

Basic Risk Factors Awareness in Non-Communicable Diseases (BRAND) Study Among People Visiting Tertiary Care Centre in Mysuru, Karnataka

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ABSTRACT

Introduction: Non Communicable Diseases (NCDs) are the major causes of mortality and morbidity globally. Awareness about NCDs and their risk factors has an important role in prevention and management strategies of these NCDs.

Aim: 1) To assess the awareness of risk factors contributing to NCDs among the patients visiting tertiary care hospital in Mysuru district; 2) To compare the difference in awareness of risk factors for NCDs among the urban and rural patients with/without NCD visiting the tertiary care hospital.

Materials and Methods: A cross-sectional study was conducted in a tertiary care centre- JSS Hospital, Mysuru, Karnataka from March 2013 – August 2013. The patients visiting Medicine OPD during the period were the study subjects. The subjects were allocated into 4 groups: Urban without any NCD,

Urban with atleast one NCD, rural without NCD, rural with atleast one NCD. A pretested questionnaire regarding awareness of risk factors for NCDs was used in the study and frequency and proportions were used to analyse the data.

Results: A total of 400 subjects, 100 subjects in each group were included in the study. Out of these subjects about 65% of the urban group and 42% of the rural group subjects were aware of the NCDs and their risk factors. Least awareness was observed among the rural subjects without any NCDs (35%).

Conclusion: The awareness of risk factors of NCDs and knowledge regarding prevention of NCDs was not satisfactory. The results highlighted the need and scope for health education and interventions to improve the awareness about NCDs and their risk factors.

Keywords: Cross-sectional study, Diabetes, Dyslipidemia, Hypertension, Obesity, Stroke

INTRODUCTION

Non Communicable Diseases (NCDs) accounts for significant mortality (nearly 38 million deaths annually) worldwide, out of which majority of these deaths (28 million) occur in low and middle-income countries. Among these NCDs, Cardiovascular diseases (17.5 million) represent commonest cause of deaths followed by cancers (8.2 million), respiratory diseases (4 million) and diabetes (1.5 million) [1].

Indian population in particular is at greater risk of developing NCDs due to the combined effect of unique genetic predisposition, unplanned urbanization and rapidly changing lifestyle. NCDs accounts for 35% of total outpatient visits, 40% of all hospital admissions and 53% of total deaths in India every year representing the major causes of morbidity and mortality [2]. Among the NCDs, cardiovascular diseases (24%), chronic respiratory illness (11%), various cancers (6%) and diabetes (2%) are the leading cause of mortality in India [2]. The annual per patient expenditures for NCDs across countries on the major diseases varies with only \$ 33 spent in India to over \$2500 spent in the US [3]. The projected cumulative loss of national income for India due to NCD mortality from 2006-2015 is expected to be US\$237 billion [4].

Majority of Indian population still resides in rural areas (Rural and Urban distribution: 68.84% & 31.16%, respectively) [5]. Earlier NCDs were considered as a problem of rich urban population but with changing trend, the poor have been found to be more vulnerable to NCDs and its complication very early. This scenario in India especially among rural people could be due to decreased awareness about risk factors, low health care facilities, unplanned urbanization and no or few national programmes. Therefore increasing awareness about the risk factors and rapid change

towards healthy life style will be cost effective in modifying the prevailing health status in rural and urban people with or without NCDs [4,5].

Various studies done in India have re-emphasized the consistency of the risk factors contributing for NCDs. However, very few studies done in India regarding the awareness among general population about these risk factors have concentrated on individual diseases like either diabetes or hypertension. Hence, the present comprehensive study was taken up to assess the awareness of the established risk factors contributing to NCDs among the people with various illnesses visiting the tertiary health care centre, Mysuru, Karnataka. Moreover, accessibility to health care facilities are concentrated more in urban population than in rural areas. Significant number of educational campaigns does happen in urban in comparison to rural areas. Hence, it can be predicted that awareness about risk factors for NCDs could be more among urban population than rural people [6]. Also uniformity of awareness about risk factors among urban and rural with and without NCDs may not be the same [5]. The outcome of the present study would set a stage to assess the awareness and to simultaneously educate the large populations across rural and urban populations of India. It will also help to formulate awareness programmes to provide continuous screening and education of the population for primordial prevention, early diagnosis and effective treatment within the existing public health care delivery system.

AIM

The present study was undertaken- To assess the awareness of risk factors contributing to NCDs among the patients visiting tertiary care hospital in Mysuru district and also to compare the

difference in the awareness among these urban and rural patients with/ without NCD.

MATERIALS AND METHODS

This cross-sectional study was conducted at a tertiary care centre-JSS Hospital, in Mysuru district, Karnataka state of India. The present study was conducted for 6 months from March 2013 – August 2013. The study protocol was approved by the Institutional ethics committee of JSS Medical College, Mysuru district.

Patients visiting Medicine OPD with various illnesses during the study period were pre-screened for the presence/absence of common NCDs-Diabetes, Hypertension, Obesity, Stroke and Dyslipidemia. After establishing the eligibility criteria and obtaining informed consent, patients were allocated to respective groups and were given a pre-designed, pretested questionnaire regarding the awareness of risk factors for various NCDs under study. The present residential address proof was considered for the allocation of the patients to either urban or rural group. A total of 400 patients of either sex, with 100 patients in each group were included in the study by purposive sampling method. The recruited patients were evaluated for their knowledge about genetic predisposition, high salt intake, smoking, alcohol abuse, sedentary lifestyle habits and presence of excessive stress as the risk factors contributing to various NCDs using the questionnaire.

Inclusion Criteria

Patients attending medicine OPD at JSS Hospital, Mysuru.

1. Age group- more than 18 years.
2. Agreed to participate through written consent.
3. People with or without NCD.
4. Completed questionnaires.

Exclusion Criteria

1. Incomplete questionnaire.
2. Pregnancy.
3. Critically ill patients.

Group-1 Urban Patients without NCD (n= 100).

Group-2 Urban Patients with at least one NCD (n= 100).

Group-3 Rural Patients without NCD (n= 100).

Group-4 Rural patients with at least one NCD (n= 100).

The confidentiality of the patient's data was ensured throughout the study period.

STATISTICAL ANALYSIS

Data was entered into excel spreadsheet and analysed using SPSS software version 18. Descriptive statistical measures like mean, SD, percentage were applied. As the distribution of variables under the study was found to significantly deviate from normalcy, Kruskal Wallis test was used to determine the difference between mean scores among the groups and Chi-square test to judge the association of study variables. The $p < 0.05$ was considered to be statistically significant.

RESULTS

From [Table/Fig-1], the results showed that mean knowledge score for diabetes mellitus was highest in urban patients (241.13) with at least one NCD and least with rural people without NCD (154.53). There was statistically significant difference in knowledge between the compared groups.

From [Table/Fig-2], it is evident that mean knowledge score for hypertension was highest in patients with having atleast one NCD coming from urban population (239.42) and least with rural people without NCD (145.14). There was statistically significant difference in knowledge between the groups.

From [Table/Fig-3], it can be observed that awareness of risk factors for obesity was almost equal among urban population with or without obesity (232 vs 238). There was statistically significant difference in knowledge between the groups.

From [Table/Fig-4], the mean knowledge score for stroke was almost equal among urban population with or without stroke (259 vs 252). There was statistically significant difference in knowledge between the groups.

Category	Group	Mean Rank	Chi square value	p
Diabetes Mellitus Score	Urban Population without NCD	222.99	34.471	0.001
	Urban Population with NCD	241.13		
	Rural Population without NCD	154.53		
	Rural Population with NCD	183.36		

[Table/Fig-1]: Comparison of groups based on their knowledge scores on Diabetes Mellitus.

Category	Group	Mean Rank	Chi square value	P
Hypertension	Urban Population without NCD	232.22	44.159	0.001
	Urban Population with NCD	239.42		
	Rural Population without NCD	145.14		
	Rural Population with NCD	185.23		

[Table/Fig-2]: Comparison of groups based on their knowledge scores on Hypertension.

Category	Group	Mean Rank	Chi square value	p
Obesity	Urban Population without NCD	238.54	39.459	0.001
	Urban Population with NCD	232.17		
	Rural Population without NCD	152.78		
	Rural Population with NCD	178.52		

[Table/Fig-3]: Comparison of groups based on their knowledge scores on Obesity.

Category	Group	Mean Rank	Chi square value	p
Stroke	Urban Population without NCD	252.48	102.154	0.001
	Urban Population with NCD	259.42		
	Rural Population without NCD	127.97		
	Rural Population with NCD	162.15		

[Table/Fig-4]: Comparison of groups based on their knowledge scores on Stroke.

Category	Group	Mean Rank	Chi square value	p
Dyslipidemia	Urban Population without NCD	229.26	86.975	0.001
	Urban Population with NCD	269.32		
	Rural Population without NCD	129.39		
	Rural Population with NCD	174.04		

[Table/Fig-5]: Comparison of groups based on their knowledge scores on Dyslipidemia.

Category	Group	Mean Rank	Chi square value	p
Total Risk Factor Score for NCDs	Urban Population without NCD	242.06	86.058	0.001
	Urban Population with NCD	259.73		
	Rural Population without NCD	125.83		
	Rural Population with NCD	174.38		

[Table/Fig-6]: Comparison of groups based on their Total Risk Factor awareness Score for the studied NCDs

From [Table/Fig-5], mean knowledge score for dyslipidemia was highest in urban population (269.32) with at least one NCD followed by urban without an NCD (229.26). There was statistically significant difference in knowledge between the groups.

From [Table/Fig-6], it can be observed that overall Mean Total Risk Factor Score was highest in patients with at least one NCD from urban population (259.73) and least in rural people without NCD (125.83). There was statistically significant difference in knowledge between the groups.

DISCUSSION

NCDs are distributed across the world irrespective of the socio-economic status with increasing trend in low and middle income countries. Also, there exists a global and regional difference in the incidence and prevalence of the various subsets of NCDs. Again urban and rural variation in awareness about these NCDs is known, which could be due to differences in accessibility of health care facilities, sedentary life style, unplanned urbanization, literacy status, etc. It can be observed from our present study that the awareness of risk factors for Hypertension was highest in urban patients with one or more NCD and least with rural people without hypertension. A statistically significant difference ($p < 0.001$) in awareness was also seen among urban and rural population. Gupta R in his editorial has highlighted that awareness, treatment and control of various risk factors for hypertension range from 20 to 60 per cent. The awareness was lowest in rural women and highest in urban men [7]. P Devi et al., (11 studies) highlighted the fact that the awareness of hypertension in Indian population ranged from 20 to 54% [8].

Regarding diabetes mellitus, mean knowledge scores for diabetes mellitus was also highest in the Urban Patients with at least one NCD and was least in the Rural Patients without NCD. Mohan D et al., in CURES-9 study conducted at Chennai among general population emphasized that more than 25% of the 26,000 subjects screened by standard questionnaires were unaware of the term called Diabetes [9]. Gupta R in his editorial study opined that status of diabetes awareness, treatment and control has been reported to be greater in urban women than men and remains to be studied in rural areas [7]. As for awareness of obesity risk factors, mean knowledge score for obesity was highest in the group of Urban Patients without NCD was least in the Rural Patients without NCD. However there was a statistically significant ($p < 0.001$) difference in knowledge between urban and rural population. Taneja et al., in their study highlighted that prevalence of obesity in India is showing an increasing trend due to lack of awareness of risk factors contributing for obesity [10]. In the stroke entity, mean knowledge score for stroke was almost similar in the groups of Urban Patients with/without NCD but was least in the Rural Patients without NCD. Again there was a statistically significant difference ($p < 0.001$) in knowledge between urban and rural population. Jeyaraj D Pandian et al., in his study on awareness of risk factors for stroke highlighted that 21% of the total 942 individuals were unaware of even single risk factor for the stroke [11]. Stroebele N et al., in his study highlighted the suboptimal level of knowledge about the risk factors for stroke among both men and women [12]. As for dyslipidemia is concerned, the mean knowledge score for Dyslipidemia was highest in the group of Urban Patients with at least one NCD and was least in the Rural Patients without NCD. Gupta R in his editorial study in urban subjects reported that hypercholesterolaemia (≥ 200 mg/dl) disease awareness was about 17.5 per cent in men and 13.2 per cent in women [7].

In the overall risk factors awareness for various NCDs, the Mean Total Risk Factor Score was highest in the group of Urban Patients with at least one NCD and was least in the Rural Patients without

NCD. A statistically significant difference ($p < 0.001$) was also noted in the overall risk factors awareness for various NCDs between urban and rural populations. Bansal M et al., in their study on overall trends and awareness on cardiovascular risk factors among general population highlighted that there was an increasing trend awareness of hypertension (46.9% vs 56.7%, $p < 0.001$) and dyslipidemia (5.4% vs 9.6%, $p < 0.001$). This trend was not observed with diabetes (67.0% vs 71.3%, p - NS) [13].

From the present study it was observed that nearly 60-70% of people from urban population are aware of the risk factors contributing for NCD. However, only 40-50% of people from rural places were aware of these risk factors. The overall difference in risk factor awareness among urban and rural population with or without NCDs varies from 1-4% and 10-15% respectively. Least awareness of risk factors for NCDs studied was observed among rural people without any NCDs. This difference in awareness between urban and rural population was almost the same irrespective of the type of NCD. The better awareness in urban people in our study is attributed to easy accessibility to medical care, high literacy, media, internet facilities, social gathering and health clubs.

LIMITATION

A similar large population based community study is required to re-emphasize the present study outcome. The present study has some limitations like small population sample size and it is a hospital based study.

CONCLUSION

As evidenced from our study, there exists a significant difference in the overall knowledge among urban and rural people about the risk factors contributing to NCDs. Without the knowledge about modifiable risk factors among general population, it is difficult to achieve reduction in the incidence and prevalence of NCDs. A large population based survey is needed to emphasize the same and thereby to formulate effective healthcare programmes for people education to reduce the urban and rural divide. This will not only increase the people quality of life but also ensures planned urbanization, increased literacy rate, reduction of the per capita expenditure among low and middle income countries like India.

ACKNOWLEDGEMENT

We, the authors hereby thank Indian Council of Medical Research (ICMR) for their financial assistance to conduct the present study.

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Date of Submission: **Jan 23, 2016**Date of Peer Review: **Feb 11, 2016**Date of Acceptance: **Mar 01, 2016**Date of Publishing: **Apr 01, 2016****FINANCIAL OR OTHER COMPETING INTERESTS:** None.