ate GLVs and fruit but once each day. The ICMR suggest daily consumption of fruit and GLVs. [15] Some sorts of fruit and GLV are seasonal and are consumed less or not in the least at certain times of the year. Each is consumed least typically throughout the time of year, this is often most likely because of poor availableness at this point. Most ladies consumed milk daily in tea to that they'd add a tiny low quantity (approximately 20ml) however few had a bigger serving of milk or milk product each day. This study shows that these slum-dwelling women's diets lack adequate micronutrient-rich foods. customary of living and education might have an effect on dietary selection and nutrition status, thus any interventions aimed toward dynamical women's dietary behavior should be targeted to the setting within which the lady lives and take into thought the provision, value and alternative factors which may have an effect on whether or not she will be able to consume a selected food.

In another study conducted by Kiranmai K. (2012), on the health status of urban slum ladies, it absolutely was found that rice and vegetables were consumed daily by about foods with higher protein content was consumed daily by but 20% meals were consumed three times a day in 89% families.[16] Another study conducted by Juliet in 2015, on dietary pattern & metabolic syndrome urban slum ladies, in Accra Ghana, found that prime dietary diversity (62 %) was the predominant pattern even among ladies with MetS risk. Starchy staples and oils were the main contributors to the assorted dietary patterns. The less dietary diversity consisted in the main of starchy staples and oils.[17]

4.2 General awareness and health practices relating to health, nutrition, and sanitation among urban slum ladies

Nutrition education activities in any developing country, while not a concurrent academic method for higher personal and food hygiene and so the management of diarrheal sickness would don't have any impact. Education for the promotion of immunization is needed indirect nutrition promotes. It's been justly seen that nutrition education ought to be therefore designed to market fascinating practices altogether aspects of human life that have direct or indirect effects on nutritional status. In recent times the mixture of mass media mix approach is an applicable tool for technology transmission and data dissemination, within the prevailing circumstances of constraints of illiteracy, and that they ought to attain developmental objectives inside a brief time.

Various studies are undertaken to hunt out the awareness and health practices relating to health, nutrition, and sanitation among rural ladies.

Hari Prasad Kaphle (2015) in their study on Hygiene and Sanitation Practices among Slum Dwellers Residing in Urban Slums of Pokhara Sub-Metropolitan, Nepal found that the bulk of the households (96.3%) had a toilet facility. Only 3.7% of the respondents were lacking a bathroom in their home. The bulk of the homes (74.72%) within the slum had improved not shared toilet facility. Most of the respondents were awake to the importance of the cleanliness of the toilet facility. Nearly two-thirds of respondents (63.1%) accustomed clean their toilet facility on daily. Out of 3.7% not having toilet facility in their house; most

numbers of the individuals (71.4%) defecate in bushes. Most of the respondents (92.86%) discovered that they haven't designed toilet facility attributable to lack of cash and nearly 1/2 the households (43.3%) accustomed to getting rid of garbage waste directly into the stream. [18]

Another study by Ashish Joshi, Satish Prasad (2014), in their study conducted in New Delhi, India, found that 75% of the participants did not use any method for drinking water treatment. 45% of the participants consumed water from a privately-owned tube well/ bore well. Water shortage lasted 2 days or additional (50%) at a stretch with severe inadequacy occurring doubly a year (40%). Females aged 15 years and higher than were mostly accountable (93%) for fetching water from the water supply. 45% of the participants had bathrooms inside their households. 53% of drinking water samples collected from storage containers showed positive bacteriological contamination. [19] Also, they found that every one participant perceived that hands ought to be washed before handling food. Alternative perceived vital times of hand washing were once defecation and after feeding among different reasons. Most participants disposed of their solid wastes in the community trash bin.

5. METHODOLOGY

The present to investigate was planned to research the nutritional status of urban slum ladies and its impact on life-style problems/diseases among them. A well-structured questionnaire was developed considering the actual objectives of the study.

- **Study Design:** Community based cross-sectional prospective study from September 2017 to October 2017.
- **Study Setting:** This study was administered within the Laldongar urban slum, Chembur (E), Mumbai, Maharashtra
- **Study Sample:** Women of the reproductive cohort (18-40 year.).
- **Sampling Technique:** One slum was elect at random from the Chembur area, ladies of generative procreative (18-40 years.) were chosen arbitrarily.
- **Sample Size:** Sample size was calculated using the subsequent formula: $n = z2pq / \alpha 2$
  z = confidence interval (95% = one.96), p = prevalence (0.32), q = 1-p α= margin of error =1.96 x 1.96 x 0.32 x 0.68 / 0.09 x 0.09 =100
  The sample size determined from the above methodology was 100.
- **Ethical Consent:** To carry out this study, written informed consent was obtained from every respondent.
- **Inclusion Criteria:** The women of the reproductive cohort (18-40 years) & who are willing to participate.
- **Exclusion Criteria:** The pregnant ladies & lactating mothers.
- **Anthropometric Parameters:** Various strategies were used for the assessment of varied lifestyle issues among urban slum ladies, namely, anthropometrical measurements, dietary assessment using questionnaire methodology. Throughout this study, these strategies were used due to the convenience that these are often conducted within the field.

5.1 Nutritional Anthropometry

Nutritional anthropometry is bothered with the measure of the physical dimension and conjointly the gross composition of the physical body at different age levels and degrees of nutrition. The report of the committee on nutritional anthropometry established by the National Research Council lists the number of measurements that may indicate skeletal build and also the thickness of subcutaneous fat. Body weights and heights replicate their state of health and rate of growth (ICMR, 1989). [20]

(a) Height: The peak of a person is created of a total of four elements – legs, pelvis, spine, and skull. For field nutritional anthropometry, usually, solely the whole height for length is measured.
Method: within the present study, heights were measured employing a metric measurement tape. the subjects were created to face erect looking straight on a levelled surface with feet parallel and heels, body part and shoulders, and back of head touching the wall, without shoes. The moving headpiece of the tape was lowered to rest flat on the highest of the head and also the reading was taken. Height was browsed to the nearest 0.5 cm. A mean of 3 measures was taken as the final measurement.
(b)Weight: The weight of a person is that the addition of fat and non-fat mass (water + protein +fat + bone + mineral).
Method: For measurement of the bodyweight of subjects, a bathroom scale was used. Weights have taken with the individuals under basal conditions with minimum covering and without shoes. The zero error of the deliberation scale was checked before taking the weight and corrected as and once needed.
(c) BMI (Body Mass Index): Rao and Singh (1970) found that Quetelet's index or Body Mass Index (BMI) – Weight in kg /Height in meter^2 was independent of age cluster. The samples were then categorized under undernourished, normal, overweight, and obese using World Health Organization classification is given in Table 1.

Table 1: BMI Classification

Classification	BMI(kg/m^2)	
	Principal cut-off points	Additional cut-off points
Underweight	<18.50	<18.50
Severe thinness	<16.00	<16.00
Moderate thinness	16.00 - 16.99	16.00 - 16.99
Mild thinness	17.00 - 18.49	17.00 - 18.49
Normal range	18.50 - 24.99	18.50 - 22.99
		23.00 - 24.99
Overweight	≥25.00	≥25.00
Pre-obese	25.00 - 29.99	25.00 - 27.49
		27.50 - 29.99
Obese	≥30.00	≥30.00
Obese class I	30.00 - 34.99	30.00 - 32.49
		32.50 - 34.99

Obese class II	35.00 - 39.99	35.00 - 37.49
		37.50 - 39.99
Obese class III	≥40.00	≥40.00

Source: Adapted from WHO, 1995, WHO, 2000 and WHO 2004.

(d) WHR (waist-hip ratio): WHR is that the ratio of the circumference of the waist to it of the hips.
Method: it had been determined by employing a to measure tape to live the circumference of hips at the widest an area of buttocks and waist at the smaller circumference of the natural waist, sometimes simply on top of the belly button. The ratio determined by dividing waist measurement by hip measure and also the health risk was determined thenceforth as given in Table 2.

Table 2: WHR Categories

Male	Female	Health Risk Based Solely on WHR
0.95 or below	0.80 or below	Low Risk
0.96 to 1.00	0.81 to 0.85	Moderate Risk
1.0+	0.85+	High Risk

Source: Caterson (16)

6. DEVELOPMENT OF QUESTIONNAIRE

Various questionnaires were developed to hunt out the socio-economic profile, dietary intake, nutritional status, morbidity pattern, general awareness, and general practices regarding health, hygiene, and sanitation of the urban slum females.

6.1 Background questionnaire

It consisted of a personal profile, family profile, family financial gain, and anthropometrical measurements.

- **Personal profile:** It enclosed the fundamental information regarding the sample i.e. name, age, class (general, scheduled caste, scheduled tribe or different backward class), food habits (vegetarian, non-vegetarian or eggetarian), marital status (single, married, divorced or widowed), age of wedding, number of youngsters, maternity wastage (number of miscarriages and the number of abortions) and educational status (uneducated, primary level, secondary level, higher secondary, graduate or postgraduate), etc. the knowledge was analyzed by calculative the frequencies of variables.
- **Family profile:** It enclosed info regarding the head of the family, number of members of the family, sorts of the family (nuclear or joint) and occupation of the family (skilled or professional, unskilled or shop owner, unskilled or unemployed), etc.
- **Family income:** It enclosed info regarding the number of earning members, principle earning member and total monthly financial gain of the family. The info was analyzed by dividing samples into varied classes of the financial gain cluster (<10,000 pm, 10-20,000 pm, so on) and also the frequency of samples in these classes was calculated to grasp the economic status of people.

6.2 Food frequency questionnaire

Dietary pattern was assessed by a questionnaire on food cluster consumption. A pre-tested form was provided. Food group consumption is assessed by categorizing them supported the frequency of consumption, like

- Never
- Rarely
- 1 to 2 times in daily
- Alternate day
- 1 to 2 times in weekly
- 1 to 2 times in monthly

6.3 Medical record questionnaire

It consisted of a listing of assorted usually occurring health issues among urban slum ladies. The knowledge related to the medical record of the samples was collected and analyzed to seek out the mean variety of diseases suffered by the females and additionally the frequency of each disease among the study cluster to know the foremost prevailing diseases among the study space.

6.4 General awareness questionnaire

It was ready by initial classifying the objectives into three major problems specifically, health, nutrition, and sanitation. These problems were additionally classified beneath varied sub-headings e.g.

- Health was divided into 2 sub-sections, diseases, and birth prevention, and varied awareness family planning was framed thenceforth keeping in mind the prevalence of varied diseases and birth control issues among them.
- Likewise, nutrition was divided into four sub-headings specifically, micronutrients, macronutrients, cooking practices, and consumption of tea and coffee. Varied nutrient deficiencies, faulty cooking practices, and wrong dietary patterns were known and thus the awareness questions were framed consequently.
- Sanitation was classified beneath a pair of sub-headings, specifically cleanliness, and personal hygiene, and also the queries were framed supported by these problems.

The multiple-choice queries were framed supported the above problems and also the correct response was given a score. the info was analyzed by calculative the frequency of assorted responses of all the queries singly and additionally the frequency of many total correct responses overall to look out the awareness status of the samples. The mean awareness score was calculated thenceforth.

6.5 The general practice questionnaire

It was additionally divided into three sections, particularly nutrition, health, and hygienic practices. Health was additionally divided into bone health and diarrhoea; nutrition was divided into meal patterns, micronutrients, and cooking practices; and sanitation was divided into drinking water, cleanliness, and personal hygiene. Varied practice questions were framed consequently supported the above problems. Here, the frequency of the various practices followed by the samples concerning a particular issue was calculated.

(a) Data Assortment: Data was collected through face to face interviews by semi-structured questionnaire and anthropometrical measurements were taken.

(b) Information Analysis: Data was entered in MS excel. Statistical analysis was through with MS excel and SPSS using descriptive and inferential statistics.

(c) Study Variable: Height, Weight, BMI, Waist circumference, Hip circumference, WHR, Food groups, Medical record, General awareness, and practices regarding health, nutrition, and sanitation.

7. RESULTS AND FINDINGS

A complete of one hundred samples from the study space was enclosed within the analysis. Numerous criteria like socio-economic profile, anthropometry, food consumption pattern, case history or clinical findings, general awareness, and practices were studied and analyzed, and thus the info is given hereby.

7.1 Personal Profile

The mean age (± SD) of the study cluster was found to be 28 (±6.9) years and also the mean age at the wedding was 15 (±8) years. The mean number of kids per subject was found to be 1.7 (±1.56). Regarding 16 % of females had a minimum of one or a lot of abortions throughout their pregnancies. The knowledge related to the class, food habits, marital status, education, etc. is shown within Table 5, represents that majority of the samples belonged to the SC class (60%). The frequency of subjects from general, OBC, and ST classes was 27 %, 13%, and 0%, respectively. Most of the samples were found to be non-vegetarian (75%) whereas solely 22 %and 3% were non-vegetarian and eggetarian, respectively. 57 % of the study cluster was married, 39% were single, 3% were widowed and 1% divorced. The academic status was found to be average with nearly 50 % of the samples with qualifications 10th and higher than, and 50% below 10th among that 19 % were illiterate.

Table 3: Personal profile of the subjects (n=100)

S. No.	Personal variables	Frequency (%)
1.	**Category**	
	General	27%
	SC	60%
	ST	0
	OBC	13%
2.	**Food Habit**	
	Vegetarian	22%
	Non-vegetarian	75%
	Eggetarian	3%
3.	**Marital Status**	
	Single	39%
	Married	57%
	Divorced	1%
	Widowed	3%
4.	**Educational Status**	
	Uneducated	18%
	Primary (up to V)	2%
	Secondary (VI-IX)	14%
	10^{th} class	14%
	10+2	30%
	Graduate	20%
	Post-graduate	2%

7.2 Family Profile

The data concerning the family profile of the study cluster are shown in Table 4. The mean variety of family members was found to be 8 (±2) as a majority (43%) of the subjects were living in a joint family. the info associated with the kind of family, occupation, activity pattern and monthly financial gain is shown in Table 6. The info conferred in Table 4 shows that regarding 38 % of the samples were residing in nuclear families and 52 % in nuclear families compared to 48 % in joint families, which shows the decreasing joint family trend among urban slum populations additionally. the main family occupation was found to be semi-skilled (66%), skilled (31%), and unskilled (3%). 25% of the samples belonged to the lower-income cluster, i.e. <10,000 pm.

Table 4: Family profile of the subjects (n=100)

S. No.	Family variables	Frequency (%)
1.	**Type of family**	
	Joint	48%
	Nuclear	52 %

2.	**Family occupation** Skilled worker Semi- skilled worker Unskilled	 66% 31% 3%
3.	**Self- occupation** Skilled worker Semi- skilled worker Unskilled	 27% 06 % 67%
4.	**Activity pattern of subjects** Sedentary Moderate Heavy	 100 % 0 0
5.	**Monthly income (Rs.)** <10,000 10,000-20,000 21,000-30,000 31,000-40,000 >40,000	 08% 59 % 25 % 07% 01%

7.3 Anthropometrical Measurements

The overall mean weight of the study population was 53.12 ± 3.60 kg range of a minimum of 32 to 80 kg. The mean height of the study population was 150.01 ± 0.39 cm, with a range of a minimum of 135 .3 cm to 168.0 cm. The mean BMI of the study population was 23.7 ± 1.63 with a range of a minimum of 15.2 to 35.7. Mean WHR of the study population was 0.81 ± 0.01 with a range minimum of 0.7 to 1.23.

Table 5: Mean height, weight, BMI and WHR according to age group

Age group	Height (cm)	Weight (kg)	BMI	WHR
18-24 year	150.15 (±6.62)	47.05 (±11.21)	20.95 (±4.93)	0.80 (±0.08)
25-29 year	150.5 (±6.71)	53.86 (±11.11)	23.95 (±4.94)	0.84(±0.08)
30-34 year	149.4 (±6.81)	56.13 (±11.96)	24.98 (±4.95)	0.83(±0.08)
35-39 year	150 (±6.77)	55.45 (±11.05)	24.92 (±4.97)	0.80(±0.08)

The data shown in Figures 1and 2 and Table 6 represents that 40% of the samples fell beneath normal BMI vary, i.e. 18.5-24.99, 20% were underweight having a BMI <18.5 and 365 days were overweight or obese. The ratio of samples with normal WHR, i.e. <0.8 was found to be 64% whereas 8% fell beneath 0.81-0.85 class, and 28 % were found to possess >0.85 WHR indicating raised health risks for ladies because of excess fat within the abdominal region.

Table 6: Anthropometrical Measurements

S. No.	Anthropometry variables	Frequency (n=100)
1.	**BMI (kg/m²)** <18.5 18.5-24.99 25-30 >30	 20 % 40 % 24 % 12%
2.	**WHR** <0.8 0.81-0.85 >0.85	 64% 8 % 28 %

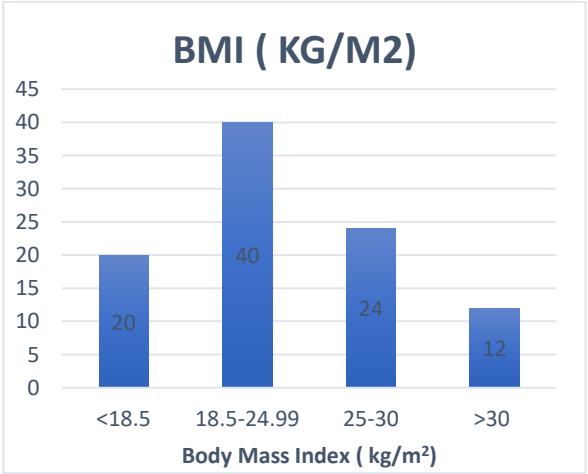

Fig. 1: BMI (kg/m²)

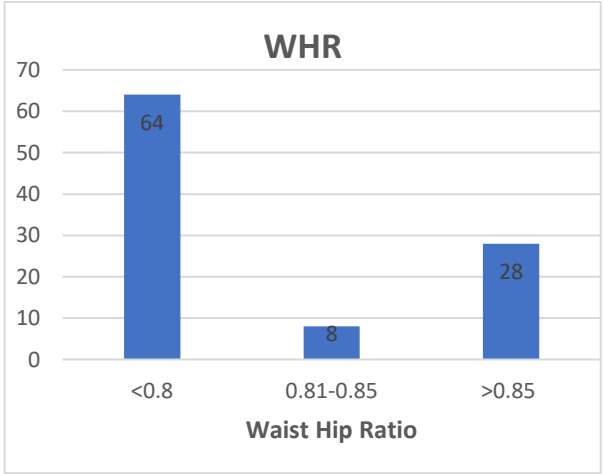

Fig. 2: WHR

7.4 Medical record

The data associated with the medical record of the samples are shown in Table 7 and Figure 3 within which the frequency of varied diseases is pictured. The mean range of diseases suffered by females was found to be 9.58 (±11.61). The frequency is over 100 as a result of samples was stricken by over one illness at a time. The current study found that proportion of ladies who reportable night blindness [a clinical sign for vitamin A deficiency throughout maternity was 3%.

Table 7: Medical History

S. No.	Disease	No. & Frequency	S. No.	Disease	No. & Frequency
1.	Pale conjunctiva	45	**13.**	Chicken pox	2
2.	Worms in stools	2	**14.**	Common cold	13
3.	Skin disorders	3	**15.**	Dengue	5
4.	Asthma	5	**16.**	Diabetes	2
5.	Diarrhea	4	**17.**	Defective vision	4
6.	Gum problem	20	**18.**	Obesity	27
7.	Goiter	1	**19.**	Pneumonia	3
8.	Heart Attack	0	**20.**	Tuberculosis	0
9.	Hypotension	15	**21.**	Pregnancy complication	5
10.	Jaundice	2	**22.**	Typhoid	7
11.	Joint pain	26	**23.**	Underweight	0
12.	Malaria	8	**24.**	Menstrual problem	31

The data conferred in Figure 3 shows that the foremost prevalent diseases among females were pale conjunctiva (45%), menstrual issues (31%), and maternity complications (5%) that can be attributed to their lower iron intake. The common menstrual issues enclosed acne, backache, sore breasts, fatigue, constipation, irritability, etc. and also the common maternity complications enclosed constipation, nausea, vomiting, edema, back pain, etc. the other common issues were a respiratory disease, cardiovascular disease, and gum issues with the frequencies 13%, 15%, and 20%, respectively.

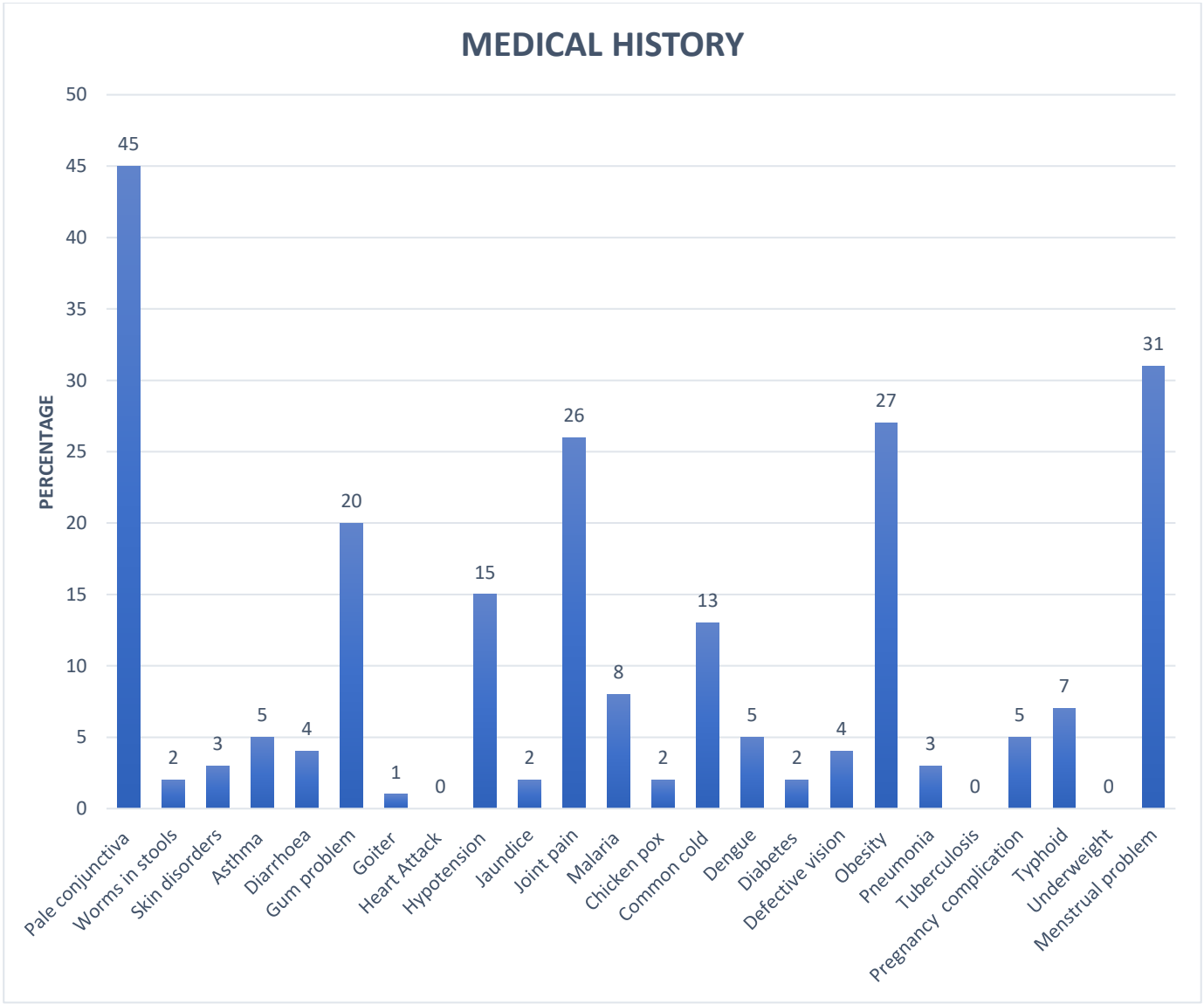

Fig. 3: Medical History of the subjects (n=100)

7.5 Diet history

Diet pattern of the subjects was studied. .out of 100 women's 22% it was vegetarian and 75 %were of a mixed diet.

Table 8: Diet patterns of the subjects (n=100)

Food type	Vegetarian	22%
	Mixed diet	78%

7.6 Food cluster consumption among subjects

Food group consumption altogether subjects were less than the Recommended Dietary Allowance (RDI) given by ICMR. All subjects consumed cereal and pulses daily. Food groups like millets, green leafy vegetables, fruits, dairy farm products, meat, and poultry, fats get less consumed. Daily intake of milk, fruit, and fat was less, almost nil. Whereas the intake of tea was found to be higher as regarding 51% of samples consumed > 2-3 servings of tea per day, 42% consumed it at least once daily, and rest 7% were never take tea.

Table 9: Food group consumption among subjects

S. No.	Food Group	Never	Rarely	1 to 2 times in daily	1 to 2 times in weekly	1 to 2 times in monthly
1	Cereals, Millets & Pulses	-	-	100%	-	-
2	Milk & Milk Products	37%	23%	23%	15%	2%
3	Meat & Poultry	21%	-	2%	77%	-
4	Vegetables	1%	2%	97%	-	-
5	Fruits	13%	25%	11%	25%	2%
6	Fats, Oils, Nuts & Sugars	20%	62%	12%	-	6%

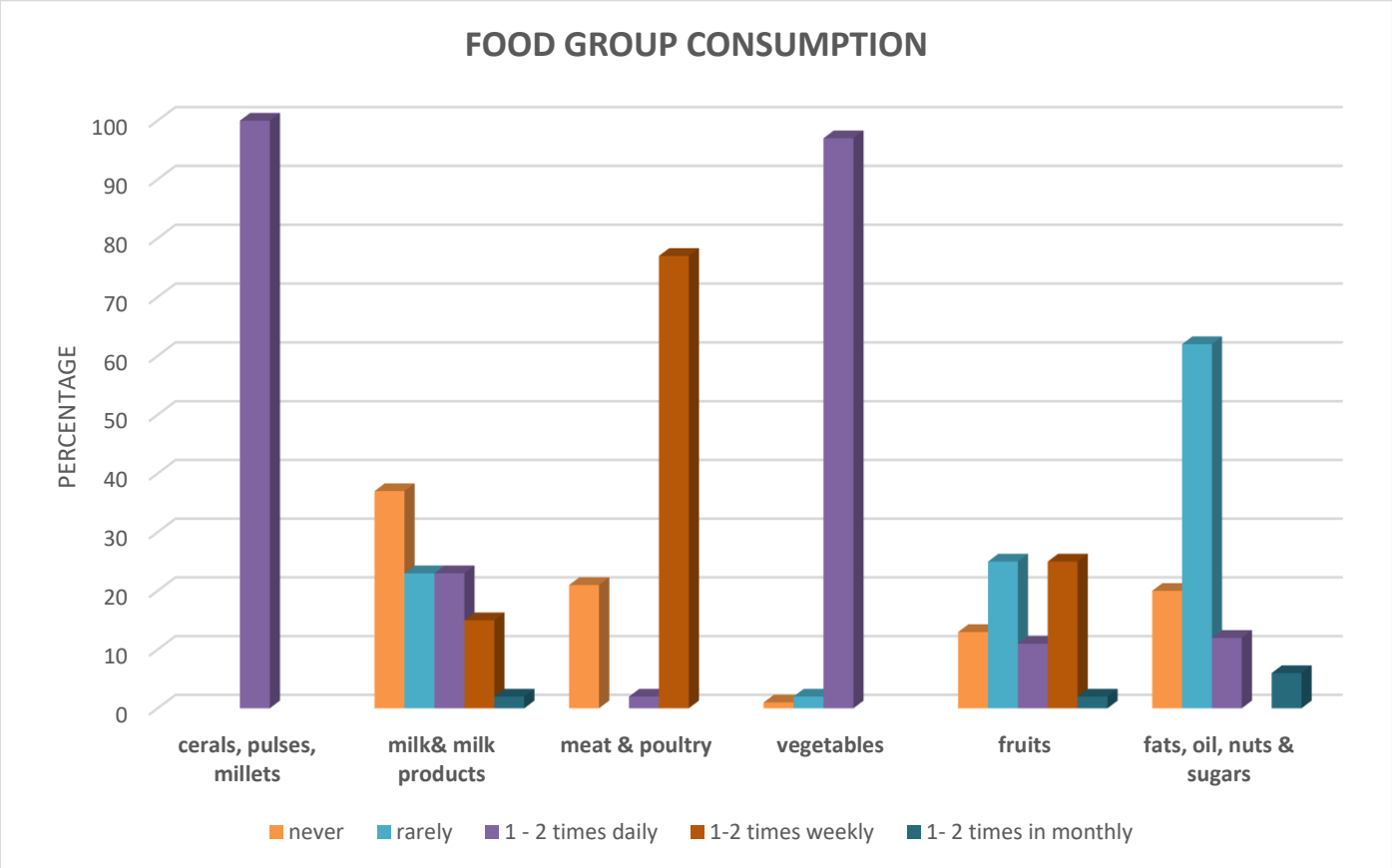

Fig. 4: Food group consumption among subjects

7.7 Classification of the subject as per score

Table 9 shows that all subjects consumed fewer food groups as per RDA. 69% of subjects had a low intake of food groups and 6% had low intake.

Table 9: classification of subject as per score=100

Food Group Consumption	n (%)
Very Low Intake	6 (6%)
Low Intake	69 (69%)
Normal Intake	25 (25%)

7.8 Factors related to Dietary Intake

There was a tiny low however important association between the occupation of the lady and GLV consumption, ladies with full-time housewives or semi-skilled jobs consumed GLVs additional often than ladies in additional skilled professions (Table 10).

GLVs were ingested a minimum of once daily by 55.55% of ladies employed in semiskilled jobs and skilled compared with 50.74% of skilled ladies. A lady married to skilled, professional husbands consumed GLVs a minimum of once daily compared to 54.54% and 33.33% of these married to semi-skilled or unskilled husbands respectively, once more a little however positive relationship between husbands' occupation level and consumption frequency of GLVs. The education level of the lady was related to more frequent milk consumption. i.e. 26.92%

Table 10: Frequency of vegetables, fruits, milk & meat, poultry consumption by women's occupation and education

Consumption frequency n (%)								
	Green leafy Vegetables		Fruits		Milk		Meat and Poultry	
	Daily	Weekly	Daily	weekly	Daily	Weekly	Daily	Weekly
Self-Occupation								
Skilled	3 (50%)	3 (50%)	2 (33.33%)	3(50%)	0	1(16.66%)	0	4(66.66%)
Semi-skilled	15 (55.55%)	10 (3.70%)	2 (7.40%)	10 (3.70%)	8 (29.62%)	3 (11.11%)	1 (3.70%)	24 (88.88%)
Homemaker	34 (50.74%)	32 (47.76%)	7 (10.44%)	36 (53.73%)	15 (22.38%)	11 (16.41%)	1 (1.49%)	49 (73.13%)
Family's occupation								
Skilled	15 (48.38%)	16 (51.61%)	9 (29%)	12 (38.70%)	6 (19.35%)	6 (19.35%)	1 (3.22%)	21 (67.74%)
Semi-skilled	36 (54.54%)	27 (40.90%)	2 (3.03%)	34 (51.51%)	23 (34.84%)	15 (22.72%)	1 (1.51%)	54 (81.81%)
Unskilled	1 (33.33%)	2 (66.66%)	0	3 (100%)	1 (33.33%)	0	0	2 (66.66%)
Self-education								
Illiterate and primary	8(40%)	12 (60%)	1 (5%)	9 (45%)	4 (20%)	2 (10%)	0	16 (80%)
Sec. (5 to 10 th)	16 (57.14%)	11 (39.28%)	2 (7.14%)	17(60.71%)	5 (17.85%)	7 (25%)	0	28 (100%)
Higher education, graduation, PG	28 (53.84%)	22 (37.93%)	8 (15.38%)	23 (44.23%)	14 (26.92%)	6 (11.53%)	2 (3.84%)	33 (63.46%)

7.9 General Awareness regarding Health, Nutrition, and Sanitation

Table 11 shows that the overall awareness regarding the normally occurring diseases, their symptoms, health, and hygiene was found to be average. Regarding half the samples got 50% of the responses correct. The mean awareness score found to be 48.54 (±24.28). the info concerning the question-wise correct responses of the subjects is shown in Table 11, which depicts that 87 %of the samples were responsive to the symptoms of TB. The attention regarding the causes and symptoms of anaemia was 15% and 63% respectively, which was low. Most of the samples knew that calcium provides strength to the bones and conjointly knew the food product made in calcium. Whereas 22% of the subjects were responsive to the ill-effects of high SFA intake, solely 20% knew that vegetable oil prevents heart diseases. 50% of the samples were responsive to the role of fruits and salads in relieving constipation. 77 %of them were conscious of the role of vitamin A in preventing night-blindness. The attention regarding cleanliness and hygiene was found to be higher with 92% of samples knowing the reason for malaria and 65% knowing the importance of hand hygiene.

Table 11: General Awareness of the subject

Q. No.	Topic	Frequency of correct response n=100
1.	Symptoms of T.B.	87
2.	Causes of anemia	15
3.	Symptoms of anemia	63
4.	Nutrient increasing bone-strength	78
5.	Synthesis of Vit. D	16
6.	Foods relieving constipation	50
7.	Oil preventing heart-disease	20
8.	Risks of high SFA intake	22
9.	Cause of night-blindness	41
10.	Minimum gap between 2 pregnancies	71
11.	Food deficiency leading to anemia	81
12.	Foods improving vision	77
13.	Food curing goiter	36
14.	Food deficiency leading to bleeding gums	37
15.	Foods providing strength to bones	51
16.	Most nutritious flour	22
17.	Food yielding maximum energy	50
18.	Method making pulse most nutritious	36
19.	Effect of high intake of tea/coffee	19
20.	Diseases due to water-logging	39
21.	Causes of malaria	92

7.10 General Health, Nutrition, and Hygiene Practices

A total of 19 general health and hygiene practice questions were framed out of that 11 were designated to attain the proper health practices and therefore the knowledge associated with the health practices is shown in Table 12 which incorporates the info on the meal frequency, variety of oil used, variety of flour used, supply of water, facility of drinking water, the practice followed to form water safe for drinking, bathroom facilities and cleanliness of coolers.

Data shows that 30%of the females were consuming 3-4 meals during a day whereas 70% there were consuming 1-2 meals. The ordinarily used oil for cooking was refined oil and therefore the commonly used flour was sieved wheat flour. Nearly 47% of the households were keen on municipal faucets for the drinking water and 53% on motor/hand pumps. Also, the water in 58% was obtainable for fixed hours solely. 25% and 25%of the samples were making water safe for drinking by filtering and boiling respectively. Rest 12% were keeping it in pots and 14% weren't doing anything to create the water clean for drinking purposes. As so much as bathroom facilities are involved, solely 38% of the households had closed bathrooms within the house, rest 62% of peoples use public bathrooms.

Table 12: General Health and Hygiene Practices

Sr. No.	Practices	Frequency, n= 100
1.	**Meal frequency**	
	1-2	70
	3-4	30
	5-6	0
	7-8	0
2.	**Cooking oil**	
	Ghee	0
	Vegetable oil	11
	Mustard oil	13
	Refined oil	76
	Blend of oils	0
3.	**Flour**	
	Sieved wheat flour	61
	Unseived wheat flour	34
	Sieved mixed flour	2
	Unseived mixed flour	3
4.	**Source of drinking water**	
	Municipal tap	47
	Motor/hand pump	53
	Neighbors	0
5.	**Drinking water facility**	
	24X7	7
	Fixed hours	58
	No fixed hours	35
6	**Practice to make water safe**	
	Boiling	25
	Sieve through cloth	24
	Use filter	25
	Keep in pot	12
	Nothing	14
7.	**Toilet facilities**	
	In open outside house	0
	Public toilet	62
	Closed toilets inside house	38
8.	**Cleaning of coolers**	
	Twice a week	20
	Once a week	2
	15 days	2
	No cooler	76

The data associated with the rest 11 queries designated to mark the proper health practices are delineated in Table 12. The mean correct practices were found to be 24.73 ± 24.72. The information shows that almost all of the samples were following healthy practices associated with health, hygiene, and nutrition. Only 47% and 93% of the study cluster was consuming the proper food to stay their bones healthy and for blood formation respectively. In the case of diarrhoea and vomit, nearly half the samples were using ORS as first-aid, whereas others were either using some medication or were visiting the doctor. 91% of the samples were using iodized salt for their cooking, 2% were using any accessible salt, whereas 8% weren't even attentive to the salt they were using at their households. Most of the subjects were following healthy cooking practices like washing vegetables before cutting them and additionally cooking in covered vessels or pressure cookers to stay the nutrients intact. Most of them were conjointly following healthy sanitation practices by keeping their surroundings clean and additionally taking care of hand hygiene.

Table 13: Correct Health Practices of the subjects

Q. No.	Topic	Frequency of Correct practices, n=100
1.	Foods for bone health	47
2.	First-aid in case of diarrhea	40
3.	Foods for blood formation	93
4.	Cooking salt	91
5.	Foods for healthy eyes	38

6	Preliminary treatment before cooking	71
7.	Healthy cooking practice	84
8.	Cleanliness of surroundings	75
9.	Malaria prevention	49
10.	Water-logging	40
11.	Hand hygiene	77

7.11 Association between socio-demographic and way factors with deficiency disease (overweight or underweight)

There was a statically important association between kind of family and deficiency disease ($P < 0.005$), i.e. in nuclear family ladies could also be overweight or underweight.

Table 14: Association between socio demographic and lifestyle factors with Malnutrition (overweight or underweight)

	Malnutrition	Normal	P value	Odds ratio
Age				
18-28 years	27 (49.1%)	28 (50.9%)	0.189	
29 – 39 years	28 (62.2%)	17 (37.8%)		
Type of family				
Joint	20 (41.7%)	28 (58.3%)	**< 0.005***	0.347 (0.784-0.153)
Nuclear	35 (67.3%)	17 (32.17%)		
Self-education				
Educated	46 (56.1%)	36 (43.9%)	0.638	
Uneducated	9 (50%)	9 (50%)		
Self-occupation				
Unskilled	38 (56.7%)	29 (43.3%)	0.623	
Skilled or semiskilled	17 (51.5%)	16 (48.5%)		
Family occupation				
Unskilled	2 (66.7%)	1 (33.3%)	0.680	
Skilled or semiskilled	53 (54.6%)	44 (45.4%)		
Monthly household income				
Less than 20,000	34 (50.7%)	33 (49.3%)	0.223	
More than 20,000	21 (63.6%)	12 (36.4%)		
Food type				
Veg diet	13 (59.1%)	9 (40.9%)	0.662	
Mixed diet	42 (53.8%)	36 (46.2%)		
Food group consumption				
Low intake	33 (52.4%)	30 (47.6%)	0.492	
Very low intake	22 (59.5%)	15 (40.5%)		
Disease				
Normal	18 (58.1%)	13 (41.9%)	0.680	
With disease	37 (53.6%)	32 (46.4%)		
General awareness				
No	26 (50%)	26 (50%)	0.296	
Aware	29 (60.4%)	19 (39.6%)		
Correct health practice				
Unhealthy practices	5 (55.6%)	4 (44.4%)	0.883	
Healthy practices	36 (52.9%)	32 (47.1%)		

7.12 Association between socio-demographic and way factors with Age

There was a statically important association between Age and food cluster consumption ($P < 0.005$), i.e. in 18 to 28-year age bracket was taking low or very low food group intake.

Table 15: Association between socio demographic and lifestyle factors with Age

	Age (18-28 years)	Age (29-39 years)	P value	Odds ratio
Food type				
Veg diet	11 (50%)	11 (50%)	0.594	
Mixed diet	44 (56.4%)	34 (43.6%)		
Food group consumption				
Low intake	36 (66%)	27 (60%)	**< 0.005***	1.263 (2.854-0.559)
Very low intake	19 (34%)	18 (40%)		
Disease				
Normal	18 (58.1%)	13 (41.9%)	0.680	
With disease	37 (53.6%)	32 (46.4%)		
General awareness				
No	33 (60%)	22 (40%)	0.077	
Aware	19 (42.2%)	26 (57.8%)		

Correct health practice				
Unhealthy practices	7 (15.9%)	37 (84.1%)	0.183	
Healthy practices	2 (6.1%)	31 (93.9%)		

7.13 Association between general awareness and medical history

Table 19: Association between general awareness and medical history or disease

Disease	Not aware	Aware	P value
Normal	15 (48.4%)	16 (51.6%)	0.628
With disease	37 (53.6%)	32 (46.4%)	

7.14 Association between general health practices and medical history or disease

Table 19: Association between general health practices and medical history

Disease	Unhealthy practices	Healthy practices	P value
Normal	3 (12.5%)	21(87.5%)	0.628
With disease	5 (9.4%)	48 (90.6%)	

8. DISCUSSION

Maharashtra has the highest range of slums in urban India, followed by Andhra Pradesh and West Bengal. A National Sample Survey Office report's data point discovered that 23% (7,723) of the overall slums in urban India (33,510) are in Maharashtra; Andhra Pradesh has 13.5% and West Bengal 12% music. The ministry of statistics and program implementation has discharged the key indicators of urban slums in India, generated from the data collected in its 69th round survey from July 2012 to December 2012. The last survey was conducted as an area of the 65th round (July 2008-June 2009). [21]

This study was done in an urban slum area for ladies within the generative people. The mean age of the study subjects found 27.69years. The mean BMI of the study population was 23.7 ± 1.63 with a variety of a minimum of 15.2 to 35.7. Mean WHR of the study population was 0.81 ± 0.01 with a range minimum of 0.7 to 1.23. The nutritional status of ladies, particularly within the procreative people, maybe an important issue to work out the results of physiological condition and also the overall health of the ladies. Though studies have shown that overnutrition was higher within the urban slum population. 100 subjects were finally enlisted into the study and nutritional status was assessed among them. The demographic consequence of the low status in ladies has shaped expression in numerous forms like female infanticide, the higher death rate for ladies compared to men, lower sex ratio, the lower literacy rate in female, lower level of employment of ladies within the non-agricultural sector as compared to men, etc. [22]

During this study, it was discovered that the bulk of the ladies i.e. 40% had normal BMI between 18.5 and 24.99. Nearly 36% days of the ladies were overweight or obese and 20 %women had BMI however 18.5 kg /m2. In a very similar study conducted in Bangladesh (2014), the authors found that 13.68% of respondents were underweight, 82.11% were normal and 4.21% of respondents were overweight. The study indicated that undernutrition is turning into a tangle even within the urban slum population of developing countries. [23]

According to the World Health Organization (WHO), there'll be regarding 2.3 billion overweight folks aged 15 years and higher than and over 700 million obese folks worldwide in 2015.Overweight and obesity are the fifth leading risk of deaths, leading to around 2.8 million deaths of adults globally annually. [24] Even in countries like India, that are usually well-known for the high prevalence of undernutrition, vital proportions of overweight and obese currently exist with the malnourished. [25] During this study discovered that concerning 7 %of adults who weren't overweight or obese as per the BMI definition still had abdominal obesity. According to NFHS survey IV (2015-16) for the people, 15-49 years was the prevalence of underweight ladies i.e. BMI <18.5 is 22.9% that was higher to review findings. It's going to as a result of NFHS results are older cluster 15-49 years and this often studies are that the recent cluster 18- 40 years.

In the present study, among overweight ladies, majority i.e.12 (50%) belonged to the 35-39-year people followed by 6 (15.38%) within the 18- 24-year people. The matter of overweight within the adolescent people during this study will be a rising problem. Gouda J and Prusty R in their article on knowledge obtained from the NFHS survey (2005-2006) determined that ladies at a later age (35+ years) are a lot of overweight or obese than the reference cluster in 18- 24 years. [26]

Within the present study, the prevalence of overweight was seen among educated ladies. Nearly 34.14% of women with high school education and higher than BMI over 25 kg/m^2. Agrawal P and Mishra V found that women's education is powerfully absolutely correlated with the levels of overweight and obesity. In their article, the proportion of obese will increase from less than 5% among illiterate ladies to over 15 % among those with high school or more education. [27]

In the present study, 36.36% of ladies employed as professionals or managing business had a BMI over 25 kg/m^2. An identical observation was seen within the article by Agrawal P and Mishra V. The authors in this article state that the type of labor is powerfully correlated with overweight and obesity. Among working ladies, those in professionals or technical jobs are rather more probably to be overweight or obese than different kinds of employees. Household employees are least seemingly to be overweight or obese. With an amendment in operating patterns in urban slum areas, this observation holds sensible to an urban slum community additionally.

Food cluster consumption altogether subjects were less than normal. 6% of subjects had a very low intake of food group recommended by ICMR (RDA) and 69% had an occasional intake of food group.

The study carried in Accra, Ghana found that concerning 26.8% of ladies who were in danger of developing metabolic syndrome had moderate dietary diversity, 12.1% were having less dietary diversity (mainly starchy staples and oils) whereas 61.1% recorded high dietary diversity. the main food groups that contributed to middle dietary diversity were fruits and vegetables, main starch staples, meat, poultry and fish, oils, and bread. Out of the 9 food groups, 8 of them contributed to high dietary diversity. Ladies who fell in less dietary diversity consumed principally starchier staples and oils than the other foods. [17]

Another study done by Purvi Chheda found that in their article, the staple foods for several ladies were rice and bread. Over 1/2 the ladies ate GLVs and fruit but once each day. The ICMR recommends daily consumption of fruit and GLVs. Some kinds of fruit and GLV are seasonal and are consumed less or not in the least at certain times of the year. Each is consumed least typically throughout the season; this can be most likely because of poor accessibility at this point. Most ladies consumed milk daily in tea to that they might add a little quantity (approximately 20ml) however few had a bigger serving of milk or milk products daily. Throughout the 1990s the worth of cereals, oils, and sugar rose significantly a lot of slowly than milk and vegetables which can partially justify the rare consumption of those foods. [28]

Women in less skilled employment ate GLVs additional often than housewives and people with a lot of skilled jobs. This might end in less-skilled ladies having bigger financial gain than housewives and more time for preparation of GLVs than skilled employees who may need to travel more to work. Ladies with husbands who were professionals or skilled workers consumed additional GLVs than those with unskilled or semi-skilled husbands. This means a direct correlation between household financial gain and frequency of GLV consumption. This finding is comparable to it in a rural study whereby household financial gain was completely related to the frequency of GLV consumption among urban slum ladies. A study using NFHS knowledge found that ladies with a better standard of living had a lot of varied diets. However, in contrast to our findings, people who had 'skilled' professions and were housewives had a lot of varied diets compared to people who worked in unskilled jobs. Education level was completely associated with milk intake in our sample of ladies that concurs with knowledge collected from women of the Khasi tribe in Northeast India. [29]

This study shows that the foremost prevailing diseases among females were pale conjunctiva (45%), menstrual issues (31%) and maternity complications (5%) that may well be attributed to their lower iron intake. Also, this study found that proportion of ladies who reported visual defect [a clinical sign for vitamin A deficiency throughout maternity was 3%. A study done by Hussain in1999 found that diarrhoea was a frequent cause. Consistent with NFHS survey IV, for people 15-49-year, the prevalence of anaemia is 53.1% [30].

The general awareness concerning the ordinarily occurring diseases, their symptoms, health, and hygiene was found to be average. Concerning 1/2 the samples got 50% of the proper responses. Nearly 47% of the households were keen on municipal faucets for the beverage. As far as bathroom facilities are involved, solely 38 % of the households had closed toilets within the house, rest 62% of peoples use public toilets. As in different studies done in Bangladesh by Raheman in1997 found that pumped/tap water is employed for drinking whereas open/ surface water is employed for non-drinking purposes. [31]

9. PUBLIC HEALTH IMPLICATION OF STUDY

Assessing the dietary pattern and nutritional status among urban slum ladies in Mumbai, Maharashtra has given a much better insight into the prevalence of sickness risk factors in a female slum population however didn't establish risk factors causative to the current condition. The approach to life factors among the formal sector or individuals living in alternative areas are like these slum dwellers. This study has brought out the requirement for government, public health practitioners, clinicians and academia to continually investigate the causes and interference of nutritional disorders in slum areas. This can facilitate scale back the impact of nutritional illness and consequent chronic diseases in slum ladies and therefore the health care prices concerned.

10. STRENGTHS OF THE STUDY

This study was the first to contemplate urban slum ladies who kind a majority of the familiar sector in Mumbai. Most the factors that might cause nutritional sickness and metabolic syndromes like obesity, diabetes etc. development were thought-about. This study has helped to spot the potential rise of metabolic syndrome among urban slum ladies.

11. LIMITATIONS OF THE STUDY

The major limitation felt throughout the analysis of knowledge was that the iron status of the samples was complete only on the presence of clinical signs and symptoms. Had some biochemical technique like haemoglobin estimation been used, it might have another additional price to the results.

12. RECOMMENDATIONS

The current outcome of this study suggests dietary pattern, SES and alternative life style variables are not smart predictors during this specific population. till future analysis shows their prognostic ability among urban slum ladies, intervention plans ought to contemplate putting in place efforts within the space of screening for and preventing the event of the risky factors. Interventions geared toward reducing anaemia and obesity most significantly central obesity ought to be developed and enforced among urban slum ladies. Awareness creation is critical among urban slum ladies through health education since several of those risk factors are modifiable. Continuous analysis ought to be designed and conducted among urban slum dwellers relating to specific causes of the illness and most importantly their diet. Information and awareness on healthy style specializing in diet moreover as healthy cooking practices in ladies.

13. CONCLUSION

This study et al shows that the individuals of slums are human capital greatly causative to the economy and work force of the country. The bulk here suffers unacceptable levels of deficiency disease, hygiene and health, monetary stability, education. Slum living is an inevitable reality of the future; efforts should be created to make the slums into sustainable communities. Finally, various studies describe health and demographic knowledge inform to causes of poor health and livelihood within the slums. Conclusions typically establish drawback or risk issue and recommend that improvement of the variable in question can result in enhancements in outcomes e.g. rising nutrition is probably going to scale back the incidence of illness.

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