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Research Article

Assess the relationship between stress and occurrence of cardiac symptoms among working adults

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Abstract

Cardiovascular disorders are one of the leading causes for mortality in India. As development has taken place, lifestyle modification has occurred increasing the stress levels and also many other health problems. Objective: To assess the incidence of stress and occurrence of cardiac symptoms among working adults and to find the relationship of stress with occurrence of cardiac symptoms among working adults and to find the relationship of stress and occurrence of cardiac symptoms with selected demographic variables among working adults. Study design: Non-experimental survey design was used to conduct the study. It was an exploratory study. Data was collected from the participants using a structured questionnaire tool. Study setting: The study was conducted in selected areas. Selected areas included police stations, auto-rickshaw stands, bus depots, petrol pumps, shopping malls, college, and hospital. Participants- Based on the inclusive criteria, 100 samples were selected who were employed working adults in the age group of 20-60 yrs. Result- The findings of the study were analysed using fisher's exact test and the result showed that the corresponding p-value was small (less than 0.05), the null hypothesis is rejected. And therefore there is significant association between stress and respiratory symptoms. Demographic variables viz., Education, Duty hours, Shift, Workload, Marital status and living with family were found to have significant association with stress and occurrence of cardiac symptoms among working adults. Conclusion: Thus the study concluded that there is significant relation between stress and cardiac symptoms among working adults.

Keywords: Stress, cardiac symptoms, working adults.

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1. Introduction

People's life has become more demanding, complicated, mechanical and dependent running by the clock. Ever increasing needs and aspirations, high competition, pressures of meeting deadlines, uncertainity of future and weak social support system have made the life of people stressful in modern societies.

Background and need of the study

Ruiz et al., 2009 states that the links between emotion and sudden cardiac death have been noted in sources as diverse as the Bible, anthropology, and clinical experiences. Atherosclerosis is now thought to be an inflammatory process that involves a series of steps, each of which can be impacted by stress or depression. Psychological and physical stressors lead to an increased release of proinflammatory cytokines and expression of adhesion molecules that bind immune cells to the vascular endothelium this may also contribute to mortality risk in cardiac disease population.[1]

According to **Gelder et.al (2009)** sympathetic nervous system stimulation which increases heart rate, can trigger ectopic sites in the myocardium, which override normal conductive pathways, producing potentially fatal dysrhythmias. Therefore, anxiety and stress may increase the risk of dysrhythmia. Similarly, constitutional and stress related factors contribute to hypertension.[2]

Occupational stressors contribute to organizational inefficiency, high staff turnover, absenteeism due to sickness, decreased quality, and quantity of practice, increased costs of health care, and decreased job satisfaction. When there is a prolonged experience of occupational stress, it leads to professional burnout. Professional stress or job stress poses a threat to physical health. Work related stress in the life of organized workers, consequently, affects the health of organizations.[3]
According to **John Phillip**, certified Nutritional Consultant and Health Researcher, job-related stress is a significant risk factor in the development of heart disease. Stress is a significant, independent risk factor leading to the development of heart disease.[4]

Statement of problem

An exploratory study to assess the relationship between stress and occurrence of cardiovascular symptoms among working adults in selected area.

Objectives of the study

1. To assess the incidence of stress and occurrence of cardiac symptoms among working adults.
2. To find the relationship of stress with occurrence of cardiac symptoms among working adults.
3. To find the relationship of stress and occurrence of cardiac symptoms with selected demographic variables among working adults.

Scope of the study

1. As the first and major step in the nursing process is assessment which involves collection, organization and analysis of information related to health, this study will help in assessing stress and occurrence of cardiac symptoms among working adults.
2. It will serve as a useful base in understanding the present scenario of Indian working adults and the effect of job related stress on cardiac symptoms.
3. As working environments tend to have greater stress, in future, with the help of this study planning of management of stress and health promotion programs for working adults can be done in order to manage stress among the working adults.
4. There is scope of community health nurse to identify problems related to cardiovascular status at early stage and early referral to health care centers. The study will enhance the professional image of nursing, by expanding the role of nurse in the community.
5. This study can be used for further reference and may form the basis for further studies in this field.

Assumption

The study assumes that –

- All working adults have stress related to their work.
- Stress leads to cardiac symptoms like palpitations, tachycardia, bradycardia etc.
- Increased frequency of cardiac symptoms indicate impending heart disorder.

Hypothesis

1. **H_0**- There will be no relation between stress and occurrence of cardiac symptoms among working adults at 0.05 level of significance.
2. **H_1**– There will be relation between stress and occurrence of cardiac symptoms among working adults at 0.05 level of significance.

Limitations

The study is limited to –

- Working adults who can read, write speak English and Marathi.
- Working adults who belong to the age group of 20-60 years.
- 100 participants.
- Working adults who are willing to participate in the study.

Ethical aspect

Following measures were taken to ensure not to violate the rights of the institute and subjects participating.

1. Written consent was obtained from the organization management authorities prior conducting the main study.
2. Written informed consent was obtained from subjects after explaining the purpose of the study to them in language they understood. Their queries were clarified.
3. Confidentiality of information was maintained by using code numbers instead of names of the participant group.
4. Participants had the right to leave the study if they wished to.

Research methodology

Introduction

Research methodology is a way by which research problems are systematically solved. It may be understood as all those methods or techniques that are used for conducting research.

The methodology of this study includes research approach, design, setting of the study, description of population, sample, and sampling technique, developing and testing of the tool, method of data collection and plan of data analysis.

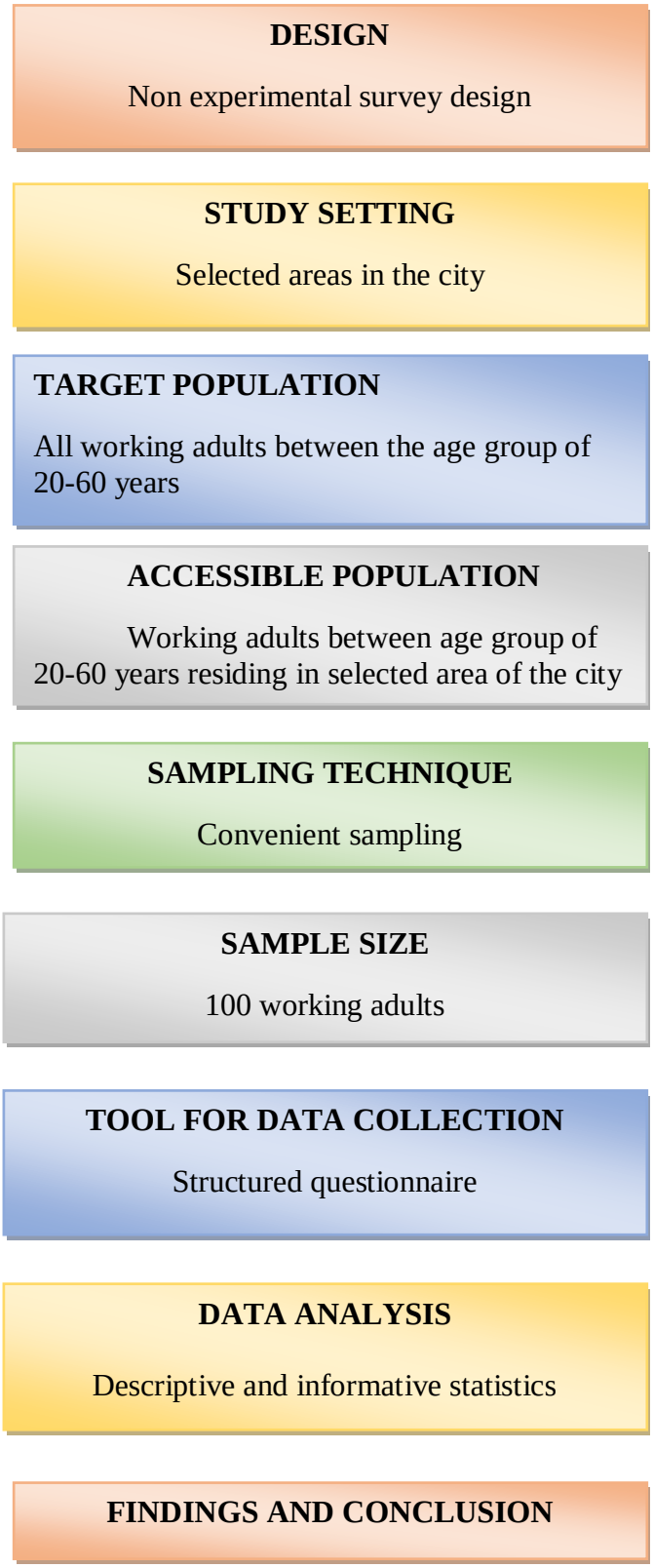
Research approach

According to **Polit and Hungler (2008)** research approach is a systematic, objective method of discovering with empirical evidence. Research approach is the most significant part of any research. The appropriate choice of the research approach depends upon the purpose of the research study which has been undertaken. In order to accomplish the main objectives of the study, a descriptive approach was selected.[5]

Research design

Basvanthappa BT (2009) state that research design is the overall plan for obtaining answers to the questions being studied and for handling some of the difficulties encountered during the research process. The design adopted for present study was non experimental survey design.[6]

Fig: 3 Schematic representation of research process



Variables under study:

Independent Variable: Stress
Dependent Variable: Cardiac symptoms

Setting of the study

Basvanthappa BT (2007) refers setting as the areas where the study is conducted. The present study was conducted in selected areas. Selected areas included police stations, auto-rickshaw stands, bus depots, petrol pumps, shopping malls, college, and hospital. The setting was chosen on the basis of feasibility in terms of the need of assessment of stress among working adults and availability of the participants. The reason for selecting these areas is administrative support and cooperation, availability of participants, convenience and transport.[5]

Population

According to Basvanthappa BT (2007) population refers to a total category of persons or objects that meets the criteria for the study established by the researcher, any set of persons, objects or measurements having an observable characteristics in common. The population for current study comprised of all the working adults between the age group 20-60 yrs. The above mentioned population was meeting the designated criteria of interest to the investigator.[6]

Target population

Polit and Beck (2008**)** define target population as the aggregate of cases about which the researcher would like to generalize.[5]
The target population for the present study consists of all working adults between the age group of 20-60 years.

Accessible population

Sharma Suresh. K (2011**)** states accessible population is the aggregate of cases that conform to designated criteria and are also accessible as subjects for a study.[7]
The accessible population for the present study consists of working adults between the age group of 20-60 years in selected areas.

Sample

According to Polit and Hungler (2008) sample refers to the representative unit of population under study.[5]
Sample for the present study was working adults of age group 20-60 years in selected areas.

Sample size

Sample size comprised of 100 working adults of selected area.

Sampling technique

Sampling is the process of selecting representative units of the population under study. Convinient sampling technique was used to select the participants. The participants were selected from hospital, college, petrol pump, bus depot, police station, malls, shops, who were willing to participate in the study.

Sampling criteria

The following criteria were set for selection of the participants:

Inclusive criteria:

1. Working adults of age group 20-60 yrs.
2. Adults willing to participate in the study
3. Participant who can understand read and write Marathi or English

Exclusive criteria

1. Adults not willing to participate in the study
2. Adults who already have any heart related problem.

Development of tool

According to Polit and Hungler (2008) the various techniques of data gathering involves the use of appropriate recording forms. These are called as tools or instruments of data collection. Information gathered through the tools provides the description of characteristics of individuals' institutions or other phenomenon under study. The characteristics may help to explain differences in behavioral patterns and performance of the objects under study.[5]
The present study aims at assessing the stress and occurrence of cardiac symptoms among working adults. After an extensive review of literature and discussion with the experts, a research tool consisting of three sections structured questionnaire for assessing demographic data, a rating scale for stress and occurrence of cardiac symptoms of working adults in selected area was made.
The tool was developed by the investigator in context to stress and occurrence of cardiac symptoms among working adults.

Preparation of Questionnaire

Questionnaire was developed by the investigator after extensive review of literature regarding stress, and cardiac symptoms among working adults.

- Extensive review of literature
- Preparation of tool
- Consultation with experts
- Validation from experts.

Description of Questionnaire

The questionnaire comprises of 3 sections

Section I: Demographic data of the participant.

This section included items to obtain information regarding age, gender, education, occupation, years of experience, duty hours per day, duty shifts, and conflict with fellow members, working environment, and workload, any relaxation method used by participant, marital status, family members, and income. The type of occupation was categorized as heavy worker, moderate worker and sedentary worker depending upon the job that the participant performs. Individual performing any job where physical exertion is more was categorized as heavy worker. Individuals performing moderate physical exertion were considered as moderate workers. Sedentary worker was characterized by individual not performing much physical exertion or requiring much of sitting task.

Section II: Questionnaire to assess stress.

This section included a rating scale to assess the stress among working adults. Rating scale comprised of 18 questions to assess the symptoms of stress that the participant felt in the past one month of the study. The questions included, assessed the symptoms of stress that the participant presented during the past one month of the study. Questions included symptoms like feeling stressed in working conditions, difficulty concentrating at work, lack of sleep etc.

For each question, scoring was as follows:

If, the answer is 'Always', then the score is given as 2
The answer is 'sometimes', then the score given is 1
The answer is 'never', then the score given is 0
The maximum score for this section II rating scale was 36 and the minimum score was 0.
The rating scale score is graded in three categories

Table 3.1: Rating scale of stress.

Sr no.	Scoring	Category
1	0-12	Mild stress
2	13-24	Moderate stress
3	25-36	Severe stress

Section III: Questionnaire to assess cardiac symptoms.
This section included three sub-sections.

- Questions to assess the physiological parameters like pulse and blood pressure.
- Questions to assess the risk factors.
- Rating scale to assess the cardiac symptoms among the participants.

Questions to assess the cardiac symptoms were included in the questionnaire. For each question, scoring was as follows:

If the answer is Always then the score is given as 3
The answer is more often, then the score given is 2
If the answer is occasionally, then the score given is 1
If the answer is never, then the score given is 0
For cardiac symptoms, the maximum score obtained was 21 and the minimum score obtained was 0

The rating scale score is graded in three categories

Table 3.2: Rating scale of cardiovascular symptoms.

Sr no.	Scoring	Category
1	0-7	Mild cardiac symptoms
2	8-14	Moderate cardiac

		symptoms
3	15-21	Severe cardiac symptoms

Feasibility of the study

The purpose of feasibility is to prevent an expensive fiasco. The tool has been tested on 10 participants who were working adults, who are eligible for the study and the investigator found that the study is feasible keeping in mind time, availability of participants, ethical issues, equipments required and cost of the study. These participants have been excluded in the main study.

Pilot study

According to Basvanthappa BT (2007) pilot study is the small scale version of the actual study conducted with the purpose of testing and potentially refining the research plan.[6]

Pilot study was conducted in one week 24th October 2013 to 27thOctober 2013 which included participants who were working adults in age group 20-60 yrs. Formal administrative permission was obtained prior conducting pilot study. 10 participants were selected. After a brief self-introduction, the purpose of the study was explained to the participants. Prior consent was taken from the participants. Data was collected from the participants using the tool. The duration of data collection for each sample was 15 to 20 min. No flaw was found and so the study was accepted.

Validity

According to Polit and Hungler (2008) validity refers to the degree to which an instrument measures what it is supposed to measure.[5]

Content validity is concerned with the sampling adequacy of items, for the construct that is being measured. After the expert opinions, the final tool was made as a three section tool and an objective component of pulse and blood pressure was added.

Reliability

According to Basvanthappa BT (2007) reliability of research tool is defined as the extent, to which the instrument yields the same results on repeated measures. It is then concerned with consistency, accuracy, precision, stability, equivalence and homogeneity.[6]
After validation of the tool, the final tool was made and its reliability was checked. Tool was administered to 10 participants selected as per the criteria. Reliability of the research tool was assessed using test retest method. The time taken per respondent was 15-20 minutes. A tool is considered reliable when Pearson's correlation coefficient is more than 0.70. Pearson's correlation was found to be 0.89. Hence the tool is reliable.

Data collection procedure

a) Permission from concerned authority

Formal administrative permission was obtained from the head of department of selected police station, hospital, college, to conduct the main study. The research study has been conducted in police station, bus depot, auto stand, hospital, college, shops, malls, petrol pump of selected area. After a brief self-introduction, the purpose of the study was explained to the concerned authority.

b) Period of data collection

Data collection was done for 4 weeks from 7 November to 26 November 2013. Each day around 10-12 participants were assessed. Total 100 participants were selected by purposive sampling technique.

Plan for data analysis
The collected data has been organized, tabulated and analyzed by using descriptive statistics, i.e. percentage, and frequency whereas Fisher exact test has been used to analyze association between stress, cardiac symptoms and selected demographic variables of the study. In this study, heavy workers included staff nurses and physiotherapists; moderate workers included police officers, auto drivers, bus drivers, bus conductors, shop keepers, petrol pump workers, company employees, and teachers; sedentary workers included clerk, businessman, manager, call center workers, software engineers, receptionist, and accountants.

Data analysis and interpretation
The data is analyzed according to the objectives of study.
The analysis of the collected data is done with the help of descriptive and inferential statistics. Frequency, percentage has been used for descriptive analysis whereas Fisher Exact test is used for inferential analysis.

Organization of the findings
The data is analyzed and presented in the following sections:
Section I: Distribution of participants in relation to demographic data.
Section II: Analysis of data related to the incidence of stress
Section III: Analysis of data related to incidence of cardiac symptoms
Section IV: Analysis of the relationship of stress with occurrence of cardiac symptoms among working adults
SECTION V: Analysis of relationship of stress and occurrence of cardiac symptoms with selected demographic variables

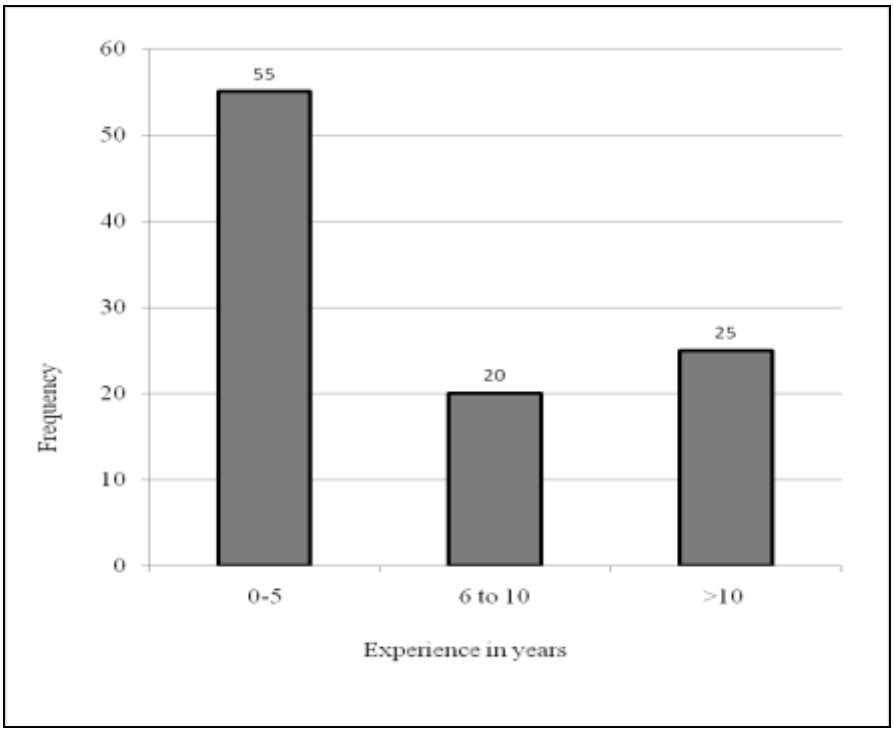
Section I

Distribution of participants in relation to demographic data

Table 4.1: Demographic data wise distribution of participants in study (I) [N=100]

Parameters		Frequency (n)	Percentage (%)
Age in years	20-30	67	67
	31-40	25	25
	41-50	7	7
	51-60	1	1
Gender	Male	48	48
	Female	52	52
Education	Primary	2	2
	Secondary	21	21
	Higher Secondary	16	16
	Graduation	56	56
	Post-graduation	5	5
Occupation	Heavy worker	26	26
	Moderate worker	45	45
	Sedentary worker	29	29
Work experience in years	0-5 years	55	55
	6 to 10 years	20	20
	>10 years	25	25
Duty hours per day	6 hours	2	2
	8 hours	57	57
	10 hours	14	14
	>12 hours	27	27

Table 4.1 shows that out of 100 respondents, majority 67 (67%) belonged to the age group 20-30 years, 25 (25%) belonged to 31-40 years of age, 7 (7%) of them were from the age group 41-50 years of age and 1 (1%) belonged to age group 51-60 years of age. 48 (48%) of participants were males and 52 (52%) were females. 2 (2%) had primary education, 21 (21%) had secondary education, 16 (16%) had Higher secondary education, 56 (56%) had graduation and 5 (5%) had completed post-graduation. 26 (26%) of the participants were heavy workers, 45 (45%) were moderate workers and 29 (29%) were sedentary workers. 55 (55%) of them had experience less than 5 years, 20 (20%) had experience of 6-10 years and 25 (25%) had experience more than 10 years. More than half 57 (57%) of them had duty hours of 8 hours, 27 (27%) of them had duty hours more than 12 hours, 14 (14%) had duty for 10 hours and 2 (2%) of them had duty for 6 hours.



Graph 4.2: Bar diagram showing distribution of work experience in years

Table 4.2: Demographic data wise distribution of participants in study (II)

[N=100]

Parameters		Frequency (n)	Percentage (%)
Duty shift	Morning	71	71
	Evening	14	14
	Night	15	15
Have conflicts with fellow workers	Yes	6	6
	No	94	94
Enjoy working in environment of office	Yes	94	94
	No	6	6
Feel excessive workload at job	Yes	44	44
	No	56	56
Follow relaxation method to relieve stress	Yes	12	12
	No	88	88
Marital Status	Married	50	50
	Unmarried	50	50
	Divorce	0	0
	Widow	0	0
Live with family	Yes	58	58
	No	42	42
If yes, number of family members	1 to 2	10	10
	3 to 4	34	34
	5 to 6	7	7
	>7	7	7
Monthly Income	Up to Rs. 5000	3	3
	Rs.5001-10000	31	31
	Rs.10001-15000	34	34
	>Rs.15000	32	32

Table 4.2 shows that majority 71 (71%) of the participants had morning shift, 14 (14%) had evening shift and 15 (15%) had night shift. Only 12 (12%) of them followed any relaxation method to relieve stress. Majority 58 (58%) of them were living with family. Out of which 10 (10%) had 1 to 2 members in their family, 34 (34%) had 3 to 4 family members, 7 (7%) had 5 to 6 family members and 7 (7%) of them had more than 7 family members. Remaining 42 (42%) reported that they lived alone. 3 (3%) of them had income below Rs.5000, 31 (31%) had income Rs. 5001-10000, 34 (34%) had income Rs. 10001-15000 and 32 (32%) of them had income above Rs. 15000.

Section II: Analysis of data related to the incidence of stress

Table 4.4: Analysis of incidence of stress

Category	Frequency (n)	Percentage (%)
Stress		
Mild (0-12)	44	44%
Moderate (13-24)	47	47%
Severe (25-36)	9	9%

Table 4.4 shows that, 44 (44%) of the working adults had mild stress (Score 0-12), 47 (47%) had moderate stress (score 13-24) and 9 (9%) had severe stress (Score 25-36).

Section III: Analysis of data related to incidence of cardiac symptoms

Table 4.5: Item analysis of physiological measures and risk factors (N=100)

Category	Frequency (n)	Percentage (%)
Pulse		
60-80	90	90%
81-100	10	10%
BP		
Low	3	3%
Moderate	72	72%
High	25	25%
Medical history		
Yes	10	10%
No	90	90%
If yes		
Appendix	1	1%
Arthritis	1	1%
BP,DM 12 y	1	1%
DM	2	2%
Migraine	2	2%
PCOD	1	1%
Renal call	1	1%
Sinusitis	1	1%
Risk factors		
History of hypertension or any other heart disease	50	50%
Habit of smoking	6	6%
Consume alcohol	11	11%
Consume non-veg diet	50	50%
Perform physical exercise	17	17%

Table 4.5 shows that 90 (90%) of participants had pulse 60-80 and 10 (10%) of them had pulse 81-100. 3 (3%) had low BP, 72 (72%) had normal BP, and 25 (25%) of them had high BP. 10 (10%) of them had medical/surgical history. Half 50 (50%) of them had family history of hypertension or any other heart disease. Half 50 (50%) of them consumed non-veg diet. 17 (17%) of them performed physical exercise. 11 (11%) of them consumed alcohol. 6 (6%) of them had habit of smoking

Table 4.7: Analysis of incidence of cardiovascular symptoms [N=100]

Category	**Frequency (n)**	**Percentage (%)**
Cardiovascular symptoms		
Mild (Score 0-7)	72	72%
Moderate (Score 8-14)	28	28%
Severe (Severe 15-21)	0	0%

Table 4.7 shows that majority 72 (72%) of them had mild cardiac symptoms, 28 (28%) of them had moderate cardiac symptoms, and 0 (0%) had severe cardiac symptoms.

Section IV

Table 4.8: Assessment of the relationship of stress with cardiac symptoms among working adults

[N=100]

Stress	Cardiac symptoms		p-value
	Mild	Moderate	
Mild	43	1	0.000
Moderate	28	19	
Severe	1	8	

Table 4.8 shows the relationship between stress and occurrence of cardiovascular symptoms assessed using Fisher's exact test. The corresponding p-value was small (less than 0.05), the null hypothesis is rejected. There is significant association between stress and occurrence of cardiovascular symptoms. Mild the stress, mild is the cardiovascular symptoms.

Section V

Analysis of relationship of stress and occurrence of cardiac symptoms with selected demographic variables

Table 4.9: Relationship of stress with selected demographic variables [N=100]

Demographic variable		**Stress**			**p-value**
		Mild	**Moderate**	**Severe**	
Age	20-30 years	24	34	9	0.143
	31-40 years	15	10	0	
	41-50 years	4	3	0	
	51-60 years	1	0	0	
Gender	Female	18	28	6	0.137
	Male	26	19	3	
Education	Primary	0	2	0	0.008
	Secondary	16	5	0	
	Higher Secondary	8	8	0	
	Graduate	17	30	9	
	Post graduate	3	2	0	
Occupation	Heavy	10	11	5	0.020
	Moderate	26	18	1	
	Sedentary	8	18	3	
Experience	0-5 years	16	30	9	0.003
	6 to 10 years	14	6	0	

	>10 years	14	11	0	
Duty hours	6 hours	0	2	0	0.002
	8 hours	32	24	1	
	10 hours	6	7	1	
	> 12 hours	6	14	7	
Shift	Morning	36	32	3	0.000
	Evening	8	6	0	
	Night	0	9	6	

Table 4.10: Relationship of stress with selected demographic variables [N=100]

Demographic variable		Stress			p-value
		Mild	Moderate	Severe	
Conflict	No	40	45	9	0.678
	Yes	4	2	0	
Enjoy	No	1	4	1	0.331
	yes	43	43	8	
Workload	No	33	22	1	0.000
	Yes	11	25	8	
Relax	No	39	40	9	0.662
	Yes	5	7	0	
Marital status	Married	31	18	1	0.000
	Unmarried	13	29	8	
Living with family	No	11	23	8	0.001
	Yes	33	24	1	
Income	Below Rs. 5000	3	0	0	0.393
	Rs.5000-10000	14	13	4	
	Rs.10000-15000	14	16	4	
	>Rs.15000	13	18	1	

Table 4.9 and 4.10 shows the relationship between stress and selected demographic variables assessed using Fisher's exact test. Above tables gives the summary of Fisher's exact test results. P-values corresponding to Education, Occupation, Experience, Duty hours, Shift, Workload, Marital status and living with family are small (less than 0.05). The null hypothesis is rejected. Demographic variables Education, Occupation, Experience, Duty hours, Shift, Workload, Marital status and living with family were found to have significant association with stress among working adults.

Table 4.11: Relationship of cardiac symptoms with selected demographic variables [N=100]

Demographic variable		Cardiac		p-value
		Mild	Moderate	
Age	20-30 years	44	23	0.132
	31-40 years	22	3	
	41-50 years	5	2	

	51-60 years	1	0	
Gender	Female	39	13	0.318
	Male	33	15	
Education	Primary	0	2	0.016
	Secondary	19	2	
	Higher secondary	12	4	
	Graduation	36	20	
	Post graduate	5	0	
Occupation	Heavy	21	5	0.068
	Moderate	35	10	
	Sedentary	16	13	
Experience	0-5 years	34	21	0.056
	6 to 10 years	17	3	
	>10 years	21	4	
Duty hours	6 hours	0	2	0.000
	8 hours	49	8	
	10 hours	10	4	
	> 12 hours	13	14	
Shift	Morning	57	14	0.000
	Evening	12	2	
	Night	3	12	

Table 4.12: Relationship of cardiovascular symptoms with selected demographic variables [N=100]

Demographic variable		Cardiovascular symptoms		p-value
		Mild	Moderate	
Conflict	No	66	28	0.131
	Yes	6	0	
Enjoy	No	3	3	0.214
	Yes	69	25	
Workload	No	47	9	0.003
	Yes	25	19	
Relax	No	63	25	0.554
	Yes	9	3	
Marital status	Married	43	7	0.002
	Unmarried	29	21	
Living with family	No	22	20	0.000
	Yes	50	8	
Income	Below Rs. 5000	3	0	0.053
	Rs.5000-10000	20	11	
	Rs.10000-15000	21	13	
	>Rs.15000	28	4	

Table 4.11 and 4.12 show the relationship between cardiovascular symptoms and selected demographic variable assessed using Fisher's exact test. Above tables give the summary of Fisher's exact test results. P-values corresponding to Education, Duty hours, Shift, Workload, Marital status and living with family and income are small (less than 0.05). The null hypothesis is rejected and research hypothesis is accepted. Demographic variables Education, Duty hours, Shift, Workload, Marital status and living with family were found to have significant association with occurrence of cardiac symptoms among working adults.

Major findings of the study:

- The relationship between stress and cardiac symptoms was assessed using Fisher's exact test. Corresponding p-value was small (less than 0.05), the null hypothesis is rejected. There is significant association between stress and cardiac symptoms. Mild the stress, mild are the cardiac symptoms.
- Demographic variables Education, Occupation, Experience, Duty hours, Shift, Workload, Marital status and living with family were found to have significant association with stress among working adults.
- Demographic variables Education, Duty hours, Shift, Workload, Marital status and living with family were found to have significant association with occurrence of cardiac symptoms among working adults.

Conclusion

The findings of the study suggest that the working adults had stress, and also reported of occurrence of cardiovascular symptoms. With the help of the above findings of the study it can be concluded that there was significant relationship of stress with occurrence of cardiac symptoms.

Implications of the study

The present study findings have implications for nursing practice, nursing education, nursing administration and nursing research.

Nursing practice:

A nurse can identify the stress factors and cardiovascular symptoms. She can plan for health education programme to make the population aware of effects of stress and strategies to reduce stress. Nurse can evaluate any coping strategies followed by the population. Information booklet, posters, charts and pamphlets on coping strategies to reduce stress should be constructed at hospitals, work environments and community health centres. Relaxation techniques should be taught to the working adults and it should be promoted to reduce the effect of stress on cardiovascular status. The findings of the study can help in providing evidenced based practice. Occupational nurse can work with psychologist to help people reduce stress.

Nursing education:

Stress is seen to be one of the etiological factors for myocardial infarction. Adoption of coping strategies and relaxation techniques and other measures are simple measures to reduce stress. Nurse can help to educate the population regarding coping strategies and relaxation techniques to reduce stress. Nursing students and nurse practitioners can arrange educational programme regarding coping strategies at work place. Self-instructed module, street plays giving health education to working adults in local language can be arranged and demonstrated by nursing students. Nursing students can be taught to assess occupational stress and they would also be able to teach the patient life style modifications.

Nursing administration:

The findings of the study can be utilized in hospital to assess the different stress area. The nurse manager will have to deal with working nurses and can utilize these findings in different areas. As an administrator, a nurse can arrange in service education programmes for working adults. She can plan screening programmes and referral for cardiovascular symptoms and stress. The study will help in conducting awareness programmes on a large scale in all working environments in the community.

Community:

Health education programmes can be conducted in various work setting of community to provide information regarding stress and stress management.

Recommendations

1. A similar study can be conducted on a different group of population.
2. A study can be done to assess the effectiveness of self-instructional module regarding stress management among working adults of different occupation.

3. A comparative study can be done to assess the effect of different relaxation techniques on reducing stress.
4. A similar study can be conducted to assess the relationship of stress with other conditions like Diabetes, cancer, etc.
5. A study can be done only in a particular working group to assess the effect of long term stress on individual health.
6. A similar study can be done to assess the prevalence and effect of cardiovascular disease among working adults.

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