



A Study on Assessing the Quality Of Life In Hypertensive Patients With And Without Comorbidities

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ABSTRACT:BACKGROUND:Little information is known about the Quality of life in India. Measuring Health related Quality of life (HRQOL) helps evaluating the efficiency of a treatment and identifies problems with major impact on the patients QOL. However, co-morbidities influence the HRQOL of hypertensive patients.

OBJECTIVE: The purpose of the study was to assess Quality of life of hypertensive patients with and without co-morbidities.

METHODS: The study was conducted in 140 hypertensive patients [78 males & 62 females] at JAGRUTH hospitals in KHAMMAM using SF-36 questionnaire. Student t-test and Anova analysis were conducted.

RESULTS: Comorbidities were reported in 108 patients. Significantly lower HRQOL values were associated in hypertension with comorbidities . The HRQOL of hypertensive patients decreased significantly with age. The HRQOL values were lower for females and higher for literate patients.

CONCLUSION:In our study hypertensive patients without comorbidities are having better quality of life when compared with hypertension with comorbidities . The study concludes that comorbidities deteriorate all aspects of the HRQOL in patients with comorbidities.

KEYWORDS:SF-36 , QOL ,Hypertension, Comorbidities

I. INTRODUCTION

DEFINITION:

Hypertension is outlined as persistently elevated arterial blood pressure (BP). In hypertension diastolic pressure values are less than 90 mmHg and systolic pressure values are of 140 mmHg or more .Hypertensive crisis (BP>180/120 mmHg) categorized as hypertensive emergency (extreme BP Elevation with acute or progressive target organ damage) or hypertensive urgency (high

BP elevation without acute or progressive target organ injury).^[1]

BLOOD PRESSURE :

During systole, the left ventricle contracts, ejecting blood systemically into the arteries, causing a sharp rise in arterial BP.This is the systolic BP (SBP). The left ventricle then relaxes during diastole, and arterial BP decreases to a trough value as blood returns to the right atria and ventricle of the heart from the venous system. This is the diastolic BP (DBP). Mean arterial pressure (MAP) is the average pressure throughout the cardiac cycle of contraction. Mean arterial pressure (MAP) is sometimes used to represent BP. MAP collectively reflects both SBP and DBP, with one-third of the pressure from SBP and two-thirds from DBP.

It is calculated using the following equation :

$$MAP = ([SBP] \cdot [1/3]) + ([DBP] \cdot [2/3])^{[2]}$$

EPIDEMIOLOGY:

As per the World Health Statistics 2012, of the estimated 57 million global deaths in 2008, 36 million (63%) were due to non-communicable diseases (NCDs). The largest proportion of NCD deaths is caused by cardiovascular diseases (48%). In terms of attributable deaths, raised blood pressure is one of the leading behavioural and physiological risk factor to which 13% of global deaths are attributed. Hypertension is reported to be the fourth contributor to premature death in developed countries and the seventh in developing countries.

In a meta-analysis of multiple cardiovascular epidemiological studies, it was reported that prevalence rates of coronary artery disease and stroke have more than doubled in the Indian population. In the INTERHEART and INTERSTROKE study, hypertension accounted for 17.9% and 34.6% of population attributable risk of



various cardiovascular risk factors for coronary artery disease and stroke respectively. As per the Registrar General of India and Million Death Study investigators (2001-2003), CVD was the largest cause of deaths in males (20.3%) as well as females (16.9%) and led to about 2 million deaths annually. Mortality data from CVD in India are also reported by the WHO.

The Global Status on Non- Communicable Diseases Report (2011) has reported that there were more than 2.5 million deaths from CVD in India in 2008, two-thirds due to coronary artery disease and one-third to stroke. These estimates are significantly greater than those reported by the Registrar General of India and shows that CVD mortality is increasing rapidly in the country. CVD is the largest cause of mortality in all regions of the country.

Hypertension awareness, treatment and control status is low, with only half of the urban and a quarter of the rural hypertensive individuals being aware of its presence. It has been seen that only one in five persons is on treatment and less

than 5% are controlled. Rural location is an important determinant of poor hypertension awareness, treatment and control. It has been said that in India the rule- of-halves is not valid and only a quarter to a third of subjects are aware of hypertension.^[3]

CLASSIFICATION:^[4]

- The JNC VII classification of BP in adults (age ≥ 18 years) is based on the average of two or more properly measured BP readings from two or more clinical encounters
- . It includes four categories, with normal values considered to be an SBP of less than 120 mm Hg and a DBP of less than 80mmHg.
- Prehypertension is not considered a disease category but identifies patients whose BP is likely to increase into the classification of hypertension in the future.
- There are two stages of hypertension, and all patients in these categories warrant drug therapy.

CATEGORY	Systolic(mmHg)		Diastolic(mmHg)
Normal	<120	And	<80
Pre-Hypertension	120-139	Or	80-89
Stage-I	140-159	Or	90-99
Stage-II	≥ 160	Or	≥ 100

Table. No-1 Stages of Hypertension according to JNC-VII.

CLINICAL PRESENTATIONS:

SYMPTOMS:

- Patients with uncomplicated primary hypertension are usually asymptomatic initially .
- Patients with secondary hypertension may have symptoms of the underlying disorder .
- Patients with pheochromocytoma may have :
 - ✓ Head ache
 - ✓ Sweating
 - ✓ Tachycardia
 - ✓ Palpitations
 - ✓ Orthostatic hypotension.
- In primary aldosteronism, hypokalemic symptoms of muscle cramps and weakness may be present.

SIGNS:

- Patients with cushing syndrome may have weight gain, polyuria,edema, menstrual irregularities, recurrent acne , or muscular weakness in addition to classic features (moon face , buffalo hump , and hirsutism).^[1]

COMPLICATIONS:

- Myocardial infarction
 - Stroke
 - Cerebral / brain stem infarction
 - Cerebral haemorrhage
 - Lacunar syndromes
 - Multi infarct disease
 - Hypertensive encephalopathy/ malignant hypertension
 - Dissecting aortic aneurysm
 - Hypertensive nephrosclerosis
 - Peripheral vascular disease
- The most common and important of these are stroke and myocardial infarction.^[8]

DIAGNOSIS:

- Elevated BP may be the only sign of primary hypertension on physical examination .diagnosis should be based on the average of two or more readings taken at each of two or more clinical encounters.
- Signs of end organ damage occur primarily in the eyes, brain, heart, kidneys, and peripheral blood vessels.



- Fundoscopic examination may reveal arterial narrowing, focal arteriolar constrictions, arteriovenous nicking, retinal haemorrhages and exudates, and disc edema. Presence of papilledema usually indicates a hypertensive emergency requiring rapid treatment.
- Cardiopulmonary examination may reveal abnormal heart rate or rhythm, left ventricular hypertrophy, coronary heart disease, or heart failure.
- Peripheral vascular examination may reveal aortic or abdominal bruits, distended veins, diminished or absent peripheral pulses, or lower extremity edema.
- Patients with renal artery stenosis may have an abdominal systolic-diastolic bruit.
- Base-line hypokalemia may suggest mineralocorticoid-induced hypertension. protein, blood cells, and casts in the urine may indicate renovascular disease.
- Laboratory tests: Blood urea nitrogen (BUN)/serum creatinine, fasting lipid panel, fasting blood glucose (FBS), serum electrolytes (sodium and potassium), spot urine albumin-to-creatinine ratio, and estimated glomerular filtration rate (GFR, using the Modification of Diet in Renal Disease (MDRD)). A 12-lead electrocardiogram (ECG) should also be obtained.
- Laboratory tests to diagnose secondary hypertension: Plasma norepinephrine and urinary metanephrine levels for pheochromocytoma, plasma and urinary aldosterone concentration for primary aldosteronism, plasma rennin activity, captopril stimulation test, renal vein rennin, and renal artery angiography for renovascular disease.^[9]

NONPHARMACOLOGIC THERAPY:

- ✓ Weight loss, even as little as 10 pounds, can decrease BP significantly in hypertensive overweight individuals.
- ✓ Diets rich in fruits and vegetables and low in saturated fat have been shown to lower BP in hypertensive individuals.
- ✓ The DASH eating plan is a diet that is rich in fruits, vegetables, and low-fat dairy products with a reduced content of saturated and total fat.
- ✓ The recommended restriction is less than 2.4 g (100 mEq) sodium per day. Patients should be aware of the multiple sources of dietary sodium (e.g., processed meats, soups, and table salt) so that they may follow this restriction.

- ✓ Excessive alcohol use can either cause or worsen hypertension. Hypertensive patients who drink alcoholic beverages should restrict their daily intake.
- ✓ Physical activity can lower BP. Regular aerobic exercise for at least 30 minutes a day most days of the week is ideal for most patients. Aerobic exercise, such as jogging, swimming, walking, and bicycling, can reduce BP.
- ✓ These benefits can occur even in the absence of weight loss.
- ✓ Cigarette smoking is a major independent, modifiable risk factor for cardiovascular disease. Hypertensive patients who smoke should be thoroughly counseled regarding the additional risks that smoking incurs. Moreover, the potential benefits that cessation can provide should be explained to encourage quitting. Several smoking-cessation programs, pharmacotherapy options, and aids are available to assist patients.

Hypertension In Special Situations:

Hypertension with Diabetes Mellitus:

30% to 35% of hypertensive patients are detected to have co-existing diabetes mellitus. Similarly, the prevalence of hypertension is 1.5 to 2 times greater in patients with diabetes mellitus as compared to non-diabetic subjects. Co-existence of diabetes and hypertension leads to increased cardiovascular morbidity and mortality. The progress of type 2 diabetes in India is increasing at a very fast pace and this is likely to also contribute to a significant burden of hypertension.

Hypertension with Cerebrovascular Disease:

The evidence for reduction in incidence of stroke with control of blood pressure has been consistent. In clinical trials, antihypertensive therapy has been associated with reductions in stroke incidence averaging 35% to 40%.

In stroke survivors with hypertension, blood pressure lowering therapy has been shown to result in 43% reduction in stroke recurrence.

Hypertension in the Elderly:

The prevalence of hypertension increases with age. The population of India aged 65 years and above is projected to increase from 51 million in 2005 to 65 million in 2015 and 76 million in 2020. A community based study in Mumbai in 1980 showed increase in BP with age, with prevalence in 15% of total population surveyed, 34.5% in those over 55 years, 38.5% in those over 65 years and 44.4% in those over 70 years. In elderly population,



systolic hypertension is the commonest form of hypertension.

Hypertension with Congestive Cardiac Failure:

Congestive cardiac failure is a common sequel of long standing hypertension and adequate control of BP improves mortality in these patients.

Hypertension with Chronic Obstructive Pulmonary Disease:

Hypertension in patients with COPD and bronchial asthma is seen.^[11]

QUALITY OF LIFE:

WHO defines Quality of Life as individuals perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment.^[12]

Quality of life (QoL) is a ubiquitous concept that has different philosophical, political and health-related definitions.^[13]

Quality of life (QOL) is a popular term that conveys an overall sense of well-being, including aspects of happiness and satisfaction with life as a whole. It is broad and subjective rather than specific and objectives.

Health is an important domain of overall quality of life, there are other domains as well—for instance, jobs, housing, schools, and the neighbourhood. Aspects of culture, values, and spirituality are also key aspects of overall quality of life that add to the complexity of its measurement. Nevertheless, researchers in the fields of psychology and sociology have developed useful techniques that have helped to conceptualize and measure these multiple domains and how they relate to each other.

Health Related Quality Of Life :

- ✓ Health-related QoL (HRQoL) includes the physical, functional, social and emotional well-being of an individual.
- ✓ HRQoL therefore can be defined as persons perceived quality of life representing satisfaction in those areas of life likely to be affected by health status.^[14]
- ✓ HRQoL is a patient-reported outcome usually measured with carefully designed and validated instruments such as questionnaires or semi-structured interview schedules.

- ✓ Health Related Quality of Life (HRQoL) is a broad multidimensional concept that usually includes subjective evaluations of both positive and negative aspects of life.
- ✓ Measuring HRQoL can help determine the burden of preventable disease, injuries, and disabilities, and it can provide valuable new insights into the relationships between HRQoL and risk factors, such as self-reported chronic diseases (diabetes, breast cancer, arthritis, and hypertension), and their risk factors (body mass index, physical inactivity, and smoking status).
- ✓ The concept of health-related quality of life (HRQOL) and its determinants have evolved since the 1980s to encompass those aspects of overall quality of life that can be clearly shown to affect health—either physical or mental (McHorney 1999).^[15]
- ✓ On the individual level, this includes physical and mental health perceptions and their correlates, including health risks and conditions, functional status, social support, and socioeconomic status.
- ✓ However, some aspects of health do not appear to have a direct bearing on quality of life at the time of assessment. These include an illness, exposure, or genetic predisposition that is unknown to the individual without symptoms.
- ✓ HRQOL includes resources, conditions, policies, and practices that influence a population's health perceptions and functional status.
- ✓ HRQOL is rapidly gaining acceptance as a measurable outcome. HRQOL questions about perceived physical and mental health and function have become an important component of health surveillance and are generally considered valid indicators of service needs and intervention outcomes.
- ✓ Self-assessed health status has proved a more powerful predictor of mortality and morbidity than many objective measures of health (Idler 1997).
- ✓ HRQOL measures make it possible to demonstrate scientifically the impact of quality of life on health, going well beyond the old paradigm that was limited to what can be seen under a microscope.
- ✓ HRQOL is related to both self-reported chronic diseases (diabetes, breast cancer, arthritis, and hypertension), and their risk factors (body mass index, physical inactivity, and smoking status).



- ✓ Measuring HRQOL can help determine the burden of preventable disease, injuries, and disabilities, and it can provide valuable new insights into the relationships between HRQOL and risk factors.
- ✓ HRQOL assessment is a particularly important public health tool for the elderly in an era when life expectancy is increasing, with the goal of improving the extra years in spite of the cumulative health effects associated with normal aging and pathological disease processes.

FACTORS AFFECTING QUALITY OF LIFE :

Factors like socio demographic factors , psychosocial factors ,clinical factors , physical factors affect the quality of life in hypertensive subjects.

SOCIO DEMOGRAPHIC FACTORS:

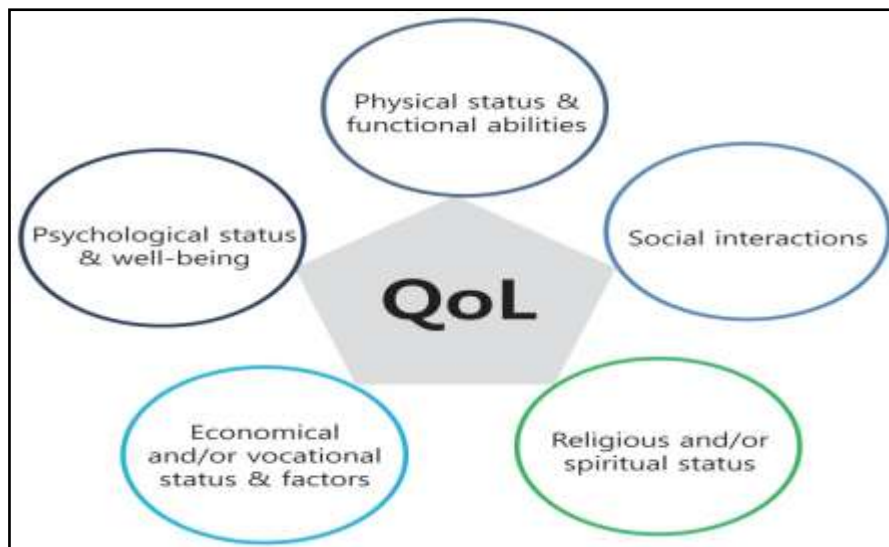
- Age, gender, region, education level, occupation marital status etc affect the quality of life in hypertension people. HRQOL of women with hypertension is lower than that in men of same age.
- Nationwide, approximately 78 million people are reported to have HTN (Go et al., 2013), which increases sharply with advancing age. While half of those between 60 to 69 years of

age are affected by HTN, for those over 70 years of age and older, the prevalence is 75% (Chobanian et al., 2003).

- Education is one of the most important factordetermining health related quality of life. Normotensive and hypertensive subjects with higher level of education are characterised by a HRQOL . In contrast low levels of education and low socio economic status are associated with great morbidity and mortality due to hypertension as well as reduced HRQOL.

CLINICAL FACTORS:

- Various clinical factors influence HRQOL such as BP, Effectiveness of BP control, disease complications, number of drugs used, body weight. Uncontrolled BP may be the one of the most important factor s influencing HRQOL. Obesity is another important factor influencing HRQOL ,especially in hypertensive women.
- A useful indicator of quality of life is number of drugs taken by subject .A Close relationship exists between number of drugs taken and HRQoL.
- BP showed down the process of decreasing HRQoL in older age and positively influenced psychological (eg. Cognitive function, mood), physical ability .^[16]



GENERIC INSTRUMENTS TO MEASURE QUALITY OF LIFE:

- The Medical Outcomes Study 36-Item Short Form (SF-36) health survey;
- The Nottingham Health Profile (NHP);
- The Sickness Impact Profile (SIP);

- The Dartmouth Primary care Cooperative Information Project (COOP) Charts;
- The Quality of Well-Being (QWB) Scale;
- The Health Utilities Index (HUI); and
- The Euroqol Instrument (EQ-5D).

Disease specific Instruments:



1. MINICHAL

2. SF-36

AIMS AND OBJECTIVES

AIMS:

To Assess the quality of life of Hypertensive patients in khammam region

Specific Objective:

1. To measure the health related quality of life (HRQoL) in patients suffering from hypertension by means of SF-36 questionnaire.

NEED FOR THE STUDY

The aim of the study was to evaluate the quality of life (QOL) of hypertensive patients in our population and to determine the related factors. Although there is improvement in hypertension disease treatment, patients continue to have significant problems with their quality of life (QOL). Hypertension is a chronic condition or disease with which there is a high incidence of comorbidities like diabetes, Chronic Kidney failure, Stroke and respiratory diseases. Hypertension have been associated with reduced QOL compared with general population, and measures QOL in hypertension have been associated with increased frequency of hospitalization and mortality rates. In chronic diseases, too many differences have been observed in correlation between demographic factors and HRQoL as well its components and subscales. However, some authors believe HRQoL is affected by age, gender, level of education, marital status and income. In opposition, others showed that these factors had no impact on HRQoL. Therefore, we investigated to determine QOL scores and its related factors among hypertensive patients.



II. MATERIALS AND METHODS

STUDY SITE:

The study was conducted in JAGRUTH hospitals khammam. It is an out-patient and In-patient based reputed hospitals in khammam. The patients from various places visit these clinics for treatment of various diseases and related complications.

STUDY DESIGN:

The present study is a prospective observational study.

STUDY PERIOD:

The study was carried out for a period of 6months.

STUDY CRITERIA:

Inclusion Criteria

- Patients of hypertension and of either sex.
- Inpatients and outpatients .
- Patients who are willing to fill informed consent form.

Exclusion Criteria:

- Patients who are pregnant.
- Patients who are having mental instability, hearing or cognitive impairment .
- Patients who are not willing to fill Informed consent form.

Sources of Data:

All the relevant and necessary data will be collected from

- Patients case notes
- By interviewing the patient and patients care takers.

All the collected data was documented in a suitably designed data collection form developed for the study

Designing of data collection form :

A suitable data collection form was designed to collect , document and analyze the data . Informed consent section was also incorporated in the data collection form . Data collection form included the provision for collection of information related to demographic details of patients (Name, Age, Sex) , Employment status , Education status, Religion and comorbidities.

SCALES USED :

One scale was used in this study to achieve study objectives .

The SF-36 is a standardised questionnaire derived from a larger set of questions used in the US Medical Outcomes Study in the mid-1980s (Ware and Sherbourne 1992). The SF-36 has become one of the most widely used of the health-related quality of life measures.

The SF-36 questionnaire consists of 36 questions (items) measuring physical and mental health status in relation to eight health concepts with items about

- Physical functioning,
- Role limitations due to physical health,
- Bodily pain,
- General health perceptions,
- Vitality (energy/fatigue),
- Social functioning,
- Role limitations due to emotional health,
- General mental health (psychological distress/wellbeing).

The first 12 questions measure 'physical and mental functioning' with items about general health, activity limits, ability to accomplish desired tasks; questions 13-19 measures 'physical health problems and emotional health problems' with items about feeling depressed or anxious ; Questions 20- 36 measures about social activities , energy and emotions, general health problems.

Responses to each of the SF-36 items are scored and summed according to a standardised scoring protocol (Ware et al 1993), and expressed as a score on a 0–100 scale for each of the eight health concepts. Higher scores represent better self-perceived health. Five of the scales are 'unipolar' (Physical Functioning, Role Physical, Bodily Pain, Social Functioning, and Role Emotional), meaning that they define health status in terms of the absence of disability. The maximum score of 100 is therefore achieved when no disability is reported. The other scales (General Health, Vitality and Mental Health) are 'bipolar' scales, covering both positive and negative health states. The maximum of 100 on these bipolar scales therefore indicates not just the absence of disability, but the presence of a positive state of health.^[17]

Methodology:

- The study team visited the study sites every day on regular basis.
- Patients meeting the inclusion and exclusion criteria are selected for the study.
- The patient are explained in detail about the study and asked to fill the informed consent form.



- All the relevant patient data was collected from the patient and documented in a suitably designed data collection form.
- Assessment of quality of life of hypertensive patients was done by using SF-36 questionnaire.
- All collected data will be analyzed using relevant statistical method.

Statistical Methods:

Data was collected using structured questionnaire and data obtained was analyzed through the softwares“ GraphPad Prism and SPSS”. The statistics used for

analysis the data was “ t-test and One-way Anova

III. RESULTS

Demographic characteristics of the study patients:

Gender:

A total of 140 patients were enrolled into the study from the general medicine wards of two Hospitals during the period from 6 months. Of the 140 patients, majority of the population were males 78(55.71%) while 62(44.28%) were females. The details of gender of study population are presented in the Table 4.

Table 4. Gender of the study population

GENDER	No of Patients
MALE	78 (55.71%)
FEMALE	62(44.28%)

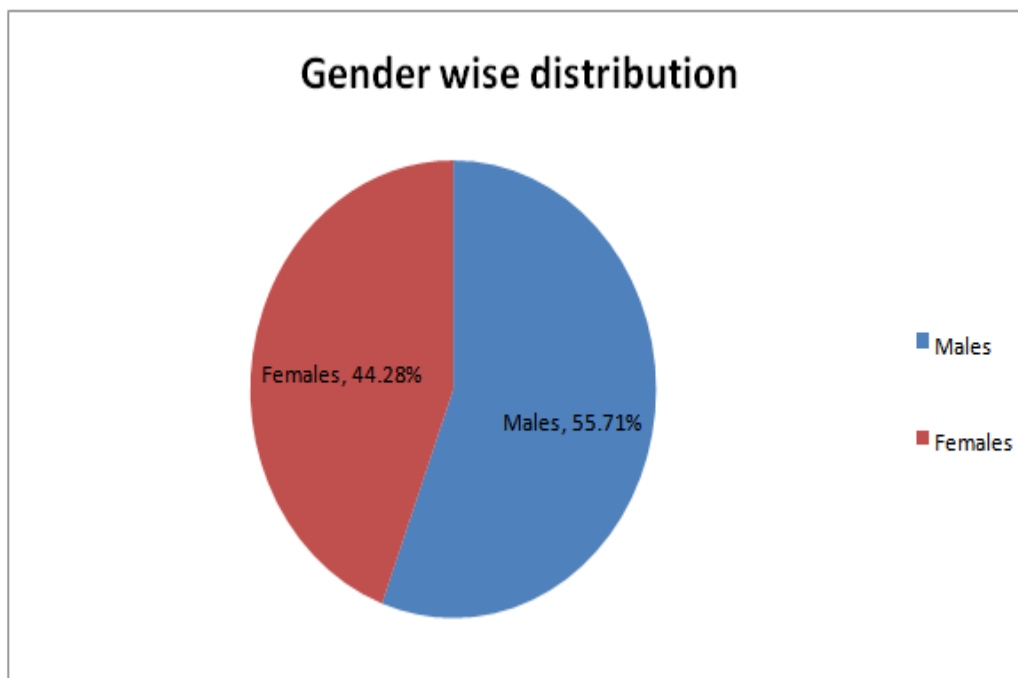


Fig. No.2 Distribution based on Gender

Age:

Among 140 patients , 10 patients [07 Male and 03 female] fall in the age range of 30-40 years, 24 patients [14 male and 10 female] fall in age range of 41-50 , 38 patients [18 male and 20 female] fall in age range of 51-60 years , 68

patients [39 males and 29 females] fall in age Above 60 years . Among them the number of male patients was more than female patients and the maximum numbers of patients were found in the age above 60 years. The mean age was 60 .



Table 5. Age of the study population

S.No	Age (Years)	Male	Female	Percentage
1	30-40	7	3	7.14%
2	41-50	14	10	17.14%
3	51-60	18	20	27.14%
4	Above 60	39	29	48.58
	Total	78	62	100%

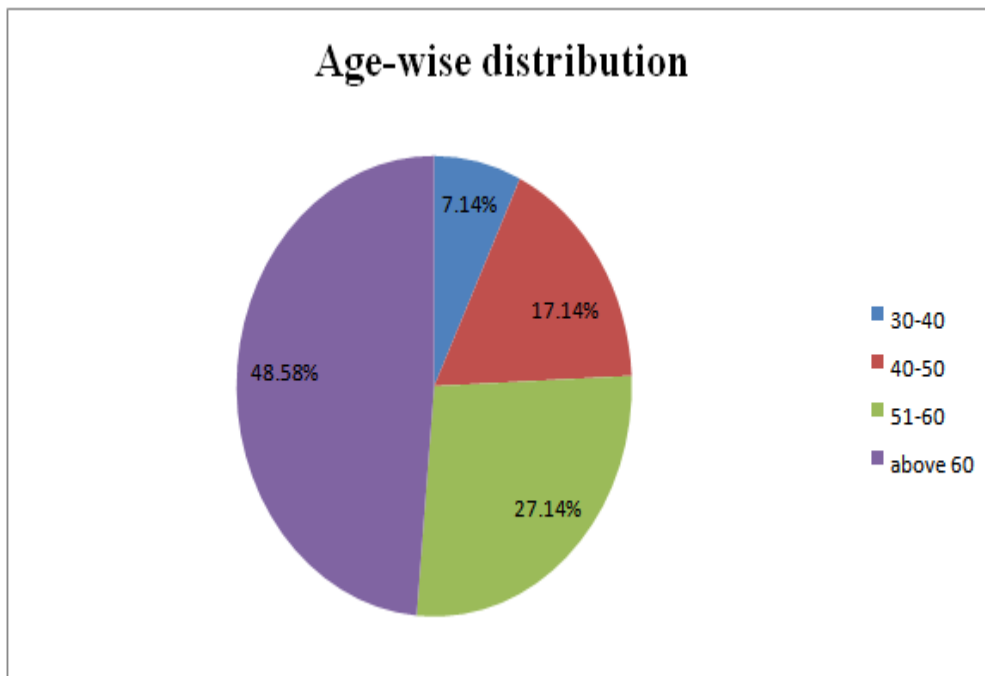


Fig .No.3 Distribution based on Age

Education:

Among 140 patients 51 (36.42%) were illiterate and 89 (63.57%) were literate

Table .No.6 Education of the study population

Educational Status	No Of Patients	Percentage %
Illiterate	51	36.42%
Literate	89	63.57%
Total	140	100%

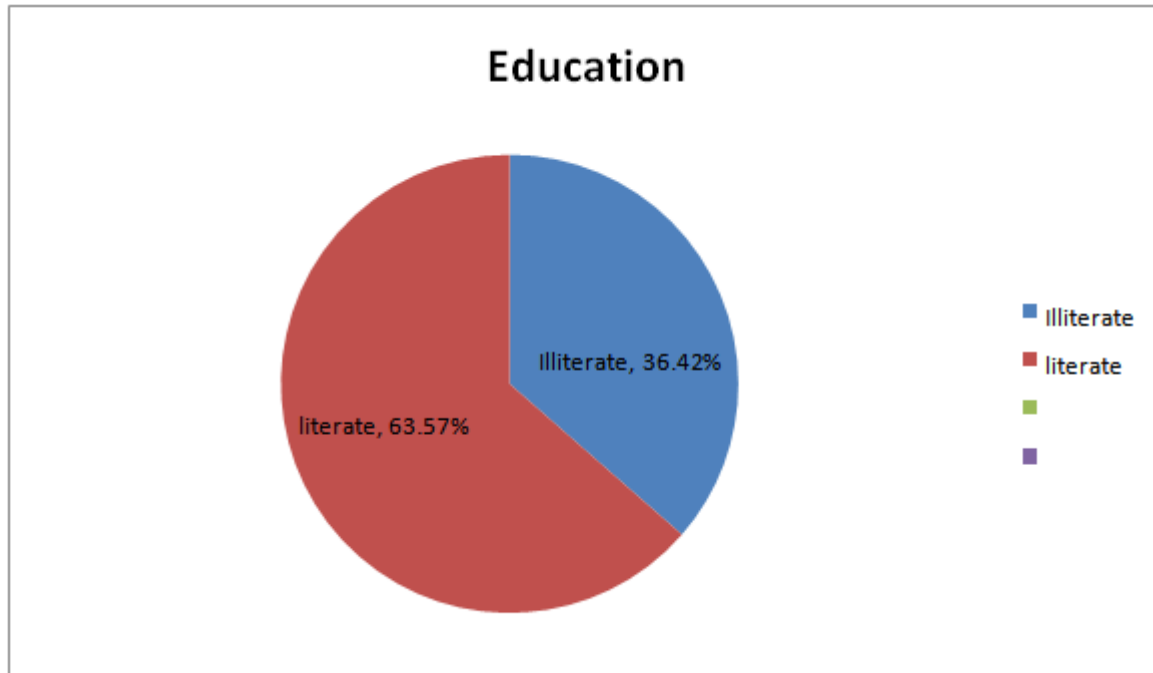


Fig. No 4 .Distribution based on Education

Employment:

Among 140 patients, 22.14% were employed, 25.71% were housewife, 15.71% were others , 36.42% were retired.

Table 7. Employment status of the study population

S.No	Employment status	No. of Patients	Percentage
1	Employee	31	22.14%
2	House wife	36	25.71%
3	Others	22	15.71%
4	Retired	51	36.42%
	Total	140	100.00%

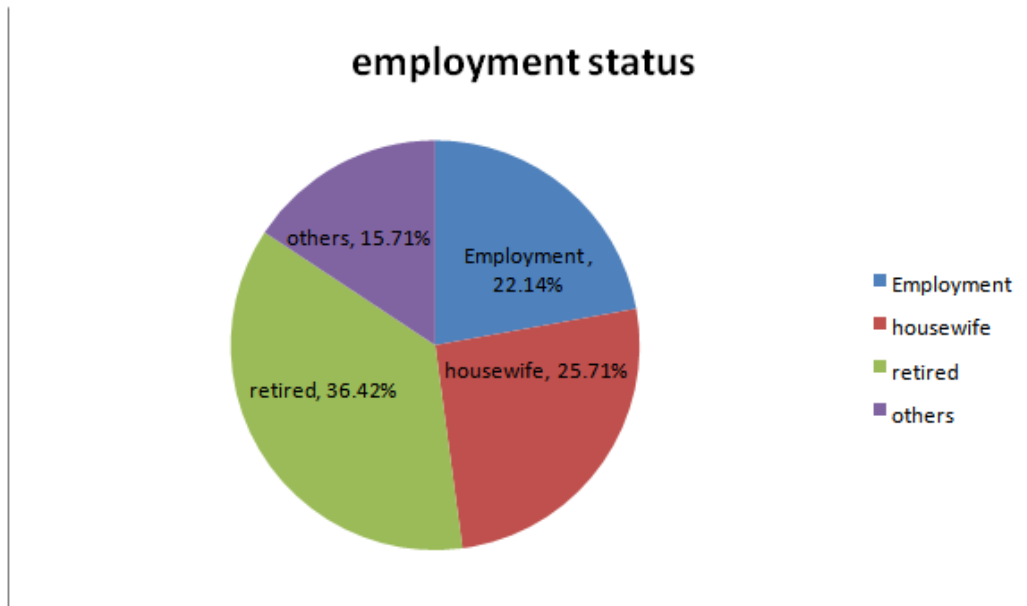


Fig .No.5 Distribution based on Employment status

Region:

Among 140 patients , 92 (65.71%) were from urban and 48 (34.2%) were from Rural Regions.

Table 8. Regional status of the study population

REGION	No of Patients
URBAN	92(65.71%)
RURAL	48(34.2%)

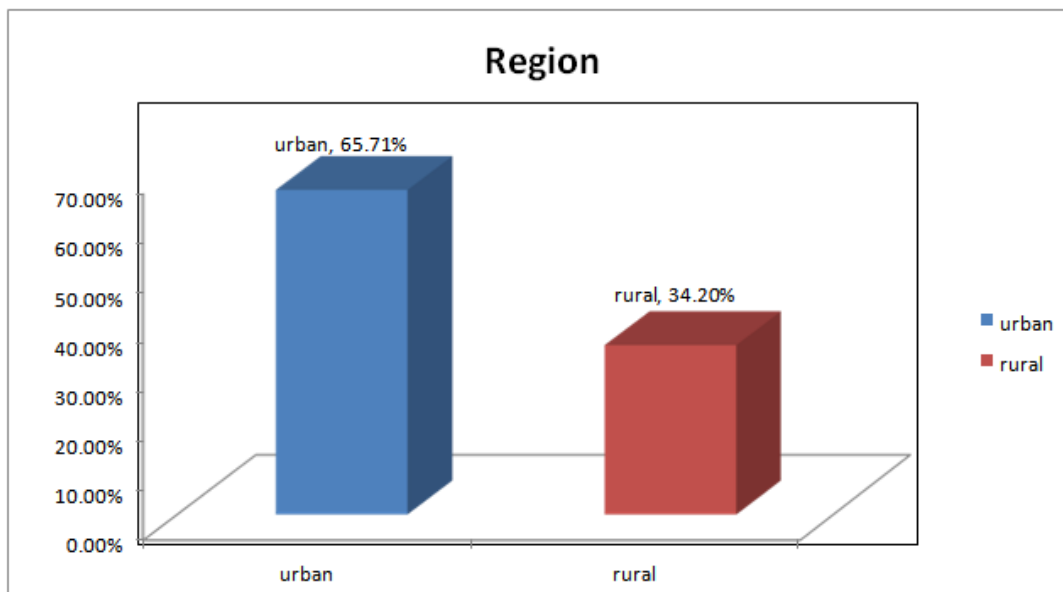


Fig. No 6 Distribution based on Region

Comorbidity:



140 Patients were categorized in to 4 groups according to their comorbidities. Among 140 patients , 32 members are with only hypertension , 59 members are in hypertension with 1 disease which include diseases like Diabetes, Cerebrovascular Accident, Coronary Artery Disease, Chronic Kidney Disease, Calculi, Hydroureteronephrosis, UTI, Asthma and others.

43 patients are with Hypertension with 2 comorbidities which includes diseases like Diabetes,

Stroke, coronary Artery disease, respiratory problems ,parkinsons, necrosis, seizures, myocardial infarction, infections. 6 come under hypertension with 3 comorbidities which includes diabetes, chronic kidney disease, cerebrovascular accident, asthma, hypothyroidism , cellulitis, sepsis. Majority of our patients are hypertensive with 1 comorbidity.

Table 9. Comorbidities of the study population

S.No	Comorbidities	No of Patients	Percentage
1	Hypetension	32	22.85 %
2	Hypertension with 1 comorbidity	59	42.14%
3	Hypertension with 2 comorbidities	43	30.71%
4	Hypertension with 3 comorbidities	6	4.28%
5	Total	140	100%

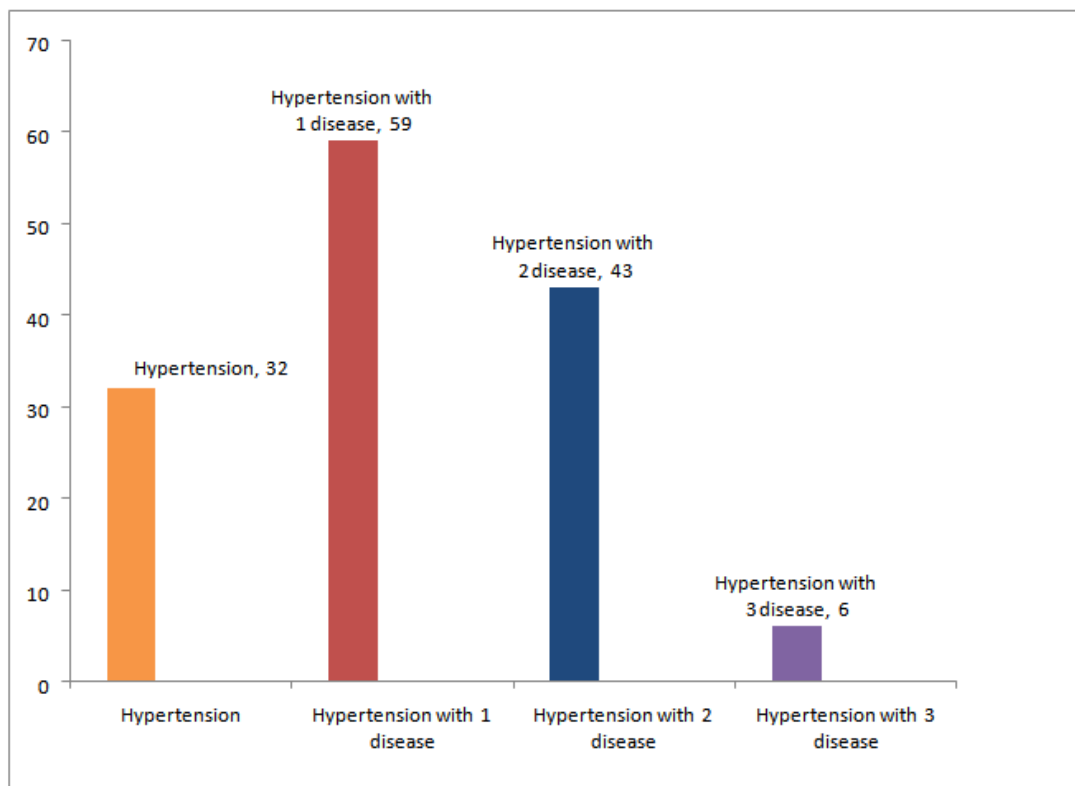


Fig.No.7 Distribution based on Comorbidities



INDEPENDENT T-TEST ANALYSIS

S.NO	DOMAINS	CONTROL GROUP (mean±Std Deviation)	HYPERTENSION WITH 1 COMORBITIES (Mean± Std Deviation)	'P' VALUE
1	Physical Functioning	61.66 ± 22.360	52.35 ±23.083	0.066
2	Role functioning/ Physical	37.222± 40.809	37.73± 20.395	0.098
3	Role functioning/	42.963 ± 45.294	40.02± 23.579	0.612
4	Emotional	42.555± 20.687	41.87± 12.578	0.842
5	Energy/Fatigue	60.977± 18.174	48.850± 11.598	0.0002
6	Emotional well being	60.833± 20.226	55.34± 20.014	0.212
7	Social functioning	63. 277± 19.762	59.45± 22.165	0.412
8	Pain	47. 778± 20.603	51.99± 18.610	0.321
	General Health			

Table. No. 10 HYPERTENSION WITHOUT COMORBIDITY (CONTROL GROUP) V/s HYPERTENSION WITH 1 COMORBIDITY

The Medical Outcomes Study 36-Item Short-Form Health Survey questionnaire scores of hypertension without comorbidities v/s hypertension with 1 comorbidity in physical functioning (61.66 ± 22.360 vs 52.35 ± 23.083) , role functioning/physical (37.222 ± 40.809 vs 37.73 ± 20.395), role functioning /emotional

(42.963 ± 45.294 vs 40.02 ± 23.579) , energy/fatigue (42.555 ± 20.687 vs 41.87 ± 12.578) , emotional well being (60.977 ± 18.174 vs 48.850 ± 11.598) , social functioning (60.833 ± 20.226 vs 55.34 ± 20.014) , Pain (63. 277 ± 19.762 vs 59.45 ± 22.165), general health (47. 778 ± 20.603 vs 51.99 ± 18.610) domains.

S.NO	DOMAINS	CONTROL GROUP (mean±Std Deviation)	HYPERTENSION WITH 2 COMORBITIES (Mean± Std Deviation)	'P' VALUE
1	Physical	61.66 ± 22.360	22.11± 10.565	<0.0001
2	Functioning	37.222± 40.809	29.20± 17.115	0.22
3	Role	42.963 ± 45.294	30.70± 20.426	0.11
4	functioning/	42.555± 20.687	34.28± 15.524	0.05
5	Physical	60.977± 18.174	39.95± 13.645	<0.0001
6	Role	60.833± 20.226	26.44± 13.051	<0.0001
7	functioning/	63. 277± 19.762	26.16± 14.683	<0.0001
8	Emotional	47. 778± 20.603	24.16± 11.555	<0.0001
	Energy/Fatigue			
	Emotional well being			
	Social functioning			
	Pain			
	General Health			

Table.No.11 HYPERTENSION WITHOUT COMORBIDITY V/S HYPERTENSION WITH 2 COMORBIDITIES

The Medical Outcomes Study 36-Item Short-Form Health Survey questionnaire scores of hypertension without comorbidities v/s Hypertension with 2 comorbidities in physical

functioning (61.66 ± 22.360 vs 22.11 ± 10.565) , role functioning/physical (37.222 ± 40.809 vs 29.20 ± 17.115), role functioning /emotional (42.963 ± 45.294 vs 30.70 ± 20.426) ,



energy/fatigue (42.555± 20.687 vs 34.285 ± 15.524) , emotional well being (60.977± 18.174 vs 39.95 ± 13.645) , social functioning (60.833± 20.226 vs 26.44 ± 13.051) , Pain (63. 277 ± 19.762 vs 26.64 ± 14.683), general health (47. 778± 20.603 vs 24.16 ± 11.555) domains.

S.NO	DOMAINS	CONTROL GROUP (mean±Std Deviation)	HYPERTENSION WITH 3 COMORBITIES (Mean± Std Deviation)	'P' VALUE
1	Physical Functioning	61.66 ± 22.360	21.833 ± 9.915	0.0001
2	Role functioning/ Physical	37.222± 40.809	19.44 ± 15.909	0.30
3	Role functioning/ Emotional	42.963 ± 45.294	22.22 ± 11.900	0.27
4	Emotional	42.555± 20.687	33.88 ± 11.395	0.32
5	Energy/Fatigue	60.977± 18.174	30.95 ± 10.902	0.0004
6	Emotional well being	60.833± 20.226	24.44 ± 11.051	0.0001
7	Social functioning	63. 277± 19.762	21.32 ± 10.782	0.0001
8	Pain	47. 778± 20.603	18.16 ± 10.551	0.0016
	General Health			

Table No.12 HYPERTENSION WITHOUT COMORBIDITY VERSUS HYPERTENSION WITH 3 COMORBIDITIES

The Medical Outcomes Study 36-Item Short-Form Health Survey questionnaire average scores of hypertension without comorbidities v/s Hypertension with 3 comorbidities in physical functioning (61.66 ± 22.360 vs 21.833 ± 9.915) , role functioning/physical (37.222 ± 40.809 vs 19.444 ± 15.909), role functioning /emotional

(42.963 ± 45.294 vs 22.222 ± 11.900) , energy/fatigue (42.555 ± 20.687 vs 33.888 ± 11.395) , emotional well being (60.977 ± 18.174 vs 30.95 ± 10.902) , social functioning (60.833 ± 20.226 vs 24.44 ± 11.051) , Pain (63. 277 ± 19.762 vs 21.32 ± 10.782), general health (47. 778 ± 20.603 vs 18.16 ± 10.551) domains.

ANOVA ANALYSIS

DOMAIN	AGE WISE	Mean difference	'P' Value	Significance	CI [95%]
Physical Functioning	30-40 v/s 41-50	6.380	<0.0001	Ns	-10.22 to 22.98
	30-40 v/s 51-60	18.52		*	2.824 to 34.22
	30-40 v/s above 60	41.83		***	26.81-56.86
	41-50 v/s 51-60	12.14		***	1.038-23.25
	41-50 v/s above 60	35.45		***	25.32-45.59
	51-60 v/s above 60	23.31		***	14.73-31.89
	Role functions due to Physical Activites	30-40 v/s 41-50		15.21	<0.0001
30-40 v/s 51-60		48.08	*	25.36-70.80	
30-40 v/s above 60		79.01	**	57.32-100.7	
41-50 v/s 51-60		32.86	***	16.70-49.02	
41-50 v/s above 60		63.80	***	49.11-78.48	
51-60 v/s above 60		30.93	***	18.252-43.62	



Role functions Due to Emotions	30-40 v/s 41-50	8.748	<0.0001	Ns	-18.90-36.39
	30-40 v/s 51-60	45.51		***	19.22-71.80
	30-40 v/s above 60	77.07		**	51.90-102.2
	41-50 v/s 51-60	36.76		***	18.07-55.46
	41-50 v/s above 60	68.32		***	51.23-85.41
	51-60 v/s above 60	31.555		***	16.76-46.35
	Energy	30-40 v/s 41-50		0.0000	<0.0001
30-40 v/s 51-60		14.59	***	3.824-25.90	
30-40 v/s above 60		26.16	***	15.28-37.04	
41-50 v/s 51-60		14.59	***	6.814-22.37	
41-50 v/s above 60		26.16	***	19.01-33.30	
51-60 v/s above 60		11.57	***	5.447-17.69	
		30-40 v/s 41-50	9.671		
	30-40 v/s 51-60	17.35	***		4.960-29.73
Emotional	30-40 v/s above 60	24.99	<0.0001	***	13.03-36.96
	41-50 v/s 51-60	7.675		NS	-0.1851-15.53
	41-50 v/s above 60	15.32		***	8.143-22.50
	51-60 v/s above 60	7.648		***	1.567-13.73
Social	30-40 v/s 41-50	0.3676	0.0520	NS	-15.982 -16.71
	30-40 v/s 51-60	0.9091		NS	-14.71-16.53
	30-40 v/s above 60	7.603		NS	-7.486-22.69
	41-50 v/s 51-60	0.5414		NS	-9.370-10.45
	41-50 v/s above 60	7.235		NS	-1.819-16.29
	51-60 v/s above 60	6.694		NS	-0.9743-14.36
Pain	30-40 v/s 41-50	3.706	<0.0001	NS	-11.10 – 18.51
	30-40 v/s 51-60	14.32		***	0.16742 -28.47
	30-40 v/s above 60	26.07		***	12.40 -39.74
	41-50 v/s 51-60	10.61		***	1.632 -19.59
	41-50 v/s above 60	22.36		***	14.16 – 30.56
	51-60 v/s above 60	11.75		***	4.801 -18.70



General health	30-40 v/s 41-50	-1.912	<0.0001	NS	-14.33-10.51	
	30-40 v/s 51-60	3.818		NS	-8.054-15.69	
	30-40 v/s above 60	20.10		***	8.634-31.57	
	41-50 v/s 51-60	5.730		NS	-1.804-13.26	
	41-50 v/s above 60	22.01		***	15.13-28.90	
	51-60 v/s above 60	16.28		***	10.46-22.11	

Table 13:SF-36 Age Average Score

In physical functioning domain , the mean difference of SF-36 scores between 30-40 v/s 41-50 , 30-40 v/s 51-60 , 30-40 v/s above 60 , 41-50 v/s 51-60, 41-50 v/s above 60, 51-60 v/s above 60 are found to be 6.380, 18.52, 41.83, 12.14, 35.45, 23.31 respectively.

In Role functioning/ Physical domain , the mean difference of SF-36 scores between 30-40 v/s 41-50 , 30-40 v/s 51-60 , 30-40 v/s above 60 , 41-50 v/s 51-60, 41-50 v/s above 60, 51-60 v/s above 60 are found to be 15.21,48.08, 79.01, 32.86, 63.80, 30.93respectively.

In Role functioning/ Emotional domain , the mean difference of SF-36 scores between 30-40 v/s 41-50 , 30-40 v/s 51-60 , 30-40 v/s above 60 , 41-50 v/s 51-60, 41-50 v/s above 60, 51-60 v/s above 60 are found to be 8.748, 45.51, 77.07, 36.76, 68.32, 31.555 respectively.

In Energy domain , the mean difference of SF-36 scores between 30-40 v/s 41-50 , 30-40 v/s 51-60 , 30-40 v/s above 60 , 41-50 v/s 51-60, 41-50 v/s above 60, 51-60 v/s above 60 are found to be 0.0000, 14.59, 26.16, 14.59, 26.16 11.57 respectively.

In Emotional domain , the mean difference of SF-36 scores between 30-40 v/s 41-50 , 30-40 v/s 51-60 , 30-40 v/s above 60 , 41-50 v/s 51-60, 41-50 v/s above 60, 51-60 v/s above 60 are found to be 9.671, 17.35, 24.99, 7.675, 15.32, 7.648 respectively.

In Social functioning domain , the mean difference of SF-36 scores between 30-40 v/s 41-50 , 30-40 v/s 51-60 , 30-40 v/s above 60 , 41-50 v/s 51-60, 41-50 v/s above 60, 51-60 v/s above 60 are found to be 0.3676, 0.9091, 7.603, 0.5414, 7.235, 6.694respectively.

In Pain domain , the mean difference of SF-36 scores between 30-40 v/s 41-50 , 30-40 v/s 51-60 , 30-40 v/s above 60 , 41-50 v/s 51-60, 41-50 v/s above 60, 51-60 v/s above 60 are found to be 3.706, 14.32, 26.07 , 10.61, 22.36, 11.75 respectively.

In General health domain , the mean difference of SF-36 scores between 30-40 v/s 41-50 , 30-40 v/s 51-60 , 30-40 v/s above 60 , 41-50 v/s 51-60, 41-50 v/s above 60, 51-60 v/s above 60 are found to be -1.912, 3.818, 20.10, 5.730, 22.01, 16.28 respectively.

IV. DISCUSSION

Hypertension is a chronic, often asymptomatic disease that affects many people all over the world and is associated with high morbidity and mortality .However , recent studies have focused on health related quality of life in hypertensive patients to improve daily functioning , minimize physical and psychological suffering and enable full participation in family and social life. The HRQOL of hypertensive patients is worse than that of healthy individuals and is dependent on Blood pressure , organ damage and comorbidities (Diabetes, Chronic Kidney Disease , Cardiovascular diseases.)

Our study shows that comorbidities , older age (Above 60), lower education level are the primary factors associated with lower HRQOL in hypertensive Patients. Similarly, a study by Zygmontowicz M et al .,^[18] suggested that diabetes , chronic respiratory diseases (E.g. COPD and Asthma), Kidney stones , mental illness (mainly mood and Neurotic disorders), Epilepsy , Radiculopathy and osteoarthritis lower HRQOL in hypertensive patients . In addition we found that lower HRQOL in hypertensive patients was associated with Stroke, Renal disorders (CKD, UTI , AKI , Nephropathy) , coronary artery disease .

QUALITY OF LIFE BASED ON COMORBIDITIES:

From the current study population 140, we categorised patients into 4 groups based on comorbidities they are Hypertension without



comorbidities (N= 32) , Hypertension with 1 comorbidity (N=59) , Hypertension with 2 comorbidity (N=43) , Hypertension with 3 comorbidity (N=6) .

V. CONCLUSION

Hypertension is an important preventable cause of death and the treatment of this disease is a key strategy for the prevention of cardiovascular diseases. Hypertensive patients need special care attention due to low health related quality of life. Educating the patient is one of the appropriate choices to improve HRQoL. Patients education and enhanced information can lead to better HRQoL in chronic diseases. In our study hypertensive patients without comorbidities are having better quality of life when compared with hypertension with comorbidities . The study concludes that comorbidities deteriorate all aspects of the HRQOL in patents with comorbidities. Age , female gender, Rural region , Illiterate, number of comorbidities are important predictors of QOL in hypertensive patients .So, it is important to prevent and treat comorbidity of hypertension. Older age was associated with lower health relate quality of life. Women are having bad quality of life in social functioning , physical functioning , Role functioning due to physical activities and emotional problems.

VI. SUGGESTIONS

- The study can also be conducted to assess the involvement of the clinical pharmacist in providing awareness about the disease, increasing the knowledge towards medication adherence and life style counselling about diet etc., for all hypertensive patients to improve the quality of life and prevent the complications.

REFERENCES:

- [1]. Joseph T. Dipiro , Robert L. Talbert , Gary C. Yee, Gary R. Matzke, Barbara G. Wells, L. Michael Posey, Pharmacotherapy-A Pathophysiologic Approach , 7 th edition , New York, McGrawHill, 2009, Section 2 , Chapter – 13; 185.
- [2]. Mary Anne Koda-Kimble, Lloyd Yee Young, Brian K. Alldredge, Robin L. Corelli, B. Joseph Guglielmo, Wayne A. Kradjan, Bradley R. Williams, Applied Therapeutics , The Clinical use of Drugs , 9 th edition, United states of America, Lippincott Williams & Wilkins, 2009 , Section 3, Chapter-13; 13-2.
- [3]. Dr. Siddharth N. Shah , supplement to J Assoc Physicians India, February 2013 , Volume .61, 12-13.
- [4]. Joseph T. Dipiro , Robert L. Talbert , Gary C. Yee, Gary R. Matzke, Barbara G. Wells, L. Michael Posey, Pharmacotherapy-A Pathophysiologic Approach , 7 th edition , New York, McGrawHill, 2009 , Section 2 , Chapter – 13; 187.
- [5]. Mary Anne Koda-Kimble, Lloyd Yee Young, Brian K. Alldredge, Robin L. Corelli, B. Joseph Guglielmo, Wayne A. Kradjan, Bradley R. Williams, Applied Therapeutics , The Clinical use of Drugs , 9 th edition , Section 3, Chapter-13; 13-4;
- [6]. Joseph T. Dipiro , Robert L. Talbert , Gary C. Yee, Gary R. Matzke, Barbara G. Wells, L. Michael Posey, Pharmacotherapy-A Pathophysiologic Approach , 6 th edition , New York, McGrawHill, 2008 , Section 2 , Chapter – 13; 186.
- [7]. Mary Anne Koda-Kimble, Lloyd Yee Young, Brian K. Alldredge, Robin L. Corelli, B. Joseph Guglielmo, Wayne A. Kradjan, Bradley R. Williams, Applied Therapeutics , The Clinical use of Drugs , 9 th edition, United states of America, Lippincott Williams & Wilkins, 2009 , Section 3, Chapter-13; 13-4-13-5;
- [8]. Joseph T. Dipiro , Robert L. Talbert , Gary C. Yee, Gary R. Matzke, Barbara G. Wells, L. Michael Posey, Pharmacotherapy-A Pathophysiologic Approach , 6 th edition , New York, McGrawHill, 2008 , Section 2 , Chapter – 13; 188-190.
- [9]. Joseph T. Dipiro , Robert L. Talbert , Gary C. Yee, Gary R. Matzke, Barbara G. Wells, L. Michael Posey, Pharmacotherapy-A Pathophysiologic Approach , 6 th edition , New York, McGrawHill, 2008 , Section 2 , Chapter – 13; 192.
- [10]. Dr. Siddharth N. Shah , supplement to J Assoc Physicians India , February 2013 , Volume .61, 28-32.
- [11]. Development of WHOQOL-bref, Quality of Life Assessment , Psychol Med, May 1998, volume 28, 1-15
- [12]. K. Kwecka -Jaszoz, M. Klocek, Health related quality of life in cardiovascular patients, New York, Springer , 2013 , Chapter-2 , 9-25;
- [13]. Saleem F, Hassali MA and Shafie AA. A cross-sectional assessment of health-related quality of life (HRQoL) among hypertensive patients in Pakistan: Health Expect, June 2014, 17: 388–395.



- [14]. Sawsan Shanableh, AbdulmulaAbdulkarem, Mohammed Shamsain, FadiSarhan .Quality Of Life of Hypertensive Patients on Different Types of Antihypertensive Medications, IOSR J Pharm Biol Sci, Volume 4, Issue 5 (May 2014): 23-28.
- [15]. Coons SJ, Rao.S, Keininge DL, Hays RD, Comparative review of generic quality of life instruments, *Pharmacoeconomics* ,Jan 2000; 17(1);13-35;
- [16]. HealthStat Productions, SF-36 Health status questionnaire , demographic, The SF-36 and SF-12 health surveys, United States, Woodbridge, NJ : HealthStat Productions, 1997. 135-166.