Section A -Research paper

Effect of Educational Program on Health Related Quality of Life among Elderly Patients with Liver Cirrhosis

Sherihan Awadallah Abd Elazaiem Ali [1]Eman Shokry Abd Allah[2], & Dalia Abdallah El-Shafei [3]

[1] Assistant lecture of Gerontological Nursing, Faculty of Nursing, Zagazig University, Egypt
[2] Professor of Gerontological Nursing, Faculty of Nursing, Zagazig University, Egypt.
[3] Assistant professor of Occupational and Environmental Medicine, Faculty of Medicine, Zagazig University, Egypt.
Corresponding Author: Sherihan Awadallah Abd Elazaiem Ali.
Email: adam201250@yahoo.com , Sherihanabdelaziem@gmail.com

Article History: Received: 26.06.2023 **Revised:**04.07.2023 **Accepted:** 22.07.2023

Abstract

Background & Aim: Elderly patients with liver cirrhosis may experience a progressive deterioration in liver function due to poor prognosis of their disease. As a consequence, the majority of liver cirrhotic patients report having several symptoms or problems, which might cause which can significantly lower their health related quality of life. Therefore, this study aimed to evaluate the effect of educational program on health related quality of life among elderly patients with liver cirrhosis. **Methods & Materials:** The quasi-experimental study was conducted in liver diseases center in El-Ahrar Teaching Hospital at Zagazig City.The study sample composed of 80 elderly patients with liver cirhosis, purposively assigned according to study inclusion criteria. Twelve sessions for small groups (2 to 4 elderly patients in each group) were held as part of the program's implementation in the current study. Two tools were used; interview questionnaire which is composed of two parts: Demographic characteristics and Health profile of the studied elderly patients& Chronic Liver Diseases Questionnaire to assess health related quality of life among elderly patients with liver cirrhosis. **Results:** The study findings reported that total mean score of the studied elderly patients related to CLDQ was 66.90±7.5 pre-program, and then improved to be 144.5±18.4 post program. Also, the current study result reveals that, there were several factors influence health related quality of life related to CLDQ total mean score as chronic disease, duration of diseases, age and complications related to liver cirrhosis. **Conclusion:** The applied educational program was effective in improving health related quality of life among studied elderly patients with liver cirrhosis.

Keywords: Educational Program, Health Related Quality of Life, Elderly Patients, Liver cirrhosis.

Introduction

Ageing population is a global phenom enon; virtually every country in the world is increasing in size and proportion of older people in its population. On the same line, in Egypt, persons aged 60 and older are 6.8% of the total population. It is predicted that by 2052, that number will increase to 17.9% **(Central Agency for Public Mobilization & Statistics 2022)**. Currently, liver cirrhosis ranks as the eleventh most common cause of death worldwide. Ageing patients are more prone to have advanced liver disease than younger patients, where the prevalence of liver diseases rises with age **(Alfauomy et al., 2020)**.

Liver cirrhosis (LC) is considered as chronic, progressive, and irreversible liver diseases and is characterized by significant liver parenchymal cell degeneration and destruction as well as increased production of new, fibrous connective tissue leading to an unnatural architecture of the bile ducts and blood vessels. Numerous conditions, such as alcohol-related liver disease (ALD), non-alcoholic fatty liver disease (NAFLD), chronic hepatitis B virus (HBV), hepatitis C virus (HCV), and autoimmune liver diseases, can cause liver cirrhosis **(Ginès e t al.,2021)**.

There are two primary prognostic stages for liver cirrhosis as the compensated phase (no symptoms or few symptoms).In contrast, the decompensated stage of liver cirrhosis is defined by a number of complications (**Hansen et al., 2021)**.Jaundice, hepatic encephalopathy, coagulopathy, ascites, acute renal injury, and gastrointestinal bleeding are common signs of decompensating, all of which contribute to a poor prognosis and significantly decreased health-related quality of life **(Karlsen et al.,2022)**.

Health-related quality of life, or HRQoL, is a comprehensive and relatively broad concept that encompasses symptoms of illness or health condition, side effects of treatment, and functional status within physical, social, and mental health domains of life **(Revicki etal.,2022)** Similarly, a patient's impression of their health and how it affects their functional status, well-being, and other characteristics connected to their health is referred to as their health-related quality of life (HRQoL) **(Chiu et al., 2020)**. Moreover, **Skladaný et al.,(2023)** demonstrated that, health related quality of life includes factors that are part of an individual’s health.

Moreover, patients with chronic liver diseases (CLDs), such as liver cirrhosis, often experience asthenia, incapacitation, pain in different body parts, insomnia, diminished appetite, and other complications like ascites, varicella seeping in the stomach and throat, and hepatic encephalopathy. These conditions have a negative impact on patients' quality of life. Additionally, liver cirrhosis associated with unemployment, incapacitated work, mood fluctuations, anxiety, low self-esteem, dejection, and other intense problems which have a significant negative influence on patients' quality of life **(Abdullahet al.,2021)**.

Effective patient education has emerged as an essential method in improving health related quality of life. Additionally, there is a paucity of literature on the impact of patients' education on health related quality of life for elderly patients with liver cirrhosis. Hence, this research aimed to evaluate the effect of educational program on health related quality of life among elderly patients with liver cirrhosis.

Method

Study Design and Setting

A quasi-experimental study design was utilized to conduct the current study in liver diseases center in El-Ahrar Teaching Hospital at Zagazig City.

Sample

The sample of this study included80 elderly patients from the aforementioned setting who met the following criteria; A confirmed diagnosis of liver cirrhosis (mild–moderate stages) by ultrasonography (obtained from patients sheet), agree to participate in the study and able to communicate.

Sample size calculation

Using the EPI Info software version 6.04, the sample size was calculated. It was based on mean and SD of CLDQ after intervention was112.5+_75 in the control group versus 171.9+_110 in intervention group **(Zandi et al.,2005**).With a power of 80% and at confidence level 95%, so the sample was 80 patients plus eight elderly patients for pilot study which were excluded from the study.

Tool of data collection

To gather the required data, two tools were used .**Tool I:** an interview questionnaire that was developed by the researchers based on the literature review. It is composed of two parts: demographic characteristics and health profile of the studied elderly. It was used to assess the characteristics of the studied elderly patients which included age, gender, residence, marital status, educational level, previous occupation, current occupation, living condition, duration of disease (years), causes of liver cirrhosis, complications from liver cirrhosis and Periodic examination &follow-up.

Tool II: Chronic Liver Diseases Questionnaire (CLDQ) (Younossi et al., 1999).

The CLDQ is the first specialized tool used to evaluate health related quality of life in individuals with chronic liver diseases such liver cirrhosis. In the current study, it's Cronbach α was 0.913.CLDQ contained **29** components, divided into six domains, they are: Abdominal Symptoms (AS) that consists of **three items** with a total score of **21**, Fatigue (FA) that consists of **five items** with a total score of **35**, Systemic Symptoms (SY) that consists of **five item**s with a total score of **35**, Activity (AC) that consists of **three items** with a total score of **21**, Emotional functions (EM) that consists of **eight items** with a total score of **56**& Worry (WO) that consists of **five items** with a total score of **35**.

Scoring system:

Health-related quality of life has been evaluated using a 7-point likert-type scale, with 1 indicating "all of the time", 2 representing "most of the time," 3 indicating "a good bit of the time," 4 indicating "some of the time," 5 indicating "a little of the time," 6 indicating "hardly any of the time," and 7 indicating "none of the time"

Therefore, the possible range of results was 29–203 points, with 203 being the highest possible score and 29 being the lowest. The scores for each item are summed up to calculate the participants' total score. This total score is then categorized unto three distinct categories: high, moderate and low.

Mild Quality Of Life	Moderate Quality Of Life	High Quality Of Life
. <101	101-141	142-203

Educational Program

***Assessment phase*:**

Pre-program data collection for baseline assessment was done at this phase. The researcher interviewed each participant who met the study inclusion criteria individually. Then introduced her, briefly described the purpose of the study, asked for their agreement to participate in it, and assured them that the information they provided was completely confidential and would only be used for research. The researcher read and explained each item of the study scales to the elderly and then recorded his/her response to each item. Each patient's data collection took approximately 25 to 30 minutes to complete. The data were initially analyzed to serve as a basis for developing the educational program in accordance with recognized needs.

Planning phase:

In light of the results of the data analysis conducted during the assessment phase, and in view of the relevant literature about elderly with liver cirrhosis, as well as according to the needs of the studied elderly and the study's goals, the researcher created the educational program and session's content.

Implementation phase:

The program was implemented in the study setting in the form of twelve sessions for small groups. This was carried out to increase the opportunities for discussions, interactions. The total sample was divided into small groups (2 to 4 elderly patients in each group). The same teaching strategies, materials, discussions, and booklet were used with all groups to provide the identical contents. The rate of two sessions per month. The length of each session was variable (30 to 45) minutes according to elderly's responses and active participation, as well as the time available, and the content of each session. The fieldwork was executed over a period of ten months, starting from the beginning of February 2022 up to the end of November 2022; three days per week (Saturday, Monday, and Wednesday) from 9:00 am to 1:00 pm.As one month to do list for patients and take pilot study, two month for pre-test, six month for program sessions; and finally one month for post-test.This included the phases of assessment, planning, implementation, and evaluation of the program.

Each session began with a summary of the information presented in the previous session and the goals of the new one, taking into account the use of straightforward language that suited the understanding level of the studied elderly patients. During the session, motivational and reinforcement strategies like praise and acknowledgment were utilised to increase active involvement and promote learning. In addition to the booklet, the sessions were supported by the use of images, posters, and power point.

Evaluation phase:

The evaluation of the effectiveness of the educational program (posttest) was done just after completion the program. These were done using the same data collection tools of the pre-test.

Ethical Considerations

The study was approved by the Research Ethics Committee (REC) of the Faculty of Nursing at Zagazig University in December 2021. An informed consent for participation was taken verbally from each of the elderly subjects after being properly informed of its purpose. Participants were given the option to decline participation and informed that they might leave at any time during the data collecting interviews. They were also given the assurance that the information would be kept private and used exclusively for the research purpose.

Statistical analysis

The Statistical Package for Social Sciences (SPSS) version 22 was used to organize, tabulate, and statistically analyze the obtained data. For qualitative variables, data were presented as frequencies and percentages, and for quantitative variables, as means and standard deviations. Also, in order to evaluate the study tools s' internal consistency and reliability, the Cronbach alpha coefficient was calculated. Chi-square was used to assess the relations between variables and their characteristics. To ascertain whether there are any statistically significant differences between the means of three or more variables with continuous data, the one-way analysis of variance (ANOVA) was utilized. A t test is a statistical test that is used to compare the means of two groups. Multiple linear regression analysis and analysis of variance for the full regression models were used to determine the independent predictors of chronic liver diseases questionnaire scores. Statistical significance was considered at p-value <0.05.

Results

Demographic characteristics of the studied elderly Patients (n=80).

Table 1 displays that, the mean age the studied elderly patients was 67.32 ± 3.5 years. As regard to gender and marital status, 61.2%and 85% of the studied elderly patients were female and married, respectively. The same table also reveals that 62 % of the studied elderly patients were residing rural area while 38% of them were residing urban areas, respectively. In terms of educational level, 66.3% of the studied elderly patients were illiterate. In concerning to occupation, 53.7%of them weren’t work before retirement while 91.2%

weren't work currently. **Health profile of the studied elderly patients (n=80).**

Table 2 reveals that 57.5%& 50% of the studied elderly patients had liver cirrhosis due to viral hepatitis C and Schistsoma, respectively. Furthermore, this table shows that, about half (51.2%) of the studied elderly patients suffered from liver cirrhosis more than three years ago. Finally; 38.8% &52.6% of the studied elderly patients had complications related to liver cirrhosis and do follow up only when they felt tired.

Total mean score of the studied elderly patients health related quality of life related domains of chronic liver diseases questionnaire pre and post program(n=80)

Table 3 reflects that, there was improvement in total mean score of the studied elderly patient's related total domains of CLDQ post program with a highly statistically significant difference (P< 0.01) between pre and post program. As evidence, highly reported total mean score of CLDQ domains post program among them were emotional function 37.61±8.6and Fatigue Symptoms 29.38±4.3respectively.

Total mean score of the studied elderly patients health related quality of life pre and post program (n=80).

Regarding to total mean score of the studied elderly patients health related quality of life pre and post program **Figure 1** shows total mean score of the studied elderly patients related to CLDQ was 66.90±7.5 pre-program, and then improved to be 144.5±18.4 post program.

Distribution the studied elderly patients according to total chronic liver diseases questionnaire pre and post program (n=80)

Referring to Percentage distribution of the studied elderly patient's health related quality of life according to total chronic liver diseases questionnaire pre and post program **Figure 2** illustrates that, 52.40% of the studied elderly patients had low health related quality of life pre-program then improved to be 17.50% post program.

Best fitting multiple linear regression models for chronic liver diseases questionnaire score

Table 4 clarifies that, regular examination and follow-up and having current occupation were statistically positive predictors of chronic liver diseases questionnaire score at p=.032and.030respectively. While, having chronic diseases, long duration of liver cirrhosis, having complications related to liver cirrhosis and advanced age were statistically negative predictors of chronic liver diseases questionnaire score. The model explains 63% of the variation in chronic liver diseases questionnaire score as the value of r-square indicates**.**

Discussion

The findings of the current study revealed that, more than half of the studied elderly patients had low health related quality of life before the educational program. The current study results could be

due to several explanations: **Firstly;** liver cirrhosis adversely affect the quality of life since patients frequently have asthenia, incapacitation, pain in various body parts, a sleeping disorder, lack of appetite, insomnia, and complications related to liver cirrhosis, such as, ascites, esophageal varices and hepatic encephalopathy.

Secondly; the total health related quality of life among studied elderly patients with liver cirrhosis decreases with increasing the duration of disease, as more than half of the studied elderly patients suffered from liver cirrhosis more than 3 years ago. This may be related to the longer period of liver cirrhosis is dependent on the presence or absence of decompensating events (ascites, encephalopathy, and variceal bleeding) ***Finally***, liver cirrhotic patients who were employed had better HRQoL; however, in this study only less than one tenth of the studied elderly patients were employed, so they had poor HRQoL.

The preceding results go in the same line with **Kok et al., (2020)** in Canada who reported that elderly patients with liver cirrhosis experience poor health related quality of life due to complications caused by liver cirrhosis, and had significant symptoms and emotional burdens, so that health related quality of life among them was poor. Additionally, study carried in Egypt by **Abdullah et al., (2021**) found that around half of the studied elderly patients had moderate impairment of HLQoL. Similarly, study carried by **Gu et al., (2023)**, in china who revealed that; there was poor HRQoL among persons with liver cirrhosis.

After implementation of the current study educational program, there was statistically significant improvement of the studied elderly patients health related quality of life related to CLDQ with total mean score 66.90±7.5 pre-program, then improved to be 144.5±18.4 post program. This might be attributed to the content of the educational program, which focused on improving self-management of liver cirrhosis patients includes focusing on personal needs regarding illness through gaining knowledge, skills to control symptoms, resources activation through recognizing and obtaining support and adaptation with the current conditions through identifying coping strategies with the situation and its effect on their lives and the emotional outcomes of the liver cirrhosis. All of these factors most probably played an important role in improving HRQoL in liver cirrhosis patients.

On the same line the previous findings go with **Alavinejad et al.,(2019)** who reported that health quality of life was increased significantly after educational program than before . Furthermore, previous finding agreed with Egyptian study carried out in Damanhour Governorate by **Hassan& Mohamed, (2018)** who revealed that, after the implementation of the health education program, the study group presented significant improvement in all items of disease-specific scale to measure HRQOL compared with the control group.

Additionally, the current study results go in the same stream with a study carried in Egypt by **Elshamy et al., (2019)**who concluded that more than two thirds of patients had "inadequate" health related quality of life score before implementing the self-care protocol, which improved to be "adequate" in three quarters of patients one month post implementing the self-care protocol and more than half of them two months following implementation of the self-care protocol. As well as, this results come in accordance with a study conducted by **Elsaadani et al. (2018)** in Egypt who reported that before receiving education, patients in the study group, scored low to moderate quality of life which improved after one month of receiving the educational program, while remains the same in the control group.

The current study results also reported that there were several factors influenced the total health related quality of life score of the studied elderly patients. These factors were chronic disease, duration of diseases, age and complications related to liver cirrhosis.

It is evident that the studied elderly patients' health related quality of life related to total score of chronic liver diseases questionnaire was lower among those had chronic disease, long duration of diseases, advanced age group and who had complications related to liver cirrhosis. These findings were further verified by multiple linear regression models in which above mentioned factors were statistically significant negative predictors of studied elderly patient's total health related quality of life related to CLDQ.

Concerning relation between demographic characteristics and elderly patient's health related quality of life. It was obvious that patients in age group from (70-80) years old obtained inadequate CLDQ score than in age group from (60- <70) years old. This agree with who said that Patients with age <55 years tended to have a higher CLDQ score as compared to those ≥55 years(**Elshamy et al.,2019)**.

As regards to chronic diseases associated with liver cirrhosis, the current study findings illustrated that there was a highly statistically significant relation between studied elderly patients s' health related quality of life and presence of chronic diseases associated with liver cirrhosis at $p<0.01$ as having chronic diseases impaired HLQoL score. The finding of this study is in accordance with **Kim et al.,(2018)** in Korea who reported that liver cirrhosis patients with chronic comorbidity showed low HRQoL.

As regards to duration of diseases among studied elderly patients with liver cirrhosis the current study findings reported that, there was a statistically significant relation with duration of disease / years and health related quality of life at $p<0.05$ as elderly patients with liver cirrhosis for more than three years had low health related quality of in compared those ones with duration from one to three years. Similar findings have been found by **Abdullah et**

al., (2021) in Egypt & **Rossi et al., (2017)**, in Brazil who reported that heath related quality of life in liver cirrhosis patients diminishes with increasing the duration of disease.

As regards to age of the studied elderly patients with liver cirrhosis the current study findings reported that there was a highly statistically significant relation between studied elderly patients health related quality of life and their age at p= 0.009 .This agree with **Sultan et al., (2022)** &**Janani et al., (2018)** in Egypt and India who revealed that health related quality of life scores decreased with advancing age.

As regards to complication of diseases among the studied elderly patients with liver cirrhosis the current study findings revealed that, there was a highly statistically significant relation between studied elderly patients health related quality of life and presence of complication related to liver cirrhosis at p<0.01 as presence of complications deteriorate their health related quality of life. On the same way, a study conducted in Korea, by **Lee & Chung (2021)** and **Rabiee et al.,(2021)** indicated that, presence of liver cirrhosis complications as ascites and hepatic encephalopathy negatively affected health related quality of life in liver cirrhotic patients.

Conclusion

The study findings was concluded that more than one half of the studied elderlypatients had low health related quality of life pre-program .The applied educational program was effective in improving studied elderly patients health related quality of life.There were several factors influence health related quality of life related to CLDQ total mean score as chronic disease, duration of diseases, age and complications related to liver cirrhosis. Regular examination and follow-up and having current occupation were statistically positive predictors of chronic liver diseases questionnaire score. While, having chronic diseases, long duration of liver cirrhosis, having complications related to liver cirrhosis and advanced age were statistically negative predictors of chronic liver diseases questionnaire score.

Acknowledgments

The Present study was derived from a thesis in Doctorate of Gerontological Nursing, Faculty of Nursing, Zagazig University. The elderly patients who actively participated in the study are acknowledged by the authors as well as the medical team in the liver diseases center in El-Ahrar Teaching Hospital at Zagazig City for facilitating the data collection process.

Declaration of Conflicting Interests

The Author(s) declare(s) that there is no conflict of interest.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Table (1): Demographic characteristics of the studied elderly Patients (n=80)

Items	(n=80)	
	Frequency	***Percent***
Age group: /year		
60- <70	64	80.0
70- 80	16	20.0
Mean ± SD (range)	**67.32 ± 3.5 (60 – 78)**	
Gender:		
Male	31	38.8
Female	49	61.2
Residence:		
Rural area	50	62.5
Urban	30	37.5
Marital status:		
Married	68	85.0
Divorced	4	5.0
Widow	8	10.0
Educational level:		
Illiterate	53	66.3
Read &write	10	12.5
Primary education	7	8.8
Secondary education	5	6.2
University education	5	6.2
Occupation before retirement:		
Work	37	46.3
Not work	43	53.7
Current occupation:		
Work	7	8.8
Not work	73	91.2
Living Condition: *		
Husband / Wife	64	80.0
Son /Daughter	16	20.0

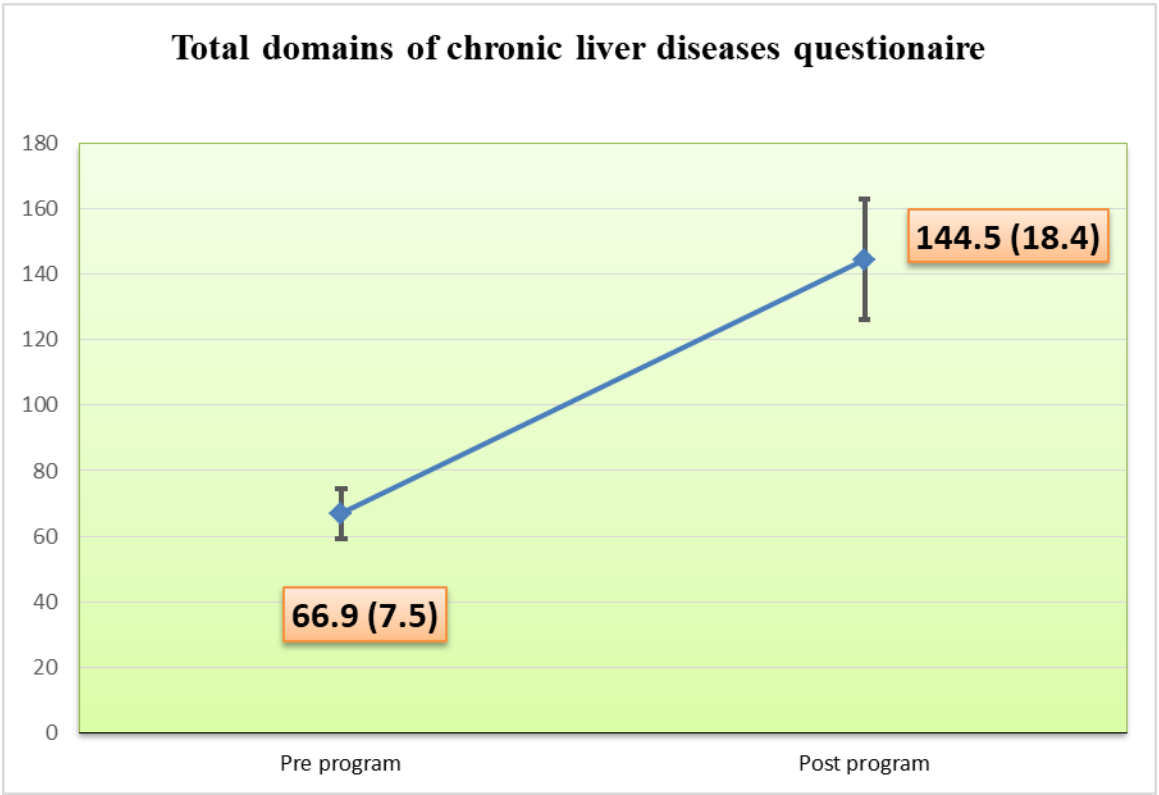
Table (2): Health profile of the studied elderly patients (n=80)

Items	(N=80)	
	Frequency	**Percent**
Causes of liver cirrhosis: *		
Hepatitis B	30	37.5
Hepatitis C	46	57.5
Nonalcoholic fatty liver diseases	12	15.0
Schistosomiasis	40	50.0
Duration of diseases/year:		
Less than 1 year	16	20
1-3	23	28.8
3years or more.	41	51.2
Having complications related liver cirrhosis:		
Yes	31	38.8
No	49	61.2
Examination and follow-up with the doctor regularly:		
Yes	42	52.5
No	38	47.5
Time of follow up (n=42)		
Two weeks	12	28.6
Month	15	35.7
Two to Six month	15	35.7
Reasons of un follow up (n=38)*:		
Only when I feel tired	20	52.6
Difficulty in transportation	6	15.8
Crowded clinics	3	7.9
Financial inability	9	23.7

Table(3): Total mean score of the studied elderly patients health related quality of life related domains of chronic liver diseases questionnaire pre and post program(n=80)

Items	Pre (n=80)	Post (n=80)	T-test	(p-value)
	Mean ± SD	Mean ± SD		
Abdominal symptoms	7.19±2.30	15.78 ± 4.7	18.09	**0.000****
Fatigue Symptoms	12.99±3.1	29.38±4.3	23.16	**0.000****
Systemic symptoms	11.62±2.87	24.12±5.9	20.14	**0.000****
Activity	7.51±2.01	14.98±4.3	19.33	**0.000****
Emotional Function	16.16±3.1	37.61±8.6	26.07	**0.000****
Worry	11.52±2.6	22.64±5.6	21.012	**0.000****

(**) Highly significant at p<0.01 (*) statistically significant at p≤0.05



Figure(1): Total mean score of the studied elderly patients health related quality of life related to total CLDQ pre and post program (n=80).

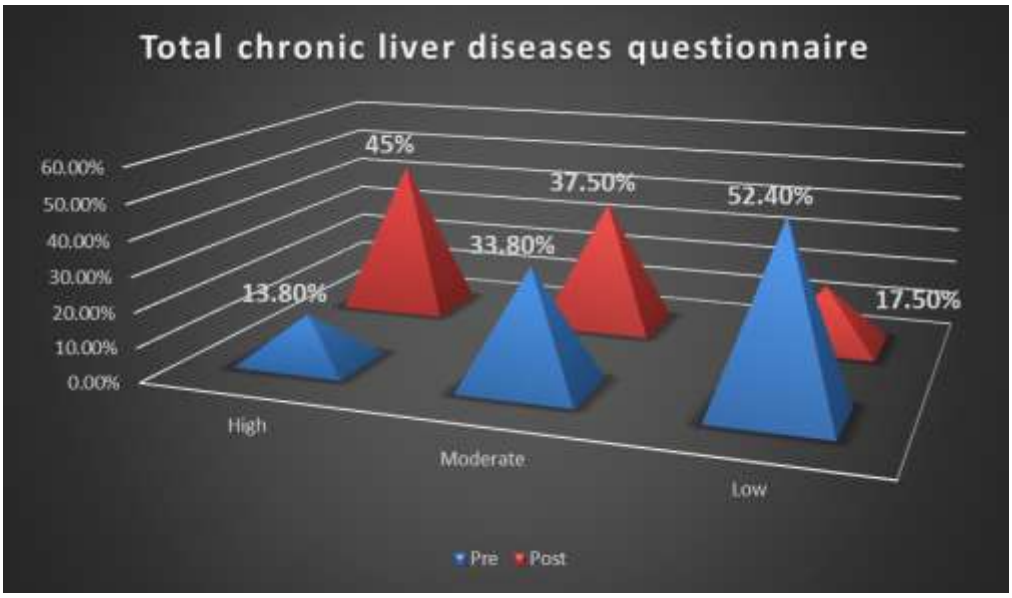


Figure (2): Distribution the studied elderly patients according to total chronic liver diseases questionnaire pre and post program (n=80).

Table (4): Best fitting multiple linear regression models for chronic liver diseases questionnaire score.

Items	Unstandardized Coefficients		Standardized Coefficients	T test	P. value
	B		B		
Have chronic diseases (yes)	-.499		.392	7.054	.000**
Duration of disease / years	-.199		.241	2.101	.037*
Complications related liver cirrhosis (yes)	-.372		.228	7.908	.001**
Examination and follow-up (yes)	.276		.190	2.664	.032*
Age(70-80) years	-.199		.146	3.107	.014*
Current occupation (work)	.201		.273	2.303	.030*

Model	R^2	Df.		F	P. value
Regression	**0.63**	5		13.908	.000**

a. Dependent Variable: Health related quality of life

b. Predictors: (constant): Have chronic diseases (yes), Duration of disease / years, Complications related cirrhosis of the liver (yes), Examination and follow-up (yes), Age, and Current occupation (work)

References

Abdullah, Z. S., El-aziz, A., Mahmoud, N., & Medhat, M. A. (2021). Quality of Life among Elderly Patients with Chronic Liver Diseases at Al-Rajhy Liver Hospital, Assiut University. Assiut Scientific Nursing Journal, 9(24.0); 1-7.

Alavinejad, P., Hajiani, E., Danyaee, B., & Morvaridi, M. (2019). The effect of nutritional education and continuous monitoring on clinical symptoms, knowledge, and quality of life in patients with cirrhosis. *Gastroenterology and hepatology from bed to bench*, *12*(1), 17-24.

Alfauomy, N. A., Elshazly, S. A. M., Moneam, A. E., & Abd El Galeel, A. (2020). Effect of Nursing Interventions on Self-management Behaviors of female Geriatric patients with Liver Cirrhosis. Alexandria Scientific Nursing Journal,22(2);1-18.

Central Agency for Public Mobilization (2022): Online article. Available at http://www.capmas.gov.eg/faq.aspx?index=0, Accessed on [4/6/2023].

Chiu, E., Marr, K., Taylor, L., Lam, L., Stapleton, M., Tandon, P., & Raman, M. (2020). Malnutrition impacts health- related quality of life in cirrhosis: a cross- sectional study. *Nutrition in Clinical Practice*, *35*(1); 119-125.

Elsaadani S., Shebl A., Abdelfatah F. & Salama H. (2018). Effect of Applied Educational Program on Quality of Life of Patient Undergoing Treatment With Pegylzted Interferon and Ribavirin, IOSR Journal of Nursing and Health Science,7(4); 27-33.

Elshamy,K.F., Mohammed,H.A.,& Mohammed,M.A.(2019). Impact of Implementing Self-care Protocol on Improving Quality of Life of Patients with Liver Cirrhosis. Nature and Science,17(8);1-11.

Ginès, P., Krag, A., Abraldes, J. G., Solà, E., Fabrellas, N., & Kamath, P. S. (2021). Liver cirrhosis. *The Lancet*, *398*(10308); 1359-1376.

Guo, L., Li, L., Lu, Y., Li, T., Chen, L., Jiang, L., ... & Yuan, M. (2023).

Effects of empowerment education on the self-management and self-efficacy of liver transplant patients: a randomized controlled trial. BMC nursing, 22(1); 146-157.

Hassan, E. M. I., & Mohamed, A. E. A. (2018). Effect of An Intervention Program On Health Related Quality Of Life (HRQOL) Among Hepatitis C Patients. *Journal of Nursing and Health Science.7(2);28-40.*

Hassan, E. M. I., & Mohamed, A. E. A. (2018). Effect of An Intervention Program On Health Related Quality Of Life (HRQOL) Among Hepatitis C Patients. *transplantation*, *2*, 3.

Janani, K., Jain, M., Vargese, J., Srinivasan, V., Harika, K., Michael, T., & Venkataraman, J. (2018). Health-related quality of life in liver cirrhosis patients using SF-36 and CLDQ questionnaires. *Clinical and experimental hepatology*, *4*(4); 232-239.

Karlsen, T. H., Sheron, N., Zelber-Sagi, S., Carrieri, P., Dusheiko, G., Bugianesi, E., ... & Manns, M. P. (2022). The EASL–Lancet Liver Commission: protecting the next generation of Europeans against liver disease complications and premature mortality. *The Lancet*, *399*(10319);61-116.

Kim, H. J., Chu, H., & Lee, S. (2018). Factors influencing on health-related quality of life in South Korean with chronic liver disease. *Health and quality of life outcomes*, *16*;1-8.

Kok, B., Whitlock, R., Ferguson, T., Bailey, R. J., Burak, K. W., Kowalczewski, J., ... & Tandon, P. (2020). Health-related quality of life: a rapid predictor of hospitalization in patients with cirrhosis. *Official journal of the American College of Gastroenterology| ACG*, *115*(4); 575-583.

Lee, M. K., & Chung, W. J. (2021). Relationship between symptoms and both stage of change in adopting a healthy life style and quality of life in patients with liver cirrhosis: a cross-sectional study. *Health and quality of life outcomes*, *19*(1);1-11.

Rabiee, A., Ximenes, R. O., Nikayin, S., Hickner, A., Juthani, P., Rosen, R. H., & Garcia- Tsao, G. (2021). Factors associated with health- related quality of life in patients with cirrhosis: a

systematic review. *Liver International*, *41*(1); 6-15.

Revicki, D. A., Kleinman, L., & Cella, D. (2022). A history of health-related quality of life outcomes in psychiatry. *Dialogues in clinical neuroscience*.127-135

Rossi, D., GALANT, L., & MARRONI, C. (2017). Psychometric property of fatigue severity scale and correlation with depression and Quality of life in cirrhotics. Arquivos de gastroenterologia, 54(4); 344-348.

Skladaný, Ľ., Líška, D., Liptáková, E., Tapajčiková, T., Vnenčaková, J., & Koller, T. (2023). Comparison of the quality of life of patients with liver cirrhosis before and during the COVID-19 lockdown in Slovakia. *Scientific Reports*, *13*(1); 2463-2471.

Soultan, A. A. A., Gab-Allha, H. A. M., and Mohamed, M. H. N. (2022). Effect of an Educational Program on the Quality of Life of Patients Undergoing Liver Transplantation. *Journal of Nursing and Health Science*, 8(6); 55-64.

Younossi ZM., Boparai N., Price LL., Kiwi ML., McCormick M. & Guyatt G. (1999). Health related Quality of life in chronic liver disease: the impact of type and severity of disease. Am J Gastroenterol; vol. 96(2);2199-2205.

Zandi, M., Adib-Hajbagheri, M., Memarian, R., Nejhad, A. K., & Alavian, S. M.(2005). Effects of a self-care program on quality of life of cirrhotic patients referring to Tehran Hepatitis Center. Health and quality of life outcomes. 3(1); 1-8.