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## SAFETY BEHAVIORS AND HEALTH STATUS OF PATIENTS WITH HYPERTENSIVE CARDIOVASCULAR DISEASE

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### ABSTRACT

The study describes the safety behaviors and health status of patients with hypertensive cardiovascular disease. A descriptive correlational design was used involving 40 patients recruited through convenience sampling. Mean scores, Chi-square and Pearson-r statistical tests were applied for analysis. Most of the patients belonged to 46-65 years old, females, and married. Duration of illness is about 3 years. The respondent's mean average scores for safety behaviors are generally good (M=2.95). The health status showed that general health is relatively good (2.81±0.97) and limitation of activities ranges from limited to not limited at all. Their physical health or emotional problems slightly interferes social activities. The profile is not significant to the safety behaviors and health status of the respondents. There is no significant correlation between respondent's safety behaviors and health status (r=.159). Provision of optimum care that best suits patient's need must be initiated by the health care providers.

### KEYWORDS

Hypertensive cardiovascular disease, Safety Behaviors and Health Status.

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### INTRODUCTION

Patients with hypertensive cardiovascular disease primarily needs total care specifically that address their health status and safety at all times. A hypertensive heart disease refers to a constellation of changes in the left ventricle, left atrium, and coronary arteries as a result of chronic blood pressure elevation<sup>1</sup>. Hypertensive heart disease is responsible for roughly one-fourth of all causes of heart failure. According to the Framingham Heart Study, hypertension has a 2-fold increase in the development of heart failure in men and a 3-fold

increase for women when adjusted for specific risk factors and age. The 2015 Systolic Blood Pressure Intervention (SPRINT) trial demonstrated a reduced risk of progression to heart failure in patients with more intensive blood pressure control with a target systolic blood pressure of 120mmHg (1.3%) compared with 140mmHg (2.1%). Proper management of hypertension correlates with a 64% reduction in the development of heart failure<sup>2</sup>. Hypertension is one of the most prevalent pathologies in America affecting approximately 75 million adults or one in three US adults. Of these patients diagnosed with hypertension, only 54% have adequate blood pressure control<sup>3</sup>. The global prevalence of hypertension is 26.4% which accounts for 1.1 billion people, yet only one in five people have adequately managed blood pressure. One study found that prolonged hypertension eventually leads to heart failure with a median time of 14.1 years. Meta-analyses have demonstrated a log-linear relationship between elevated blood pressure and increased risk of cardiovascular disease which increases substantially with age. In patients age 45-54 years old - 36.1% of males, 33.2% of females. In patients age 55-64 - 57.6% of males and 55.5% of females. In patients age 65-74 - 63.6% of males and 65.8% of females. In patients age 75 or older 73.4% of males and 81.2% of females. Hypertension is slightly more common in women and conveys an increased risk of heart failure (3-fold) in comparison to men (2-fold). Women are more likely to have uncontrolled blood pressure and recent studies have suggested certain classes of antihypertensive medications may be less effective in women<sup>1</sup>.

The long-term follow-up of patients with hypertensive heart disease includes monitoring of several factors. Furthermore, the effectiveness and choice of antihypertensive treatment, medication effectiveness and compliance, the presence or absence of coronary artery disease and degree of left ventricular (LV) systolic function, and the patient's dietary habits and exercise pattern require assessment. In addition, it is important to reinforce dietary advice and advice regarding the importance of regular exercise<sup>4</sup>. Workup for secondary causes of hypertension should be performed if not already

done. In addition, screen for complications related to hypertension, such as cerebrovascular disease, hypertensive retinopathy, worsening heart failure, and renal failure, and assess for LV hypertrophy (LVH) by electrocardiography or echocardiography. When evaluating the adverse effects of various medications, obtain a urinalysis and blood urea nitrogen (BUN) result, creatinine level, and electrolyte levels to rule out renal insufficiency and electrolyte imbalances secondary to medications and to quantitate proteinuria. A study by Leung *et al*<sup>5</sup> found a 30% incidence of hyponatremia ( $\text{Na} < 130\text{mmol}$ ) in long-term follow-up of patients who were exposed to thiazide diuretics for treatment of hypertension.

In order to treat hypertensive heart disease, a doctor has to treat the high blood pressure that is causing it. They will treat it with a variety of drugs, including diuretics, beta-blockers, ACE inhibitors, calcium channel blockers, angiotensin receptor blockers, and vasodilators<sup>6</sup>. In addition, a doctor may advise to make changes to lifestyle, including diet. If heart failure is present, a patient should lower daily intake of sodium to 1,500mg or 2g or less per day, eat foods high in fiber and potassium, limit total daily calories to lose weight if necessary, and limit intake of foods that contain refined sugar, trans fats and cholesterol. Monitoring weight that involves daily recording of weight, increasing activity level, resting between activities more oft as recommended and planning activities. Avoid tobacco products and alcohol. Regular medical checkups. During follow-up visits, the doctor will make sure a patient is staying healthy and that heart disease is not getting worse.

A systematic review and meta-analysis by Lou *et al*<sup>7</sup> demonstrated seventeen observational cohorts consisting of approximately 4.5 million young adults were included in the analysis. The average follow-up was 14.7 years. Young adults with normal blood pressure had increased risk of cardiovascular events compared with those with optimal blood pressure (relative risk 1.19, 95% confidence interval 1.08 to 1.31; risk difference 0.37, 95% confidence interval 0.16 to 0.61 per 1000 person years). Similar results were observed for coronary heart disease and stroke. The study concluded young adults with raised blood

pressure might have a slightly increased risk of cardiovascular events in later life. Because the evidence for blood pressure lowering is limited, active interventions should be cautious and warrant further investigation.

A retrospective cohort study by Ayele *et al*<sup>8</sup> discusses that hypertension can itself independently contribute to CVD. However, the influence is high with additional risk factors. Among all variables considered in this study: age, residence place, diabetes mellitus, proteinuria, number of drugs, systolic BP, and pulse rate were significantly associated with CVD. An increase in the age of patients increases the hazard of experiencing CVD by 5%. This is in line with Framingham Heart Study<sup>9</sup> in which participants were pooled according to the age: <60 years, 60 to 79 years, or ≥80 years, and showed that the absolute risks for CVD associated with increasing BP were increased markedly with increasing age. In China, Wang *et al*<sup>10</sup> examined the associations of hypertension onset age with cardiovascular disease (CVD) and mortality concluded that the risk for CVD was stronger in a younger age of onset (HR = 2.59, 95% CI: 1.32-5.07).

In Jordan, a cross-sectional study by Alomani *et al*<sup>11</sup> public's knowledge of hypertension and its associated factors concluded that the participants had inadequate knowledge regarding hypertension's complications, risk factors, symptoms, and treatment. Public health education programs that focus on hypertension knowledge are required. Nurses and other healthcare providers should take the initiative in hypertension education. Strategic planning and designing of hypertension programs are required to fit the needs of the Jordanian public to enhance their knowledge of hypertension and related preventive and control measures.

In Uganda, a pilot study<sup>12</sup> on hypertension education intervention with Ugandan nurses working in hospital outpatient clinic highlight the importance of using an evidence-based guideline to improve nurses' knowledge, skills and attitudes in blood pressure management based on the findings of the study. Risk assessment knowledge and skills must be emphasized during any educational intervention and

organized to accentuate short-, medium- and long-term benefits of high blood pressure (HBP) detection, prevention, and management. Evidence based strategies that improve nurses' capacity to manage HBP in a low resource primary setting are also imperative. Rolling out of the study intervention could improve nurses' practices especially those working in outpatient care settings.

In rural western Kenya, A study conducted by Vendanthan *et al*<sup>13</sup> about effect of nurse-based management of hypertension concluded that nurse-managed hypertension care can significantly improve blood pressure. However, retention in care remains a challenge. If these results are reproduced in prospective trial settings with improvements in retention in care, this could be an effective strategy for hypertension care worldwide.

In Turkey, a study on determination of nursing activities for prevention of heart attack and stroke in hypertension patients by Bayrak and Tosun<sup>14</sup> concluded that hypertension patients consider that they have low risk of having heart attack and stroke and consider themselves moderately adequate in terms of prevention of heart attack and stroke. It was determined that the hypertension patients consider themselves inadequate in terms of correct and adequate work out, controlling stress and correct and healthy diet in relation to prevention of heart attack and stroke. Education and counselling activities that the patients demand from the nurses were determined as what to do to prevent heart attack and stroke (medication use and lifestyle changes), situations in which they should apply to a hospital and what to do during a heart attack or stroke and education on heart attack and stroke risk factors and symptoms. Nurses should cooperate with other members of the healthcare team and determine the needs of the patients and education and counselling activities should be planned and implemented in this direction. It will be possible to prevent diseases such as heart attack and stroke with regular education in relation to lifestyle changes to be provided to the individuals by the nurses.

In Saudi Arabia, Gutierrez *et al*<sup>15</sup> published a study on cardiovascular disease risk factors: hypertension, diabetes mellitus and obesity among Tabuk citizens

found out that pointed out that as the magnitude of the BMI increases, the positive association with the risk factors also increases. Another important consideration is weight management, a fundamental step in countering cardiovascular health problems. Some of the weight loss activities that were found to be useful include: dietary pattern management and physical activities among others. One of the major identified recommendations is the creation of public awareness through campaigns to aid in reducing the prevalence of cardiovascular disease (CVD). The study recommends that a larger study covering all the aspects of risk factors associated with CVD should be conducted.

### **Objective**

To assess the safety behaviors and health status of patients with hypertensive cardiovascular disease.

### **MATERIAL AND METHODS**

A descriptive-correlational design was used in the study involving 40 patients in an out-patient department (OPD) in a private tertiary hospital, Cebu, Philippines. The study utilized a convenience sampling and data was gathered for 6 months. A profile survey was taken from the respondents in terms of age, sex, marital status, educational level, employment status, income, duration of illness, and frequency of medical checkup. A modified questionnaire on home care checklist (17 items) was used to determine the safety behaviors<sup>16</sup> of patients. Reliability of the questionnaire was tested prior to the actual survey. A Likert-scale ranging from 4 (strongly agree, interpreted as very good) to 1 (strongly disagree, interpreted as poor) responses was used. The questionnaire on health status<sup>17</sup> was utilized which identify patient's general health (2 items), limitation of activities (10 items), physical health (3 items), emotional health (3 items), social activities about emotional problems (1 item), pain (2 items), energy and emotions (9 items), social activities about physical health or emotional problems (1 item) and perception of general health (4 items). Responses used for the health status questionnaire includes the following: General health was rated from excellent to poor. The limitation of activities is from limited a lot to not limited at all.

Physical and emotional health problems involves yes and no responses. Social activities caused by emotional health and bodily pain were evaluated from not at all to very severe. How pain interfered their normal work was from not at all to extremely. The energy and emotions as well as social activities (how physical or emotional health interferes social activities) were from all the time to none of the time. General health was perceived using definitely true to definitely false.

Descriptive statistics (frequencies, mean, standard deviation) was used to describe respondent's characteristics. Chi-square test and Pearson product-moment correlation coefficient were used to assess the bivariate association between patient's demographic characteristics and mean scores. The level of significance was defined at a p-value <0.05. Permission from the hospital director was obtained before the beginning of data collection. The surveys were distributed after obtaining informed consent from the respondents. All information collected from the study was kept confidential.

### **RESULTS AND DISCUSSION**

During the survey, the medical diagnosis of the patients included 26 patients with acute myocardial infarction and 4 patients with hypertension DM II, 2 stroke patients, 6 patients with cardiomegaly and 2 patients for afibrillation medical diagnosis.

The total number of respondents was 40; males 18(45%) and females 22(55%). Most of the respondents were 46-65 years old (40%) and largely married (70%). The educational level was categorized into masteral, college graduate, college level, and high school graduate. The college graduate group was predominant with a total number of 17 respondents (42.5%) in the over-all sample. The employment status showed equal total number of 20(50%) for employed and unemployed respondents. Respondents with no income (50%) predominate in the over-all responses. The duration of illness is about 1-3 years (35%). On the basis of frequency of medical check-up, there were more (20.9%) patients who came in every three months and once a year. Detailed demographic data on the study sample is displayed on Table No.1.

Table No.2 displays the mean scores of safety behaviors of the patients. Items such taking or administering medications daily, exactly as prescribed ( $3.45\pm 0.71$ ), monitoring effects of medication ( $3.12\pm 0.60$ ), restricting sodium intake ( $2.77\pm 0.94$ ), participation in exercise program ( $2.97\pm 0.80$ ), increasing walking and activities gradually ( $3.07\pm 0.82$ ), avoiding activity in extremes heat and cold ( $2.87\pm 0.75$ ), recognizing that air conditioning may be essential in a hot, humid environment ( $3.10\pm 0.67$ ), avoiding tobacco ( $3.02\pm 1.02$ ), avoiding alcohol ( $3.02\pm 1.02$ ) and engaging in meditation, guided imagery or music therapy ( $2.85\pm 0.92$ ) are interpreted as generally good. The patient's safety behaviors on reporting signs such as loss of appetite ( $2.95\pm 0.74$ ), unusual shortness of breath ( $3.05\pm 0.71$ ), persistent cough ( $2.97\pm 0.69$ ), restless sleep ( $3.07\pm 0.65$ ), swelling of ankles, feet or abdomen ( $2.92\pm 0.72$ ), and changes in weight ( $2.65\pm 0.73$ ) were considerably good. Weighing self daily is fairly ( $2.42\pm 0.95$ ) done by the patients.

Table No. 3 indicates the health status of the respondents. The respondents rated their general health as good ( $2.81\pm 0.97$ ). Vigorous activities ( $2.15\pm 0.76$ ), moderate activities such as moving a table ( $2.30\pm 0.64$ ), climbing several flights of stairs ( $2.30\pm 0.60$ ), and walking more than a mile ( $1.97\pm 0.69$ ) were reported as limited a little. Lifting or carrying groceries ( $2.42\pm 0.54$ ), climbing one flight of stairs ( $2.67\pm 0.65$ ), bending, kneeling or stooping ( $2.47\pm 0.67$ ), walking several blocks ( $2.50\pm 0.55$ ), walking one block ( $2.75\pm 0.43$ ), and bathing or dressing self ( $2.82\pm 0.54$ ) is not limited at all. The physical health status resulted that more than half (25 or 58.1%) of the patients reported no health concerns related to cutting the amount of time spent on work or other activities and accomplishing less than they would like. 26 (60.5%) patients claimed no physical health limitation in the kind of work or other activities, and 24 (55.8%) patients experienced no difficulty in performing the work or other activities. With regards to emotional health status, 22(51.2%) patients deny cutting the amount of time spent on work due to emotional concerns and 23(53.5%) respondents have no related issues on

accomplishing work less than they would like. 30(69.8%) patients did not do work as carefully as usual. For social activities, the emotional problems slightly ( $1.87\pm 1.18$ ) interfered their normal activities with family, friends, neighbors or groups. A moderate pain ( $2.85\pm 1.16$ ) was felt during the past 4 weeks and that the pain they felt slightly ( $2.07\pm 0.99$ ) interferes their normal work. In terms of energy and emotions, most of the time the patients experienced full of pep ( $2.17\pm 1.08$ ), having a lot of energy ( $2.25\pm 1.19$ ) and been a happy person ( $2.22\pm 1.40$ ). Being a very nervous person ( $4.27\pm 1.73$ ), feeling worn out ( $4.02\pm 1.40$ ), and feeling tired ( $3.77\pm 1.40$ ) are felt some of the time. A little of the time for feeling so down ( $4.47\pm 1.67$ ) and feeling down hearted and blue ( $4.62\pm 1.54$ ). Their physical health or emotional problems interfered their social activities like visiting with friends and relatives most of the time. Feeling calm and peaceful was felt a good bit of the time ( $3.30\pm 1.95$ ). The patient's perception of health shows that some of the time, they seem to get sick a little easier than other people ( $3.07\pm 1.14$ ). The respondents do not know if they are healthy as anybody they know ( $3.20\pm 1.39$ ) and if they have excellent health ( $3.05\pm 1.21$ ). Expecting their health to get worse is mostly true ( $2.27\pm 1.08$ ).

Table No.4 presents the association between the profile and safety behaviors of the respondents. The data shows no significant relationship between the respondent's profile and safety behaviors.

Table No.5 reflects the association between the profile and health status of the respondents. The result shows that there is no significant correlation between the profile of the respondents and health status.

Table No.6 demonstrates the association between the variables of safety behaviors and health status. The analysis shows that the Pearson-r ( $r=0.159$ ) correlation test did not reveal any significant relationship between safety behaviors and health status.

### **Discussion**

The demographic characteristics of the respondents reveals that most of the respondents are from young to middle-aged group. A similar study concluded young adults with raised blood pressure might have a

slightly increased risk of cardiovascular events in later life<sup>7</sup>. Females predominate in the over-all samples which is congruent with the Framingham Heart Study pointing out that hypertension has a 2-fold increase in the development of heart failure in men and a 3-fold increase for women when adjusted for specific risk factors and age<sup>1</sup>. Furthermore, hypertension is slightly more common in women and conveys an increased risk of heart failure (3-fold) in comparison to men (2-fold). Women are more likely to have uncontrolled blood pressure and recent studies have suggested certain classes of antihypertensive medications may be less effective in women<sup>1</sup>. There were larger group of married respondents who participated during the study. A study conducted by Schultz *et al*<sup>18</sup> concluded that unmarried patients with known or suspected coronary artery disease (CAD) have an increased risk of all-cause and cardiovascular mortality compared with married individuals, even after extensive adjustment for differences in demographic and cardiovascular risk factors. The risk of adverse outcomes was attenuated with age. Accounting for unmarried status in the management of patients with CAD, consideration of associated psychological conditions and potentially more aggressive follow-up and therapy need to be considered in future studies. The result of the study pointed out that regardless of employment and income status, people of varying age and gender have developed hypertensive cardiovascular disease. In 1992, a study conducted by Kritz-Silverstein *et al*<sup>19</sup> found out that middle-aged women employed in managerial positions are healthier than unemployed women. A recent study by Zagozdzon *et al*<sup>20</sup> on the effect of unemployment on cardiovascular risk factors and mental health suggested based on observations that employment status is a predictor of specific disease risk profiles; consequently, specific preventive measures are needed in unemployed individuals. During the survey of the study, more respondents claimed that the duration of their illness is about 3 years and visited out-patient department (OPD) every 3 months and once a year.

The findings of the study reveal that despite respondents' medical illness, safety behaviors were

generally good. The result of the study provides valuable insights that strict adherence to health practices and behaviors prevents worse effects of cardiovascular disease. Therefore, compliance to medications, monitoring the effects of drugs recommended by the physician, restricting diet particularly sodium intake, and avoiding processed foods would help control the disease. Exercise program, increase mobility and engaging in other activities like meditation are some of the safety behaviors to live with. The respondents have stressed that they avoided tobacco, alcohol, and are aware to report any unusualities about their health. However, monitoring their weight daily was fairly practiced by the respondents. Monitoring weight that involves daily recording of weight, increasing activity level, resting between activities more oft as recommended, and planning activities<sup>6</sup>.

The respondents view their health as generally good. Vigorous and moderate activities, climbing several flights of stairs, and walking more than a mile were limited. A narrative review by Sharman *et al*<sup>21</sup> discusses evidence relating to exercise and cardiovascular (CV) risk in people with hypertension. Comparisons between aerobic, dynamic resistance, and static resistance exercise have been made along with the merit of different exercise volumes. High-intensity interval training and isometric resistance training appear to have strong CV protective effects. Screening recommendations, exercise prescriptions, and special considerations are provided as a guide to decrease CV risk among hypertensive people who exercise or wish to begin. It is recommended that hypertensive individuals should aim to perform moderate intensity aerobic exercise activity for at least 30 minutes on most (preferably all) days of the week in addition to resistance exercises on 2-3 days/week. In terms of physical and emotional health status, there were more patients who did not find any related issues pertaining to their physical and emotional health caused by their illness. Over-all, the extent of physical health or emotional problems slightly interferes their normal activities. Pain was felt moderately during the past 4 weeks and slightly interfered their normal work. For the respondent's

energy and emotions, feeling nervous, worn out, and feeling tired were felt some of the time during the last 4 weeks. Being downhearted was felt a little. Nevertheless, having full of pep, lot of energy, and being a happy person is felt most of the time. A scientific statement from the American heart association<sup>22</sup> stated that there are good data showing clear associations between psychological health and CVD and risk; there is increasing evidence that psychological health may be causally linked to biological processes and behaviors that contribute to and cause CVD; the preponderance of data suggest that interventions to improve psychological health can have a beneficial impact on cardiovascular health; simple screening measures can be used by health care providers for patients with or at risk for CVD to assess psychological health status; and consideration of psychological health is advisable in the evaluation and management of patients with or at risk for CVD. A study conducted by Rozario and Masho<sup>23</sup> on the associations between mental health status, hypertension, and hospital inpatient visits in women in the United States concluded that there is a significant association between mental health status and hypertension in women. The respondents perceived that they seem to get sick some of the time. Being healthy and having excellent health are things which they do not know. Expecting their health to get worse is perceived as mostly true. The respondent's perception of health clearly indicates that strengthening the importance of medication adherence and other safety health practices would somehow assist them to develop positive minds despite of their health condition. The long-term follow-up of patients with hypertensive heart disease includes monitoring of several factors. The effectiveness and choice of antihypertensive treatment, medication effectiveness and compliance, the presence or absence of coronary artery disease and degree of left ventricular (LV) systolic function, and the patient's dietary habits and exercise pattern require assessment. In addition, it is important to reinforce dietary advice and advice regarding the importance of regular exercise<sup>4</sup>.

The profile of the respondents is not associated to the safety practices and health status. This study revealed that there is no significant correlation between safety practices and health status. This study was administered to a smaller number of participants. However, it is noteworthy to mention that there are studies that have been conducted about association of some demographic characteristics and hypertensive heart disease and shows that some certain profiles are strongly associated to the disease. A systematic review and meta-analysis by Lou *et al*<sup>7</sup> demonstrated seventeen observational cohorts consisting of approximately 4.5 million young adults were included in the analysis. Young adults with normal blood pressure had increased risk of cardiovascular events compared with those with optimal blood pressure. Hypertension is slightly more common in women and conveys an increased risk of heart failure (3-fold) in comparison to men (2-fold). Women are more likely to have uncontrolled blood pressure and recent studies have suggested certain classes of antihypertensive medications may be less effective in women<sup>1</sup>. A study on marital status and outcomes in patients with cardiovascular disease acknowledged that patients who are unmarried, including those who are divorced, separated, widowed, or never married, have an increased rate of adverse cardiovascular events when compared to their married counterparts<sup>22</sup>.

**Table No.1: Profile of respondents**

S.No	Profiles	Frequency, n=40	Percentage
<b>Age</b>			
1	20-45 years old	15	37
2	46-65 years old	16	40
3	66 years old and above	9	22.5
<b>Sex</b>			
4	Female	22	55
5	Male	18	45
<b>Marital Status</b>			
6	Single	9	22.5
7	Married	28	70.0
8	Widow	3	7.5
<b>Educational Level</b>			
9	Masteral	15	37.5
10	College Graduate	17	42.5
11	College Level	4	10
12	High school Graduate	4	10
<b>Employment Status</b>			
13	Employed	20	50
14	Unemployed	20	50
<b>Income</b>			
15	<₱20,000	12	30
16	₱20,000-₱40,000	8	20
17	No Income	20	50
<b>Duration of Illness</b>			
18	Less than 6 months	13	32.5
19	6months-12months	6	15.0
20	1-3years	14	35.0
21	4-6 years	6	15.0
22	More than 6 years	1	2.5
<b>Frequency of Medical Check-Up</b>			
23	Once a week	6	14.0
24	Every two weeks	4	9.3
25	Every month	4	9.3
26	Every three months	9	20.9
27	Every four months	3	7.0
28	Every six months	5	11.6
29	Once a year	9	20.9



**Table No.2: Mean scores for safety behaviors, (n=40)**

S.No	Variable	Mean±SD
1	Take or administer medications daily, exactly as prescribed	3.45±0.71
2	Monitor effects of medication	3.12±0.60
3	Weigh self-daily	2.42±0.95
4	Restrict sodium intake, avoiding canned or processed foods	2.77±0.94
5	Participate in a daily exercise program	2.97±0.80
6	Increase walking and other activities gradually	3.07±0.82
7	Avoid activity in extremes of heat and cold	2.87±0.75
8	Recognize that air conditioning may be essential in a hot, humid environment	3.10±0.67
9	Avoid tobacco	3.00±1.17
10	Avoid alcohol	3.02±1.02
11	Engage in meditation, guided imagery or music therapy	2.85±0.92
12	Report immediately any of the following:	
13	loss of appetite	2.95±0.74
14	unusual shortness of breath	3.05±0.71
15	persistent cough	2.97±0.69
16	restless sleep	3.07±0.65
17	swelling of ankles, feet or abdomen	2.92±0.72
18	gain in weight	2.65±0.73

**Table No.3: Mean scores and frequencies for health status, (n=40)**

S.No	Variable	Mean±SD
<b>General Health</b>		
1	In general, would you say your health is:	2.92±0.85
2	Compared to one year ago, how would you rate your health in general now	2.70±1.09
<b>Limitation of Activities</b>		
3	Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	2.15±0.76
4	Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	2.30±0.64
5	Lifting or carrying groceries	2.42±0.54
6	Climbing several flights of stairs	2.30±0.60
7	Climbing one flight of stairs	2.67±0.65
8	Bending, kneeling, or stooping	2.47±0.67
9	Walking more than a mile	1.97±0.69
10	Walking several blocks	2.50±0.55
11	Walking one block	2.75±0.43
12	Bathing or dressing yourself	2.82±0.54
<b>Physical Health</b>		
13	Cut down the amount of time you spent on work or other activities	15 (34.9%)
14	Yes	
14	No	25 (58.1%)
15	Accomplishes less than you would like	
16	Yes	15 (34.9%)
17	No	25 (58.1%)
18	Were limited in the kind of work or other activities	
19	Yes	14 (32.6%)
20	No	26 (60.5%)
21	Had difficulty performing the work or other activities	

22	Yes	16 (37.2%)
23	No	24 (55.8%)
<b>Emotional Health</b>		
24	Cut down the amount of time you spent on work or other activities	
25	Yes	18 (41.9%)
26	No	22 (51.2%)
27	Accomplishes less than you would like	
28	Yes	17 (39.5%)
29	No	23 (53.5%)
30	Didn't do work or other activities as carefully as usual	
31	Yes	10 (23.3%)
32	No	30 (69.8%)
<b>Social Activities</b>		
33	Emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?	1.87±1.18
34	How much bodily pain have you had during the past 4 weeks?	2.85±1.16
35	During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?	2.07±0.99
<b>Energy and Emotions</b>		
36	Did you feel full of pep?	2.17±1.08
37	Have you been a very nervous person?	4.27±1.73
38	Have you felt so down in the dumps that nothing could cheer you up?	4.47±1.67
39	Have you felt calm and peaceful?	3.30±1.95
40	Did you have a lot of energy?	2.25±1.19
41	Have you felt downhearted and blue?	4.62±1.54
42	Did you feel worn out?	4.02±1.40
43	Have you been a happy person?	2.22±1.40
44	Did you feel tired?	3.77±1.40
<b>Social Activities</b>		
45	During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?	1.87±1.18
<b>Perception of Health</b>		
46	I seem to get sick a little easier than other people	3.07±1.14
47	I am as healthy as anybody I know	3.20±1.39
48	I expect my health to get worse	2.27±1.08
49	My health is excellent	3.05±1.21

**Table No.4: Association between profiles and safety behaviors of patients**

S.No	Profiles	$\chi^2$	p-value
1	Age and Level of Safety Behaviors	4.927	.508
2	Sex and Level of Safety Behaviors	20.544	.363
3	Civil Status and Level of Safety Behaviors	32.727	.712
4	Highest Educational Attainment and Level of Safety Behaviors	61.749	.310
5	Type of Employment and Level of Safety Behaviors	16.852	.600
6	Monthly Income and Level of Safety Behaviors	1.479	.579
7	Medical Diagnosis and Level of Safety Behaviors	38.155	.462
8	Duration of Illness and Level of Safety Behaviors	89.409	.139
9	Follow-up Checkup and Level of Safety Behaviors	1.055	.703

**Table No.5: Association between profile and health status of patients**

S.No	Profiles	$\chi^2$	p-value
1	Age and Extent of Health Status	5.977	.222
2	Sex and Extent of Health Status	23.863	.354
3	Civil Status and Extent of Health Status	46.546	.368
4	Highest Educational Attainment and Extent of Health Status	53.599	.864
5	Type of Employment and Extent of Health Status	19.654	.605
6	Monthly Income and Extent of Health Status	1.840	.323
7	Medical Diagnosis and Extent of Health Status	40.580	.619
8	Duration of Illness and Extent of Health Status	88.745	.458
9	Follow-up Checkup and Extent of Health Status	1.452	.204

**Table No.6: Association between profile and health status of patients**

S.No	Variable correlated	Pearson-r	Decision
1	Level of Safety Behaviors and Health Status of Patients	.159	Not Significant

### CONCLUSION

The findings of the study concluded that hypertensive cardiovascular disease is more apparent in young to middle-age groups and prevails among female and married groups. This study has shown that compliance to treatment regimen, safety behaviors can contribute to good general health. The result of this investigation stresses the importance of periodic evaluation of the health practices among patients with cardiovascular disease. It is important that health professionals focus on assessment of health behaviors including mental health status. Further studies, taking into account the variables being used in this study must be undertaken.

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### CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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