

Original Research Article

High prevalence of dietary and physical activity related risk factors for non-communicable diseases among apparently healthy urban women in Kochi, Kerala, South India

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ABSTRACT

Background: Non communicable diseases (NCDs) represent the biggest threat to women's health worldwide. NCD is a leading cause of morbidity and premature mortality among women in Kerala. This study attempts to delineate the risk factors of NCDs among apparently healthy urban women in Kochi, Kerala.

Methods: A cross sectional study was conducted among apparently healthy women of age 20-60 years in randomly selected wards of Eloor municipality, Kochi, Kerala. The minimum calculated sample size was 130. Houses were selected by systematic random sampling. A semi structured questionnaire based on the STEPS instrument was administered to eligible subjects. Their anthropometric measurements were also taken using standardised tools. Data were entered into Excel sheet and analysed using SPSS version 15.

Results: The mean age of the women surveyed was 38.9 years (SD 10.2). Majority (71%) of the study participants were home makers. Majority (97.2%) consumed less than 5 servings of fruits and vegetables a day. Of them, 79.3% were in the low physical activity category. Around 55% of the women were either overweight or obese.

Conclusions: The current study showed a high burden of risk factors for non-communicable diseases among women in urban area in Kerala. Considering the burden of NCD risk factors in the population, there is urgent need to plan and implement gender sensitive community-based interventions at different levels including health promotion, and prevention.

Keywords: Non communicable diseases, Urban women, Diet, Physical activity, Body mass index

INTRODUCTION

Globally, women provide the bulk of healthcare; at home and also in formal and informal healthcare setting. Yet women's own needs for healthcare are often poorly recognized and catered for. Non communicable diseases (NCDs) represent the biggest threat to women's health worldwide, mainly affecting the women in developing countries, that too in their most productive years.¹

Non-communicable diseases (NCDs), including cardiovascular disease, cancer, chronic respiratory disease, and diabetes, are the leading cause of morbidity and death for women for at least the past three decades, contributing to two thirds of all cause deaths.² Though the age specific NCD death rates in women lag behind the rates in men by about 10 years, because of their longer life expectancy, the absolute number of NCD deaths among women (16.2 million) is not much different from that of men (18.4 million). It has also been predicted that in near future the biggest rate of NCD increase will be in women.³

Kerala, the southernmost state in India has high literacy (90.9%) and is the most advanced in terms of demographic and epidemiological transition, with the largest proportion of elderly and those suffering from Non Communicable Diseases. Maternal Mortality ratio in Kerala is lowest in the country (66/100,000 live births) but the deaths rates due to coronary artery disease (CAD) among women in Kerala is alarmingly as high as 128 per 100,000 women; much higher than most of the developed countries.^{4,5} It is also observed that approximately 40% of CAD deaths in women in Kerala occur before 65 years of age.⁵

The four main NCD risk factors are unhealthy diets, physical inactivity, tobacco use and the harmful use of alcohol. Tobacco use and harmful use of alcohol are less prevalent among women. All of these factors are modifiable, and elimination of these factors would prevent 80% of all heart disease, stroke, and type 2 diabetes and over 40% of cancer.⁶ This study attempts to delineate the prevalence of diet and physical activity related risk factors for NCDs among apparently healthy women aged 20 to 60 years residing in an urban area in Kerala. The information would help the policy makers and public health managers to plan targeted intervention to prevent and control NCDs among women.

METHODS

Ernakulam district is the industrial and commercial capital of Kerala. Out of 3.2 million people in Ernakulam district, 68% reside in urban area which is divided into one corporation and 13 municipalities.

A cross sectional study was conducted. Taking proportion of women with low physical activity to be 75% from IDSP NCD risk factor survey and with a relative precision of 10%, sample size was estimated to be 130.⁷ Two wards (lowest political division) were selected randomly from Eloor Municipality. Apparently healthy women aged between 20 and 60 years who were permanent residents of these wards were included in the study. Women who had already developed any non-communicable disease, pregnant and lactating women, morbidly ill or bed ridden women were excluded from the study. Eligible women were chosen from every third house following the systematic random sampling technique.

A semi-structured questionnaire was used to obtain data on socio demographic profile, physical activity and dietary pattern. The questions were adapted from the WHO STEPS instrument.⁸ Socio Economic status was measured using modified Kuppuswami's scale. Medical students were trained in administering the questionnaire in the local language (Malayalam). Show cards were used to measure the dietary servings and physical activity levels. The height and weight of the study subjects were measured using standardized tools and body mass index was calculated.

Data were entered into Excel sheet and analysed using SPSS version 11. Quantitative variables are presented as mean with standard deviation and qualitative variables are expressed as proportions.

RESULTS

The overall response rate was 97%. A total of 145 women belonging to the age group of 20 – 60 years were included in the study. The mean age of the women surveyed was 38.9 years (SD 10.2). Of them 83.45% belonged to nuclear families. Though 43.5% had a college education, majority (71%) of the study participants were home makers. Majority (38.6%) belonged to the upper socio economic class. The socio demographic characteristics of the study population are enumerated in Table 1.

Table 1: Socio demographic characteristics of the study population (n=145).

Socio demographic characteristics	Frequency	Percentage (%)
Age (in years)		
20-30	34	23.4
31-40	48	33.1
41-50	44	30.3
51-60	19	13.1
Socioeconomic status		
Upper	56	38.6
Upper Middle	32	22
Lower Middle	18	12.4
Upper Lower	36	24.8
Lower	3	2
Religion		
Hindu	51	35.2
Muslim	5	3.4
Christian	89	61.4
Marital status		
Married	129	89
Unmarried	12	8.2
Widow	4	2.8
Type of family		
Nuclear	121	83.4
Joint	24	16.6

Among the study population, 25.2% reported that they consume fruits daily and 80.7% consumed vegetables daily. Only 2.7% of the women consumed the recommended five servings of fruits and vegetables daily. The details of fruits and vegetable consumption are shown in Table 2. Among the study participants 95.9% were not involved in doing any vigorous physical activities. In the study, 56.6% of participants reported doing moderate intensity physical activity at least for 10 minutes. Only 20.7% had at least 150 minutes of moderate physical activity per week. The details of

physical activity are shown in Table 3. BMI was between 25-30 for 35.9% and above 30 for 20.7%. The

distribution of study population according to BMI is shown in Table 4.

Table 2: Dietary risk factors among the study subjects (n=145).

Characteristics	Frequency	Percentage (%)
Fruit consumption		
Consumes at least once a week	96	66.2
Consumes daily	37	25.5
Does not consume fruits	12	8.3
No. of servings on a typical day		
>2 servings/day	7	4.8
</=2 servings/day	126	86.9
Does not consume fruits	12	8.3
Vegetable consumption		
Consumes at least once a week	28	19.3
Consumes daily	117	80.7
No. of servings on a typical day		
>2 servings/day	36	24.8
</=2 servings/day	109	75.2
5. Consumes 5 servings of fruits and vegetables daily	4	2.7

Table 3: Physical activity levels among the study subjects (n=145).

Physical Activity(PA)	Frequency	Percentage
Vigorous intensity work related PA		
Not doing	139	95.9
Doing at least for 10 min daily	6	4.1
Moderate intensity work related PA		
Not doing	63	43.4
Doing at least for 10 min daily	82	56.6
Time spent in doing moderate intensity PA in a day		
NA	63	43.4
</=60 min	48	33.1
>60 min	34	23.4
People who walk during travelling		
walk for at least 10 min while travelling	72	49.7
Do not walk even for 10 min while travelling	73	50.3
Vigorous intensity recreation related PA		
People who do	25	17.2
Do not do	120	82.8
Moderate intensity recreation related PA		
People who do	15	10.3
Do not do	130	89.7
People who did 150min of moderate intensity PA a week	30	20.7

Table 4: Anthropometric risk factors among the study subjects (n=145).

Categories	Frequency	Percentage (%)
Less than 18.4	3	2.1
18.5 – 24.9	60	41.4
25 – 29.9	52	35.9
> 30	30	20.7

DISCUSSION

This cross sectional study assessed the prevalence of diet and physical activity related risk factors among apparently healthy women of the age group 20- 60 years residing in a selected urban area. The major findings were as follows. Majority (97.2%) consumed less than 5 servings of fruits and vegetables a day. Of them, 79.3% were in the low physical activity category. Around 55% of the women were either overweight or obese.

The non-communicable disease component of the IDSP [Integrated Disease Surveillance Project] conducted risk factor survey of the population of India.⁷ Kerala was included along with six other states in the first phase of the survey in 2007-08. In that survey, it was found that 82% consumed less than 5 servings of fruits and vegetables a day which is similar to the present study results. In a STEPS survey done in Punjab, 95.8% (95% CI: 94.6–97.0) of participants took less than 5 servings of fruits and/or vegetables on average per day.¹⁰ WHO recommends consumption of 5 servings, each serving weighing 80g, of fruits and vegetables daily. Fruits and vegetables are protective foods which supply micronutrients which help to keep the non-communicable diseases at bay. The findings warrant measures to create awareness with regard to the importance of fruits and vegetables and also policy decisions in ensuring the availability of good quality vegetables and fruits at affordable prices.

Regular physical activity— at least 150 minutes of moderate intensity physical activity per week for adults – reduces the risk of cardiovascular disease, diabetes, cancer and all-cause mortality. Globally, 27% of the adult women did not meet the recommended levels.⁹ However in our study, 79% of women were not meeting the minimum recommended physical activity level. Women in the developed countries take conscious decisions to be physically more active than their counterparts in the rest of the world, while in low income countries having an agrarian way of life, physical activity are part of their lifestyle. However India being a country midway between the two has more women inclining towards a sedentary lifestyle. The prevalence of low physical activity among women was 41.4 % (95% CI 36.3–46.3) in the STEPS survey conducted in Punjab.¹⁰ In a study from Vellore, 86% of the urban women fell into the low physically active category. Low level of physical activity especially among women seems to be prevalent all over the country. The level of overweight and obesity (56%) among the study population is alarming. Overweight and obesity were observed in 28.6% (95% CI 26.3–30.9) and 12.8% (95% CI: 11.2–14.4) of participants, respectively in the Punjab study. This may reflect cultural norms and the greater role of women as homemakers, who are less likely to go outside for regular physical exercise. Also due to rapid socio economic development in Kerala, all houses have electronic instruments which will take care of the traditional jobs involving physical activity done by

women. There is an urgent need to sensitize and actively promote physical activity in the current study population.

Kerala is in the phase of a health transition. Though communicable diseases have not yet been brought under satisfactory control, it is already facing the epidemics of non-communicable diseases. The scenario in Kerala is a harbinger of what the country is likely to face in the near future. Even with high female literacy, Kerala is unable to have a healthy female population. NPCDCS, the national programme for non-communicable disease is currently screening individuals, providing early diagnosis and management of common NCDs. The promotive and preventive component is not given adequate importance. To make a difference, health messages need to be more specific and custom made for sub populations like messages targeting women – working women, home makers, men, children, adolescents and not general ones.

Logistic constraints limited the current study to only STEP 1 of the STEPS instrument. But even this survey could reveal the unhealthy habits prevalent among the women. Also it is possible that data of less number of working women were captured in the study. Despite these limitations the study results points to a huge public health problem that needs immediate action.

The current study showed a high burden of risk factors for non-communicable diseases among women in urban area in Kerala. Considering the burden of NCD risk factors in the population, there is urgent need to plan and implement community-based interventions at different levels including health promotion, and prevention. NCD control strategy should also include gender-sensitive strategies specifically targeting women.

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