Functional capacity of patients with coronary artery disease at middle age

القدرة الوظيفية للمرضى المصابين بإمراض القلب الوعائية لمتوسطي الأعمار

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الخلاصة:

الهدف: تهدف الدراسة للتعرف على القدرة الوظيفية للمرضى المصابين بأمراض الشرايين التاجية وكذلك لإيجاد الفروقات المعنوية بين محاور القدرة الوظيفية مع الجنس والعمر والحالة الاجتماعية والمستوى التعليمي والوضع الاقتصادي للمريض **المنهجية:**أجريت الدراسة الوصفية التحليلية في الوحدات القلبية لمستشفيات ابن البيطار ومستشفى غازي الحريري وابن النفيس ومستشفى بغداد التعليمي في مدينة بغداد وتم اختيار عينة غرضيه ل 150 مريض بالغ مصاب بإحدى الأمراض التاجية والمراجعين لمستشفيات بغداد وتكونت استبانه الدراسة من ثلاثة محاور وصفحة الترحيب بالمبحوثين حيث تكونت المحاور من المعلومات الاجتماعية واستمارة قياس الفعاليات اليومية المتكونة من 36 فقرة لمنظمة الصحة العالمية . مصداقية الاستمارة تم قياسها باستعمال مقياس (كرون باخ)=0.781 واستعمل الباحثان الوسائل الإحصائية المناسبة (الإحصاء والوصفي والاستدلائي) لتحليل نتائج الدراسة **النتائج:** وأشارت النتائج أن أعلى نسبة (58%) كانوا ذكور ضمن الفئة العمرية 50-55سنة وأن نسبة (58.9 %) من عينة الدراسة مستمرين بالزواج و نسبة(29.3%) هم خريجو معاهد وان (52%) منهم دخلهم الشهري بالكاد يكفيهم وأشارت الدراسة بوجود علاقة ذو دلالة إحصائية عالية بين جنس المريض والوظيفة الجسمية والحالة الصحية وكذلك وجود علاقة ذو دلالة إحصائية عالية بين المستوى التعليمي والوضع الاقتصادي للمريض وبين دوره الجسمي وكذلك وجود علاقة ذو دلالة إحصائية عالية بين الحالة الاجتماعية دور المريض الاجتماعي **التوصيات:** لذا أوصى الباحثان بتوفير دليل تعليمي للمرضى المصابين بالأمراض التاجية حول الفهم الصحيح لمرضهم وكيفية تحسين نمط حياتهم بما يتلاءم مع المرض المزمن

Abstract:

Objectives: The study aims to identify the functional capacity for patients with coronary artery disease at middle age, and to find out the significant relation between functional capacity domains with variables patients gender, age, marital status, level of education, and income. **Methodology**: Descriptive analytical study was carried out in the out patients and medical unite for cardiac ward Eben-Al-Betarr Hospital, Gazee Al-Harere Hospital, Eben Al-Naffes Hospital, and Baghdad Teaching Hospital. A purposive sample of 150 adults patients who have coronary artery disease were attending to the hospital in Baghdad. The questionnaire was composed of three parts and introductory page that invite the subjects to participate in the study, which consist of socio-demographic information sheet, and Short-Form 36- questionnaires (WHO). Determination of reliability of the items scale was based upon the internal consistency of the questionnaire was assessed by calculating Cronbach s' Coefficient alpha = .781. The researcher used the appropriate statistical methods in the data analysis, which include the descriptive data analysis, and Inferential data analysis. **Results**: The results of study revealed that the high percentage (58.0%) of study sample were males at age 50-55 years old, (58.7%) continuous married, (29.3%) were Institute certificate, (52.0%) were barely sufficient income, there were highly significant relation between Physical Function and health status and patients gender, there were highly significant relation between level of education and income with Physical role, and there were highly significant relation between marital status and Social role at $P \leq 0.05$ level. **Recommendation**: the researcher recommends educational strategies for CAD patients about better understanding for their disease and how motivate the life style according to chronic disease.

Keyword: Coronary Artery Disease, Heart Disease, Middle age disease, Angina, Myocardial Infarction,

INTRODUCTION

Coronary artery disease (or coronary heart disease) refers to the failure of coronary circulation to supply adequate circulation to cardiac muscle and surrounding tissue. It is already the most common form of disease affecting the heart and an important cause of premature death in USA and Europe, the Baltic states, Russia, North and South America, Australia and New Zealand. It has been predicted that all

regions of the world will be affected by 2020. Cardiovascular disease (CVD) is the leading cause of death in the United States the U.S. health care system costs an estimated $531 billion in direct and indirect cost (1).

Because of the high incidence and cost of this disease, clinical practice guidelines target primary prevention, and recommend that providers evaluate patients for cardiac risk factors that may warrant medical treatment. An American Health Association policy statement concluded that costs will rise to more than $1 trillion annually in the United States by the year 2030, thus suggesting the great need for preventative measures (2).

Reported The six leading disabling chronic conditions in adults 60 yr are cardiovascular diseases. Coronary artery disease continues to be a major cause of morbidity and mortality in Western societies. Approximately two out of every three incidents of myocardial infarction (MI) occur without warning and of note, one third of first MIs are fatal; 20% of patients die out of hospital and 13% die within the first 24 to 48 hours of hospitalization. These data emphasize the need for better strategies of primary prevention to significantly impact on the incidence and mortality of CAD. This review examines the various medical approaches available for both primary and secondary prevention.(3)

Described the Functional capacity Evaluation (FCE) provides an objective measurement system that matches physical abilities with essential and critical job demands; targets short- and long-term treatment goals to justify work hardening therapy; identifies job modifications to enhance worker safety; and delineates functional capacities in case of litigation, impairment, or disability. While CVD age-adjusted death rates are reportedly declining in the United States, they are increasing in many developing countries, as a result of these problems the patients have changes in their lifestyle (4)

Described the functional status is a fundamental construct relevant to patients with coronary heart disease and to the nurses who care for these patients because functional status reflects how much patients are able to perform physical activities without limitations due to physical symptoms. Functional status affects satisfaction with work, domestic, and social roles, and good functional status is associated with better quality of life (QOL) among all patients with heart failure. Functional status has particular meaning for women with heart failure, who have worse functional status and worse QOL than do men, and in whom functional status is a particularly strong predictor of QOL. Though, the importance of this study come from all discomfort of CAD patients has overall quality of life of person s' which affected their functioning of daily life and developmental tasks. For these reasons the researcher wanted to explore and assess the impact of various relationships in the lives of people with CAD patients (5)

The Study Aims to:

1- Assessment of functional capacity for coronary artery disease of middle age patient
2- Finding out the relationship between medical problems related to disease with functional capacity**.**

3- Fining out the relationship between functional capacity with variables; gender, age, marital status, level of education, and income.
4- Finding out the relationship between functional capacity with clinical information which of; duration of disease, smoking, Diabetes, hypertension, high hemoglobin, high cholesterol, body mass index, Arterial defect, and Arterial ejection fraction

METHODOLOGY:

Design of the Study: Descriptive design of study for functional capacity of coronary artery disease of middle age patients starting from October 1st 2011 to the 1st July 2012.

Setting of the Study: The present study was carried out in the out patients and medical unite for cardiac ward Eben-Al-Betarr Hospital, Gazee Al-Harere Hospital, Eben Al-Naffes Hospital, and Baghdad Teaching Hospital

The Sample of the Study: purposive sample of 150 adults patients who have coronary artery disease were attending to the hospital in Baghdad.

The Study Instrument: The questionnaire was composed of three parts and introductory page that invite the subjects to participate in the study which consist of socio- demographic information sheet , and Short-Form 36- questionnaires, Determination of reliability of the items scale was based upon the internal consistency of the questionnaire was assessed by calculating Cronbach s' Coefficient alpha = .781

Statistical analysis: The researcher used the appropriate statistical methods in the data analysis which include the Descriptive data analysis, and Inferential data analysis

RESULTS:

Table 1 : Distribution of the CAD patients by Socio- Demographic Characteristics.

No.	Variable	F.	%	Mean	SD
1	Gender			1.42	.491
1.1	Male	87	58.0		
1.2	Female	63	42.0		
	Total	150	100.0		
2	Age (year)				
2.1	25-29 years	5	3.3	4.68	1.431
2.2	30-34 years	8	5.3		
2.3	35-39 years	21	14.0		
2.4	40- 44 years	23	15.3		
2.5	45- 49 years	31	20.7		
2.6	50- 54 years	62	41.4		
	Total	150	100.0		
3	Marital status				

3.1	Single	15	10.0		
3.2	Continuous Married	88	58.7		
3.3	Widowed	38	25.3	2.2867	.77144
3.4	Divorced	8	5.3		
3.5	Separated	1	0.7		
	Total	150	100.0		
4.	Level of education				
4.1	Unable to read & write	2	1.3		
4.2	Read & Write	9	6.0		
4.3	Primary school graduate	5	3.3		
4.4	Intermediate school graduate	31	20.7	5.1867	1.49
4.5	Secondary school graduate	31	20.7		
4.6	Institute	44	29.3		
4.7	College	24	16.0		
4.8	Higher Education	4	2.7		
	Total	150	100.0		
5	Income				
5.1	Sufficient	51	34.0		
5.2	Barely Sufficient	78	52.0	1.1200	.326
5.3	Not Sufficient	21	14.0		
	Total	150	100.0		

The demographic characteristics of (150) CAD patients (table 1) Indicated that the high percentage (58.0%) of study sample were males at age 50-55 years old, (58.7%) continuous married, (29.3%) were graduated from Institute , most of them (52.0%) their income was barely sufficient.

Table 2 : Mean and Standard Deviation for CAD patients responses regarding functional assessment

1	**Physical Function**	**Mean**	**SD.**
1.1	Dressing yourself	4.97	0.45
1.2	Walking indoors on level ground	4.68	0.89
1.3	Showering	4.86	0.52
1.4	Climbing a hill or a flight or a stairs without stopping	2.08	0.99
1.5	Gardening, vacuurning or carrying groceries	2.47	1.10
1.6	Walking more than a block at a brisk pace	1.26	0.74
1.7	Running or jogging	1.12	0.56
1.8	Lifting or moving heavy objects (e.g. furniture, children)	1.68	0.72
1.9	Participating in strenuous sports (e.g. swimming, tennis)	1.14	0.65
	Mean of Means	**2.69**	**3.73**
2	**Physical Role**		
2.1	**Cut down on the amount of time you spent on work or other** *activities*	1.56	0.49
2.2	**Accomplished less than you would like**	1.32	0.47
2.3	**Were limited in the kind of work or other activities**	1.56	0.49
2.4	**Had difficulty performing the work or other activities (for example, it took extra effort)**	1.64	0.48

	Mean of Means	**1.52**	**1.53**
3	**Emotional Role**		
3.1	Cut down on the **amount of time you** spent on work or other activities	1.50	0.54
3.2	**Accomplished work less** than you would like	1.32	0.50
3.3	Didn't do work or other activities as **carefully** as usual	1.49	0.50
	Mean of Means	**1.4**	**1.25**
4	**Social Function**		
4.1	During the *past 4 weeks*, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?	4.3	0.80
4.2	During the *past 4 weeks*, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)?	4.3	0.78
	Mean of Means	**4.3**	**1.67**
5	**Psychological Role**		
5.1	Have you been a very nervous person?	2.6	0.91
5.2	Have you felt so down in the dumps that nothing could cheer you up?	3.2	0.81
5.3	Have you felt calm and peaceful?	2.34	3.14
5.4	Have you felt downhearted and blue?	3.33	1.21
5.5	Have you been a happy person?	1.56	1.04
	Mean of Means	**3.2**	**3.68**
6	**Health Status**		
6.1	I seem to get sick a little easier than other people	2.94	1.16
6.2	I am as healthy as anybody I know	2.28	0.99
6.3	I expect my health to get worse	4.0	1.18
6.4	My health is excellent	1.24	0.77
	Mean of Means	**2.5**	**1.74**

Table 2 presented there were low mean in items of running and lifting heavy objects (1.1) in a physical function**, accomplished work less** than the patients would like were of 1.3 in a physical role, in a psychological role the patients have been happy person were of low mean 1.5, and the patients responses regarding health status have low mean in items of their health is excellent (1.2)

Table 3: Statistical Differences between Male and Female CAD patients Regarding Functional Capacity Domains.

Functional Capacity Domains		**t-test for Equality of Means**							
		95% Confidence Interval of the Difference							
		Lower	**Upper**	Sig. (2-tailed)	**Mean Difference**	**Std. Error Difference**	**df**	**t**	**Sig. P≤0.05**
Physical Function	Equal variances assumed	-.61-	1.82	.329	.606	.618			
	Equal variances not assumed	-.50-	1.71	.283	.606	.561	148	0.979	**.018* H.S.**
Role Physical	Equal variances assumed	-.585-	0.47	.904	-.035-	.254	124.3	0.268	
	Equal variances not assumed	-.507-	0.46	.903	-.035-	.251	148	-0.12-	.088
Emotional Role	Equal variances assumed	-.279-	0.54	.535	.172	.208	139.9	-.12-	

	Equal variances not assumed	-.254-	0.53	.524	.122	.203	148	0.621	.098
Social Role	Equal variances assumed	-.835-	0.58	.755	-.107-	.348	144.70	0.639	
	Equal variances not assumed	-.830-	0.58	.757	-.107-	.350	98	-0.31-	.864
Psychological Role	Equal variances assumed	-1.36-	0.83	.538	-.357-	.610	74.494	-0.31-	
	Equal variances not assumed	-1.93-	0.95	.576	-.377-	.670	148	-0.61-	.316
Health Status	Equal variances assumed	-.392-	0.83	.372	.259	.289	86.194	-0.56-	
	Equal variances not assumed	-.290-	0.80	.352	.259	.278	147	0.896	**.051 S.**

The findings of table (3) presented that there were highly significant relation between patients gender and Physical Function, and significant differences in health status at P≤0.05 level.

Table 4: Analysis of Variance for socio-demographic Characteristics of Clients regarding Role Physical

Socio-demographic		Sum of Squares	df	Mean Square	F	Sig. P≤0.05
Age	**Between Groups**	**11.024**	**4**	**2.756**	**1.353**	**0.253**
	Within Groups	**295.250**	**145**	**2.036**		
	Total	**306.273**	**149**			
Marital status	**Between Groups**	**2.649**	**4**	**.662**	**1.116**	**0.351**
	Within Groups	**86.024**	**145**	**.593**		
	Total	**88.673**	**149**			
Level of Education	**Between Groups**	**27.154**	**4**	**6.788**	**3.200**	**0.015**
	Within Groups	**307.620**	**145**	**2.122**		**H.S.**
	Total	**334.773**	**149**			
Income	**Between Groups**	**6.708**	**4**	**1.677**	**4.101**	**0.004**
	Within Groups	**59.292**	**145**	**.409**		**H.S.**
	Total	**66.000**	**149**			

Table (4) presented that there were highly significant relation between level of education and income with Role Physical at P≤0.05 level**.**

Table 5: Analysis of Variance for socio-demographic Characteristics of Clients regarding Role Emotion Domain

Socio-demographic		Sum of Squares	df	Mean Square	F	Sig. P≤0.05
Age	Between Groups	15.583	4	3.896	1.943	0.106
	Within Groups	290.690	145	2.005		
	Total	306.273	149			
Marital status	Between Groups	4.147	4	1.037	1.778	0.136
	Within Groups	84.527	145	.583		
	Total	88.673	149			
Level of Education	Between Groups	7.384	4	1.846	.818	0.516
	Within Groups	327.389	145	2.258		
	Total	334.773	149			
Income	Between Groups	10.214	4	2.554	6.637	0.000
	Within Groups	55.786	145	.385		H.S.
	Total	66.000	149			

Table (5) presented that there were highly significant relation between income and role emotion at P≤0.05 level**.**

Table 6: Analysis of Variance for socio-demographic Characteristics of Clients regarding Social role

Socio-demographic		Sum of Squares	df	Mean Square	F	Sig. P≤0.05
Age	Between Groups	11.496	6	1.916	.929	0.476
	Within Groups	294.777	143	2.061		
	Total	306.273	149			
Marital status	Between Groups	17.010	6	2.835	5.657	0.000
	Within Groups	71.663	143	.501		H.S.
	Total	88.673	149			
Level of Education	Between Groups	23.771	6	3.962	1.822	0.099
	Within Groups	311.002	143	2.175		
	Total	334.773	149			
Income	Between Groups	1.254	6	.209	.461	0.836
	Within Groups	64.746	143	.453		
	Total	66.000	149			

Table (6) presented that there were highly significant relation between marital status and Social role at P≤0.05 level**.**

Table 7: Analysis of Variance for socio-demographic Characteristics of Clients regarding Psychological Status

Socio-demographic		Sum of Squares	df	Mean Square	F	Sig. P≤0.05
Age	Between Groups	36.317	14	2.594	1.297	0.217
	Within Groups	269.957	135	2.000		
	Total	306.273	149			
Marital status	Between Groups	11.030	14	.788	1.370	0.176
	Within Groups	77.644	135	.575		
	Total	88.673	149			
Level of Education	Between Groups	32.733	14	2.338	1.045	0.413
	Within Groups	302.040	135	2.237		
	Total	334.773	149			
Income	Between Groups	10.904	14	.779	1.908	0.031
	Within Groups	55.096	135	.408		S.
	Total	66.000	149			

Table (7) presented that there were highly significant relation between income and Psychological Status at P≤0.05 level**.**

Table 8: Analysis of Variance for socio-demographic Characteristics of Clients regarding Health Status

Socio-demographic		Sum of Squares	df	Mean Square	F	Sig. P≤0.05
Age	Between Groups	25.015	10	2.502	1.235	0.274
	Within Groups	279.521	138	2.026		
	Total	304.537	148			
Marital status	Between Groups	5.339	10	.534	.902	0.533
	Within Groups	81.667	138	.592		
	Total	87.007	148			
Level of Education	Between Groups	60.558	10	6.056	3.085	0.001
	Within Groups	270.905	138	1.963		H.S.
	Total	331.463	148			
Income	Between Groups	9.034	10	.903	2.190	0.022
	Within Groups	56.926	138	.413		H.S.
	Total	65.960	148			

Table (8) presented that there were highly significant relation between level of education and income with health status at P≤0.05 level**.**

DISCUSSION:

The findings of present study shows that the high percentage (58.0%) of study sample were males at 50-55 years old, (58.7%) continuous married, (29.3%) were Institute certificate , most of them (52.0%) were barely sufficient income, and the study presented there were low mean in items of running and lifting heavy objects (1.1) in a physical function**, accomplished less** than the patients would like were of 1.3 in a physical role, in a psychological role the patients have been happy person were of low mean 1.5, and the patients responses regarding health status have low mean in items of their health is excellent (1.2) (table 1 and 2) Physical and psychological symptoms are common and important problems in patients with heart disease, These physical symptoms contribute to limitations of daily activities. In addition, up to 48% of patients with coronary artery disease experience marked depressive symptoms, and women report a higher prevalence of depressive symptoms than do men, situational factors such as living alone and low socioeconomic status are associated with worse functional status.(6)

There were highly significant relation between Physical Function and health status regarding patients gender and at $P \leq 0.05$ level (table 3) Coronary artery disease is associated with poor QOL, limited social functioning, and lost work capacity. These conditions have a strong adverse effect on functional status, and poor functional status has implications for exercise capacity, illness severity, and QOL in patients with heart disease. Functional status, which is considered an important aspect of illness progression, They find that sex-based differences in patients with heart disease, women had poorer functional status namely, decreased functional capacity or functional performance than did men.(7)

There were highly significant relation between level of education and income with Role Physical, and income and role emotion at $P \leq 0.05$ level (table 4 and 5) the first detecting an effect of social isolation (a patient's perception that he or she is no longer able to maintain the same degree of social contacts and activities with family, other relatives and friends as previously) on mortality among CAD patients. Another finding concerns the relationship between lack of intimate network support and mortality: for the CHF patients, most of them elderly, lack of social support from a spouse seems to be a more critical factor of fatal outcome than lack of social support from primary and secondary network .(8)

There were highly significant between marital status and Social role**,** and between income and Psychological Status at $P \leq 0.05$ level (table 6 and 7) Living with coronary artery disease is a complex, dynamic process for both patients and careers. It involves multiple challenges including coping with frightening symptoms and complex medications, with depression and anxiety and a loss of role and functional abilities. This can result in a poor quality of life (9,10).

CONCLUSION:

1- Majority of the study sample were males at age 50-55 years ago
2- There were low patients functional capacity in role physical and role emotion.
3- There were significant relation between patients gender regarding physical function and health status at $P \leq 0.05$ level

4- There were significant relation between level of education and income with role physical at P≤0.05 level.
5- There were significant relation between income and role emotion at P≤0.05 level.
6- There were significant relation between marital status and Social role at P≤0.05 level.

RECOMMENDATIONS:

1- Establish the specially rehabilitation centers to explain the risk factors and preventive measures for adulthood persons.
2- Mass media preventive program.
3- Prepare educational strategies for CAD patients about better understanding for their disease and how motivate the life style according to chronic disease.

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