

A study on the dietary habits and activity pattern of selected middle aged adults in Coimbatore

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ABSTRACT

Next to China, India leads the world with highest number of diabetic subjects, acquiring the distinction of being named, "the diabetes capital of the world". One of the most widely recognized issues identified with way of life today is being overweight. Being overweight leads to heart infections, Diabetes Mellitus, hypertension and so on. Objectives: Middle age adulthood is a period where we need to pay attention towards healthy nutritional diet. Preventive measures through assessing the nutritional status of adults such as anthropometric, dietary survey, food consumption pattern, nutritional awareness, physical activity and alertness about diseases will assist the community from being overweight and thus the occurrence of non communicable diseases. Methods: The zone chosen for the conduct of the study was Coimbatore and based on the number of subjects required, their age profile; willingness to participate in the study; their health condition etc.. a private company which was willing was selected. The subjects chosen were in the age group of over 50 years. The selection was carried out using the purposive sampling technique. Results: The data indicates that the adults are in the border line of non-communicable diseases such as overweight or obesity, cardio vascular disease, Type 2 diabetes and hypertension. Conclusion: This could be rectified through regular practice of consuming a nutritious and appropriate diet in conjunction with a physical exercise routine.

Key words: Diabetes, overweight, nutritional awareness, physical activity, Food consumption

INTRODUCTION

As the age advances, the chances and the frequency of a disease/disorder likewise increases (NIH (National Institutes of Health, 2010). We are besieged with nourishment and wellbeing messages regularly and if we pay heed and follow them, there is a strong possibility that it will result in reduction of health issues. for example, weight, heart ailments, hypertension and diabetes (World Health Organization, 1995).

The majority of the worldwide weight of non transmittable maladies in middle age is essentially among Asians (Bloom, D.E. et.al. 2013). The middle adulthood is the bridge between younger and older adulthood i.e around the third quarter of the average

lifespan of human being. (Arnett, J.J., 2001). Hence, middle age adulthood is a period to pay attention towards healthy nutritional diet. Global burden of all non-communicable diseases usually have their peak during this period. Preventive measures through assessing the nutritional status of adults and diet counseling will lend a hand to the community in preventing the occurrence of non communicable diseases.

Considering the issues critical to the wellbeing and way of life of middle adulthood, making recommendations for imparting their eating practices, diet, exercise and mental well being are considered important components of the preventive health strategy for adults.

OBJECTIVES

1. Elicit information on socio economic status of selected adults.
2. Acquire information on physical activity of the selected adults.
3. Assess the nutritional status of the selected

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- Adults through anthropometric measurement.
4. Study the dietary Perspective of the Selected Adults and make recommendations.

MATERIALS AND METHOD

The zone chosen for the study was Coimbatore. This was due to the ready availability of the required subjects and their willingness to cooperate and participate in this study. The industry chosen was Private Limited Company. The subjects chosen were in the age group of over 50 years covering both genders and utilizing purposive sampling technique.

A number of ninety two subjects over the age of 50 from different branches and division of the private organization were selected for the study. The subjects worked in different shifts like day and night shift. The hours of work are eight to ten hours. The adults aged above 50 years were shortlisted by the management and the investigator and the same was communicated to each department. According to the scheduled timing, the interview schedule was prepared for each day and thus the target groups (of age above 50 years) were interviewed by the researcher.

Details regarding socio economic status, physical activity pattern and nutritional status of selected Adults were collected with the help of a interview schedule in which the data are updated in the SPSS version 16. The investigator collected the information using direct personal interview and recorded the data given by the respondents.

Nutritional status was assessed by using selected anthropometric measurement indices. In this study, the anthropometric measurements indices collected were height, weight and BMI for all the selected adults. Body mass index has been proposed as simple and valid metric for monitoring fitness/fatness. (Schroeder and Martorell, 1999). BMI was computed for all the subjects from the height and weight measurements using the following equation.

$$\text{BMI} = \frac{\text{Weight (in kg)}}{\text{Height (in m}^2\text{)}}$$

In the current investigation stature and weight were estimated according to the convention and BMI was determined and grouped by the proposals given by International Diabetes Federation (2008).

Dietary assessment

Table 1 Socio economic position of the selected adults (n= 92)

Variables		No.	%
Age (yrs)	50-52	51	54
	53-55	31	34
	56-58	10	11
Religion	Hindu	78	85
	Christian	14	15
	Muslim	-	-
Level of education	High School	35	38
	Higher secondary school	41	45
	Graduates	13	14
	Post graduates	3	3
Monthly income	Rs.0 - 3000 Below poverty line (BPL)	-	-
	Rs.3000-5000 Low income group (LIG)	-	-
	Rs.5000-10000 Middle income group (MIG)	-	-
	Rs.above 10000 High income group (HIG)	92	100
Marital Status	Married	91	99
	Single/Unmarried	1	1
Type of Family	Nuclear	79	86
	Joint	13	14
Family Members	< 3	2	2
	3-5	46	50
	5-8	31	34
	>8	13	14

The investigator followed the 24 hours dietary recall method. The amount of food consumed was determined using 24-hour food intake which recorded all foods and beverages consumed. From this the raw ingredients consumed were computed and the nutritive values of the foods were calculated. These values were then compared with RDA to assess the nutritional adequacy of the sub sample.

RESULTS AND DISCUSSION

- A. Socio economic position of the selected adults
- B. Physical Activity of the selected adults
- C. Nutritional status of the selected adults
- D. Dietary Perspective of the Selected Adults

A. Socio economic position of the selected adults
The socio economic position of the selected Adults reveals that majority were of Hindu religion, were married, had completed higher secondary education & were in the high income and in nuclear family and were living with small family members.

- B. Physical activity of the selected adults

Table 2 Physical activity level of the selected adults

Activity	Number	Percentage
Sedentary	56	61
Moderate	36	39
Heavy	-	-
Total	92	100

Table 2 elucidates 61 per cent (56 subjects) had sedentary activity and 39 per cent were engaged in moderate activity. None of the adults did heavy activity. The results depict that the prevalence rate of non communicable diseases like diabetes and hypertension was higher among sedentary workers than moderate activity workers. Prolonged sedentary life style, obesity, less physical activity and less exercise leads to non communicable diseases.

- C. Nutritional status of the selected adults

- I. Anthropometric details

- 1. Mean height, Weight and BMI

Table 3 Mean height, weight and BMI of the selected adults

Parameters	Mean±S.D (n=92)
Height (cm)	162±9.21
Weight (kg)	68±9.10
BMI (kg/m ²)	26±4.33

The mean BMI was shown as 26 kg/m² among selected adults. This data prove that the selected Adults were in the overweight category which indicates the lack of physical activity, being unaware of the diet pattern, and performing sedentary activity.

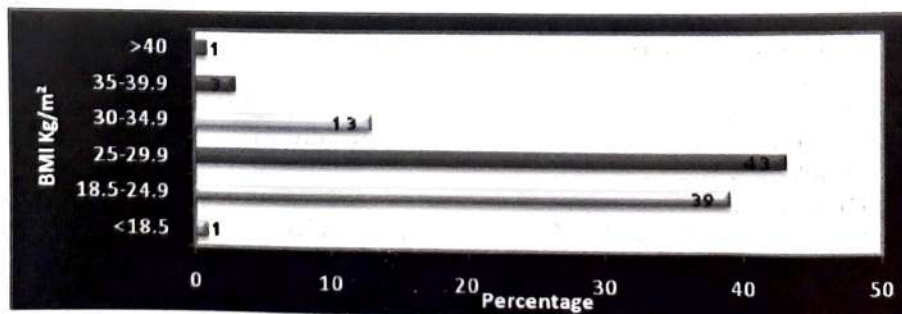
- 2. Body Mass Index (BMI)

Table 4 Classification of the selected adults according to body mass index

Classification		Number	Percentage
BMI	Category		
<18.5	Underweight	1	1
18.5-24.9	Normal	36	39
25-29.9	Overweight	39	43
30-34.9	Grade I obese	12	13
35-39.9	Grade II obese	3	3
>40	Grade III obese	1	1
Total	92	100	

*Global Data Base, WHO (2006)

Table 4 presents the classification of the selected Adults according to Body Mass Index categories recommended by WHO (2006). It is evident from the data that 39 per cent (36) of the selected Adults were in the normal category of BMI (18.5 to 24.9). Only a negligible number of respondents (1%) had a BMI less than 18.5 and are classified as underweight. A majority of 39 per cent (43) are overweight or obese.



Classification of the Selected Employees According to Body Mass Index (FIGURE 1)

Thirteen per cent (12) are classified as grade I obese followed by 3 per cent (3) who fall in the category of grade II obesity. Only one person among the selected Adults falls in the category of Grade III obesity

The results of BMI classification clearly point out that the majority of the subjects are either overweight or Obese. Overweight and obesity are number one causative factors for non communicable diseases.

3. BMI and physical activity analysis

Table 5 Correlation analysis of the BMI and physical activity of the selected adults (n=92)

Category	BMI
Physical activity	0.94*
*Significant at 0.05% level	

Table 6 Dietary perspective of the selected Adults (n= 92)

Variables	No.	%
Type of Diet		
Vegetarian	9	10
Non-Vegetarian	79	86
Ova-Vegetarian	4	4
Number of meals consumed		
Two	6	7
Three	83	90
Four	3	3
Skipping Meal		
Daily one meal	7	8
Weekly one meal	13	14
Weekly two meals	5	5
Habit of Fasting		
A meal per day	1	1
A meal per week	9	10
A meal per month	8	9
Habits of Eating		
Quick	45	49
Moderate	29	32
Slow	18	20
Quantity of Water Consumption Per Day		
<4 glass	14	15
4-8 glass	45	49
>8 glass	33	36
Food Allergy		
Brinjal	2	2
Potato	3	3
Cabbage	1	1
Coconut	1	1
Crab	1	1
Tea	1	1

Physical activity of the selected Adults was strongly correlated with the body mass index (BMI). This data shows that lack of physical activity and sedentary lifestyle was prevalent among the selected adults. This trend will lead to the incidence of metabolic syndrome and non-communicable diseases later.

D. Dietary perspective of the selected adults

According to Gopalan (2010) dietary surveys to assess dietary intake and nutritional status of the population are essential to monitor ongoing nutrition transition and initiate appropriate interventions.

1. Dietary Details

Type of diet of the selected adults show that 86 per cent were non-vegetarian. The selected adults consuming three meals per day were predominant. Twenty seven per cent had the habit of skipping at

least one meal per week. The eating habits of the selected adults highlight that out of 92 adults, 49 per cent have the practice of eating quickly. This may be due to time pressure or they may be eating quickly

from childhood itself. One has to give time for the brain to judge the fullness and slow eating helps for good digestion and reduces the risk of over eating and thus diabetes as a consequence.

2. Food Consumption Pattern

Table 7 Frequency of food consumption pattern of the selected adults

Food items	Daily		Weekly		Occasionally		Never		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Cereals	92	100	-	-	-	-	-	-	92	100
Pulses	39	42	53	58	-	-	-	-	92	100
Legumes, Nuts and Seeds	13	14	34	37	11	12	34	37	92	100
Greens leafy vegetables	15	16	66	72	10	11	1	1	92	100
Other vegetables	88	96	4	4	-	-	-	-	92	100
Vitamin A rich fruits	17	18	50	54	7	8	18	20	92	100
Other Fruits	5	5	43	47	13	14	31	34	92	100
Roots & tubers	11	12	72	78	5	5	4	4	92	100
Fruits	41	45	38	41	11	12	2	2	92	100
Milk	24	26	5	5	3	3	60	66	92	100
Sugar and jaggery	82	89	-	-	3	3	7	8	92	100
Spices and condiments	38	41	53	58	-	-	1	1	92	100
Egg	4	4	49	53	27	29	12	13	92	100
Poultry	2	2	56	61	15	16	19	21	92	100
Meat	1	1	14	15	43	47	34	37	92	100
Fish	1	1	37	40	35	38	19	21	92	100

Table 7 analyses the food consumption pattern of the selected adults. It was found that rice was consumed as a prime food. Seventy two per cent of the adults consumed green leaves weekly once & a vegetable on a daily basis, but the quantity was very less. Roots and tubers (potato) were consumed on a daily basis by 12 per cent of the adults.

Enquiry about consumption of fleshy foods (Non vegetarian) indicated that fleshy foods were consumed weekly once by a majority of the subjects.

Poultry consumption (61%) was greater than other fleshy foods followed by egg at 53 per cent, fish at 40 per cent and red meat at 14 percent respectively. The consumption of milk among selected adults was very poor. Eighty nine per cent of them consume sugar and sugar based products daily. Only eight per cent reported that they never consume sugar and jaggery products.

3. Consumption of junk foods

From Table 8 it was observed that the Forty nine per

Table 8 Consumption of junk foods by the selected adults

Food items	Daily		Weekly		Occasionally		Never		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Baked items	3	3	17	18	23	25	49	53	92	100
Chat items	-	-	15	16	37	40	40	43	92	100
Fried items	16	17	45	49	25	27	6	7	92	100
Sweets	5	5	20	22	55	60	12	13	92	100
Pizza	-	-	1	1	10	11	81	88	92	100
Savories	-	-	-	-	5	5	87	95	92	100
Burger	-	-	1	1	3	3	88	96	92	100
Carbonated beverages	-	-	6	6	22	24	64	70	92	100

cent of the adults consumed fried items weekly once or twice, 17 per cent had on a daily basis and 27 per cent ate fried food occasionally. Other junk foods consumed by selected adults were Chat items (40%), baked items (25%), carbonated beverages (24%), pizza (11%), savories (5%) and burger (3%)

respectively on an occasional basis.

4. Mean nutrient intake

Table 9 reflects the mean nutrient intake of the selected adults calculated from 24 hour recall survey.

Table 9 Mean nutrient intake of the selected adults

Nutrients	RDA*	Actual IntakeExcess/ deficit nutrient intake
Energy(K.cal)	2875	2210-665
Protein(g)	60	61+1
Fat(g)	20	44+24
Carbohydrate(g)	300	375+75
Fibre(g)	25	9-16
Calcium(mg)	400	598+198
Iron(mg)	28	15-13

*Dietary Guidelines for Indians- Amanual,
NIN, ICMR, 2010

The data presented in Table 9 reveal that all the nutrients are consumed in adequate quantities whereas fibre and iron intake is inadequate. As the intake of green leafy vegetables and whole grains are lower in the daily diet, the fibre and iron contribution is also less.

5. Multivariate analysis

Table 10 Correlation for diabetes with various factors (n=92)

Category	PA	Age	BMI	FDH	QEH	JF
Diabetes	.71**	.70**	-.48**	.75**	.81**	.23*
Physical activity (PA)	-	.80**	.94*	-.54**	.81**	.32**
Age	-	-	-.65**	.53**	.85**	.50*
BMI	-	-	-	-.26**	-.64**	-.26**
Family Diabetics History (FDH)	-	-	-	-	.61**	.17*
Quick Eating Habits (QEH)	-	-	-	-	-	.45**
Junk foods (JF)	-	-	-	-	-	-

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

A Pearson produce moment correlation was conducted to examine the relationships amid Diabetes, Physical activity (PA), Age, BMI, Family Diabetes History (FDH), Quick Eating Habits (QEH), Junk Foods (JF) in selected adults with the number of Diabetes cases. Diabetes risk was more strongly positively related to Quick Eating Habits, $r(90) = .81$, $p < .001$, followed by Family Diabetes History, $r(90) = .75$, $p < .001$, Physical Activity, $r(90) = .71$, $p < .001$, Age, $r(90) = .71$, $p < .001$, Junk Food, $r(90) = .23$, $p < .005$. There was a significant negative association between diabetes and their BMI, $r(90) = -.48$, $p < .005$, than to Age, $r(90) = -.65$, $p < .001$, two-tailed. The results suggest that there was a statistically significant association between Diabetes, Physical activity, Age, BMI, Family Diabetes History, Quick Eating Habits, Junk Foods in selected adults. A complete list of correlation is presented in Table 10.

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CONCLUSION

The result of the current study has brought out the dietary status of the chosen adult subjects. The data indicates that majority of the adults are either over weight or obese putting them on the verge of non-communicable diseases such as obesity, cardio vascular disease, Type 2 diabetes, hypertension etc... This could be rectified through regular practice of consuming a nutritious and appropriate diet, indulging in physical exercise, practicing yoga and organizing program like nutritional awareness and education to all age groups of the adults.

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