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ASSESSMENT OF QUALITY OF LIFE IN PATIENTS WITH CARDIAC DISORDERS- A QUANTITATIVE RESEARCH SURVEY BASED STUDY

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ABSTRACT

Cardiovascular diseases are the leading cause of death globally. This is true in all areas of the world except Africa. Together they resulted in 17.9 million deaths (32.1%) in 2015, up from 12.3 million (25.8%) in 1990. Deaths, at a given age, from CVD are more common and have been increasing in much of the developing world, while rates have declined in most of the developed world since the 1970s. Coronary artery disease and stroke account for 80% of CVD deaths in males and 75% of CVD deaths in females. Most cardiovascular disease affects older adults. In the United States 11% of people between 20 and 40 have CVD, while 37% between 40 and 60, 71% of people between 60 and 80, and 85% of people over 80 have CVD. Since our literature review suggested that there has been significant relationship between the educational status and disease condition, we extended our study results in knowing about the relationship of the same from the current study. This study revealed us a strong relationship between the educational status and the disease. The coefficient of variation (P- value has found to be 0.003). This significant relationship between the disease status with respect to education status is shown in the graph no. 3. Like every other study, our study has some limitations and drawbacks too. Since it is a questionnaire based study, we had to stick on the responses of patients but couldn' t assess the novelty of their responses. For questionnaire based cohort study like this, we would recommend to decode the responses based on the answers from the patients rather than giving them clearly differentiable strands of responses to choose.

Key words: KAP Study, Quality of life (QOL), cardiovascular disorder (CAD), Ischemic heart diseases.

INTRODUCTION

Cardiovascular disease (CVD) is a class of diseases that involve the heart or blood vessels. Cardiovascular disease includes coronary artery diseases (CAD) such as angina and myocardial infarction (commonly known as a heart attack) [1]. Other CVDs include stroke, heart failure, hypertensive heart disease, rheumatic heart disease, cardiomyopathy, heart arrhythmia, congenital heart disease, valvular heart disease, carditis, aortic aneurysms, peripheral artery disease, thromboembolic disease, and venous thrombosis. Cardiovascular diseases are the leading cause of death globally[2]. This is true in all areas of the world except Africa. Together they resulted in 17.9 million deaths (32.1%) in 2015, up from 12.3 million (25.8%) in 1990. Deaths, at a given age, from CVD are more common and have been increasing in much of the developing world, while rates have declined in most of the developed world since the 1970s[3].

Coronary artery disease and stroke account for 80% of CVD deaths in males and 75% of CVD deaths in females. Most cardiovascular disease affects older adults. In the United States 11% of people between 20 and 40 have CVD, while 37% between 40 and 60, 71% of people between 60 and 80, and 85% of people over 80 have CVD. The average age of death from coronary artery disease in the developed world is around 80 while it is around 68 in the developing world. Disease onset is typically seven to ten years earlier in men as compared to women[4].

Definitions of a few diseases that we have taken are:

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Atrial fibrillation (AF or A-fib) is an abnormal heart rhythm characterized by rapid and irregular beating of the atria.

Ischemic heart disease is a condition of recurring chest pain or discomfort that occurs when a part of the heart does not receive enough blood[5].

Myocardial infarction is the medical name for a heart attack. A heart attack is a life-threatening condition that occurs when blood flow to the heart muscle is abruptly cut off, causing tissue damage.

Coronary artery disease (CAD) is caused by atherosclerosis of the coronary arteries that leads to a restriction of blood flow to the heart[6].

Health related quality of life:

- HRQoL is a multidimensional and incorporates domains related to physical, mental and emotional, and social functioning. When quality of life is considerate in the context of health and disease, it is commonly referred to as health related quality of life [7].
- HRQoL goes beyond the direct measures of health and focuses on the quality-of-life and consequences of health status. Another related concept to HRQoL is well-being[8].
- Measures of well-being typically assess the positive aspects of a person' s life such as positive emotions and life satisfaction. Cardiovascular diseases such as myocardial infarction and heart failure impose a substantial burden on quality of life, though this can be improved significantly by prevention, within healthcare systems, health related quality of life (HRQOL) studies are becoming increasingly common in recent times[9].

AIM AND OBJECTIVES:

AIM: To study the health related quality of life (HRQoL) of patients with cardiac disorders using Patient response form by Knowledge, Attitude and Practice (KAP) questionnaire.

OBJECTIVEs:

- To assess the risk factors associated with various cardiac disorders.
- To measure impact of quality of life on cardiac disorders in specific.
- To improve the knowledge and awareness regarding lifestyle and diseases in study subjects.

METHODOLOGY:

Study site:

This study was carried out at ' Christian Medical College Hospital' (CMC), Vellore, Tamil Nadu.

Ethical Committee Approval:

The protocol was reviewed and approved by the institutional ethics committee prior to study commencement (Ref no: IEC/RVSIMS/2019/03), Chittoor, Andhra Pradesh, India.

Subject recruitment and confidentiality:

- Cardiac disease patients of both genders who were willing to participate were screened for the factors that restrict their enrolment. The study protocol was explained to subjects in his/her native language under the supervision of a registered medical practitioner.
- All data were documented using specially designed Questionnaire form and access was restricted to the study conducting team to ensure data misuse and confidentiality of subjects.

Study Duration: This study was carried out for a period of six months, from August 2018 to January 2019.

Study design: This is a survey based cohort study conducted in patients with cardiac diseases (in patients as well as Outpatients).

Sample size: 300 subjects who met the inclusion criterion were enrolled into the study.

Validity of questionnaires: The questionnaire that we followed has been validated by European society of cardiology and this is counter validated (proof validation) by WHO Questionnaire scale to follow in Indian population.

Statistical analysis:

- Statistical analyses were carried out using Graph pad prism 7.0 version. Descriptive summary statistics are presented either Mean± SD or Mean± SEM based on the requirement. We followed student t- test to calculate the statistical significance of difference in population means between Genders.
- To understand the relationship and significance between the knowledge, attitude and practice between and within gender, we followed one way ANOVA test.

Exclusion criteria:

- Patients with concomitant diseases other than cardiac disorders, poor compliance, history of abuse with amphetamines, cocaine, tetra hydro cannabinoids, benzodiazepines, opioids within one year are excluded from our study,
- Children, Pregnant and lactating females are excluded from the study.

Inclusion criteria:

- Patients with any cardiac disease/disorder were included in the study.
- Patients with both the genders above 18 years of age are included in the study.

Questionnaire response method:
Questionnaire form was segregated into three sections like Knowledge related, Attitude related and Practice related. Questions were distributed into suitable sections appropriately. The three options viz., 0, 1 and 2 denotes the level of awareness in ascending manner.

Patient Response Analysis:
Upon data collection, we segregated the data based on the Responses given by the patient considering the section of the questions. The data organization and segregation was done using Microsoft Excel – 2013.

Sampling technique:

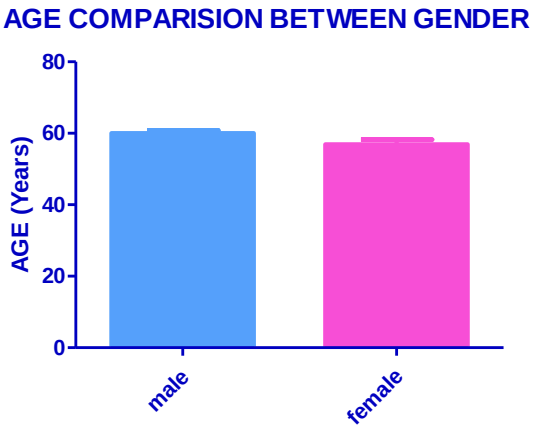
In order to calculate the sample size, we conducted a pilot review from the available literature. The type 1 error probability associated with the test of null hypothesis is 0.05 and the power of the study is 90%. Considering the attrition rate of 5% suggested from our literature, 275 patients at least were to be enrolled into the study and we have taken 300 samples on higher note.

RESULTS AND DISCUSSION:
Age wise distribution of 300 subjects enrolled into the study is shown in **Table 1.** The attrition rate was not considered in our study since it is a Questionnaire based research study and hence there were no dropout number during the study.

Table 1: Demographic Details of Study Population

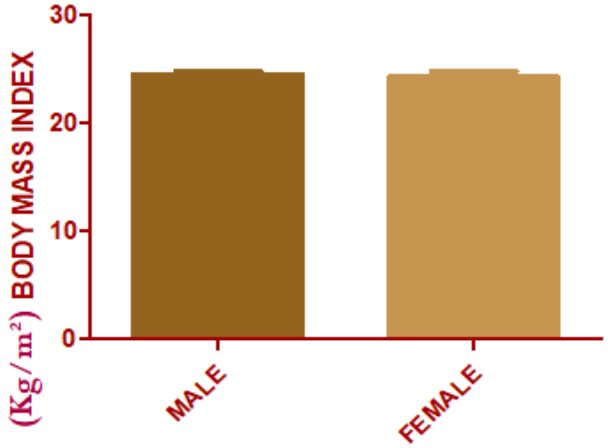
Sl.No	PARAMETER	FREQUENCY (N=300)		MEAN±SD	P- Value
		RANGE	NUMBER (%)		
1	AGE(years)	20-55	115(38.33)	46.94± 7.9	0.036*
		56-90	185(61.66)	66.42± 7.4	
2	WEIGHT(kg)	40-70	239(79.66)	60.50 ± 7.65	NA
		71-100	61(20.33)	78.33±7.40	
3	HEIGHT(cm)	120-155	86(28.66)	148.13 ±7.85	NA
		156-190	214(71.33)	168.59 ± 7.67	
4	BMI(kg/m²)	10-17.9	16(5.33)	15.52±2.19	0.744
		18.0-25	190(63.33)	22.31±2.12	
		26-40	94(31.33)	30.05±3.1	

Graph.1: Age Comparison of Gender



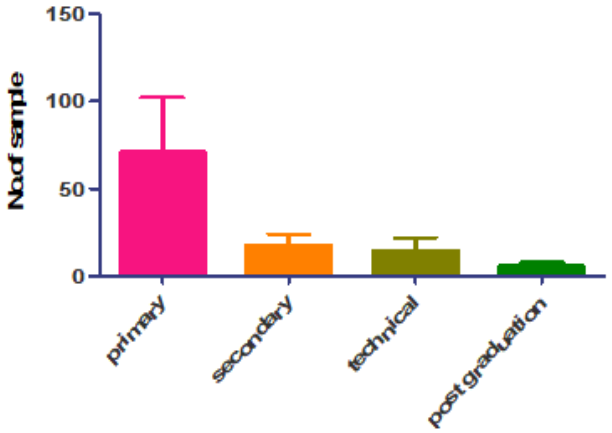
[*Partially significant]
The age wise comparison is given in **graph 1**. Mean± SEM age of male population is 60.0± 0.80 Mean± SEM age of female population is 56.93± 1.31. SEM is calculated instead of SD in case of age comparison, to check out the sample mean deviation rather than subject variability dispersion.

Graph 2: BMI Comparison



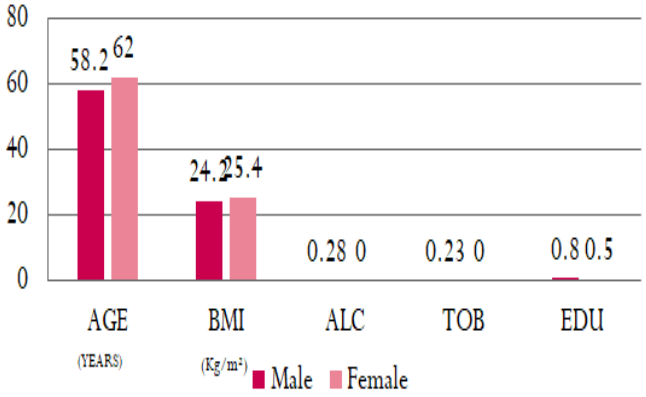
Based on the ranges of BMI from the study sample size, we have calculated the BMI based on three contrasts *viz.*, Underweight, Normal, Overweight. Mean± SD of Underweight is (15.52± 2.19). Mean± SD of normal BMI(22.31± 2.12). Mean± SD of overweight or obese (30.05± 3.1). The coefficient of variation (P- Value) is found to be non-significant (0.744). The comparison of BMI between the genders is shown in the **graph no.2.**

Graph 3: Educational status assessment in study sample



Since our literature review suggested that there has been significant relationship between the educational status and disease condition, we extended our study results in knowing about the relationship of the same from the current study. This study revealed us a strong relationship between the educational status and the disease. The coefficient of variation (P- value has found to be 0.003). This significant relationship between the disease status with respect to education status is shown in the **graph no. 3.**

Graph 4: Demographic parameters



The in detail pictorial representation of demographic parameters has been included in the **graph no.4.**

The overall influence of demographic parameters on this study seems in mixed proportion Age has been significant whereas BMI, social history, educational status noticed no significant difference.

Yet according to background study and literature review, this significant difference respective to age between the genders would be due to inappropriate sample size distribution between the male and female. Our study, probably for the first ever according to our literature review has found a relationship between the genders in terms of educational status with respective to disease condition. Despite the mean educational qualification of male population better than female, inverse were the results.

On deeper analysis, we found that irrespective of educational status, social history(Alcohol consumption and tobacco) has been the key factor in case of disease status. So hereby, we estimated that social history has been the major factor of causing the disease rather than the educational qualification (P= <0.001).

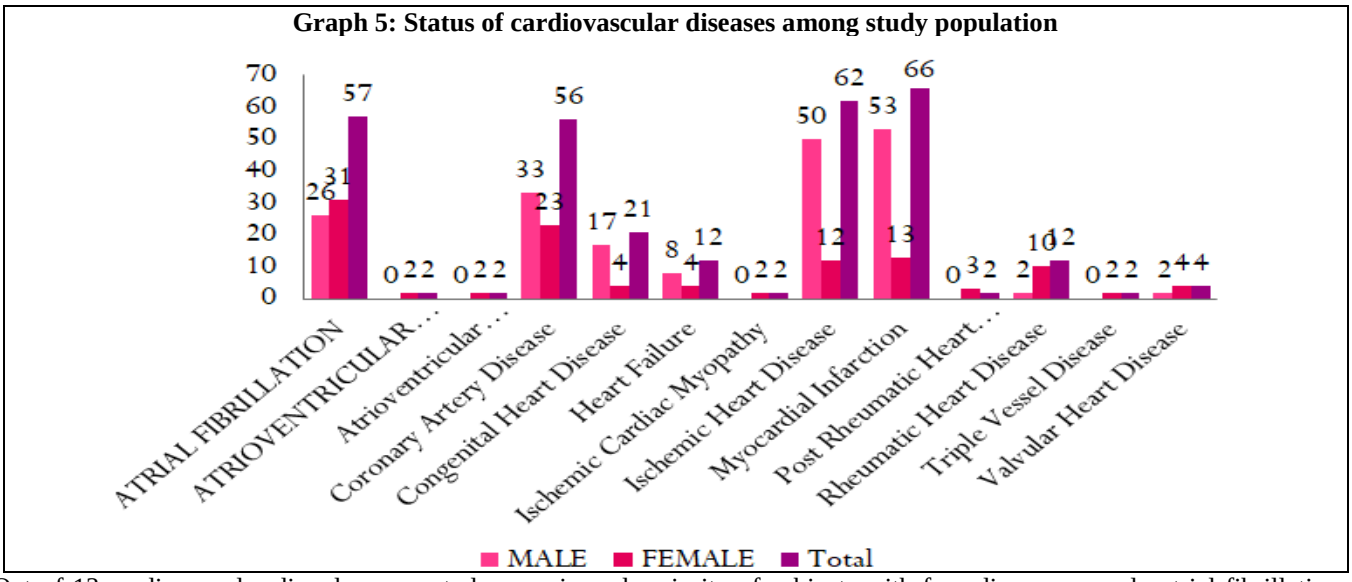
Out of the study, we have identified 300 sample representative populations with 13 various cardiovascular disorders. Detailed assessment with respective to disease has been given in **table no.2.**

Table No. 2: Detail Assessment Of Various Diseases In Study Population

DISEASE	MALE	FEMALE	Total
ATRIAL FIBRILLATION	26	31	57
ATRIOVENTRICULAR FIBRILLATION	0	2	2
ATRIOVENTRICULAR MALFORMATION	0	2	2
CORONARY ARTERY DISEASE	33	23	56
CONGENITAL HEART DISEASE	17	4	21
HEART FAILURE	8	4	12
ISCHEMIC CARDIAC MYOPATHY	0	2	2
ISCHEMIC HEART DISEASE	50	12	62
MYOCARDIAL INFARCTION	53	13	66
POST RHEUMATIC HEART DISEASE	0	3	2
RHEUMATIC HEART DISEASE	2	10	12
TRIPLE VESSEL DISEASE	0	2	2
VALVULAR HEART DISEASE	2	4	4
TOTAL	n = 191	n = 109	N=300

The graphical representation of disease history of patients has been illustrated in the graph no. 5. The graph has been included with individual number of diseased patients along with cumulative figures considering the gender based segregation.

Graph 5: Status of cardiovascular diseases among study population



Out of 13 cardiovascular disorders, our study experienced majority of subjects with four diseases namely atrial fibrillation, Coronary Artery Disease, Ischemic Heart Disease (IHD) and Myocardial Infarction (MI) in specific. On deeper post study analysis of those four disorders with respective to subjects we found significant demographic variable influencing the disease. The p value of the variables for each disease of the majorly effected has been given in the **table no.3.**

Table No.3: Expression of Relationship between Variables and Disease Status of Dominant Patients

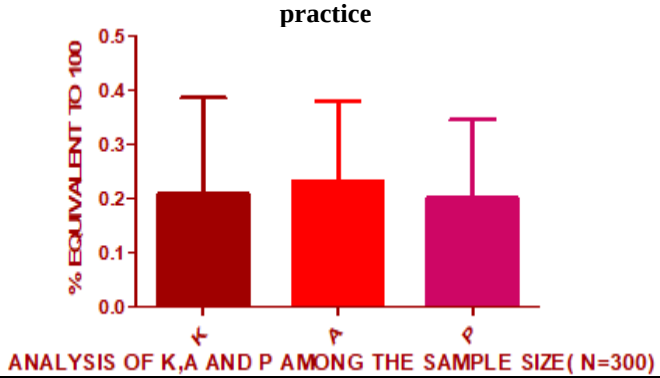
DISEASES	P VALUE (Age)	P VALUE (BMI)	P VALUE (Educational status)
Atrial Fibrillation	0.009	0.003	0.664
Myocardial Infarction	0.049	0.025	0.171
Coronary artery disease	0.056	0.001	0.037
Ischemic heart disease	0.0074	0.018	0.529

We found that the age and BMI has great influence on the status of disease in dominant subjects. This suggested us that higher the age and BMI, greater is the risk of getting diseased.

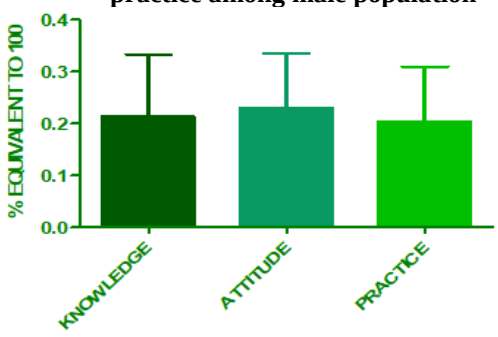
Based on the requirements of our study title, we tried analysing Knowledge, Attitude and Practice regarding the disease of every individual from our study sample. Upon compilation we have found no significant difference between the knowledge, attitude and practice amongst our study sample (P= 0.973).

Neglecting the gender, based on this results we found that there has been insignificant difference among the parameters of study like knowledge, attitude and practice (P= 0.98). The graph representing the KAP of subjects has been shown in the **graph no. 6.**

Graph 6: Comparison between knowledge, attitude and practice



Graph 7: Comparison between knowledge, attitude and practice among male population

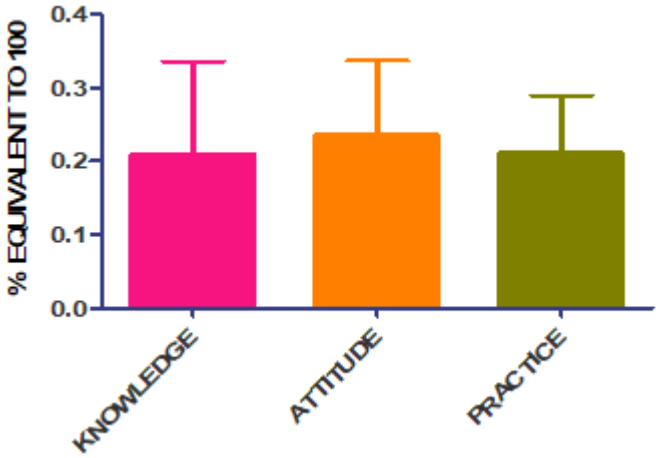


With the insignificant results of KAP pattern between gender (non-significant inter gender variability), we tried analysing it specifically within the genders (Intra gender variability assessment). The results of KAP in male subjects is found to be insignificant again (P= 0.987).

This suggested us that irrespective of social history, there have been no difference between the KAP results of the study among male population. This means the other variables like Age or BMI or Educational status has been playing key role in Knowledge, Attitude and practice towards disease but not the disease itself. The Graph for the same has been included under **graph no.7.**

The Analysis of Knowledge, Attitude and practice among female subjects is given in the graph no.5. (P value = 0.979). This suggested us that educational status, age or BMI has failed to show significant difference between the Knowledge, attitude and practice among the sample size. In other words, there has been no relationship of KAP towards disease with demographic variables. The graph representing the same has been shown in the **graph 8.**

Graph 8: Comparison between knowledge, attitude and practice among female population



CONCLUSION:

With an optimal sample size of three hundred, we have tried understanding the Knowledge, Attitude and Practice among patients towards cardiac diseases. In this study, we identified thirteen various cardiac diseases ranging the diseased number from as less as 2 patients with AVF to 66 patients with MI.

As our study is aimed at analysing the KAP patterns alone, we could not focus much on the background assessment for the cause of diseases. However, we noticed significant relationship between the Educational status and BMI with disease status in general and highly significant relationship between the age, educational status and BMI with disease history in terms of four majorly identified diseases.

When we analysed the data responses, we found that no demographic variable like age, BMI, Social history or Educational status is significantly related to the Patients' understanding towards the disease. It suggested us that awareness about the disease is not significantly differentiable based on demographic parameters but based on Life style.

In our study, we found no significant difference between the Genders with respective to levels of Knowledge, attitude and practice and so is within the gender. It suggested us the possibilities of the below:

- The levels of awareness about the disease status and lifestyle are almost equal between genders. The impact of lifestyle on the disease status has been well understood by the study subjects. The health care team, probably the physicians and health counsellors like clinical pharmacist takes the major credit of educating the patients regarding the life style modifications and disease status.

Like every other study, our study has some limitations and drawbacks too. Since it is a questionnaire based study, we had to stick on the responses of patients but couldn' t assess the novelty of their responses. For questionnaire based cohort study like this, we would recommend to decode the responses based on the answers from the patients rather than giving them clearly differentiable strands of responses to choose.

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