



# Assessing Knowledge, Attitude, and Practice of Heart Failure Patients in Patna, Bihar

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## ABSTRACT

**Aim:** To assess the nutritional status and evaluate KAP among Heart Failure Patients residing in Patna Bihar.

**Material and Methods:** Demographic information and anthropometric measurements were collected from 50 heart failure patients using a well-designed questionnaire. 30 multiple-choice questions were designed and evaluated to assess Knowledge Attitude and Practice.

**Results:** The mean age of the subjects was 70 years and mean score was (70±3.32). Educational qualification indicated that 56% were studied up to matriculation, 28% studied up to intermediate and rest 16% were graduate. 42% were non-working, 38% were working, and 20% were retired person. 4% of the subjects monthly income was less than 75k, 20% income was less than 50k, and 76% of subject monthly income was less than 25k. 4% of respondents were obese, 8% were underweight, 40% found overweight, 48% were found healthy. The HF subjects had poor knowledge score (17.0±1.47), positive attitude score (13.14±1.24), good practice score (19.24±1.18). Chi square analysis showed no correlation at P<0.05 between nutritional status and education level (P=0.109) and nutritional status and income level chi square level=6.063, P= 0.356). Correlation between Knowledge and attitude was (-0.789±.590), between knowledge and practice was (.47±.747) and between attitude and practice was (0.46±.752).

**Interpretation and conclusion:** knowledge regarding HF was poor but practice was good .this study highlights the need for conducting awareness program regarding life style modifications and heart failure among HF patients.

**Keywords:** heart failure, nutritional status, knowledge, attitude, practice, awareness, program.

## I. INTRODUCTION

Abnormalities in the structure or function of the heart reduce ventricular sensation, reduce ejection capacity, and prevent the heart from supplying oxygen at a rate consistent with tissue metabolism. As society ages, the number of older and frail patients with heart failure is increasing worldwide.<sup>1,2</sup>

Heart failure remains a cardiovascular syndrome with high mortality, multiple comorbidities, complex treatment regimens, frequent hospitalizations and reduced quality of life (Hilal UYSAL *et al.*)<sup>3,4</sup>

Current estimates suggest that nearly 6.5 million Americans over the age of 20 suffer from heart failure. Extensive research estimates that there are 960,000 new cases of heart failure each year. Severe heart failure is a leading cause of death, not just heart failure, which is a major problem affecting many people (John H. Lee *et al.*)<sup>5,6</sup>

Diet and a healthy lifestyle are the best tools for maintaining cardiovascular health. This relationship is very direct as most cardiovascular diseases have their own origins such as hypertension, obesity, diabetes and atherosclerotic plaques. These risk factors are directly related to diet and lifestyle. From a scientific point of view, it is widely accepted that diet influences cardiovascular health (Javier Marhuenda *et al.*)<sup>7</sup>

Important factors known to be associated with compliance include knowledge about heart failure and heart failure regimens, benefits and barriers, beliefs about heart failure regimens, and clinical factors such as age, sex, marital status, level of education, and severity of illness, and demographic factors and depressive symptoms. (Martje H.L. *et al.*)<sup>8,9</sup>

Patient self-management is critical to achieving positive health outcomes and minimizing sequelae of chronic disease. Self-management support from healthcare professionals goes beyond patient education. The Institute of Medicine (IOM) defines self-management support as “educational and supportive care to enhance a patient’s ability and confidence to manage their health problems, including regular assessment of progress and problems, goal setting, and problem-solving. “Systematic delivery of interventions”. I support you. (Adams & Corrigan, 2003, *et. al.*).<sup>10,11,12,13</sup>

Based on the IOM definition, patients must have the knowledge, skills, confidence, and other competencies to succeed in managing their condition. Studies have shown that the acquisition of these skills is facilitated through collaborative processes when patients are involved and empowered. This is more effective than providing education alone (Bodenheimer *et al.*, 2002).<sup>14</sup>

Gaining insight into the variables associated with compliance and taking appropriate actions are key to improving compliance. Compliance in this study was associated with knowledge, benefits, and barriers to regime, education level, and depressive symptoms. There were no other clinical or demographic factors associated with compliance. Knowledge is a prerequisite for compliance, but lack of knowledge seems to be a serious problem. It is also important to emphasize self-care strategies (e.g. daily weighing), but also explain how patients should cope with weight gain and pay particular attention to self-management (e.g. flexible diuretic therapy) to prevent exacerbation of HF symptoms. Avoiding misunderstandings should be part of any heart failure patient education plan to improve compliance. (Martje H.L. *et al.*) Since knowledge attitude and practice increase our understanding regarding cardiovascular health in the community, they can be valuable for public health to help in developing targeted educational programs and assessing their effectiveness.

## II. METHODOLOGY

Through purposive sampling, 50 respondents who were willing to be part of the study were recruited from the heart care clinic Kankarbagh some patients from HDNA Danapur and some patients from the Daksh heart care clinic Patna Bihar. After obtaining informed consent throw a well-designed questionnaire demographic profiles like (educational status employment status monthly income anthropometric measurement) and medical history were collected from 50 heart failure patients.

To assess the knowledge attitude and practice the designed questionnaire was divided into three sections through sections A knowledge of heart failure subjects was assessed by giving a score of 1 for yes, and 2 for No. In section B subject's attitude was assessed by giving a score of 1 for agree 2 for disagree and 3 for neutral. In section C subjects

practice was assessed by giving a score of one for always 2 for some time and 3 for never. Percentage mean and standard deviation were calculated and analyzed. A chi-square test was used to analyze the correlation between nutritional status, education, and income of respondents. A Pearson correlation analysis was performed to test the statics significance of the respondent's KAP levels. All statics analyses were performed using SPSS for Windows 10 version 20. This study was conducted to investigate the status of nutritional status of knowledge attitudes and practices regarding diet and heart failure of patients in Patna Bihar.

### III. RESULTS AND DISCUSSION

The socio-economic and demographic profile revealed that the majority 32% of subjects were in the age group of 60-70 years 24% of the respondents were in the age group of 40-50 years while 22% of heart failure subjects were in the age group of 70-80 years. The mean age group after the subject was ( $70 \pm 3.32$ ).

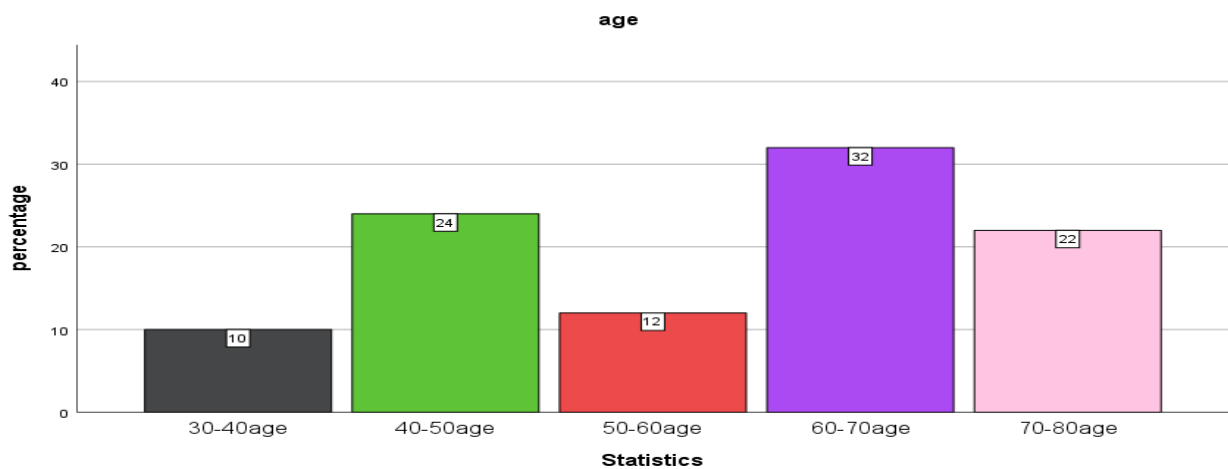


Fig 1: Age status of respondents

LEMON *e. al.*(2010)<sup>16</sup> conducted a study to assess the dietary quality of person with heart failure in NHANES(1999-2006) they reported that out of 50074 respondents the mean age of the subject was 70.3 years . The age of subjects was almost same when compared to the present study.

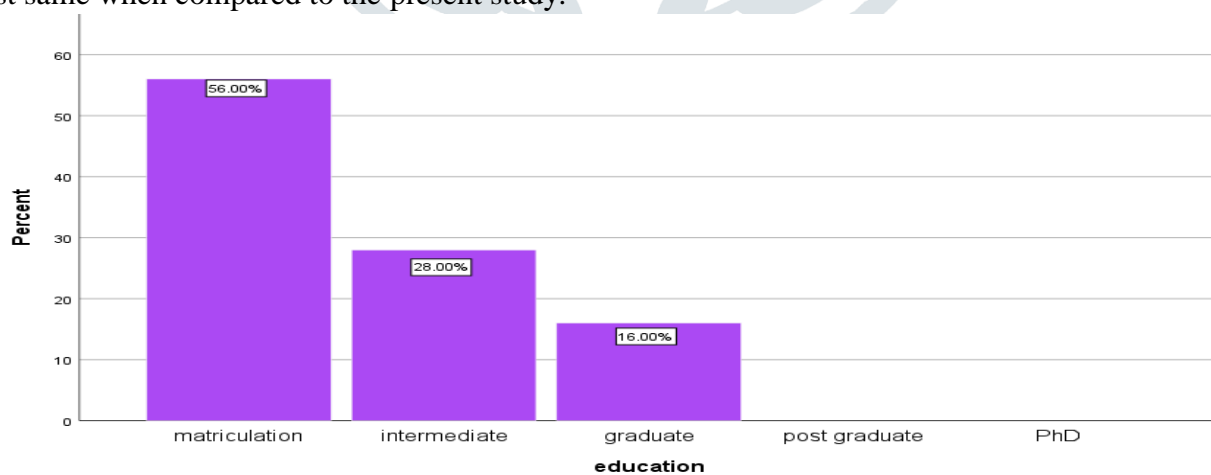


Fig 2: Education qualification of respondents

Education qualification indicates that 56% were studied up to matriculation, 28% were a studied up to intermediate and rest 16% of the subjects were found graduate then move to different businesses. Hilal UYSAL *et al.*(2019)<sup>17</sup>conducted a similar study which reported that out of total hundred subjects 50% were a studied up to

matriculation 29% a studied up to intermediate, 5% were found graduate, and rest 16% were illiterate. In present study most of the respondent were literate.

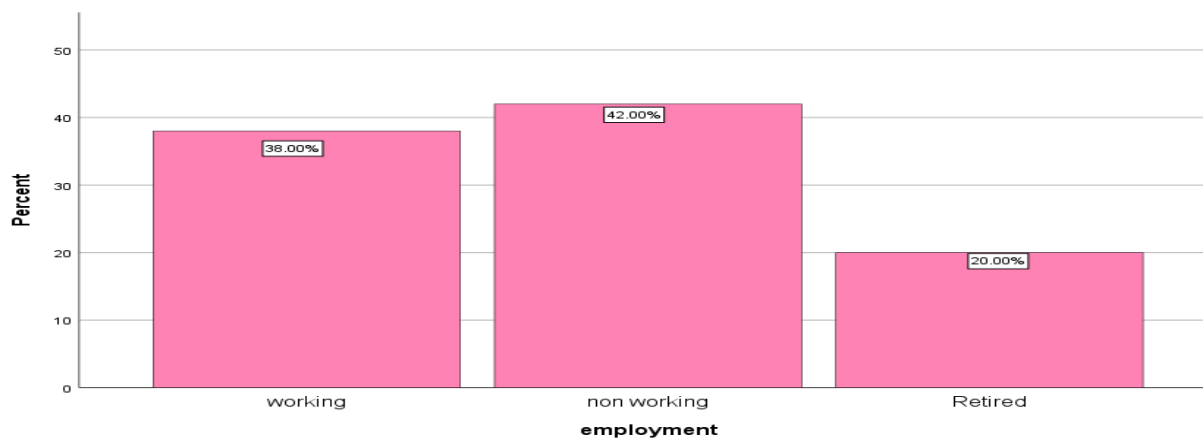


Fig: 3 Employment status of the respondents

Employment status in graph shows that 42% of the subjects were unemployed, 38% were working, race 20% were retired person. Amare *et al.*(2015)<sup>18,19</sup> conducted a study on malnutrition and associated factors among heart failure patients out of 284 heart failure patients, 56% were employed and 42% were non employed. Employment status of the subjects was more when compare to the present study.

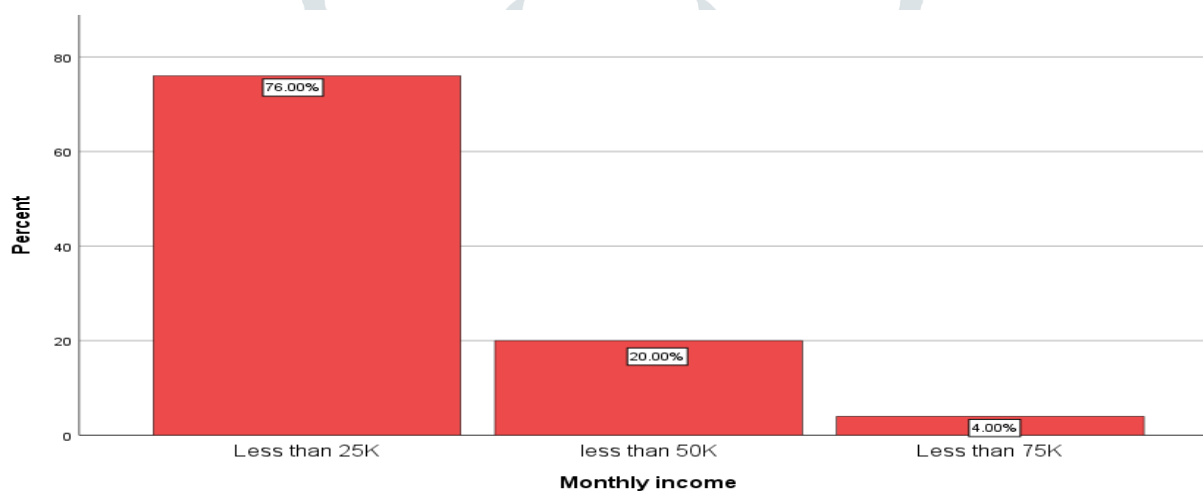


Fig 4: Economic status of respondents

Information regarding economic status in figure shows that majority of the subjects 76% was between less than 25000 while 20% of the subject income was less than 50000 while rest 4% of the subjects income was less than 75000 while 76% subjects family watch involved in another business. Lemon *et al.*(2010)<sup>20</sup> conducted a study to access the NHANES(1999-2006) Out of 574 respondent they reported that the majority 48% of their subjects where earning 114583 in Australia while 33.8% were earning between 114583-228530 while rest 18.5% were earning more than 228530 monthly in Australia. The earning of subjects was very high in Australia when compared to this Indian study.

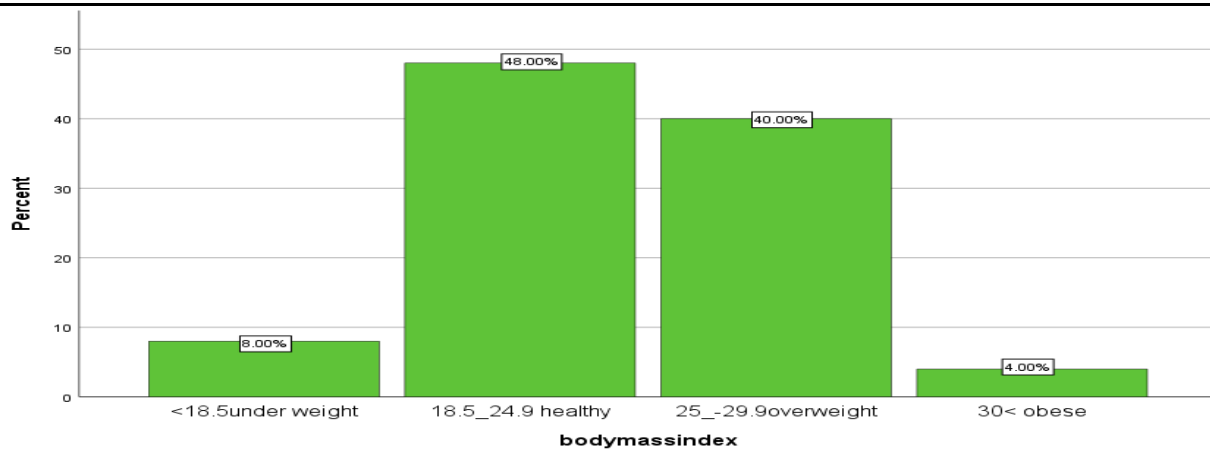


Fig 5: Nutritional status of HF patients

Information regarding nutritional status in figure show that 48% of respondent were found to be healthy, 40% of respondents were found to be overweight, while 8% subjects were underweight and 4% of the respondents were obese. Hilal UYSAL *et al*(2019)<sup>17</sup> conducted our study which reported that out of total N=100 respondents, 5% were underweight, 34% were healthy BMI, majority of the respondents were overweight, 21% of the respondents were obese and rest three percent subjects were on morbid obese. The majority of the subjects was overweight when compared to the present study.

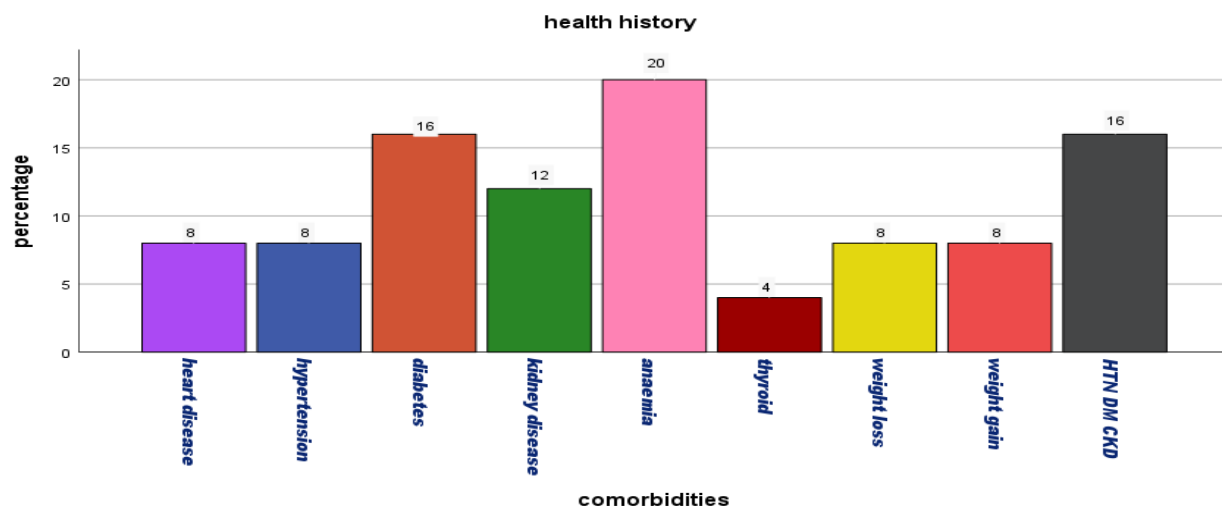
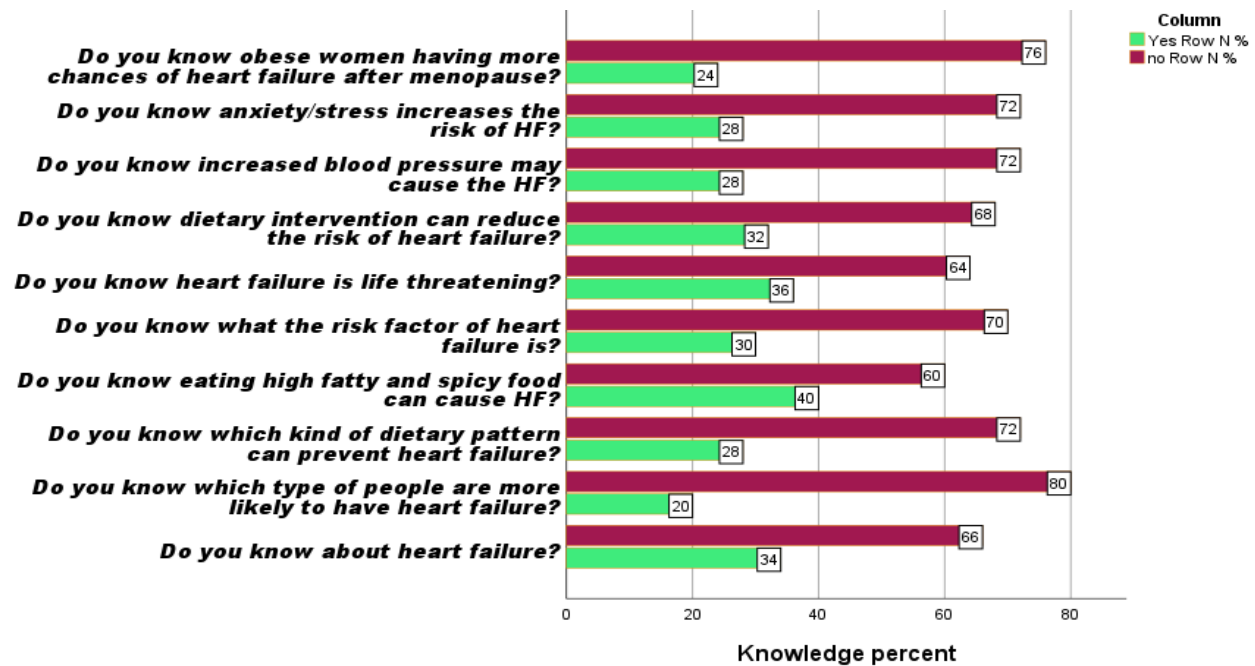


Fig 6: Health conditions of HF Patients

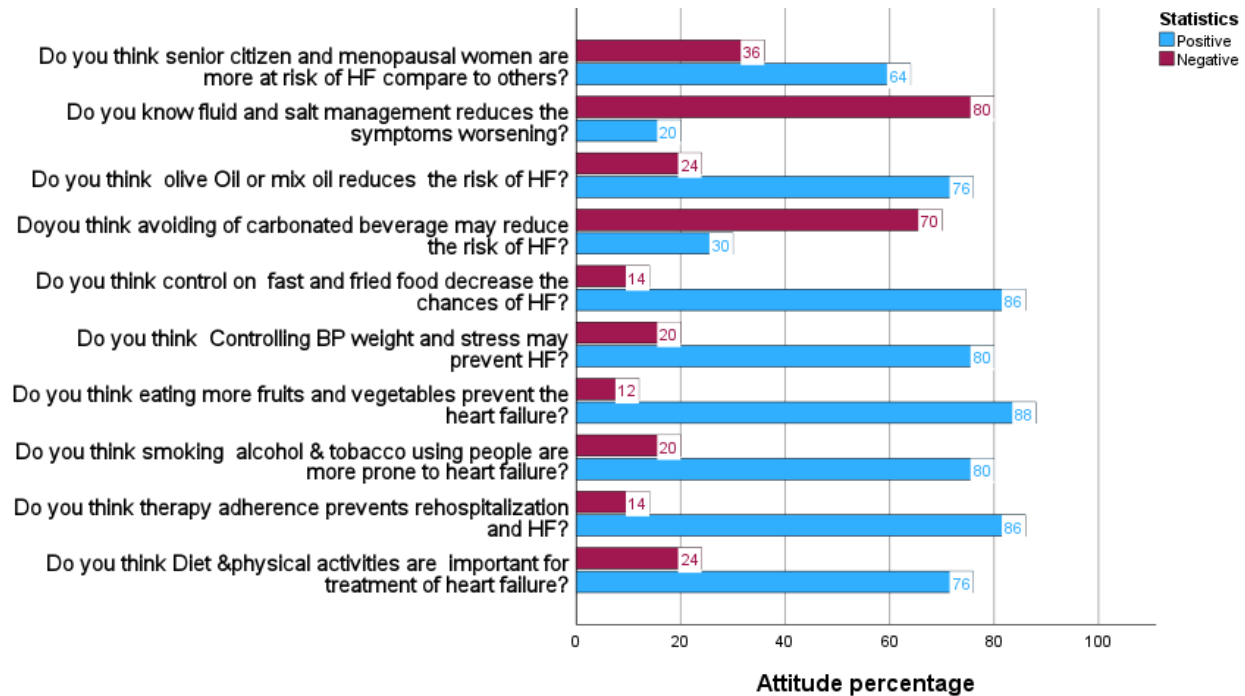
Information regarding health condition and comorbid illness status in graph F shows that 16% of the respondent were diabetes, with 16% more had multiple disease, like hypertension diabetes mellitus CKD, while 20% respondents were anemic, 8% had history of her disease and more it percent had hypertension with heart failure with 12% of heart failure subjects were renal problem and 4% of heart failure subjects had thyroid issue and recently 8% of respondents complaint about weight loss and same it percent complaint about weight gain due to fluid overload in body. J.L Bonilla-palomas *et al*(2011)<sup>21</sup> conducted a study which impact of malnutrition on long term mortality reported that out of 200 patients 58.2% of patients were diabetic while 48.1% had low hemoglobin less than 12 gram per DL. Amare *et al.*(2013)<sup>22</sup> reported that out of 234 respondents 36% where hypertensive 6% had chronic kidney disease and 4.2% had other medical issues along with heart failure. Chi square analysis shows that there was statistically no significant correlation at  $p < 0.05$  between nutritional status and education level ( $p = 0.109$ ) and nutritional status and income level chi square level = 6.63,  $P = 0.356$ ). The reason of more person fall in healthy category because of availability of food and they are from village area.

### III.A. RESPONSE OF HF SUBJECTS TOWARDS KNOWLEDGE QUESTIONS:



Overall knowledge of respondents was poor with mean score of (17.0±1.47) so here in this study 66% of respondents had no idea about heart failure while 34% of the respondents knows about the heart failure in a short form .80% of people do not know about "which people are more likely to have" heart failure due to lack of knowledge but 20% patients said he as he knows about this. Maturity of patients 72% do not know about the diet can prevent heart failure while 28% of his respondents knows about the dietary pattern can prevent heart failure. Study conducted by fatemeh koochi et al, (2020) on knowledge attitude and practice reported that participant had hi knowledge so the knowledge regarding heart failure was found below in the present study. 40% of the patient said if he or c will eat High fatty food and spicy food can cause heart failure and other cardiovascular disease while raised 60% were had no idea about association between high fatty foods and heart failure. 70% maturity operations had no idea about the risk factor of heart failure while 30% of people had a knowledge regarding complete risk factor like unhealthy diet smoking illegal drugs uses. Alcohol use and lack of activity increase the risk of heart failure. 64% of his respondents had no idea about the heart failure is the life threatening condition while 36% had admitted that heart failure is a threatening conditions. 68% of the respondent had no idea about the dietary intervention can reduce the risk of heart failure while 32% had a limited that battery intervention and lifestyle can reduce the risk of heart failure in many cases. Conducted by lemon et al.(2009) on battery quality in heart failure reported that battery quality directly impact on heart failure condition and in his study battery quality was poor. 72% people had no idea regarding high blood pressure make cows hard failure which 28% of patients had Idea regarding high blood pressure may causes hard failure or aggravate heart failure worsening. 72% had no idea about anxiety are stress increases the risk of heart failure while 28% had admitted the stress is somehow related with the not only heart failure but also many diseases 24% of respondent had idea like they now office women having more chances of heart failure after menopause due to hormonal imbalance while 76% had no idea about relationship between menopausal and heart failure.

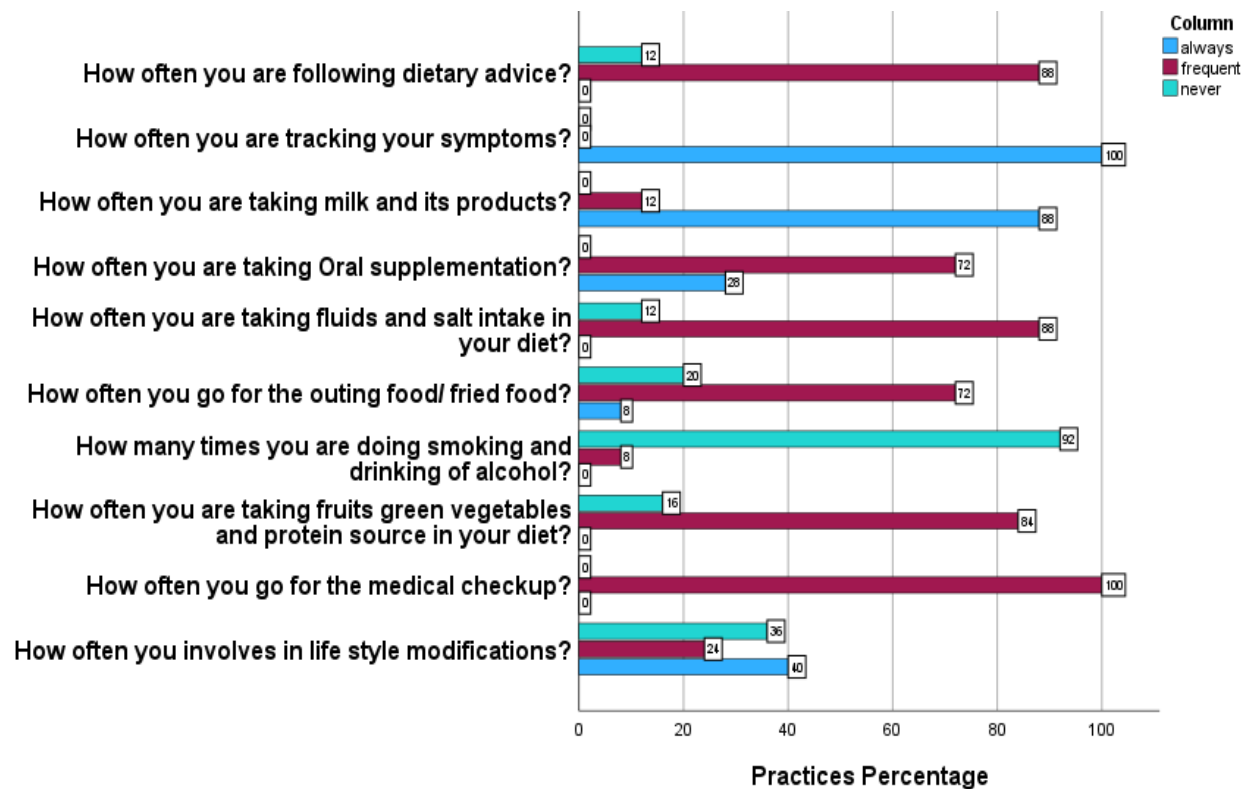
### III. B. RESPONSES OF HF SUBJECTS TO GOOD ATTITUDE BASED QUESTIONS:



Footnote

Overall subjects had mean score of  $(13.14 \pm 1.24)$  for attitude responses. In this study 76% of the respondents accepted that diet and physical activity are also important for heart failure while 24% of patients had negative attitude regarding diet and physical activity. Majority 86% of respondent had positive attitude regarding therapy adherence prevent re hospitalization and heart failure worsening while 14% of respondent had negative attitude regarding therapy adherence. 80% of respondent admit that smoking and alcohol people are more prone to heart failure while 20% of people had negative attitude regarding alcohol and heart failure. 88% of the subjects preferred to eat fruits and vegetables while 12% of respondents had negative attitude about fruits and vegetables impact on heart failure. 80% of the subjects thing blood pressure control with weight control and stress management somehow may prevent heart failure to some extent but rest 20% think there is no correlation of heart failure and stress weight and blood pressure management. Maturity of the subjects 86% admitted if he or she will take more fatty foods than they are at a risk of having other heart failure complications while 14% of respondents had negative attitude about heart failure and fried food item consumption. 70% of respondents admitted that avoiding carbonated beverages may reduce the risk of heart failure while 30% had negative attitude about heart failure and carbonated beverage. 76% of patient things olive oil or mix use of oil is better for their heart failure condition while 24% of his contents said oil is oil so olive or mix oil doesn't reduce the risk of heart failure. 20% of people accepted that fluid and sodium intake limitation is important for heart failure load while 80% people to not think that this is important or there is a relationship between fluid sodium and heart failure. in next attitude question maturity operation 36% committed that senior citizen and menopausal women are more at risk of heart failure compared to others while 64% responding where sure that anyone can have hurt failures heart failure doesn't depends on Age and hormonal imbalance.

### III.C. RESPONSES OF HF SUBJECTS TOWARD PRACTICE BASED QUESTIONS:



Heart failure subject had good mean score of  $(19.24 \pm 1.18)$  four practice based questions. Practice paste responses indicated that majority of person 40% involves always in the lifestyle modification, 36% never involves in lifestyle modification and 24% frequent involves in lifestyle modification. 100% of the respondent frequently go 4 regular medical checkup 84% of the patients frequently taking fruits vegetables and protein source in their diet rest 16% never takes fruit vegetables and protein secularly in their diet. 92% of the respondent never drinks alcohol in Bihar only 8% sir smoker here out of 50 respondents. 72% of my respondent said they frequently go for outside food 20% of people never go for outside food while 8% of respondent always go for outside food intake. 88% of patient frequently taking fluid and salts in their tides while 12% things less fluid and salt intake as per doctor and dietitian advice. 72% of correspondence taking oral supplement frequently in the form of multivitamin or protein supplement or supplements while 28% always taking supplements. 88% of respondents always taking milk or milk product while 12% respondents frequently use milk and milk product 100% respondents always check their symptoms. 88% of respondents follows all dietary advice and rest 12% never met with a dietician for any dietary advice.

**IV. CONCLUSION** The total burden of heart failure is constantly increasing as a result of economic development organization physical activity and comorbidities. Hypertension anemic high BMI renal problems associated with heart failure (Amar et al.2015). Heart failure management depends upon not only on medication but also on physical activity diet and other lifestyle changes (Yoshiharu et al.2022). Present study revealed a poor knowledge regarding heart failure 66%, awareness 80%, prevention diet 72%, precautions for fat 60%, heart failure severity 64%, dietary intervention for heart failure 68%, factors affecting heart failure 72%, stress management to subside heart failure 72%, Menopause condition for having heart failure 76%.

Overall attitude was good like more of the respondent had positive attitude regarding diet and physical activity 76%, 86% had positive attitude regarding therapy adherence, positive attitude regarding alcohol 80%, 88% of respondent had positive attitude regarding vegetables and fruits, 80% has positive attitude regarding how to control blood pressure, 86% of responding had positive attitude to avoid junk food, 70% of correspondent avoid carbonated



beverage, 24% of respondent had knowledge about oil mixing is not so good for heart failure. In practice section 40% involves in lifestyle modification always where 100% go 4 regular checkup, 92% of responding never drink alcohol, 28% of respondent never go 4 outing or fried food to 12% had idea that heart failure patients need to take less water and sodium in their diet. 72% respondent where using supplement in the form of multivitamin tablet or protein powder, 88% always drinks milk after dinner while 100% patients track regularly their symptoms and 88% frequently follow that we advice. More number of heart failure patients comes under from the age of 60-70 years. 20% of respondents who had hurt failure where enemy while 16% has multiple disease like hypertension diabetes chronic kidney disease, 12% had renal issues, 8% had history of heart disease with 8% had hypertension. 48% of respondent had BMI between (18.5 - 24.9).

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**CONSENT TO PARTICIPATE:** Verbal informed consent where obtained from the participants.

**AUTHOR'S CONTRIBUTIONS:** Chetan and Pragati originally devised this study. Chetan collected the data under the supervision of Pragati. Both authors read and approved the final manuscript.

## V. REFERENCES

1. Shimokawa H, Mirua M, Nochioka K, Sakara Y. Heart Failure As A General Pandemic In Asia. *Eur J Heart Fail* 2015;17:884-892.
2. Kinugasa Y, Yamamoto K. The Challenge Of Frailty And Sarcopenia In Heart Failure With Preserved Ejection Fraction. *Heart* 2017;103:184-189.
3. Uysal, Hilal Assessment Of Dietary Habits In Patients With Chronic Heart Failure . *Journal Of Nursing Research* 28(1):P E65, February 2020.
4. Alberta Health Services. (2016). *Nutrition Guideline Cardiovascular Care Heart Failure. Applicable To: Nurses, Physicians And Other Health Professionals.* Retrieved From <Http://Www.Albertahealthservices.Ca/Assets/Info/Hp/Cdm/If-Hp-Ed-Cdm-Ns-5-4-2-Heart-Failure.Pdf>
5. Lloyd-Jonesd, Adamsrj, Browntm, Heart Disease And Stroke Statistics – 2010 Update: A Report From The American Heart Association. *Circulation.* 2010;121:E46–E215.
6. Hunt Sa, Abraham Wt, Chin Mh, Et Al. Acc / Aha 2005 Guideline Update For The Diagnosis And Management Of Chronic Heart Failure In The Adult: A Report Of The American College Of Cardiology/ American Heart Association Task Force On Practice Guidelines (Writing Committee To Update The 2001 Guidelines For The Evaluation And Management Of Heart Failure): Developed In Collaboration With The American College Of Chest Physicians And The International Society For Heart And Lung Transplantation: Endorsed By The Heart Rhythm Society. *Circulation.* 2005;112: E154–E235.
7. J Marhuenda, D Villaño, B Cerdá, Mp Zafrilla - Nutrition In Health And Disease-Our Challenges Now 2019 *cardiovascular Disease And Nutrition* [Https://Scholar.Google.Es/Citations?View\\_Op=View\\_Citation&Hl=Es&User=Mavg0kqaaaaj&Citation\\_Fo\\_r\\_View=Mavg0kqaaaaj:Yowf2qjgphmc](Https://Scholar.Google.Es/Citations?View_Op=View_Citation&Hl=Es&User=Mavg0kqaaaaj&Citation_Fo_r_View=Mavg0kqaaaaj:Yowf2qjgphmc)
8. Colín Ramirez E., Castillo Martínez L., Orea Tejeda A., Rebollar González V., Narváez David R., & Asensio Lafuente E. (2004). Effects Of A Nutritional Intervention On Body Composition, Clinical Status, And Quality Of Life In Patients With Heart Failure. *Nutrition,* 20(10), 890–895. <Https://Doi.Org/10.1016/J.Nut.2004.06.010>.
9. Martje H.L. Van Der Wal *European Heart Journal,* Volume 27, Issue 4, February 2006, Pages 434–440, <Https://Doi.Org/10.1093/Eurheartj/Ehi603>

10. Rockwell Jm, Riegel B. Predictors Of Self-Care In Persons With Heart Failure. *Heart Lung*. 2001;30(1):18–25.
11. Riegel B, Carlson B. Facilitators And Barriers To Heart Failure Self-Care. *Patient Educ Couns*. 2002;46(4):287–295.
12. Riegel B, Vaughn Dickson V, Goldberg Lr, Deatrck Ja. Factors Associated With The Development Of Expertise In Heart Failure Self-Care. *Nurs Res*. 2007;56(4):235–243.
13. Cameron, Worrall-Carter, Page, Et Al. Self-Care Behaviors Among Patients With Heart Failure. *Heart Lung*. 2010;31(3):161–172.
14. Rockwell Jm, Riegel B. Predictors Of Self-Care In Persons With Heart Failure. *Heart Lung*. 2001;30(1):18–25.
15. Yancy Cw, Jessup M, Bozkurt B, Et Al. 2017 Acc/ Aha/Hfhsa Focused Update Of The 2013 Accf/Aha Guideline For The Management Of Heart Failure: A Report Of The American College Of Cardiology/American Heart Association Task Force On Clinical Practice Guidelines And The Heart Failure Society Of America. *J Am Coll Cardiol*. 2017;70:776–803.
16. Stephenic C. Lemon,Phd Et Al. The Dietary Quality Of Person With Heart Failure In Hanes 1999-2006 Jgim: 139 Conclusion.
17. Hilal Uysal Et Al. Assessment Of Dietary Habits In Patients With Chronic Heart Failure : Thejournal Of Nursing Research 2019 Page 8.
18. Hiwot Amare On Malnutrition And Associated Factors Among Heart Failure Patients ; *Bmc Cardiovascular Disorders* Volume 15, Article Number: 128 (2015)  
<https://Bmccardiovascdisord.Biomedcentral.Com/Articles/10.1186/S12872-015-0111-4>
19. Mendis S. Global Status Report On Non Communicable Diseases. In: *Cardiovascular Diseases. Fact Sheet N°317th Ed. Geneva: World Health Organization; 2014.*
20. Lemon Et Al. Study To Access The Nhanes(1999-2006) Stephenic C. Lemon,Phd Et Al. The Dietary Quality Of Person With Heart Failure In Hanes 1999-2006 Jgim: 139 Conclusion.
21. Jaunl. Bonilla-Palomas,Et Al Impact Of Malnutrition On Long Term Mortality In Hf Patients :*Rev Esp Cardiol* 2011;64(9):752-758
22. Hiwot Amare On Malnutrition And Associated Factors Among Heart Failure Patients ; *Bmc Cardiovascular Disorders* Volume 15, Article Number: 128 (2015)  
<https://Bmccardiovascdisord.Biomedcentral.Com/Articles/10.1186/S12872-015-0111-4>.