

## A New Measurement Scale for Evaluating Health-Related Quality of Life in Men with Prostate Cancer

مقياس جديد لتقييم جودة نوعية حياة المرضى المصابين بسرطان غدة البروستات

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المستخلص

**أهداف الدراسة:** تهدف الدراسة الى قياس نوعية الحياة العامة والخاصة لمرضى سرطان غدة البروستات وانشاء مقياس جديد لقياس جودة نوعية حياة المرضى المصابين.

**منهجية البحث:** دراسة مقطعية (وصفية) أجريت في مدينة بغداد على عينة تتكون من (100) مريض بسرطان غدة البروستات لتقييم نوعية الحياة العامة للمرضى. اختيرت العينة من كل من مستشفى الأمل الوطني لعلاج السرطان ومركز الأورام في مدينة الطب ببغداد. اعتمدت هذه الدراسة تصميم استبانة تقييم جودة الحياة الخاصة والمعدة لغرض تقييم جودة حياة مرضى سرطان البروستات كما اعتمدت هذه الدراسة بجمع المعلومات على اعادة صياغة استبانة منظمة الصحة العالمية لتقييم نوعية الحياة على المقياس العام. تم استخدام طرائق الإحصاء الوصفي لتقييم جودة الحياة العامة، بالإضافة إلى استخدام أساليب الإحصاء الاستدلالي ممثلة بـ ( اختبار ولكوكسن لرتب الإشارة، واختبار ماكنمار و تحليل التباين).

**النتائج:** كانت استجابة المرضى متوسطة فيما يخص المحور الجسدي والجانب النفسي والبيئي، مما يدل على أن سرطان البروستات يؤثر على جودة نوعية الحياة بالنسبة للجوانب المذكورة بصورة متوسطة، بينما اظهر المحور الاجتماعي استجابة عالية. كانت استجابة المرضى متوسطة بالنسبة لجودة نوعية الحياة الخاصة، لكن بعض الخصائص أظهرت استجابة أسوأ من غيرها خصوصا فيما يتعلق بالثقة بالقدرة الجنسية والعاطفة الزوجية والندم على اختيار طريقة العلاج. بينما أظهرت بقية النتائج استجابات متوسطة الى عالية. من هذا نستنتج ان مرضى سرطان البروستات لديهم تقييمات مختلفة فيما يخص جودة نوعية الحياة العامة بصورة متوسطة. تم انشاء استبانة جديدة ( مقياس جديد) لتقييم نوعية حياة مرضى سرطان البروستات باستخدام التحليل العاملي وبالاعتماد على استبانة تقييم نوعية الحياة المعتمدة من منظمة الصحة العالمية و استبانة تقييم نوعية الحياة الخاصة بمرضى سرطان البروستات.

**التوصيات:** أنشاء مجموعات دعم للمرضى فالجانب النفسي للمرضى في المراحل المتقدمة من السرطان يجب أن يؤخذ بنظر الاعتبار وإنشاء برنامج تثقيفي حول كيفية تحسين نوعية حياة مرضى سرطان البروستات، وكذلك التأهيل الجنسي للمرضى قد يكون مفيدا، التدخل النفسي فيما يخص الجانب الجنسي يجب أن يقدم للمرضى بغض النظر عن العمر أو العلاقة الاجتماعية. التزام حكومي بدعم الحالة الاجتماعية والاقتصادية لغرض تحسين نوعية حياة مرضى السرطان.

### Abstract:

**Objectives:** This study aimed to identify and study most properties of the specific and general health-related quality-of-life (HRQoL) in prostate cancer patients, as well as creating a new measurement scale for assessing QoL among prostate cancer patients.

**Methodology:** A cross sectional (descriptive) study was conducted to evaluate General Quality of life in patients with prostate cancer. A sample of 100 prostate cancer patients from Al-Amal National hospital for cancer management and Oncology Center in Baghdad Medical City. This study applied format of General World Health Organization Quality of Life-BERF questionnaire. The methods used descriptive statistics to evaluate the General QoL-Improvements, as well as inferential statistical methods were used such that (Wilcoxon Signed Rank, McNemar).

**Results:** Patients with prostate cancer have different assessment concerning general QoL, and have instability of their daily life cycle, within a moderate level. Regarding Specific QoL, overall result showed moderate assessment of quality of life, but some domains showed worse assessment than others specially (sexual confidence, sexual intimacy and prostate specific antigen (PSA) concern domains). Other domains accounted moderate responses and those were (urinary control, masculine and self-esteem, health worry, cancer control, informed decision and outlook), while (marital affection, sexual intimacy and regret) accounted high responding, therefore, prostate cancer patients have instability of their daily life cycle, within a moderate level. A new measurement scale was created using factor analysis technique on WHO HRQoL BREF and specific HRQoL of prostate cancer patients.

**Key Words:** Quality of Life, Prostate Cancer, Health related QoL, Life Style Impact by Prostate Cancer.

**Introduction:**

Research with cancer patients has identified and conceptualized QoL as having five dimensions with the following defining attributes: emotional well-being (e.g. life satisfaction, body image, control, happiness, meaning of life, coping ability); physical well-being (e.g. eating, appetite, sleep, fatigue, side effects of treatment); functional well-being (e.g. ability to carry out activities of daily living, general function); spiritual well-being (e.g. meaning of illness, religiosity, hopefulness, uncertainty) and social well-being (e.g. social support, relationships, role function, social activities)<sup>(1)</sup>.

The recent increase in survival rates of men diagnosed with prostate cancer, however, presents new challenges. Palliative care issues, such as symptom management, have emerged as major concerns as men cope with various treatments e.g. surgery, radiation, chemotherapy, and hormone therapy) and the subsequent side effects, both physiological (sexual dysfunction and incontinence) and psychological (depression and anxiety). The adjustments that men have to make are challenging as they deal with emotional distress and manage changes in physical and social functioning while maintaining quality of life. Some men are cancer-free after treatment while others live with the disease for many years. The fact that men live with rather than die from PC

**Objectives:**

1. To identify and study most properties of the general and specific health-related quality-of-life (HRQoL) in men with prostate cancer.
2. To find out relationship among overall assessment of health related quality of life (HRQoL) in patients with prostate cancer with some related variables such as anxiety about cancer recurrence, incontinence, and impotence.

does not alleviate the emotional, social, sexual and physical impairments associated with PC, consequently, most men diagnosed with PC face the prospect of a life-long future trying to manage the challenging effects of the disease and its treatment, both of which impact their quality of life<sup>(2)</sup>.

Despite its significance for men's health, less is known about the psychosocial impact of PC and its treatment than that of other cancers<sup>(3)</sup>.

Research related to quality of life, has focused primarily on the physical side effects of treatment, rather than the psychological effects and emotional distress<sup>(3)</sup>. Very little is known regarding the psychosocial health and well-being of this large group of chronically ill, oftentimes elderly, male patients. Researchers have suggested that factors such as cancer staging and treatment influence men's adjustment to PC<sup>(4)</sup>. Although these variables have been among the most common factors associated with quality of life or well-being, other psychosocial variables warrant attention.

Given the disease's potential trajectory, from the immediate impact of diagnosis to the phase of palliative and terminal care with its attendant existential issues), along with the complexity of psychological adjustment, this is a fertile area for research<sup>(4)</sup>.

3. To create new measurement scale for assessing health-related quality-of-life (HRQoL) among men with prostate cancer.

**Methodology:**

**Setting of the study:** A cross sectional study (descriptive study) for patients with prostate cancer was conducted started between (December 2016 - February 2017) in Al-Amal National hospital for cancer management and Oncology Center in Baghdad Medical City in Baghdad.

**The sample of the study:** A convenient, purposive sample of 100 adult patients with prostate cancer were selected from Al-Amal National hospital for cancer management and Oncology Center in Baghdad Medical City where they admitted for treatment also arrange for follow up visits for re-examination follow up.

**Steps of the Study:** Evaluating health related quality of life in patients with prostate cancer and assessment of patient's needs, demands a reliable questionnaire format of Specific QoL and general QoL questionnaire, the specific HRQoL questionnaire which consists (55) was developed by medical sociologists Clark & Talcott in USA to measure one or more dimensions of health related QOL in prostate cancer patients <sup>(11)</sup>, the specific questionnaire consist of (11) domains: Urinary control, Sexual intimacy, Sexual confidence, Masculine self-esteem, Marital affection, Health worry, PSA concern, Cancer control, Informed decision, Regret and Outlook, while for evaluation of general QoL, the WHO HRQoL BREF were used.

**Table (1): Reliability Coefficients of the Pilot Study (Inter, and Intra) Examiner(s)**

Groups	Reliability Coefficients	Actual values %
Patients	Inter Examiners	95.43 (37:810)
	Intra Examiner	96.91 (25:810)

#### **Reliability of the questionnaire:**

Reliability of the questionnaire was used to determine the accuracy of the questionnaire, since the results showed very high level of stability and internal consistency of the main study domains, at the level of items of the applied questionnaire ,all those were calculated by using the major statistical parameter: Alpha

This study took into consideration the significant of patients socio - demographical characteristics variables, as well as some general information such as duration of illness, type of treatment, and if the patient have prostatectomy of no. In addition to that, this study take into consideration the complains might be resulted by the studied disease. The researcher interviewed patients, for (40– 50) minutes for each patient to answer all questions.

**Reliability of pilot study:** A convenient sample of (10) individuals were selected among patients concerning with Prostate Cancer, this preliminary study was conducted for the period between 9 December 2016 to 15 December 2016.

In addition to that table (1) showed the determination of the reliability of the pilot study. Results in table (1) showed that intra examiner (test & pretest), and inter examiners recorded high and adequate reliability in pilot study.

Cronbach, as shown in table (2) through calculated the results that the questionnaire is successful, meaning that designed questionnaire were reliable to study the phenomenon (**Health related QoL in men with prostate cancer**) on the same population at any time in the future under assumption of stationary conditions of the studied population.

**Table (2): Reliability Coefficients of the Studied Questionnaire's**

Reliability Coefficient of the studied Questionnaire Alpha (Cronbach)	Standard lower bound	Actual values	Assessment
Specific QoL Score	0.70	0.8862	v. good

Alpha Cronbach ( $\alpha$ ) for the reliability of questionnaire (Internal consistency)

Where;

$$\alpha = \frac{K}{K-1} \left[ 1 - \frac{\sum_{i=1}^K \sigma_{ii}}{\sum_{i=1}^K \sum_{j=1}^K \sigma_{ij}} \right]$$

Where K is the number of items (questions) and  $\sigma_{ij}$  is the estimated covariance between items i and j. Note the  $\sigma_{ii}$  is the variance (not standard deviation) of item i.

**Statistical Analysis:** The following statistical data analysis approaches were used in order to analyze and assess the results of the study under application of the statistical package (SPSS) version (16.0):

#### Descriptive data analysis:

a- Tables (Frequencies, and Percentages).  
 b- Summary Statistics tables including: Mean of score (MS) with their Standard Deviation (SD), Relative Sufficiency (RS %), and assessment by scoring scales throughout (Very Bad, Bad, Acceptable, Good, and V. Good) in contrasts of scales (1, 2, 3, 4, and 5) respectively. In addition to that, three sequential intervals for assessing relative sufficiency's estimates in light of preceding scoring scales: (20.00 – 46.66, 46.67 – 73.33, 73.34 – 100), are assessed by (Low, Moderate, and High) respectively, as

well as, assessment by scoring scales throughout (Not at all, A little bit, Somewhat, Quite a bit, and Very much) in contrasts of scales (1, 2, 3, 4, and 5) respectively. In addition, three sequential intervals for assessing relative sufficiency's estimates in light of preceding scoring scales: (20.00 – 46.66, 46.67 – 73.33, 73.34 – 100), are assessed by (Low, Moderate, and High) respectively. Where Relative Sufficiency (R.S. %) is calculated by:

$$RS\% = \frac{\text{Mean of Score}}{\text{no. of Scoring Scales}} * 100\%$$

- c- Percentile transformation (PS).
- d- Redistribution of (PS) by (under/upper) cutoff point for creating an association table for overall assessments concerning General, and Specific QoL.
- e- Simple Pearson correlation coefficients.
- f- Graphical presentation by using :
  - Bar Charts.
  - Cluster Bar Chart.
- Screening Plot & Component Plot in rotated Space

**Results:****Table (3): Distribution of the Studied Sample According to Socio-Demographic Characteristics Variables with Comparisons Significant**

SDCv.	Groups	No.	Cum. %	C.S. (*) P-value
Age Groups	<50	28	28	$\chi^2 = 4.220$ P=0.121 (NS)
	60 – 69	43	71	
	>80	29	100	
	Mean $\pm$ SD	64.28 $\pm$ 7.30		
Educational attainment	Illiterate	2	2	$\chi^2 = 84.56$ P=0.000 (HS)
	Read & Write	7	9	
	Primary	5	14	
	Intermediate	11	25	
	Secondary	26	51	
	College & More	49	100	
Marital State	Married	96	96	P=0.000 (HS)
	Widow	4	100	
Job of patient (Occupation)	No	60	60	P=0.057 (NS)
	Yes	40	100	
Job Type (Occupation)	Non Applicable	60	60	P=0.057 (NS)
	Private	5	(12.5)	
	Governmental	35	(87.5)	
Residency	Urban	95	12.5	P=0.000 (HS)
	Rural	5	87.5	

(\*) HS: Highly Significant at P<0.01;NS: Non Significant at P>0.05; Testing based on One-Sample Chi-Square test, and Binomial test.

Respect to subjects of studied (SDCv.), results shows no significance differences are accounted at P>0.05, except in residency, which represented significant difference at P<0.05.

**Table (4): Distribution of the Studied Sample According to socio-economic status with Comparisons Significant**

SES	Groups	Number	Cum. %	C.S. (*) P-value
Socio-Economic Status	Low : 59 - & less	14	14	$\chi^2 = 48.56$ P=0.000 (HS)
	Mod. : 60 - 80	66	80	
	High :81 - 100	20	100	

(\*) HS: Highly Significant at P<0.01;NS: Non Significant at P>0.05; Testing based on One-Sample Chi-Square test (C.S),( $\chi^2$ )

Vast majority of the studied sample had a moderate responding, and they accounted 66(66.0%), and high level are accounted for 20 (20%).

Table (5): Sample's Distribution According to General Information

General Information	Groups	Number	Cum. %	C.S. (*) P-value
Age onset years.	1 - 2 years.	64	64	$\chi^2= 303.6$ P=0.000 (HS)
	3 - 4 years.	28	92	
	4 > years.	8	100	
	Mean $\pm$ SD	1.44 $\pm$ 0.64		
Are you under treatment now?	No	1	1	P=0.000 (HS)
	Yes	99	100	
If yes what is your treatment now (Medication treatment)?	Non Applicable	1	1	$\chi^2= 303.6$ P=0.000 (HS)
	Medical	95	(96)	
	Surgical	4	(4.0)	
Had you have prostatectomy ( due to cancer ) ?	No	8 <sup>v</sup>	8 <sup>v</sup>	P=0.000 (HS)
	Yes	13	100	
If yes , how old were you ?	No Applicable	87	87	$\chi^2= 303.6$ P=0.000 (HS)
	< 60	2	(15.4)	
	60 - 70	10	(76.9)	
	> 70	1	(7.70)	
	Mean $\pm$ SD	62.69 $\pm$ 3.92		

(\*) HS: Highly Significant at  $P < 0.01$ ; NS : Non Significant at  $P > 0.05$ ; Statistical hypothesis based on Binomial, and  $\chi^2$  : Chi – Square tests, and Binomial test.

As well as comparisons significance are obtained in order to explore behavior of that variables either randomly or none randomly distributed comparing with their expected outcomes, which shows highly significant differences at  $P < 0.01$  among different levels of that variables.

Relative to subject of "Age Onset", studied sample are seems to be focusing at the first age onset group, since 64(64%) of total patients are accounted, with mean, and standard deviation 1.44 year, and 0.64 year respectively.

Respect to subject of asking "Are you under treatment now?" all of studied sample had answered positively, except one only. And most of studied patients had a medication treated, and they were accounted 95(96.0%).

Regarding to subject of asking "Had you have prostatectomy (due to cancer)?" results showed that patients who had positively answered, are accounted 13(13%), and most of them are aged (60 – 70) years, with mean, and standard deviation 62.69 years., and 3.92 years. respectively.

**Table (6): Summary Statistics of Percentile Score General QoL Main Domains for the Studied Patients**

Main Domains General QoL	N.	PS	SD	Assessment
General - Physical Domain	100	44.86	21.20	Moderate
General - Psychological Domain	100	51.79	16.19	Moderate
General - Social Domain	100	74.08	17.68	High
General - Environment Domain	100	42.13	10.42	Moderate
Overall Assessment (General)	100	53.21	14.05	Moderate

PS: Percentile Score; SD: Standard deviation

PGMS: Percentile Grand Mean of Score; SD: Standard deviation according to PS: Percentile Score by (L: Low; M: Moderate; H: High).

#### **Distribution of Questionnaire's Domains (General QoL):**

Table (6) shows summary statistics, such that, percentile score, standard deviation, and relative sufficiency's, as well as different responding levels of assessing main domains for general QoL through percentile transforming scoring scales by 3 distinguish categories, such that (Low, Moderate, and High) in light of ((0.0 – 33.33), (33.34 – 66.66), (66.67 – 100)) intervals respectively, in light of WHO QoL – BERF questionnaire, which consist of (Physical, Psychological, Social, and Environment) main domains.

Regarding to subjects of "Physical Main Domain", result shows that moderate assess are accounted for patients with prostate cancer, then followed with a moderate assess concerning psychological main domain, then followed with a high assess concerning social main domain, then finally followed with a moderate assess concerning environment main domain. For summarizes of preceding results it could be conclude that patients with prostate cancer having a different assess concerning general QoL, having instability of their daily life cycle, within a moderate level.

**Table (7): Summary Statistics of percentile Score Specific QoL in Men with Prostate Cancer Main Domains**

Main Domains Specific QoL	N.	PS	SD	Assessment
Urinary Control	100	56.06	20.44	Moderate
Sexual Intimacy	100	80.11	18.37	High
Sexual Confidence	100	10.13	16.01	Low
Masculine Self-Esteem	100	36.03	21.83	Moderate
Marital Affection	100	17.83	15.76	Low
Health Worry	100	55.71	22.76	Moderate
PSA Concern	100	74.13	17.79	High
Cancer Control	100	65.10	19.44	Moderate
Informed Decision	100	53.55	17.70	Moderate
Regret	100	25.50	21.33	Low
Outlook	100	49.13	28.77	Moderate
Overall Specific QoL	100	47.57	8.35	Moderate

PGMS: Percentile Grand Mean of Score; SD: Standard deviation according to PS: Percentile Score by (L: Low; M: Moderate; H: High)



**Distribution of Questionnaire's Domains (Specific QoL):**

Table (7) shows summary statistics, such that, percentile score, standard deviation, as well as different responding levels of assessing main domains for health related QoL in men with prostate cancer questionnaire, by 3 distinguish categories, such that (Low, Moderate, and High) in light of ((0.0 – 33.33), (33.34 – 66.66), (66.67 – 100)) intervals respectively, which consist of (Urinary Control, Sexual Intimacy, Sexual Confidence, Masculine Self-Esteem, Marital Affection, Health Worry, PSA Concern, Cancer Control, Informed Decision, Regret, and Outlook) main domains.

Regarding to subjects of "Sexual Confidence, Marital Affection, Masculine Self-Esteem, and Marital Affection", main domains results shows that low assess are accounted for patients with prostate cancer, then followed with a moderate assess concerning "Urinary Control, Masculine Self-Esteem, Health Worry, Cancer Control, Informed Decision, and Outlook", main domains, then followed with a high assess concerning "Sexual Intimacy, and PSA Concern" main domains.

For summarizes of preceding results it could be conclude that patients with prostate cancer having a different assess concerning specific health related QoL in men with prostate cancer, and that reflected instability conditions of their daily life style.

**Table (8): Redistribution (Under/Upper) Cutoff Point at the two Scores (General and Specific) QoL**

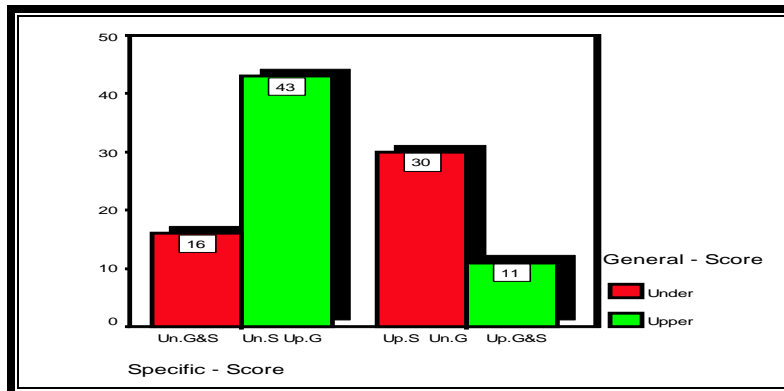
General-Score	No. and %	Specific - Score		Total	P-value
		Under	Upper		
Under	No.	16	30	46	FEPT P=0.000 HS
	% Specific - Score	16%	30%	46.0%	
Upper	No.	43	11	54	
	% Specific - Score	43%	11%	54.0%	
Total	No.	59	41	100	
	% Specific - Score	59%	41%	100%	

<sup>(\*)</sup> HS: Highly Significaant at P<0.01 Statistical hypothesis based on Fisher's Exact Prob. test.

**General/Specific QoL Relationship:**

To find out an association among overall assessments of general – QoL, and specific – QoL in men with prostate cancer, table (8) shows a contingency table of redistribution (under/upper) according to a cutoff point of percentile transformation values of the two scores (General, and Specific) QoL.

Figure (1) of cluster bar chart of (General & Specific) quality of life in men with prostate cancer scoring scale's assessment (Under/Upper) cutoff point due to percentile transformation for an overall assessments



**Figure (1): Cluster bar chart of General & Specific QoL Scoring Scale's assessment (Under/Upper)**



**Table (9): Extracted Factors Matrix in Rotated Method with the Suggested Named**

Component Matrix	Components			
	1	2	3	4
General - Physical Domain	0.904			
General - Psychological Domain	0.843			
General - Social Domain	0.745			
General - Environment Domain	0.593			
Specific - Urinary Control	-0.743			
Specific - Sexual Intimacy		0.667		
Specific - Sexual Confidence		-0.622		
Specific - Marital Affection				0.797
Specific - Health Worry		0.609		
Specific - PSA Concern		0.751		
Specific - Cancer Control		0.813		
Specific - Informed Decision			0.666	
Specific - Regret				-0.536
Specific - Outlook			0.870	
Initial Eigen values	5.437	2.166	1.5	1.004
% of covariance	36.248	14.443	9.998	6.697
Suggested Named	Conventional daily life factor	Sexual control factor	Decision making and outlook factor	Wariness

<sup>(\*)</sup> Cogitation and implementation by Bio-Statistician Prof. (Dr) Abdulkhaleq A. Al-Naqeeb  
Rotation Method: Equamax with Kaiser Normalization.<sup>(5)</sup>

Table (9) deals with studied main domains, which were extracted in four meaningful and significant interactions, and has a suggested named "Conventional life facto, Sexual control factor, decision making and outlook factor, and Worriness factor". That extracted Factors ordered in more powerful significant, with advantage at the first factor in (36.248%) of covariance constructed, then followed by second factor in (14.443%), then followed by third factor in (9.998%), as well as at the fourth factor in (6.697%) of covariance constructed respectively.

#### Discussion :

The analysis of findings of the present study revealed that most patients (cum. %=71%) at age (60-69) years, were more affected by prostate cancer and with no-significant at p value of (P>0.05). a study presinted supportive evidence to this result that found Amy and her associates in 2017 <sup>(6)</sup> who repoeted that majority prostate cancer patients were at age of (60-70) years. (P>0.05). While another study done in 1999 showed that (43.2%) with prostate cancer were between (70-79) years. of age <sup>(7)</sup>.

Ninety six of the samples studied were married (P<0.01), a study presented supportive evidence to the present study that reported when they assessed QoL of cancer patients after treatment (P>0.05)<sup>(6)</sup>. This disagreement may be due to use of different methodology.

Forty nine percent of patient's education levels in the present study were college and more (P<0.01). A study presented supportive evidence to this result that found same results as the present study.<sup>(6)</sup>

Sixty patients (60%) of the sample in the present study were retired. A study presented

supportive evidence to this result that found Amy<sup>(6)</sup> it has been known of her study that the retired persons accounted the most in the sample. This is due to the patients are elderly and prostate cancer nature which affects old ages.

Regarding Socio-Economic status, table (4) in the present study revealed that patients with moderate income were (66%) of the sample ( $P < 0.01$ ). a study presented un-supportive evidence to the present study that found by Clark<sup>(11)</sup>, he reported that socioeconomic factors are not associated with prostate cancer with ( $P > 0.05$ )<sup>(11)</sup>. This disagreement may be due to different environmental and economic conditions between Iraq and USA.

Regarding onset of prostate cancer, the present study findings in table (5) indicated that all the study sample were chosen one year and more after diagnosis ( $P < 0.01$ ), that's to ensure sensitivity to sometimes small, but clinically significant, changes in health status and levels of disease severity which affect the patient's QoL because prostate cancer is asymptomatic in early stages<sup>(8)</sup>.

Vast majority of patients were under treatment either radiotherapy, chemotherapy or had radical prostatectomy and they consist 99 (99%) of studied sample. two studies presented supportive evidence to this result that found Bowling<sup>(8)</sup> and Jack<sup>(9)</sup> who evaluate quality of life in prostate cancer patients. All patients in their studies were under treatment and their ages ranged between (60-70) years, old as well.

The results of the present study in table (6) demonstrated that overall assessment of General QoL domains of prostate cancer patients was found to have moderate response. A study presented un-supportive evidence to the present study that found in 2008 that there was no significant difference

in the overall QoL scores at one year post-treatment ( $P > 0.05$ )<sup>(10)</sup>. This disagreement probably related to differences in socio-demographic characteristics and different medical system between Iraq and Joseph's country.

The present study finding in table (7) regarding overall specific QoL indicated that patients with prostate cancer have moderate assessment, which instability conditions of their daily life. The overall assessment for specific QoL accounted moderate response. a study presented un-supportive evidence to the present study that found when studying two groups and followed for one year which stated that there is no significant difference in HRQoL in prostate cancer patients ( $P > 0.05$ )<sup>(10)</sup>.

To find out an association among overall assessments of general – QoL, and specific – QoL in men with prostate cancer, table (8) shows a contingency table of redistribution (under/upper) according to a cutoff point of percentile transformation values of the two scores (General, and Specific) QoL.

Results shows overall general/specific QoL redistribution (under/upper) a cutoff point for percentile scoring scales are reported highly significant relationships at  $P < 0.01$ , since off diagonal values, either upper for general assess, and under for specific assess, or under for general assess and upper for specific assess are predominated of studied outcomes, and that indicating the 0importance of studying phenomena by the two scores (General, and Specific) quality of life in men with prostate cancer.

#### **Extracted Factors matrix in Rotated method with the suggested named for Medication group**

In this study a new measurement scale was created for measuring the QoL for those prostate cancer patients by using the factor

analysis for both WHO QoL-BREF & HRQoL scales. Table (9) shows analysis of factor loading that related to WHO QoL-BREF domains and HRQoL for prostate cancer patients domains.

In this factor analysis, four components were identified to explain the variation of variables which were extracted in four meaningful and significant interactions, and has a suggested named "Conventional daily life factor, Sexual Control Factor, Decision making and Outlook Factor and Worryness", which are established for the first time. These extracted factors ordered in more powerful significant, with advantage at the first factor in (36.248%) followed by second factor in (14.443%), third factor in (9.998%), and fourth factor in (6.697%) of covariance constructed respectively, these four creating factors (components) will represent the new scale which can be used in the future for further measurement of QoL for prostate cancer patients.

**Recommendations:** Establishing of an educational program to improve health related quality of life for prostate cancer patients. In addition to that initiation of support groups for patients with prostate cancer, psychosocial care of men with advanced cancer is an important consideration. Sexual rehabilitation principles for persons with chronic illness may prove useful. Psychological interventions for sexual sequelae need to be offered and individualized to patients, regardless of their age or partnership. Governmental commitment should be enhanced by offering all support to improve HRQoL for prostate cancer patients generally by providing cancer medications and supporting by their socio-economic state by providing financial assistance.

#### References:

1. Newth, O.G. E. (2012). The quality of life of men with advanced prostate cancer treated with androgen deprivation therapy and their partners (Doctoral dissertation, The University of Michigan).
2. Love, A. W., Scealy, M., Bloch, S., Duchesne, G., Couper, J., Macvean, M., ... & Kissane, D. W. (2008). Psychosocial adjustment in newly diagnosed prostate cancer. *Australian and New Zealand Journal of Psychiatry*, 42(5), 423-429.
3. Penson, D. F., Feng, Z., Kuniyuki, A., McClerran, D., Albertsen, P. C., Deapen, D., ... & Stanford, J. L. (2007). General quality of life 2 years following treatment for prostate cancer: what influences outcomes? Results from the prostate cancer outcomes study. *Journal of Clinical Oncology*, 21(6), 1147-1154.
4. Walmsley LA, et al, (2015) The Psychological Well-Being of Men Diagnosed with Prostate Cancer, UK, University of Kentucky, college of nursing, 1-3.
5. Al-Naqeeb, Abdulkhaleq A., 2007, "Suggested Technique for estimation of relative smoothed grade for contaminated data in spectral analysis by using Robust General Maximum Likelihood methods of Al-Naqeeb and Thomson", Al Rafedian scientific journal, No. 21, P116-128 - Iraq.
6. Amy Y. Zhang. Is a behavioral treatment for urinary incontinence beneficial to prostate cancer survivors as a follow-up care?. *J Cancer Surviv* 2017; 11(1): pp24-31.
7. Cyllene R. et al. *Cancer Causes and Control*, 10 ed. Netherlands: Kluwer Academic Publishers; 1999.p506.

8. Bowling, A. (2001). *Measuring disease: a review of disease-specific quality of life measurement scales*. Philadelphia.
9. Jack A, et al. Patients' Perceptions of Quality of Life After Treatment for Early Prostate Cancer. *Journal of Clinical Oncology* 2003; 21(20):pp 3777-3784.
10. Joseph K. J., et al. Analysis of health related quality of life (HRQoL) of patients with clinically localized prostate cancer, one year after treatment with external beam radiotherapy (EBRT) alone versus EBRT and high dose rate brachytherapy (HDRBT). *BioMed Central* 2008; 3(20): 1-5.
11. Clark, J. A., & Talcott, J. A. (2006). Confidence and uncertainty long after initial treatment for early prostate cancer: survivors' views of cancer control and the treatment decisions they made. *Journal of clinical oncology*, 24(27), 4457-4463.