Awareness, Attitude and Practices regarding Non-communicable diseases among University students in Rajasthan, India

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ABSTRACT

There appears to be a gap in the awareness level and the life–style practices adopted by youngsters regarding non–communicable diseases. A study was done to assess the awareness, attitude and practices and the gap between awareness and practices adopted by the university students regarding the non-communicable diseases. This cross- sectional descriptive study carried over a period of 3 months from August 2010, involving a cohort of 1067 students, admitted during the first-semester 2010 of a reputed all-India technology university was done to assess their awareness, dietary and exercise behaviors in relation to non–communicable diseases using a predesigned and pre–tested questionnaire. Physical examination of 70 randomly selected students was also done to calculate difference between perceived and actual BMI. Roger's diffusion of innovation model was used to classify them into different groups. 65.96% responded with majority 79.26% being less than 20years of age.34.04% were laggards.73.6% had a positive family history while 58.2% were aware of non-communicable diseases and 70.9% knew ill effects of excessive body weight on it.62.9% skipped their breakfast and 90.9% consumed fast foods regularly. Only 5.4% consumed fruits and 24.3% consumed milk daily while and only 15.2% engaged in some form of physical activity. The need of the hour is an enabling environment along with innovative strategies with multi-sectoral coordination to address the issue of non-communicable diseases and also bridging the gap between awareness and action in adolescents.

Keywords: Non-communicable diseases, Awareness, Practices, Attitude, Adolescents

INTRODUCTION

In the last two decades India has been on a rapid economic growth path but has also seen a rise of new issues in terms of the disease profile of Indians, particularly in the area of non–communicable diseases. The leading cause of death in India, cardio–vascular diseases, is not a disease typically prevalent in a developing country , but ischemic heart disease accounts for one–third (300 million deaths/year) of all deaths in India[1]. Besides genetic predisposition, the most important contributory factor for the increasing incidence has been the rapid change in lifestyle with economic growth and this has been compounded by the fact that Indians are highly predisposed to its key risk factors: obesity, high blood pressure, increased cholesterol and diabetes. This so called "Asian Indian Phenotype" amongst Indians include increased insulin resistance, greater abdominal adiposity (higher waist circumference despite lower body mass index), lower adiponectin and higher C–reactive protein levels which makes them more prone to diabetes and premature coronary artery disease[2.]

Another concern is the high prevalence of these diseases in relatively younger population in India, further complicated by rampant tobacco use, rising alcohol consumption, increasing levels of stress, unhealthy eating and sleeping patterns during emerging adulthood (18–25) years[3,4]. Major gains can be made through targeting this age group through primary care interventions focusing on diet, lifestyle and environment.

For any health promotion activity to have successful outcome it is important to work with the community for which it is designed The present study was, thus, undertaken in the first semester students with the objectives of

- Assessing the awareness, attitude and practices towards non–communicable diseases

- Assessing the gap between awareness and practices adopted among respondents

Roger's theory of diffusion of innovation[5] model was used to categorize the respondents into innovators, early adopters, early majority, late majority and laggards- the assumption being that the rapidity of the response would determine the willingness of the respondents to participate in health related activities.

MATERIAL AND METHODS:

A cross–sectional descriptive study was undertaken in the BITS, Pilani campus for duration of three months from August 2010 to October 2010. The whole cohort of 1067 students, having a pan India representation, enrolled in the institute during the first semester of the year 2010–11 for undergraduate and higher degree programs were enrolled for the study after taking

permission from the institute authorities. All the students were informed about the purpose of the study and consent was taken from all the students prior to data collection. The data was collected using a pre–designed and pre–tested, self– administered questionnaire. Based on the rapidity of their response, the respondents were categorized into 5 categories:

- **Innovators** (venturesome) - students who responded to the questionnaire promptly when it was forwarded on their e–mail ID for the first time.
- **Early adopters** (respectable) - students who responded to the questionnaire when it was forwarded for the second time on their e–mail ID
- **Early majority** (deliberate) - students who filled and returned the questionnaires on the same day when the investigators distributed the questionnaires in their hostel rooms.
- **Late majority** (skeptical) - students who returned the questionnaire after few days of the distribution of the questionnaires in their hostel rooms.
- **Laggards** (traditional) - students who neither responded through e–mail nor filled the questionnaires when given in person.

Seventy respondents selected randomly were subjected to physical examination wherein their height and weight measurement was done. Weight was taken using a standard weighing scale with standard minimum clothing to the nearest 0.5K.g.The height was measured using the height chart from CIPLA with heels, buttocks and occiput of the subjects against the wall and head in Frankfurt plane to the nearest 0.5 cm.

After data collection, data entry and analysis was done using Microsoft Excel and all results were presented in frequencies and percentages.

RESULTS AND DISCUSSION:

704 (65.96%) students, responded to this health related survey out of which 34.04% were laggards Figure 1

Majority of respondents, 558(79.26%) were less than 20 years of age while those in 21–30 age group 176 (20.74%) were students from higher degree courses. 177(25.14%) were female respondents while 527(74.86%) were males. 518(73.6%) had a positive family history of diabetes, hypertension, heart disease and cancer with either their parents, grandparents or their first degree relatives suffering from one or more of these non–communicable diseases. While 659(93.60%) respondents were aware of their blood group, 45(6.39%) didn't know of their blood group. Table 1
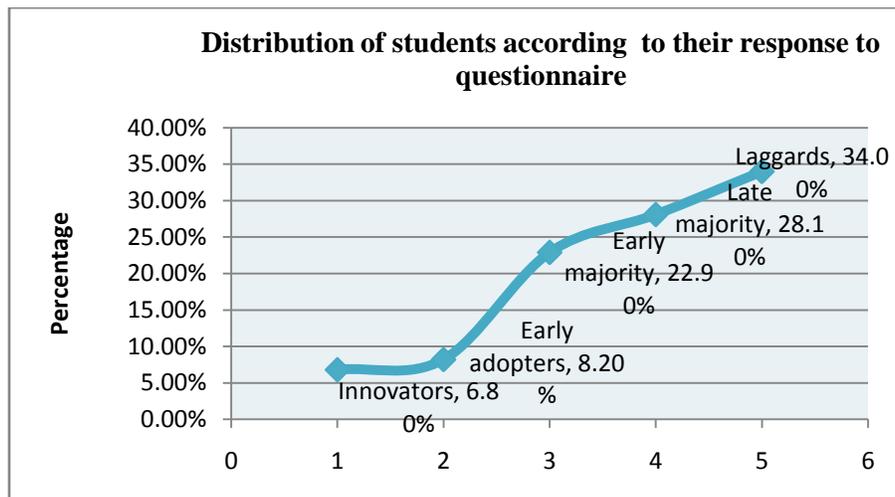
Distribution of students according to their response to questionnaire

Figure 1 Distribution of students according to their response to questionnaire

Table 1: Distribution of respondents according to their Age, Gender and family history of Non-communicable diseases

	Overall (%) n= 704	Males (%) n= 527	Females (%) n= 177
Age in years			
≤ 20	558(79.3)	432(82.0)	126(71.2)
21–25	114(16.2)	63(11.9)	51(28.8)
26–30	32(4.5)	32(6.1)	0(0.0)
Gender			
Male	527(74.86%)		
Female	177 (25.14)		
Family history of Non–communicable diseases			
Yes	518(73.6%)		
No	186(26.4%)		
Blood Group			
A +	104(14.8%)		
B +	248(35.2%)		
AB +	52(7.4%)		
O +	217(30.8%)		
A –ve	4(0.6%)		
B –ve	12(1.7%)		
AB –ve	1(0.1%)		
O –ve	21(3.0%)		
Don't Know	45(6.4%)		

409(58.2%) respondents were aware of the leading non–communicable diseases in India and named heart disease, diabetes and cancer respectively (59% males vs. 55.4% females). 409(58.2%) knew about the normal range of blood pressure (58.8% males vs. 55.9% females) and 499(70.9%) had a knowledge that excessive body weight can lead to development of diseases(67.2% males vs. 81.9% females).Surprisingly, majority of the respondents

506(71.95%) were unaware of the normal haemoglobin level that they should have(73.2% males vs. 67.8% females) and also about the symptoms of anaemia 516(73.3%). Table 2

Table 2: Distribution of respondents according to their Awareness level regarding Non-communicable diseases

Awareness about	Overall (%) n= 704	Males (%) n= 527	Females (%) n= 177
Non–communicable diseases prevalent in India			
Yes	409(58.2)	311(59.0)	98(55.4)
No	295(41.8)	216(41.0)	79(44.6)
Normal range of blood pressure			
Yes	409(58.2)	310(58.8)	99(55.9)
No	295(41.8)	217(41.2)	78(44.1)
Relationship of body weight with development of diseases			
Yes	499(70.9)	354(67.2)	145(81.9)
No	205(29.1)	173(32.8)	32(18.1)
Normal Haemoglobin level			
Yes	198(28.1)	141(26.8)	57(32.2)
No	506(71.9)	386(73.2)	120(67.8)
Symptoms of Nutritional anaemia			
Yes	188(26.7)	105(19.9)	83(46.9)
No	516(73.3)	422(80.1)	94(53.1)

Regarding their dietary habits, majority of respondents 443(62.9%) skipped their meals especially their breakfast varying from once or twice in a week to almost daily. Only 38(5.4%) had at least one serving of fruits daily, while only 171(24.3%) consumed at least two glasses of milk per day. In contrast, majority of them 640(90.9%) consumed fast foods in the form of chips, burgers and colas ranging from once or twice/week to almost daily, the proportion being almost comparable in males and females. Reported consumption of tobacco products and alcohol was < 5% and that too on few occasions. Only 107(15.2%) engaged in some sort of physical exercise daily while 140(19.9%) didn't even think about exercising in some form (22.2% males vs. 13.0% females). **Table 3**

Regarding the attitude of the respondents, majority of them 506(71.9%) went for a health check–up only when sick and only 467(66.3%) had ever got their blood pressure recorded in the past 3 months. While majority of the respondents 445(63.2%) perceived themselves to be of normal weight, 107(20.3%) males felt they were overweight in comparison to 32(18.1%) of females perceiving themselves to be overweight**.** Table 4

Table 3: Distribution of respondents according to their dietary and exercise behaviors

Habit of	Overall (%) n= 704	Males (%) n= 527	Females (%)n= 177

Skipping meals			
Never	261(37.1)	183(34.7)	78(44.1)
*Occasionally	314(44.6)	241(45.7)	73(41.2)
#Often	84(11.9)	64(12.1)	20(11.3)
+Very Often	31(4.4)	26(5.0)	5(2.8)
Always	14(2.0)	13(2.5)	1(0.6)
Consumption of Fruits			
Never	89(12.6)	83(15.7)	6(3.4)
Occasionally	378(53.7)	264(50.1)	11(64.4)
Often	131(18.6)	104(19.7)	27(15.2)
Very often	68(9.7)	53(10.1)	15(8.5)
Always	38(5.4)	23(4.4)	15(8.5)
Consumption of milk			
Never	187(26.6)	143(27.1)	44(24.8)
Occasionally	139(19.7)	104(19.7)	35(19.8)
Often	113(16.1)	89(16.9)	24(13.6)
Very Often	94(13.4)	72(13.7)	22(12.4)
Always	171(24.3)	119(22.6)	52(29.4)
Fast food intake			
Never	64(9.1)	44(8.3)	20(11.3)
Occasionally	325(46.2)	227(43.1)	98(55.4)
Often	184(26.1)	147(27.9)	37(20.9)
Very Often	73(10.4)	61(11.6)	12(6.8)
Always	58(8.2)	48(9.1)	10(5.6)
Tobacco usage			
Never	669(95.0)	494(93.7)	175(98.9)
Occasionally	20(2.8)	18(3.4)	2(1.1)
Often	3(0.4)	3(0.6)	0(0.0)
Very Often	8(1.1)	8(1.5)	0(0.0)
Always	4(0.6)	4(0.8)	0(0.0)
Consumption of alcohol			
Never	678(96.3)	504(95.6)	174(98.3)
Occasionally	19(2.7)	16(3.0)	3(1.7)
Often	1(0.1)	1(0.2)	0(0.0)
Very Often	6(0.9)	6(1.2)	0(0.0)
Always	0(0.0)	0(0.0)	0(0.0)
Exercise in any form			
Never	140(19.9)	117(22.2)	23(13.0)
Occasionally	220(31.3)	147(27.9)	73(41.2)
Often	119(16.9)	90(17.1)	29(16.4)
Very Often	118(16.8)	97(18.4)	21(11.9)
Always	107(15.2)	76(14.4)	31(17.5)

- *Denotes 1-2 times/week
- # denotes 3-4 times/week and + denotes > 5 times/week

Table 4: Distribution of respondents according to their weight perception and health related practices

	Overall (%)n= 704	Males (%)n= 527	Females (%)n= 177
Go for regular health check–up			
Yes	198(28.1)	142(26.9)	56(31.7)
No	506(71.9)	385(73.1)	121(68.3)
Got their blood pressure checked in the past 3 months			
Yes	467(66.3)	337(63.9)	130(73.4)
No	237 (33.7)	190(36.1)	47(26.6)
Perception about their weight			
Overweight	139(19.7)	107(20.3)	32(18.1)
Normal Weight	445(63.2)	326(61.8)	119(67.2)
Underweight	94(13.4)	73(13.9)	21(11.9)
Can't say	26(3.7)	21(4.0)	5(2.8)

When the perceived weight was compared with actual body mass index calculated in a sample of randomly selected 70 respondents, 27.1% were overweight vs.19.7% perceived overweight , 20% underweight vs.13.4% perceived underweight while 52.9% were of normal weight vs.63.2% perceived normal weight**.** Table 5

Table 5: Comparison of Perceived weight and calculated Body mass index of respondents

	Perceived Weight(%)	Actual calculated BMI (%)
Underweight	13.4	20.0
Normal weight	63.2	52.9
Overweight	19.7	27.1

The present study is an eye opener as 34.04% were laggards, indicative of low motivation of students to participate in health related events. This becomes all the more serious as 73.6% respondents had a positive family history of diabetes, hypertension, cardiovascular diseases or cancer which automatically puts this group in a high risk category needing regular health check up that only a small minority of respondents 28.1% followed. The importance of a positive family history has also been highlighted by the experts at American Society of Human Genetics 60th Annual Meeting in Washington D.C[(6)] According to them, assessment of family history determines the high risk cases and thereby helps in educating them so that they can take preventive measures.

It is a matter of serious concern that majority of respondents 506(71.9%) were unaware of their haemoglobin level or the symptoms of nutritional anaemia – a matter of concern in a country like India where the prevalence rates of anaemia are very high in adolescents ranging from 70–90%[7] affecting their academic and work performance and also their level of immunity.

Although occasional consumption of tobacco and alcohol by less than 5% respondents is a good sign, skipping of meals by 62.9 %, very less consumption of fruits by only 5.4% and milk by 24.3% on a regular basis and involvement in physical activity on a regular basis by only 15.2%

respondents and more indulgence in fast foods that are energy dense and nutrient poor by 90.9% respondents is an area that requires targeted intervention. Similar results were reported by Rubina et.al [8] regarding dietary patterns in medical and non–medical students of Karachi, regarding consumption of fruits by Abdullah et al.[9] among college students in Saudi Arabia and involvement in physical activity by Lee et al.[10] in university students in Hong Kong and by Christopher et.al [11] among undergraduates.

Majority of the students (70.3%), both boys and girls, when asked about their weight perception, reported it to be normal while the rest felt either being underweight 13.6% or overweight 16.1%. On comparison, with their calculated BMI, 27.1% were overweight and 20% were underweight.This was in contrast to study done by Augustine et al.[12] on weight perceptions and comparison of actual with perceived weight among the college going girls of St Teresa's college, Ernakulam, wherein 24% of the subjects were found to be overweight and the actual versus perceived weight status information showed that more subjects perceived themselves to be overweight.

CONCLUSION:

This study highlights the huge gap that exists between awareness about non–communicable diseases and the lifestyle practices adopted by university students. Creating awareness regarding non–communicable diseases, devising different strategies for different groups and providing enabling environment to motivate them to adopt healthy dietary and exercise related behaviors has to be taken on a war footing to reap the benefits in the future. The challenge is especially to rope in laggards to adopt healthy behaviors.

ACKNOWLEDGEMENTS:

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