A Study on Assessment of Nutritional Status of Housemaids and Its Effect on Their Health in Mumbai City

Nikita Waghere[1]., Dr. Rekha Battalwar[2]

1. *Student of MSc. Clinical Nutrition and Dietetics (Part II), Dr. Bhanuben Mahendra Nanavati College of Home Science, 338, Rafi Ahmed Kidwai Road. Matunga-400019 Affiliated to SNDT Womens's University. Email id: nikkiwaghere3095@gmail.com*
2. *Associate Professor, Food and Nutrition and Dietetics Department, Sir Vitthal Das Thackersay College of Home Science (Autonomous), SNDT Womens's University Juhu, Mumbai. Email id: drrekhab12@gmail.com*

Abstract:

Background: **Nutritional status is an indication of the overall well-being of a population. Adequate nutritional status of women is important for good health and increased work capacity of women themselves as well as for the health of their offspring. With more and more women stepping out of their homes to contribute to family's income the demand for domestic help is on the rise. These domestic helps are hired for doing all kinds of household chores like cleaning the house, cleaning utensils, washing clothes, cooking food, baby sitting and running little errands etc. Due to poor economic conditions and lower wages, food security is compromised thus resulting in poor food choices.**

Aim: **To assess the nutritional status of the housemaids and its effect on their health in Mumbai City.**

Methodology: **This study was carried out to assess the nutritional status of housemaids and its effect on their health in Mumbai city. 100 female housemaids between the age group of 20-50 years were included in the study. A predesigned questionnaire was used to collect the data. The analysis was done using statistical package of social sciences (SPSS, version 16). Chi-square test was used to analyse the representation of cases across the values of a single variable and one sample Z test was used for comparing with reference standards. Findings were considered to be significant when $p \leq 0.05$ and were considered highly significant when $p \leq 0.01$**

Results: **Data on the basic characteristics of the participants showed that most of the participants had pursued primary education. It was observed that 48% of the participants fall under the category of normal weight and rest of the participants were found to be underweight, pre-obese and obese. The differences were found to be highly significant ($p<0.01$). Due to physical exertion, it was found that most of the women complained of back pain. Acidity was the common digestive problem seen among the women. It was seen that eating pattern was affected by workload and odd work timings. Data on food frequency showed a reduced consumption of food items from most of the various food groups. Depending on the number of family members, oil consumption was calculated. 3-day dietary recall showed deficient intake of macronutrients and micronutrients as compared with the Recommended Dietary Allowances.**

Conclusion: **The results showed a lower intake of nutrients as compared with Recommended Dietary Allowances (ICMR, 2016). Factors including the lower income, low educational level, working pattern, odd work timings, workload, skipping of meals and improper intake of nutrition, all lead to an adverse effect on their health which lead to the susceptibility to develop under nutrition among the working housemaids.**

Keywords: **Nutritional status, Domestic Help, Poor food choices, Economic Status, Physical Exertion.**

I. INTRODUCTION

Women's health and nutritional status is inextricably bound with social, cultural, and economic factors that influence all aspects of their lives, and it has consequences not only for the women themselves but also for the well-being of their children, the functioning of households and the distribution of resources (Hariharan, 2016). Illiteracy and low educational status are highly prevalent in low income countries. It is well known that poverty is associated with greater ill health and mortality and low educational status is a major determinant of disease as well as mortality. Low educational status is associated with under-nutrition, greater infant and maternal mortality, and acute and chronic infections (Mangesh S Pednekar, 2016). Women are often expected to occupy a number of roles at the same time: wife, mother, homemaker, employee, or caregiver to an elderly parent. Meeting the demands of so many roles simultaneously leads to stressful situations in which choices must be prioritized. Thus, they tend to undergo a lot of stress which indirectly affects their health (Sumra, 2015). With more and more women stepping out of their homes to contribute to family's income the demand for domestic help is on the rise. These domestic helps are hired for doing all kinds of household chores like cleaning the house, cleaning utensils, washing clothes, cooking food, baby sitting and running little errands etc. The basic nature of their work could be described as physically exhausting, tedious, monotonous and repetitive (Dave, 2012). Every occupation requires hard work. Housemaids carry out diverse household work that might range from cutting of vegetables in the kitchen to washing clothes. These dissimilar activities, often carried out with inappropriate postures over a number of years, predispose the housemaids to a plethora of musculoskeletal disorders (Suman, 2015). Inadequate intakes of multiple micronutrients are common among women living in resource-poor settings and emphasize the need for increased attention to the quality of women's diets. There is a need for more high-quality studies of women's micronutrient intakes (Liv Elin Toreim, 2010). Women with low socio-economic status are more likely to have inadequate food intake, unhygienic housing and lack of sanitation, reduced ability to seek medical care and purchase medicine/supplements, which then affects the birth weight of their infants (Manzur Kader, 2014). Standard of living and education may have an impact on dietary choice and nutrition status. Slum-dwelling women's diets lack adequate micronutrient-rich foods (Harsh Chopra, 2012).

II. METHODOLOGY

A cross-sectional study was conducted in the city of Mumbai. House to house visits were made and 100 female housemaids of age 20-50 years were included in the study using a predesigned questionnaire. The inclusion criteria of the study were housemaids who performed work including washing of clothes, washing of utensils, sweeping of floors and overall work. The exclusion criteria included males, elderly individuals and females who performed other activities including massage services, cooking. 3 days' dietary recall was used to calculate dietary intake. Anthropometric measurements were collected using standard tools. The analysis was done using statistical package of social sciences (SPSS, version 16). Chi-square test was used to analyse the representation of cases across the values of a single variable and one sample Z test was used for comparing with reference standards. Findings were considered to be significant when $p \leq 0.05$ and were considered highly significant when $p \leq 0.0$

III. RESULTS

The minimum age was 20 years old and maximum was 50 years with a mean of 33.38 ± 8.49 years. The minimum monthly salary of the participants was Rs.2500 and maximum monthly salary was Rs.12000 with a mean of Rs.5865.0±1922.56.

In one of the studies, it was found that type of payment (Daily Wages/Monthly Payment) and diet type (vegetarians/ non-vegetarians) was found to exert influence on nutritional status of women (Archana Prabhat, 2012).

Table No I

Basic Characteristic of the Participants

Variables	**Categories**	**Percentage (%)**	**Chi Square($X^{2)}$**	**p value**
Type of Family	Joint	18	40.96	**0.000****
	Nuclear	**82**		
Educational status	Illiterate	29	46.40	**0.000****
	Primary education	**39**		
	Secondary education	22		
	10^{th} pass	9		
	12^{th} pass	1		
Marital status	Married Unmarried Other	**96** 4	84.64	**0.000****
Number of Children	No children	17	35.30	**0.000****
	1 Child	16		
	2 Children	42		
	3 children	19		
	More than 3 children	6		
Medical History	None Diabetes Tuberculosis Ulcerative Colitis CVD Hypertension Any Other	**85** 5 1 1 - 8 -	265.80	**0.000****
Medications	Yes No	**86** 14	51.84	**0.000****

Most of the participants (82%) {(X^2 =40.96, p<0.01)} belonged to nuclear family type whereas the remaining participants (18%) belonged to joint family type. The minimum number of family members was found to be 2 and maximum number was 12 with a mean of 4.64 ± 1.81.

It was observed that 39 % {(X^2 =46.40, p<0.01)} of participants had pursued primary education, followed by 29% of the participants being illiterate.96% {(X^2= 84.64, p<0.01)} of the participants were married whereas 4% were unmarried. These differences were highly significant.

Majority (42%) of the participants had 2 children, followed by 19% of the participants who had 3 children, 17% of the participants had no children, 16% of the participants had 1 child whereas 6% of the participants had more than 3 children. This difference in the number of children was highly significant {(X^2=35.30, p<0.01)}

Data was obtained on the medical history and results showed that 85% {(X^2=265.80, p<0.01)} of the participants didn't face any medical issues and most of the participants (86%) {(X^2=51.84,

p<0.01)} were not on any medications while remaining (14%) were on medications.

IV. ANTHROPOMETRIC MEASUREMENTS

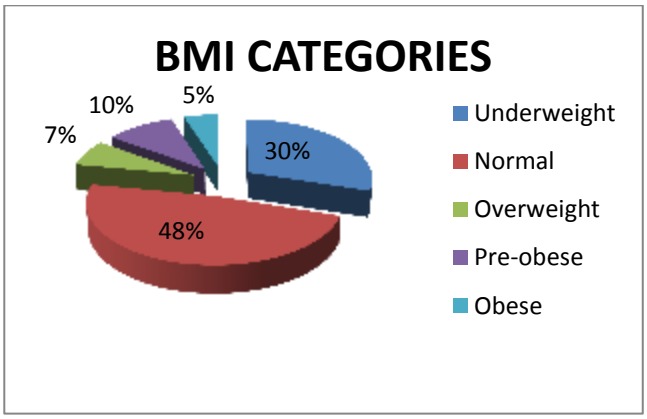


Fig 1. BMI of the Participants

It was observed that the mean height and weight of the participants were 156 cms and 50.16 kgs respectively. The BMI of the participants ranged from 14.42kg/m^2 to 96.50kg/m^2 with a mean of 21.40 ± 8.51 kg/m^2. It was observed that 48% of the participants were of normal weight, 30% were underweight, 7% were overweight while 10% and 5% of the participants were Pre-obese and obese respectively. This difference in the level of adiposity among study participants was highly significant (X^2=68.90, p<0.01)

Table II

Health Problems of the Participants

Variables	**Categories**	**Percentage (%)**	**Chi square(X^2)**	**p value**
Bone related Pain	None	9	148.10	**0.000****
	Back pain	**56**		
	Joint Pain	2		
	Knee pain	5		
	Arthritis	-		
	Back and knee pain	22		
	Back and joint pain	5		
	joint and knee pain	3		
Gastrointestinal Problem	None	33	98.80	**0.000****
	Acidity	**39**		
	Ulcers	4		
	Frequent stomach pain	13		
	Constipation	2		
	Diarrhoea	5		
	Acidity and Frequent stomach pain	4		
Immunity related: 1)Frequency of falling Sick	None	**44**	54.80	**0.000****
	Rarely	42		
	Once in a month	13		
	Twice in a month	1		
	More than twice in a month	-		
2)Sick Leave	Yes	**55**	21.50	**0.000****

3)Work during Illness	No	20	101.80	**0.000****
	Partially	25		
	Yes	**61**		
4)Commonly suffered health problems	No	39	36.30	**0.000***
	None	24		
	Cold	39		
	Cough	6		
	Fever	23		
	All of the above	8		
Reproductive profile: 1)Regular Menses	Yes	**83**	43.56	**0.000****
	No	17		
2)Discomfort during menses	Yes	**92**	70.56	**0.000****
	No	8		
3)Skipping of work during menses	Yes	20	36.00	**0.000****
	No	**80**		

Most of the participants had health issues relating to bone health, gastro intestinal health and immunity. Most of the participants suffered from Back pain (54%) (X^2=148.10, p<0.01) followed by 22% of the participants who suffered from back and knee pain due to exertion and physical work.

Data on gastro intestinal problems showed that 39% {(X^2=98.80, p<0.01)} of the participants suffered from acidity.

Results showed that 44% {(X^2 =54.80, p<0.01)} of the participants did not fall sick often, 42% of the participants fell sick rarely. Due to illness, it was seen that 55% {(X^2=21.50, p<0.01)} of the participants took sick leave while they were ill, whereas 20% did not take sick leave, 25% partially worked during the course of the day. It was seen that 61% {(X^2=101.80, p<0.01)} of the participants worked during illness while 39% of the participants did not work. It was also observed that 39% (X^2=36.30, p<0.01)} of the participants suffered from cold due to lower immunity.

A Cross sectional study was carried out to assess the prevalence of health problems among domestic workers in Southern India. The objective was to measure the commonly reported health problems among the domestic workers. Health status was associated with hours' work (p = 0.00) and years of work (p = 0.02) (Praveen, 2017)

Poor health was associated with lower levels of education and small household landholdings (Mohindra, 2006)

It was observed that 83% {(X^2=43.56, p<0.01)} of the participants had regular menses while 17% had irregular menses and menopause with higher age. Also, 92% {(X^2= 70.56, p<0.01)} of the participants complained about menstrual discomfort while 8% of the participants did not complain of the menstrual discomfort. Also, it was seen that 20% of the women skipped work due to menstrual discomfort.

V. EATING PATTERN

Data was collected on the eating pattern which included questions relating to food habits, number of meals consumed daily, water consumption daily, provision of meal at workplaces, skipping of meals due to work etc.

Table III

Eating Habits of the Participants

Variables	**Options**	**Percentage**	**Chi square(X^2)**	**p value**
Food habits	Vegetarian	22	83.54	**0.000****
	Non-vegetarian	**75**		
	Ovo- Vegetarian	3		
Number of meals consumed Daily	1 meal	1		
	2 meals	26		

	3 meals	**61**	126.00	**0.000****
	4 meals	11		
	5 meals	1		
	More than 5 meals	-		
Water consumption per day	3 glasses	5	40.46	**0.000****
	4-7 glasses	39		
	More than 7 glasses	**56**		
Provision of meal at the workplace	Yes	**50**	0.01	**1.000****
Is it fresh food or stale food?	No	50	31.04	**0.000****
	Fresh food	44		
	Stale food	6		
Skipping of meals due to work	Yes	50	0.00	**1.000****
	No	50		
Consumption of Tobacco Products	None	**63**	140.20	**0.000****
	Betel nut	1		
	Tobacco	22		
	Misri Bidi	9 -		
	Gutka	1		
	Any other	-		

The percentage of non-vegetarians (75%) {(X^2=83.54, p<0.01)} was higher whereas the percentage of vegetarians (22%) was lower. Only 3% of total participants were ovo-vegetarians.

Pure vegetarianism and red meat consumption more than 4 times per week were shown as risk factors for osteoporosis in postmenopausal women in Indian and Iranian subjects respectively (Ashraful Islam, 2015).

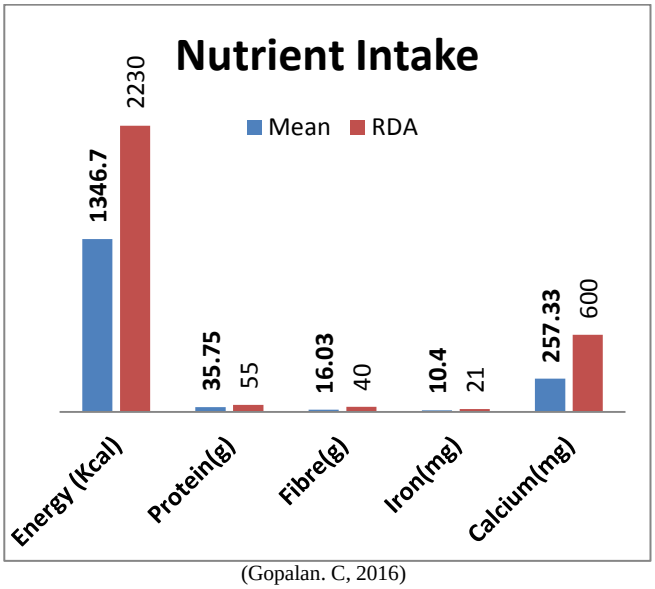
It was observed that 61% {(X^2=126.00, p<0.01)} of the total participants consumed 3 meals daily, 26% consumed 2 meals per day, 11% consumed 4 meals daily. Daily water consumption was also recorded and the results showed that 56% {(X^2=40.46, p<0.01)} of the participants consumed more than 7 glasses. Also, oil consumption on monthly basis was recorded. Minimum oil consumption was up to 1 litre and maximum was 10 litres with a mean of 4.72 ±1.95 litres.

At work place 50% of the participants were provided with a meal whereas 50% were not provided with meal's {(X^2=0.01, p>0.05)}. Of those 50% of the participants, 44 participants {(X^2=31.04, p<0.01)} reported to receive fresh food while 6 participants reported to receive stale food at their workplaces. Due to consumption of stale food, 3% had discomfort due to acidity while 1% had discomfort due to diarrhoea.

Due to odd work timings and workload, many of the participants skipped their meals. It was observed that 50% of the participants consumed meals on time while the remaining 50% skipped meals due to work {(X^2=0.00, p>0.05)}.

It was observed that 63% {(X^2=140.20, p<0.01)} of the participants did not consume any tobacco products (Betel nut, Tobacco, Misri, Bidi, Gutka). 22% of the the participants consumed tobacco while 9% of the participants consumed Misri.

A study was carried out which aimed at understanding the patterns and predictors of smokeless tobacco (SLT) use among the urban low-socioeconomic women in Mumbai, India. It was a cross-sectional community-based survey of tobacco usage among women residing in seven low-socioeconomic communities in suburbs of Mumbai. Masheri was the most common form of tobacco used, followed by chewing tobacco. According to the results of univariate and multivariate logistic regression analysis, illiterate women, with advancing age were at higher risk of being tobacco user (Mishra, 2015)



(Gopalan. C, 2016)

Fig. 2. Nutrient Intake among the Participants

Macronutrient and Micronutrient intake assessed by 3 Day Dietary recall indicated highly significant lower differences when compared to the reference standards. The mean energy intake was 1346.70 kcals and was deficient by -883.32 kcals (Z= -37.80, p<0.01) for energy intake when compared with RDA (Recommended Dietary Allowances) value, mean protein was 35.75g and was deficient by -19.24g (Z= -23.56, p<0.01) for protein intake when compared with RDA. The mean fibre intake was around 16.03g and was deficient by -23.96g (Z= -48.62, p<0.01) for fibre intake when compared with RDA. The mean iron was 10.40mg and was deficient by -10.59mg (Z= -34.40, p<0.01) for iron intake when compared with RDA. Mean calcium was 257.33mg and was deficient by -342.67mg (Z= -38.51, p<0.01) for calcium intake when compared with RDA. Thus, macro and micro nutrient intake was significantly below the reference standard.

A study was done to assess the dietary intake of calcium (Ca) in reproductive age in Delhi, India. Results showed that women from upper socioeconomic class had a higher intake of dietary calcium 435±268 mg/day as compared to women from low socioeconomic class with a dietary intake of 295±163 mg/day. The dietary intake of calcium improved with an increase in socioeconomic class (Nighat Yaseen Sofi, 2016).

VI. CONCLUSION

It can be concluded from the study that the nutrient intake was lower than the Recommended Dietary Allowances (ICMR, 2016). Due to inadequate consumption of milk and milk products, protein rich foods and fruits as observed from the food frequency questionnaire, it showed that iron, calcium levels and fibre were below the reference standard values. Factors including the lower income, low educational level, working pattern, odd work timings, workload, skipping of meals and improper intake of nutrition, all lead to an adverse effect on their health which lead to the susceptibility to develop undernutrition among the working housemaids.

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