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## Assessment of risk factors for atherosclerosis among working professionals

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### Abstract

Atherosclerosis is characterised by formation of induration of the arteries plaques consisting of death cores, calcified regions, accumulated changed lipids, inflamed smooth muscle cells (SMCs), epithelial tissue cells (ECs), leukocytes and foam cells in arteries of the brain, the heart, the kidneys and also the legs, particularly wherever the vessels area unit divided. The present aim was to assess the existing level of risk factors of atherosclerosis among working professionals. Who are residing at Bharath Nagar, Tiruvottiyur. A quantitative approach with nonexperimental descriptive research design was adopted for the present study. 60 working professionals were recruited as study participants by using non probability sampling technique. Data was gathered by exploiting a self-structured questionnaire for both the demographic information and for assessing their level of risk factors for atherosclerosis. Outcome of the present study revealed that the mean score on level of risk factors for atherosclerosis towards working professionals found 11.85 and hence concluded that, the working professionals had Average level of risk factors for atherosclerosis.

**Keywords:** Atherosclerosis, Risk factors, working professionals

### Introduction

The word 'atherosclerosis' has been formed by the German physician Felix J. Marchand (1846–1928) from the Greek words 'athere' meaning gruel and 'scleros' meaning localized hardening of skin [1]. Atherosclerosis is the disease of arteries. The term atherosclerosis indicates the formation of fibromata lesions within the membrane lining of the arteries like the coronary arteries, the artery, and thus the massive arteries that provide the brain. Atherosclerosis is also termed as cardiovascular disease (CVD) [2]. Atherosclerosis may be a specific sort of arteriosclerosis. Atherosclerosis is that of the construct from fats, cholesterol, and other substances on and on your artery walls. This build up is named plaque. The plaque can bring your arteries to stopping blood flow. The plaque also can burst to result in a grume [3]. Atherosclerosis is an inflammatory disease existing principally in large and medium-sized elastic and muscular arteries. It can cause ischemia of the guts, brain Or Extremities, resulting in infarction. Nowadays, it has become the leading explanation for morbidity and mortality in the world. The process of atherogenesis involves multiple systems and may last for several years. The earliest lesions are even found in infant's and young children. Finding the rationale for atherosclerosis has become one among the toughest mission in modern medical research. [4]. Atherosclerosis can affect any artery within the body, including arteries within the guts, brain, arms, legs, pelvis and kidneys. As a result, different diseases may develop supported which arteries are affected. Atherosclerosis begins with changes in the Endothelial cell function that cause white blood cells moving through the blood to stay to the end of the atherosclerosis (an inner arterial wall ) instead of flowing by normal [5]. The exact cause isn't known. Predisposing factors involves abnormal cholesterol levels, elevated levels of inflammatory markers, diabetes Mellitus, smoking, obesity, history, and an unhealthy diet. Plaque is build from fat, cholesterol, calcium, and other substances found within the blood [6]. In the last 20 years, researches showed that atherosclerosis may be a chronic inflammatory condition, which is that the opposite of what previously thought of atherosclerosis to be a condition as a result of ageing process . Because of the abundant researches within the field of atherosclerosis in recent years, understanding of pathophysiology of atherosclerosis made plethora of accessible at lipoprotein metabolic level also as at inflammatory molecular level [1]. Atherosclerosis remains in asymptomatic phase for decades.

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Symptoms of atherosclerosis depend upon where the affected artery is found and whether it's slowly become narrowed or suddenly blocked. Chest pain, coughing, angina, difficulty breathing, swelling of the hands and feet, male erectile dysfunction are symptoms of atherosclerosis [7]. The development, a continuing and the occurrence of atherosclerosis are the results of interplay of several predisposing and precipitating factors. Coronary atherosclerosis has emerged as a serious social epidemic in India. The prevalence of coronary atherosclerosis is very variable according to age, sex and place. Risk factors for coronary atherosclerosis like hypertension, diabetes, Cigarette smoking and high cholesterol diets are sharply rising in the developing world with early younger age involvement [8]. Atherosclerosis is particularly prevailing in the populations of developed countries, and is increasingly burdensome in developing countries. Statistics published by the American Heart Association show more than 17 million people died in 2013 thanks to the disorder, representing the first cause of death globally [9]. Peripheral vascular disease (PAD) may be a chronic progressive atherosclerotic disease resulting in partial or total peripheral vascular occlusion. PAD typically affects the aorta, iliac arteries, lower limbs, and infrequently the upper extremities. PAD affects nearly 200 million people worldwide with increasing global importance thanks to longer life expectancy and prolonged risk factor exposure. [10] When treating a patient with significant arteria carotis disease, it's important to understand that atherosclerosis may be a systemic inflammatory vascular disorder involving multiple arterial beds. These patients are pressurized not only by stroke; the presence of arteria carotis disease places them into a very precarious group for any of various atherosclerotic cardiovascular (CV) events, especially coronary events [11]. Atherosclerosis now comprises the main contributor to a worldwide epidemic of disorder, which has overtaken communicable diseases to become the leading explanation for death and disability worldwide. Atherosclerosis isn't only the most underlying cause in coronary heart condition but also causes many strokes and affects peripheral arteries [12]. This higher prevalence of atherosclerosis in men compared to women is assign to the protective function of female sex hormones but is lost after menopause [13]. Therefore, objectives of the present study was to assess the current level of risk factors for atherosclerosis among working professionals and to find out the association between the level of risk factors of atherosclerosis among working professionals with their demographic variables.

### Materials and Methods

The quantitative approach with descriptive research design was adopted for the present study. After obtaining ethical clearance from the Institutional ethical clearance (IEC) Saveetha institute of medical and technical sciences (SIMATS) and a formal permission from the head authorities, the study was conducted. A total of 60 working professionals who met the inclusion criteria were recruited as the study participants using non probability sampling technique. The inclusion criteria for the study participant were the working professionals between the age group from 30 to 60 years, with both genders, who is under risk group as per the criteria formulated by the WHO and with history of non-communicable disease like renal disease, cancer, Rheumatic heart disease, who were willing to participate in

the study. The excluded criteria includes individual diagnosed with cardiac illness, history of psychiatric illness, who are previous history of atherosclerosis and on regular treatment, who are not cooperative. The purpose of the study was explained by the investigator to each of the study participant and a written informed consent was obtained before collecting the data. The demographic data and the current level of risk was collected obtained from them. The demographic data and the existing level of risk factors was collected by using the self-structured questionnaire and the collected data were tabulated and analysed by using descriptive and inferential statistics.

## Results and Discussion

### Section A: Demographic Variables

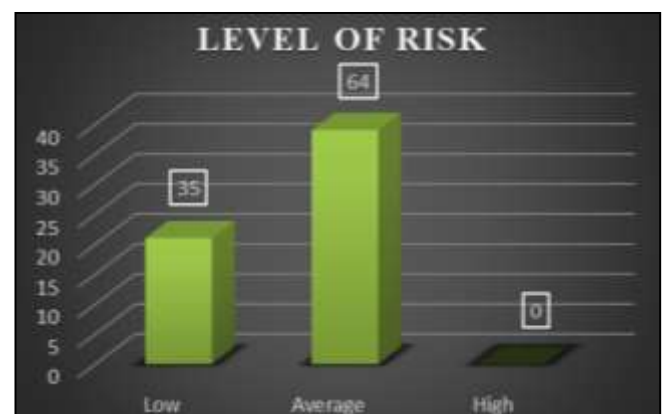
Among 60 study participants majority of the working professionals 20(33.4%) were in the age group of 41 - 50 years, 31(51.6%) were female,20(33.4%) had no formal education, 29( 48.4) were daily wages, 24(36.6%) had monthly income, 56(93.4%) had non-vegetarian, 51(85%) had history of atherosclerosis, 33(55%) were moderate lifestyle,53(83.3%) had history of smoking,39(65%)had history of consuming alcohol.

### Section B: Current Level of Risk Factors for Atherosclerosis among Working Professionals.

The current level of risk factors for atherosclerosis among working professionals revealed that 21(35%) had low risk, 39 (65%) had average risk, and no high risk of atherosclerosis.

**Table 1:** Frequency And Percentage Distribution On Current Level Of Risk Factors For Atherosclerosis Among Working Professionals. N = 60

| Level of Risk | Frequency (NOS) | percentage (%) |
|---------------|-----------------|----------------|
| Low           | 21              | 35%            |
| Average       | 39              | 65%            |
| High          | 0               | -              |



**Fig 1:** Percentage Distribution On Current Level Of Risk Factors For Atherosclerosis Among Working Professionals

The present study findings is supported by a study conducted by Sima De, (2020) aiming to identify the risk factors of coronary artery disease in adolescents and its relationship with other factor. The Study results concluded that, out of 100 study participants 72% were at moderate risk, 15% were at high risk and 13% were at low risk [14]. Hence it was concluded that adolescents had risk factors for future development of coronary artery disease.

**Table 2:** Assessment of Risk Factors for Atherosclerosis Scores Towards Working Professionals N= 60

| Variables          | Current Level of Risk |
|--------------------|-----------------------|
| Minimum score      | 5.0                   |
| Maximum score      | 20.0                  |
| Mean               | 11.85                 |
| Standard deviation | 3.60                  |

### Section C: Association between the Current levels of Risk Factors for Atherosclerosis among Working Professionals with Their Selected Demographic Variables

The demographic variables of age, sex, food habits, history of atherosclerosis, lifestyle, history of smoking is Statistically significant and education, occupation, monthly income and history of consuming alcohol is not Statistically significant association with the current level of risk factors for atherosclerosis among working professionals.

### Conclusion

Thus, the findings of the present study revealed that, the current level of risk factors for atherosclerosis was moderate among working professionals.

### Acknowledgement

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### Conflicts of Interest

Author's declare no conflict of interest.

### Finding Support

None

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