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Awareness of Cardiovascular Risk Factors among it Professionals

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ABSTRACT

Introduction: Several risk factors contribute to cardiovascular diseases, such as age, gender, and ethnicity. Positive family history being overweight and obese is also an additional risk factor for cardiovascular diseases. Other lifestyle factors that contribute to cardiovascular disease are smoking, stress, cell phone usage, and physical inactivity, consumption of alcohol, increased salt intake, reduced potassium intake. Maintaining a healthy lifestyle with low levels of stress and healthy eating habits with proper exercise could prevent cardiovascular disease to a large extent. **Aim:** The objectives of the study were to assess the awareness of cardiovascular disease risk factors among IT professionals. **Materials and methods:** A survey was carried out among 100 IT professionals belonging to 25 to 45 years of age group approximately in the year 2020. Online survey consisted of 15 questions that were distributed to the study population through google forms. SPSS statistical analysis was done. Association graphs for analysis were done using pearson Chi square. The results were collected and data were analysed. **Results:** The results was collected and data was analysed.The awareness on risk factors of cardiovascular diseases, among which 32% were aware ,33% were not aware and 35% responded as may be aware.This survey also depicts that sedentary job setting and stress is a major cause of cardiovascular disease for which 18% said yes, 38% said no and 44% said it may be. Pearson Chi square analysis showed that there is no association between the age and awareness of the respondents.**Conclusion:**This survey can be concluded that there was low level of awareness about cardiovascular disease risk factors among IT professionals.

KEYWORDS: awareness, cardiovascular disease, risk factors, IT professionals.

INTRODUCTION

The prevalence of cardiovascular disease is rising worldwide and it accounts for 17% of the total mortality. Factors linked to an increased risk of cardiovascular disease are family history, age, sex, cigarette smoking, excessive alcohol consumption, abnormal lipid and lipoproteins, high blood pressure, high blood glucose, physical inactivity, overweight, and obesity (Shukri *et al.*, 2016).WHO noted that cardiovascular disease has no geographic, socio-economic, or sex boundaries. It is estimated that far from being confined to the most developed countries, cardiovascular disease is the leading cause of death in developing countries as well.

Hypertension is a major contribution to the global disease burden (Gasparyan, 2012). It poses an important public health challenge to both economically developing and developed countries including Asia. Hypertension presents the highest attributable risk to deaths from cardiovascular

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disease and epidemiological data provides persuasive evidence that the risk of cardiovascular disease-related to blood pressure is evaluated and constant.There are several risk factors contributing to hypertension, such as age, gender, and ethnicity. It is common in men over 45 years and women over 55 years. Family history showing overweight and obese is also additional risk factors. Other lifestyle factors that contribute to hypertension are smoking, tension, high cell phone usage, and less physical activity, being alcoholic, reduced potassium intake, and increased salt intake (Moser and Sowers, 2009; Cicero, 2016).

Cardiovascular disease is a group of disorders involving the heart and blood vessels. they include a range of related conditions including coronary cardiovascular disease, vessel disease, rheumatic cardiovascular disease, congenital heart disease, deep vein thrombosis, and other related conditions.cardiovascular disease is the leading cause of deaths in developed and developing countries (BNF (British Nutrition Foundation), Stanner and Coe, 2019; Negesa*et al.*, 2020). It is anticipated to rise to 23.3 million by 2030. Cardiovascular disease is one of the most modifiable causes of death in the world, due to the fact risk factors are controllable, hypertension, diabetes, obesity, smoking. The social and environmental causes of cardiovascular disease and stroke have been identified, and educational population-based prevention programs could result in a significant decrease in cardiovascular morbidity and mortality. knowledge about cardiovascular disease and its modifiable risk factors is a vital prerequisite to change a patient's health attitudes, behaviors, and lifestyles.

The disease will increase in India and this country will be host to more than half the cases of heart disease in the world. Cardiovascular disease is increasing nowadays among IT professionals. Lifestyle-related behavioral risk factors are mainly implicated for this increased burden and research related to these risk factors among IT professionals is essential. A limited study was conducted about cardiovascular risk factors among IT professionals.

Our team has previously done various researches in field like cancer (Menon, V and Gayathri, 2016; G *et al.*, 2018; Jainu, Priya and Mohan, 2018; Ke*et al.*, 2019; Ma *et al.*, 2019) , nanotechnology (Wang *et al.*, 2019; Wu *et al.*, 2019; Li *et al.*, 2020), animal studies (Gan*et al.*, 2019; Ponnulakshmi*et al.*, 2019), studies on plant extracts (Rengasamy*et al.*, 2016, 2018) and active constituents (Mohan, Veeraraghavan and Jainu, 2015; Chen *et al.*, 2019).The aim of the present study is to assess the awareness of cardiovascular disease risk factors among IT professionals.Our team has rich experience in research and we have collaborated with numerous authors over various topics in the past decade (Ariga*et al.*, 2018; Basha, Ganapathy and Venugopalan, 2018; Hannah *et al.*, 2018; Hussainy*et al.*, 2018; Jeevanandan and Govindaraju, 2018; Kannan and Venugopalan, 2018; Kumar and Antony, 2018; Manohar and Sharma, 2018; Menon *et al.*, 2018; Nandakumar and Nasim, 2018; Nandhini, Babu and Mohanraj, 2018; Ravinthar and Jayalakshmi, 2018; Seppan*et al.*, 2018; Teja, Ramesh and Priya, 2018; Duraisamy*et al.*, 2019; Gheena and Ezhilarasan, 2019; Hema Shree *et al.*, 2019; Rajakeerthi and Ms, 2019; Rajendran *et al.*, 2019; Sekar*et al.*, 2019; Sharma *et al.*, 2019; Siddique *et al.*, 2019; Janani, Palanivelu and Sandhya, 2020; Johnson *et al.*, 2020; Jose, Ajitha and Subbaiyan, 2020).

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MATERIALS AND METHODS

An online survey was conducted among 100 IT professionals based on their awareness of cardiovascular risk factors. This online survey consisted of 15 questions that were distributed to the study population through google forms. Salient points covered in the questionnaire include job setting, symptoms of heart attack, and risk factors like stress, blood pressure, family history, obesity, diabetes, and an unhealthy diet. The questionnaire validity checking was done in a standard manner. The data collection and study analysis were done in the year 2020.

The data which was collected was analyzed using Statistical Package for Social sciences (SPSS) software. The Pearson Chi square analysis was in association with the different age groups of the respondents.

RESULT AND DISCUSSION

Our institution is passionate about high quality evidence based research and has excelled in various fields ((Pc, Marimuthu and Devadoss, 2018; Ramesh *et al.*, 2018; VijayashreePriyadharsini, SmilineGirija and Paramasivam, 2018; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Ramadurai*et al.*, 2019; Sridharan *et al.*, 2019; VijayashreePriyadharsini, 2019; Chandrasekar *et al.*, 2020; Mathew *et al.*, 2020; R *et al.*, 2020; Samuel, 2021)

Figure 1 represents the age of the participants ,23% of the respondents were less than 25 years, 42% were between 25 to 35 years, 31% were between 35 to 45 years ,4% were above 45 years. Figure 2 represents the gender of participants among which 64% were female and 28% were male . Figure 3 represents the job setting of the participants in which 30% said their job setting is active, 49% said they have limited activity, 15% said it is sedentary, and 6% have strenuous activity. Figure 4 represents the activity level outside the workplace, where 31% said it was active, 12% said it was strenuous, 22% said it was sedentary and 35% said it was limited activity. Person Chi square test showed that most of the members of 25 to 35 years said sudden weakness of upper and lower limb as the symptom of cardiovascular disease (Figure 5) but it is not statistically significant (p value=0.24) .Figure 6 depicts that 57% of the participants were not aware of the symptoms of cardiovascular disease and 43% was aware of symptoms. Figure 7 represents participant's awareness on risk factors of cardiovascular diseases, among which 32% were aware, 33% were not aware and 35% responded as may be aware. Figure 8 represents the participant's view on high blood pressure as a risk factor among which 30% responded as yes ,42% responded as no and 28% said it may be a risk factor. Most of the participants in the age group of 25-35 years (18 participants) were not aware of blood pressure as a risk factor (figure 9) but it is not statistically significant (p value=0.67). Figure 10 represents participants' awareness of stress as a risk factor among which 35% were aware, 31%-were not aware, and 34% said it may be a risk factor. Most of the participants in the age group of 25-35 years (14%) were aware that stress is a major risk factor of cardiovascular disease(figure 11),but it is not significant(p value=0.98). Figure 12 represents the awareness of family history as a risk factor, of which 31% were aware, 28% were not aware, and 41% said it may be a risk factor. Figure 13 represents awareness on whether a sedentary lifestyle is also a risk factor for cardiovascular disease, 30% of

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the respondents said yes it is a risk factor, 38% said no it is not a risk factor, 32% said it may be a risk factor. Participants in the age group of 25-35 years (14 participants) were aware of sedentary lifestyle as a risk factor of cardiovascular disease (figure 14) but it is not statistically significant (p value=0.238). Figure 15 depicts whether obesity is a risk factor, for which 29% said yes, 35% said no, 36% it may be a risk factor. Participants in the age group of 25-35 years (14 participants) were aware of obesity as a major risk factor(figure 16) but it's not statistically significant (p value=0.58). Figure 17 represents the awareness of diabetes as a risk factor, for which 23% were aware,28% were not aware,49% said it may be. Figure 18 represents that regular exercise can prevent cardiovascular disease for which 39% said yes it can, 27% said no and 34% said it may prevent. Most of the participants in the age group of 25-35 years were aware that regular exercise can prevent the risk of cardiovascular disease(figure 19) but it is not statistically significant(p value=0.42) Figure 20 represents whether unhealthy diet is a major risk factor, for which 25% said yes it is a risk factor, 33% said no and 42% said it may be a risk factor.

CONCLUSION

Within the limits of study knowledge and awareness about cardiovascular disease risk factors was evaluated. Upon evaluation it was found that IT professionals had a low level of knowledge about cardiovascular risk factors. The study also revealed that there is no association between the age and awareness of the respondents. For further augmentation, awareness should be created through various programs and published to the public.

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AUTHOR CONTRIBUTIONS

P.G. Sushma made contributions by collecting the data and drafting the manuscript. Dr. Kavitha S designed the study, revised the manuscript critically for important intellectual content and finally approved the version to be submitted. Dr. V. Vishnupriya and Dr.R.Gayathri contributed in approving the final version of manuscript

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57. The major limitation of this study was the small sample size. The future scope of this study is to increase the sample size which will help to expand the awareness among more populations.

FIGURE TITLES

Figure 1:This pie chart represents the percentage distribution of age of the respondents.

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Figure 2:This pie chart represents the percentage distribution of the gender of the respondents.
Figure 3:This pie chart represents the percentage distribution of the job setting of the respondents.
Figure 4:This pie chart represents the percentage distribution of the level of activity outside their workplace of the respondents.
Figure 5:This pie chart represents the percentage distribution of the awareness about symptoms of heart attack.
Figure 6: Bar chart representing association between age of the participant and knowledge on symptoms of cardiovascular disease.
Figure 7: This pie chart represents the percentage of awareness about the risk factors of cardiovascular disease.
Figure 8: This pie chart represents the percentage of participants' awareness on high blood pressure is a major risk factor for cardiovascular disease.
Figure 9: Bar chart representing association between age of the participants and awareness on high blood pressure a major factor of cardiovascular disease.
Figure 10-This piechart represents the percentage of participants' awareness on stress is a major risk factor for cardiovascular disease
Figure 11-Bar chart representing association between age of the participants and awareness on stress as a major risk factor of cardiovascular disease.
Figure 12: This pie chart represents the percentage of participants' awareness on family history as a major risk factor for cardiovascular disease.
Figure 13: This pie chart represents the percentage of participants' awareness on sedentary lifestyle is a major risk factor for cardiovascular disease.
Figure 14: Bar chart representing association between age of the participant and awareness on sedentary lifestyle as a major risk factor of cardiovascular disease.
Figure 15: This pie chart represents the percentage of participants' awareness on sedentary obesity is a major risk factor for cardiovascular disease.
Figure 16: Bar chart representing association between and participants awareness on obesity is a major risk factor of cardiovascular disease.
Figure 17: This pie chart represents the percentage of participants' awareness on sedentary lifestyle as a major risk factor for cardiovascular disease.
Figure 18: This pie chart represents the percentage of participants' awareness that regular exercise can prevent cardiovascular disease.
Figure 19: Bar chart representing association between age of the participant and awareness on regular exercise can prevent the risk of cardiovascular disease.
Figure 20 :This pie chart represents the percentage of participants’ awareness on unhealthy diet as a major risk factor for cardiovascular disease.

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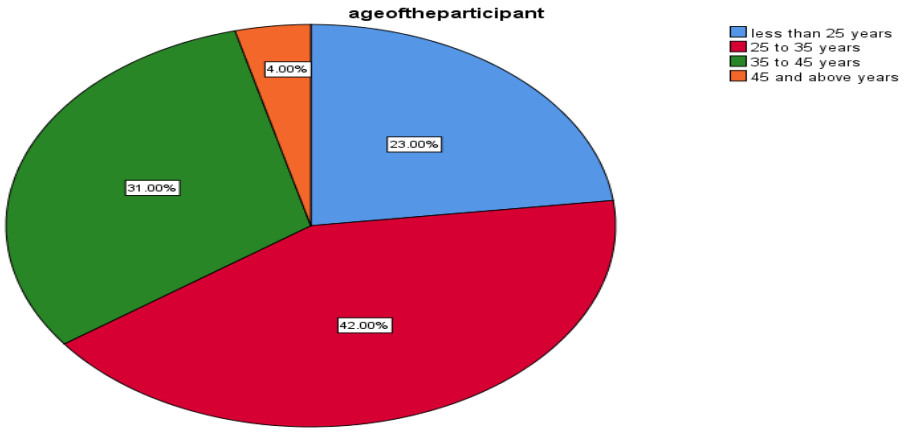

Figure 1:This pie chart represents the percentage distribution of age of the respondents.colour blue represents less than 25 years, colour red represents 25 to 35 years, colour green represents 35 to 45 years and colour orange represents 45 years and above. Majority of the respondents were in the age group of 25-35 (42%), followed by 35-45 years (31%), less than 25 years (23%), and above 45 years (4%).

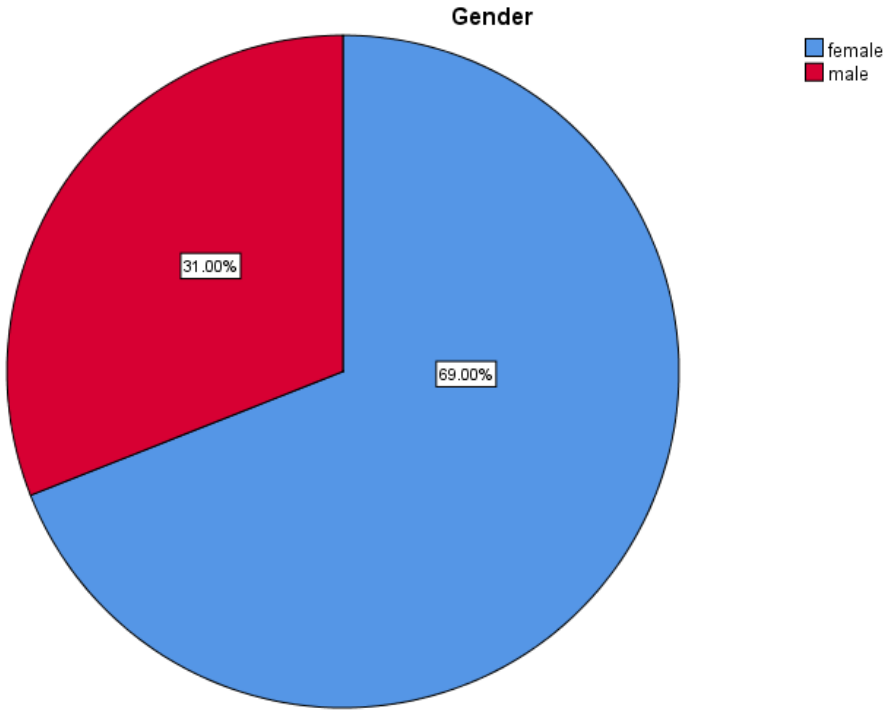

Figure 2:This pie chart represents the percentage distribution of the gender of the respondents. Blue colour represents female and red colour represents male Most of the participant were female (69%) and followed by male (31%).

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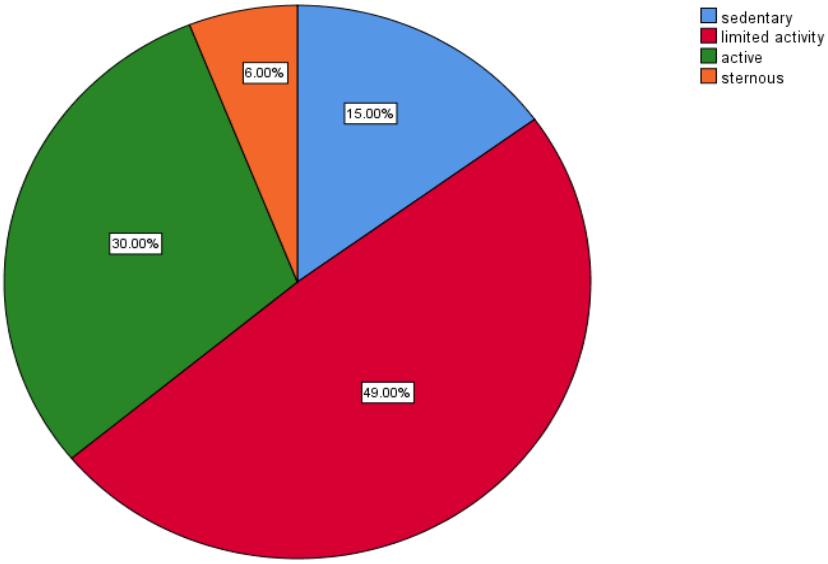

Figure 3:Thispie chart represents the percentage distribution of the job setting of the respondents. Colour blue represents sedentary, red represents limited activity,green represents active and orange represents strenuous. Majority of the respondents choose their job setting as limited activity (49%), followed by active (30%), then sedentary (15%), and strenuous(6%).

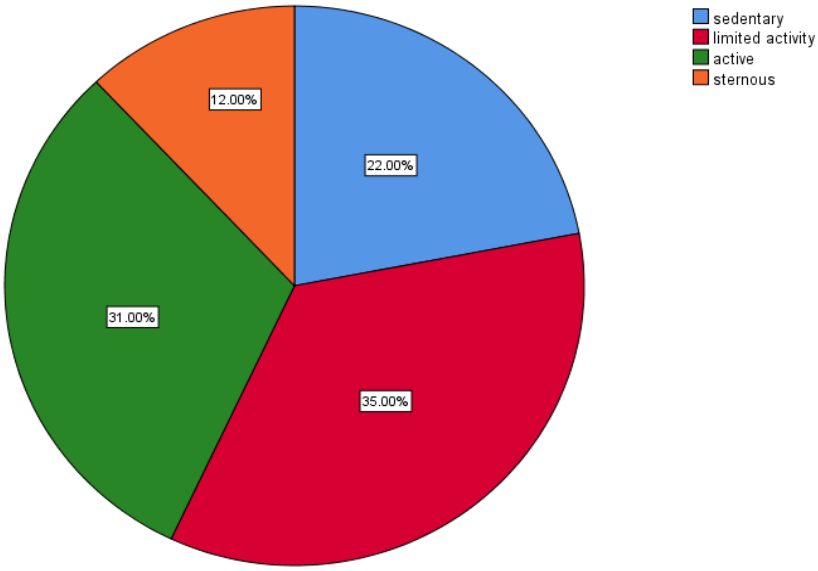

Figure 4:This pie chart represents the percentage distribution of the level of activity outside their workplace of the respondents. Colour blue represents sedentary,red represents limited activity,green represents active and orange represents strenuous. Majority of the respondents said their activity level outside workplace was limited activity(35%), followed by active(31%), strenuous(12%), sedentary(22%).

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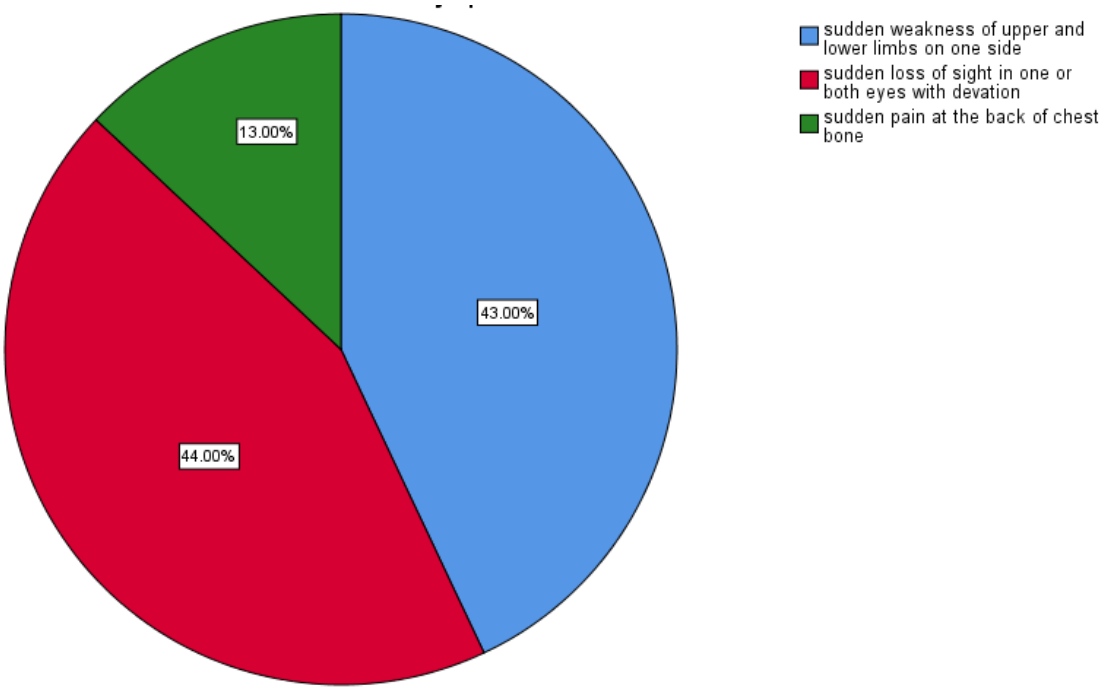

Figure 5:This pie chart represents the percentage distribution of the awareness about symptoms of heart attack. blue colour represents sudden weakness of upper and lower limbs on one side, red colour represents sudden loss of sight in one or both eyes,greencolour represents sudden pain at the back of the chest bone. 57% of the participants were not aware of heart attack symptoms and 43% were aware of the symptoms (43%).

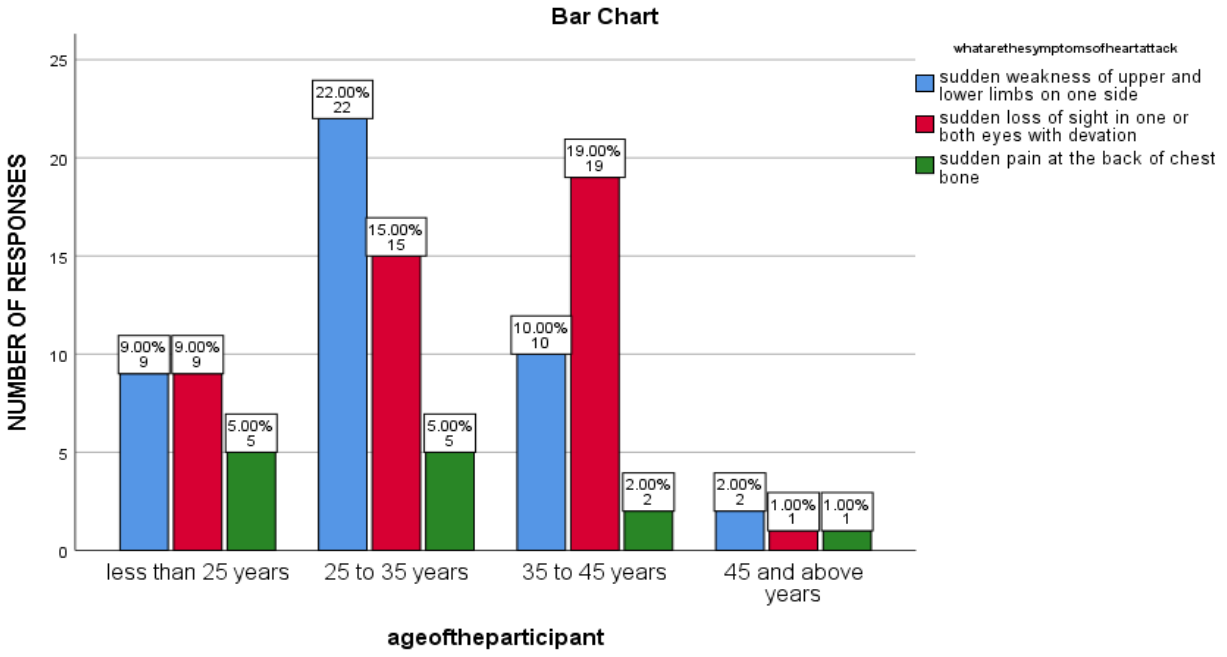

Figure 6: Bar chart representing association between age of the participant and knowledge on symptoms of cardiovascular disease. X axis represents the age of the participant and Y axis the number of responses. Blue colour represents sudden weakness of upper and lower limb, red colour represents sudden loss of sight in one or both eyes and green colour represents sudden

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pain at the back of the chest bone. Most of the participants aged between 25 to 35 years (22 participants responded as sudden weakness of upper and lower limb as the symptom of cardiovascular disease. Pearson Chi square value = 7.886, p value=0.247 (>0.05) and was found to be statistically not significant, proving that there is association between age of the participants and knowledge on symptoms of cardiovascular disease.

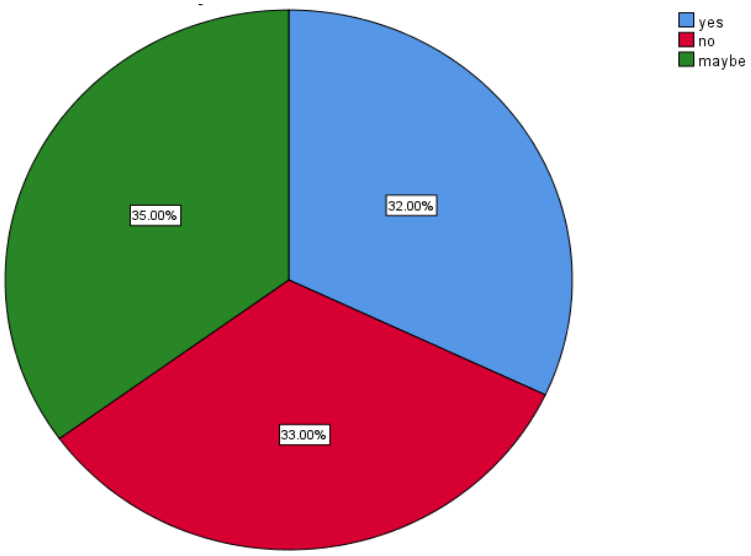

Figure 7: This pie chart represents the percentage of awareness about the risk factors of cardiovascular disease.colour blue represents yes, colour red represents no and colour green represents may be. Majority of the participants responded as may be(35%), followed those who were not aware of the risk factors (33%), and those who were aware of the risk factors (32%) .

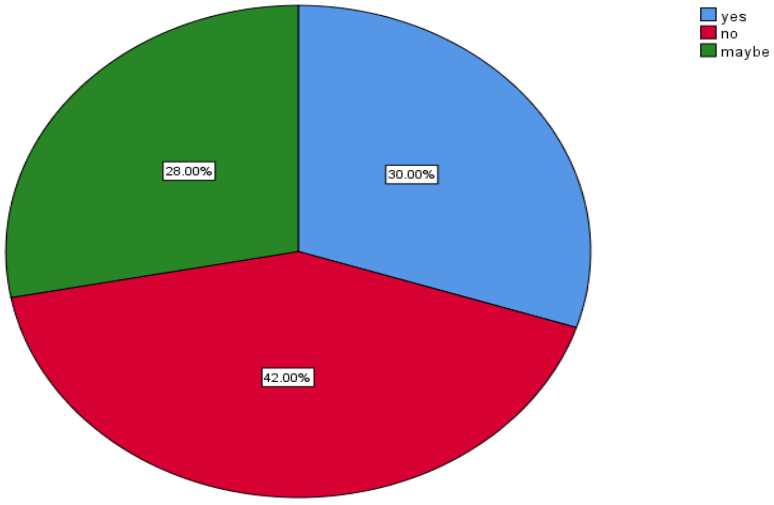

Figure 8: This pie chart represents the percentage of participants' awareness on high blood pressure is a major risk factor for cardiovascular disease. Colour blue represents yes, colour red represents no and colour green represents may be. Majority of the respondents were not aware (42%), followed by those who were aware (30%) and those who said may be (28%).

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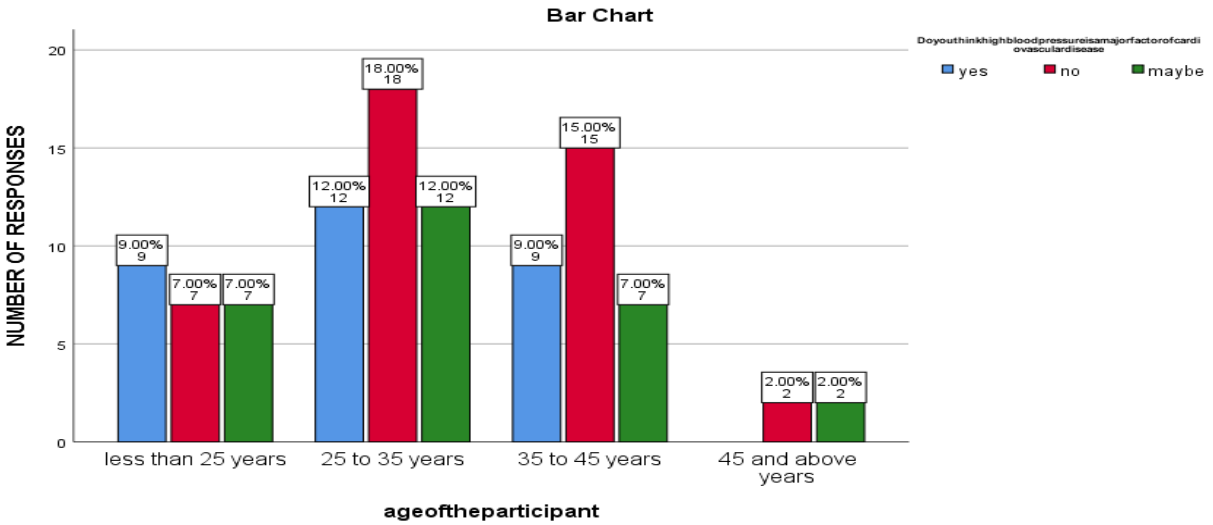

Figure 9: Bar chart representing association between age of the participants and awareness on high blood pressure a major factor of cardiovascular disease. X axis represents age of the participants and Y axis represents number of responses. Blue colour represents yes, redcolour represents no and green color represents may be. Most of the participants in the age group of 25-35 years (18 participants) were not aware of blood pressure as a risk factor. Chi square value=4.049, p value=0.67 (>0.05), statistically not significant, hence there is no association between age of the participants awareness on high blood pressure a major factor of cardiovascular disease.

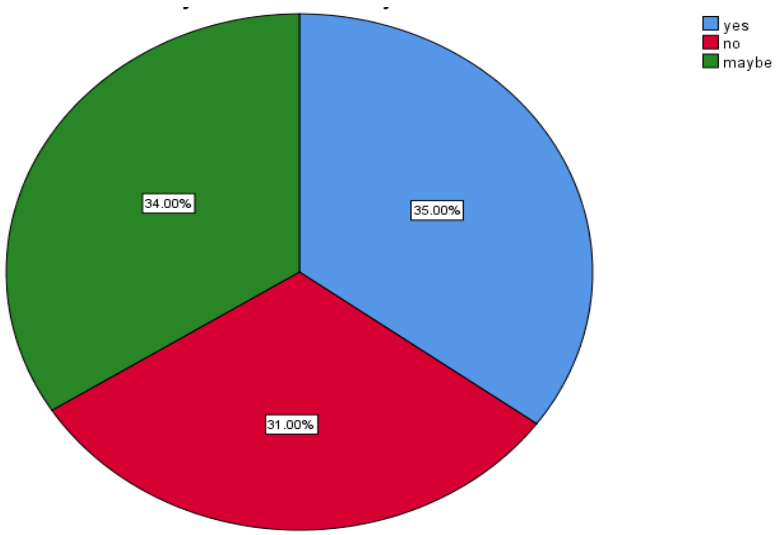

Figure 10-This pie chart represents the percentage of participants' awareness on stress is a major risk factor for cardiovascular disease .Colour blue represents yes,colour red represents no and colour green represents may be. Majority of the respondents were aware (35%), 31% were not aware, 34% said may be.

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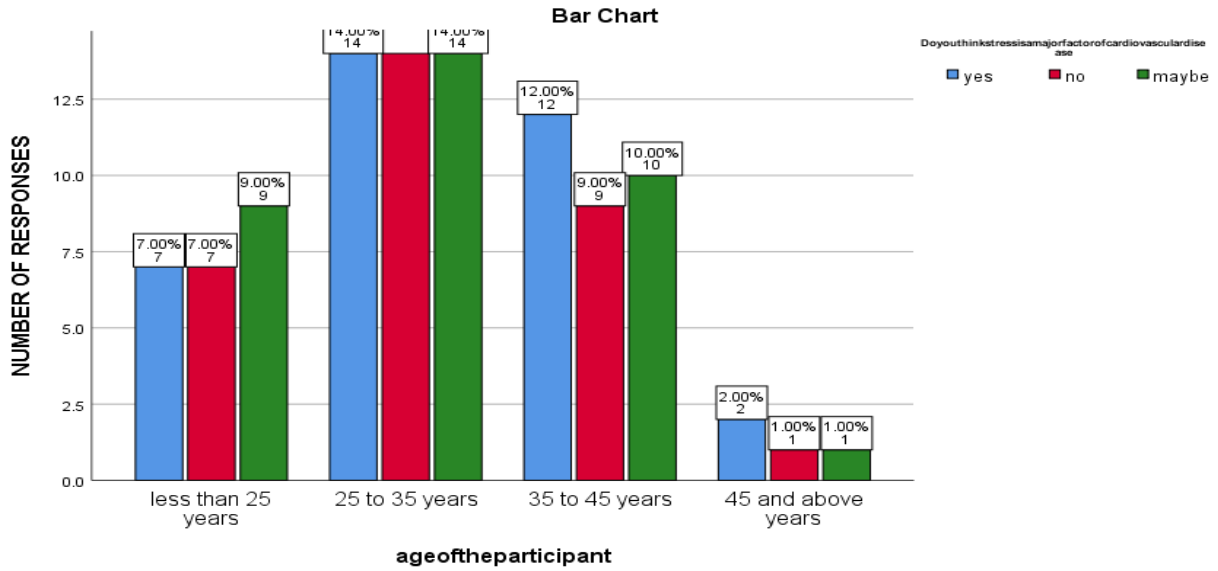

Figure 11-Bar chart representing association between age of the participants and awareness on stress as a major risk factor of cardiovascular disease. X axis represents age of the participants and Y axis represents the number of responses. Blue colour represents yes, red colour represents no and green colour represents may be. Most of the participants in the age group of 25-35 years (14 participants) were aware that stress is a major risk factor of cardiovascular disease. Chi square value was 1.017, P value =0.985(>0.05), statistically not significant, hence there is no association between age of the participant and awareness on stress as a major risk factor of cardiovascular disease.

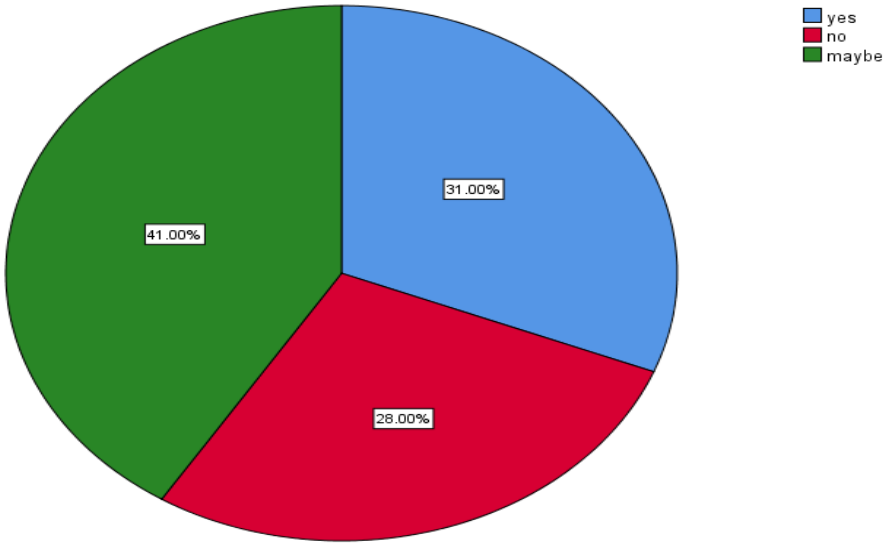

Figure 12: This pie chart represents the percentage of participants' awareness on family history as a major risk factor for cardiovascular disease. Colour blue represents yes, colour red represents no and colour green represents may be. Majority of respondents said that it may be a risk factor (41%), followed by those who were aware (31%), and those who were not aware (28%).

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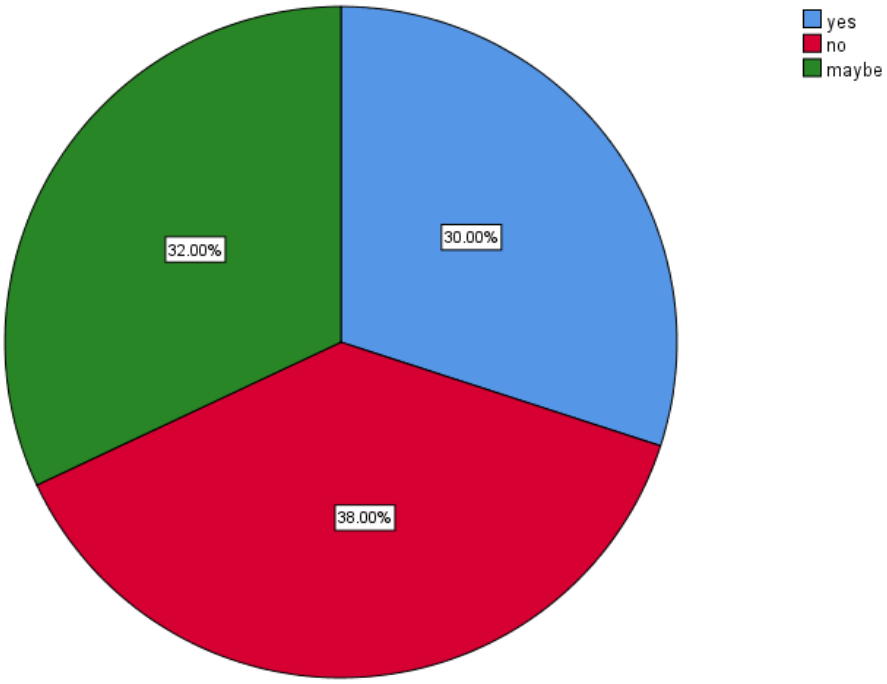

Figure 13: This pie chart represents the percentage of participants' awareness on sedentary lifestyle is a major risk factor for cardiovascular disease. Colour blue represents yes, colour red represents no and colour green represents may be. Majority of the respondents were not aware (38%), followed those who said it may be a risk factor, and those who were aware (30%).

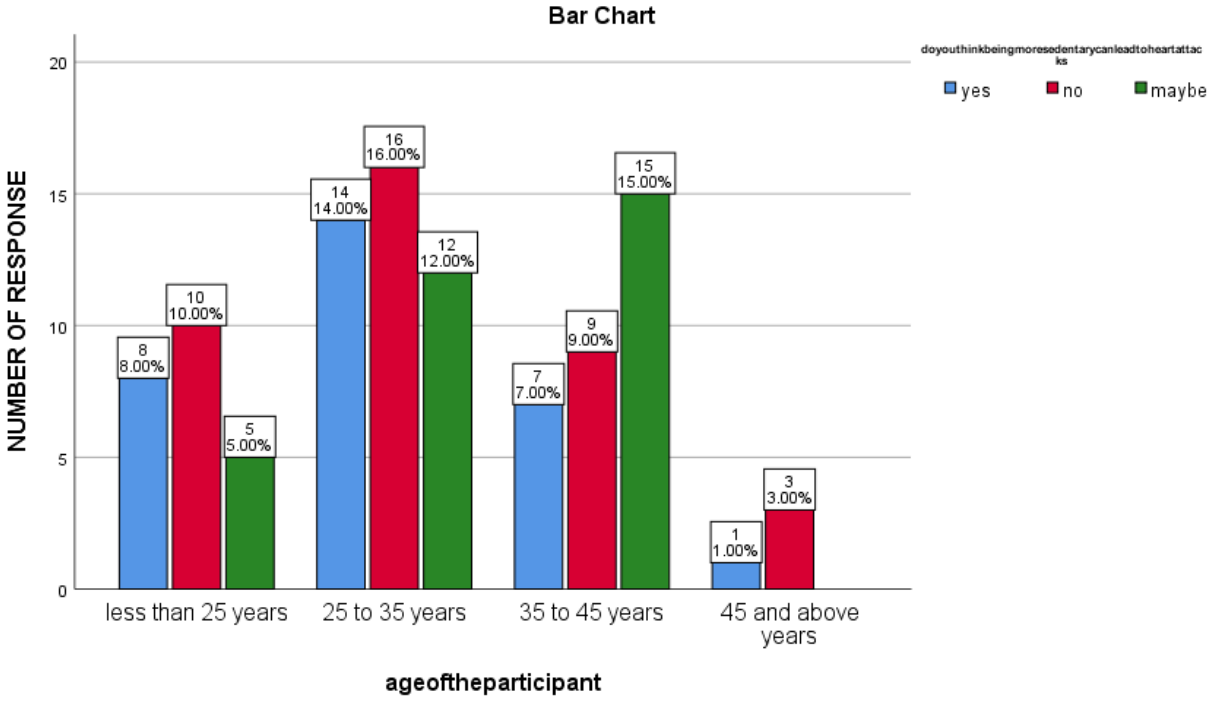

Figure 14: Bar chart representing association between age of the participant and awareness on sedentary lifestyle as a major risk factor of cardiovascular disease. X axis represents age of the

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participant and Y axis represents number of responses. Blue colour represents yes, red colour represents no and green colour represents may be. Most of the participants in the age group of 25-35 years (16 participants) were not aware of sedentary lifestyle as a risk factor of cardiovascular disease. Pearson Chi square value = 8.004, p value=0.23 (>0.05) which is statistically not significant, hence there is no association between age of the participant and awareness on sedentary lifestyle is a major risk factor of cardiovascular disease.

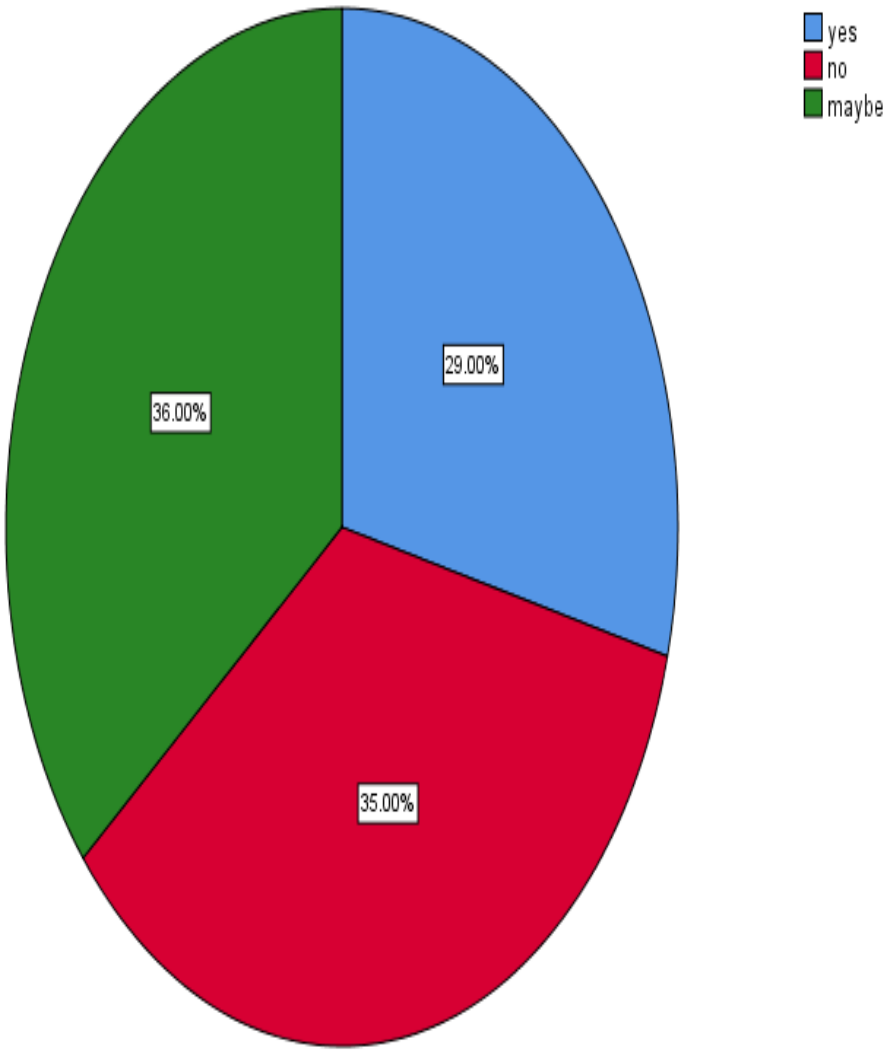

Figure 15: This pie chart represents the percentage of participants' awareness on sedentary obesity is a major risk factor for cardiovascular disease. Colour blue represents yes,colour red represents no and colour green represents may be. Majority of the respondents said may be (36%), followed by said no (35%) and said yes (29%) .

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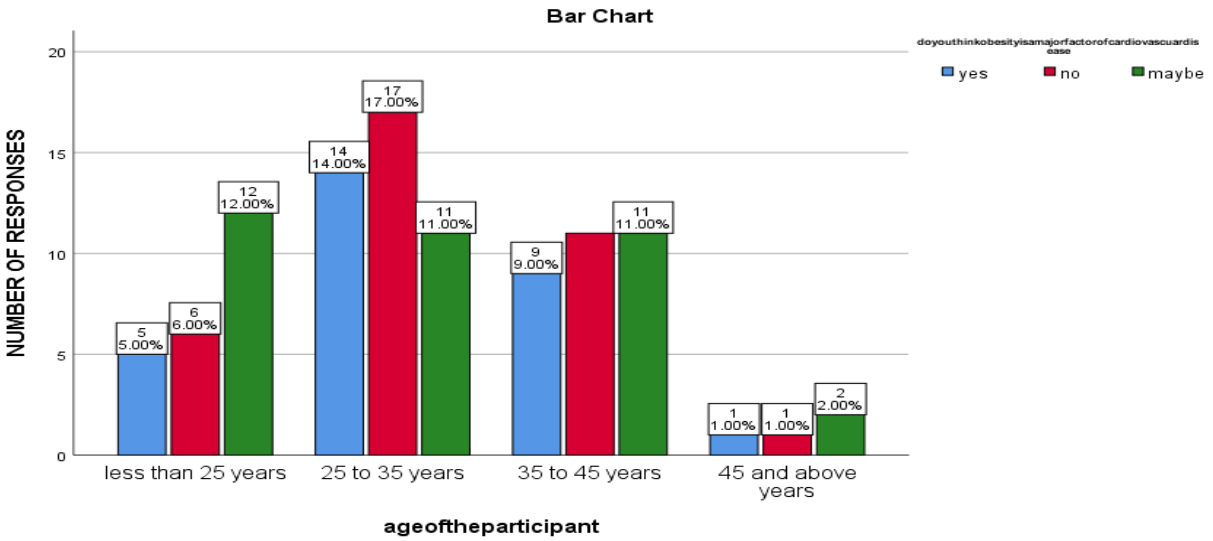

Figure 16: Bar chart representing association between and participants awareness on obesity is a major risk factor of cardiovascular disease. X axis represents age of the participant and Y axis represents number of responses. Blue colour represents yes, red colour represents no and green colour represents may be. Majority of the participants in the age group of 25-35 years (17 participants) were not aware of obesity as a major risk factor. Pearson Chi square value = 4.724, p value=0.58 (>0.05), which was found to be statistically not significant, hence there is no association between age of the participants and awareness on obesity as a major risk factor of cardiovascular disease.

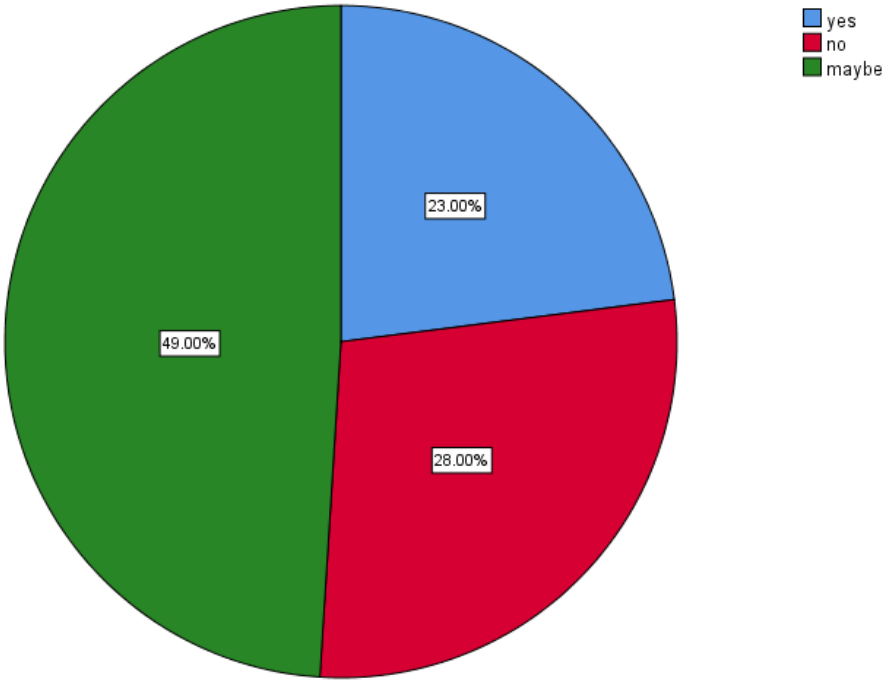

Figure 17: This pie chart represents the percentage of participants' awareness on sedentary lifestyle as a major risk factor for cardiovascular disease. Colour blue represents yes, colour red

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represents no and colour green represents may be. Majority of the respondents said it may be a risk factor (49%), followed by those who said said no (28%) and those who said yes (23%).
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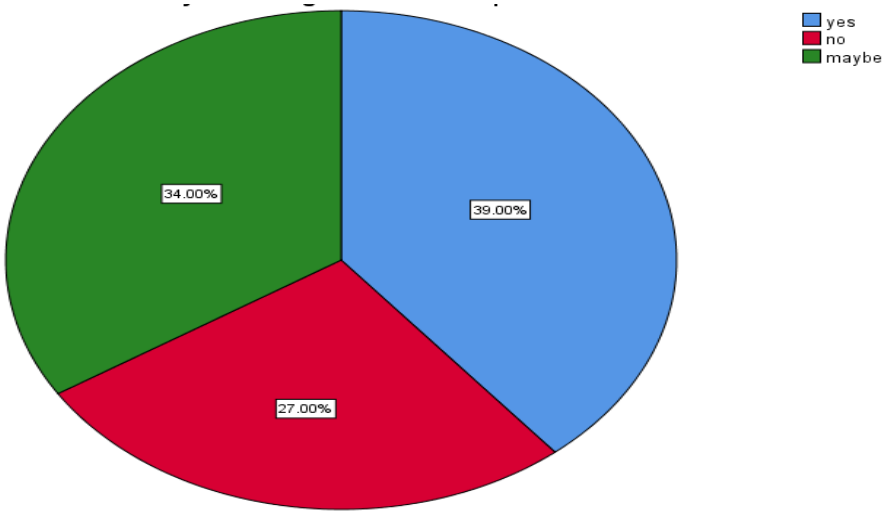

Figure 18: This pie chart represents the percentage of participants' awareness that regular exercise can prevent cardiovascular disease. Colour blue represents yes, colour red represents no and colour green represents may be. Majority of the respondents were aware (39%), followed those who said it may prevent (34%) and those who were not aware (27%).

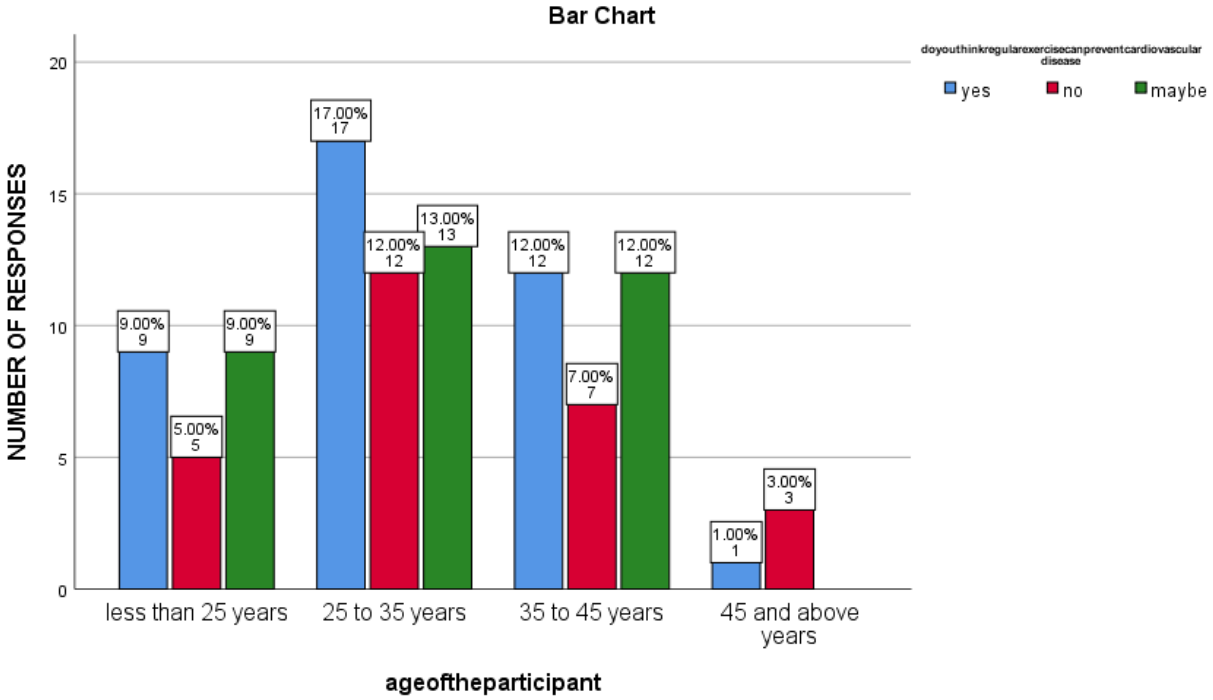

Figure 19: Bar chart representing association between age of the participant and awareness on regular exercise can prevent the risk of cardiovascular disease. X axis represents age of the participant and Y axis represents number of responses. Blue colour represents yes, red colour

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represents no and green colour represents may be. Most of the participants in the age group of 25-35 years (17 participants) were aware that regular exercise can prevent the risk of cardiovascular disease. Pearson Chi square value = 5.992, p value=0.42 (>0.05), which is statistically not significant, proving that there is no association between age of the participant and awareness of regular exercise can prevent the risk of cardiovascular disease.

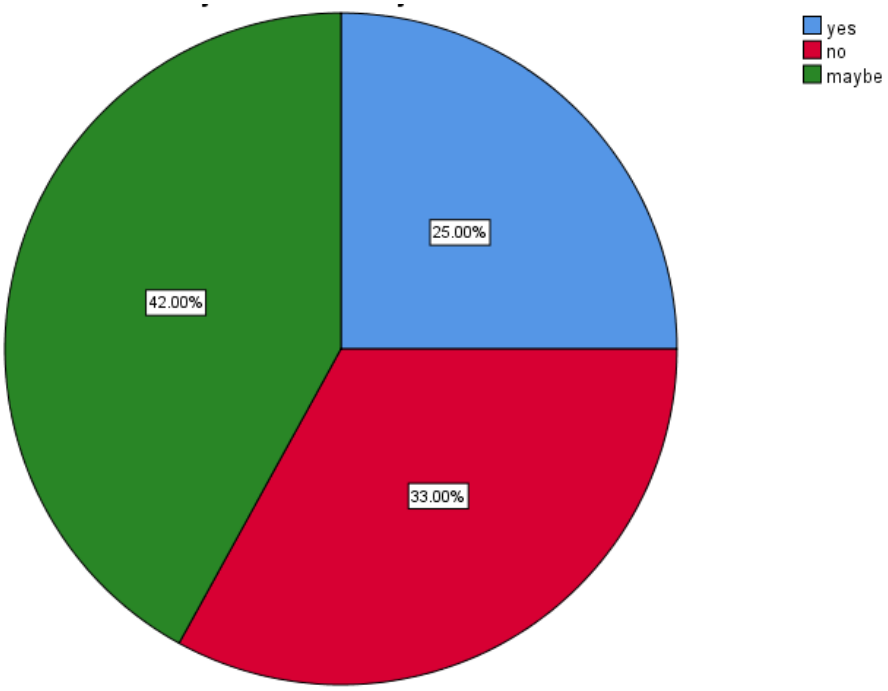

Figure 20 :This pie chart represents the percentage of participants' awareness on unhealthy diet as a major risk factor for cardiovascular disease. Colour blue represents yes, colour red represents no and colour green represents may be. Majority of the respondents said an unhealthy diet may be a risk factor (42%) followed by those who were aware (33%), and those who were not aware (25.5 %).