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LIFESTYLE – ASSOCIATED RISK FOR CARDIOVASCULAR DISEASES AMONG PRIVATE AND GOVERNMENT DOCTORS (25 TO 50 YEARS). A COMPARATIVE STUDY

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ABSTRACT

In India, out of the estimated population of more than 1.27 billion dispersed across various geographical regions, about 45 million people suffer from coronary artery disease. India will soon have the highest number of cases of cardiovascular disease in the world with an estimate of 35.9% deaths by the year 2030. Thus, the present study was done to compare the lifestyle – associated risk for cardiovascular diseases among private and government doctors (25 to 50years) residing in Delhi NCR region. The objectives of the study were to assess the anthropometric, biochemical assessment, dietary intake along with life style associated risk factors. Risk factors assessment associated with cardiovascular diseases of the subjects was done with the help of questionnaire cum interview method and to compare the risk factors and dietary intake of government and private doctors. The result showed that majority of the government and private doctors had 3 meals in a day, had no food allergy, skip meals, were non vegetarian, had no family history, and had alcohol, did not smoke, eat junk food, had 6-8 hours sleep, had fats, and there was a significant difference between the Risk factors of cardiovascular was high in private area than government area because significant difference was observed between the groups regarding disease they suffers. Most private doctors have hypertension. While government doctors represent good health index. Hence, it is concluded that lifestyle – associated risk for cardiovascular diseases among Private Doctors is high than Government Doctors.

KEYWORDS: In India, While government doctors represent good health index.

INTRODUCTION

Cardiovascular Disorders

Cardiovascular disorders have been the major cause of death in western societies. In India, due to industrialization and a change in the living pattern during the past three to four decades, the incidence of cardiovascular disorders has been on the increase. It is thus, becoming a major cause of death especially in the adult male population. Cardiovascular disorders include the diseases of heart and blood vessels such as atherosclerosis leading to.

Coronary heart disease (CHD) and hypertension.[1] According to the National Center for Health Statistics and the American Heart Association, cardiovascular disease (CVD) ranks as the number – one killer in the United States, accounting for 41.5 percent of all death.[3] India will soon bear the largest burden of heart disease globally: In India, out of the estimated population of more than 1.27 billion dispersed across various geographical regions, about 45 million people suffer from coronary artery disease. 'According to a study, India will soon have the highest number of cases of cardiovascular disease in the world with an estimate of 35.9% deaths by the year 2030.[20]

There are some disorder which is related to cardiovascular diseases (CVDs) like Coronary heart disease, cerebrovascular disease, Peripheral arterial disease, Rheumatic heart disease, congenital heart disease, Deep vein thrombosis and pulmonary embolism.

Heart attacks and strokes are usually acute events and are mainly caused by a blockage that prevents blood from flowing to the heart or brain. The most common reason for this is a build – up of fatty deposits on the inner walls of the blood vessels that supply the heart or brain. Strokes can also be caused by bleeding from a blood

vessel in the brain or from blood clots. The cause of heart attacks and strokes are usually the presence of a combination of risk factors, such as tobacco use, unhealthy diet and obesity, physical inactivity and harmful use of alcohol, hypertension, diabetes and Hyperlipidemia.[5,8] T he pathophysiology of the link between diabetes and cardiovascular disease (CVD) is complex and multi factorial. Understanding these profound mechanisms of disease can help clinicians identify and treat CVD in patients with diabetes, as well as help patients prevent these potentially devastating complications.[7,6]

Diabetes is a prime risk factor for cardiovascular disease (CVD). Along with vascular disorders include retinopathy and nephropathy, peripheral vascular disease (PVD), stroke, and coronary artery disease (CAD). Diabetes also affects the heart muscle, causing both systolic and diastolic heart failure. The etiology of this excess cardiovascular morbidity and mortality is not completely clear. Evidence suggests that although hyperglycemia, the hallmark of diabetes, contributes to myocardial damage after ischemic events, it is clearly not the only factor, because both pre-diabetes and the presence of the metabolic syndrome, even in normoglycemic patients, increase the risk of most types of CVD.[7,9]

2. METHODOLOGY

Methodology is logic of scientific investigation. It is a procedure of research technique. Methodology means description, explanation and justification of methods and not the method themselves. It contains the standards and principles employed to guide the choice structure, process and use of methods as directed by the underlying.[26]

Methodology can properly refer to the theoretical analysis of the methods appropriate to a field of study or to the body of methods and principles particular to a branch of knowledge. Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically .In it we study the various steps that are generally adopted by a researcher in studying his research problem along with the logic behind them. It is necessary for the researcher to know not only the research method /techniques but also the methodology.[26]

The scope of research methodology is wider than that of research methods. Thus, when we talk of research methodology us not only talk of the research methods but also consider the logic behind the methods we use in the context of our research study and explain why we are using a particular method or technique.[26]

2.1 Study design

The research design was explanatory research design as the data was conducted using survey technique.

2.2 Locale of study

The research was conducted in Hospitals of Delhi NCR.

2.3 Selection of sample

The study was conducted among 100 subjects from Delhi NCR hospitals, as the subjects for the study were selected by purposive sampling technique.

2.4 Development of tools and techniques

A detailed interviews schedule was prepared for collection of data the questions will be asked to the subjects and following methods was used for gathering information.

- The Interviewing Method
- Anthropometric Measurements
- Dietary Survey
- Bio chemical measurement

A questionnaire was formed for interviewing the subjects this included the information.

Interviewing method

A questionnaire was formed for interviewing the subjects. This included the information regarding name, age, sex, education, religion, family, profile, housing condition, activity, anthropometric measurements, clinical examination, and food habits and eating pattern.

Anthropometric Measurements

Nutritional Anthropometric is a measurement of human body at various ages and levels of nutritional status. It is based on the concept that an appropriate measurement should reflect any morphological variations occurring due to a significant physiological change.[27]

Height:- Height of an individual is influenced both by genetic and environmental factors. It is made up of 4 components—legs, pelvis, spine and skull. The equipments used for taking height are called stadiometer or a scale or non-stretch tape that can be fixed to that wall.[27]

Weight: - Body weight is the most commonly used and the simplest reproducible anthropometric measurement. It takes into account length, frame size, proportion of fat, muscle and bone.[27]

BMI:- Body mass index indicate muscle fat mass in the body. the ratio of weight (kg) to height (cm) is referred as BMI. It provides a reasonable indication of the nutritional status. The BMI of the sportsperson was calculated using weight and height measurement.[27]
Formula for BMI = weight (kg)
Height (m^2)
Units of BMI =kg/m^2

Dietary survey

Diet is a vital determinant of health and nutritional status of people. The dietary habits of individuals/

families/communities vary according to their socio economic factors, regional customs and traditions.

Dietary Survey is of 2 types: - qualitative and quantitative.

In qualitative type exact information on the type of foods people eat, frequency, their opinion towards food and the cultural significance they attach to special food drinks. Data on food practices during health and diseases and other special physiological condition like infancy also form part of qualitative studies.[27]

In quantitative type, exact amount of foods consumed in terms of grams or liters are assessed and their nutrient contents estimated. Both question and question of dietary enquires were used to collect data regarding the food intake of the people.[27]

24 Hour Dietary Recall
The 24- hour diet recall method is a type of nutritional assessment that is often triangulated with other methods in nutrition research .The goal of this method is to document food and beverage consumption of individuals and is most accurate when administered more than once for each participant.[27]

Nutrient Adequacy Ratio (NAR)
The data on nutrient intake was also expressed in terms of nutrient adequacy ratios (NAR). NAR represents the adequacy for a nutrient based on the corresponding RDA for that nutrient.[28] NAR for nutrient except for energy for each subject was computed as:
NAR= daily nutrient intake recommended amount of nutrient

This was further classified as: - Adequate NAR (≥1.00)
-Fairly Adequate NAR (0.66≤1.00)
-Inadequate NAR (≤0.66)(100)

2.5 Satistical Analysis
Statistics is the science of the collection, organization and interpretation of data. It deals with all aspects of this, including the planning of data collection in terms of the design of surveys and experiments.[29]

Statistical analysis refers to a collection of methods used to process large amounts of data and report overall trends. Statistical analysis is particularly useful when dealing with noisy data and it provides ways to objectively report on how unusual an event is based on historical data.[30]

2.5.1. Mean
The mean of a sample or a population is computed by adding all of the observations and dividing by the number of observations.

2.5.2. Standard Deviation
The standard deviation is the square root of the variance. Thus, the standard

Chi Square Test
The chi square (I) test is used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories.

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

Where, O is observed frequency in each category
E is the expected frequency in the corresponding category
df is the degree of freedom
X^2 is chi square.[103]

Unpaired t method tests
The unpaired t method tests the null hypothesis that the population means related to two independent, random samples from an approximately normal distribution are equal.[32]

3. RESULTS AND DISCUSSIONS

Fifty doctors each selected from Delhi NCR hospitals from private and government hospital, based on Purposive sampling technique. The research especially focuses to assess the anthropometric and biochemical measurement of both groups; to assess lifestyle related risk factors and dietary intake based on dietary recall.

Based on questionnaire data were collected. Anthropometric measurements were noted to calculate BMI for each subjects, dietary data was collected based on 24 hrs dietary recall. Collected information was further analyzed to compare lifestyle related risk and dietary behavior of both groups of doctors using multi proportion discrete test statistics (χ^2) for discrete data, and T-test for continuous data wherever applicable at 5% level of significance (α=0.05).

3.1 Suffering from disease.

Suffering from disease	government doctors (n=50)	private doctors (n=50)	Chi-square (p-value)
Hypertension	3	15	**12.095** (p-value=0.034)
High cholesterol	1	1	
Diabetes	1	0	
Hyperlipidemia	1	1	
Obesity	5	1	
Hyperuricaemia and gout	0	1	
Other	3	4	
Nil	36	27	

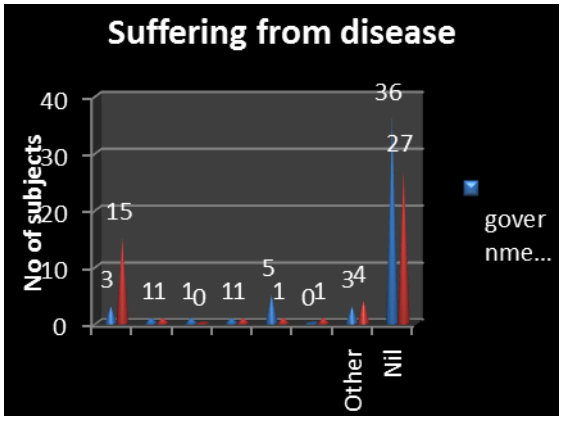

Table 3.1 Shows health status disease between the groups. As p value for Chi square test is 0.034 (p value <0.05), hence there was significant difference observed between the groups regarding disease they suffer. Most of the private doctors have hypertension while govt. doctors represent good health index.

3.2 Biochemical Assessment

Table 3.2: Biochemical estimation comparison between both groups (n=50).

		Total Cholesterol	HDL	LDL	Triglyceride	Systolic-BP	Diastolic-BP
Govt. Doctors	Average	159.3	58.6	101.0	69.9	127.3	86.7
	std. dev.	20.0	14.9	21.0	14.6	4.7	5.8
Private Doctors	Average	173.0	48.0	108.9	88.2	123.6	84.0
	std. dev.	26.0	11.3	24.7	53.8	15.2	4.3
T-test (p-value)		p value = 0.004	p value <0.001	p value = 0.086	p value = 0.024	p value = 0.105	p value = 0.010

Table 3.2 shows biochemical estimation of plasma profile. All tests parameters shows significant difference (p value for test is <0.05) between private and government doctors except LDL and systolic BP (where p value > 0.05). For cholesterol and HDL, private doctors dominating over govt. doctors while reverse exist for LDL and triglycerides.

Table 3.3: Biochemical comparison distribution between both groups.

Biochemical constituents >>		Total Cholesterol	HDL	LDL	Triglyceride	BP
Normal limits >>		125-200 mg/dL	35-80 mg/dL	85-130 mg/dL	3-5 mg/dL	120/80
Govt. Doctors	**Within Normal limits**	0	4	19	0	47
	Outside Normal limits	50	46	31	50	3
Private Doctors	**Within Normal limits**	6	1	34	4	46
	Outside Normal limits	54	49	16	46	4

3.4 Nutritional Uptake Per Day

Table 3.4: Average Nutritional consumption per day by subjects.

Average Nutritional consumption per day		Energy (k.cal)	Carbohydrate (g)	Protein (gm)	Fat (g)
Govt. Doctors (n=50)	Average	1831.3	291.0	79.3	45.7
	std. dev.	261.4	47.0	14.9	9.5
Private Doctors (n=50)	Average	1993.3	320.8	93.3	43.0
	std. dev.	366.2	60.8	21.4	10.6
T-test (p-value)		P=0.013	P <0.007	P <0.0001	P= 0.183

Table 3.5: NAR distribution between the groups.

	Govt. doctors (n=50)				Private Doctors (n=50)			
NAR level	**Energy (kcal)**	**Protein (g)**	**Carbo-hydrate (g)**	**Fat (g)**	**Energy (kcal)**	**Protein (g)**	**Carbo-hydrate (g)**	**Fat (g)**
RDA	2320	60	576.25	25	2320	60	576.25	25
Adequate NAR (>1.00)	11	49	0	49	2	45	0	50
Fairly Adequate NAR (0.66 -1.00)	36	1	10	1	46	5	4	0
Inadequate NAR (<0.66)	3	0	40	0	2	0	46	0
Chi-square, p-value	0.044	0.192	0.178	NA				

Table 3.4 shows average nutritional consumption per day by subjects between the groups. Except fat, all other constituents shows significant difference (p value <0.05) between the groups. Average intake is higher in private doctors for all nutrients. Table 3.5 represents NAR for all nutrients. Form p value for chi-square, it is evident that there is significant difference (p value <0.05) between the group for energy, for rest of nutrients there is no difference observed (p value >0.05).

4. CONCLUSION

The study shows that 10% of government subjects suffering from obesity, 6% of government subjects suffering from hypertension, 6% of government subjects suffering from other, 2% of government subjects suffering from high cholesterol, 2% of government subjects suffering from diabetes, 2% of government subjects suffering from Hyperlipidemia, and 72% did not had any problem. The study shows that 30% of private subjects suffering from hypertension, 8% of private subjects suffering from other problem, 2% of private subjects suffering from high cholesterol, 2% of private subjects suffering from Hyperlipidemia, 2% of private subjects suffering from obesity, 2% of private subjects suffering from Hyperuricaemia and gout, and 54% did not have any problem.

The study shows that 20% of government subjects had family history of heart disease, and 80% did not have family history of heart disease. Whereas 38% of private subjects had family history of heart disease, and 62% did not have family history of heart disease.

Risk factors of cardiovascular is high in private doctors compared to government doctors because significant difference was observed between the groups regarding disease they suffers. Most of the private doctors have hypertension. While govt. doctors represent good health index.

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