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RESEARCH ARTICLE

"AN EXPLORATORY STUDY TO IDENTIFY THE INFLUENCING FACTORS OF CARDIO-RESPIRATORY FITNESS AMONG NURSING STUDENTS AT KGMU, LUCKNOW U.P"

Mrs. Rashmi P. John[1], Prof. Narsingh Verma[2], Prof. Ranjana Singh[3] and Dr. Pravesh Vishvakarma[4]

1. Assistant Professor KGMU College of Nursing Lucknow U.P.
2. Dept. of PhysiologyKGMU Lucknow U.P.
3. Dept. of Biochemistry KGMU Lucknow U.P.
4. Dept. of Cardiology KGMU Lucknow U.P.

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Abstract

Introduction: The cardio respiratory fitness is having an greater role in the reduction of morbidity mortality related to the cardiac disease .In India cardiac diseases are the major cause factor for the mortality. Around 80% of death is happening in India due to cardio respiratory diseases. In 18th centuries cardiovascular disease risk age groups lies in the age above 40 years but in the current situation it's being reduced to the 25-30 years due to lifestyle changes and dietary alternations. This statistics reveals the importance of early detection of risk contributing factors and the modification of such risk factors. Which can effectively beneficial for the upcoming adults.

Need and Significance of the Study: Researcher have noticed high incidence of mortality due to cardiovascular disorder among young adults. The causative factor behind this is poor cardio-respiratory fitness. Thus researcher felt the need to undertake this study to identify the influencing factors of cardio-respiratory fitness among young nursing students.

Aim of The Study: To identify and explore the influencing factors of cardio-respiratory fitness among young nursing students.

Objectives:

1. To assess influencing factors of cardio-respiratory fitness among nursing students.
2. To determine association and correlation of cardio-respiratory determinants (VO2 max ,HRR & Tolerated time in TMT) with selected demographic variables.
3. To determine association and correlation of cardio-respiratory determinants (VO2 max , HRR & Tolerated time in TMT) with selected clinical profile .
4. To determine association and correlation of cardio-respiratory determinants (VO2 max, HRR & Tolerated time in TMT) with selected diagnostic tests findings..

Methodology: Quantitative research approach was used in this study and exploratory research design was adopted for this study.100 bsc Nursing students from KGMU College was selected for this study and correlation

Corresponding Author:- Mrs. Rashmi P. John
Address:- Assistant Professor KGMU College of Nursing Lucknow U.P.

between cardio reperatory determinants and demographic variales was analysed using inferential and non inferential statistical methods.

Results : The study results projects that a clear association and correlation of cardio-respiratory determinants (VO2 max, HRR & Tolerated time in TMT) with selected demographic variables. In the aspect of demographic variables: Family income is showing a significant association with VO_2Max and it's showing moderate positive correlation with VO_2 Max. The study also giving the evidences of significant association and correlation of cardio-respiratory determinants (VO2 max HRR and Tolerated time in TMT) with selected diagnostic test findings Such as LDL is showing negative correlation & selected clinical profile such as skinfold test is showing a moderate positive correlation with VO_2 Max. HDL in the prime parameter of diagnostic findings which is showing a positive correlation with HRR**.** In The aspect of tolerated time in TMT is showing an association and moderate positive correlation with2D Echo. These results were statistically proving H_1, H_2, H_3.That means there is a significant association and correlation of cardio-respiratory determinants (VO2 max ,HRR & tolerated time in TMT) with selected demographic variables, There is a significant association and correlation of cardio-respiratory determinants (VO2 max ,HRR and Tolerated time in TMT) with selected physical examination findings and There is a significant association and correlation of cardio-respiratory determinants (VO2 max ,HRR & Tolerated time in TMT) with selected diagnostic tests findings.

Conclusion: The study results projects that a clear association and correlation of cardio-respiratory determinants (VO2 max, HRR & Tolerated time in TMT) with selected demographic variables and other parameters such as clinical profiles and diagnostic tests.

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Introduction:-

The cardio respiratory fitness is having an greater role in the reduction of morbidity mortality related to the cardiac disease .In India cardiac diseases are the major cause factor for the mortality. Around 80% of death is happening in India due to cardio respiratory diseases. In 18th centuries cardiovascular disease risk age groups lies in the age above 40 years but in the current situation it's being reduced to the 25-30 years due to lifestyle changes and dietary alternations. This statistics reveals the importance of early detection of risk contributing factors and the modification of such risk factors. Which can effectively beneficial for the upcoming adults.

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Hopkinson's medicine given a data that approximately 84 million people in this country suffer from some form of cardiovascular disease, causing about 2,200 deaths a day, averaging one death every 40 seconds.

M N Krishnan shared an article and review regarding "Coronary heart disease and risk factors in India – On the brink of an epidemic in 2012 in Indian heart journal He reviewed the prevalence and pattern of increase in cardiac diseases from the year 1993 to 2012 with the help of various literature reviews. After revision he get in to the conclusion that CHD is the key cause factor of mortality and morbidity across the world and its is completely correlated with Hypertension Diabetes mellitus High cholesterol and the lifestyle factors

Recent data has shown that the cause of large national health burden of chronic diseases is due to behavioral dimensions such as physical inactivity and low levels of cardio-respiratory fitness.[1][12] The identified modifiable risk

factors that can affect cardio respiratory fitness included blood pressure and fasting blood levels of glucose, triglycerides, total cholesterol and high-density lipoprotein and cholesterol[13]

Statement Of The Problem:
"An exploratory study to identify the influencing factors of cardio-respiratory fitness among nursing students at KGMU, Lucknow U. P".

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4. To determine association and correlation of cardio-respiratory determinants (VO2 max, HRR & Tolerated time in TMT) with selected diagnostic tests findings..

Hypotheses:
1. $\mathbf{H_1}$: There will be significant association and correlation of cardio-respiratory determinants (VO2 max, HRR & Tolerated time in TMT) with selected demographic variables.
2. $\mathbf{H_2}$: There will be significant association and correlation of cardio-respiratory determinants (VO2 max, HRR & Tolerated time in TMT) with selected physical examination findings.
3. $\mathbf{H_3}$: There will be significant association and correlation of cardio-respiratory determinants (VO2 max, HRR & Tolerated time in TMT) with selected diagnostic tests findings.

Assumptions :
Students would give honest responses to the questions

Theoretcal Framework:
Theoretical framework selected of this study is based on the concept of the Health Belief Model by **Rosen stock,**

Stretcher& Becker (1997):
The Health Belief Model (HBM), a motivational model, is most commonly used theory in health education and health promotion.

Review Of Literature:-

Review of literature is mainly classified in to two
1. Literature related to prevalence and associated risk factors of cardiovascular disorder.
2. Literature related to Cardio-respiratory fitness.

World Health Organization (2018) :
Cardiorespiratory fitness represents a relation between physical activity behaviors and health outcomes that reflects in the capacity of various organs , such as the heart, lungs and muscles, to produce energy during physical activity and exercise. 30–50% of cardiorespiratory fitness is mainly determined by genetics, routine physical activity will enhance the fitness; which is therefore a proximal outcome of physical activity levels. On the aspect of public health perspective, cardiorespiratory fitness provides a robust measure, because of it will lower the month-to-month variability within each individual individuals. Cardiorespiratory fitness may be a stable indicator of current physical activity levels, which will resemble to glycosylated hemoglobin , reflecting glucose control over a period of several months.

Satish V et.al.(2018) :
conducted a randomized controlled trial of Yoga versus physical exercise for cardio-respiratory fitness in adolescent school children 802 school students from 10 schools across four districts were recruited for this study. two arm RCT

around 802 students were randomized to receive daily one hour yoga training (n = 411) or physical exercise (n = 391) over a period of two months. VO2 max was estimated using 20 m shuttle run test. However, yoga (n = 377) and physical exercise (n = 371) students contributed data to the analyses. Data was analysed using students t test. There was a significant improvement in VO2 max using 20 m Shuttle run test in both yoga ($p < 0.001$) and exercise ($p < 0.001$) group following intervention. There was no significant change in VO2 max between yoga and physical exercise group following intervention. However, in the subgroup with an above median cut-off of VO2 max; there was a significant improvement in yoga group compared to control group following intervention ($p = 0.03$). The results suggest yoga can improve cardio-respiratory fitness and aerobic capacity as physical exercise intervention in adolescent school children.[15]

Research Methodology:-

- **Research Approach** : Quantitative Approach
- **Research Design** : Explorative research design
- **Research Setting** : KGMU Lucknow
- **Demographic variables** : Age, Gender, Education, Financial dependency,

Place of stay, Family income, Dietary pattern,Frequency of fast & feast, any drug indulgence and Physical activities.

- **Clinical variable** : Family History Cardiac disorder, Family historyof

Respiratory disorder, Co Morbid illness, Breathing pattern,H.R, B.P, Auscultation finding, Height, weight, BMI,MUAC, W.C, H

- **Population** : NursingStudents
- **Sample** : BSc. Nursing Students
- **Accessible Popul**ation : In this study, accessible population refers to Nursing Students at KGMU College of Nursing , Lucknow
- **Sample size** : 100 nursing Students
- **Sampling Technique** : Simple Random Sampling
- **Tool** : In this study the structured tool consists of 3 sections:

✓ **Section 1**: Demographic data- It consists of 14 demographic variables of Nursing students
✓ **Section 2:** Clinical assessment &Diagnostic test findings
✓ **Section 3:**Cardio respiratory determinants (VO_2Max, HRR,Tolerated time in TMT)

Data Collection Method:
A formal order was obtained from the ethical permission from the ethical committee of KGMU Lucknow. Data collection was done within the given period with the help of pre decided tool .and tabulated by the inferential and non-inferential statistics

Major Findings Of The Study:-

Section -1 :-Description of sample characteristics

Variable	Category	Frequency	Percent
Age	18-19	16	16.0
	20-21	40	40.0
	22-23	21	21.0
	24-25	23	23.0
Gender	Male	33	33.0
	Female	67	67.0
Marital Status	Married	0	0.0
	Unmarried	100	100.0
	Other	0	0.0
Educational status	Illiterate	0	0.0
	Primary	0	0.0
	Secondary	0	0.0
	Senior Secondary	0	0.0
	Graduation	0	0.0
	Pursuing graduation	100	100.0

Financial dependency	Self Dependent	0	0.0
	Depend on others	100	100.0
Place of stay	Rural	26	26.0
	Urban	74	74.0
Family income	Below 5000	11	11.0
	Between 5000 and10000	14	14.0
	Between 10000 and 20000	25	25.0
	Between 20000 and 25000	31	31.0
	Above 25000	19	19.0
Diet	Vegetarian	55	55.0
	Non Vegetarian	45	45.0
Freq. OF Fast Food	0-2	60	60.0
	3 or above	40	40.0
Freq. OF Fast	0-2	97	97.0
	3 or above	3	3.0
Freq. OF Feast	0-2	92	92.0
	3 or above	8	8.0
Drug indulgence	No	93	93.0
	Smoke	0	0.0
	Smokeless	0	0.0
	Alcohol	0	0.0
	Other	6	6.0
	Over counter	1	1.0
Physical Exercise	Not all	18	18.0
	Occasionally	45	45.0
	Twice a week	13	13.0
	3 times a week	9	9.0
	Not Known	15	15.0

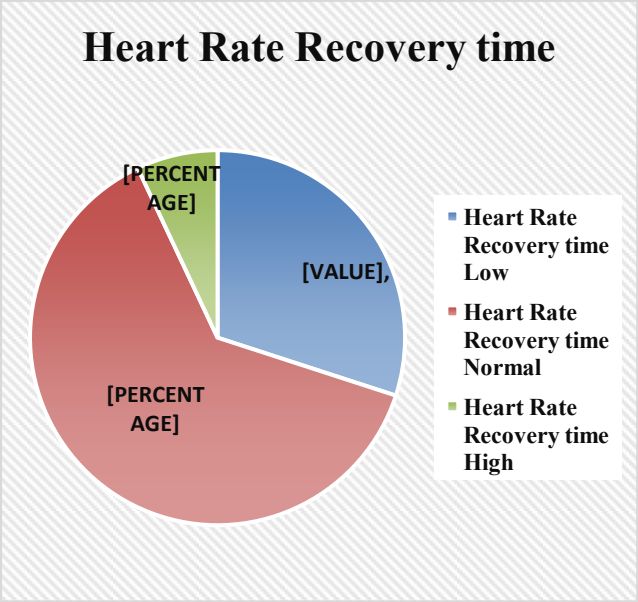
Table No1:- Frequency & Percentage distribution of Demographic variables.

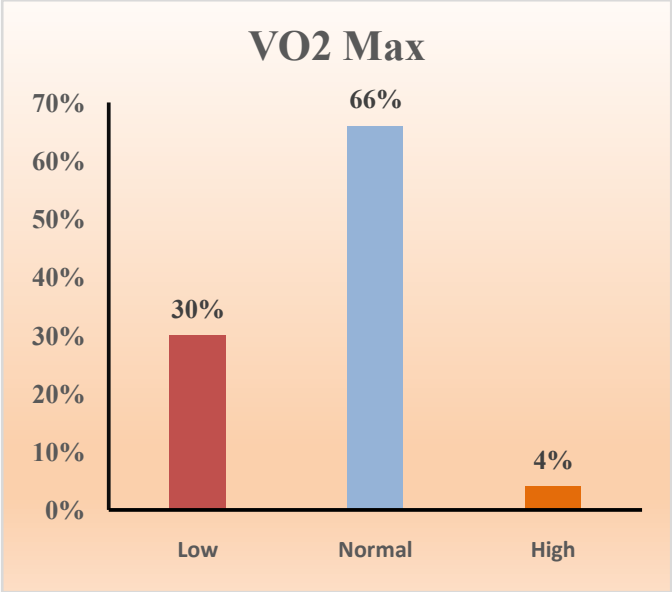
Section -1.2:- Clinical categorization of parameters according to various assessment.

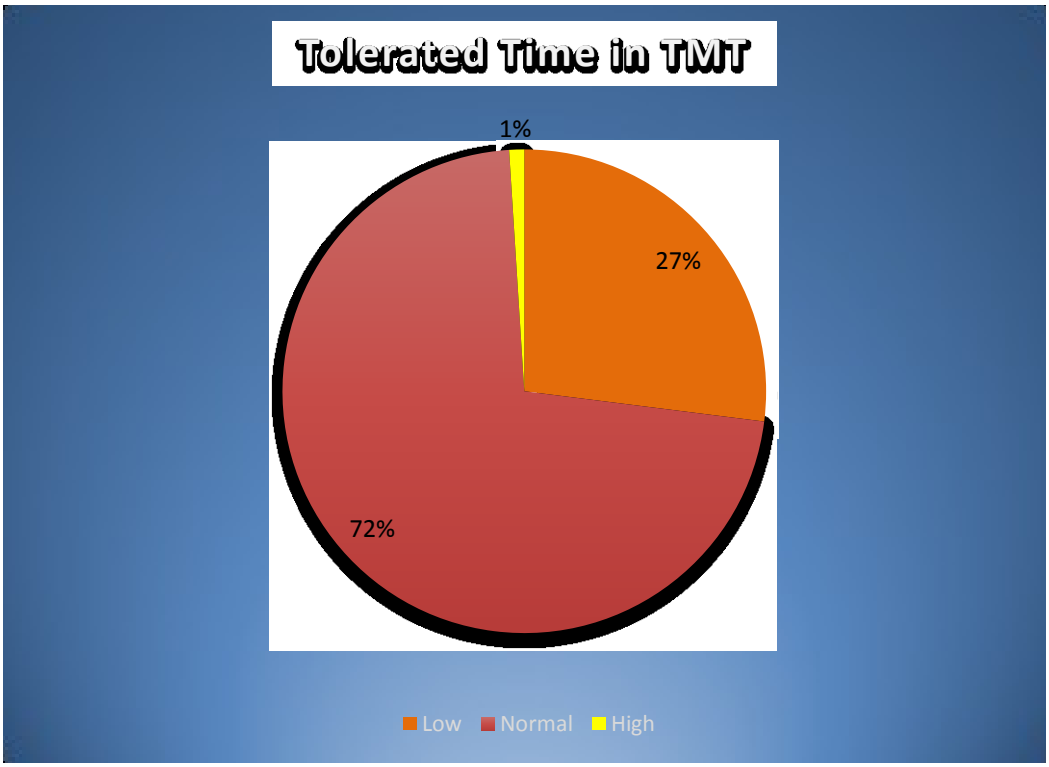
Variables	Categories	Frequency	Percentage
Heart Rate Recovery time	Low	30	30.0
	Normal	63	63.0
	High	7	7.0
VO2 Max	Low	30	30.0
	Normal	66	66.0
	High	4	4.0
TMT	Low	27	27.0
	Normal	72	72.0
	High	1	1.0

Table No 2:-Clinical categorization of parameters according to various assessment

1. Majority of samples are lies in the category of Normal Heart rate recovery time (63%)
2. Majority of samples are lies in the category of Normal VO2 Max range (66%)
3. Majority of the samples belongs to the category of normal TMT tolerance level (72%)







Section –2.1 :-Association& correlation VO_2 Max with selected demographic variables.

Variable	Category	VO2 Max			Chi Square (p-value)	Fisher's Exact Significance	Correlation (Kendall's tau c)
		Low	Normal	High			
Age	18-19	9	6	1	8.603 (0.197)	0.150	0.122 (0.153)
		56.3%	37.5%	6.3%			
	20-21	11	27	2			
		27.5%	67.5%	5.0%			
	22-23	4	17	0			
		19.0%	81.0%	0.0%			

	24-25	6	16	1			
		26.1%	69.6%	4.3%			
Gender	Male	13	19	1	2.094 (0.434)	0.341	0.128 (0.164)
		39.4%	57.6%	3.0%			
	Female	17	47	3			
		25.4%	70.1%	4.5%			
Place of stay	Rural	7	19	0	1.783 (0.410)	0.599	–0.002 (0.984)
		26.9%	73.1%	0.0%			
	Urban	23	47	4			
		31.1%	63.5%	5.4%			
Family income	Below 5000	2	9	0	18.006 (0.019)	0.016	0.232 (0.044)
		18.2%	81.8%	0.0%			
	Between 5000 and10000	8	4	2			
		57.1%	28.6%	14.3%			
	Between 10000 and 20000	9	16	0			
		36.0%	64.0%	0.0%			
	Between 20000 and 25000	8	23	0			
		25.8%	74.2%	0.0%			
	Above 25000	3	14	2			
		15.8%	73.7%	10.5%			
Diet	Vegetarian	13	39	3	2.743 (0.263)	0.263	–0.157 (0.095)
		23.6%	70.9%	5.5%			
	Non Vegetarian	17	27	1			
		37.8%	60.0%	2.2%			
Freq. OF Fast Food	0-2	20	38	2	0.884 (0.643)	0.651	0.088 (0.340)
		33.3%	63.3%	3.3%			
	3 or above	10	28	2			
		25.0%	70.0%	5.0%			
Freq. OF Fast	0-2	30	63	4	1.593 (0.602)	0.602	0.031 (0.088)
		30.9%	64.9%	4.1%			
	3 or above	0	3	0			
		0.0%	100.0%	0.0%			
Freq. OF Feast	0-2	27	61	4	0.527 (>0.999)	0.788	–0.032 (0.534)
		29.3%	66.3%	4.3%			
	3 or above	3	5	0			
		37.5%	62.5%	0.0%			
Drug indulgence	No	29	60	4	1.479 (0.827)	0.827	0.026 (0.353)
		31.2%	64.5%	4.3%			
	Other	1	5	0			
		16.7%	83.3%	0.0%			
	Over counter	0	1	0			
		0.0%	100.0%	0.0%			
Physical Exercise	Not all	8	10	0	7.839 (0.444)	0.356	0.109 (0.138)
		44.4%	55.6%	0.0%			
	Occasionally	12	31	2			
		26.7%	68.9%	4.4%			
	Once a week	5	7	1			
		38.5%	53.8%	7.7%			
	Twicw a week	3	5	1			
		33.3%	55.6%	11.1%			
	3 times week	2	13	0			
		13.3%	86.7%	0.0%			

Table No:2.1:- Association & correlation VO_2 Max with selected demographic variables

Inference:

1. As the p-value for Chi-square and Fisher's exact test for Family income is less than 0.05 it is obtained that VO2 Max is associated with the Family income.
2. The value of correlation is 0.232, which shows that the VO2 Max is moderately positively correlated with Family income.
3. All the other p-values are more than 0.05 therefore no other demographic variable is significantly related with VO2 max.

Section –2.2:- Association & correlation of HRR with selected demographic variables.

Variable	Category	Heart Rate Recovery time			Chi Square (p-value)	Fisher's Exact Significance	Correlation (Kendall's tau c)
		Low	Normal	High			
Age	18-19	6	9	1	1.199 (0.979)	0.978	0.045 (0.517)
		37.5 %	56.3%	6.3%			
	20-21	12	25	3			
		30.0 %	62.5%	7.5%			
	22-23	5	14	2			
		23.8 %	66.7%	9.5%			
	24-25	7	15	1			
		30.4 %	65.2%	4.3%			
Gender	Male	14	16	3	4.489 (0.114)	0.107	–0.026 (0.748)
		42.4 %	48.5%	9.1%			
	Female	16	47	4			
		23.9 %	70.1%	6.0%			
Place of stay	Rural	6	19	1	1.627 (0.467)	0.537	0.007 (0.930)
		23.1 %	73.1%	3.8%			
	Urban	24	44	6			
		32.4 %	59.5%	8.1%			
Family income	Below 5000	6	5	0	6.551 (0.603)	0.684	0.033 (0.650)
		54.5 %	45.5%	0.0%			
	Between 5000 and10000	4	9	1			
		28.6 %	64.3%	7.1%			
	Between 10000 and 20000	7	17	1			
		28.0 %	68.0%	4.0%			
	Between 20000 and 25000	8	21	2			
		25.8 %	67.7%	6.5%			
	Above 25000	5	11	3			
		26.3 %	57.9%	15.8 %			
Diet	Vegetarian	16	36	3	0.568 (0.767)	0.767	–0.086 (0.333)
		29.1 %	65.5%	5.5%			

	Non Vegetarian	14	27	4			
		31.1 %	60.0%	8.9%			
Freq. OF Fast Food	0-2	18	37	5	0.423 (0.849)	0.849	0.020 (0.818)
		30.0 %	61.7%	8.3%			
	3 or above	12	26	2			
		30.0 %	65.0%	5.0%			
Freq. OF Fast	0-2	30	60	7	1.816 (0.638)	0.638	0.031 (0.084)
		30.9 %	61.9%	7.2%			
	3 or above	0	3	0			
		0.0%	100.0 %	0.0%			
Freq. OF Feast	0-2	29	56	7	2.325 (0.317)	0.482	0.044 (0.267)
		31.5 %	60.9%	7.6%			
	3 or above	1	7	0			
		12.5 %	87.5%	0.0%			
Drug indulgence	No	29	57	7	1.880 (0.733)	0.864	0.025 (0.374)
		31.2 %	61.3%	7.5%			
	Other	1	5	0			
		16.7 %	83.3%	0.0%			
	Over counter	0	1	0			
		0.0%	100.0 %	0.0%			
Physical Exercise	Not all	6	10	2	5.829 (0.687)	0.673	0.048 (0.496)
		33.3 %	55.6%	11.1 %			
	Occasionally	14	28	3			
		31.1 %	62.2%	6.7%			
	Once a week	6	6	1			
		46.2 %	46.2%	7.7%			
	Twice a week	1	8	0			
		11.1 %	88.9%	0.0%			
	3 times week	3	11	1			
		20.0 %	73.3%	6.7%			

Table No:2.2:- Association & correlation HRR with selected demographic variables

Inference:

1. Age , Gender , Place of stay , family income , frequency of fast, frequency of feast drug indulgence and physical exercise showing an association with HRR
2. Demographic variable have no correlation with HRR

Section –2.3:- Association & Correlation Of Tolerated Time In TmtWith Selected Demographic Variables.

Variable	Category	Tolerated Time in	Chi Square (p-	Fisher's Exact	Correlatio

		TMT			value)	Significance	n (Kendall's tau c)
		Low	Normal	High			
Age	18-19	5	11	0	6.665 (0.349)	0.243	0.032 (0.690)
		31.3 %	68.8%	0.0 %			
	20-21	10	29	1			
		25.0 %	72.5%	2.5 %			
	22-23	9	12	0			
		42.9 %	57.1%	0.0 %			
	24-25	3	20	0			
		13.0 %	87.0%	0.0 %			
Gender	Male	8	25	0	0.728 (0.874)	0.874	0.133 (0.178)
		24.2 %	75.8%	0.0 %			
	Female	19	47	1			
		28.4 %	70.1%	1.5 %			
Place of stay	Rural	7	19	0	0.357 (>0.999)	>0.999	–0.044 (0.581)
		26.9 %	73.1%	0.0 %			
	Urban	20	53	1			
		27.0 %	71.6%	1.4 %			
Family income	Below 5000	3	8	0	6.365 (0.643)	0.573	0.134 (0.123)
		27.3 %	72.7%	0.0 %			
	Between 5000 and10000	5	9	0			
		35.7 %	64.3%	0.0 %			
	Between 10000 and 20000	5	19	1			
		20.0 %	76.0%	4.0 %			
	Between 20000 and 25000	11	20	0			
		35.5 %	64.5%	0.0 %			
	Above 25000	3	16	0			
		15.8 %	84.2%	0.0 %			
Diet	Vegetarian	13	41	1	1.440 (0.644)	0.571	0.005 (0.958)
		23.6 %	74.5%	1.8 %			
	Non Vegetarian	14	31	0			
		31.1 %	68.9%	0.0 %			
Freq. OF Fast Food	0-2	17	42	1	0.849 (0.891)	0.891	–0.022 (0.814)
		28.3 %	70.0%	1.7 %			
	3 or above	10	30	0			
		25.0 %	75.0%	0.0 %			

Freq. OF Fast	0-2	27	69	1	1.203 (0.573)	0.573	0.028 (0.097)
		27.8 %	71.1%	1.0 %			
	3 or above	0	3	0			
		0.0%	100.0 %	0.0 %			
Freq. OF Feast	0-2	26	65	1	1.054 (0.485)	0.485	0.036 (0.336)
		28.3 %	70.7%	1.1 %			
	3 or above	1	7	0			
		12.5 %	87.5%	0.0 %			
Drug indulgence	No	26	66	1	0.844 (0.781)	>0.999	0.021 (0.445)
		28.0 %	71.0%	1.1 %			
	Other	1	5	0			
		16.7 %	83.3%	0.0 %			
	Over counter	0	1	0			
		0.0%	100.0 %	0.0 %			
Physical Exercise	Not all	6	12	0	5.646 (0.699)	0.586	0.038 (0.629)
		33.3 %	66.7%	0.0 %			
	Occasionally	11	33	1			
		24.4 %	73.3%	2.2 %			
	Once a week	6	7	0			
		46.2 %	53.8%	0.0 %			
	Twice a week	2	7	0			
		22.2 %	77.8%	0.0 %			
	3 times week	2	13	0			
		13.3 %	86.7%	0.0 %			

Table No:2.3:- Association & correlation tolerated time in TMT with selected demographic variables

Inference:

1. Demographic variables such as :Age, family income ,diet , frequency of fast, frequency of feast, drug indulgence and physical exercise showing an association with tolerated time in TMT
2. There is No correlation between Tolerated time in TMT and demographic variables

Section 3.1.1:- Association &CorrelationVO_2 Max With Selected Clinical Profile.

Variable	Category	VO2 Max			Chi Square (p-value)	Fisher's Exact Significance	Correlation (Kendall's tau c)
		Low	Normal	High			
family H/o cardiac dis.	Yes	7	27	1	2.984 (0.264)	0.223	–0.123 (0.151)
		20.0 %	77.1%	2.9%			
	No	23	39	3			
		35.4 %	60.0%	4.6%			

family H/o respiratory dis.	Yes	8	14	0	1.533 (0.552)	0.552	0.078 (0.313)
		36.4 %	63.6%	0.0%			
	No	22	52	4			
		28.2 %	66.7%	5.1%			
co-morbid illness	Yes	4	7	1	0.812 (0.761)	0.425	0.001 (0.991)
		33.3 %	58.3%	8.3%			
	No	26	59	3			
		29.5 %	67.0%	3.4%			
h/o breathing	Yes	1	5	0	0.924 (0.737)	0.737	–0.024 (0.506)
		16.7 %	83.3%	0.0%			
	No	29	61	4			
		30.9 %	64.9%	4.3%			
H/o Cough	Yes	2	1	0	2.010 (0.319)	0.319	0.046 (0.252)
		66.7 %	33.3%	0.0%			
	No	28	65	4			
		28.9 %	67.0%	4.1%			
H.R.	Normal	29	62	4	0.542 (0.736)	>0.999	0.014 (0.693)
		30.5 %	65.3%	4.2%			
	Abnormal	1	4	0			
		20.0 %	80.0%	0.0%			
B.P.	Normal	25	56	2	3.249 (0.259)	0.226	0.041 (0.607)
		30.1 %	67.5%	2.4%			
	Abnormal	5	10	2			
		29.4 %	58.8%	11.8 %			
Auscultation Finding	Normal	28	58	3	1.416 (0.525)	0.390	0.066 (0.262)
		31.5 %	65.2%	3.4%			
	Abnormal	2	8	1			
		18.2 %	72.7%	9.1%			
Respiratory rate	Normal	30	64	4	1.051 (0.600)	>0.999	0.021 (0.162)
		30.6 %	65.3%	4.1%			
	Abnormal	0	2	0			
		0.0%	100.0 %	0.0%			
C.C.	Normal	26	60	3	1.213 (0.595)	0.320	–0.011 (0.868)
		29.2 %	67.4%	3.4%			
	Abnormal	4	6	1			
		36.4 %	54.5%	9.1%			

A/P diameter	Normal	29	63	4	0.253 (>0.999)	>0.999	0.003 (0.922)
		30.2 %	65.6%	4.2%			
	Abnormal	1	3	0			
		25.0 %	75.0%	0.0%			
transverse diameter	Normal	29	64	4	0.135 (>0.999)	>0.999	–0.007 (0.817)
		29.9 %	66.0%	4.1%			
	Abnormal	1	2	0			
		33.3 %	66.7%	0.0%			
Lungs Auscultation finding	Normal	28	60	4	0.527 (0.999)	>0.999	0.006 (0.889)
		30.4 %	65.2%	4.3%			
	Abnormal	2	6	0			
		25.0 %	75.0%	0.0%			
Height	Low	4	7	0	0.672 (0.835)	0.835	0.039 (0.505)
		36.4 %	63.6%	0.0%			
	Normal	26	59	4			
		29.2 %	66.3%	4.5%			
Weight	Low	6	8	0	2.173 (0.727)	0.755	0.056 (0.331)
		42.9 %	57.1%	0.0%			
	Normal	22	53	4			
		27.8 %	67.1%	5.1%			
	High	2	5	0			
		28.6 %	71.4%	0.0%			
BMI	Low	4	12	1	1.661 (0.835)	0.832	–0.079 (0.238)
		23.5 %	70.6%	5.9%			
	Normal	20	45	3			
		29.4 %	66.2%	4.4%			
	High	6	9	0			
		40.0 %	60.0%	0.0%			
MUAC	Low	3	7	0	1.006 (>0.999)	>0.999	0.015 (0.704)
		30.0 %	70.0%	0.0%			
	Normal	27	58	4			
		30.3 %	65.2%	4.5%			
	High	0	1	0			
		0.0%	100.0 %	0.0%			
W.C.	Low	26	55	3	0.870 (0.908)	0.777	0.029 (0.581)
		31.0 %	65.5%	3.6%			

	Normal	3	9	1			
		23.1 %	69.2%	7.7%			
	High	1	2	0			
		33.3 %	66.7%	0.0%			
H.C.	Low	21	49	2	2.726 (0.634)	0.597	–0.005 (0.936)
		29.2 %	68.1%	2.8%			
	Normal	6	12	2			
		30.0 %	60.0%	10.0 %			
	High	3	5	0			
		37.5 %	62.5%	0.0%			
Skin Fold Test	Normal	28	61	2	8.573 (0.042)	0.042	0.273 (0.038)
		30.8 %	67.0%	2.2%			
	Abnormal	2	5	2			
		22.2 %	55.6%	22.2 %			

Table No:3.1:-Association & CorrelationVO_2 maxWith Selected Clinical Profiles

Inference:

1. As the p-value for Chi-square and Fisher's exact test for Skin fold test is less than 0.05 VO2 max is significantly related with Skin fold test.
2. The value of correlation suggests that the VO2 Max is moderately positively correlated with Skin Fold Test.
3. However the p-value for Chi-square and Fisher's exact test the other physical examination are obtained more than 0.05 no other physical examination finding is significantly related with VO2 max.

Section 3.1.2:- Association &correlation HRRwith selected clinical Profiles.

Variable	**Category**	**Heart Rate Recovery time**			**Chi Square (p-Value)**	**Fisher's Exact Significance**	**Correlation (Kendall's tau c)**
		Low	**Normal**	**High**			
family H/o cardiac dis.	Yes	9	23	3	0.583 (0.747)	0.746	–0.116 (0.163)
		25.7%	65.7%	8.6%			
	No	21	40	4			
		32.3%	61.5%	6.2%			
family H/o respiratory dis.	Yes	8	12	2	0.877 (0.625)	0.575	0.048 (0.525)
		36.4%	54.5%	9.1%			
	No	22	51	5			
		28.2%	65.4%	6.4%			
co-morbid illness	Yes	2	10	0	2.658 (0.311)	0.393	–0.085 (0.054)
		16.7%	83.3%	0.0%			
	No	28	53	7			
		31.8%	60.2%	8.0%			
h/o breathing	Yes	1	4	1	1.224 (0.681)	0.470	0.017 (0.707)
		16.7%	66.7%	16.7 %			
	No	29	59	6			
		30.9%	62.8%	6.4%			
H/o Cough	Yes	1	2	0	0.235 (>0.999)	>0.999	0.008 (0.794)
		33.3%	66.7%	0.0%			

	No	29	61	7			
		29.9%	62.9%	7.2%			
H.R.	Normal	30	58	7	3.091 (0.238)	0.317	0.012 (0.724)
		31.6%	61.1%	7.4%			
	Abnormal	0	5	0			
		0.0%	100.0 %	0.0%			
B.P.	Normal	25	53	5	0.723 (0.751)	0.751	–0.021 (0.755)
		30.1%	63.9%	6.0%			
	Abnormal	5	10	2			
		29.4%	58.8%	11.8 %			
Auscultation Finding	Normal	27	55	7	1.081 (0.607)	>0.999	–0.004 (0.937)
		30.3%	61.8%	7.9%			
	Abnormal	3	8	0			
		27.3%	72.7%	0.0%			
Respiratory rate	Normal	30	62	6	6.058 (0.048)	0.048	–0.058 (0.146)
		30.6%	63.3%	6.1%			
	Abnormal	0	1	1			
		0.0%	50.0%	50.0 %			
C.C.	Normal	26	57	6	0.384 (0.889)	0.671	–0.004 (0.937)
		29.2%	64.0%	6.7%			
	Abnormal	4	6	1			
		36.4%	54.5%	9.1%			
A/P diameter	Normal	29	60	7	0.422 (>0.999)	>0.999	0.002 (0.953)
		30.2%	62.5%	7.3%			
	Abnormal	1	3	0			
		25.0%	75.0%	0.0%			
transverse diameter	Normal	29	61	7	0.235 (>0.999)	> 0.999	–0.008 (0.794)
		29.9%	62.9%	7.2%			
	Abnormal	1	2	0			
		33.3%	66.7%	0.0%			
Lungs Auscultation finding	Normal	29	58	5	4.913 (0.107)	0.128	–0.036 (0.501)
		31.5%	63.0%	5.4%			
	Abnormal	1	5	2			
		12.5%	62.5%	25.0 %			
Height	Low	4	6	1	0.384 (0.889)	0.671	–0.035 (0.479)
		36.4%	54.5%	9.1%			
	Normal	26	57	6			
		29.2%	64.0%	6.7%			
Weight	Low	5	7	2	2.265 (0.710)	0.671	0.005 (0.930)
		35.7%	50.0%	14.3 %			
	Normal	23	51	5			
		29.1%	64.6%	6.3%			
	High	2	5	0			
		28.6%	71.4%	0.0%			
BMI	Low	4	11	2	1.150 (0.911)	0.856	–0.062 (0.340)
		23.5%	64.7%	11.8 %			
	Normal	22	42	4			
		32.4%	61.8%	5.9%			

	High	4	10	1			
		26.7%	66.7%	6.7%			
MUAC	Low	2	7	1	2.885 (0.548)	0.469	–0.041 (0.204)
		20.0%	70.0%	10.0 %			
	Normal	27	56	6			
		30.3%	62.9%	6.7%			
	High	1	0	0			
		100.0 %	0.0%	0.0%			
W.C.	Low	25	52	7	1.451 (0.899)	0.927	0.010 (0.837)
		29.8%	61.9%	8.3%			
	Normal	4	9	0			
		30.8%	69.2%	0.0%			
	High	1	2	0			
		33.3%	66.7%	0.0%			
H.C.	Low	21	46	5	0.748 (0.990)	0.884	–0.008 (0.887)
		29.2%	63.9%	6.9%			
	Normal	7	12	1			
		35.0%	60.0%	5.0%			
	High	2	5	1			
		25.0%	62.5%	12.5 %			
Skin Fold Test	Normal	29	55	7	2.921 (0.292)	0.413	0.054 (0.184)
		31.9%	60.4%	7.7%			
	Abnormal	1	8	0			
		11.1%	88.9%	0.0%			

Table No:3.2:-Association & CorrelationHRR With Selected Clinical Profiles

Inference:

1. As the p-value for Chi-square and Fisher's exact test for Respiratory rate. is less than 0.05 it is obtained that Heart recovery rate time is associated with the Respiratory rate.
2. The value of correlation suggests that the Heart recovery rate is slightly negatively correlated with Respiratory rate.
3. All the other p-values are more than 0.05 therefore no other physical examination finding is significantly related with Heart recovery rate time.

Section 3.1.3:- Association & correlation Tolerated time in TMT with selected clinical Profiles.

Variable	**Category**	**Tolerated Time in TMT**			**Chi Square (p-Value)**	**Fisher's Exact Significance**	**Correlation (Kendall's tau c)**
		Low	**Normal**	**High**			
family H/o cardiac dis.	Yes	7	27	1	3.032 (0.222)	0.222	–0.071 (0.442)
		20.0%	77.1%	2.9%			
	No	20	45	0			
		30.8%	69.2%	0.0%			
family H/o respiratory dis.	Yes	7	15	0	0.582 (0.834)	0.685	0.039 (0.651)
		31.8%	68.2%	0.0%			
	No	20	57	1			
		25.6%	73.1%	1.3%			
co-morbid illness	Yes	1	11	0	2.629 (0.271)	0.271	–0.036 (0.467)
		8.3%	91.7%	0.0%			
	No	26	61	1			
		29.5%	69.3%	1.1%			

h/o breathing	Yes	2	4	0	0.184 (>0.999)	0.683	–0.046 (0.338)
		33.3%	66.7%	0.0%			
	No	25	68	1			
		26.6%	72.3%	1.1%			
H/o Cough	Yes	1	2	0	0.089 (>0.999)	>0.999	0.010 (0.753)
		33.3%	66.7%	0.0%			
	No	26	70	1			
		26.8%	72.2%	1.0%			
H.R.	Normal	26	68	1	0.195 (>0.999)	>0.999	0.046 (0.370)
		27.4%	71.6%	1.1%			
	Abnormal	1	4	0			
		20.0%	80.0%	0.0%			
B.P.	Normal	22	60	1	0.255 (>0.999)	0.813	0.026 (0.735)
		26.5%	72.3%	1.2%			
	Abnormal	5	12	0			
		29.4%	70.6%	0.0%			
Auscultation Finding	Normal	24	64	1	0.125 (>0.999)	>0.999	–0.010 (0.845)
		27.0%	71.9%	1.1%			
	Abnormal	3	8	0			
		27.3%	72.7%	0.0%			
Respiratory rate	Normal	25	72	1	5.518 (0.091)	0.091	0.046 (0.213)
		25.5%	73.5%	1.0%			
	Abnormal	2	0	0			
		100.0 %	0.0%	0.0%			
C.C.	Normal	24	64	1	0.125 (>0.999)	>0.999	–0.020 (0.767)
		27.0%	71.9%	1.1%			
	Abnormal	3	8	0			
		27.3%	72.7%	0.0%			
A/P diameter	Normal	26	69	1	0.053 (>0.999)	>0.999	<0.001 (0.990)
		27.1%	71.9%	1.0%			
	Abnormal	1	3	0			
		25.0%	75.0%	0.0%			
transverse diameter	Normal	26	70	1	0.089 (>0.999)	>0.999	–0.010 (0.753)
		26.8%	72.2%	1.0%			
	Abnormal	1	2	0			
		33.3%	66.7%	0.0%			
Lungs Auscultation finding	Normal	24	67	1	0.551 (0.705)	0.705	0.092 (0.115)
		26.1%	72.8%	1.1%			
	Abnormal	3	5	0			
		37.5%	62.5%	0.0%			
Height	Low	2	9	0	0.645 (0.753)	0.753	0.020 (0.767)
		18.2%	81.8%	0.0%			
	Normal	25	63	1			
		28.1%	70.8%	1.1%			
Weight	Low	4	10	0	0.291 (>0.999)	>0.999	–0.006 (0.929)
		28.6%	71.4%	0.0%			
	Normal	21	57	1			
		26.6%	72.2%	1.3%			
	High	2	5	0			
		28.6%	71.4%	0.0%			
BMI	Low	4	13	0	1.955 (0.673)	0.673	–0.030 (0.670)
		23.5%	76.5%	0.0%			
	Normal	17	50	1			

		25.0%	73.5%	1.5%			
	High	6	9	0			
		40.0%	60.0%	0.0%			
MUAC	Low	1	9	0	2.252 (0.531)	0.531	–0.053 (0.255)
		10.0%	90.0%	0.0%			
	Normal	26	62	1			
		29.2%	69.7%	1.1%			
	High	0	1	0			
		0.0%	100.0 %	0.0%			
W.C.	Low	23	60	1	1.418 (0.841)	0.817	–0.029 (0.550)
		27.4%	71.4%	1.2%			
	Normal	4	9	0			
		30.8%	69.2%	0.0%			
	High	0	3	0			
		0.0%	100.0 %	0.0%			
H.C.	Low	19	52	1	1.899 (0.630)	0.653	–0.009 (0.895)
		26.4%	72.2%	1.4%			
	Normal	7	13	0			
		35.0%	65.0%	0.0%			
	High	1	7	0			
		12.5%	87.5%	0.0%			
Skin Fold Test	Normal	26	64	1	1.415 (0.488)	0.488	0.046 (0.246)
		28.6%	70.3%	1.1%			
	Abnormal	1	8	0			
		11.1%	88.9%	0.0%			

Table No:3.3:-Association & CorrelationTolerated time in TMT With Selected Clinical Profiles

Inference:

1. As the p-value for Chi-square and Fisher's exact test are more than 0.05 therefore no physical examination finding is significantly related with Tolerated Time in TMT.
2. There is no correlation between Tolerated time in TMT and Clinical Profiles

Section 3.2.1:- Association& correlation VO_2Max withselected Diagnostic Tests.

Variable	Category	VO2 Max			Chi-Square (p-Value)	Fisher's Exact Significance	Correlation (Kendall's tau c)
		Low	Normal	High			
a) Hemoglobin	Low	10	24	1	4.978 (0.265)	0.296	–0.033 (0.644)
		28.6%	68.6%	2.9%			
	Normal	18	42	3			
		28.6%	66.7%	4.8%			
	High	2	0	0			
		100.0 %	0.0%	0.0%			
b) Triglyceride level	Low	0	1	0	4.056 (0.238)	0.179	–0.052 (0.334)
		0.0%	100.0 %	0.0%			
	Normal	25	61	3			
		28.1%	68.5%	3.4%			
	High	5	4	1			
		50.0%	40.0%	10.0 %			

c) HDL	Low	8	10	2	4.752 (0.314)	0.307	0.007 (0.928)
		40.0%	50.0%	10.0 %			
	Normal	14	37	2			
		26.4%	69.8%	3.8%			
	High	8	19	0			
		29.6%	70.4%	0.0%			
d) LDL	Low	3	2	2	13.792 (0.019)	0.042	–0.370 (0.024)
		42.9%	28.6%	28.6 %			
	Normal	23	57	2			
		28.0%	69.5%	2.4%			
	High	4	7	0			
		36.4%	63.6%	0.0%			
e) Cholesterol	Low	4	17	1	3.559 (0.411)	0.347	–0.102 (0.086)
		18.2%	77.3%	4.5%			
	Normal	24	48	3			
		32.0%	64.0%	4.0%			
	High	2	1	0			
		66.7%	33.3%	0.0%			
f)RBS	Low	0	4	0	5.982 (0.251)	0.217	–0.083 (0.210)
		0.0%	100.0 %	0.0%			
	Normal	27	61	4			
		29.3%	66.3%	4.3%			
	High	3	1	0			
		75.0%	25.0%	0.0%			
g) T3	Low	0	5	0	3.095 (0.498)	0.490	–0.051 (0.062)
		0.0%	100.0 %	0.0%			
	Normal	29	60	4			
		31.2%	64.5%	4.3%			
	High	1	1	0			
		50.0%	50.0%	0.0%			
h)T4	Low	0	3	0	1.997 (0.669)	0.550	–0.036 (0.156)
		0.0%	100.0 %	0.0%			
	Normal	29	62	4			
		30.5%	65.3%	4.2%			
	High	1	1	0			
		50.0%	50.0%	0.0%			
i)TSH	Low	1	1	0	2.236 (0.629)	0.663	0.045 (0.205)
		50.0%	50.0%	0.0%			
	Normal	28	58	4			
		31.1%	64.4%	4.4%			
	High	1	7	0			
		12.5%	87.5%	0.0%			
j) ECG	Normal	27	56	3	0.873 (0.584)	0.559	0.058 (0.367)
		31.4%	65.1%	3.5%			
	Abnormal	3	10	1			
		21.4%	71.4%	7.1%			
k) Uric Acid	Low	2	5	0	1.719 (0.751)	0.751	–0.034 (0.484)
		28.6%	71.4%	0.0%			
	Normal	25	58	4			

		28.7%	66.7%	4.6%			
	High	3	3	0			
		50.0%	50.0%	0.0%			
l) X-Ray Chset	Normal	30	65	3	11.487 (0.079)	0.079	0.049 (0.207)
		30.6%	66.3%	3.1%			
	Abnormal	0	1	1			
		0.0%	50.0%	50.0 %			
m) 2D Echo	Normal	28	65	4	2.010 (0.319)	0.319	–0.046 (0.252)
		28.9%	67.0%	4.1%			
	Abnormal	2	1	0			
		66.7%	33.3%	0.0%			
n)Peak Expiratory Flow Rate	Normal	29	65	4	0.433 (>0.999)	0.567	–0.018 (0.550)
		29.6%	66.3%	4.1%			
	Abnormal	1	1	0			
		50.0%	50.0%	0.0%			

Table No: 4.1 :-Association & correlation VO_2Max with selected Diagnostic Tests

Inference:

1. As the p-value for Chi-square and Fisher's exact test for LDL is less than 0.05 it is obtained that LDL is related with VO2 max.
2. The value of correlation suggests that the LDL is moderately negatively correlated with VO2 Max.
3. P-values for all other variables are more than 0.05 therefore no other Diagnostic test finding is significantly related with VO2 max.

Section 3.2.2:- Association & correlation HRR with selected Diagnostic Tests.

Variable	**Category**	**Heart Rate Recovery time**			**Chi-Square (p-value)**	**Fisher's exact Significance**	**Correlation (Kendall's tau c)**
		Low	**Normal**	**High**			
a) Hemoglobin	Low	11	21	3	0.782 (0.939)	0.838	–0.007 (0.925)
		31.4%	60.0%	8.6%			
	Normal	18	41	4			
		28.6%	65.1%	6.3%			
	High	1	1	0			
		50.0%	50.0%	0.0%			
b) Triglyceride level	Low	1	0	0	3.600 (0.374)	0.501	–0.023 (0.623)
		100.0 %	0.0%	0.0%			
	Normal	25	57	7			
		28.1%	64.0%	7.9%			
	High	4	6	0			
		40.0%	60.0%	0.0%			
c) HDL	Low	12	6	2	13.739 (0.008)	0.005	0.203 (0.016)
		60.0%	30.0%	10.0 %			
	Normal	13	38	2			
		24.5%	71.7%	3.8%			
	High	5	19	3			
		18.5%	70.4%	11.1 %			
d) LDL	Low	1	6	0	5.307 (0.241)	0.248	–0.083 (0.156)
		14.3%	85.7%	0.0%			
	Normal	23	53	6			

		28.0%	64.6%	7.3%			
	High	6	4	1			
		54.5%	36.4%	9.1%			
e) Cholesterol	Low	8	12	2	3.107 (0.542)	0.491	0.001 (0.990)
		36.4%	54.5%	9.1%			
	Normal	20	50	5			
		26.7%	66.7%	6.7%			
	High	2	1	0			
		66.7%	33.3%	0.0%			
f)RBS	Low	2	1	1	3.768 (0.419)	0.292	0.007 (0.887)
		50.0%	25.0%	25.0 %			
	Normal	27	59	6			
		29.3%	64.1%	6.5%			
	High	1	3	0			
		25.0%	75.0%	0.0%			
g) T3	Low	0	5	0	3.520 (0.387)	0.472	–0.047 (0.070)
		0.0%	100.0 %	0.0%			
	Normal	29	57	7			
		31.2%	61.3%	7.5%			
	High	1	1	0			
		50.0%	50.0%	0.0%			
h)T4	Low	0	3	0	8.644 (0.063)	0.113	–0.014 (0.706)
		0.0%	100.0 %	0.0%			
	Normal	29	60	6			
		30.5%	63.2%	6.3%			
	High	1	0	1			
		50.0%	0.0%	50.0 %			
i)TSH	Low	1	1	0	2.765 (0.507)	0.563	0.040 (0.250)
		50.0%	50.0%	0.0%			
	Normal	28	55	7			
		31.1%	61.1%	7.8%			
	High	1	7	0			
		12.5%	87.5%	0.0%			
j) ECG	Normal	26	54	6	0.016 (>0.999)	>0.999	0.008 (0.906)
		30.2%	62.8%	7.0%			
	Abnormal	4	9	1			
		28.6%	64.3%	7.1%			
k) Uric Acid	Low	2	5	0	2.138 (0.701)	0.817	–0.032 (0.499)
		28.6%	71.4%	0.0%			
	Normal	25	55	7			
		28.7%	63.2%	8.0%			
	High	3	3	0			
		50.0%	50.0%	0.0%			
l) X-Ray Chset	Normal	30	61	7	1.199 (0.618)	>0.999	0.018 (0.170)
		30.6%	62.2%	7.1%			
	Abnormal	0	2	0			
		0.0%	100.0 %	0.0%			
m) 2D Echo	Normal	30	60	7	1.816 (0.638)	0.638	0.028 (0.097)
		30.9%	61.9%	7.2%			

	Abnormal	0	3	0			
		0.0%	100.0 %	0.0%			
n)Peak Expiratory Flow Rate	Normal	29	62	7	0.470 (>0.999)	0.605	–0.019 (0.518)
		29.6%	63.3%	7.1%			
	Abnormal	1	1	0			
		50.0%	50.0%	0.0%			

Table 4.2:- Association & correlation HRRwith selected Diagnostic Tests.

Inference:

1. As the p-value for Chi-square and Fisher's exact test for HDL is less than 0.05 it is obtained that HDL is related with Heart rate recovery time.
2. The value of correlation suggests that the HDL is moderately positively correlated with Heart rate recovery time.
3. P-values for all other variables are more than 0.05 therefore no other Diagnostic test finding is significantly related with Heart rate recovery time.

Section 3.2.3:- Association& correlationTolerated time in TMT with selected Diagnostic Tests.

Variable	**Category**	**Tolerated Time in TMT**			**Chi Square (p-Value)**	**Fisher's Exact Significance**	**Correlation (Kendall's tau c)**
		Low	**Normal**	**High**			
a) Hemoglobin	Low	10	24	1	2.713 (0.426)	0.548	0.012 (0.852)
		28.6%	68.6%	2.9 %			
	Normal	17	46	0			
		27.0%	73.0%	0.0 %			
	High	0	2	0			
		0.0%	100.0 %	0.0 %			
b) Triglyceride level	Low	0	1	0	0.542 (>0.999)	>0.999	–0.018 (0.662)
		0.0%	100.0 %	0.0 %			
	Normal	24	64	1			
		27.0%	71.9%	1.1 %			
	High	3	7	0			
		30.0%	70.0%	0.0 %			
c) HDL	Low	6	14	0	3.060 (0.599)	0.685	0.060 (0.401)
		30.0%	70.0%	0.0 %			
	Normal	15	38	0			
		28.3%	71.7%	0.0 %			
	High	6	20	1			
		22.2%	74.1%	3.7 %			
d) LDL	Low	1	6	0	1.512 (0.644)	0.740	0.002 (0.957)
		14.3%	85.7%	0.0 %			
	Normal	24	57	1			
		29.3%	69.5%	1.2			

				%			
	High	2	9	0			
		18.2%	81.8%	0.0 %			
e) Cholesterol	Low	7	15	0	0.719 (0.865)	0.805	0.030 (0.615)
		31.8%	68.2%	0.0 %			
	Normal	19	55	1			
		25.3%	73.3%	1.3 %			
	High	1	2	0			
		33.3%	66.7%	0.0 %			
f)RBS	Low	2	2	0	2.657 (0.379)	0.365	0.057 (0.094)
		50.0%	50.0%	0.0 %			
	Normal	25	66	1			
		27.2%	71.7%	1.1 %			
	High	0	4	0			
		0.0%	100.0 %	0.0 %			
g) T3	Low	2	3	0	1.247 (0.870)	0.812	0.035 (0.302)
		40.0%	60.0%	0.0 %			
	Normal	25	67	1			
		26.9%	72.0%	1.1 %			
	High	0	2	0			
		0.0%	100.0 %	0.0 %			
h)T4	Low	0	3	0	2.047 (0.464)	0.779	–0.008 (0.655)
		0.0%	100.0 %	0.0 %			
	Normal	27	67	1			
		28.4%	70.5%	1.1 %			
	High	0	2	0			
		0.0%	100.0 %	0.0 %			
i)TSH	Low	1	1	0	1.557 (0.532)	0.510	0.045 (0.214)
		50.0%	50.0%	0.0 %			
	Normal	25	64	1			
		27.8%	71.1%	1.1 %			
	High	1	7	0			
		12.5%	87.5%	0.0 %			
j) ECG	Normal	23	62	1	0.178 (>0.999)	>0.999	–0.013 (0.837)
		26.7%	72.1%	1.2 %			
	Abnormal	4	10	0			
		28.6%	71.4%	0.0			

				%			
k) Uric Acid	Low	0	7	0	4.398 (0.226)	0.226	–0.091 (0.260)
		0.0%	100.0 %	0.0 %			
	Normal	24	62	1			
		27.6%	71.3%	1.1 %			
	High	3	3	0			
		50.0%	50.0%	0.0 %			
l) X-Ray Chest	Normal	27	70	1	0.794 (0.607)	0.607	0.021 (0.158)
		27.6%	71.4%	1.0 %			
	Abnormal	0	2	0			
		0.0%	100.0 %	0.0 %			
m) 2D Echo	Normal	24	72	1	8.362 (0.048)	0.048	–0.190 (0.037)
		24.7%	74.2%	1.0 %			
	Abnormal	3	0	0			
		100.0 %	0.0%	0.0 %			
n)Peak Expiratory Flow Rate	Normal	25	72	1	5.518 (0.091)	0.091	–0.058 (0.146)
		25.5%	73.5%	1.0 %			
	Abnormal	2	0	0			
		100.0 %	0.0%	0.0 %			

Table 4.3:- Association& correlationTolerated time in TMT with selected Diagnostic Tests.

Inference:

1. As the p-value for Chi-square and Fisher's exact test for 2D Echo is less than 0.05 the tolerated time in TMT is significantly related with 2D Echo.
2. The value of correlation suggests that the 2D Echo is moderately positively correlated with tolerated time in TMT.
3. For other variables the p-value for Chi-square and Fisher's exact test are more than 0.05 therefore no other Diagnostic test finding is significantly related with Tolerated time in TMT.

Discussion:-

The study results projects that a clear association and correlation of cardio-respiratory determinants (VO2 max, HRR & Tolerated time in TMT) with selected demographic variables. In the aspect of demographic variables: Family income is showing a significant association with VO_2Max and it's showing moderate positive correlation with VO_2 Max.The study also giving the evidences of significant associationand correlation of cardio-respiratory determinants (VO2 max HRR and Tolerated time in TMT) with selected diagnostic test findings Such as LDL is showing moderate negative correlation & selected clinical profile such as skinfold test is showing a moderate positive correlation with VO_2 Max. HDL in the prime parameter of diagnostic findings which is showing a relation with HRR**.** In The aspect of tolerated time in TMT is showing an association and moderate positive correlation with2D EchoThese results statistically proving H_1, H_2, H_3.That means there is a significant association and correlation of cardio-respiratory determinants (VO2 max ,HRR & tolerated time in TMT) with selected demographic variables, There is a significant association and correlation of cardio-respiratory determinants (VO2 max ,HRR and Tolerated time in TMT) with selected physical examination findings and There is a significant association and correlation of cardio-respiratory determinants (VO2 max ,HRR & Tolerated time in TMT) with selected diagnostic tests findings.

Implications:

The findings of present study has been bused in medical practice, medical education, and administration and research.

1. **Nursing practice**:The studies information can be converted into information Education Communication system for nurses who were working in clinical settings. They can educate the young adults regarding the importance of cardiopulmonary fitness
2. **Nursing Administration**:The nurse administrator should promote the staff nurses regarding applications of this study result in the aspect of providing awareness to the peoples belongs to the particular age group..
3. **Nursing education&Nursing research**: The collected data can be shared to the concern authorities institution to overcome the barrier and for the effective utilization of in the study in promoting health and wellness and also This information can be disseminated to the medical fraternity who were working in various institutions of India

Recommendations:-

On the basis of findings of the study, the following recommendations are being made: A similar study can be replicated on a large sample to generalize the findings. An experimental study can be undertaken with control group for effective comparison.A similar kind of study can be conducted using true experimental design so that generalization could be made.

Conclusion:-

The study results projects that a clear association and correlation of cardio-respiratory determinants (VO2 max, HRR & Tolerated time in TMT) with selected demographic variables and other parameters such as clinical profiles and diagnostic tests.

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