Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Medicine

Profile of Health Status in Relation to Working Pattern and Habits among Street Vendors in Bangalore City

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DOI: 10.36347/sjams.2024.v12i02.008 | **Received:** 03.01.2024 | **Accepted:** 08.02.2024 | **Published:** 10.02.2024

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Abstract **Original Research Article**

***Introduction*:** Street vendors are important informal self-employment group in the community and their health, nutritional and security status are affected because of weather conditions, pollution in urban area, mental stress and working hours. There is a lack of studies on health profile in street vendors in big cities. This study was conducted with as objective to know the socio demographic profile, health status in relation to their working pattern and habits among the street vendors. ***Material and Methods*:** This is a cross sectional and descriptive study. The data was collected by direct interviewing the subjects in their own language at their workplace in Bangalore city using pre tested semi open ended questionnaire. Sample size was determined based on the pilot study. The data included socio demographic, type of business, earning, working years, preexisting health status, body weight and height, habits etc. Subjects who were doing service or selling on mobile carts but not at fixed point and street vendors serving ready to eat foods were excluded. Body Mass Index was estimated as anthropometric nutritional status assessment. Data was analysed in SPSS software version. ***Results*:** The study subjects were 275 in the age group of 20 to 70 years and males accounted for 62.5 percentage. The proportion of subjects in the age of 41 years and above was 52.3%. Majority did not have formal schooling and common business was fruits and vegetables selling. Their working hours varying from 4 to 10, and doing business since 2 to 30 years with median of 20 years. The habit of smoking, tobacco chewing and alcohol was present in 30.2%, 14.5% and 14.2% the total. Overweight and obesity accounted for 78.9 % among the total where 19.8% and 25.2% were obese in males and females. The overall prevalence of Hypertension, Diabetes Mellitus and other conditions were 30.5%, 23.6% and 7.2% irrespective of their age, sex, type of business, working hours and habits. The prevalence of Hypertension was high among tobacco chewers. ***Conclusion*:** The presence of high prevalence of preexisting hypertension and diabetes mellitus among street vendors shows the problems of continuously exposed to different environmental pollutants, mental stress, physical inactivity, sedentary lifestyle, diet and habits. The suitable approaches are needed in preventing the complications from their existing diseases and habits with emphasis on good compliance for treatment and monitoring.

Keywords: street vendors, socio demographic, Health Status.

INTRODUCTION

Street vendors are important to the community and they are integral part of self-employment of very small scale business on daily basis who are not considered as formal sector of employment. Street vendors are defined as self-employed workers in the informal sector who offer their labour as selling goods and services on the street without having any permanent built structure and there are definitions of similar nature [1-4]. As per the National Policy on Urban street vendors 2009, there are three basic categories of street vendors [1]. Those street vendors who carry out vending on regular basis with a specific location [2]. Those street vendors who carry out vending not on a regular basis and without any specific location for example vendors who sell goods in weekly bazaars during holidays and festivals [3]. The mobile street vendors: those who moves from place to place vending their goods and services on bicycles, buses, trains and mobile units on wheels [5, 6].

Street vendors constitute about 2 -2.5% of the urban population in India as an estimation, one third of them are women street vendors [1-9]. Most of the street vendors are at fixed place of selling goods or service than walking through the streets, or door to door selling by carrying the items on their head or in mobile carts. The issues faced by them are already studied highlighting the economic, legal, police, health, environment and business stability [2-11]. They are exposed to long hours of sitting, standing with limited active physical movement resulting in musculoskeletal problems and weight gain issues [12-6].

The health status is not constant and change is inevitable because of age, duration of work, skills in preparation of items/goods, use of mobile phones, physical activities, harmful habits, exposure to chemicals or infections, etc. The conditions of food handlers facing are different kind of issues related to law, hygiene etc. There is lack of information on street vendor's health status and their issues in rapidly growing Bangalore city. Hence this study was conducted in Bangalore city among street vendors other than ready to eat cooked foods with the objectives to know the socio demographic profile, health status in relation to their working pattern and habits among the street vendors.

MATERIALS AND METHODS

This is a cross sectional, descriptive, exploratory, community based study conducted in Bangalore city in the year 2020.

Study Area:

Bangalore city which is called as BBMP (Bangalore Bruhat Mahanagara Palike) having population of around 12 Million and they have 198 administrative wards during the study period. There are numerous shopping malls, complexes, small to medium sized vegetables, fruits, flowers markets within the city and suburban areas. There are many street vendors/hawkers of all kinds including the ready to eat food items.

The street vendors were either stationary/ fixed spot to sell or moving around the streets with their mobile carts. Street vendors were selling fresh vegetables, fruits, fishes, flowers, flower garlands, toys, foot wears, under garments, ladies wears, kids wears, fashion jewels, utensils, cotton pants, books, ready to eat food items or cooked food etc. Some of the vendors are migration population either from rural/villages or other states.

Inclusion Criteria:

Any vendor who have business as fixed station in the street willing to consent and participate in the study irrespective of type of goods or services selling, duration of the job, age and gender.

Exclusion Criteria:

Vendors selling ready to eat the cooked food items were excluded. Vendors in moving cart but not stationary were also excluded.

Sample size was estimated based on the prevalence of non-communicable disease in the pilot study and 275 street vendors were required.

Selection of Subjects:

The participants for this study were selected from the northern part of Bangalore city. The street vendors were randomly selected from their fixed spot of business. Not more than 3 vendors were selected from each street.

Sampling Method:

Purposive sampling method was applied and eligible street vendors were met, explained about the study and requested to participate.

Tool for Data Collection:

The pilot tested, open ended, semi structured questionnaire was used for collection of information by direct personal interview by the investigators at their work site. The questions were in English language and investigators filled the questionnaire after collecting information in the languages known to the vendors.

Content of Questionnaire:

Data in the questionnaire included the socio demographic characters, working hours, duration of job/selling, earning per day, health conditions/problems, preexisting diseases/surgery, earning members in the family etc including the details of weight, height and BP recordings. The preexisting conditions or health problems only filled in the questionnaire.

Data Collection:

The data collection was started after building the rapport, consent from each participant was taken and then information was collected in cordial way without affecting their business, which is not influenced by other vendors or relatives at the site.

The weight and height were measured using the digital weighing machine and staediometer which were calibrated and standardized after recording after every 5 individuals. The weight recorded was recorded to 500 Grams and documented. Blood pressure was recorded in sitting posture on chair using digital manometer as a complimentary service.

The estimation of nutritional status was calculated as per the Asian race and Kg /Ht^2 was considered <18.5 as underweight, 18.5 to 22.9 as normal

, 23 to 24.9 as overweight and equal or more than 30 as obese individuals [13].

The term smoking means use of any of tobacco products like beedies, cigarettes, cigar etc. Chewable tobacco products refers to chewable form of tobacco products like tobacco leaves, tobacco stalks, Gotha, Khaini, Tobacco powder etc.

The other conditions meaning arthritis, muscular skeletal pains, gastro intestinal problems, weakness or malaise, thyroid problems, menstrual issues, etc.

All the information from the questionnaires were entered and analyzed in SPSS software version …. The data was analyzed for mean, standard deviation and appropriate statistical tests for significance in categorical variables in the tables wherever necessary. The level of significance was considered as statistical significant if p value is less than 0.05. The tests were not calculated for the prevalence in the health conditions in the Table 3 where the cell value was 3 or less.

RESULTS

The interview was conducted in 290 randomly selected street vendors to select the sample size of 275. There were 172 and 103 men and women. The mean age of the total subjects was 49.9±12.7 years. The mean age of men and women subjects was 51.8±12.5 and 46.7±12.4 years respectively.

Table 1 show most of the subjects were in the age group of 41-60 years accounting to 59.7%. Men aged 51-60 years accounted for 45.9%. And females aged 31-50 years were 53.4% percent. There was no formal schooling among 82.5% of the subjects. Vendors selling flowers, fruits, vegetables, clothes, plastic items and others were 11.6%, 27.6%, 21.1%, 18.2%, 12% and 9.5% respectively. Fruit selling was common business type in men (30.2%) and flower selling among females (25.2%). Nearly 57.5 % were working between 9 to 10 hours whereas most of the females were working for 7-8 hours per day accounting to 52.4%. Most of the vendors were doing same business since 16 years or more (63.6%) and majority of men were working between 6-20 years. Their earning was up to rupees 1000 per day. Habits like tobacco smoking were observed in 30.2% and higher among men (45.3%). Whereas chewable tobacco products consumption was 14.5% and high among women (25.2%), alcohol consumption habits was 22.7% among men only.

Table 2 depicts the normal and overweight among total subjects accounted for 14.5% and 57.1% respectively. Combined of Overweight and obesity prevalence was 78.9 % among the total subjects. The underweight and obese were 2.9% and 21.8% of the total subjects according to the BMI estimations [13]. The prevalence of overweight among men and women was 61.1% and 50.5% respectively. Obesity was 25.2% in women and 19.8% in men subjects. The overall prevalence of overweight was high (69.6%) among men in the age group of 51-60 years and 56.7% among women in the age group of 41-50 years.

Table 3 shows 61 percent (169 subjects) of the vendors had one or more types of morbid conditions. The prevalence of hypertension, diabetes and other conditions were 30.5 %(84), 23.6 %(65) and 7.2% (20) among the study subjects.

The pattern of prevalence of hypertension, diabetes and other conditions among men was 38.4%, 23.8% and 9.9% respectively. The prevalence of diabetes was high among women accounts to 23.3% followed by 17.5% and 2.9% for hypertension and other conditions. The prevalence of hypertension and Diabetes were higher among men in relation to their business service years and the differences were not statistically significant.

The hypertension and Diabetes mellitus was high among men aged 51 years and above was 54 %(59). The difference in the prevalence of hypertension and other conditions were found to be statistically significant among men and women ($p<0.005$) however it was not statistically significant for Diabetes. The difference in the prevalence of Hypertension between male and female aged 51-60 years was found to be statistically significant ($p<0.05$).

The prevalence of hypertension was 41 %(58) among men with overweight and obesity, whereas Diabetes prevalence among women with obesity was high compared to men. The differences in the prevalence of Hypertension among men and women with overweight was found to be statistically significant ($p<0.05$).

Table 3 showing the prevalence of Hypertension and other conditions among chewable tobacco was observed to 78.6% and 28.6% in men whereas prevalence of Diabetes was high among women (50%) with the same habits. The differences in the prevalence of Hypertension among tobacco chewers between male and female was found to be statistically significant ($p<0.05$).

Table 1: Characteristics of Street vendors

Variables		Male		Female		Total	
		N	%	N	%	N	%
Age group In years	<31	12	7	12	11.7	24	8.7
	31-40	21	12.2	25	24.3	46	16.7
	41-50	31	18	30	29.1	61	22.2
	51-60	79	45.9	24	23.3	103	37.5
	>60	29	16.9	12	11.7	41	14.9
Educational status	Primary	14	8.1	9	8.7	23	8.4
	Higher primary	10	5.8	5	4.9	15	5.5
	Secondary	6	3.5	4	3.9	10	3.6
	No schooling	142	82.6	85	82.5	227	82.5
Business types	Flowers	6	3.5	26	25.2	32	11.6
	Fruits	52	30.2	24	23.3	76	27.6
	Vegetables	38	22.1	32	31.1	58	21.1
	Clothes	38	22.1	12	11.7	50	18.2
	Plastic items	23	13.4	10	9.7	33	12
	others	19	11	7	6.8	26	9.5
Working hours per day	6-7	1	0.6	10	9.7	11	4
	8-9	22	12.8	54	52.4	76	27.6
	10-11	123	71.5	35	34	158	57.5
	12 +	26	15.1	4	3.9	30	10.9
Service years	2-5	17	9.9	10	9.7	27	9.8
	6-10	20	11.6	21	20.4	41	14.9
	11-15	16	9.3	16	15.5	32	11.6
	16-20	36	20.9	28	27.2	64	23.3
	21-25	32	18.6	11	10.7	43	15.6
	25+	51	29.7	17	16.5	68	24.7
Income per day in Rupees	<501	133	77.3	85	82.5	218	79.3
	501-750	25	14.5	12	11.7	37	13.5
	751-1000	4	2.3	3	2.9	7	2.5
	1001+	10	3.2	3	1.4	13	2.2
Habits present	Smoking	78	45.3	5	4.9	83	30.2
	Tobacco	14	8.1	26	25.2	40	14.5
	Alcohol	39	22.7	-	-	39	14.2
Total		172	100	103	100	275	100

Table 2: Nutritional status of study subjects based on Body Mass Index estimations

Age group in years	Under weight		Normal		Overweight		Obese		Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
<31	2	2	4	3	2	6	4	1	12	12
31-40	1	1	5	6	12	13	3	5	21	25
41-50			4	7	19	17	8	6	31	30
51-60	2		9	3	55	11*	13	10*	79	24
>60			6	3	17	5	6	4	29	12
Total	5	3	28	22	105	52	34	26	172	103

*Indicates differences are statistically significant P<0.05

Table 3: Prevalence of diseases among street vendors in relation to different factors

Variables		Total		Hypertension				Diabetes mellitus				Other illness			
		Male	Female	Male		Female		Male		Female		Male		Female	
		N	N	N	%	N	%	N	%	N	%	N	%	N	%
Total		**172**	**103**	**66**	**38.4***	**18**	**17.5***	**41**	**23.8**	**24**	**23.3**	**15**	**8.7***	**3**	**2.9***
Age group in years	<31	12	12	-	-	-	-	1	8.3	-	-	-	-	-	-
	31-40	21	25	3	14.3	1	4	1	4.8	3	12	-	-	-	-
	41-50	31	30	4	12.9	3	10	6	19.4	8	26.7	-	-	-	-
	51-60	79	24	45	57.0*	6	25.0*	24	30.4	10	41.7	4	5.1	2	8.3
	>60	29	12	14	48.3	8	66.7	9	31	3	25	11	37.9	1	8.3
Business types	Flowers	6	26	3	50	4	15.4	1	16.7	6	23.1	-	-	1	3.8
	Fruits	52	24	20	38.5	5	20.8	14	26.9	6	25	5	9.6	1	4.2
	Vegetables	34	24	9	26.5	2	8.3	4	11.8	6	25	4	11.8	1	4.2
	Clothes	38	12	20	52.6	4	33.3	10	26.3	3	25	3	7.9	-	-
	Plastic items	23	10	9	39.1	2	20	8	34.8	2	20	2	8.7	-	-
	Others	19	7	5	26.3	1	14.3	4	21.1	1	14.3	1	5.3	-	-
Habits present	Smoking	78	5	47	60.3	-	-	18	23.1	2	40	4	5.1	1	20
	Tobacco	14	26	11	78.6*	9	34.6*	5	35.7	13	50	4	28.6	3	12
	Alcohol	39	-	22	56.4	-	-	16	41	-	-	2	5.1	-	-
Service years	2-5	17	10	4	23.5	-	-	1	5.9	-	-	1	5.9	-	-
	6-10	20	21	4	20	-	-	6	30	2	9.5	2	10	1	4.8
	11-15	16	16	3	18.8	1	6.3	1	6.3	4	25	-	-	-	-
	16-20	36	28	10	27.8	8	28.6	5	13.9	7	25	-	-	-	-
	21-25	32	11	14	43.8	1	9.1	9	28.1	3	27.3	2	6.3	-	-
	.>25	51	17	31	60.8	8	47.1	19	37.3	8	47.1	10	19.6	2	12
Nutrition status	Under wt.	5	3	-	-	-	-	1	20	-	-	-	-	-	-
	Normal.	28	12	8	28.6	2	16.7	6	21.4	1	8.3	6	21.4	-	-
	Over wt.	105	52	48	45.7*	10	19.2*	25	23.8	14	26.9	9	8.6	2	3.8
	Obese	34	26	10	29.4	6	23.1	9	26.5	9	34.6	-	-	1	3.8

*Indicates differences are statistically significant P<0.05

DISCUSSION

There are various studies conducted among the street vendors on subjects of their socio economic conditions, health status, perception of plastic use, other problems etc. in the states of Maharashtra, Tamil Nadu, Pondicherry and Kerala. The health status and socio demographic profile of street vendors in big cities like Bangalore is lacking. This study was conducted to highlight the importance of their health status. This study analysed 1724 person years of 278 subjects, male and female subjects being 8916 and 4808 person years respectively. The mean age of the total subjects was 49.9±12.7 (median 52), men were 51.8±12.5 (median 55) and women were 46.7±12.4 (median 48) years.

Age Group, Sex and Working Pattern

The present study nearly 50% of the subjects were below the age of 51 years and less than 41 years were 25.4%. In other studies 30 % were in the age group of 30-39 years in Chandrapura district [1]. 80% were below the age of 60 years in Pondicherry [12], 9.6% were above 60 years in Mumbai [5], and similar to the reports of the studies [6-9].

The male and female ratio was almost equal in similar studies conducted other cities in. India [1-9]. In Kozhikode study there were more male subjects [2]. The literacy status shows similar to the present study of no formal schooling among many of the street vendors [4-9].

The working pattern was similar as per the studies conducted in many parts of India in which business hours vary from 4 to 10 hours and the business years was from 1 to 20 years [12], in this study it was observed as median years of business was 20 years (range 2- 30) and around 10-15 years in other studies [4-10]. The earnings per day was almost similar in other studies accounting to around 250 to 1000 rupees per day [1-8].

Nutritional Status of Vendors

The calculated BMI estimation shows 2.9%, 14.5%, 57.1% and 21.8% were under weight, normal, overweight and obese respectively. The prevalence of overweight and obesity accounted for 78.9 % among the total subjects. The overweight was noted high among men than women subjects and obesity was higher among women. The underweight, normal, overweight and obese prevalence among men and women subjects observed to be 2.9%,16.3%,1%,19.8% and 2.9%, 21.3%, 50.5%, 25.2% respectively.

The average weight of the total vendors irrespective of their age, sex, business types and nutritional status was 67.1±7.0 kg. Further in depth analysis showed there was an increase in trend of body weight in relation to their age groups in both sexes.

The lifestyle activities could be reason for overweight and obesity issues among the vendors. Long hours of physical inactivity such as sitting or standing, lack of walking or exercise, possibility of over eating or disproportionate to their dietary requirement. The environment pollutants from vehicle exhaust and air cannot be ignored for the overweight and obesity issues. However nearly 3 % of vendors aged less than 30 years were underweighted. There would be few studies on nutritional status of the street vendors and difficult to find such studies.

Morbidity Problems in Vendors

The overall prevalence of total morbidity in this study was 61percent among the vendors. The prevalence of hypertension, diabetes and other conditions were 30.5% (84), 23.6% (65) and 7.2% (20) among the study subjects. Morbidity conditions were higher in the age group of 51 years or more.

The prevalence of diseases was not uniform in all age groups and sex. The overall morbidity conditions prevalence were 17.4%, 45.6%, 82.5%, 82.9% and 14.9% among the vendors of different age groups. The prevalence of hypertension was varying in both sexes but it was common health problem among men in all types of business compared to women. Similarly the prevalence of diabetes was seen as uniform distribution among women in all types of business compared to men. Other health problems were common among men in all types' business categories. The differences in prevalence were not statistically significant.

The most common morbid conditions were Hypertension (48.8%), Diabetes Mellitus (37.8%) and other conditions (10.5%). The hypertension and Diabetes mellitus was high among men aged 51 years or above accounting 59(54%) and 33 (30.5%) respectively. The difference the prevalence of Hypertension in the age group of 51-60 years between men and women were statistically significant ($p<0.05$).

In depth analysis of the study showed the mean age of Hypertension, Diabetes mellitus and other conditions were 57.5±7.2, 56.7±9.5 and 66.4±8.7 years respectively among men. Similarly the mean age for women was 53.3±9.0, 58.3±9.8 and 61.3±2.3 years respectively.

The prevalence of Diabetes was high in women aged 51 years or more was 13(36%). The prevalence of other conditions was high among men in their age of above 60 years (37.9%). The prevalence of Hypertension reported as 4.8% [5], 8%, [2]. Hypertension and diabetes combined prevalence was 26.6% in Chandrapur district [1], and the overall prevalence of disease was 30% as in the Kozhikode city [2], and other conditions was more than 75% [1].

Habits and Morbidity Pattern

The tobacco chewers were less than 15% in the present study and studies in other cities was up to 30% [1-12]. Tobacco chewers among subjects account for 14.5% but the prevalence of morbidity conditions were high compared to smoking and alcohol habits as shown in Table 3. The prevalence of Hypertension and other conditions among chewable tobacco was observed to 78.6% and 28.6% in men whereas prevalence of Diabetes was high among women (50%) with the same habits. The differences in the prevalence of Hypertension and among tobacco chewers between male and female was found to be statistically significant ($p<0.05$). Subjects with habit of alcohol were observed to be having higher prevalence of hypertension. The author could not find relevant studies to compare the habits and morbidity as analysed and the shown in the present study.

Limitations

Clinical examination was not possible to conduct because of lack of privacy. Information related to their food intake behaviors both quantitatively and qualitatively not studied which are influencing factors on nutritional and for morbidity conditions.

CONCLUSIONS

The majority of the subjects were working since more than 20 years having sedentary lifestyle and most of them were either overweight or obese in both sexes. The prevalence of preexisting Hypertension and Diabetes were high in males than females. Their morbidity prevalence was high among all types of tobacco users especially among men. There is a need to address the issue of their health issues with health education and other strategies to prevent suffering from complications of their diseases.

Acknowledgement

The authors sincerely thank Dr. Aravind M, Dr. Bushra, Dr. Mahesh and Dr. Murugan J for the assistance in collection of data for this study. The contribution Mrs. Yeshiva and Mr Suresh Medico Social Workers as liaison person's completion of data collection is acknowledged.

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