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Research article

Life style associated risk factors of CAD and the effectiveness of an educational intervention on prevention and management of modifiable risk factors of CAD among police personnel in Mysuru city

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Abstract

Background: CAD is predicted to be the most common cause of death globally including India by 2020. CAD is a condition that develops due to the accumulation of atherosclerotic plaque in the pericardial coronary arteries leading to myocardial ischemia.
Aim and objectives: To assess the lifestyle associated risk factors of CAD and the effectiveness of an educational intervention on prevention and management of modifiable risk factors of CAD among police personnel Mysuru city.
Methods: Research design adopted for the study was exploratory survey in phase I and pre experimental, one group pre test - post test design in the phase II. Non-probability Convenience sampling technique was used to select the 60 police personnel. In phase I, lifestyle associated risk factors were assessed by using lifestyle risk assessment tool for CAD. In phase II, knowledge of police personnel regarding prevention and management of modifiable risk factors of CAD was assessed using SKQ. Educational intervention on prevention and management of modifiable risk factors of CAD was done for police personnel.
Results: The study revealed that educational intervention on prevention and management of modifiable risk factors of CAD was effective in enhancing the knowledge of police personnel as indicated by significant at 0.05 level of significance ('t'=13.8;$p<0.05$). There was no statistically significant association between the knowledge and selected personal variables of police personnel.
Conclusion: Educational intervention was effective in increasing the knowledge of police personnel regarding prevention and management of modifiable risk factors of CAD.

Key Words: Lifestyle; educational intervention; modifiable risk factors; CAD; police personnel.

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1. Introduction

CAD is a condition that develops due to the accumulation of atherosclerotic plaque in the pericardial coronary arteries leading to myocardial ischemia. It is a common multifarious public health crisis today and a leading cause of morbidity and mortality in both developing and developed countries. By 2020, the disease is forecasted to be the major cause of morbidity and mortality in most developing nations [1].
Cardiovascular diseases have been the leading cause of morbidity and mortality in India. It is the first among top five causes of death in Indian population. In 2000, there were an estimated 29.8 million people with CAD in India, out of a total estimated population of 1.03 billion. According to the report of population based cross sectional surveys (2003), the prevalence of CAD was estimated to be 3-4% in rural areas and 8-10% in urban areas [2]. The forecast of prevalence rates reveals that from 2000 to 2015, the incidence of CAD among urban males (20-29 years) will be almost double and the females of same age group will keep up with their pace [3].
India is facing a rapid health transition with its increasing burden of coronary heart disease [4]. Reports from

National Commission on Macroeconomics and Health has documented that by 2015, 62 million people in India will have CAD, with 23 million of these below 40 years of age [5]. Technological advancements, lifestyle changes, socioeconomic development and changes in demographic profile have resulted in the health transition in India with increasing burden of non- communicable diseases [6]. The proportion of deaths due to non-communicable diseases is projected to rise from 59 percent in 2002 to 69 percent in 2030. The epidemiological transition needs country wide health planning and preventive strategies [7].

Primary prevention is the most effective strategy to combat with CAD epidemic in the resource poor nations. Knowledge of modifiable risk factors of CAD can lead to a positive behavioural outcome among people. Knowledge is the key component for behavioural change and provides cues for action. Increasing age, male gender, family history, high cholesterol level, smoking, diabetes, hypertension, obesity, psychological factors, alcohol consumption and physical inactivity are identified as the risk factors of CAD. Prevention strategies to reduce the incidence of CAD should target on smoking cessation, blood pressure control, lipid control, physical activity, weight management, control of diabetes and hypertension [7].

Police personnel constitute a special occupational group with exposure to violence and constant stress at work place, which directly or indirectly affects their health. Police personnel are responsible for public security and provide round the clock service to ensure law and order to the civilians [8]. Police personnel in their early career are considered more physically active than the general population. Numerous studies have documented that police personnel are more prone to being obese or having diseases related to obesity over time as a result of physical and psychological work requirements [9]. Awareness strategies targeted for police personnel can promote the practice of healthy life style interventions for prevention and management of CAD among them as well as in conveying health information to the general public.

Objectives

1. To assess the life style associated risk factors of CAD among police personnel.
2. To assess the knowledge of police personnel regarding prevention and management of modifiable risk factors of CAD before and after the educational intervention.
3. To determine the effectiveness of educational intervention on prevention and management of modifiable risk factors of CAD among police personnel.
4. To determine the association between the levels of knowledge regarding prevention and management of modifiable risk factors of CAD and the selected personal variables of police personnel.
5. To determine the association between the lifestyle associated risk factors of police personnel and their selected personal variables.

Hypotheses

H_1: Mean post-test knowledge scores of police personnel regarding prevention and management of modifiable risk factors of CAD will be significantly higher than their mean pre-test knowledge scores.

H_2: There will be significant association between the knowledge of police personnel regarding prevention and management of modifiable risk factors of CAD and their selected personal variables.

H_3: There will be significant association between the lifestyle associated risk factors of the police personnel and their selected personal variables.

2. Methodology

Research approach

The research approach indicates the basic procedure for conducting research. As the aim of the study was to assess the life style associated risk factors of CAD and to determine the effectiveness of an educational intervention on prevention and management of modifiable risk factors of CAD, an evaluative approach was adopted for this study.

Research design

Research design of this study is exploratory survey in phase-1 and Pre- experimental; one group pretest-post test design in phase II.

Phase- 1	Phase –II		
	Pre-test Day-1	Intervention Day-1	Post- test Day-8
Assessment of life style associated risk factors of CAD among Police personnel using lifestyle risk assessment tool for CAD	SKQ to assess the knowledge regarding prevention and management of modifiable risk factors of CAD among Police personnel	Educational intervention on prevention and management of modifiable risk factors of CAD among Police personnel	SKQ to assess knowledge regarding prevention and management of modifiable risk factors of CAD among Police personnel

Schematic representation of data collection

Keys: SKQ – Structured Knowledge Questionnaire

Variables of the study

Dependent variable:
Knowledge regarding prevention and management of modifiable risk factors of CAD.

Independent variables:

Educational intervention on prevention and management of modifiable risk factors of CAD.

Other variables:

- Life style associated risk factors of police personnel for CAD.
- Selected personal variables of police personnel viz. age, gender, educational qualification, number of years of working experience, monthly income, and dietary pattern, family history of CAD, Blood pressure, Body Mass Index, and waist circumference.

Sources of the data
Setting

The setting for the present study was Karnataka State Reserve Police (KSRP) Quarters in Mysuru city.

Population:

Population is the entire aggregation of cases in which investigator is interested. In the present study population refers to the Police personnel

Sample and sampling

Sample is the subset of population. In the present study, sample comprises of police personnel working at Karnataka State Reserve Police (KSRP) in Mysuru city.

Sample size:

60 police personnel were selected for study.

Sampling technique:
Sampling is the process of selecting a portion of the population to represent the population. Convenience sampling technique was used to select the 60 police personnel for the present study.

3. Results

1. Description of selected personal variables of Police Personnel

Data related to the age of police personnel revealed that majority of police personnel (53.3%) were in the age group of 35-45 years.Majority of the police personnel (93.3%) were males. 45% of them have completed PUC, 46.6% were having experience of above 15 years and 90% of the police personnel were non vegetarians.

36.6% of the police personnel were having monthly income of Rs 10001- 30000. 34% of police personnel were having positive family history of CAD, 33.3% of police personnel were having systolic BP of more than 140 mm of Hg and 16.6% were having systolic BP between 131-140mm of Hg.

Data related to the diastolic BP of police personnel revealed that 16.6% were having diastolic BP above 90 mm of Hg and 50% of them having diastolic BP between 81-90 mm of Hg. 30% of police personnel were having over weight and 53.3% of them were obese. 70% of police personnel were having waist circumference more than 70 cm.

2. Lifestyle associated risk factors of police personnel for CAD

Table No 1: Frequency and percentage distribution of the lifestyle associated risk factors of police personnel for cad.

N =60

Life style associated risk factors	Frequency (f)	Percentage (%)
Low risk	06	10
Moderate risk	34	56.6
High risk	20	33.3

Table 1 show that majority of police personnel (34%) were having moderate risk for CAD, 20% of police personnel were having high risk for CAD and only 6% of police personnel had low risk for CAD.

3. Effectiveness of educational intervention on knowledge regarding the prevention and management of modifiable risk factors of cad among police personnel

a) Description of knowledge of police personnel regarding prevention and management of modifiable risk factors of CAD.
b) Mean, median, range and standard deviation of knowledge scores.
c) Significance of difference between the mean pre-test and post-test knowledge scores of police personnel regarding the prevention and management of modifiable risk factors of CAD.

a) Description of knowledge of police personnel regarding prevention and management of modifiable risk factors of CAD

Table No 2: Frequency and percentage distribution of knowledge scores of police personnel according to their pre-test and post-test scores.

N=60

Knowledge Scores	Pre test f (%)	Post test f (%)
Good knowledge	08 (13.3)	25(41.6)
Average knowledge	20 (33.3)	29 (48.3)
Poor knowledge	32(53.3)	06(10)

It is evident from Table 2 that, majority of the police personnel 53.3% had poor knowledge, 33.3% had average knowledge and only 13.3% of them had good knowledge regarding prevention and management of modifiable risk

factors of CAD in the pre-test. Data also revealed that in the post test, there was an increase in the knowledge level of police personnel i.e. 41.6% of them have scored good knowledge and 48.3% had scored average level of knowledge regarding prevention and management of modifiable risk factors of CAD and only 10% had poor knowledge.

b) Mean, median, range and standard deviation of knowledge scores

Table No 3: Mean, median, standard deviation, range of pre-test and post-test knowledge of police personnel.

N=60

Test	Mean	Median	Range	Standard deviation
Pre test	14.8	14.5	7-24	±4.49
Post test	22.11	22.5	14-28	±3.65

The pre-test knowledge score ranged from 7-24 and the post-test knowledge score ranged from 14-28. The mean pre-test knowledge score was 14.8 with the standard deviation of ±4.49 and the mean post-test knowledge score was 22.11 with the standard deviation of ±3.65. This indicates that there was an increase in knowledge scores of police personnel after the educational intervention.

c) Significance of difference between the mean pre-test and post-test knowledge scores of police personnel regarding the prevention and management of modifiable risk factors of CAD

Table No 4: Mean, mean difference, standard deviation difference, standard error and paired't' value of pre-test and post knowledge scores of police personnel.

N=60

Knowledge Score	Mean	Mean difference	S.D difference	Standard error	Paired 't' test value
Pre test	14.8	7.31	0.16	7.75	13.8*
Post test	22.11				

$t_{(59)}=2.00$; $p<0.05$ *significant.

The data presented in the table 4 shows that the mean difference between pre-test knowledge score and post-test knowledge score is 7.31. To find the significance of difference between the mean knowledge scores, paired't' test was computed and obtained value of paired't'=13.8* was found to be significant at 0.05 level of significance. Hence the null hypothesis is not accepted and it is interpreted that there was statistically significant difference between the mean pre-test and post-test knowledge scores of police personnel. Hence, it is inferred that educational intervention on prevention and management of modifiable risk factors of CAD was effective in improving the knowledge of police personnel.

4. Association between the level of knowledge of police personnel regarding prevention and management of modifiable risk factors of CAD and their selected personal variables.

Findings revealed that there was no statistically significant association between the level of knowledge of police personnel regarding prevention and management of modifiable risk factors of CAD and their selected personal variables. Hence the investigator accepts the null hypothesis $H_{02,}$ and it is inferred that the knowledge of police personnel regarding prevention and management of modifiable risk factors of CAD is independent of their selected personal variables.

Contradictory findings are observed in another study conducted to assess the knowledge of CAD risk factors among a community sample in Oman which reported that BMI and education level of participants were significantly associated with knowledge levels. Findings of a cross sectional study conducted to assess public knowledge about CAD prevention in Egypt also reported similar findings that the knowledge of participants was significantly associated with their previous education level.

5. Findings related to the association between the lifestyle associated risk factors of police personnel for coronary artery and their selected personal variables

Data revealed that there was no statistically significant association between the life style associated risk factors of police personnel and their selected personal variables. Hence it is inferred that lifestyle associated risk factors of police personnel were independent of their selected personal variables.

Results are supported with a study conducted to analyze the risk factors of CAD in central India which stated that abnormal triglycerides and current smoking were risk factors of CAD but were not statistically significant.[32] Study findings are contradicted with the results of another study conducted among police personnel in Puducherry which reported that there was statistically significant association between the age and waist circumference with prevalence of hypertension. Results of a prospective, case control study conducted among rural patients with CAD and healthy controls reported a distinct association of dyslipidemia with CAD.

Limitations:

The limitations of the present study were:

1. The study was limited to police personnel working in KSRP Mysuru city.
2. The present study adopted convenience sampling; hence the generalization of the findings beyond the study samples is limited.
3. Small sample size (60 police personnel) has limited the generalization beyond the study sample.

Recommendations:

1. A large scale study can be conducted to generalize the findings.
2. A similar study can be replicated for other groups among public.
3. Similar studies can be conducted to assess the effectiveness of other educational strategies to improve the knowledge of public regarding risk factors of CAD.

4. Discussion

The discussion of the findings with regard to the study objectives, hypotheses formulated and the findings of other studies. Present study was aimed to assess the lifestyle associated risk factors of police personnel and to determine the effectiveness of an educational intervention regarding prevention and management of modifiable risk factors of coronary artery disease among police personnel in Mysuru city.

The discussion is presented under following sections:

1. Findings related to the selected personal variables of police personnel.
2. Findings related to lifestyle associated risk factors of police personnel for coronary artery disease.
3. Findings related to the effectiveness of educational intervention regarding prevention and management of modifiable risk factors of coronary artery disease.
4. Findings related to the association between the knowledge of police personnel regarding prevention and management of modifiable risk factors of coronary artery disease and their selected personal variables.
5. Findings related to the association between the lifestyle associated risk factors of police personnel for coronary artery disease and their selected personal variables.

1. Findings related to the selected personal variables of police personnel

Age: Data related to the age of police personnel revealed that majority of police personnel (53.3%) of were in the age group of 35-45 years. Majority of the police personnel (93.3%) were males. 45% of them have completed PUC, 46.6% were having experience of above 15 years and 90% of the police personnel were non vegetarians. 36.6% of the police personnel were having monthly income of Rs 10001- 30000. 34% of police personnel were having positive family history of coronary artery disease, 33.3% of police personnel were having systolic BP of more than 140 mm of Hg and 16.6% were having systolic BP between 131-140mm of Hg. Data related to the diastolic BP of police personnel revealed that 16.6% were having diastolic BP above 90 mm of Hg and 50% of them having diastolic BP between 81-90 mm of Hg. 30% of police personnel were having over weight and 53.3% of them were obese.70% of police personnel were having waist circumference more than 70 cm.

2. Findings related to lifestyle associated risk factors of police personnel for coronary artery disease.

Data related to life style associated risk factors of police personnel for coronary artery disease revealed that 56.6% of police personnel were having moderate risk for coronary artery disease and 33.3% of police personnel were having high risk for coronary artery disease.

3. Findings related to effectiveness of an educational intervention on knowledge regarding prevention and management of modifiable risk factors of coronary artery disease among police personnel

A. knowledge of police personnel regarding prevention and management of modifiable risk factors of coronary artery disease:

Data related to the knowledge of police personnel regarding prevention and management of modifiable risk factors of coronary artery disease revealed that majority of police personnel (53.3%) were having poor level of knowledge regarding prevention and management of modifiable risk factors of coronary artery disease and only 13.3% of them had good knowledge.

B. significance of difference between the mean pre-test and post-test knowledge scores of police personnel regarding prevention and management of modifiable risk factors of coronary artery disease

Data revealed that there was statistically significant difference between the mean pre-test and post-test knowledge scores of police personnel regarding prevention and management of modifiable risk factors of coronary artery disease**.** Hence the null hypothesis is not supported and it is interpreted that there was statistically significant difference between the mean pre test and post test knowledge scores of police personnel. Hence it is inferred that the educational intervention was effective in enhancing the knowledge of police personnel.

4. Findings related to the association between the knowledge of police personnel regarding prevention and management of modifiable risk factors of coronary artery disease and their selected personal variables

Findings revealed that there was no statistically significant association between the knowledge of police personnel regarding prevention and management of modifiable risk factors of coronary artery disease and their selected personal variables.

5. Findings related to the association between the lifestyle associated risk factors of police personnel for coronary artery and their selected personal variables.

Data revealed that there was no statistically significant association between the life style associated risk factors of police personnel and their selected personal variables. Hence it is inferred that lifestyle associated risk states of police personnel was independent of their selected personal variables.

Conclusion

The study was concluded that educational intervention was effective in enhancing the knowledge of police personnel regarding prevention and management of modifiable risk factors of cad. The study findings stresses the increasing responsibility of health professionals in planning and implementing various educational strategies to improve the knowledge of public regarding prevention and management of modifiable risk factors of cad which in turn help to reduce their risk for cad in their later life.

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Conflict of interest- None

References

[1] Sandosh Pathmanabham. Genomic approaches to CAD. Indian J Med Res. 2010; 132(8): 567-578.
[2] Rama Wilia, Anil Bhansali, Muthuswamy Ravikiran, Padala Ravikumar, Sanjay K Bhadala. High prevalence of cardiovascular risk factors in Asian Indians: A community survey - Chandigarh Urban Diabetes Study (CUDS). Indian Journal Medical Research. 2014; 139(3): 252 - 259.
[3] Lewis. Medical-Surgical Nursing. Assessment and Management of clinical problems. 2013; 1(13): 1824.
[4] Mozaffrarian D. Heart disease and stroke statistics-at a glance. A report from the American heart association. 2014;128(00-00): 1-4
[5] Carissa F Etienne, Verónica Espinosa, Santiago Escalante Y, Daniel de la Torre, Cecilia Vaca Jones. Health systems reform in the quest for universal health [La reforma de lossistemas de saluden la búsqueda de la cobertura universal]. Abstract of PDF. 2015; 3(15): 2254 - 2265.
[6] Shalet Alex. Knowledge regarding cardiac rehabilitation among clients with CAD. International Journal of Science and Research. 2012; 3358(12): 2319-7064.
[7] Krishnan MN. Coronary heart disease and risk factors in India–On the brink of an epidemic? Indian heart journal. 2012 Jul; 64(4):364.
[8] Chauhan S, Aeri BT. Prevalence of cardiovascular disease in India and its economic impact-A review. IJSRP. 2013; 3(10):1-5.
[9] Sekhri, T. BMJ open prevalence of risk factors for CAD in an Urban Indian population. Cross mark. 2014; 4(E005346):1-7.