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# **Original Research Article**

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# Lifestyle factors and lifestyle diseases among rural population of Bengaluru rural district

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#### **ABSTRACT**

**Background:** Rapid urbanization and industrialization is leading to increased lifestyle risk factors and thus lifestyle diseases. Lifestyle diseases are causing more number of deaths and disability worldwide in recent years. Recent studies have shown a higher risk of lifestyle diseases among rural population. Hence this study was conducted to assess the lifestyle factors and lifestyle diseases and to know the prevalence of lifestyle diseases among rural population. Study design and setting: Cross-sectional study in Rural Health Training Centre, Sapthagiri Institute of Medical Sciences and Research Centre, Bengaluru.

**Methods:** For a sample size of 108, systematic sampling was done and a questionnaire was administered. Data collected regarding lifestyle risk factors and diseases and analyzed using SPSS v 20.

**Results:** 66 out of 108 participants (61.1%) had one or more lifestyle risk factors. Prevalence of lifestyle diseases was 37.03%. Hypertension was the most common disease with 27 (25%) cases followed by diabetes mellitus (16.7%) and asthma/COPD (7.5%). There was significant association between lifestyle factors like Tobacco and cigarette use, junk foods, overweight and obesity with lifestyle diseases.

**Conclusions:** There is a need for population based program at primary level on lifestyle modification in the prevention of lifestyle diseases.

Keywords: Lifestyle, risk factors, non-communicable diseases, Rural

#### INTRODUCTION

Non-communicable diseases are the leading causes of death globally. In India, noncommunicable diseases (NCDs), especially cardiovascular diseases, cancers and type 2 diabetes mellitus, account for 53 and 44% of all deaths and disability-adjusted life years (DALYs) respectively. Most of these non-communicable diseases share common preventable lifestyle risk factors, such as tobacco use, high alcohol consumption, raised cholesterol level, sedentary life style and obesity. Clustering of these risk factors significantly increases the risk of morbidity and mortality. <sup>2</sup>

Lifestyle diseases (also called diseases of longevity or diseases of civilization) are diseases that appear to become ever more widespread as countries become more industrialized.<sup>3</sup> Lifestyle diseases like hypertension, diabetes mellitus, dyslipidaemia and overweight/obesity are the major risk factors for the development of CVD. With rapid economic development and increasing westernization of lifestyle in the past few decades prevalence of these diseases has reached alarming proportions among Indians in the recent years.<sup>4</sup> India is faced with the double burden of communicable and noncommunicable diseases (NCDs). NCDs are becoming major health problems in India, including the rural population.<sup>5</sup> NCDs are increasingly becoming a disease of poor and younger segments of the population. An

epidemiological transition is taking place in most of the states in India with a decline in communicable diseases and an increase in chronic NCDs. <sup>6</sup>

Recent studies in India from different sites show a higher risk of NCDs among rural population and people with lower socioeconomic status indicating that the disease pattern is shifting from the affluent to the poor. Hence this study was undertaken to assess the lifestyle factors and lifestyle diseases and to know the prevalence of lifestyle diseases among rural population.

#### **METHODS**

#### Study design

A cross-sectional study.

#### Study population

Rural population attending the Rural Health Training Centre of Sapthagiri Institute of Medical Sciences and Research Centre, Bengaluru.

### Study area

Kanasawadi village, Doddaballapura Taluk, Bengaluru Rural district.

#### Inclusion criteria

All the patients >18 years of age, subjects who gave consent were included in the study.

#### Study period

It was done for a period of two months, November & December 2016.

#### Sample size

Sample size was calculated taking the prevalence of lifestyle diseases as 48%, from a previous study. Using the formula  $4pq/d^2$  and taking d=20% sample size was calculated to be 108.

#### Sampling method

Systematic sampling was used. Every 5<sup>th</sup> eligible participant was assessed for lifestyle factors and diseases.

# Methodology

Ethical clearance was obtained from institutional ethical committee. A pre-tested and semi-structured questionnaire was used for data collection. Personal interview was done. Data regarding socio-demographic profile, history of tobacco smoking, alcohol consumption, regular physical activity, junk foods and history of

hypertension, diabetes mellitus, cardiovascular diseases, asthma/COPD, cancer and stroke was collected. Height and weight was measured using the standard techniques. BMI was calculated and classified according to WHO classification. The data was entered in MS Excel spreadsheet and analyzed using mean and proportion. Chi-square test was used as test of significance with the help of statistical software SPSS v.20. The p-value of <0.05 was considered as significant.

#### RESULTS

Out of the 108 study participants, 68 (63%) were male and 40 (37%) were females. Mean age of the participants was 48.5±17.56 years. There was almost equal distribution of age groups.

Most of the study participants were Hindu (94.4%) and were married (88%). According to modified BG Prasad's scale for socio-economic status for the year 2015, most of the subjects belonged to class III (35.2%) and class IV (27.5%).

66 out of 108 participants (61.1%) had one or more lifestyle risk factors. Regular physical activity was not seen in 61.1% of subjects. 23.1% were consuming tobacco and cigarette, 15.7% alcohol consumption and 39.8% junk food consumption. 37.9% of participants were overweight and obese according to WHO classification of BMI.

Among the study participants 40 subjects had lifestyle diseases making the prevalence of 37.03%. Hypertension was the most common disease with 27 (25%) cases, followed by diabetes mellitus and asthma/COPD. There were no cases of stroke and cancers.

There was a significant association between lifestyle factors like tobacco and cigarette consumption, junk foods, overweight and obesity with lifestyle diseases.

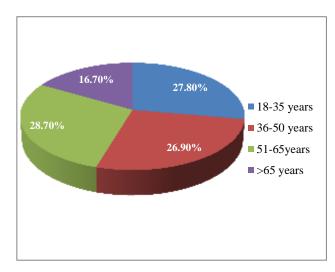


Figure 1: Age distribution of study participants.

Table 1: Sociodemographic profile.

Variable		Subjects (%)	
Age (years)	18-35	30 (27.8)	
	36-50	29 (26.9)	
	51-65	31 (28.7)	
	>65	18 (16.7)	
Sex	Male	68 (63)	
	Female	40 (37)	
Religion	Hindu	102 (94.4)	
	Muslim	4 (3.7)	
	Others	2 (1.9)	
Marital status	Single	5(4.6)	
	Married	95 (88)	
	Widowed/separated	8 (7.4)	
Education status	Illiterate	26 (24.1)	
	Primary	32 (29.6)	
	Secondary	46 (42.6)	
	Graduate & above	4 (3.7)	
Type of family	Nuclear	38 (35.2)	
	Joint	50 (46.3)	
	Three generation	20 (18.5)	
	I	9 (8.3)	
Socio-	II	14 (13)	
economic status <sup>*</sup>	III	38 (35.2)	
	IV	30 (27.5)	
	V	17 (15.7)	

<sup>\*</sup>Based on modified BG Prasad's scale for 2015.

Table 2: Distribution of lifestyle risk factors.

Risk factor	Frequency (%)	
Tobacco and cigarette consumption	25 (23.1)	
Alcohol consumption	17 (15.7)	
No regular physical activity	66 (61.1)	
Junk foods	43 (39.8)	
Overweight and obesity	41 (37.9)	

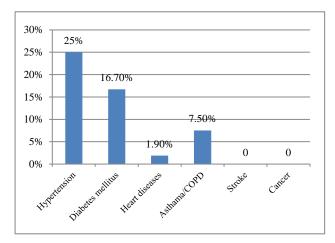


Figure 2: Prevalence of lifestyle diseases.

Table 3: Association between lifestyle factors and lifestyle diseases.

Lifestyle factors	Lifestyle diseases		P value	
	Yes	No		
Tobacco and cigarette consumption				
Yes	17	8	< 0.001	
No	23	60		
Alcohol consumption				
Yes	9	8	>0.05	
No	31	60		
Physical activity				
Yes	13	29	>0.05	
No	27	39		
Junk foods				
Yes	24	19	< 0.01	
No	16	49		
Overweight and obesity				
Yes	22	19	< 0.01	
No	18	49		

#### **DISCUSSION**

In our study majority of the study subjects were males (63%) and there was almost equal distribution of age groups. According to modified BG Prasad's scale for socio-economic status for the year 2015, most of the subjects belonged to class III (35.2%) and class IV (27.5%) in our study. In a study done at Delhi showed that majority of the subjects belonging to either lower middle (49.3%) or upper middle income group (25.35%). 10

61.1% of the study subjects had one or more lifestyle risk factors, among which 23.1% were consuming tobacco products. It is lesser compared to study done by Bhagyalaxmi et al in rural Gujarat where 32% of subjects were consuming tobacco products and also in an urban slum of Coimbatore 39% had smoking history. 9,11

In a study done in rural Tamilnadu by Logaraj et al, 16% were consuming alcohol. <sup>12</sup> A similar result was seen in our study with 15.7% of alcohol consumption. But in study done at Delhi 50.7% were consuming alcohol. <sup>10</sup> 37.9% were overweight & obese and 61.1% were not doing regular physical activity in this study. A study done in Jamnagar reported 44.4% of overweight and obesity and 42.2% of physical inactivity. <sup>13</sup> Similarly 40% reported physical inactivity and 50% were overweight & obese in an urban slum of Coimbatore. <sup>11</sup> This high number of physical inactivity in our study reflects the rapid urbanization in our study area as it is very near to Bengaluru city.

In this study overall prevalence of hypertension was 25%, Diabetes mellitus was 16.7%. In a study done at Delhi, prevalence of hypertension was 36.9% and that of

diabetes was 10.53%.<sup>10</sup> In Jamnagar study, hypertension was reported in 33.5% and diabetes mellitus in 10.4% of study subjects.<sup>13</sup> This higher prevalence of Hypertension in other studies may be because these studies are done in urban areas. In another similar study conducted in rural Tamilnadu, hypertension was seen in almost one-fourth of the participants, which is similar to our findings.<sup>12</sup>

Limitation of this study was that exposure to the risk factors in terms of duration and quantity was not assessed.

#### **CONCLUSION**

This study revealed that more than half of the rural population had one or more lifestyle risk factors and also higher prevalence of lifestyle diseases. Hence there is a need for population based program at primary level on lifestyle modification in the prevention of lifestyle diseases. Emphasis should be given on primordial prevention strategies in advocating healthy lifestyle. Early detection and tracking of risk factors can reduce the occurrence of lifestyle diseases.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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