



FACTORS INFLUENCING HEALTH RELATED QUALITY OF GERIATRIC PATIENTS' LIVES WITH CHRONIC HEPATITIS C VIRUS (HCV)

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ABSTRACT

Background: Hepatitis C virus continues to be a major public health problem all over the world especially in Egypt. Chronic hepatitis C impairs health related quality of life (HRQOL) even in the absence of severe morbidity; this suggests that, there are other factors can affect HRQOL of elderly patients with HCV. Identifying these factors can lead to improve their health related quality of life. So this study aimed to determine factors influencing HRQOL of geriatric patients with HCV. Three tools were used for data collection: Socio-demographic and clinical data structured interview schedule, Knowledge related to HCV structured interview schedule, and HRQOL of HCV patients structured interview schedule. It can be concluded that, chronic hepatitis C virus affected negatively most of the dimensions of patients' generic HRQOL. The majority of the study subjects have only partial knowledge about the disease and its mode of transmission.

Key Words: Elderly – Hepatitis C – Quality of life – nurse' role

INTRODUCTION

Hepatitis C virus (HCV) affects all age groups and continues to be a major public health problem. According to the World Health Organization 2011, about 130–170 million people are chronically infected with hepatitis C virus, and more than 350 000 people die from hepatitis C-related liver diseases each year. ⁽¹⁾

Anti-hepatitis C virus positivity has been detected in up to 30–60% in some countries ⁽²⁾. The burden of chronic hepatitis C virus infection in elderly persons is expected to increase significantly in the United States during the next 2 decades. ⁽³⁾ Over time, approximately twenty percent of patients with chronic HCV often will progress to cirrhosis and 5% of patients will develop hepatocellular carcinoma. ^(4, 5) The prevalence of HCV infection in the

elderly varies among different studies. According to a study done in the USA 2009, the prevalence of positive HCV antibody was found to be 0.9% and 1.0% in subjects who were in the age groups of 60 to 69 years, and 70 years and older, respectively. ⁽⁶⁾ Moreover, According to the 1999–2002 National Health and Nutrition Examination Survey IV, the prevalence of antibodies against HCV (anti-HCV) was 1.6% in the general population aged ≥ 6 years' ⁽⁷⁾ the highest rate of infection was observed in the cohort aged 45–49 years, and among persons aged ≥ 60 years, 1% were anti-HCV positive. Thus, of 44 million US residents ≥ 60 years old, 440,000 might be anti-HCV positive. ⁽⁸⁾ The risk of HCV increases significantly with age, probably owing to age-related changes in the ability to repair DNA, and to the prolonged interval from the time of infection, exposure to blood or blood products, baby

boomer's drug use, and physiology of the disease and the treatment ⁽⁹⁾

In contrast to the United States, other countries such as Japan ⁽¹⁰⁾ Italy ⁽¹¹⁾ and France ⁽¹²⁾ the prevalence of HCV infection is low among children and young adults, but it increases at the age of 40 years and continues to increase during aging. In a community-based study in Japan, the prevalence of anti-HCV seropositivity was 3% in the 20–29-year-old group and increased to 41% among persons aged 80–89 years. ⁽¹⁰⁾ In Italy, the prevalence of positive HCV antibody was found to be around 11% of the total subjects with a mean age of 79.31 years and twenty percent of infected individuals' progress to chronic HCV. ⁽¹¹⁾

In Egypt HCV recently emerged as a major public health hazard. The current population in Egypt is about 80 million, 14.7% of this population are infected with this virus. This is an underestimated number because it does not include the number of people who have been infected and under 15 years, or over 60 years of age ⁽¹³⁾. However, dramatic healthcare budget constraints limit access to the costly treatment ⁽¹⁴⁾. According to a research study done on Egyptian people in 2008, and the WHO statistics 2008, the Egyptian rural population recorded the highest prevalence of HCV in the world and Genotype 4 is the most prevalent genotype in Egypt. ^(15, 16) A previous study in Cairo 2004 indicated that sources of infection are previous admitted to hospital or clinic 54% , parenteral antischistosomal therapy 6.5% , and blood transfusion 6.1%. ⁽¹⁷⁾ However, many patients acquire hepatitis C without any known exposure to blood or to drug use. ⁽¹⁸⁾

Geriatric patients with HCV infection have several aging related changes considered as limitations to be studied adequately. These changes make them excluded from several clinical trials due to fear of dealing with more severe hepatitis C related side effects.⁽¹⁹⁾ Among these changes, decreased GFR and decreased liver function that might cause severe hemolytic anemia with Ribavirin and interactions of Interferon which were approved for treatment with multi-adverse effects.^(20, 21) Previous western studies have reported a consistent and marked reduction in health related quality of life among chronic hepatitis C patients as compared with nationally representative samples of adults particularly in physical health-related domains.⁽²²⁾

Chronic HCV in elderly patients is associated with nonspecific symptoms such as fatigue, irritability, nausea, anorexia, abdominal discomfort and headache. These symptoms have been directly associated with the reduction of HRQOL as evidenced by reductions in functional health status, psychological status and general health perception measures. Moreover, with advancing age, older adults frequently report fatigue, sleep disturbances, memory difficulties, gastrointestinal problems, dry skin, eyes and mouth. It is difficult to tell what is caused by HCV, and what age is related⁽²³⁾. Several studies about chronic HCV infection showed a significant reduction in HRQOL measures. A study done in London 2009 mentioned that even in the absence of liver disease, chronic infection with the hepatitis C virus (HCV) compromises HRQOL with profound negative impacts on both physical and mental well-being⁽²⁴⁾.

Several factors can affect HRQOL of older adult patients with chronic HCV. These include physical, psychological, socioeconomic and demographic factors, in addition to poor knowledge about the disease.⁽²⁵⁾ It has been recently reported in the USA 2009 that patients with a history of depression, who were not receiving antidepressants, are more likely to fail treatment for genotype 2/3 HCV and will need additional support.⁽²⁴⁾ Moreover, prior studies have shown that HCV-infected individuals have limited knowledge of HCV disease, and improvement in HCV knowledge is effective at reducing transmission or high-risk behaviors for transmission and can influence a patient's decision to explore and initiate HCV therapy and consequently affecting their quality of life.^(22, 25)

Identifying factors that influence HRQOL in elderly patients with chronic HCV will enable the Interdisciplinary team including the gerontological nurse to play a significant role in providing holistic care for these patients, and improving the patient knowledge for possible sources of HCV transmission,. Thus, enhancing their health related quality of life. This care will be individualized, taking into consideration all aspects of the elder patients' life, (physical, psychological and social) in order to enhance their HRQOL.^(26, 27)

AIM OF THE STUDY

The aim of this research was to determine factors influencing health related quality of geriatric patients' lives with HCV.

Research question:

What are the factors that influence health related quality of geriatric patients' lives with chronic HCV?

MATERIALS AND METHOD

MATERIALS

Design: This study followed a descriptive correlational design.

Setting: The study was carried out in the outpatient clinic of the two selected hospitals affiliated to the ministry of health in Alexandria, Egypt

Subjects: The subjects of the present study comprised 200 consecutive elderly patients, from both sex, aged 60 years and older, able to communicate effectively and diagnosed with hepatitis C for at least six months.

Tools: the following three tools were used to collect data for this research:

Tool I: Geriatric patients with chronic HCV's Socio-demographic and clinical data structured interview schedule: was developed by the researchers based on relevant literature and included information about socio-demographic characteristics such as age, sex, marital status, education, residence, job before retirement, and monthly income.

Tool II: Knowledge related to HCV structured interview schedule: was developed by Twafike E 2011⁽²⁸⁾ and includes questions that assess patients' general knowledge about the disease. Responses to this tool are yes, no and do not know. The scoring system was as follows: Score of 75% and more for the correct answers indicates good knowledge, score of 50 to less than 75% for the correct answers indicates moderate knowledge, and score less than 50 % for the correct answer indicates poor knowledge.

Tool III: Health related quality of HCV patients' lives structured interview schedule: was developed by Tawfike E⁽²⁸⁾ 2011, the modified version of the SF-36 scale was used in this study to measure the eight dimensions of physical functioning, bodily pain, mental health, social functioning, role limitation due to emotional problems, vitality, role limitation due to physical health, and general health status. The obtained information reflected how patients feel and their ability to perform usual activities. Responses to the questions in this part ranged from 1-3. The score of each of the eight domains was calculated by summing the scores of its items. The total score was obtained by summing the scores of the eight domains. The total score ranged from 0-100 and the scoring system is as follows: scores of 66.7% or more indicate high quality of life, scores of 33.4 % to 66.6% indicate moderate quality of life, and scores of less than 33.3% indicate poor quality of life.

Method: Official letters were issued from the Faculty of Nursing, Alexandria University to the administrators of the study settings to obtain their permission to carry out the study. The tools used in this study were tested for reliability by using Cronbach's Alpha Test. The reliability of tool II was $R= 0.71$ and for tool III was $R= 0.90$. A pilot study was carried out on twenty geriatric patients (were excluded from the study subjects) to test clarity, feasibility and the applicability of the study tools. The researchers used to meet the patients individually in the waiting room, explain the purpose of the study and obtain the informed consent. It was possible to interview 4-6 elderly daily. Time of the interview ranged from 30-45 minutes. Data collection started from the twentieth of August until mid- December 2011.

Ethical considerations:

An informed written consent from the study subjects to participate in the study was being obtained after explanation of the study purpose. Confidentiality of the collected data, privacy and anonymity of the study subjects and the right to withdraw at any time was assured.

STATISTICAL ANALYSIS

After data collection, data were coded and transformed

into specially designed forms as to be suitable for computer feeding. All entered data were verified for any error. The SPSS V 19.0 was used for the analysis of the data. Frequency tables and cross tabulations were used to illustrate the results of categorical data which were later analyzed using the chi square test or Fisher's Exact Test (FET). P value ≤ 0.05 was considered a cutoff for significance.

RESULTS

Part 1: Socio-demographic and clinical data of the study subjects

Table (1) shows the distribution of the study subjects according to their socio-demographic data. The age of the study subjects ranged from 60 to 84 years, with a mean of $63.14 \pm 3.8.3$ years. Males constituted 60% of the study subjects, 80.5% of them were married, 46.5% were illiterate, and the agricultural work was reported by 32% of them. It is observed that the monthly income of the study subjects ranged from less than 500 L.E to more than 1000 L.E with a mean of 583.1 ± 44.77 . 85.5% of the study subjects lived in their own homes with their families, The duration of having HCV ranged from less than one year to more than 10 years with a mean of 54.18 ± 43.9 months.

Table (1): Distribution of the study subjects according to their Socio- demographic and clinical data

Items	No =200	Percent%
1-Age in years :		
o 60-	141	70.5
o 65-	50	25
o 70+	9	4.5
Mean \pm SD = 63.14 \pm 3.803 years		
2-Sex		
Male	120	60
Female	80	40
3-Marital status		
Married	161	80.5
Widowed	34	17
Divorced	5	2.5
4-Level of Education		
Illiterate	93	46.5
Read and write	21	10.5
Basic education	47	23.5
Secondary	28	14
University and higher	11	5.5
5-Occupation before retirement		
Farmer	64	32
Employee	61	30.5
House wife	60	30
Manual worker	11	5.5
Private Work	4	2
6-Monthly Income (\$)		
<500	77	38.5
500-	108	54
1000+	15	7.5
Mean \pm SD = 583.1 \pm 44.77		
7-Source of income		
Pension	121	60.5
Sons	62	31
Current job	13	6.5
Relatives	4	2
8-Living condition		
Own home	171	85.5
With sons	23	11.5
Alone	6	3
9-Residence		
Urban	115	57.5
Rural	85	42.5
10- Duration since HCV diagnosis		
<1 year	26	13
1<5 yrs	65	32.5
5< 10 yrs	83	41.5
10-	26	13

Part II: Knowledge of the study subjects about HCV

Table (2) illustrates the distribution of the study subjects according to their knowledge about chronic hepatitis C. Regarding the subjects' knowledge about the question (*a person may be infected without appearance of symptoms*), 65.5% of the study subjects answered correctly. As regards their knowledge about (*patient with no symptoms can infect others*), 57.2% of those who gave correct answer to the previous question answered correctly. As for their knowledge about the presence of HCV vaccination, 40 % reported (*do not know*). With regard to subjects' knowledge about risk factors that damage the liver, 95.5% of the study subjects provided correct answer about drug abuse, followed by 94% alcohol intake.

Table (3) demonstrates the distribution of the study subjects according to their knowledge about modes of transmission of HCV. Above ninety percent of the study subjects gave correct answers about modes of HCV transmission via non sterilized dental equipment, non-sterilized surgical equipment, needle stick injury, sharing personal equipment, handshake, hugging, embracing, and contaminated food. Above seventy percent of the study subjects gave correct answers about repeated syringe use, drug abuse injection, blood transfusion, cough and sneezing, and sucking insects.

Part III: Health related quality of the study subjects' lives

Table (4a) shows the distribution of the study subjects according to the generic health related quality of life domains. Regarding the Physical functioning, the table revealed that 82% of the study subjects reported extreme limitation in the vigorous activities such as running and lighting heavy objects. Concerning the role limitation, 52 % of the study subjects faced difficulty to perform needed work. Regarding bodily pain, 54.4% reported that the pain

extremely interfere with normal work. Concerning the general health, 75% of the study subjects reported that they are not as healthy as anybody they know. With regard to the health status of the study subjects compared to one year ago, 82.5 % reported it to be worse.

Table (4b) shows the distribution of the study subjects according to the generic HRQOL- mental component. Regarding the vitality, 59.5% of the study subjects reported (*not feeling full of live all the time*) and 52.5% (*feeling tired some of the time*). Health conditions interfered with social and normal activities all the time were reported by (30.0%, 35%) of the study subjects respectively. As regards mental health, 58% of the study subjects reported (*being very nervous for some of the time during the past four weeks*).

Table (5) shows the distribution of the study subjects according to the generic HRQOL physical component and mental one. The majority of the study subject (84.5%, 88.5%) had a moderate health related quality of life-physical and mental component respectively.

Table (6) illustrates the relationship between socio-demographic data and the subjects' total level of knowledge about the disease. 78 % of the study subjects who are at 60 to less than 65 years provided moderate level of knowledge about the disease with no statistical significant relation being observed between age and the total level of subjects' knowledge about the disease, $P=0.727$. More than one half (58%) of females and 24% of males reported poor level of knowledge about the disease with a statistical significant relation was found between sex and the level of subjects' knowledge about the disease $P=0.031$. Highly statistical significant relationships were found between educational level, occupation before retirement, and monthly income and subjects' knowledge score, $P=0.000$.

Table (2): Distribution of the study subjects according to their knowledge about chronic hepatitis C

Knowledge about HCV	NO	%
1- A person may be infected with HCV without appearance of symptoms		
Yes *	131	65.5
No	9	4.5
Don't know	60	30
2- Patient with no symptoms can infect others #		
Yes *	75	57.2
No	7	5.3
Don't know	49	37.5
3- Presence of HCV vaccination		
Yes	8	4
No *	112	56
Don't know	80	40
4-Risk factors make damage to the liver		
a-Drug abuse		
Yes *	191	95.5
No	1	0.5
Don't know	8	4
b- Alcohol *		
Yes	188	94
No	1	0.5
Don't know	11	5.5
c- Un- prescribed herbal remedies		
Yes*	125	62.5
No	27	13.5
Don't know	48	24

*indicates the correct answers

refers to the subjects who answered yes in the previous Item

Table (3): Distribution of the study subjects according to their knowledge about HCV modes of transmission

Mode of transmission	NO =200	%
1- Non- sterilized dental equipment		
○ Correct answer	199	99,5
○ Wrong answer	0	0
○ Do not know	1	0,5
2- Non-sterilized surgical equipment		
○ Correct answer	196	98
○ Wrong answer	0	0
○ Do not know	4	2
3- Needle stick injury		
○ Correct answer	195	97,5
○ Wrong answer	0	0
○ Do not know	5	2,5
4- Sharing sharp personal equipment		
○ Correct answer	191	95,5
○ Wrong answer	4	2
○ Do not know	5	2,5
5- Handshake / hugging, Embracing		
○ Correct answer	183	91,5
○ Wrong answer	14	7
○ Do not know	3	1,5
6- Contaminated food		
○ Correct answer	181	90,5
○ Wrong answer	16	8
○ Do not know	3	1,5
7- Organ donation		
○ Correct answer	176	88
○ Wrong answer	0	0
○ Do not know	24	12
5-Mode of transmission	NO =200	%
8- Repeated syringe use		
○ Correct answer	174	87
○ Wrong answer	2	1
○ Do not know	24	12
9- drug abuse by injection		
○ Correct answer	156	78
○ Wrong answer	12	6
○ Do not know	32	16
10- Blood transfusion		
○ Correct answer	155	77,5
○ Wrong answer	5	2,5
○ Do not know	40	20
11- Cough and sneezing		
○ Correct answer	153	76,5
○ Wrong answer	15	7,5
○ Do not know	32	16
12- Sucking insects		
○ Correct answer	68	72
○ Wrong answer	62	16
○ Do not know	70	12
13- Sharing dishes spoon and forks with the patient		
○ Correct answer	48	24
○ Wrong answer	138	69
○ Do not know	14	7
14- Breast-feeding		
○ Correct answer	32	15
○ Wrong answer	144	72
○ Do not know	34	12
15- Mother to her fetus		
○ Correct answer	23	11,5
○ Wrong answer	100	50
○ Do not know	77	38,5

Table (4a) distribution of the study subjects according to the generic HRQOL SF 36

Physical Component								
1-Physical functioning	Limited a lot		Limited a little		Not limited at all		Total	
	No	%	No	%	No	%	No	%
• Limitation of the vigorous activities	164	82	36	18	0	0	200	100
• Limitation of the moderate activities	76	38	81	40.5	43	21.5	200	100
• Limitation of the slight activities	31	15.5	99	49.5	70	35	200	100
2- Role limitation -physical	all of the time		Some of the time		Non of the time		Total	
	No	%	No	%	No	%	No	%
• Limited ability to spend the same amount of time in performing activities as before	108	54	76	38	16	8	200	100
• Difficult to perform needed work	104	52	86	43	10	5	200	100
• Accomplished less than you would like	99	49.5	84	42	17	8.5	200	100
• Performing limited kinds of activities	65	32.5	106	53	29	14.5	200	100
3-Bodily pain	No pain		Moderate		Severe		Total	
	No	%	No	%	No	%	No	%
• How much bodily pain did you feel during the 4 past week	45	22.5	96	48	59	29.5	200	100
• During the past 4 weeks, how much did pain interfere with your normal work	Not at all		Quit abit		Extremely		Total	
	No	%	No	%	No	%	No	%
	49	24.5	42	21	109	54.5	200	100
4-General health	True		I don't know		False		Total	
	No	%	No	%	No	%	No	%
• Seem to get sick a little easier than other people	85	42.5	21	10.5	94	47	200	100
• As healthy as anybody I know	35	17.5	15	7.5	150	75	200	100
• Expect my health to get worse	70	35	126	63	4	2	200	100
• Health is excellent	3	1.5	14	7	183	91.5	200	100
• Self-assessment of health	Excellent		Good		Poor		Total	
	No	%	No	%	No	%	No	%
	0	0	75	37.5	125	62.5	200	100
• - Health status compared to one year ago (change in health)	Better		The same		Worse		Total	
	No	%	No	%	No	%	No	%
	3	1.5	32	16	165	82.5	200	100

Table (4b): Distribution of the study subjects according to the generic HRQOL SF 36

Mental component								
5- Vitality	all of the time		Some of the time		None of the time		Total	
	No	%	No	%	No	%	No	%
• Feel full of life	4	2	77	38.5	119	59.5	200	100
• Have enough energy	7	3.5	85	42.5	108	54	200	100
• Feel have worn out	61	30.5	96	48	43	21.5	200	100
• Feel tired	59	29.5	105	52.5	63	31.5	200	100
6- Social functioning	all of the time		Some of the time		None of the time		Total	
	No	%	No	%	No	%	No	%
• How much of the time has your health condition interfered with your social activities	60	30	73	36.5	66	33	200	100
• To what extent has your health condition interfered with normal activities	Not at all		Quit abit		extremely		Total	
	No	%	No	%	No	%	No	%
	70	35	79	39.5	51	25.5	200	100
7-Mental health	all of the time		Some of the time		None of the time		Total	
	No	%	No	%	No	%	No	%
• Being very nervous	25	12.5	116	58	59	29.5	200	100
• Felt so down in the dumps (nothing could cheer you up)?	92	46	95	47.5	13	6.5	200	100
• Felt calm and peaceful	7	3.5	85	42.5	108	54	200	100
• Felt downhearted or depressed	65	32.5	116	58	19	9.5	200	100
• Been happy	1	0.5	35	17.5	164	82	200	100
Mental component	all of the time		Some of the time		None of the time		Total	
	No	%	No	%	No	%	No	%
Role limitation- emotional								
• Cut down the amount time you spent on work	35	17.5	127	63.5	38	19	200	100
• Accomplished less than you would like	41	20.5	119	59.5	40	20	200	100
• did work or other activity less carefully than usual	37	18.5	117	58.5	46	23	200	100

Table (5): The generic health related quality of life of the, physical and mental component of the study subjects

		Physical component				Mental component							
		High		Moderate		Low		High		Moderate		Low	
No	%	No	%	No	%	No	%	No	%	No	%	No	%
0	0	169	84.5	31	15.5	23	11.5	177	88.5	0	0	0	0

Table (6): Relationship between socio demographic data and subjects' level of knowledge regarding the disease

socio-demographic data		Total level of knowledge score				FET	
		Good(10)	Moderate(153)	Poor(37)	Total 200	P	
Age	60-	Count	7	110	24	141	2.045 0.727
		%	5	78	17	100	
	65-	Count	3	37	10	50	
		%	6	74	20	100	
	70+	Count	0	6	3	9	
		%	0	66.7	33.3	100	
Sex	Male	Count	4	58	58	120	6.930 0.031*
		%	48.3	48.3	3.4	100	
	Female	Count	6	50	24	80	
		%	7.5	62.5	30	100	
Level of education	Illiterate	Count	2	62	29	93	47.155 0.000*
		%	2.1	66.7	31.2	100	
	Read and write	Count	0	18	3	21	
		%	0	85.7	14.3	100	
	Basic education	Count	2	40	5	47	
		%	4.3	85.1	10.6	100	
	Secondary	Count	2	26	0	28	
		%	7.1	92.9	0	100	
University and higher	Count	4	7	0	11		
	%	36.3	63.7	0	100		
Occupation before retirement	Farmer	Count	3	49	12	64	35.063 0.000*
		%	4.7	67.6	18.8	100	
	Employee	Count	4	54	3	61	
		%	6.6	88.5	4.9	100	
	House wife	Count	0	41	19	60	
		%	0	68.3	31.7	100	
	Manual worker	Count	1	7	3	11	
		%	9.1	63.6	27.3	100	
	Private job	Count	2	2	0	4	
		%	50	50	0	100	
Monthly income	<500	Count	2	59	16	77	16.220 0.000*
		%	2.6	76.6	20.8	100	
	500 -	Count	5	87	16	108	
		%	4.6	80.6	14.8	100	
	1000+	Count	3	7	5	15	
		%	20	46.7	33.3	100	
Residence	Urban area	Count	7	96	12	115	11.876 0.003*
		%	6.1	83.5	25	100	
	Rural area	Count	3	57	25	85	
		%	3.5	67.1	29.4	100	

* The difference is statistically significant at $P \leq 0.05$

Table (7a) shows the relationship between socio-demographic data and the physical component of generic health related quality of life of the study subjects. 75% of the study subjects who had a moderate HRQOL- physical component were at age group 60 to less than 65 years. The table shows that age has a significant effect on the generic HRQOL- physical component $p= 0.000$. Although males reported a higher quality of life – physical component than women, but there was not statistical significant differences, $p=0.338$ was found.

83.4% of the married subjects had a moderate generic HRQOL- physical component and marital status seems to affect generic HRQOL- physical component significantly $P=0.009$. the same table revealed that, 97.5% of the study subjects who lived with their families members had a better HRQOL- physical component than those who lived alone and a statistical significant relation was observed $P= 0.010$. Generic HRQOL – physical impact was not significantly affected by living area and the setting of the study, $P= 0.729, 0.264$ respectively.

Table (7a): Relationship between socio-demographic data and the generic HRQOL- physical component .

Socio- demographic data	Generic HRQOL-Physical component				X ² P	
	Moderate		Low			
	NO	%	NO	%		
Age	1-60-	127	75.1	14	45.2	22.944 0.000*
	2-65-	39	23.1	11	35.5	
	3-70+	3	1.8	6	19.4	
Sex	1-Male	99	58.6	21	67.7	0.916
	2-Female	70	41.4	10	32.3	0.338
M. status	1-Married	141	83.4	20	64.5	9.454 0.009
	2-Widowed	23	13.6	11	35.5	
	3-Divorced	5	3	0	0	
Education	1-Illiterate	77	45.6	16	51.6	7.532 0.110
	2-Read and write	18	10.7	3	9.7	
	3-Basic education	36	21.3	11	35.5	
	4-Secondary	27	16.0	1	3.2	
	5-University and higher	11	6.5	0	0	
Occupation before retirement	1-Farmer	52	30.8	12	38.7	1.874 0.764
	2-employee	51	30.2	10	9.7	
	3-House wife	52	30.8	8	25.8	
	4-Manual worker	10	5.9	1	3.2	
	5-Private job	4	2.4	0	.0	
Monthly income	1-< 500	52	30.8	12	38.7	4.464 0.100
	2-500-	51	30.2	10	9.7	
	3-1000+	52	30.8	8	25.8	
Living condition	1-With family	165	97.5	29	93.5	11.270 0.010*
	2-Alone	4	2.4	2	6.5	
Living area	1-Urban	100	59.2	15	48.4	0.633 0.729
	2-Rural	69	40.8	16	51.6	
Study setting	1-El- kabbar	72	42.6	12	38.7	1.247 0.264
	2-Health insurance	49	29	8	25.8	
	3-Shark elmadena	48	28.4	11	35.5	

* The differences is statistically significant at $P \leq 0.05$

Table (7b) shows the relationship between socio-demographic data and mental component of the generic HRQOL. Mental component were not significantly affected by age, $P=0.472$ but 78.3 of those who had a high HRQOL – mental component were at age group 60 to less than 65 years. Sex and marital status although did not significantly affect HRQOL- mental component, but men and married subjects had a higher quality of life – mental component. Regarding the education the same table revealed that 47.5% of the study subjects had a moderate HRQOL mental component, this percent dropped into 22% for those who had basic education. Monthly income and occupation before retirement did not significantly affect HRQOL-mental component $P= 0.428, 0.370$ respectively but the study subjects who lived in urban

area had a better HRQOL- mental component than those who lived in rural areas.

Table (8) shows the relationship between study subjects' knowledge and the generic health related quality of life - physical and mental component. The table shows that knowledge is positively associated with the HRQOL- physical component, having knowledge increased the HRQOL- physical component. Moderate HRQOL- physical component was reported by 95%, 78% and 66.7% for good, fair and poor knowledge level respectively. Statistically significant differences was found between subjects' level of knowledge and the generic HRQOL- physical component, $P=0.002$. However no statistical significant differences were found between knowledge level and the HRQOL- mental component.

Table (7b): Relationship between socio-demographic data and the generic HRQOL- mental component

Socio- demographic data	Generic HRQOL- Mental component				X ² P	
	Moderate		Low			
	NO	%	NO	%		
Age	1-60-	123	69.5	0	0	1.502 0.472
	2-65-	45	25.4	0	0	
	3-70+	9	5.1	0	0	
Sex	1-Male	104	58.8	0	0	0.991
	2-Female	73	41.2	0	0	0.320
M. status	1-Married	139	78.5	0	0	3.838 0.147
	2-Widowed	33	18.6	0	0	
	3-Divorced	5	2.8	0	0	
Education	1-Illiterate	84	47.5	0	0	3.457 0.484
	2-Read and write	19	10.7	0	0	
	3-Basic education	40	22.6	0	0	
	4-Secondary	23	13.0	0	0	
	5-University and higher	11	6.2	0	0	
Occupation before retirement	1-Farmer	56	31.6	0	0	0.934 0.920
	2-Employee	53	29.9	0	0	
	3-House wife	54	30.5	0	0	
	4-Manual worker	10	5.6	0	0	
	5-Private job	4	2.3	0	0	
Monthly income	1-< 500	71	40.1	0	0	1.695 0.428
	2-500-	93	52.5	0	0	
	3-1000+	13	7.3	0	0	
Living condition	1-With family	171	96.6	0	0	0.804
	2-Alone	6	3.4	0	0	0.370
Living area	1-Urban	102	57.6	0	0	0.010
	2-Rural	75	42.4	0	0	0.920
Study setting	1-El- kabbariy	73	41.2	0	0	1.581 0.454
	2-Health insurance	53	29.9	0	0	
	3-Shark - Elmadeena	51	28.8	0	0	

* The difference is statistically significant at $P \leq 0.05$

Table (8): Relationship between study subjects' knowledge and the generic HRQOL

Total Knowledge level		Generic HRQOL- Physical component		Total	x2	P
		Moderate	Low			
Good	Count	78	4	82	17.785	0.002*
	%	95	4.9	41%		
Fair	Count	85	24	109		
	%	78	22	54.5%		
Poor	Count	6	3	9		
	%	66.7	33.3	4.5%		

Total Knowledge level		Generic HRQOL- Mental component		Total	x2	P
		High	Moderate			
Good	Count	10	72	82	0.066	0.968
	%	12.2	87.8	41%		
Fair	Count	12	97	109		
	%	11	89	54.5%		
Poor	Count	1	8	9		
	%	11.1	88.9	4.5%		

* The difference is statistically significant at $p < 0.05$

DISCUSSION

Hepatitis C is a major public health problem affecting approximately 3% of the global population. Egypt has possibly the highest HCV prevalence in the world; 10%–20% of the general populations are infected.⁽²⁹⁾

Chronic HCV infection is associated with decreased HRQOL. Although HCV has been suggested to directly impair HRQOL, other factors may also play a role. In this study, the factors possible to influence health related quality of life were classified into socio- demographic, physical and psychological factors. Therefore, the aim of the study was to determine factors influencing health related quality of life of geriatric patients with chronic hepatitis C virus.⁽³⁰⁾

HCV-specific knowledge aiming at better perception or improvement of behaviors can be critical to public health efforts to prevent disease transmission and to reduce HCV- related disability.⁽³¹⁾ In the present study, patients' knowledge about the disease was studied comprehensively; the majority of the studied subjects had moderate level of knowledge regarding chronic hepatitis C. Nearly one half of the participants had a partial knowledge about the virus, risk factors and vaccination. Regarding subjects' knowledge about mode of HCV transmission, the majority of them had a good level of knowledge. On the contrary, a study done in Saudi Arabia 2008 reported that the study subjects had fair knowledge about the virus mode of transmission.⁽³²⁾ The majority of the study subjects have poor level of knowledge regarding HCV transmission by breast feeding and from pregnant mother to her fetus during pregnancy. This result is similar to other studies. The first study was conducted in Alexandria 2012 and reported that less than one third of the participants knew that the disease could be transmitted from mother to her fetus during pregnancy and during labor. The same finding was reported in Saudi Arabia 2008.^(32, 33)

As for factors affecting subjects' knowledge about chronic hepatitis C, a positive relationship was found in the present study between participants' educational level and the level of specific knowledge regarding HCV. It means that the higher level of education was found to increase the awareness of the participants about the disease. This result was in the same line with the result of the study done in Saudi Arabia 2008.⁽³²⁾ Other factors such as living area and occupation before retirement partially influenced level of participants' awareness about the disease.]

Successful aging encompasses multiple dimensions of health, including physical, mental, and social well-being. It has been shown that even in the absence of liver cirrhosis, chronic infection with HCV impairs health related quality of life with profound negative impact on both physical and mental well-being.⁽³⁴⁾ The results of the present study showed that physical component scale of the generic HRQOL – SF36 was more affected than mental component (table 7). These results are in the same line with several reports demonstrating a physical component more diminished than a mental component of the quality of life in chronic liver disease including HCV.^(35,36) Regarding the dimension of physical component of generic HRQOL scale, the result obviously observed that the physical functioning was strongly affected; this can be rationalized by the associated symptoms or by the negative impact of age related changes on musculoskeletal system. All study subjects did not consider that their health status is excellent and the majority of them had worse health status than one year ago. In contrary to a study done in the USA 2008 which found that, two thirds of the study subjects reported the same health status as one year ago.⁽³⁷⁾ This disagreement in the results may be due to the subjects' age group and other socioeconomic predictors. Concerning role limitation- physical (table 5) the present study revealed that more than one half of the study subjects suffered from role limitations due to impaired physical health.

These results are in contrast with a study done in Alexandria 2011, and in the USA 2008.^(28, 37) The reason for these differences in results can be attributed to the age of the participants as older adult patients with chronic HCV suffer from role limitations more than adult patients. Regarding bodily pain (table 4a), more than one quarter of the study subjects reported severe pain during the last 4 weeks and nearly one half of them reported a moderate pain. These results are similar to a study done in Alexandria 2011. Bodily pain is a subjective variable. More than three quarters of the study subjects in the present study reported moderate or extreme effect of bodily pain on performance of their normal work and most of them reported severe interference of pain with their daily living activities. These findings are in the same direction with the results of a study conducted in the USA 2006⁽³⁸⁾ which reported that a majority of the subjects reported pain symptoms, which indicates that pain is a significant problem in patients diagnosed with HCV. Moreover, patients with HCV reported that their pain symptoms interfered with their daily activities and relationships.⁽³⁸⁾

Concerning the mental component of generic HRQOL, the majority of the study subjects had a moderate reduction in mental component of SF-36 (table 4b). This result is consistent with other studies conducted in Egypt by Basal *et al* 2011⁽³⁴⁾ and in the USA 2008,⁽³⁷⁾ As for vitality, the present study found that more than half of the study subjects reported (*not feeling full of life, not having enough energy and felt worn out and tired all of the time*). These findings are in line with Martin's results 2008⁽³⁷⁾ which can be rationalized that older adults often suffer from lack of energy due to age related changes. As regards mental health, more than one half of the study subjects had been very nervous for some of the time during the 4 last weeks, more than one half of the study subjects did not feel calm and peaceful all the time during the last 4 weeks and felt downhearted or depressed for some of the time and the majority of the study subjects did not feel happy. The previous results revealed a moderate decrease in mental health among older adults in comparison with other studies^(19, 39). These results can be rationalized by the increasing psychosocial stressors facing the elders regarding the age related changes which consequently can increase the impairment of mental wellbeing.

Older adults often suffer from multiple social problems associated with the aging process. Thus, older adult patients are liable to have less family support and less income and more financial burden. Moreover, rising medical costs and declining socio-economic conditions further contribute to the deterioration of the patient's mental health and subsequently health related quality of life⁽⁴⁰⁾. In the present study, nearly one half of the study subjects suffered from high social impact of HCV and the majority of them had financial problems which are expected after retirement. In contrary to the results of Ibrahim *et al* 2011 which found that, the study subjects had moderate social impact of HCV.⁽⁴⁰⁾ This disagreement in the results of the two studies can be attributed to the age group because elder adults usually face various social problems rather than adults.

Half of the study subjects had a moderate spiritual impact as a result of HCV and the majority of them increased their religious activity. These results are in the same line with the results in Egypt 2011.⁽⁴⁰⁾ This can be due to increasing religiosity among the study subjects can be considered a normal phenomenon in the eastern culture.

To achieve the ultimate goal of improving the health of geriatric patients with chronic HCV, it is important for the gerontological nurse to fully understand the current health status of the geriatric patients with chronic HCV, their knowledge and behaviors related to HCV; this can help her to develop better nursing strategies to improve health related quality of life of the geriatric patients with chronic HCV.

CONCLUSION AND RECOMMENDATIONS

From the findings of the present study, it can be concluded that, chronic HCV affected negatively most of the dimensions of patients' generic health related quality of life. The majority of the study subjects have only partial knowledge about the disease and its mode of transmission. Being married was positively related to better health related quality of life. Advancing age and longer duration of having the HCV are factors that affected negatively patients' health related quality of life. Based on the findings of this study it can be recommended that the concept of HRQOL should be a topic included in the Gerontological nursing course. Training programs should be planned and offered on regular basis to health care providers in the hospitals to update their knowledge about HCV and improve their practice. These training programs should include measures to improve the HRQOL of geriatric patients with chronic HCV, such as the development of HRQOL assessment tool for elder adults with chronic HCV. Moreover, raising awareness of the public about HCV via media and schools' programs, and establish specific guidelines for older adults with HCV to insure the best health care for them. Furthermore, preparation of visual educational materials such as instructional booklet - includes photo groups and illustration about mode of HCV transmission- that should be given to every geriatric patient in hospitals.

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