ORIGINAL ARTICLE

Prevalence of Risk Factors of Common non-communicable diseases: A community based study in young adult women in Delhi

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Abstract

Introduction: In India, due to high rates of urbanization and economic improvement, there is a shift in disease spectrum from communicable to non-communicable diseases. Non-communicable disease contributes to around 5.87 million (60%) of all deaths in India. The level of exposure and vulnerability to non-communicable diseases is more in women than men. The present study was done in a community setting to identify the prevalence and distribution of risk factors for common non-communicable diseases among young adult women. **Aim & Objective**: To study prevalence of risk factors of common non-communicable diseases in young adult women. **Settings and Design**: A community-based cross-sectional study conducted in Palam Village of New Delhi. **Methods**: A community-based cross-sectional study conducted in Palam Village of New Delhi. A total of 585 study subjects were interviewed using a self-designed, semi-structured, pre-designed questionnaire. Waist circumference, blood pressure and weight was measured using non-stretchable measuring tape, digital blood pressure apparatus and digital weighing scale respectively. **Results**: Half of the study subjects were moderately active. Most of the participants have unhealthy dietary habits. Around 2/3rd of the study subjects were taking inadequate servings of fruits and vegetables, and almost half of them were consuming salt more than the recommended levels. **Conclusion**: High-risk factors of common non-communicable diseases among young adult women are seen in Palam Village, New Delhi. To prevent further increase in burden of noncommunicable diseases and to lower their serious consequences, prevention and control interventions must be implemented at individual, population and program level.

Keywords

non-communicable diseases; young adult women; risk factors.

Introduction

In India, rapid urbanization has led to economic improvement. One of its effects is the shift in disease spectrum from communicable to noncommunicable diseases (NCDs) (1). NCDs contribute to around 41 million deaths (71%) worldwide (2). According to the Indian Council of Medical Research (ICMR) report, contribution of NCDs to total deaths in the country was 61.8% in 2016, as compared to 37.9% in 1990 (3). Onset of NCDs occurs at younger age. The morbidity and mortality in the most productive phase of life are posing challenges to Indian society and economy (4). Due to various social customs, women's opportunities for physical activities are

reduced and thus more vulnerable for NCDs (5). Even if household has money available for health care, these funds are often spent on men's health needs (6). Adult female mortality impacts household welfare drastically, including higher mortality amongst small children, children withdrawn from school, increased work burden on children, and loss of assets. Women's health is therefore critically important to the health of future generations (7). Though many community-based studies have been done to assess the prevalence of risk factors of noncommunicable diseases, there is still a dearth of such studies among young adult women. Therefore, the present study was done in a community setting to identify the prevalence and distribution of risk factors for NCDs among young adult women.

Aims & Objectives

To study prevalence of risk factors of common non-communicable diseases in young adult women

Material & Methods

Study Type: Community-based, cross-sectional study

Study Population: Women of 15 – 24 years of age

Study Area: Palam Village, New Delhi, which is one of the field practice areas of the Department of Community Medicine, Lady Hardinge Medical College, New Delhi.

Study Duration: November 2017 to March 2019. Data were collected from January 2018 to December 2018.

Sample Size calculation: The sample size was calculated by the formula $N = 4pq/l^2$, where p represents prevalence of obesity (BMI > 30) which is 14.6 % obtained from the previous study done by J. S. Thakur et al. 'l' was allowable error, taken as 20% of p. Therefore, a sample size of 585 individuals was taken.

Inclusion Criteria: Permanent residents of Palam Village (residing for more than 1 year)

Exclusion Criteria:

1) Those who were pregnant.
2) Those with known psychiatric illness
3) Individuals having serious morbidities

Strategy for collection: Palam village has a population of 12000 & the total number of households is 2400. The sampling unit was household and study unit was young adult women of age 15 to 24 years. Systematic random sampling was applied with a sampling interval of 4 (2400/585=4). An area map was made, and the first household was

selected randomly, and then every 4th household was visited until the required sample size was obtained. If an eligible subject was not found in the 4th household, then adjacent one was visited. If more than one eligible girl were residing in the same household, then only one was included in the study by random selection. Information regarding risk factors [Physical inactivity, dietary risk factors, stress and behavioral risk factors (tobacco and alcohol use)] for noncommunicable diseases was collected by semi-structured interviews schedule consisting of socio-demographic characteristics, Global Physical Activity Questionnaire (GPAQ) by WHO to assess physical activity level, dietary assessment by pre-designed questionnaire, stress assessment using General Health Questionnaire 12 (GHQ 12), behavioral risk factors by pre-designed questionnaire. Non-stretchable measuring tape, digital weighing scale, portable stadiometer, digital BP apparatus were used to measure waist and hip circumference, weight, height, and blood pressure, respectively.

Ethical Approval: The study protocol was approved by Institutional Ethical Committee of LHMC

Consent: Informed consent was taken from all the participants and confidentiality was maintained

Data Analysis – Data was coded and entered in Statistical Package for the Social Sciences (SPSS). Qualitative data was expressed in proportions and chi-square test was applied. Mean and standard deviation was used for quantitative data. Suitable tests of significance were applied wherever necessary.

Results

A total of 604 households were visited, and 596 study subjects were enrolled. Eleven study subjects were excluded (6 refused to give consent, and five were pregnant). Hence the data of 585 subjects were analyzed. The results have been tabulated below.

[Table 1] shows distribution of study subjects according to socio-demographic profile. Most (40%) of the study subjects were housewives. 9% of women were illiterate. Most of the study subjects (44.4%) belonged to lower-middle socioeconomic status.

[Table 2] shows distribution of study subjects according to dietary habits. 56% (328) of study subjects were vegetarian. A majority (70.3%) of them were taking inadequate servings of fruits and

vegetables. Excessive salt intake was present among all subjects.

[Table 3] shows distribution of study subjects according to physical activity on the basis of GPAQ (Global Physical Activity Questionnaire. A majority (72.5) of the study subjects were moderately active and involved in moderate-intensity activities.

[Table 4] shows distribution of study subjects according to stress (assessed by General Health Questionnaire 12) and waist hip circumference ratio. 8.8% of the study subjects were found to be under stress. In more than half (58.46%) of study subjects, waist-hip circumference ratio was less than 0.85, indicating the absence of abdominal obesity.

[Table 5] shows distribution of study subjects according to Body Mass Index. The majority of study subjects (53.3%) had BMI within the normal range.

Discussion

Although the NCD burden has grown, India still does not have sufficiently detailed data on NCDs for research and policy purposes. Most of the studies that have reported prevalence of risk factors of NCDs included a wide range of age groups ranging from 15-60 years, but the study on risk factors among young adult and more specifically in young females are rare. Most of the time, women are victims of the worse deprivation as a consequence of poor empowerment and discriminatory beliefs and practices. Therefore, the present study was conducted in Palam Village, Delhi among young adult women age 15 to 24 years to find the prevalence of risk factors of common NCDs. In the present study, inadequate intake of fruits and vegetables was found in the majority (70.3%) of study subjects. This finding was similar to the study done by Vijayakarthikeyan M (8) where the prevalence of inadequate servings of fruits and vegetables was 62%. Findings of the present study are also in agreement with most of the previously done studies (9,10,11,12,13). However, few studies like Mishra et al (14) and Bhattacharjee et al (15) report a higher prevalence of adequate fruits and vegetable intake as compared to the current study. This finding in our study might be due to the reason that a large proportion of study subjects in our study belonged to underprivileged socioeconomic class (upper lower and lower) who might have found its consumption highly expensive. Also, preference was given to male members and children of the family, if at all, fruits bought in the family. Street food was more favoured by working

women and students due to its easy availability in their working and school premises. Dislike of most of the vegetables was commonly found among study subjects. Lack of awareness regarding the benefits of fruits and vegetable consumption could also be the reason behind such a low prevalence of eating fruits and vegetables. In our study, all of the study subjects reported to consuming more than 5g salt per day which was in agreement with NCDs country profile 2018 by WHO in which the mean population salt intake in Indian adult women (age: ≥20 years) was reported 9g per day (2). A sedentary lifestyle was reported in nearly one-third of the study subjects (27%), and they used to spend their leisure time watching television or using mobile phones. A majority (72.5%) of the study population was engaged in a moderate level of physical activity like brooming, mopping, washing clothes, walking to and from work, or schools. Only 0.5% were a heavy worker. The findings of our study were similar to that of Ketkar et al (10), Gupta et al (16). Unlike our study, Valliyot et al (17) reported a moderate level of physical activity in only 42% of study subjects.

Overweight and obesity were found in 39% of study subjects, which is in accordance with NFHS 4 data, which reports the prevalence of overweight and obesity to be nearly 35% among adult women. In our study, 34.8 % of subjects were overweight, and 4.2% were obese. This prevalence of overweight and obesity could be attributed to inadequate dietary practices and easy availability and affordability of unhealthy food, lack of physical activity. The findings in the present study are in concordance with the study done by Sandhu et al. in Delhi (18) (33.1% overweight and 6% obese) and Bhagyalakshmi et al in Gujarat (9). Few (8.8%) study subjects were found to be under stress in our study, comparable to findings of Laskar et al (12) Marital conflicts were the major cause of stress, as reported by research participants.

Conclusion

As per our study, the prevalence of risk factors of common NCDs in young adult women of Palam village of Delhi was high. Majority of study subjects having risk factors of NCDs, were apparently healthy, but they might develop NCDs in future. This brings out the need to put more efforts regarding health education and raising awareness about NCDs in the community.

Recommendation

As the prevalence of risk factors of NCDs like inadequate fruit and vegetable consumption, excessive salt intake among young adult women, i.e., 15 to 24 years has been found very high in our present study; primary prevention has a role in preventing the occurrence of NCDs in later age. So, it is recommended to promote a healthy lifestyle in this age group female who will further inculcate these practices in their family. In our study, there was a high proportion of school and college-going students who had a sedentary lifestyle. So, knowledge regarding healthy lifestyles like physical activity and a healthy diet should be inculcated in students through curriculum and teachers should be trained. Consumption of inadequate fruits and vegetables in a day was found in most study subjects. One reason might be fruits are considered expensive. Awareness activities regarding intake of seasonal fruits and vegetables in schools as well as in community should be carried out, which are relatively cost-effective but equally nutritious. There should be a restriction and its strict implementation on the selling of street and junk food on premises of schools and colleges to discourage its use. Many of the schools and colleges have already implemented this, but it must be further strengthened and promoted. Mass media campaigns, taxes on unhealthy food, subsidies on healthy foods, mandatory food labelling, and marketing restrictions on unhealthy food should be done

Limitation of the study

Risk factors related to all NCDs should have been assessed in the study, but due to time constraint and lack of affordability all could not be studied.

Relevance of the study

NCDs, have emerged as a major public health problem in India, and are considered as a silent epidemic. They have major impact on human health and socioeconomic development of any nation. Estimates on burden of NCDs vary between countries. Though the accurate data on prevalence of NCDs is essential to determine public health measures but in reality, accurate data in young adult women are scarce which impedes the preventive strategies. Thus this study will be a guiding factor for focused NCDs prevention and controls in the young women of age15 to 24years.

Authors Contribution

All the authors have contributed significantly for designing the study, implementing it, collecting data and analyzing data as well as preparing the final document.

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Tables

TABLE 1 DISTRIBUTION OF STUDY SUBJECTS ACCORDING TO SOCIO DEMOGRAPHIC PROFILE

Marital status	Number (%)
Married	408 (70.0)
Unmarried	177 (30.0)
Total	585 (100.0)
Religion	**Number (%)**
Hindu	501 (85.7)
Muslim	84 (14.3)
Total	585 (100.0)
Type of family	**Number (%)**
Nuclear family	378 (64.7)
Joint family	206 (35.3)
Total	585 (100.0)
Nature of occupation	**Number (%)**
Unskilled worker	40 (6.9)
Semiskilled worker	123 (21.0)
House wife	234 (40.0)
Students	188 (32.1)
Total	585 (100.0)
Education	**Number (%)**
Illiterate	53 (9.0)
Primary	64 (11.0)
Middle	175 (30.0)
High school	159 (27.0)
Intermediate	105 (18.0)
Graduate or Post Graduate	29 (5.0)
Total	585 (100.0)
Socioeconomic status	**Number (%)**
Upper	7 (1.2)
Upper middle	45 (7.6)
Lower middle	259(44.4)
Upper lower	256 (43.6)
Lower	18 (3.2)
Total	585 (100.0)

TABLE 2 DISTRIBUTION OF STUDY SUBJECTS ACCORDING TO DIETARY HABITS

Dietary information	Quantity and practices	Number (%)
Consumption of Fruits and Vegetables	<5 Servings/ day	411 (70.3)
	>5 servings per day	174 (29.7)
Salt intake	<5 gm/day	0
	>5 gm/ day	585 (100.0)
Extra salt added to food	Yes	328 (56.0)
	No	258 (44.0)
Consumption of Salty foods/Snacks	<1 day/ week	271 (46.32)
	1-3 days/ week	194 (33.16)
	3 – 6 days/ week	79 (13.50)
	Daily	41 (7.0)
Cooking oil	Ghee/ Butter	0
	Mustard oil	515 (88.0)
	Refined oil	68 (11.6)
	Olive Oil	2 (0.4)
Change of cooking oil	Yes	14 (2.4)
	No	571 (97.6)

TABLE 3 DISTRIBUTION OF STUDY SUBJECTS ACCORDING TO PHYSICAL ACTIVITY ON THE BASIS OF GPAQ (GLOBAL PHYSICAL ACTIVITY QUESTIONNAIRE)

Physical activity	Number (%)
Sedentary	158 (27.0)
Moderate	424 (72.5)
Heavy	3 (0.5)

TABLE 4 DISTRIBUTION OF STUDY SUBJECTS ACCORDING TO STRESS (ASSESSED BY GENERAL HEALTH QUESTIONNAIRE 12) AND WAIST HIP CIRCUMFERENCE RATIO

Stress	Number (%)
Absent	533 (91.2)
Present	52 (8.8)
Total	585 (100.0)
WHCR	**Number (%)**
<0.85	342 (58.46)
>0.85	243 (41.45)
Total	585 (100.0)

TABLE 5 DISTRIBUTION OF STUDY SUBJECTS ACCORDING TO BODY MASS INDEX

Body Mass Index	Number (%)
18.5 to 22.9 (Normal)	314 (53.3)
23 to 24.9 (Overweight)	205 (34.8)
25 to 29.9 and >30 (pre obese and obese)	25 (4.2)
<18.5 (Underweight)	41 (7.0)
Total	585 (100.0)