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Assessment Of Knowledge And Awareness In Patients Consuming Cardiovascular Drugs In Region Of Dehradun

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Abstract
Since the early 20th century, cardiovascular disease has been the world's leading cause of mortality rates. The prevalence of cardiovascular death is decreasing due to advancements in both prevention and treatment. Still, there are inconsistencies in care that have a disastrous effect on Indian communities. North Indian continue to have a higher CVD than other racial and ethnic groups in India, despite an overall even decrease and preventable, the cardiac disease and deaths due to strokes, and in hypertension. Despite equal accessibility to care, disparities in care still exist and may continue. Reducing healthcare bias, expanding patient access, and fostering greater diversity and inclusion in the medical community are all necessary steps toward addressing inequities. It was profound that by assessment intervention these risks can be reduced, proper info and then good assessment can minimize the prevalences in cardiovascular deaths.

1 INTRODUCTION

1.1 The term "cardiovascular disease" refers to a wide range of disorders affecting the circulatory system and blood arteries. Let's discuss a few of the prevalent kinds: Coronary artery disease or heart disease, Heart Attack, Stroke, Heart Failure, Arrhythmia. (1 2 3)

Cardiovascular drugs are those that alter the function of the heart and blood vessels. They play a crucial role in managing various cardiovascular conditions. Here are some key drug or insights about these medications: [5] Inotropic agents (Cardiac glycosides), Chronotropic Effects (beta blockers), Rhythmic Effects (Anti arrhythmic drugs) Common Cardiovascular Drugs: Antihypertensives: Used to lower high blood pressure. Antiplatelet agents: Prevent blood clot formation. Statins: Lower cholesterol levels. Diuretics: Promote fluid removal and reduce blood volume. ACE inhibitors: Dilate blood vessels and reduce blood pressure. Calcium channel blockers: Relax blood vessels and decrease heart workload.

1.5 Epidemiology [4,5]

Overview of the epidemiology of cardiovascular diseases (CVDs):

- ❖ Prevalence and Impact:
- CVDs are the leading source of casualty worldwide. In 2019, approximately 17.9 million individuals lost their lives from CVDs, reason for 32% of all global deaths.
- 85% of these deaths were reported from heart attacks and strokes.
- Over three-quarters of CVD mortality are in developing poor-income countries.
- In 2019, non-communicable diseases caused seventeen million premature deaths (mortality below 70 years old), of which 38% were attributable to CVDs.
- ❖ Types of Cardiovascular Diseases: CVDs encompass a group of conditions affecting the blood vessels and heart. These include

Coronary heart disease: A disease of the heart muscle as they got less blood supply due to infested blood vessels. Cerebral vascular disease: A disease of the brain due to less blood supply from disfunction of blood vessels. Peripheral arterial disease: A disease of due to less blood supply from disfunction of blood vessels in arms and legs. Rheumatic heart disease: Injury to the heart muscle and valves from rheumatic fever. Congenital heart disease: Birth defects affecting heart development. Deep vein thrombosis and pulmonary embolism: Blood clots that can relocated and move to the heart and lungs[1].Risk Factors: Modifiable risk factors play a substantial role in CVD development. These include: Unhealthy diet, Physical inactivity, Tobacco use, Harmful alcohol consumption Such warning indicators may result in to conditions such as raised blood pressure, raised blood glucose, raised blood lipids, and overweight/obesity.

Healthy lifestyle choices, such as quitting tobacco, reducing salt intake, eating more fruits and vegetables, regular excersize, and avoiding excessive alcohol, can help reduce the risk of CVDs. Redirecting surroundings that promote vigorous behaviours is essential for sustained prevention.

Methodology
Research methodology encompasses a systematic approach in which the researcher begins by identifying the problem and progresses through various stages until reaching a final conclusion. The methodology plays a crucial role as it involves the use of specific procedures and techniques for conducting the study.

Research Approach: For the study, a pre-experimental approach, which is a type of quantitative research method, will be employed. [6,7]
Study Design: The research design chooses for this study will be one-group pre-test and post-test design.
Q1 - Pre-test assessment
X - Implementation of CVDs education on self-care management for patients with CVDs
Q2 - Post-test assessment

Study Site: The study will be conduct in the urban area of Dehradun

Study Duration: The study will be conduct over a period of four weeks.

Sample Size: The sample size of the study is 50.
Data collection: The data will be collected through personal interviews using a self-modified questionnaire. Who step data tool

Criteria for selection of samples
A. Inclusion criteria:
- Patients aged between 30-70 years will be included.
- Both male and female patients diagnosed with CVDs will be included.
- Individuals diagnosed with CVDs within the past year will be included.
- Patients who could understand Hindi/English and their vernacular language will be included.
- Patients who will be willing to participate in the study were included.

B. Exclusion criteria:
- Patients who have been under treatment for more than a year will be excluded.
- Patients with severe complications of CVDs will be excluded.
- Patients with disturbances in sensory perception will be excluded.

PROCEDURE: [7]
- The study will be conduct in the urban areas of District Dehradun.
- The researcher developed an interview schedule to measure the knowledge on practice regarding selected aspects of management of CVDs. The interview schedule will be constructed in the regional language and consist of 50 questions.

Result and Discussion
A cross-sectional survey of different design, areas, and sample was carried out in urban clinics. Patients with chronic illnesses such as type 2 diabetes (diabetes mellitus), heart failure, hypertension, and myocardial infarction can receive routine outpatient care at the clinics. The center specializes in offering following up treatments, such as CVD therapy and counseling for patients to help them adopt healthy living habits. In all of the participating hospitals, follow-up care was attended by 150 patients with CVD from July 2023 to January 2024, the research duration. Individuals between the ages of 18 and 64 who had a verified diagnosis of hypertension, heart failure, or myocardial infarction were eligible to take part in the research. Individuals with rheumatic heart disease, pathogenic cardiovascular disease, inflammatory heart disease, and congenital heart defects were not allowed to participate. Patients with psychological disorders and those with disabilities (such as auditory or speech impairments) that would make it difficult for them to take part in the study also were not allowed. The following presumptions were used when determining the sample size using the single proportion of populations' formula.
A summary of the study was provided to participants by a nurse or doctor working in the follow-up unit. Following this, participants were directed to informational posters that were displayed outside the follow-up unit. The study title, the name of the researchers, the eligibility requirements, and the data collector's contact details (email and cell phone) were all listed on the poster. When they left the follow-up unit, those who volunteered called the data researcher at the specified number, or the data collector personally approached individuals and gave them more information using the participant information sheet. The patients were recruited between June and September of 2023.
Results Characteristics of the participants total of 150 patients diagnosed with CVD who attended the chronic follow up care were enrolled in the study; Mean age was 47 years (±11 SD) and 56.4% of patients were of the female gender. The majority (70.7%) of the patients were diagnosed with hypertension. More than half of the patients had a low level of education. The sociodemographic characteristics of the participants are depicted in Table 1. Knowledge of cardiovascular risk factors The mean percentage HDFQ score was 70.5% (±15.3). Overall, 155 patients (54%) had optimal knowledge of risk factors (scored 70%), whereas, the remaining 132 patients (46%) had suboptimal knowledge (Fig 1). The majority

of patients demonstrated significant knowledge about facts that age, 228 (79.4%), smoking 280 (97.6%), being overweight 262 (91.3%) and high blood pressure 235 (81.9%) are risk factors for cardiovascular disease. At the same time patients had deficient knowledge about the fact that family history of heart disease 249 (86.8%) and diabetes 184 (64.1%) are also risk factors. Almost one fifth 55 (19.2%) did not understand that keeping blood pressure under control reduces the risk of developing cardiovascular disease, 52 (18.1%) were unable to identify eating fatty food affects blood cholesterol level, and 115 (40.1%) assume only exercising at a gym or in an exercise class lower a chance of developing cardiovascular disease. Table 2 shows the percentage of patients who answered the heart disease fact questions correctly. Actual cumulative risk behaviour and knowledge of cardiovascular disease risk factors association through our previous study, we have assessed five CV risk behaviours, i.e. smoking, alcohol drinking, pan masala chewing, fruit and vegetable intake and physical activity. None of the patients met the WHO recommendation for fruit and vegetable consumption (more than five serving daily), 148 (51.6%) were physically inactive (attained less than 600 MET-min per week), 57 (19.9%) were current masala chewers, 54 (18.8%) were current alcohol drinkers and 3 (1%) were current smokers. Almost one-third 86 (30%) them had one risk behaviour, more than half 149 (51.9%) had two risk behaviours, and 43 (18.1%) had three or more risk Behaviours. Out of the total recruited patients, 201 (70%) had multiple risk behaviours (two or more behaviours). Regarding bivariate linear regression analysis age, sex, residence, ethnicity, marital status, education level and number of actual risk behaviours got p< 0.001). Urban residents had 12.84 units higher mean knowledge score than rural residents (β = 12.84, 95% CI 6.91 to 18.77; P < 0.001). In addition, level of education is associated with knowledge of CV risk factors (P < 0.001), those who had no formal education had -18.80 units lower mean knowledge score compared to those who completed college or university (β = -18.80, 95% CI -24.76 to -12.85; P < 0.001). Those who attained less than primary school education had -12.02 units less knowledge score compared to those who completed college or university (β = -12.02, 95% CI -17.63 to -6.40; P < 0.001). There was also a statistically significant association between knowledge and marital status (P < 0.001)

Those who were never married had -14.01 units lower mean knowledge score than those who were currently married (β = -14.01, 95% CI -20.71 to -7.29; P < 0.001). There was no statistically significant association between knowledge of CV risk factors and actual cumulative risk behaviour (P = 0.076) or age (P = 0.718) or sex (P = 0.259) or ethnicity (P = 0.196) (Table 4)

DEMOGRAPHIC CHARACTERISTICS

The sample consisted of patients aged between 25 and 65 years. Age data was assigned into four age groups, 25-34, 35-44, 45-54 and 55-65 years. Among the Participants, 20 (31%) were aged between 25-34 years, 10 (15%) were aged between 35-44 years, 15 (23%) were aged between 45 and 54 years and 20 (31%) were aged Between 55 and 65 years (Table 4).

Table-1 Age groupings of participants

Age group	**n**	**Percentage %**
25-34years	20	30.8
35-44years	10	15.4
45-54years	15	23.0
55-65years	20	30.8
Total	65	100.0

Questions 1–3 Patient HEALTH ISSUES
PERCEPTIONS OF DISEASE

The distribution of all responses to the first question concerning the greatest health problem for patients is shown in figure 2. Of the 63 Patient who completed the full survey, 24 (38%) noted cancer and 28 (44%) reported breast cancer as the greatest health problem for patients, whereas only 8 (13%) reported heart disease. The remaining 3 (5%) thought cervical cancer was the greatest health problem. There were no responses indicating diabetes was the greatest health problem. These results will be discussed in the next chapter.

Question 2 was a true/false question asking patient of CVD is the most widespread cause of death in India. Overall, 110 patient question, only 17 (27%) of the patients knew that CVDs is the most common cause of death in India. Remaining 44 patient (or 70%) gave a false response to this question, while 2 people (3%) said they weren't sure. In response to the 3 questions, which asked whether carcinoma of the breast kills more patient than heart disease, 64 patients said it was either correct or incorrect. Of the 41 respondents, 64 percent, felt that heart disease claims fewer lives than breast cancer, 21 (33 percent) disagreed, and 2 (3%) said they were not sure.

Questions 4-30 HEART DISEASE KNOWLEDGE
HEART DISEASE

Question 4 asked whether it was true or false that cardiac disease develops gradually over several years and can easily go undetected. Overall, 64 answered the question, and 58 (91%) knew that cardiac disease answered this question correctly. Incorrect responses came from the younger and older age groups, with two in correct responses in the younger patients aged

25-34, and three incorrect responses and one unsure in the older patients aged 55-65.
Questions 5-28 and 30 were 25 true or false questions taken from the *Heart Disease Fact Questionnaire*- 2 (HDFQ). These questions related to heart disease and diabetes. The scores were recorded on a Microsoft Office Excel Spreadsheet. Knowledge scores were calculated by giving a value of four to each respondent's correct answer. Scores on this study ranged from 52 (13 correct) to 100 (25 correct).The mean score was 84 (84%; SD, 9.94) indicating that patients in this study had a reasonable knowledge of coronary heart disease. These results were negatively skewed as eighty percent of participants sampled scored 80 and higher. Results according to age group are listed in Table 2. Table 3 is the list of questions most often answered correctly. The questions not listed in Table 3 and Table 4 was answered correctly by over 70% of the participants. Table 4 gives the questions that were most often answered incorrectly. Unfortunately, the majority of the sample did not recognize that age is a risk factor for heart disease (Table 4Seven out of ten individuals (70%) who were patients between the ages of 35 and 44 were the only ones who acknowledged that the risk of heart disease increases with age. A greater proportion of patients, nine out of 14 participants (64%), were in the 45–54 age range. Acknowledged that, compared to individuals in all other 3 age categories, men having diabetes have a higher chance of developing heart disease than patients. Patients of all ages were unaware that low HDL is a common indication of diabetes (good) cholesterol, suggesting that Patients over all understanding of cholesterol may be poor.

Table 2 Heart Disease Fact Questionnaire (HDFQ) results

	Age Group in Years				
	25-34 (n=20)	**35-44 (n=10)**	**45-54 (n=15)**	**55-6 (n=20)**	**Total (n=65)**
Mean	83	85	81	85	84
Median	84	92	84	84	84
Minimum	56	60	52	76	52
Maximum	96	96	96	100	100
Range	40	36	44	24	48
Standard Deviation	10.48	12.48	11.79	5.96	9.94

Table 3 Top ranked correctly answered questions from Heart Disease Fact Questionnaire (HDFQ)

Question	**Correct Response(N=65)**	
	n	**%**
Chances of heart disease due to smoking	63	96
Chances of heart disease due to High blood pressure	64	99
Development of heart disease due to high cholesterol	64	99
Heart disease due to being overweight increases a person's risk	65	100
Heart disease changes due to persons regular physical activity will lower Chances	62	95
Individuals who workout only at gyms or in fitness classes can reduce their risk of cardiovascular disease.	62	95

Table 4 Top ranked incorrectly answered questions from HDFQ (Heart Disease Fact Questionnaire)

Question	**Correct Response (N=65)**	
	n	**%**
Risk of Heart disease is higher with older person as compare to younger person	28	43
Diabetes patients typically have lower levels of HDL (good) cholesterol.	13	20
Cardiovascular disease is more common in men who have diabetes then female	33	51

Question 29 asked the true/false question of Patient about their chances of cardiovascular disease .Less than half of the participants were able to correctly identify that patients are more likely to acquire heart disease after menopause. Of the 65 participants, less than half, 30 (48%) answered that patients were more likely to get heart disease after menopause. Four (6%) of the patients were unsure of the answer to this question.

Questions 32 - 52 HEALTH AND HEALTH RELATED BEHAVIORS
PERSONALHEALTH STATUS
Question 32 asked to self-assess their general health as 'Excellent', 'Very Good', 'Good', 'Fair'or'Poor'. Subjective health ratings were suggestive of reasonably good health. Of the 65 participants, 52 (80%) rated their health as 'Good to Excellent', while 13 (20%) reported 'Fair to Poor' health. Interestingly, 6 (30%) of the 20 younger patients aged 25-34 reported more that their health was fair or poor. No in the older age groups (35-44 and 55-65) reported their general health as excellent (Table 5).

Table 5 Participants general health

	n	Percentage %
Excellent	4	6
Very Good	20	31
Good	28	43
Fair	11	17
Poor	2	3
Total	65	100

HEALTH HISTORY & MEDICATIONS

Question 33 asked to circle, from ten supplied responses, their history of illness. Of the 65 participants, 31 (48%) reported no history of illness. History of illnesses included: Heart Disease 9(14%), Diabetes 8(12%), Cancer 9 (14%), and Mental Health Problem 6(9%), Heart Failure 3 (5%), Stroke 6(9%), Heart Attack 5 (8%), Angina 6 (9%), Hypothyroidism 3 (5%) and Respiratory 7(11%) (Table6).

Question 34 was a yes/no question asking if patients were taking any prescription medication. Over half the 65 surveyed 39(60%) indicated they were taking prescription medication.

Question 35 then asked participants to list the medication (both prescription and over the counter) that they were currently taking. Medications taken included: antihypertensive medication 13 (20%) , hypolipidemic medication 6(9%), hormone replacement therapy 7 (11%) and various other medications 32 (49%) such as antianginal medication by 1(2%) woman and respiratory drugs by 4(6%) patients. Three (5%) were taking thyroxin and 1 (2%) was taking anti coagulants. Five (8%) were taking over the counter medication, which included vitamins, supplements and analgesics.

Table-6 Medical History

Disease	**n**	**%**
Heart Disease	9	14
Diabetes	8	12
Cancer	9	14
Mental Health	6	9
Heart Failure	3	5
Stroke	6	9
Heart Attack	5	8
Angina	6	9
Hypothyroidism	3	5
Respiratory	7	11
No Medical history	31	48

WEIGHT

Question 36-38 asked participants to self-report about their own weight. Only 32(49%) of the 65 surveyed considered their own weight as acceptable or healthy with 31(48%) assessing themselves as being overweight. The remaining two(3%) participants considered themselves to be underweight (Table 7).Twenty-five(39%) assessed their weight through clothing size and 23 (35%) through clothing fit (loose or tight).Twenty-two (34%) assessed their weight with the use of Body Mass Index scale. Five (8%) assessed their weight by comparison to others and 17 (26%) assessed their weight by how they felt. Eleven (17%), found other ways to assess their weight and these include scales and measurements. An increase in weight in the previous 12 months was reported by 23 (34%) participants, 13(20%) reported a decrease and 29(45%) reported no change in their weight.

Table 7 Participants self-assessment of weight

Age	Weight			Total
	Underweight	Acceptable or healthy	Overweight	
25-34years	0	7	13	20
35-44years	0	7	3	10
45-54years	1	9	5	15
55-65years	1	9	10	20
Total	2	32	31	65

BLOOD PRESSURE

In Question 39, 64 individuals were questioned whether they had undergone an evaluation of their blood pressure during the previous 12 months. 52 people, or 81%, said they have. Patients were questioned in questions 40 and 41 about what they had been previously told by a physician or nurse, or other health professional that they had high blood pressure, and if they were currently taking medication for high blood pressure. 22 (35%) of the participants stated that they were informed about their elevated blood pressure, and 14 (22%) said they were actively receiving medication for the condition. Of the twenty older patients, eleven (or 55%) had the most severe incidence of hypertension. Except for those in the 35–44 age range, high arterial pressure was recorded in every age group. (Table 8).

Table 8 Blood Pressure

Age	Have you ever been told you have high blood pressure?		Total
	Yes	No	
25-34years	4	15	19
35-44years	0	10	10
45-54years	7	8	15
55-65years	11	9	20
Total	22	42	64

EXERCISE

Question 42 asked if they had participated in any physical activities or exercises such as running, calisthenics, and golf, gardening or walking for exercise in the past month. Of the 64 patients who answered the question, a majority of 55 patients (86%) reported exercising within the past month. Patients across all age groups consistently reported that they exercised in the past month (Table 9).

Table 9 Exercise

Age	**Exercise**		**Total**
	Yes	**No**	
25-34years	16	3	19
35-44years	9	1	10
45-54years	13	2	15
55-65years	17	3	20
Total	55	9	64

CHOLESTEROL

Questions 43 to 45 asked patients three questions about cholesterol. The first question asked whether they've previously had a cholesterol evaluation. These second question asked how long it has been since their blood cholesterol had been checked and gave four responses ranging from within the past year to five or more years ago. Question third asked individuals if they ever got a diagnosis of elevated cholesterol levels from a physician, healthcare professional. Question 43 was responses by sixty-three patients. 10 (24%) out of the 41 patients who had their cholesterol checked said they had been informed by a doctor, nurse, or other healthcare provider that their cholesterol level was elevated. Of the 41 patient, more than half (65%) were having their cholesterol examined. Predictably, the most of these patients belonged to the 55–65 age range. Of the 41 patients who responded, twenty-four (or 59%) had cholesterol check done in the previous year. Seven (17%) and eight (19%) of them had their cholesterol examined in the recent five years, respectively. The two (5%) who were left had their cholesterol examined five years or more ago. (Table 10)

Table10 Patients reported to have been told those who have high cholesterol

Age	Those who have high cholesterol		Total
	Yes	No	
25-34years	2	5	7
35-44years	1	5	6
45-54years	0	11	11
55-65years	7	10	17
Total	10	31	41

TOBACCO USE

Questions 46-48 asked patients about tobacco use. Question 46 asked if they had smoked minimum 100 cigarettes in their entire life. Question 47 asked if they smoked every day, some days or not at al l and question 48 asked if they had stopped in the previous year, they attempted to stop smoking for at least one day. Out of the sixty-three patients, twenty-nine (46%) said they had never smoked 100 cigarettes in their lives. Of the patients surveyed, thirty-four (54%) said they had smoked 100 cigarettes or more during their lifetime. but 19 (56%) of those patients went on to report that they did not smoke at all now. Thirteen (38%) reported that they smoked every day and 2 (6%) still smoked some days (Table 11).Of the thirteen patients aged 25-34 years, 8 (61.5%) reported that they smoke at least sometime, which is a higher percentage than in any other age group (50% in 35-44 year olds;40% in 45-54 year olds and 14% of those 55-65) (Table 12).Seven (40%) reported that within the twelve months prior, individuals had attempted to give up smoking for at least one day. (table 11)

Table 11 Current Smoking Status

Age	Never Smoked	Current Smoker	Ex Smoker	Total
25-34years	7	6	5	18
35-44years	6	2	2	10
45-54years	5	4	6	15
55-65years	11	3	6	20
Total	29	15	19	63

Table 12 Frequency of smoking

Age	How often smoke			Total
	on a daily basis	Some Days	Not at all	
25-34years	6	2	5	13
35-44years	2	0	2	4
45-54years	4	0	6	10
55-65years	1	0	6	7
Total	13	2	19	34

ALCOHOL CONSUMPTION

Questions 49-52 asked patients about their alcohol consumption. A diagram showing quantities equivalent to one standard drink and a table with examples of standard drink quantities was provided at the beginning of these questions. Patients were questioned about whether they had been drinking any alcoholic beverages at all in the previous thirty days.. They were then asked how often they drank alcohol with the responses including monthly or less, two to four times a month, two to three times a week and 4(four) or more times a week. Question 51 asked how many standard drinks they would have on atypical day when drinking. There were five responses to choose from ranging from one or two up to 10 or more standard drinks. Finally,

Table 13 Standard drinks drunk on atypical day

Number of Drinks	n	%
1 or 2	27	54
3 or 4	10	20
5 or 6	7	14
7 to 9	3	6
10 or more	3	6
Total	50	100

Table 14 Alcohol Consumption

Age	No Alcohol	Moderate Alcohol 1-2 Standard drinks	Excess Alcohol 3 or more standard drinks	Total
25-34years	2	6	10	18
35-44years	1	5	5	11
45-54years	5	4	5	14
55-65years	6	12	3	21
Total	14	27	23	64

LIFE STYLE HABITS

The number of patients who had at least two risk factors for cardiovascular disease was calculated by adding up all of the risk categories. Previous experience of being advised by a health professional that one's hypertension or cholesterol was substantial, having been overweight, lacking in physical activity in the past 30 days, smoking now, and routinely eating over three conventional alcoholic drinks were among the risk variables that were looked at. Including were the results of 64 responses to questionnaires (Table 15).Of the sixty-four, thirteen (20%) had no lifestyles associated risks recorded, and fourteen (22%), the single risk factor. Three or more cardiovascular disease lifestyle risk factors were reported by the remaining 37 (58%) people.

Table 15 Total Risk Factors

Risk Factors	n	%
0	13	20
1	14	22
2	22	34
3	10	16
4	5	8
Total	64	100

Mean HDFQ scores for Patient with 0 through 4 Table sixteen presents high risk variables. The highest total no of risk variables that those who participated acknowledged was four, and the range of risk factors was 0 to 4. As discussed previously, knowledge score ranged from 52-100 as the maximum score.

Table 16 Heart disease knowledge and risk factors

RISK FACTORS TOTAL	N	Minimum	Maximum	Mean	Std. Deviation
0	13	60	96	86.15	9.60
1	14	68	100	86.57	9.23
2	22	52	92	81.27	10.20
3	10	72	96	84.40	7.41
4	5	56	92	76.80	14.53
Total	64	52	100	83.56	10.00

A deterministic variable representing 0–1 risk indicators (low or no risk of cardiovascular disease) or 2–+ risk factors (moderate to high risk of cardiovascular disease) was then created by collapsing the number of risk factors. The comprehension level was then subjected to a t-test conducted by an independent sample to see if there was any variation depending on the risk factor group. Table 17 provides descriptive data as well as the t-test outcomes.

Comparing both risk groups, there was a substantial variance in knowledge ($t = 1.96$, $p = 0.05$).The group means indicate that, compared to the higher risk group (mean = 81.51), the lower risk group (mean = 86.37) had a higher mean awareness score. Although the p-value is marginally more than the typical cutoff point of.05, the difference is nonetheless intriguing. Additionally, Cohen's d=0.500 shows a moderate impact size.

Table 17 Comparison between risk factor and knowledge score

Group	N	Mean	SD	t	*P*	*d*
Low Risk (0-1 risk factors)	27	86.37	9.23	1.96	0.05	0.50
High Risk (>1 risk factors)	37	81.51	10.17			

Have been told have high Blood Pressure

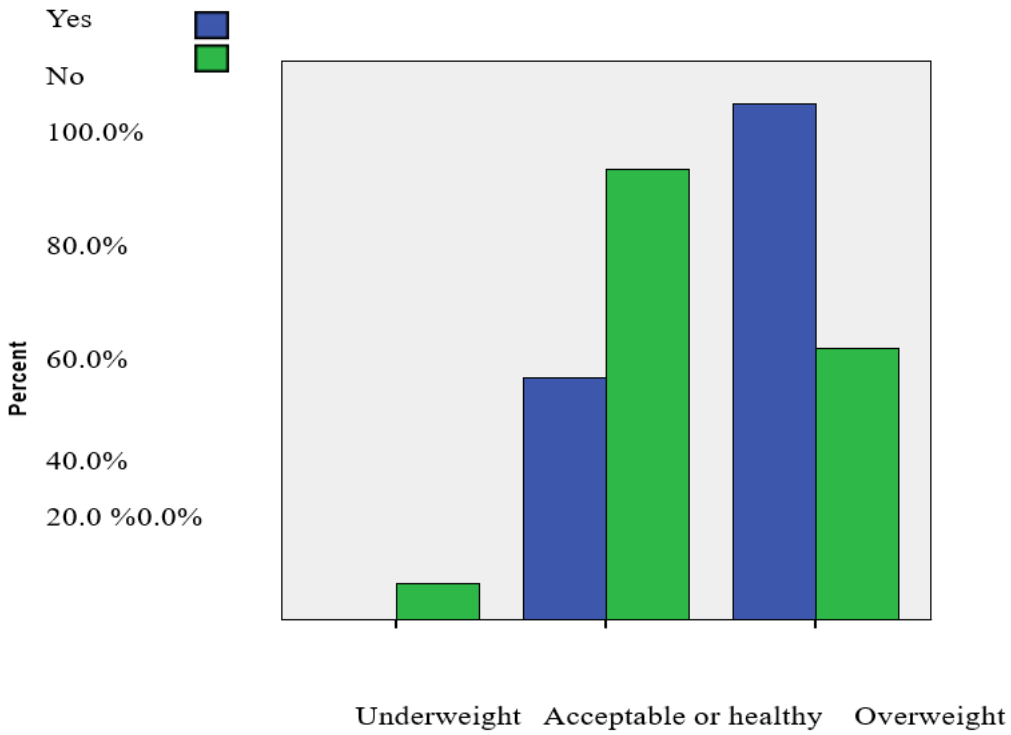

Figure 3 Weight assessment and high blood pressure

It is evident from looking at the respective incidences of patient in the weight groups that those who fall into the overweight group have been told they have hypertension more frequently than those who fall into the normal weight group. (Figure 3). Seven (22%) of the 32 patients who said that their weight was appropriate or healthy also said they had elevated blood pressure.

Fifteen patients (or fifty percent) who claimed to be overweight additionally stated having elevated blood pressure. Adolescent patient was additionally inclined to admit to being overweight, but they were also more certain that they had not had their blood pressure measured in the previous 12 months. (Table18).

Table 18 Blood Pressure checked

Age	Blood Pressure checked		Total
	Yes	No	
25-34years	14	5	19
35-44years	7	3	10
45-54years	12	3	15
55-65years	19	1	20
Total	52	12	64

SUMMARY- This study explored the perceptions, knowledge and awareness of coronary heart disease in rural patients. A questionnaire containing 52 questions was distributed to 93 rural patients attending a patients's health clinic over a 7-week period. A total of 65 (70%) questionnaires provided data for analysis. The results are presented in this chapter, in three sections. Section one presents the results of patients's awareness of heart disease as the greatest health problem and common cause of death in patients. Findings indicate that rural patients do not recognize heart disease as the leading cause of death in patients and perceive breast cancer as a greater health problem. Section two presents result of patients's knowledge of heart disease with the application of questions from the *Heart Disease Fact Questionnaire*. Overall, patients's knowledge of heart disease is quite good although patients's knowledge of cholesterol and diabetes did not rate well. Patients also did not recognize that age and menopause increase their risk of heart disease, particularly patients in the 55–65-year age group. Section three reported on patients's health and health promoting behaviours. A little less than half of the participants reported that they were overweight. Patients in all the age groups reported that they had been told by a health professional they had high blood pressure and a little over half reported that they had smoked at least 100cigarettes in their life. Younger patients were smoking more frequently than older patients. The majority of patients reported that they had exercised in the past month. Only half the patients reported having had their cholesterol checked and of those, patients in the 55–65-year age group were more likely to have been told they had high cholesterol. Patients

were also reporting large amounts of alcohol consumption in one session. These results suggest that while patients have a good knowledge of heart disease, they are not aware of the is risk of heart disease.

DISCUSSION

INTRODUCTION- This chapter interprets the findings of the study within the context of the available literature about patient and heart disease. The methods used to conduct the study have been taken into account. The discussion begins with a brief over view of how the study was conducted and the purpose of the study. This has been followed by a summary and evaluation of the main results. These are presented within three headings; awareness of heart disease, heart disease knowledge and behavior change. A discussion of the significance of the findings that included the implications in and on practice for nurses will follow with respect to education for patients about coronary heart disease. Limitations of the study are discussed along with recommendations for further research**.**

PURPOSE OF THE STUDY

The study was conducted to evaluate the current awareness, perception and knowledge of heart disease among rural patients aged twenty-five to sixty-five years. A self-reported questionnaire was distributed by nursing staff to patients aged 25-65 years attending a well clinic in Dehradun over even weeks of the study period. Participants completed the questionnaire in their own time and place and then returned the completed questionnaire to the researcher.

a. Assess rural patient's current level of awareness of heart disease as the leading cause of death in India.
b. Describe rural patients' current knowledge and perception of cardio vascular disease as well as actual risk of cardio vascular disease.
c. Evaluate whether heightened awareness and knowledge is associated with increased action to lower risk of heart disease.

SUMMARY OF FINDINGS

The findings of this study indicate that rural patients are unaware of their risk of heart disease as the leading cause of death. The findings of this study also suggest that the majority of patient do not perceive heart disease as a threat, but believe cancer poses a greater threat to their health. The results of this study also found that patients over all knowledge of heart disease were good. Nevertheless, there were two areas of knowledge that were suboptimal. These were patient's knowledge of age and menopause as risks of heart disease, as well as cholesterol. This knowledge though did not relate to positive action to minimize their own risks, with over half of participants having two or more life style risk factors for heart disease.

AWARENESS OF HEART DISEASE

The results of patient's lack of awareness of heart disease and their fear of cancer as a greater threat are consistent with other studies. National survey work for the Health Report and Indian Heart Foundation uncovered the staggering statistic that ninety seven percent of people were unaware that heart disease is the leading cause of death. While American Heart Association studies show that patients are becoming more aware of the problem of heart disease, this is not evident in the current study of Indian patients.

These perceptions differ from the actual statistics for the leading causes of death. According to the Indian Bureau of Statistics; ischemic heart disease is the leading cause of death in India. In 2011 17.5 million patients died of heart disease and twenty-seven thousand patients died of breast cancer. Ischemic heart disease is the number one cause of death of patients followed by cerebral vascular diseases, then dementia and Alzheimer's disease. Breast cancer is rated as the fourth cause of death in India.

A possible reason that patients underestimate the importance f coronary heart disease risk may be that this issue is not often discussed. An American Heart Association survey found that only 38% of medical officers discussed heart disease with their female patients and that only 20% of the female patients surveyed reported that a healthcare professional gave them information on heart disease in the past twelve months. A possible explanation for the lack of communication between health providers and their patients may be that there is a general focus on traditional patients's healthcare issues, such as breast disease and gynecologic problems. Other health care providers fail to discuss heart disease or its risk factors with their female patients because they think of heart disease primarily a man's disease, or as less serious in patients. This thinking leads to less aggressive treatment or even no treatment at all. Considering the impact of coronary heart disease on patients, this lack of communication and low level of awareness of the disease in patients are problematic.

The increased awareness of breast cancer may be related to the uniquely female aspect of the disease and to the excess of information on breast cancer that is targeted to patients. Breast cancer awareness is everywhere, particularly with recent high-profile patients who have been diagnosed with breast cancer. Televised dramas and documentaries do not help with raising awareness, as they tend to misrepresent heart disease as a disease afflicting men. General magazines, by contrast, have many columns devoted to losing weight, exercise and reducing fat intake. These concepts are never presented in terms of preventing heart disease, but packaged around aesthetic looks and slimness. From this perspective, heart disease in patients is not driving the health agenda. In addition, health pages in patients's magazines tend to discuss various forms of

cancer and in particular breast cancer, and offer tips on how to minimize the risks. Since breast cancer affect s many young patients and invades the organs connected with femininity and reproduction, it is the topic that is emotionally loaded, which presumably attracts a wide readership. Although the awareness of breast cancer has led to earlier detection and increased survival, the heightened concern surrounding cancer may over shadow other important health care issues. Cancer has many renowned patient who have come out and spoken about their personal story and recovery story.

HEART DISEASE KNOWLEDGE

The results of this study show that while patients may not acknowledge heart disease as the greatest health problem or the leading cause of death, they generally had a high level of knowledge of heart disease. There were a few deficits in patients's knowledge of heart disease and these related to menopause, age and cholesterol. Less than half the patients who participated in this study recognized that patients are at a higher risk of heart disease after menopause, or that their risk of heart disease increases with age. This was also found in an American study of patients and heart disease.In general, symptoms of coronary heart disease are first observed approximately ten years later in patients than in men. The delayed onset is often credited to the protective effect of female sex hormones. This theory is consistent with the findings of increased morbidity and mortality from heart disease after menopause.

While patients in this study were able to recognize that high cholesterol is a risk factor for developing heart disease, and were able to correctly find that 'good' cholesterol (HDL) is not a risk for heart disease and 'bad' (LDL) cholesterol is a risk for heart disease, they were notable to recognize that a person with diabetes tends to have low HDL cholesterol. This may be because while participants understood that one type should be high and the other low, their greater familiarity with the generalized term 'cholesterol' and their recognition that high (total) cholesterol levels are unhealthy result in confusion about cholesterol being both good and bad, with goals for high and low numbers. This may also indicate that while patients may know their total cholesterol number, many may not be aware of their HDL and LDL levels.

BEHAVIOURCHANGE

The results of this study found no relationship between knowledge of cardiovascular disease and risk-reducing behaviours. Greater knowledge of heart disease was not an indication that patients were engaging in better lifestyle behavior. These results are similar too their studies.The data examined were based on self-reported risk factor status and were dependent on the individuals' awareness of their risk factor status. Trends in awareness of risk factor status may be different from trends in actual risk factor status. Eighty one percent of patients surveyed reported having had their blood pressure checked in the past twelve months. Thirty five percent of patients were told they had high blood pressure, only half of these patients were taking medication for hypertension. Similar results were shown for patients with high cholesterol levels. There has been a significant decline in the proportion of people with high blood pressure (and /or receiving treatment) since the 1980s, yet there is thought to have been little change in blood cholesterol levels in the Australian population in the same period.

Cigarette smoking is the single most preventable cause of morbidity and mortality in Australia. the results of this study found that 24% of patients reported they were currently smoking, reflecting National Health results. The Australian Bureau of Statistics reports that the proportion of adults who are current smokers has changed marginally over time dropping from 24% in 2001 to 23% in 2004-05 (age adjusted). Smoking cessation markedly reduces overall cardiovascular risk. The risk of myocardial infarction is two to six times higher in people who smoke than in non-smoker.

Thirty six percent of patients who participated in this study were found to be drinking above the recommended levels for prevention of heart disease. Excessive alcohol consumption, including binge and heavy drinking has been linked to injuries and deaths from accidents. Long-term heavy drinking increases the risk for high blood pressure, heart arrhythmias and stroke. The National Heart Foundation recommends that alcohol intake should be limited to one standard drink per day for patient.

Obesity is an important determinant of coronary heart disease. Overweight and obesity are highly prevalent in rural areas of India and post significant risks to health. Overweight and obesity increases the risks for hypertension, heart disease and diabetes. Results from this study found that patients who reported being overweight are more likely to also have been told that they have high blood pressure. This is consistent with risk estimates from population studies suggest that 75% of hypertension can be directly attributed to obesity. In the last 20 years there has also been a significant ant increase in the proportions of overweight and obese.

Studies have shown that self-reported diabetes has more than doubled from 1.3% in 1989-90 to 2.9% in 2001. These figures may be underestimated though, as it has been found that when undiagnosed cases are Included, it is estimated that nearly one million Indian aged twenty-five and over (7.6% of the population) have diabetes. Diabetes is the sixth leading cause of death in India, and contributes to significant disability. Diabetes involves high rates of health service utilization, with morbidity and mortality increasing markedly with age. People with diabetes are two to four times more likely to develop cardiovascular disease. Diabetes shares risk factors with, and is itself a risk factor for coronary heart disease, stroke and peripheral vascular disease. People with diabetes are more likely to have a clustering of risk factors such as high blood cholesterol, over weight and high blood pressure, associated with the metabolic syndrome.

Over half of patients participants in this study reported having two or more lifestyle risk factors for heart disease. This was despite having a good knowledge of heart disease. This is consistent with other studies that found that patient's perception of their personal susceptibility to heart disease was not related to their knowledge about heart disease risk. Consequently,

this study demonstrates that patients may know about heart disease risk factors, nevertheless they may be unaware of their susceptibility to heart disease in relation to the risk factors. Without an awareness of personal susceptibility, patients may be less likely to take action to reduce the risk of heart disease.

Greater awareness and knowledge is associated with increased action to lower risk of heart disease. Prevention of coronary heart disease also contributes to decreased morbidity and mortality from other chronic illnesses such as diabetes, cancer, depression, chronic renal disease, respiratory disorders and musculoskeletal disorders. In fact, prevention of heart disease involves a healthy lifestyle that includes diet modifications, exercise, weight control, limiting alcohol and smoking cessation. This information, when introduced at a young age, will result in increased quality of life and less chronic illness for patients. Therapies and behavior modification that delay disease onset will markedly reduce overall disease prevalence, whereas therapies to treat existing disease will alter the proportion of cases that are mild as opposed to moderate/severe. The public health impact of such changes would likely involve both the amount and type of health services needed.

SIGNIFICANCE OF FINDINGS

RESPONSE RATE The present study achieved a rate of response 73% (68 out of 93 questionnaires returned). The achieve rate of response was more than the researcher's expectations of 50%, which was approximated from literature data on survey studies. The response rate varies and depends on many factors, such as subjects demographic profile, technique of conducting the survey and clarity of the questionnaire items. There is not a standard response rate to survey studies and therefore the response rate should be evaluated within the context of each study individually and compared with similar studies. Other published studies investigating patient's insight, knowledge and awareness of cardiovascular disease have not included postal surveys, but telephone surveys, making it difficult to compare response rates. The target population of the current study was relatively small and therefore relying solely on the retaining percentage to evaluate the success in recruiting subjects might be misleading.

IMPLICATIONS FOR PRACTICE

CVD in patients will consistently to be a public health priority as significant numbers of aging patients are at increased risk for morbidity and mortality related to heart disease. Healthcare systems need to begin to shift paradigms to emphasize healthy lifestyles for young patients. This approach will help prevent development of risk factors and minimize the need to manage them at a later time. Even though most heart disease is manifested in adults, the disease process can be giant a young age. Since to the magnitude of the complications of heart disease in patients and the evidence that risk can be decreased by a healthy lifestyle, there is an obligation to action before patients show symptoms of myocardial infarction. Educational programs targeting younger patients highlight the role of diet, exercise, smoking cessation and regular blood cholesterol measurements should be stressed in preventing heart disease. Because heart disease pathogenesis starts early in childhood, programs that emphasize heart disease risk education may have a significant impact on the disease's course. Studies have linked fatty streaks to atherosclerotic disease suggesting that awareness of CVD risk at adolescent age may have an effect on the rate of disease development in the subsequent 20-40years. It is therefore beneficial for the entire population, including children and adolescents, to have an awareness of the risk factors linked with CVD and the education necessary to modify risk factors as needed on an individual basis. Future health education for adolescents and young adults should be focused on avoidance of heart disease, because prevention of heart disease is important to this population.

Changes can be made to address cardiovascular disease, which is essentially a lifestyle condition. Research indicates that when preventative interventions are implemented in the early stages of the disease, the progression of coronary heart disease can be stopped or greatly slowed down. The benefits of early intervention, early identification of risk factors, and specific risk communication to patients are necessary for effective primary prevention of coronary heart disease. Risk assessment and transmission are critical because they help patients understand the consequences and create a more precise view of their risk of coronary heart disease, which may encourage them to start and continue healthy behaviors. Health professionals have advocated primary prevention of heart disease since long time, however it seems that patients in general are no the ending the message.

The public and other medical professionals can benefit enormously from nurses' education of the serious risk of heart disease in patients. Heart disease is not limited to men. It's a sickness of equal opportunity. The Heart Foundation and the media have mounted a massive public education effort about this potentially deadly ailment, but the myth persists.

Conclusion- The results of this study demonstrate that all patients need to be addressed about heart disease.

Nurses should look into novel approaches of educating patients about cardiovascular cardiac conditions. It is important for nurses to understand that while patient are far more likely to distinguish smoking, obesity, and sedentary as risk factors, they are less likely to be aware of conditions like diabetes, high blood pressure, aging, and hyperlipidemia. Patients should be taught on the worth of learning about the state of their cholesterol and how you can improve your cholesterol profile, as many of them are unfamiliar with having their cholesterol tested. When it concerns ensuring care that minimizes risks and promotes patient understanding, nurses could serve as members of teams that include multiple disciplines. Nurses having an interest in Patients cardiovascular health might plan and conduct educational events at nearby educational institutions, religious organizations, and workplaces for patients. Collaborating with the National Heart Foundation and Country Health in patients' education might be appropriate. Patients that become more aware may be at lower actual

danger and, as therefore, a better probability of not developing cardiovascular disease or experiencing it merely somewhat later in life.

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