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Effect of Health Literacy and Empowerment: it's Effect on Health Awareness among Patients with Ascites

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Abstract: Background: Ascites negatively affects patient's life that increase hospital admissions, chronic treatment costs and complications. The purpose of the present study is to evaluate the effect of health literacy and empowerment on health awareness among patients with ascites. **Design**: A quasi-experimental research design was utilized. **Setting:** The study was conducted at National Liver Institute, in Shebin El-Kom, Menoufia University. **Sample:** A convenient sample of 80 adult patients with ascites as a result of liver cirrhosis; 40 patients in study group and the other 40 in control group. **Three instruments** were used in data collection; 1) A Structured Interviewing Questionnaire, 2) The health awareness questionnaire for cirrhotic ascites, 3) The Health Promoting Lifestyle Profile II (HPLP II). **Results**: The result revealed increase level of awareness (P= < 0.000), and the mean for the total HPLP-II was 101.8±22.8 increased 47 points to 148.6±11.7 to 143.5±14.9 (P= < 0.001). **Conclusion**: the critical role of patient empowerment and health literacy in improving the awareness and knowledge. **Recommendation**: Focus on patient-centered care that empowers patients to actively participate in their treatment and decision-making processes, helping them to be aware about disease process of ascites and an improved quality of life.

Key words*: ascites, Health awareness, Health literacy, Empowerment.*

Introduction

Liver cirrhosis is the severe scarring of the liver seen at the terminal stages of chronic liver disease. When liver is damaged, scar tissue is formed as it tries to repair itself. Cirrhosis is divided into two categories: Compensated when patients do not have any symptoms of the disease. Decompensated when cirrhosis has progressed to the point that the liver is having trouble functioning and start having symptoms of the disease (Kim et al., 2018).

Hepatic decompensation is defined as ascites, hepatic encephalopathy, and portal hypertensive gastrointestinal bleeding. These are important landmarks in the natural history of cirrhosis. Ascites is the accumulation of free fluid in the abdomen (peritoneal cavity) and is a feature of liver decompensation. Approximately 20% of people with cirrhosis have ascites, and 1% to 4% of people with cirrhosis develop ascites each year. Ascites is the first sign of liver decompensation in

about a third of people with compensated liver cirrhosis (Tsochatzis & Gerbes, 2017).

Newly ascites development negatively affects the working and social life of the patient; rise hospital admissions and chronic treatment costs; and causes problems such as spontaneous bacterial peritonitis, respiratory dysfunction, and umbilical hernia (European Association for the Study of the Liver, 2018).

In the absence of proper treatment, large ascites may lead to dyspnea, umbilical hernia, acid–base disturbances, hepatic encephalopathy, hepatorenal syndrome, and even death (Yang et al., 2019). The morbidity and health care costs associated with cirrhotic ascites are substantial because patients require complex medical care to manage debilitating complications of their disease. People with decompensated cirrhosis are often prescribed multiple medications for therapeutic or prophylactic use to reduce the negative health effects of cirrhosis. However, many patients required the knowledge and skills to contribute effectively to disease management (Hayward et al., 2017).

However, formation of ascites in the abdomen can lead to secondary symptoms, such as excess fluid volume, fluid-electrolyte imbalance, activity intolerance, anorexia, inadequate nutrition, dyspnea, the deterioration of skin integrity, risk of injury, chronic pain, or infection. Therefore, preventive and therapeutic approaches to the development of ascites gain importance. Comprehensive treatment is very important to minimize the progression of the disease and prevent complications. In this context, nurses play a crucial role as they provide comprehensive and continuous patient's care as a member of the multidisciplinary team (Celik & Bektas, 2021).

In fact, recent studies about patient awareness have been recognized as a key factor in supportive care of patients with cirrhotic ascites. However, there is little information about the patient's knowledge about cirrhotic ascites or the effectiveness of a routine educational intervention. Nurses should consider the importance of nutritional counseling, informing patients about their disease, improving quality of life, and reducing complications of cirrhotic ascites patients (Alavinejad et al.,2019).

In the recent health field, health empowerment strategy is be used to increase the health awareness of the patients with ascites. Empowerment as an activating force that motivates some patients to take their health behavior and management of illnesses into their own hands. It is also one of the patient-related factors. Empowerment can be conceived as a personal disposition, referring to the patient's control and power in the medical context or as a relational concept, emphasizing the existing equity in the physician-patient relationship. A collaborative nurse-patient relationship can improve patient empowerment, i.e., the lack of concordance between health care providers and patients can lead to paternalism, and negotiated care can bring power balance into the medical relationship. In fact, the health care providers by facilitating patient

engagement in the communication process can foster patient empowerment and better patient outcomes (Li & Chen, 2020).

By empowering patients to focus on self-care, health care providers, especially nurses have the power to teach patients in a way that helps relieve problems, builds confidence and allows them to care for themselves (Debussche et al., 2018). Therefore, it is necessary to consider comprehension of health information ability and health empowerment as a management strategy for chronic diseases such as cirrhotic ascites (Náfrádi et al., 2018).

Hence, the current study's purpose is to evaluate health literacy and empowerment: it's effect on health awareness among patients with ascites.

Significance of the Study

The incidence of ascites is approximately 60,000 per 100,000 individuals with cirrhosis worldwide. Approximately 1% to 4% of people with cirrhosis develop ascites each year. Ascites is the first sign of liver decompensation in about a third of people with compensated liver cirrhosis. The one-year mortality in people with liver cirrhosis and ascites is 20%, which increases to 57% in those with ascites and variceal bleeding (Benmassaoud et al., 2020). The incidence of ascites is approximately 75,000 per 100,000 cirrhotic individuals with a mortality rate of 50%, within 3 years. Patients of all age groups may develop ascites (Gallo et al., 2020).

Purpose of the Study

The purpose of this study is to evaluate the effect of health literacy and empowerment on health awareness among patients with ascites.

Research Hypothesis:

- Patients who receive educational program about health literacy and empowerment (study group) are expected to have higher level of awareness than patients who don't (control group).
- Patients who receive educational program about health literacy and empowerment (study group) are expected to have higher level of knowledge than patients who don't (control group).
- Educational program about health literacy and empowerment are expected to have higher quality of life than patients who do not.

Operational definition:

- Health literacy is defined as the ability of an individual to obtain and translate knowledge and information in order to maintain and improve health in a way that is appropriate to the individual and system contexts, that includes detailed and specific information about etiology, prevalence, risk factors, prevention, transmission, symptomatology and disease treatment, as well as on health services and patient rights. It will be assessed using Instrument II The health awareness questionnaire for cirrhotic ascites.
- Empowerment is defined as helping people to discover and use their own innate ability to gain mastery over their disease, these include providing education for informed

decision-making, assisting patients to weigh costs and benefits of various treatment options, setting self-selected behavioral goals, and providing information about the importance of their role in self-management. It will be assessed using Instrument III the Health Promoting Lifestyle Profile II (HPLP II).

Methods

Research design:

A quasi-experimental research design (study and control) was utilized for this study.

Research Setting:

The current study was conducted at National Liver Institute, in Shebin El-Kom, Menoufia University at Menoufia governorate, Egypt.

Sampling:

A convenient sample of 80patients with ascites was selected for this study. Based on previous research (Zhang et al., 2019), it was estimated that the overall effect size between the two groups at two-month follow-up to be 0.77, sample size had been calculated at 95% CI and power 90% that it was estimated to be 35 participants per group. Accounting for a dropout of 10%, sample size had been increased to 40 participants per group.

Inclusion criteria:

- Adult patients complaining of ascites due to liver cirrhosis and are able to communicate.

Exclusion criteria:

- Free from history of psychiatric disease or cognitive impairment, hepatic encephalopathy, a diagnosis of hepatic malignancy, severe heart, lung, or brain disease because each of these conditions have special health awareness that may differ from others.

Instruments:

To collect the necessary information and achieve the aim of the study, three tools were used:

Instrument one: Structured Interview Questionnaire:

It was developed by the researcher to assess baseline sociodemographic and medical data. It included two parts:

- Part 1: Social characteristics. It included information about patient's age, sex, marital status, education level, occupation, residence, nature of work after the disease.
- Part 2: Medical characteristics. It included information about:
- Past medical history such as, previous hospitalization, previous blood transfusion, after disease and family history of liver cirrhosis.
- Present medical history such as patient usual weight, increasing weight after ascites, duration of liver cirrhosis, used medications for ascites, medication's compliance, complications of disease, history of paracentesis and following therapeutic diet …. etc.

Instrument Two: The health awareness questionnaire for cirrhotic ascites:

It was constructed by the researcher based on recent literature (Abdel Rehaim & Mohamed, 2017 and Li & Chen, 2020) to assess patient's health awareness regarding the following:

- Disease process (definition, etiology, clinical symptoms, complications and guidelines for managing liver cirrhosis)
- Questions about ascites (definition, causes, manifestations, investigations, medical management and complications).
- Questions about fluid and dietary management, such as allowed and prohibited foods and fluids, salts substitutes …. etc.

Scoring system: -

Each answer had a score ranging from 0-2, in which 0 denote incorrect answer or don't know, 1 indicate incomplete correct answer and 2 for complete correct answer, then all scores were summed up and converted into percent score. Those who obtained less than 60% were considered as having an unsatisfactory awareness level, while patients who obtained equal to or more than 60% had satisfactory level of awareness (Abdel Rehaim & Mohamed, 2017).

<u>Instrument Three</u>: The Health Promoting Lifestyle Profile II (HPLP II):

It was developed by Walker et al., (1987) to assess health behavioral level of patients. It consists of 52 health-promoting behavior items that were categorized into six subscales: health responsibility (nine items), spiritual growth (nine items), physical activity (eight items), interpersonal relationships (nine items), nutrition (nine items), and stress management (eight items). A Likert 4-grade rating scale was used to measure each behavior, which range from never (1), sometimes (2), frequently (3), and routinely (4). The researcher translated the Health Promoting Lifestyle Profile II version into Arabic language then back translated into English to be sure of correct translation.

Scoring system:

The total score of the HPLP II ranges from 52 to 208 and was measured by the mean score of the responses to all 52 HPLP items. It was classified into four levels:

- Poor range between 52 - 90
- Moderate range of 91 -129
- Good ranges from 130 -168
- Excellent for the range of 169 -208

Validity:

Seven specialists in the fields of medical surgery nursing and neurology served as a jury to assess the study instruments' validity by looking at their clarity, relevance, understanding, and suitability for use. The necessary adjustments were made in accordance with their suggestions.

Reliability:

The reliability was assessed to determine whether all study instruments measure the same variable and how conceptually well the items used fit together. By using the Cronbach's alpha test to gauge the tools'

level of internal consistency, the reliability of the produced tool was estimated to be equal, for Knowledge (0.914), and 0.86 for HPLP II.

Pilot study:

Prior to actual study, a pilot study on 10% of the study sample (four participants) was conducted to assess the constructed instruments for feasibility and applicability. Then the necessary modifications were carried out, so the pilot study participants were excluded from the actual study.

Ethical Consideration:

- A written approval was obtained from ethical and research committee of the Faculty of Nursing, Menoufia University.
- A written consent to participate in this study was obtained from all participates who met the inclusion criteria after explaining the purpose, procedure, and benefits of the study.
- Participates were informed that participation in the study was voluntary and they can withdraw from the study at any time without penalty.
- Confidentiality and anonymity of patients were assured through coding all data and put all papers in a closed cabinet. Moreover, they were assured that the nature of questionnaire did not cause any physical or emotional harm to them.

Procedure: -

An official letter was sent from the dean of the Faculty of Nursing, Menoufia university explaining the purpose of the study and methods of data collection. The actual fieldwork started in March 2023 and continued through August 2023.

Preparatory Phase:

- The researcher divided the study group into four subgroups. Each subgroup contained 10 participants who were exposed to health literacy and empowerment. The researcher met them in the morning and afternoon shift. 2 days per week (Sunday and one floor in observation room.
- Each participant of the study group took a copy of the designed booklet in clear Arabic Language at the beginning of the first session.

Implementation Phase:

Three theoretical and one practical were provided:

- **First session** (Establishing Care): the researcher gave information about anatomy and functions of liver, liver cirrhosis, ascites (definition, causes, signs & symptoms, diagnostic studies, possible complications and medical management). the patients were encouraged to talk about their understanding of their disease during hospitalization and the problems they should pay attention to after hospital discharge. At the end of this session, the researcher allowed all participants to ask questions and provided them with question's answers. This session took about 40 minutes.
- **Second session**: the researcher allowed all participants to ask questions in case of misunderstanding while listening and expressing interest. Then the

researcher reinforced the received information after that participants were given information about therapeutic diet for patients with ascites included teaching them importance of healthy diet. The researcher instructed all participants about a low salt diet, high protein diet, low fat diet, fluid intake and gave examples of healthy diet according to the patient's condition and economic status (allowed and prohibited foods).

- At the end of this session, the researcher summarized the information received, and reinforcement was performed according to participant's, each participant was allowed to ask questions. Then, a questionnaire was provided for them. This session took about 30 minutes.
- **Third session**: During the third session, the researcher discussed paracentesis to participants (preparation before procedure, what to will be done during paracentesis. Also, the researcher advised the participants about instructions that should be follow after procedure. Moreover, the researcher instructed all participants about side effects of paracentesis and when to call physician.
- At the end of the session, the researcher allowed each participant to ask questions and provided them with answers to questions. This session took about 40 minutes.
- Each session began with a recap of the information presented in the previous session, followed by the goals of the new topics, taking into account the use of straightforward language to meet the level of the patients. The duration of each session varied depending on its content and the patient's reaction, and the patients were present throughout the intervention sessions. During sessions, learning was improved through discussion, inspiration, and reinforcement. Each client received direct reinforcement in the form of a copy of the content to have on hand for future reference.
- **During the fourth session**, the researcher discussed empowerment of positive attitude, self-management skills with the participants, and told them that they should be more competent in dealing with self and others, dealing with one's disease, life and environment by discussing with them about a positive mental status, such as relaxation technique and breathing exercise, learn how to be creative. Connect with others and communicate with them to face psychological problems.
- **During follow up period**, the researcher reinforced the participants of the study group (I) by phone for reinforcement of the received information.
- Two months post last session; all participants of both groups were assessed again by using second, third instruments.

Statistical analysis:

Data was fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp) (Qualitative data were

described using number and percent. The Kolmogorov-Smirnov test was used to verify the normality of distribution. Quantitative data were described using range (minimum and maximum), mean, standard deviation, median. The significance of the results obtained was judged at the 5% level. The tests used were ANOVA with repeated measures, Friedman test, Cronbach's Alpha, Student t-test, F-test (ANOVA), and Mann Whitney test, Kruskal Wallis test.

Results

Table 1 reveals that the mean age for study group was 50.40±6.68, and 31.43 ± 8.651.22±5.81 for control group. About two thirds of both study and control groups (70.0%, 60.0% respectively) were males. 77,5%, 85.0% respectively of the students were married. As regards the level of education, 35.0%, 32.5% respectively had secondary education. 40.0% had manual work and 30.0% of the control group had either manual work or were housewives / don't work. The work of more than one third of the study group requires muscular effort, while about one third of control group requires mental and muscular effort. The majority of the study and control group (87.5%, 82.5% respectively) lived in rural areas. And 37.5%, 32.5% respectively worked partial time after illness.

Table 2 reveals that the usual weight of about two thirds of study and control groups (72.5%, 60.0% respectively) was approximately from 76 to less than 100 kg. All of both studied groups gained weight after ascites, 62.5% and 57.5% respectively of them gained 5 to less than 10 kg. 77.5% &77.5% respectively were previously hospitalized and 54.8%, 64.5% respectively were hospitalized for paracentesis. 57.5% of study group, while 75.0% of control group had history of blood transfusion. Regarding medications, 67.5% of the study group and all of control group (100.0%) were receiving diuretics. 40.0% and 37.5% respectively had cardiovascular diseases. More than one third of both groups (67.5% &52.5% respectively) didn't have family history of liver cirrhosis.

Table 3 presented that the majority of both study and control groups were diagnosed with ascites symptomatically. Distention and loss of appetite were present in about less than the quarter of the study group. And 47.5% & 45.0% of the study and control groups were suffering from ascites from 1≤ 4 years. The majority of them, 92.5%, 85.0% of patients in both groups were taking diuretics, but 57.5% & 52.5% respectively didn't be committed to prescribed medications. The most common reason for non-compliance was medications side effects among 78.3%, 71.4% of study and control groups. Stomach disorder was the most common side effect of medications among more than three quarters of study and control groups. 40.0% of the study group and 52.5% of the control group. About 57.5% & 52.5% of both groups have history of paracentesis. More than half of both groups (60.0% & 55.0% respectively) followed therapeutic diet, low salt diet

was the most diet regimen of both groups.

Table 4 reveals that minority of study and control groups (20% and 12.5% respectively) had satisfaction health awareness scores pre health literacy and empowerment that was highly statistically significant improved to 90.0% and 80.0% post health literacy and empowerment and during follow up versus 20.0% and 15.5% respectively.

Figure 1 shows mean score for health literacy and empowerment in the study group and control group pre-program were 14.52 & 14 .72 respectively. Regards immediately post program the mean score for study group was 24.2 where in control group was 15.8 but after two months there is slight decline in mean score for study and control group with mean 22.9 & 15.2 respectively.

Table 5 clarifies that before the health literacy and empowerment, only 5.0% of both groups have good score of total health behavioral level, and increase to 87.5% & 82.5% post health literacy and empowerment and follow up of study group versus 7.5% and 5.0% respectively.

Figure 2 shows that the mean for the total HPLP-II of the study group was (101.8±22.8), which increased 47 points after the health literacy and empowerment to (148.6±11.7), while on follow up was (143.5±14.9). Meanwhile, in the control group before the health literacy and empowerment, the mean for the total HPLP-II was (102.2±14.4), which increased 3 points after the health literacy and empowerment to (105.7±14.6), while on follow up was (103.7±13.4). The difference was statistically significant ($t = –4.858$, $P < 0.00$).

Table 6: reports that pre health literacy and empowerment and during follow-up there were significant relation between increasing age (45- 54 years) and statistically level of awareness. Also, there were Highly significant positive relation between increasing educational level (secondary school education). And satisfactory level of awareness during pre-health literacy and empowerment and follow up.

Table 7: reveals shows that pre health literacy and empowerment there were significant relation between satisfactory awareness score with previous hospital admission, family history of cirrhosis, increasing years of disease duration, committed to of prescribed treatment and history of paracentesis, also at follow up there were significant relation except of disease duration no significant.

Table 8: shows that there highly statistically positive correlation between total patients' health awareness score and total health behavioural level at post health literacy and empowerment and during follow up among study group.

Table 9: shows that there was highly statistically positive correlation between total patients' health awareness score and total health behavioral level at post health literacy and empowerment and during follow up among control group.

Table (1): Distribution of the studied samples according to their socio demographic data. (n =80)

Socio demographic data	Study group (n=40)		Control group (n=40)		Test of significance	
	No.	%	No.	%	X2	P-Value
Age						
18 - >	1	2.5	0	0.0	1.971	0.617
31 - >	2	5.0	4	10.0		
45 - >	27	67.5	25	62.5		
55 - 60 years	10	25.0	11	27.5		
Mean ± S.D	50.40±6.68		51.22±5.81		T= 0.589	0.558
Gender						
Male	28	70.0	24	60.0	0.879	0.348
Female	12	30.0	16	40.0		
Marital status						
Single	0	0.0	1	2.5	2.738	0.434
Married	31	77.5	34	85.0		
Widowed	7	17.5	3	7.5		
Divorced	2	5.0	2	5.0		
Education level						
Illiterate	8	20.0	10	25.0	1.850	0.763
Read and write	10	25.0	6	15.0		
Basic education	5	12.5	6	15.0		
Secondary education	14	35.0	13	32.5		
University education or post graduate studies	3	7.5	5	12.5		
Occupation						
Manual work	16	40.0	12	30.0	4.190	0.242
Administrative work	11	27.5	10	25.0		
Housewife / don't work	12	30.0	12	30.0		

Socio demographic data	Study group (n=40)		Control group (n=40)		Test of significance	
	No.	%	No.	%	X2	P-Value
Others	1	2.5	6	15.0		
Work nature						
Requires mental effort	8	20.0	6	15.0	3.952	0.267
Requires muscular effort	14	35.0	9	22.5		
Requires mental and muscle effort	6	15.0	13	32.5		
Housewife / don't work	12	30.0	12	30.0		
Residence						
Urban	5	12.5	7	17.5	**0.755**	**0.378**
Rural	35	87.5	33	82.5		
Work condition after illness						
Fulltime work	5	12.5	5	12.5	**0.365**	**0.947**
Partial time work	15	37.5	13	32.5		
Dismissed	8	20.0	10	25.0		
New work	0	0.0	0	0.0		
Housewife / don't work	12	30.0	12	30.0		

Note: χ^2: Chi-square test t: Student t-test FET: Fisher Exact Test. ns= not significant ($p>0.05$)

Table (2): Distribution of the studied samples according to their past medical history (n =80)

Past medical history	Study group (n=40)		Control group (n=40)		Test of significance	
	No.	%	No.	%	X2	P-Value
Approximately usual weight						
50-75 kg	7	17.5	5	12.5	5.138	0.162
76-100 kg	29	72.5	24	60.0		
101-125 kg	4	10.0	8	20.0		
≥ 126 kg	0	0.0	3	7.5		
Gain weight after ascites						
Yes	40	100.0	40	100.0	0.000	1.000
No	0	0.0	0	0.0		
If yes, how many kilograms increased	(n=40)		(n=40)			
< 5 kg	8	20.0	12	30.0	2.702	0.440
5-<10 kg	25	62.5	23	57.5		
10-<15 kg	7	17.5	4	10.0		
≥ 15 kg	0	0.0	1	2.5		
Previous hospital admission						
Yes	31	77.5	31	77.5	0.000	1.000
No	9	22.5	9	22.5		
***If yes, what is the reason?**	(n=31)		(n=31)			
Bleeding	5	16.1	3	9.7	4.606	0.121
Paracentesis	17	54.8	20	64.5		
Esophageal varices	2	6.5	4	12.9		
Anemia	5	16.1	8	25.8		
Ascites	8	25.8	1	3.2		
Blood transfusion or any of its derivatives						
Yes	23	57.5	30	75.0	2.739	0.098
No	17	42.5	10	25.0		

Past medical history	Study group (n=40)		Control group (n=40)		Test of significance	
	No.	%	No.	%	X2	P-Value
If yes, what is it?	**(n=23)**		**(n=30)**			
Plasma	**12**	**52.2**	**15**	**50.0**	**2.088**	**0.161**
Whole blood	**6**	**26.1**	**8**	**26.7**		
Platelets	**5**	**21.7**	**7**	**23.3**		
***If yes, what is the reason?**	**(n=23)**		**(n=30)**			
Bleeding	**5**	**21.7**	**3**	**10.0**	**4.289**	**0.368**
Esophageal varices	**2**	**8.7**	**4**	**13.3**		
Anemia	**5**	**21.7**	**8**	**26.7**		
Paracentesis	**17**	**73.9**	**20**	**66.7**		
***What medications have you taken before?**					**2.000**	**0.368**
Albumin	**18**	**45.0**	**10**	**25.0**		
Diuretics	**27**	**67.5**	**40**	**100.0**		
Antivirals for the liver	**9**	**22.5**	**12**	**30.0**		
Drugs for liver cirrhosis	**6**	**15.0**	**13**	**32.5**		
No medications were taken	**0**	**0.0**	**0**	**0.0**		
Suffer from other chronic diseases					**1.841**	**0.175**
Yes	**26**	**65.0**	**21**	**52.5**		
No	**14**	**35.0**	**19**	**47.5**		
If yes, what is it?	**(n=26)**		**(n=21)**			
Heart & circulatory system diseases	**16**	**61.5**	**14**	**66.6**	**5.192**	**0.268**
Glandular system diseases	**6**	**23.1**	**6**	**28.6**		
Urinary system diseases	**2**	**7.7**	**0**	**0.0**		
Digestive system diseases	**2**	**7.7**	**1**	**4.8**		
Family history from ascitic cirrhosis					**1.875**	**0.171**
Yes	**13**	**32.5**	**19**	**47.5**		
No	**27**	**67.5**	**21**	**52.5**		
If yes, what is the relationship?	**(n=13)**		**(n=19)**			
First-degree relationship	**9**	**56.2**	**9**	**47.4**	**6.597**	**0.159**
Secondary relationship	**2**	**15.4**	**8**	**42.1**		
Third degree relationship	**1**	**7.7**	**2**	**10.5**		

Past medical history	Study group (n=40)		Control group (n=40)		Test of significance	
	No.	%	No.	%	X2	P-Value
Fourth degree relationship	**1**	**7.7**	**0**	**0.0**		
Diagnosis						
Upon periodic examination	4	10.0	4	10.0		
By chance	3	7.5	6	15.0	1.143	0.565
Symptomatic	33	82.5	30	75.0		
If symptomatic, what are symptoms?	**(n=33)**		**(n=30)**			
Distention/fullness	8	24.2	3	10.0		
Loss of appetite	8	24.2	4	13.3		
Fatigue / tiredness	5	15.2	5	16.7		
Dyspnea	1	3.0	1	3.3		
Abnormal urine and stool color	0	0.0	2	6.7		
Abdominal pain	0	0.0	0	0.0		
Jaundice	1	3.0	3	10.0	6.363	0.100
Itching	0	0.0	0	0.0		
Weight gain or loss	1	3.0	0	0.0		
Muscle /joint pain	0	0.0	5	16.7		
All of the above	9	27.3	7	23.3		
Duration of disease						
< 1 year	12	30.0	10	25.0		
1-<4 years	19	47.5	14	35.0		
4-<5 years	9	22.5	13	32.5	5.394	0.145
≥ 5 years	0	0.0	3	7.5		
***What medications do you take for hepatic ascites?**						
Diuretic medications	37	92.5	34	85.0		
Albumin	20	50.0	10	25.0		
Antibiotics	8	20.0	3	7.5	1.920	0.166
Nutritional supplement	22	55.0	28	70.0		

Past medical history	Study group (n=40)		Control group (n=40)		Test of significance	
	No.	%	No.	%	X2	P-Value
Committed to the treatment prescribed by the doctor						
Yes	17	42.5	19	47.5	0.202	0.653
No	23	57.5	21	52.5		
If no, what is the reason?	**(n=23)**		**(n=21)**			
Sides effects	18	78.3	15	71.4	0.475	0.789
Cost	5	21.7	6	28.6		
***What are side effects of medications?**	**(n=18)**		**(n=15)**			
Dry throat	12	66.7	8	53.3		
Stomach disorders	14	77.8	12	80.0		
Anemia	2	11.1	0	0.0		
Filtration and swelling	0	0.0	0	0.0		
Dizziness	1	5.6	1	6.7	7.364	0.118
Skin rash	0	0.0	0	0.0		
Blood pressure disturbance	1	5.6	4	26.7		
Rapid heartbeat	0	0.0	0	0.0		
Shortness of breath	0	0.0	0	0.0		
Muscle cramps	1	5.6	0	0.0		

Table (3): Distribution of the studied samples according to their present medical history. (n =80)

Present medical history	Study group (n=40)		Control group (n=40)		Test of significance	
	No.	%	No.	%	X2	P-Value
What complications are you complaining about?						
Bleeding	8	20.0	3	7.5	**5.282**	**0.099**
Esophageal varices	7	17.5	14	35.0		
Jaundice	6	15.0	2	5.0		
Abdominal pain	16	40.0	21	52.5		
Lack of concentration from time to time	3	7.5	0	0.0		
History from paracenteses					0.453	0.501
Yes	17	42.5	19	47.5		
No	23	57.5	21	52.5		
If yes, how many times?	**(n=17)**		**(n=19)**		4.749	0.314
<3 times	3	17.6	3	15.8		
3-5 times	5	29.4	5	26.3		
6-9 times	7	41.2	8	42.1		
>9 times	2	11.8	3	15.8		
Time of paracenteses	**(n=17)**		**(n=20)**		3.531	0.319
< 1 year	8	47.1	4	20.0		
1-<3 years	6	35.3	11	55.0		
≥ 3 years	3	17.6	5	25.0		
Follow a specific diet according to the doctor's instructions					1.805	0.179
Yes	24	60.0	22	55.0		
No	16	40.0	18	45.0		
If yes, what is it?	(n=24)		(n=22)		5.978	0.201
Low-salt food	**17**	**70.8**	**16**	**72.7**		
Diabetic food	**1**	**4.2**	**2**	**9.1**		
Low-protein food	**4**	**16.7**	**2**	**9.1**		

Table (4): Distribution of study and control groups according to their total health awareness throughout study periods (n=80).

Total health awareness score	Low-fat food				2				8.3				2		
	Study group n=40		Control group n=40		Study group n=40		Control group n=40		Study group n=40		Control group n=40		(p1)	(p2)	(p3)
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Satisfactory awareness	8	20.0	5	12.5	36	90.0	8	20.0	32	80.0	6	15.0	X2=0.546 p=0.273	X2=39.59 p=0.000**	X2=33.88 p=0.000**

Figure (1): Distribution of study and control groups according to their total health awareness throughout study periods (n =80)

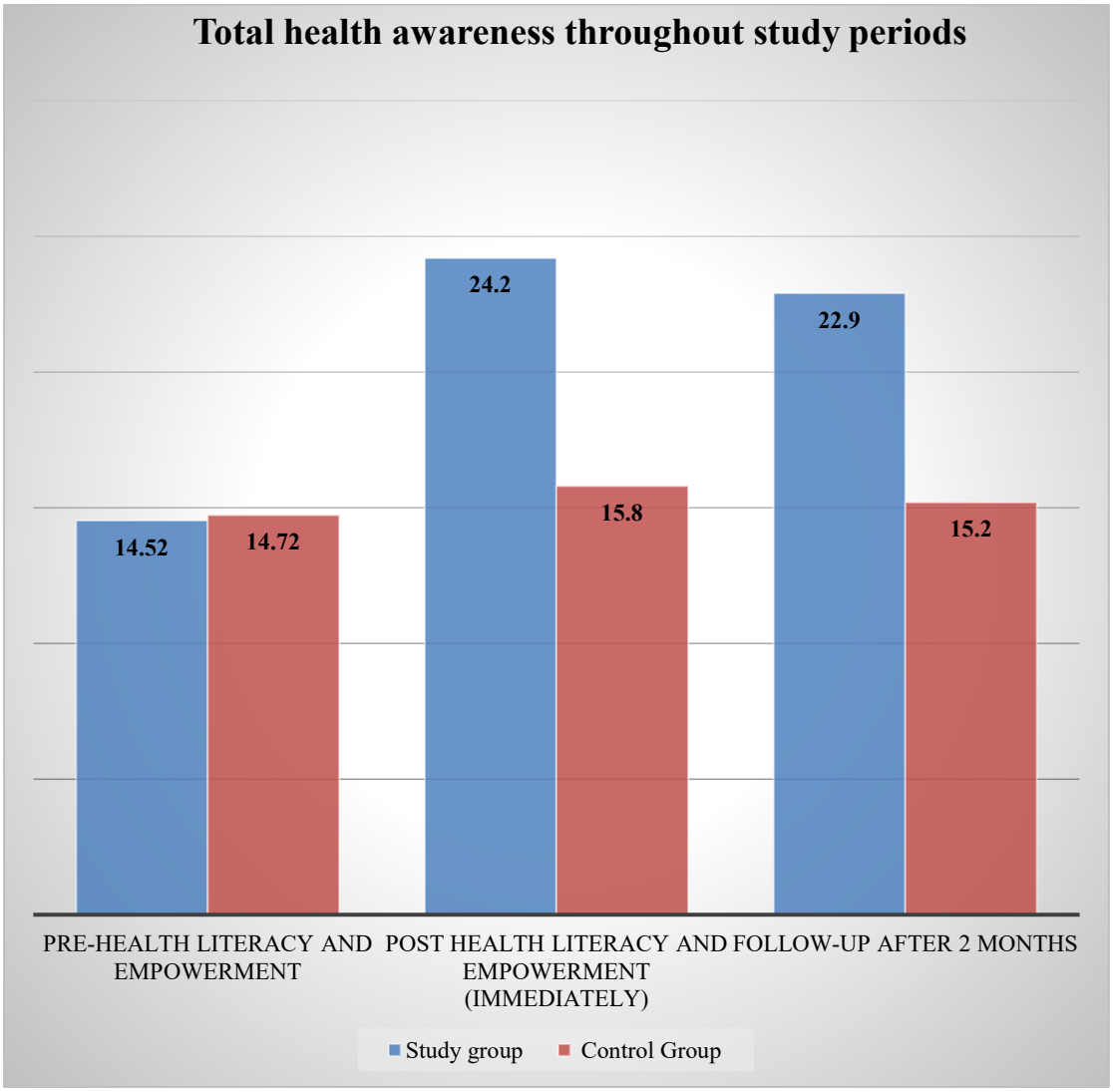

Table (5): Distribution of the study and control groups according to their total health behavioral level throughout study periods (n=80).

Levels of total health behavioral level	Pre-health literacy and empowerment				Post health literacy and empowerment (Immediately)				Follow-up (2 months)				Test of significant		
	Study group n=40		Control group n=40		Study group n=40		Control group n=40		Study group n=40		Control group n=40		(p1)	(p2)	(p3)
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Excellent	0	0.0	0	0.0	3	7.5	0	0.0	3	7.5	0	0.0	X2=3.439 p=0.179	X2=61.41 p=0.000**	X2=58.18 p=0.000**
Good	2	5.0	2	5.0	35	87.5	3	7.5	33	82.5	2	5.0			
Moderate	25	62.5	32	80.0	2	5.0	32	80.0	4	10.0	33	82.5			
Poor	13	32.5	6	15.0	0	0.0	5	12.5	0	0.0	5	12.5			

Figure (2): Distribution of study and control groups according to their total health awareness throughout study periods (n =80)

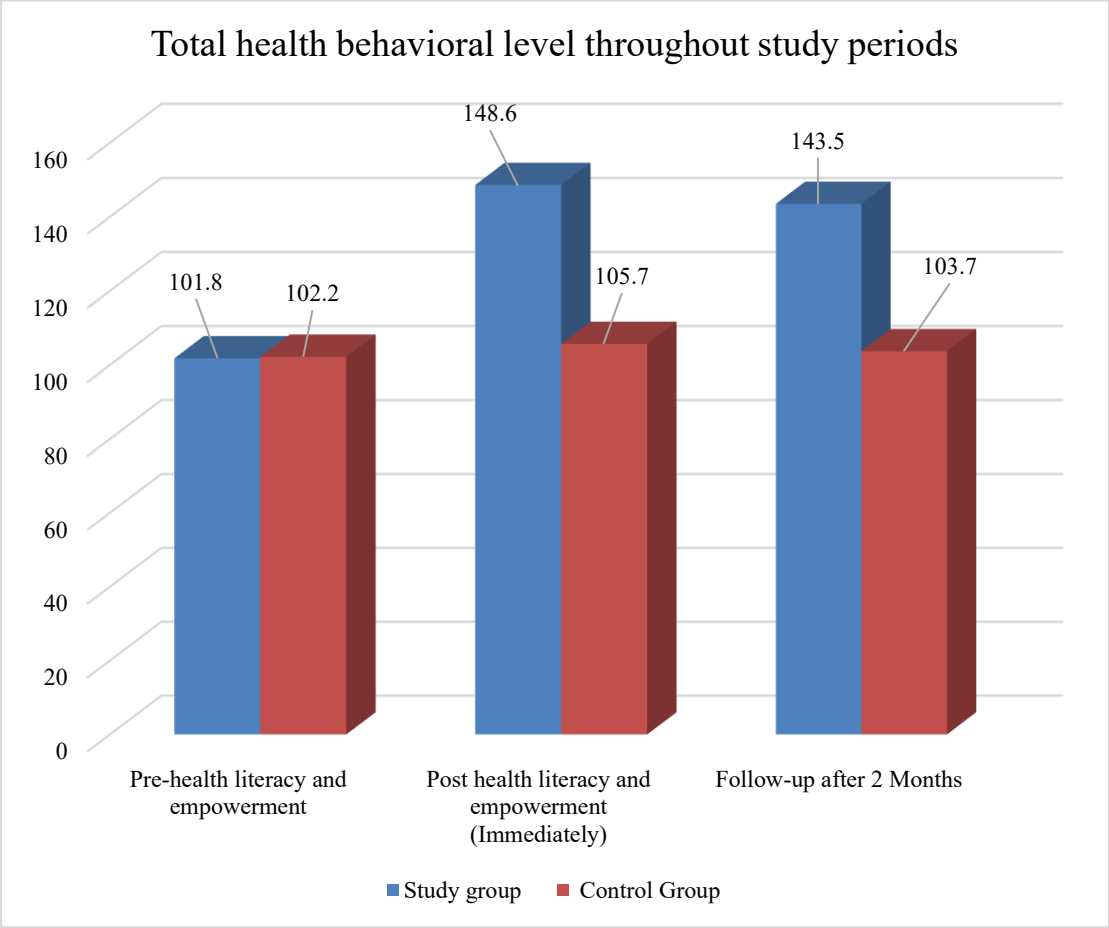

Table (6): Relation between selected social characteristics of study group and their total health awareness throughout study periods (n=40).

social characteristics	Total health awareness pre -health literacy and empowerment					X2	P-Value	Total health awareness post health literacy and empowerment				X2	P-Value	Total health awareness in follow-up phase				X2	P-Value
	Satisfactory awareness (n=8)			Unsatisfactory awareness (n=32)				Satisfactory awareness (n=36)		Unsatisfactory awareness (n=4)				Satisfactory awareness (n=32)		Unsatisfactory awareness (n=8)			
	No.		%	No.	%			No.	%	No.	%			No.	%	No.	%		
Age (years)	18 – 30	1	12.5	0	0.0	12.04	0.022*	1	2.8	0	0.0	8.571	0.052	1	3.1	0	0.0	**15.36**	**0.004****
	31 – 44	2	25.0	0	0.0			2	5.5	0	0.0			2	6.3	0	0.0		
	45 – 54	5	62.5	22	68.7			27	75.0	0	0.0			25	78.1	2	25.0		
	55 – 60	0	0.0	10	31.3			6	16.7	4	100.0			4	12.5	6	75.0		
Education level	Illiterate	0	0.0	8	25.0	25.33	0.000***	4	11.1	4	100.0	7.967	0.057	2	6.3	6	75.0	**16.63**	**0.005****
	Read and write	0	0.0	10	31.3			10	27.8	0	0.0			8	25.0	2	25.0		
	Basic education	0	0.0	5	15.6			5	13.9	0	0.0			5	15.6	0	0.0		
	Secondary education	5	62.5	9	28.1			14	38.9	0	0.0			14	43.7	0	0.0		
	University education or post graduate studies	3	37.5	0	0.0			3	8.3	0	0.0			3	9.4	0	0.0		

Table (7): Relation between selected medical history of study group and their total health awareness throughout study periods (n=40).

selected medical history		Total health awareness pre -health literacy and empowerment				X2	P-Value	Total health awareness post health literacy and empowerment				X2	P-Value	Total health awareness in follow-up phase				X2	P-Value
		Satisfactory awareness (n=8)		Unsatisfactory awareness (n=32)				Satisfactory awareness (n=36)		Unsatisfactory awareness (n=4)				Satisfactory awareness (n=32)		Unsatisfactory awareness (n=8)			
		No.	%	No.	%			No.	%	No.	%			No.	%	No.	%		
Previous hospitalization	Yes	8	100.0	23	71.9	11.63	0.042*	31	86.1	0	0.0	5.201	0.162	30	93.8	1	12.8	10.30	0.047*
	No	0	0.0	9	28.1			5	13.9	4	100.0			2	6.2	7	87.5		
Family history of liver cirrhosis	Yes	8	100.0	5	15.6	15.01	0.012*	13	36.1	0	0.0	2.301	0.257	13	40.6	0	0.0	8.411	0.040*
	No	0	0.0	27	84.4			23	63.9	4	100.0			19	59.4	8	100.0		
Duration of disease/ year	< 1 year	0	0.0	12	37.5	17.63	.003**	10	27.8	2	50.0	0.936	0.524	9	28.1	3	37.5	1.074	0.315
	1-<4 years	0	0.0	9	28.1			7	19.4	2	50.0			6	18.8	3	37.5		
	4-5 years	8	100.0	11	34.4			19	52.8	0	0.0			17	53.1	2	25.0		
Committed of prescribed treatment	Yes	8	100.0	9	28.1	10.36	0.028*	17	47.2	0	0.0	2.005	0.270	17	53.1	0	0.0	8.022	0.041*
	No	0	0.0	23	71.9			19	52.8	4	100.0			15	46.9	8	100.0		
History of paracenteses	Yes	8	100.0	9	28.1	10.36	0.028*	15	41.7	2	50.0	0.811	0.547	17	53.1	0	0.0	8.022	0.041*
	No	0	0.0	23	71.9			21	58.3	2	50.0			15	46.9	8	100.0		

Table (8): Correlation between total patients' health awareness score and total health behavioral score among study group throughout study periods (n=40).

Variables	Total health awareness score					
	Pre-health literacy and empowerment		Post health literacy and empowerment (Immediately)		Follow-up (2 months)	
	R	P- value	R	P- value	R	P- value
Total health behavioral score	0.401	0.040*	0.581	0.000**	0.505	0.000**

r= Correlation coefficients test. *Significant at p ‹ 0.05. **Highly significant correlation at p ‹ 0.01.

Table (9): Correlation between total patients' health awareness score and total health behavioural score among control group throughout study periods (n=40).

Variables	Total health awareness score					
	Pre-health literacy and empowerment		Post health literacy and empowerment (Immediately)		Follow-up (2 months)	
	R	P- value	R	P- value	r	P- value
Total health behavioral level score	0.341	0.031*	0.471	0.002**	0.517	0.001**

r= Correlation coefficients test. *Significant at p ‹ 0.05. **Highly significant correlation at p ‹ 0.01.

Discussion

Ascites is a life-threatening complication among patients with decompensated liver disease because the development of ascites is associated with a poor prognosis, with a mortality of 15% at one- year and 44% at five years survival rate. So, a prompt diagnosis of the disease is essential as the mortality of the disease is very high if not manged early. Health promotion has been shown to improve long-term survival among patients with cirrhotic ascites. However, no previous study has examined patient empowerment in the management of ascites (Mobed et al., 2019).

Concerning patient's level of awareness pre and post health literacy and empowerment program among both groups, the results revealed that that minority of study and control groups had satisfying health awareness scores pre health literacy and empowerment. However, there health awareness was highly statistically significant improved post health literacy and empowerment and during follow up.

This result was in the same line with El-Gamal et al., (2023) who conducted a study at El Manial University Hospital, which was entitled "Impact of a designed nursing intervention protocol about preoperative liver transplantation care on patients' outcomes at a University Hospital in Egypt" and mentioned the majority of the study patients had good level of knowledge after implementing the designed nursing intervention.

Also, Atya et al., (2019), studied "Effect of nursing teaching guidelines among patients with cirrhosis on their knowledge regarding minimizing hepatic encephalopathy" at Tropical Medicine and Gastroenterology

department at El - Rajhi liver Hospital in Assuit University Hospital, and showed that the highest percentage of patients had a low level of knowledge preapplication of nursing teaching guidelines, while all of them had a good level of knowledge immediately post-application of nursing teaching guidelines, and the highest percentage of studied patients also had a good level of knowledge after three months from the application of nursing teaching guidelines with a highly statistically significant difference.

Moreover, these results are consistent with Elshamy et al., (2019), at Medical-Surgical Nursing Department, Faculty of Nursing-Mansoura University entitled "Impact of implementing self-care protocol on improving quality of life of patients with liver cirrhosis" who reported that there was an improvement in the studied patient's knowledge post-instruction application.

In addition, a study was done by Rehaim & Mohamed, (2017) who reported that most of the study group had unsatisfactory level of knowledge regarding ascites management before implementing the nursing guidelines, but after intervention of the designing nursing instructions, the results of the study revealed that; the majority of study patients had a good level of total knowledge.

From the researcher's point of view, this is may be related to providing health awareness and empowerment program about cirrhotic ascites, which was supported by illustrative colored booklet, while low awareness level before intervention applicated the patient's needs for educational intervention.

These results stressed the importance of the health literacy and empowerment programmed in increasing level of patient's level of awareness that supported the first study hypothesis.

Concerning total and subtotal level of health promoting behavioral among the study and control groups throughout study periods, the present study, found that after receiving health literacy guided by the empowerment helps patients to have a better sense of responsibility for their own health, had confidence. The results of the current study showed that the total Health Promoting Lifestyle Profile (HPLP II) scores were significantly higher in study group compared with control group post-intervention, and during follow-up.

These results are consistent with a study conducted by Gazineo et al., (2021), in their study entitled "Health-related quality of life in outpatients with chronic liver disease" at Department of Diagnostics and Public Health, University of Verona, Italy and reported that before receiving education, patients in the study group, scored low to moderate quality of life which was improved after one month of receiving the educational program, while remains the same in the control group. The same findings have also been mentioned in other studies, as Zhang et al., (2019), found the results of the score in each dimension of (HPLP II) following intervention and at follow-up was higher in the study group compared with the control group.

In addition, Huang et al., (2018) who conducted study about "Health-promoting behaviours benefit the mental health of cirrhotic outpatients" and showed that there was no significant difference between HPLP II mean score of both groups before the intervention, however the HPLP IIsignificantly improved in the experimental group after the intervention, while the HPLP II decreased in control group. From the researcher's point of view, this might be attributed to theoretical sessions that were provided to patients which cover all aspects of liver cirrhosis, ascites and explanation of the self-care and health empowerment program.

Regarding relations between selected social charactereristics of study group and their total health awareness throughout study periods. The findings of the current study revealed that there was significant relation between increasing age and statistically level of awareness during pre-health literacy and empowerment and follow up. These results agree with Mohamed et al., (2015), who showed that the patients who their age group 50 years are more knowledgeable. Also, these findings of the present study revealed that there was highly significant positive relation between increasing educational level. And satisfactory level of awareness during pre-health literacy and empowerment and follow up.

These findings are consistent with the study conducted by Atya et al., (2019), and showed that there was a significant statistical relation between patient's knowledge and education pre application of nursing teaching guidelines. A significant difference was observed between knowledge and educational level immediately post application of nursing teaching guidelines. Also, these findings are in the same line with Al-Johani et al., (2018) who reported that there was a positive significant association between level of education and good awareness about cirrhosis of liver.

Regarding the relation between selected medical history of study group and their total health awareness throughout study periods. The findings of the current study showed that pre health literacy and empowerment there were significant relation between satisfactory awareness score with increasing years of disease duration. These finding is in the same line with Abd ElHamied et al., (2020), "Correlation between the patients with hepatitis C virus and their health-related quality of life", at Minia University, Egypt who clarified that there was a fair negative association between duration of disease, knowledge of the studied sample with their total quality of life. From the researcher's point of view, this may be due to the length of the disease affect the mental status of the patient that affects the knowledgeable outcome.

For the Relation between selected social characteristics of the study group and their total health behavioral level throughout study periods: The findings of the current study revealed that pre health literacy and empowerment there were highly significant relation between increasing mean total health behavioral level with level of

education. This result is supported by Huang et al., (2018) who studied "Health-promoting behaviors benefit the mental health of cirrhotic outpatients" at Taipei Medical University, Taiwan, Republic of China and found that educational level was significant factor that influenced a health-promoting lifestyle. From researcher's point of view, education level play role in promote health status for example choose healthy diet to maintenance health, avoid obesity and chronic disease that formed due to dietary habits, daily bathing improves blood circulation, maintain skin integrity and decrease infectious disease, also daily exercise improves health, visit health care center, to follow-up to maintain health status for person and family.

Concerning the Correlation between total patients' health awareness score and total health behavioral score among study group throughout study. The results of current study showed that highly statistically positive correlation between total patients' health awareness score and total health behavioral level at post health literacy and empowerment and during follow up among study group. This result is in the same line with Elshamy et al., (2019), revealed that there was a statistically significant positive correlation between knowledge score and behaviors score pre, post and two months following implementation of the self-care protocol about liver cirrhosis. These findings may be attributed to the fact that the individuals who have high knowledge are able to understand the necessity of lifestyle changes and more motivated to perform healthy behaviors.

In this study, following intervention based on empowerment theory, the patients in the study group had improved health knowledge of liver cirrhosis and ascites at hospital admission and discharge, specifically about the major clinical symptoms, etiology, diet and nutrition, daily prevention, rational use of medication, and treatment. No previous study has examined patient empowerment in the management of cirrhotic ascites. Such interventions have been shown to help patients to better understand their disease resulting in an improvement in and QoL, and reduction in their symptoms of anxiety and depression. Therefore, using patient empowerment increases the patient's sense of control over their life and their disease.

Conclusions:

The findings of this study clarify the important role of patient empowerment and health literacy in improving the awareness, knowledge, and quality of life among patients with cirrhotic ascites. Patient education and empowerment, guided by the principles of health promotion, have been shown to significantly enhance the self-care behaviors and quality of life of cirrhotic ascites patients.

Recommendations:

1) Healthcare providers, particularly nurses should focus on improving patient education and empowerment for individuals living with cirrhotic ascites. This can be achieved through structured educational programs and

interventions that enhance patients' understanding of their condition, its complications

2) Further research should be conducted to investigate the long-term effects of health literacy and empowerment interventions on the prognosis and outcomes of patients with cirrhotic ascites.

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