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RESEARCH ARTICLE

DETERMINANTS OF HEALTH STATUS OF WOMEN EMPLOYED IN AGRICULTURE SECTOR

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ABSTRACT

This study was undertaken to determine the effect of anthropometry, haemoglobin level and common health problems on health status of 500 women employed as agriculture labourers in Parbhani district of Marathwada region of Maharashtra state. The study revealed that majority of female farm labourers were from nuclear families in urban slums (76.8 %) and in rural (67.2 %). More per cent of rural families (79.2 %) were vegetarian whereas urban slums (69.2 %) were non-vegetarian. Maximum numbers of farm women were belonging to income group Rs. 6001-10,000/- per month. The height, weight, BMI, MUAC, waist circumference, hip circumference and WHR of selected female farm labourers ranged between 150.28 + 5.80 to 151.32 + 4.96 cm, 47.77 + 8.63 to 51.05 + 9.53 kg, 20.87 + 3.42 to 22.52 + 3.98, 24.99 + 3.22 to 26.06 + 3.84 cm, 72.05 + 8.10 to 76.35 + 10.15 cm, 86.13 + 7.63 to 90.55 + 9.10 cm and 0.83 + 0.06 to 0.86 + 0.08 respectively. On the basis of BMI 57.00 to 64.00 percent female farm labourers were categorised as normal. Near about 75 to 80 percent surveyed respondents were suffered with one or other grade of anaemia. Most commonly observed health problem among all selected female farm labourers was pain in legs (45.6%) followed by backache (41.2%), headache (32.4%) and weakness (27.4%).

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INTRODUCTION

According to 2011 census in India, there are 587 million women (48.53% of the total population). Out of the total main workers population, female workers comprised 25.51 per cent. The role of women extended much beyond the home, upbringing of children. They have to perform dual roles of housewife as well as wage earner and play a vital and significant crucial role in agricultural operations, especially at harvesting time. Despite their involvement in agriculture work in such a large magnitude, women have not been actively involved in the main stream of development. Body mass index (BMI) is the most established anthropometric indicator used not only for assessment of adult nutritional status but also the socio-economic situation of a population in a developing country like India. Nutritional status based on BMI is also related to demographic, economic, social, and environmental conditions of the population. Anaemia continues to be a major public health problem worldwide, particularly among women. It has been estimated that more than one third of the world's women are anaemic; the vast majority of this burden occurs in developing country like India. It is a common health problem among the women of 18-45 years age.

Due to different socio-economic and other influencing factors, the epidemiology of anaemia varies among different regions. The problem is more in rural and urban slum areas. However this study aims to know the "Determinants of Health Status of Women Employed in Agriculture Sector".

MATERIALS AND METHODS

The study was carried out to assess the health status of selected 500 female farm labours i.e. 250 each from urban slums and rural. Equal number of 21-30 and 31-40 years i.e. 125 each in all groups were covered from Parbhani District of Marathwada region of Maharashtra state. A survey was carried out to find general background. A combination of anthropometry, food consumption pattern and nutrient intake were used for assessing the nutritional status of selected female farm labours. Using standard procedures of anthropometry (Jelliffe, 1966 and WHO 1995) measurements of height (cm), weight (kg), mid-upper arm circumference, waist – hip –ratio (WHR) of the selected 500 female farm labours were recorded and compared with NCHS (1977) reference values. The body mass index (BMI) was calculated by using ICMR Standard formula, (1986) and on the basis of BMI subjects were categorised into different grades of undernutrition. WHR is the ratio of circumference of the waist to that of the hip. The ratio was determined by dividing waist measurement by hip

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measurement. To judge the extent of prevalence of anaemia hemoglobin content was determined by cyanomethemoglobin method (Crossby *et al.*, 1954). All 500 female farm labourers from rural and urban slum areas included in the present study were assessed for the presence of different health problems if any. The data was analyzed statistically by applying different suitable tests to compare between the two groups and to find out the significant difference between groups.

RESULTS AND DISCUSSION

Table 1 showed that majority of female farm labourers were from nuclear families in urban slum (76.8%) and in rural area (67.2%), while 84.2 percent of families were having 4 to 6 members. Near about 79 percent female farm labourers from rural areas were vegetarian and 69.2 percent were non-vegetarian from urban slum. More than 55 per cent subjects from both groups were belonging to monthly family income of Rs. 6001 to 10,000/-. Around 40 percent were educated up to high school and 60 per cent either primary or secondary school educated. The results were also in line with study conducted by Girade and Shambharkar (2012) in Vidharbha region of Maharashtra state. The anthropometric measurements of female farm labourers from different socio-economic categories are depicted in Table 2. The height, weight, BMI, MUAC, waist circumference, hip circumference and WHR of selected female farm labourers ranged between 150.28 ± 5.80 to 151.32 ± 4.96 cm, 47.77 ± 8.63 to 51.05 ± 9.53 kg, 20.87 ± 3.42 to 22.52 ± 3.98 , 24.99 ± 3.22 to 26.06 ± 3.84 cm, 72.05 ± 8.10 to 76.35 ± 10.15 cm, 86.13 ± 7.63 to 90.55 ± 9.10 cm and 0.83 ± 0.06 to 0.86 ± 0.08 respectively. The highest values for height was recorded for subject belonging to high income group (above Rs.10000/- per month), however in other groups recorded weight was almost same. Increase of weight, BMI, MUAC, waist circumference and hip circumference belonging to 31 to 40 years of age group showed highest values. Values for waist hip-ratio in all categories were ranged between 0.83 ± 0.06 to 0.86 ± 0.08 . When comparison was made between all anthropometric measurements with NCHS standards, it was

revealed that height and weight were less than NCHS standards. While BMI, MUAC and WHR were equal to or little bit more than NCHS standards. These observations were in line with study conducted by Bhojar (2006) and Bellukar (2015) on farm women in Parbhani district and studies conducted by Upadhy *et al.*, (2011) in Uttarakhand, Mittal and Shrivastava (2006) in West Bengal.

Categorization of selected female farm labours on the basis of body mass index is presented in Table 3. It is observed from the table that 57.00 to 64.00 percent female farm labourers were normal, 12.8 to 25.6 per cent were in over weight category whereas remaining were suffering from with one or other degree of under nutrition ranged from 16 to 28 percent. Irrespective of criteria of categorization, it was observed from the table that respondents belonging to high income group (64 per cent) followed by non-vegetarian group (60 to 88%), urban slum (60%) and age group of 21-30 years (59.2%) were in the category of normal. However in the category of undernourishment the respondents of 21-30 years of age (28%) followed by the respondents belonging to income group Rs. <6000/- (27.10%) and rural area (26.8%).

Further it is revealed from the table that female farmers belonging to age group 31 to 40 years showed highest per cent of overweight (25.6%) followed by urban slum (22.8%) and income group of Rs. 6000-10,000/- month. These findings were goes hand in hand with study conducted by Bhojar (2006) in Parbhani district and Rao *et.a.* (2010) in Pune district. Prevalence of anaemia in selected female farm labourers belonging to different socio-economic groups is presented in Table 4. It is observed from table that near about equal percent subjects from rural (36.4 %) and urban slum (36.8 %) areas were having mild and moderate grades of anaemia respectively. Whereas 26.4 percent and 20.8 percent were found to be normal and very less percent (3.6% and 7.2%) showed severe grades of anaemia. When comparison was made between food habits, 25.09 percent vegetarian and 21.77 percent non-vegetarian respondent were found to be normal.

Table 1. Socio-Economic Background of Selected Female Farm Labourers (N=500)

Sr.No.	Particular	Urban (N= 250)	Rural (N= 250)
1.	Age Group (yrs)		
	21-30	125 (50)	125 (50)
	31-40	125 (50)	125 (50)
2.	Area		
	Rural	125 (50)	125 (50)
	Urban	125 (50)	125 (50)
3.	Type of Family		
	Joint	58 (23.2)	82 (32.8)
	Nuclear	192 (76.8)	168 (67.2)
4.	Family Size(No.)		
	4-6	223 (89.2)	198 (79.2)
	>6	27 (10.8)	52 (20.8)
5.	Food Habit		
	Vegetarian	77 (30.8)	198 (79.2)
	Non-vegetarian	173 (69.2)	52 (20.8)
6.	Family Income (Rs. per month)		
	Upto 6000	40 (16)	67 (26.8)
	6001-10000	154 (61.6)	139 (55.6)
	>10000	56 (22.4)	44 (17.6)
7.	Educational level of subject		
	Primary school education	72 (28.8)	53 (21.2)
	Secondary school education	77 (30.8)	101 (40.4)
	High school education	101 (40.4)	96 (38.4)

Figure in parenthesis indicates percentage

Table 2. Anthropometric Measurements of Selected Female Farm Labourers (N=500)

Particular	Height (cm)	Weight (kg)	BMI	MUAC (cm)	Waist Circumference (cm)	Hip Circumference (cm)	Waist – Hip Ratio (WHR)
Age Group (yrs)							
21-30 (N=250)	151.22 ± 5.82	47.77 ± 8.63	20.87 ± 3.42	24.99 ± 3.22	72.05 ± 8.10	86.13 ± 7.96	0.83 ± 0.06
31-40 (N=250)	150.46 ± 5.11	51.05 ± 9.53	22.52 ± 3.98	26.06 ± 3.84	76.35 ± 10.15	90.55 ± 9.10	0.84 ± 0.09
Area							
Rura (N=250)	151.30 ± 5.68	48.98 ± 9.32	21.34 ± 3.74	25.20 ± 3.20	73.85 ± 9.42	87.86 ± 8.82	0.84 ± 0.05
Urban Slum (N=250)	150.38 ± 5.26	49.902 ± 9.12	22.04 ± 3.83	25.85 ± 3.91	74.55 ± 9.42	88.82 ± 8.82	0.86 ± 0.06
Food Habit							
Vegetarian(N=275)	151.025 ± 5.35	48.84 ± 9.17	21.38 ± 3.68	25.12 ± 2.70	73.85 ± 9.20	87.49 ± 8.54	0.84 ± 0.04
Non-vegetarian (N=225)	150.62 ± 5.66	50.11 ± 9.26	22.08 ± 3.91	26.01 ± 4.39	74.96 ± 9.64	89.38 ± 9.07	0.86 ± 0.06
Family Income (Rs. per month)							
Up to 6000 (N=107)	150.28 ± 5.80	48.25 ± 9.27	21.35 ± 3.81	25.08 ± 2.74	73.63 ± 9.06	87.44 ± 8.95	0.84 ± 0.05
6001 to 10000 (N=293)	150.88 ± 5.54	49.94 ± 9.54	21.91 ± 3.94	25.69 ± 3.70	74.64 ± 9.95	88.87 ± 9.16	0.86 ± 0.04
>10001 (N=100)	151.32 ± 4.96	49.09 ± 8.13	21.42 ± 3.32	25.50 ± 3.99	73.52 ± 8.12	87.75 ± 7.55	0.86 ± 0.08
NCHS Standards	161	55	21.2	24	-	-	≤ 0.85

Table 3. Categorization of Selected Female Farm Labourers on the Basis of BMI (N=500)

Particular	Undernourished (<18.5)	Normal (18.5 – 25)	Overweight (>25.0)
Age group (yrs)			
21-30	70 (28)	148 (59.2)	32 (12.8)
31-40	40 (16)	146 (58.4)	64 (25.6)
Area			
Rural	67 (26.8)	144 (57.6)	39 (15.6)
Urban slum	43 (17.2)	150 (60.00)	57 (22.8)
Food Habit			
Vegetarian	65 (23.63)	157 (57.9)	53 (19.27)
Non vegetarian	45 (20.00)	137 (60.88)	43 (19.11)
Income level (Rs. Per month)			
Upto 6000	29 (27.10)	61 (57.00)	17 (15.88)
6001-10000	61 (20.81)	169 (57.67)	63 (21.5)
> 10000	20 (20.00)	64 (64.00)	16 (16.00)

Figure in parenthesis indicates percentage

Table 4. Prevalence of Anaemia in Selected Female Farm Labourers of Different Socio-Economic Groups (N=500)

Particular	Grades of anaemia			
	Normal (>12.0)	Mild (>10 - 12)	Moderate (7 - 10)	Severe (< 7)
Area				
Rural	66(26.4)	91(36.4)	84(33.6)	9(3.6)
Urban	52(20.8)	88(35.2)	92(36.8)	18(7.2)
Age Group (yrs)				
21-30	52(20.8)	94(37.6)	88(35.2)	16(6.4)
31-40	66(26.4)	85(34.00)	88(35.2)	11(4.4)
Food Habit				
Vegetarian	69(25.09)	98(35.63)	99(36.00)	9(3.27)
Non-vegetarian	49(21.77)	81(36.00)	77(34.22)	18(8.00)
Family Income (Rs. per month)				
Up to 6000	20(18.70)	41(38.31)	37(34.58)	9(8.41)
6001-10000	64(21.84)	104(35.51)	109(37.20)	16(5.46)
>10001	34(34.00)	34(34.00)	30(30.00)	2(2)
Educational level				
Primary Educated	27(21.6)	34(27.2)	54(43.2)	10(8.00)
Secondary Educated	40(22.59)	75(42.37)	55(31.07)	7(3.95)
High School Educated	51(25.75)	70(35.35)	67(33.83)	10(5.05)

Figure in parenthesis indicates percentage

The improvement in income level reported increased in percent of normal labourers (18.70 to 34.00 %) and decreased in moderate (34.58 to 30 %) and severe (8.41 to 2 %) grade of anaemia. On the whole subjects from high income group (>Rs.10,000) recorded highest (34.00 %) value for normal grade followed by rural (26.4 %) and 31 to 40 years age group (26.4 %). Further it was noted that secondary educated (42.37%) followed by low income group (38.31%) and 37.6 per cent labourers from 21-30 years of age group were suffering with mild grade of anaemia.

However moderate grade of anaemia was recorded by primary educated (43.2%) and high income group (30.00 %) respondents. However near about 2 to 8.41 percent female farm labourers from different socio-economic categories were having severe grade of anaemia. On the whole prevalence of anaemia on the basis of different socio-economic livings 18.70 to 34 percent respondents were in normal grade. These findings are in line with Shrinivasa *et al.*, (2014). The data regarding commonly observed health problems in selected female farm labourers is presented in Table 5.

Table 5. Commonly Observed Health Problems of Selected Female Farm Labours (N=500)

Particular	Repeated illness	Severe diseases	Backache	Pain in stomach	Depression	Pain in legs	Headache	Breathlessness	Weakness	Lack of Enthusiasm	Diarrhoea
Age Group (yrs)											
21-30 (N=250)	45 (18)	02 (0.8)	99 (39.6)	27 (10.8)	16 (6.4)	108 (43.2)	87 (34.8)	28 (11.2)	73 (29.2)	12 (4.8)	18 (7.2)
31-40 (N=250)	54 (21.6)	01 (0.4)	107 (42.8)	33 (13.2)	20 (8.0)	20 (8.0)	20 (8.0)	75 (30)	22 (8.8)	64 (25.6)	14 (5.6)
Area											
Rural (N=250)	37 (14.8)	01 (0.4)	102 (40.8)	23 (9.2)	19 (7.6)	97 (38.8)	70 (28)	21 (8.4)	50 (20)	13 (5.2)	19 (7.6)
Urban Slum (N=250)	61 (24.4)	02 (0.8)	104 (41.6)	37 (14.8)	17 (6.8)	131 (52.4)	92 (36.8)	29 (11.6)	87 (34.8)	13 (5.2)	15 (6)
Food Habit											
Vegetarian (N=275)	43 (15.63)	01 (0.36)	112 (40.72)	21 (7.6)	15 (5.45)	113 (41.09)	75 (30.33)	24 (8.72)	72 (26.18)	14 (5.09)	14 (5.09)
Non-vegetarian (N=225)	55 (24.44)	02 (0.88)	94 (41.77)	39 (17.33)	21 (9.33)	115 (51.11)	87 (34.8)	27 (12)	65 (28.88)	12 (5.33)	20 (8.88)
Family Income (Rs. per month)											
< 6000 (N=107)	22 (20.56)	02 (1.86)	52 (48.59)	24 (22)	13 (12.14)	49 (45.79)	38 (35.51)	15 (14.01)	35 (32.71)	03 (2.80)	06 (5.60)
6001 to 10000 (N=293)	57 (19.45)	01 (0.34)	110 (37.54)	34 (11.60)	21 (7.06)	133 (45.31)	94 (32.08)	26 (8.87)	79 (26.96)	19 (6.48)	25 (8.53)
>10001 (N=100)	19(19)	-	44(44)	11(11)	2(02)	46(46)	30(30)	9(09)	23(23)	4(04)	2(02)

Majority of female farm labourers were suffering from pain in legs (38.8 to 52.4 %) followed by backache (37.54 to 44 %), headache (28 to 36.8 %) and weakness (20 to 34.8 %). However 0.4 to 24.44 percent female farm labourers were suffering from either one or other health problems like repeated illness (14.8 to 24.44 %), pain in stomach (7.6 to 22 %), breathlessness (8.4 to 14.01 %), lack of enthusiasm (2.80 to 6.48 %), depression (2 to 12.14 %), diarrhea (2 to 8.88%) and severe diseases (0.4 to 1.86%). The findings of study also in line with study conducted by Thakare et.al.(2005) in Buldhana district and Dhore (2011) in Washim district of Maharashtra.

Summary and Conclusion

Majority of selected female farm labourers were from nuclear families in urban slum (76.8%) and in rural area (67.2%), while 84.2 percent of families were having 4 to 6 members. Near about 79 percent rural subjects were vegetarian and 69.2 percent were non-vegetarian from urban slum. More than 55 per cent subjects from both groups were belonging to monthly family income of Rs. 6001 to 10,000/-. Anthropometric measurements like BMI, MUAC and waist-hip-ratio were more than NCHS standards where as height and weight were 7 to 8 percent and 8 to 15 percent deficient than NCHS standards respectively.

About 60 per cent respondents were categorized as normal on the basis of BMI. Near about 75 to 80 percent surveyed respondents were suffered with one or other grade of anaemia. Commonly observed health problems in female farm labourers were pain in legs, backache, headache and weakness.

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