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# Assessment of the Awareness and Self- Efficacy of Patients with Hepatic Encephalopathy Regarding Health Condition

Hossam Elden Hamdy Ahmed[1], Sabah Ahmed Ammar[2] & Shimaa Attia Ali[3.] Ahmed Abd Haleem Mohamed[4], Mohamed Abd El- Rahman El-Saied Ehoty[5].

1. *Deputy Director of Nursing 15 May Hospital in Cairo, Egypt.*
2. *& 3 Assistant Professor of Adult Health Nursing Department, Faculty of Nursing Helwan University, Cairo, Egypt.*
4. *Assistant Consultant Tropical Medicine National Tropical Medicine Research Institute, Cairo, Egypt.*
5. *Lecture of Medical Surgical Nursing Department, Faculty of Nursing Helwan University, Cairo, Egypt.*

**Abstract**

**Background:** Hepatic encephalopathy is a reversible syndrome observed in patients with advanced liver dysfunction. So, awareness and self-efficacy to patients are important for understanding psychological, cognitive and physical function. **Aim of the study**: To assess the awareness and self- efficacy of patients with hepatic encephalopathy regarding health condition. **Research design:** A descriptive exploratory design was used in this study. **Sample:** Purposive sample **Size:** 60 adult patients of both gender with hepatic encephalopathy grade I and grade II **Setting**: Intermediate care unit and in patients' medical wards at National Hepatology and Tropical Medicine Institute in Cairo affiliated to Hospitals and Educational Institutes Authority. **Tools:** Three tools were used for data collection **Tool I:** Patient interview questionnaire. **Tool II:** Health condition awareness assessment questioner **Tool III**: Self-efficacy related to patients' management of hepatic encephalopathy. **Results**: The results indicated that 60% of the studied patients had a satisfactory level of total knowledge regarding hepatic encephalopathy. Regarding total health condition awareness, 63.3% of patients had a satisfactory level of total general health condition awareness, (66.7%) had high self-efficacy regarding hepatic encephalopathy, and 26.7% of patients had a low level of total health condition dimension of hepatic encephalopathy. **Conclusion:** There was statistically significant correlation between the studied patients' total knowledge regarding hepatic encephalopathy and awareness, self-efficacy and health condition. **Recommendation:** Educational program should do for each hepatic patient in simplified term and pictures to improve awareness of hepatic encephalopathy and provide patients needed information.

**Keywords**: Awareness, Hepatic Encephalopathy and Self-efficacy.

## Introduction

Hepatic encephalopathy is a syndrome usually observed in patients with cirrhosis. hepatic encephalopathy is defined as a spectrum of neuropsychiatric abnormalities in patients with liver dysfunction, after exclusion of brain disease. hepatic encephalopathy is characterized by personality changes, intellectual impairment, and a depressed level of consciousness. An important prerequisite for the syndrome is diversion of portal blood into the systemic circulation through portosystemic collateral vessels **(Butterworth, 2020).**

Hepatic Encephalopathy, accompanying the acute onset of severe hepatic synthetic dysfunction, is the hallmark of acute liver failure (ALF). Symptoms of encephalopathy in ALF are graded using the same scale used to assess encephalopathy symptoms in cirrhosis. The encephalopathy of cirrhosis and ALF share many of the same pathogenic mechanisms. However, brain edema plays a much more prominent role in ALF than in cirrhosis **(Ali et al., 2023).**

A nomenclature has been proposed for categorizing hepatic encephalopathy. Type A hepatic encephalopathy describes encephalopathy associated with A cute liver failure. Type B hepatic encephalopathy describes encephalopathy associated with portal-systemic Bypass and no intrinsic hepatocellular disease. Type

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C hepatic encephalopathy describes encephalopathy associated with Cirrhosis and portal hypertension or portal-systemic shunts. Type C hepatic encephalopathy is, in turn, sub-categorized as episodic, persistent, or minimal **(Poordad, 2020).**

The development of hepatic encephalopathy negatively impacts patient survival. The occurrence of encephalopathy severe enough to lead to hospitalization is associated with a survival probability of 42% at 1 year of follow-up and 23% at 3 years. Approximately 30% of patients dying of end-stage liver disease experience significant encephalopathy, approaching coma **(Patidar &Bajaj, 2021).**

Awareness and self-efficacy among patients with hepatic encephalopathy are critical yet often insufficient aspects of disease management. Multiple studies have shown that the majority of patients with liver cirrhosis and hepatic encephalopthy possess poor knowledge about their condition, its complications, and the necessary self-care practices, with more than three-quarters demonstrating unsatisfactory awareness and over half exhibiting poor self-care abilities. This lack of awareness not only delays diagnosis and treatment but also increases the risk of recurrent HE episodes and hospitalizations, placing a greater burden on both patients and healthcare systems **(Abdel Azeem et al., 2023)**.

Self-efficacy is a person's confidence in the own abilities to complete necessary tasks to reach set goals. And also considered an important concept in the assessment and improvement of chronic conditions (self-management, quality of life, behavioral modifications, hopefulness, lifestyle modification, physical and mental health, and disease prevention) **(Curtis, & Shariff, 2023).** Self-management tend to also make informed decisions regarding possible diagnostic and treatment options as well as follow prescribed treatment plans. Consequently, self-management encourages adherence to treatment plans, improves interaction between patients and caregivers, reduces the use of medical specialists and medical costs, and advances clinical outcomes across the lifespan **(Abdulfatah et al., 2023).**

Moreover, limited self-efficacy undermines patients' ability to adhere to medication regimens, recognize early warning signs, and engage in preventive behaviors, which are essential for improving outcomes and quality of life. Recent literature emphasizes the need for ongoing, accessible patient education—delivered in simple language and reinforced at every healthcare encounter—to empower patients and the caregivers, enhance self-management skills, and ultimately reduce the incidence and impact of HE (**Ismond et al., 2023).**

The Patient with hepatic encephalopathy health condition is directly connected to risk assessment, support surfaces, patient moving position, mobilization, friction removal, nutritional support, and moisture control are all included in the care bundles. Additional possibilities for intervention include staff training, automated systems, standardized medical procedures, health record evaluation, audit result feedback, and unit based wound care providers **(Zakarea et al., 2025)**

The main roles of nurses in the assessment of patients with cirrhosis is to evaluate patients' history, check current status of ascites and edema, and plan future care to prevent recurrence. If the patient has significant lower extremity edema, leg wraps should be applied to prevent fluid from continuing to accumulate and to attempt to force the fluid to be re-absorbed **(Blachier et al., 2023).**

Nurses assume an essential role in imparting knowledge to patients and the families regarding the hepatic encephalopathy prevention episodes. Providing structured information that could be utilized in the hepatic encephalopathy management and prevention is a critical component of a comprehensive nursing education, which is necessary to ensure appropriate patient safety and care **(Abdel Azeem et al., 2023).**

Education should be provided to the patient's caregiver about how to successfully apply leg wraps and what complications to monitor for at home. Nursing staff must become familiar with precautions taken for these patients, specifically the need for seizure precautions, although they are uncommon. In such situations, seizure pads should be placed on the patient's bed and suction should be set up at the bedside **(Mokdad et al., 2024).**

A Hepatic Encephalopathy vital part prevention is nursing education, which includes informing the patient and family about the condition, its possible complications, and progression. Also, it is essential to prevent precipitating factors and maintain proper nutrition, both of which are vital considerations for cirrhosis

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patients. The adjustment of the causative precipitating factors is crucial in the hepatic encephalopathy treatment, as it enables the cure of approximately 90% of patients. the HE clinical progression can be halted through the management of these precipitating factors **(Ali et al., 2023).**

**Significance of the study**

Hepatic Encephalopathy is a brain dysfunction that manifests in advanced liver disease, resulting in significant morbidity and mortality. In the United States, 7–11 million people are affected by HE, with approximately 150000 new diagnoses reported annually. Among recently diagnosed cases, approximately 20%are associated with cirrhosis **(Shah et al., 2024).**

Subtle signs of hepatic encephalopathy are observed in nearly 70% of patients with cirrhosis. Symptoms may be debilitating a significant number of patients. Overt hepatic encephalopathy occurs in about 30%-45% of patients with cirrhosis. It is observed in 24%-53% of patients who undergo Porto systematic shunt surgery (**Shawcross et al., 2022).**

Hepatic Encephalopathy is a brain dysfunction caused by hepatic insufficiency and/or portal-systemic shunting. It presents as a broad and complex spectrum of neurologic or psychiatric abnormalities. HE has an insidious onset and is difficult to recognize in its early stages. Minimal HE (MHE), i.e., the earliest form of hepatic encephalopthy, has a prevalence of approximately 80% among patients with cirrhosis. Moreover, over one-third of patients with cirrhosis develop HE, and approximately 40% of patients with HE dies within one year **(Wu et al., 2024).**

Hepatic encephalopathy is frequently accompanied by increased mortality rates. HE is associated with a 23% survival rate after three years and a 42% survival rate after one year of follow-up. Furthermore, approximately 30% of patients who died to end-stage liver disease exhibited severe encephalopathy, which progressed to coma **(Azeem, et al., 2023).**

**Aim of the study**

This study aimed to assess the awareness and self- efficacy of patients with hepatic encephalopathy regarding health condition through the following objectives.

1. Assess the level of the Awareness of Patients with Hepatic Encephalopathy Regarding Health Condition.
2. Assess the level of Self-Efficacy for Patients with Hepatic Encephalopathy Regarding Health Condition.

**Research questions: -**

1-what is the level of the Awareness of Patients with Hepatic Encephalopathy Regarding Health Condition?
2-what is the level of Self Efficacy for Patients with Hepatic Encephalopathy Regarding Health Condition?

## Subject and methods

**Research design:** A descriptive exploratory design was utilized in this study.

### Setting:

The study conducted in the intermediate care unit and in patients' medical wards at National Hepatology and Tropical Medicine in Cairo. Affiliated to Hospitals and Educational Institutes Authority the National Institute for Endemic Diseases and Liver Research is one of the oldest research institutes in Egypt. There are two buildings connected to each other where the clinics are located. The first floor has more than one clinic to serve patients. The second floor is for ICU surgery and endoscopy. The third floor has internal departments (A men's ward and women's ward and an economic ward). There is intermediate care. The third floor is an administrative building and there is a liver transplant unit.

### Sampling:

Purposive sample of 60 adult patients of both gender with hepatic encephalopathy grade I and grade II who have no mental problems, not connected with mechanical ventilator, without cardiovascular and neurological disorder were included the study.

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**Tools for data collection:**

**Tool I: Patient Interview questionnaire**: it was consisting of three parts:

**Part I: Patient demographic characteristics**: which was developed by the researcher based on literature review. Includes (age, gender, marital status, residence, level of education, occupation and care giver).

**Part II: Patient's clinical data**:

it was developed by researcher after reviewing national and literature **(Hinkle, 2022),** it was included: health history (medical, surgical and family history). patient past and present medical history affect hepatic encephalopathy, symptoms which reported to physician, perform any operation or surgical intervention, other chronic diseases and family history of hepatic encephalopathy.

**Part III: Knowledge assessment questionnaire regarding hepatic encephalopathy.**

Hepatic encephalopathy it was adapted from **(Thuy, 2019)** and included meaning of hepatic encephalopathy, pathophysiology of hepatic encephalopathy, risk factors of hepatic encephalopathy, signs and symptoms of hepatic encephalopathy, diagnosis of hepatic encephalopathy, complications of hepatic encephalopathy, preventive measures of hepatic encephalopathy and management of hepatic encephalopathy)

**Scoring system:**

The questionnaire contained (16) questions with the total scores (32) grades the complete correct answer was scored as (two) grade, incomplete correct answer was scored as (one) grade and wrong was scored as (zero). The total score was assumed and calculated and the following.

-Satisfactory equally ≥ 60% ≥ 24 Grade.

-Unsatisfactory equally < 60% < 24 Grade.

**Tool II: Health condition Awareness assessment questionnaire** it was adapted from **(lorig et al, 2014)** It consist of two parts**:**

**Part I Assess patient general health status:** It consists of six questions.

**Scoring system:**

The questionnaire contained (6) questions with the total scores of (12) grades. The complete correct answer was scored as (two) grade, incomplete correct answer was scored as (one) grade and wrong was scored as (zero). The total score was assumed and calculated on the following.

- Satisfactory equally ≥60% ≥ 7 Grade.

- Unsatisfactory equally <60% < 7 Grade.

**Part II: Assess patient reported health condition dimension.**

it was included four dimensions (Physical activity, symptomatology control, social support, Emotional and feeling).

**Scoring system**

The questionnaire contained (16) questions with the total scores of (32) grades the complete correct answer was scored as (two) grade, incomplete correct answer was scored as (one) grade and wrong was scored as (zero). The total score was assumed and calculated on the following.

-Satisfactory equally ≥60% ≥ 24 Grade.

-Unsatisfactory equally <60% < 24 Grade.

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**Tool III: Self-efficacy related to patients' management of hepatic encephalopathy,**

it was adapted from **(Lorig et al., 2014).** The aim of this tool is to assess exercise regularity, support from family or friends, communication with physician, manage disease, social recreational activities, manage symptoms and control behavior**.**

**Scoring system:**

The questionnaire contained (6 questions with the total scores of (12) grades the complete correct answer was scored as (two) grade, incomplete correct answer was scored as (one) grade and wrong was scored as (zero). The total score was assumed and calculated on the following.

-Satisfactory equally ≥60% ≥ 7 Grade.

-Unsatisfactory equally <60% 7 Grade.

## Validity and reliability:

**Validity:**

The validity of tools was done by 5 panels of expertise of medical surgical nursing to measure the content for accuracy and internal validity. Also, they were asked to judge the items for completeness and clarity. Suggestions were incorporated into the three tools.

**Reliability:**

Reliability of the tools were tested to determine the extent to which the questionnaire items are related to each other. The Cronbach's alpha model which is a model of internal consistency was used in the analysis which were (0.788 - 0.875 & 0.876) for patients interviewing questionnaire, health condition awareness assessment questionnaire and self-efficacy related to patients' management of hepatic encephalopathy, separately.

**Ethical and legal considerations:**

The ethical aspects of scientific research were considered and respected, the administrative approval from the Hospitals and Research Ethical of Faculty of Nursing Helwan University and Medical and Nursing Director of National Hepatology Tropical Medicine Research Institute to maintain the ethical and legal considerations. Formal consent was obtained from the patients' prior data collection, the patients were informed about the purpose and the expected outcomes of the study and should be assured that the study is harmless and participation is voluntary and patients have the right to withdraw from the study at any time without giving any reason. Also, the study was assured that, autonomy and confidentiality was guaranteed, as well the gathered data was used for the research purpose only. Ethics, values, culture and beliefs were respected.

**Pilot study**

A Pilot study was carried out with 10% (six patients) of the sample under study to test the applicability, clarity and efficiency of the tools. The modifications were done, then final form was developed, they were not included in the study sample.

**Field work:**

- An approval was obtained from a scientific ethical committee of the Faculty of Nursing - Helwan University.
- A written approval letters was obtained from the Dean of Faculty of Nursing – Helwan University and the manager of National hepatology and Tropical Medicine Research Institute to conduct the study.

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- The study was conducted from the beginning of November 2023 to the end of June 2024. (Data collection period).
- The Researcher attended to the study setting twice weekly from 9 AM to 2 PM
- Researcher was introduced himself to the Head of the Endemic Diseases Department and explained the purpose of study prior to study implementation to gain their cooperation during data collection
- The patients were interviewed individually, and formal consent was obtained prior to data collection.
- The purpose of the study was simply explained to the patients who agree to participate in the study prior to any data collection.
- After that the researcher started to collect data from patients who attended to the National Hepatology and Tropical Medicine Research Institute in Cairo.
- The Researcher assessed demographic characteristics and the patient's knowledge regarding hepatic encephalopathy then patient awareness regarding health condition and finally patient self-efficacy scale according to tool.
- Each interview with each patient took 20 -30 minutes.

**Statistical analysis:**

Numerical data were presented as mean and standard deviation (SD) values. Qualitative data were presented as frequencies (n) and percentages (%). Reliability of the questionnaire was assessed using Cronbach's alpha reliability coefficient. Cronbach's alpha reliability coefficient normally ranges between (zero) and (one). Higher values of Cronbach's alpha (More than 0.7) denote acceptable reliability. Spearman's correlation coefficient was used to determine correlations between different variables. The significance level was set at $P \leq 0.05$. Statistical analysis was performed with IBM SPSS Statistics Version 26 for Windows.

## Results:

**Table (1):** Percentage distribution of demographic characteristics for the studied patients (n=60).

| Items | Studied patients (n = 60) | |
|---|---|---|
| | N | % |
| **Gender** | | |
| • Male | 30 | 50 |
| • Female | 30 | 50 |
| **Age group** | | |
| • 20 < 30 year | ٤ | ٦,٧ |
| • B- 30 < 40 years | ٦ | ١٠ |
| • 40 year < 50 years | ٢٠ | ٣٣,٣ |
| • 50 ≤ 60 year | ٣٠ | ٥٠ |
| **Mean ±SD** | 54.71±7.71 | |
| **Marital status** | | |
| • Single | ٦ | ١٠ |
| • Married | ٣٤ | ٥٦,٧ |
| • Divorced | ٢ | ٣,٣ |
| • Widow | ١٨ | ٣٠ |
| **Level of education** | | |
| • Can't read and write | ٢٠ | ٣٣,٣ |
| • Read and write | ١٤ | ٢٣,٣ |
| • Secondary education | ١٨ | ٣٠ |

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| | | |
|---|---|---|
| • University | ٨ | ١٣,٣ |
| **Occupation** | | |
| • Not work | ٣٠ | ٥٠ |
| • Manual work | ١٤ | ٢٣,٣ |
| • Clerk | ١٢ | ٢٠ |
| • Retired | ٤ | ٦,٧ |
| **Income:** | | |
| • Sufficient | 30 | 50 |
| • Insufficient | 30 | 50 |
| **Residence** | | |
| • Rural | ٣٨ | ٦٣,٣ |
| • Urban | ٢٢ | ٣٦,٧ |
| **Care giver** | | |
| • Son | 36 | 60 |
| • Daughter | 12 | 20 |
| • Wife | 4 | 6.7 |
| • Husband | 8 | 13.3 |

**Table (1)** indicates that, 50% of the studied patients are male within age group from 50 to 65 years old, 56% of them are married. Regarding educational level; 33.3% of the studied patients can't read and write and 30%of them have secondary education. 50%of the studied patients are Manual working, 63.3% of them living in rural area.

**Table (2):** Percentage distribution of clinical data for the studied patients (n=60)

| Items | | Studied patients | |
|---|---|---|---|
| | | N | % |
| **Weight** | **Mean±SD** | 89.6±15.6 | |
| **Height** | **Mean±SD** | 169.7±12.33 | |
| **Body mass index** | **Mean±SD** | 31.33±5.97 | |
| • 18.5 >25 | | 8 | 13.3 |
| • 25>30 | | 12 | 20 |
| • More than 30 | | 40 | 66.7 |
| **Duration of the disease** | | | |
| • Less than 1 year ago | | 20 | 33.3 |
| • 1 year less than 3 years ago | | 28 | 46.7 |
| • 3 years Less than 5 years ago | | 10 | 16.7 |
| • More than 5 years ago | | 2 | 3.3 |
| **Previous hospital admission due to the same disease** | | | |
| • Yes | | 46 | 76.7 |
| • No | | 14 | 23.3 |
| **Family history of liver cirrhosis& hepatic encephalopathy** | | | |
| • Yes | | 8 | 13.3 |
| • No | | 52 | 86.7 |
| **History of** comorbid **diseases** | | | |
| • Yes | | 38 | 63.3 |
| • No | | 22 | 36.7 |
| **History of previous surgical operation** | | | |
| • Yes | | 20 | 33.3 |
| • No | | 40 | 66.7 |

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**Table (2**) shows that, Mean±SD of patients' weight are 89.6±15.6, Mean±SD of patients' height are 169.7±12.33, and Mean±SD of patients' BMI are 31.33±5.97. Regarding BMI; 66.7% of the studied patients are obese, 46.7% of them their duration of disease is from one year to less than 3 years. 76.7 of them are previously hospitalized for the same disease. 86.7% of the studied patients don't have a Family history of liver cirrhosis or hepatic encephalopathy.

**Table (3):** Percentage distribution of patients' knowledge regarding hepatic encephalopathy (n=60)

| Items | Studied patients (n = 60) | | | |
|---|---|---|---|---|
| | Satisfactory | | Unsatisfactory | |
| | N | % | N | % |
| Meaning of hepatic encephalopathy | 10 | 16.7 | 50 | 83.3 |
| Stages of hepatic encephalopathy | 52 | 86.7 | 8 | 13.3 |
| Signs and symptoms of hepatic encephalopathy | 20 | 33.3 | 40 | 66.7 |
| Hepatic viral infection. | 42 | 70 | 18 | 30 |
| Causes of hepatic encephalopathy. | 4 | 6.7 | 56 | 93.3 |
| The most risky people for hepatic encephalopathy | 8 | 13.3 | 52 | 86.7 |
| Complications of hepatic encephalopathy | 44 | 73.3 | 16 | 26.7 |
| Diagnosis of hepatic encephalopathy | 14 | 23.3 | 46 | 76.7 |
| Medical Management of hepatic encephalopathy | 24 | 40 | 36 | 60 |
| Important medications for patients with hepatic encephalopathy | 24 | 40 | 36 | 60 |
| Side effect from medications of hepatic encephalopathy | 32 | 53.3 | 28 | 46.7 |
| Going to hospitals | 44 | 73.3 | 16 | 26.7 |
| Hepatic encephalopathy results from | 28 | 46.7 | 32 | 53.3 |
| Prevention of static injury | 24 | 40 | 36 | 60 |
| Patients with hepatic encephalopathy should reduce the amount of food | 26 | 43.3 | 34 | 56.7 |
| Patients with hepatic encephalopathy who develop swelling in the abdomen and legs | 26 | 43.3 | 34 | 56.7 |

**Table (3)** shows that, 93.3% of the studied patients have a correct answer regarding the statement of "Causes of hepatic encephalopathy", 86.7% of them have a correct answer regarding the statement of "The most risky people for hepatic encephalopathy".

**Table (4):** Percentage distribution of patients' health condition awareness (n=60)

| Items | Studied patients (n = 60) | | | |
|---|---|---|---|---|
| | Satisfactory | | Unsatisfactory | |
| | N | % | N | % |
| Regularity of eat meals. | 44 | 73.3 | 16 | 26.7 |
| Prohibited foods and drinks during hepatic encephalopathy | 30 | 50 | 30 | 50 |
| Problems during usual activities | 40 | 66.7 | 20 | 33.3 |
| Problems during sleep. | 8 | 13.3 | 52 | 86.7 |
| Effect of hepatic encephalopathy on job | 50 | 83.3 | 10 | 16.7 |
| Self-monitoring if abnormal sleep, cycle weaken thinking, odd behavior, etc | 28 | 46.7 | 32 | 53.3 |

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**Table (4)** reveals that, 50% of the studied patients know the prohibited foods and drinks during hepatic encephalopathy. 66.7% of them have problems during usual activities, while 16.7% of them the disease doesn't affect their job. 13.3% of them had problems during sleep.

**Table (5):** Percentage distribution of patients reported health condition dimension of hepatic Encephalopathy (n=60)

| Items | Studied patients | | | |
|---|---|---|---|---|
| | Satisfactory | | Unsatisfactory | |
| | N | % | N | % |
| **A) Physical activity dimension** | | | | |
| Do patient have problems during usual activities | 8 | 13.3 | 52 | 86.7 |
| Do patient Perform exercise regularly | 46 | 76.7 | 14 | 23.3 |
| Do patient take any kind of medication before exercise | 12 | 20 | 48 | 80 |
| patient feel generally ill | 32 | 53.3 | 28 | 46.7 |
| **B) Symptomatology control dimension** | | | | |
| patient unable to control symptoms | 24 | 40 | 36 | 60 |
| patient have symptoms affect life | 12 | 20 | 48 | 80 |
| patient unable to wear clothes | 26 | 43.3 | 34 | 56.7 |
| **C) Social support dimension** | | | | |
| patient feel loss of confidence | 14 | 23.3 | 46 | 76.7 |
| patient Unable to tell people about feelings | 16 | 26.7 | 44 | 73.3 |
| patient feel the People don't understand what about feeling | 20 | 33.3 | 40 | 66.7 |
| patient feel the others think feeling tired | 12 | 20 | 48 | 80 |
| **(D) Emotion and feelings dimension** | | | | |
| patient feel depress | 16 | 26.7 | 44 | 73.3 |
| patient feel cry | 18 | 30 | 42 | 70 |
| patient have mood swings | 20 | 33.3 | 40 | 66.7 |
| patient feel aggressive toward people | 28 | 46.7 | 32 | 53.3 |
| patient feel loneliness | 16 | 26.7 | 44 | 73.3 |

**Table (5)** demonstrates that, 86.7% of them answered yes regarding the question of "patient have problems during usual activities". 80% of them answered yes regarding the question of "patient take any kind of medication before exercise, patient have symptoms affect life, and patient feel the others think feeling tired".

**Table (6):** Percentage distribution of health condition self-efficacy related to patient management of hepatic Encephalopathy (n=60)

| Items | Studied patients (n = 60) | | | |
|---|---|---|---|---|
| | Unsatisfactory | | Satisfactory | |
| | N | % | N | % |
| Patient feel confident that patient can keep the fatigue caused by patient disease from interfering with the things patient want to do | 12 | 20 | 48 | 80 |
| Patient feel confident that patient can keep the physical discomfort or pain of patient disease from interfering with the things patient want to do | 32 | 53.3 | 28 | 46.7 |
| Patient feel confident that patient can keep the emotional distress caused by patient disease from interfering with the things patient want to do | 8 | 13.3 | 52 | 86.7 |

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| | | | | |
|---|---|---|---|---|
| Patient feel confident that patient can keep other symptoms or health problems patient have from interfering with the things patient want to do | 24 | 40 | 36 | 60 |
| Patient feel confident that patient can keep the different tasks and activates needed to manage patient health condition so as to reduce patient need to see a doctor | 32 | 53.3 | 28 | 46.7 |
| Patient feel confident that patient can do things other than just taking medication to reduce how much patient illness affect patient everyday life | 12 | 20 | 48 | 80 |

**Table (6)** illustrates that, 80% of the studied patients answered yes regarding the question of "patient feel confident that patient can keep the fatigue caused by patient disease from interfering with the things patient want to do" and " patient feel confident that patient can do things other than just taking medication to reduce how much patient illness affect patient everyday life", while 53.3% of them answered no regarding the question of "patient feel confident that patient can keep the different tasks and activates needed to manage patient health condition so as to reduce patient need to see a doctor "and patient feel confident that patient can keep the physical discomfort or pain of patient disease from interfering with the things patient want to do".

**Table (7):** Percentage distribution of patients' total knowledge regarding hepatic encephalopathy, total Reported health condition dimension and self-efficacy & total self-efficacy related to management of hepatic Encephalopathy, and Patients total reported health condition dimension of hepatic Encephalopathy (n=60)

| Items | Mean±SD | Unsatisfactory | | Satisfactory | |
|---|---|---|---|---|---|
| | | N | % | N | % |
| Patients' total knowledge regarding hepatic encephalopathy | 10.23±2.62 | 24 | 40 | 36 | 60 |
| Patients' total general Health general Condition | 3.56±1.68 | 22 | 36.7 | 38 | 63.3 |
| Patients total reported health condition dimension of hepatic Encephalopathy | 10.66±5.17 | 16 | 26.7 | 44 | 73.3 |
| Patients' total self-efficacy related to management of hepatic Encephalopathy | 4.67±2.17 | 20 | 33.3 | 40 | 66.7 |

**Table (7)** demonstrates that, 60% of the studied patients has a satisfactory level of total knowledge regarding hepatic encephalopathy with mean and standard deviation 10.23±2.62. Regarding total health condition awareness, 63.3% of them had satisfactory level of total general health condition awareness, and reveals that, about three quarters of the studied patients (66.7%) has high self-efficacy regarding hepatic encephalopathy with mean and standard deviation 4.67±2.17. 26.7% of them had low level of total health condition dimension of hepatic encephalopathy

**Table (8):** Correlation between patients' knowledge regarding hepatic encephalopathy and Total patient self-efficacy and health condition

| Items | Mean±SD | Total knowledge regarding encephalopathy | |
|---|---|---|---|
| | | Correlation Coefficient | *P*-value |
| Total patients' self-efficacy for management of hepatic encephalopathy. | 4.67±2.17 | 0.478 | 0.0001* |
| Health condition dimension | 10.667±5.170 | 0.350 | 0.006* |

*: Significant at $P \leq 0.05$

**Table (8)** illustrates that, there was a statistically significant correlation between the studied patients' total knowledge regarding hepatic encephalopathy and awareness, self-efficacy, and health condition (p- value 0.001, and 0.0006).

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## Discussion

**Part I: Demographic characteristics of the studied patients and their medical history.**

As regards the age of the studied patients, the present study showed that half of the studied patients are within the age group from 50 to 65 years old. This finding could be due to the fact that the age group 50 to 65 years is significant because liver diseases, including cirrhosis, become more prevalent with ageing. By the age of 50, many individuals may have accumulated risk factors (e.g., alcohol consumption, viral hepatitis, or metabolic diseases) that contribute to liver damage and the onset of hepatic encephalopathy, and as individuals' age, liver function tends to decline, and hepatic encephalopathy can become a major concern, especially if the liver has been chronically compromised. This finding is supported by **Dong et al. (2020)** which is about "Self-Management Behaviours among Patients with Liver Cirrhosis in Shanghai, China: A Cross-Sectional Study", which found that more than half of the studied patients were aged from 41 to 77 years old, From the researcher's point of view, the high proportion of patients aged 50 to 65 reflects the increased risk of hepatic encephalopathy in this age group, likely due to accumulated risk factors such as alcohol use, viral hepatitis, and metabolic diseases. With aging, liver function tends to decline, making this group more vulnerable

As regards the gender of the studied patients, the present study showed that half of the studied patients are both male and female. These findings are supported by **Abdel Azeem et al. (2023)**, which is about "Educational Nursing Program Implementation: Its Effect on Hepatic Encephalopathy Severity among Patients with Liver Cirrhosis". It found that the gender of the studied patients was nearly equal, From the researcher's point of view, the equal representation of both male and female patients indicates that hepatic encephalopathy is not significantly influenced by gender

In relation to the studied patients' educational level, results indicated that one third of the studied patients were illiterate. These results, supported by **Abdulfatah et al. (2023)** in Egypt, entitled "Assessment of Knowledge and Self-Care Regarding Patients with Hepatic Encephalopathy", revealed that more than one quarter of studied patients were illiterate. However, these findings are disagreed with by **Mousa et al. (2022)** in Turkey, which investigated "Risk Factors for Deep Venous Thrombosis among Patients Admitted to Vascular Unit" and stated that more than one third of the studied patients had moderate qualification, From the researcher's point of view, the finding that one third of the studied patients were illiterate highlights a potential barrier to effective disease management and health education.

In relation to marital status, the study findings showed that more than half of the studied patients were married. The patients in this study are primarily within the 50 to 65 age range, an age group where individuals are likely to have established long-term relationships. Marriage is more common in middle-aged and older adults, and those in this age range may have been married for many years, further explaining the higher proportion of married individuals in this group. These findings are consistent with the finding of **Dong et al. (2020)** in Shanghai, China, entitled "Self-Management Behaviours among Patients with Liver Cirrhosis in Shanghai, China: A Cross-Sectional Study," which reported that the majority of their studied patients were married, From the researcher's point of view, the high proportion of married patients can be attributed to the fact that most participants were aged 50 to 65, a stage in life where long-term marital relationships are common. This demographic trend likely explains the predominance of married individuals in the study

As regards the occupation of the studied patients, the present study demonstrated that half of the studied patients were not working. These findings could be due to half of the studied patients were female and probability to be house wives and the 50 to 65 age range which the age of retirement over 60 years old. These findings are inconsistent with the findings of **Abd Allah et al. (2023)** in Egypt, who conducted the study titled "Effect of Self-Management Program on Health Outcomes of Patients with Liver Cirrhosis" and reported that more than half of their studied patients were manual workers. Regarding body mass index, the result of the study revealed that the mean ± SD of patients' BMI is 31.33 ± 5.97. Two thirds of the studied patients are obese. These findings could be due to the fact that obesity is a well-known risk factor for the development of chronic liver diseases, such as non-alcoholic fatty liver disease, which can progress to conditions like cirrhosis and eventually lead to complications like hepatic encephalopathy. Obesity is also associated with increased inflammation, which can contribute to liver damage and the development of hepatic encephalopathy, From the researcher's point of view, the high percentage of non-working patients may be explained by the fact that half of the participants were female, likely including housewives, and most were aged 50–65 years, an age range commonly associated with retirement, the high obesity rate likely contributes to increased hepatic complications through mechanisms such as inflammation and metabolic dysfunction.

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These findings are consistent with the findings of **Gu et al. (2023)**; their study titled "Overweight/Obesity Increases the Risk of Overt Hepatic Encephalopathy after Trans jugular Intrahepatic Portosystemic Shunt in Cirrhotic Patients" reported that more than one quarter of their studied patients were obese. From the researcher's point of view, highlighting the significant role of obesity as a risk factor for overt hepatic encephalopathy, especially following procedures like TIPS. Concerning the patient's medical history, the findings of the present study clarify that about half of them had a duration of disease from one year to less than 3 years. This is due to the current governmental 100 million Health and the fact that the disease has been present for 1 to 3 years, which might reflect improvements in early detection of liver disease. It is possible that these patients were diagnosed relatively recently, which allowed them to receive early intervention before the disease could progress to more severe stages. These findings are supported by **Dong et al. (2020)**, who reported that about two thirds of their studied patients had been diagnosed with liver cirrhosis for less than five years.

These findings also agree with **Alfauomy et al. (2020)**, study titled "Effect of Nursing Interventions on Self-management Behaviours of Female Geriatric Patients with Liver Cirrhosis" reported that about two-thirds of their studied patients had been diagnosed with liver cirrhosis for less than five years. The findings of the present study clarified that more than four fifths of the studied patients didn't have a family history of liver cirrhosis or hepatic encephalopathy. This could be due to most cases of liver cirrhosis being because of viral hepatitis infection, which is not genetic, as the majority of the studied patients had no family history of liver cirrhosis. From the researcher's point of view, this supports the understanding that environmental and infectious factors play a larger role than genetic predisposition in the development of liver cirrhosis among the studied population.

Regarding past medical history, the findings of the present study demonstrated that about two thirds of them had a history of chronic disease. These findings are in harmony with **Bhala et al. (2011),** study titled "The Natural History of Nonalcoholic Fatty Liver Disease with Advanced Fibrosis or Cirrhosis", which reported that more than half of the studied patients had a history of chronic disease. From the researcher's point of view, this is due to comorbidities, which may play a significant role in the development or exacerbation of hepatic encephalopathy. Chronic diseases tend to accelerate liver damage, particularly when they are poorly managed or uncontrolled.

**Part II: Regarding This part represents knowledge, and self-efficacy of the studied patients:**

Regarding total knowledge and awareness about hepatic encephalopathy, two-thirds of the studied patients have a satisfactory level of total knowledge regarding hepatic encephalopathy with a mean and standard deviation of 10.23±2.62. This study finding is also incongruent with **Abdulfatah et al. (2023)**, who revealed in their study that the majority of the studied patients had an unsatisfactory level of total knowledge regarding hepatic encephalopathy. The study result is in disagreement with that of **Abdel Azeem et al. (2023),** who conducted their study "Assessment of Knowledge Regarding Hepatic Encephalopathy among Patients with Liver Cirrhosis. From the researcher's point of view, These findings could be due to the fact that one third of the studied patients were secondarily educated.

This study supported that most of the studied patients had an unsatisfactory level of total knowledge regarding hepatic encephalopathy. The study result is also in congruent with **Abd Allah et al. (2023),** who investigated "Effect of Self-Management Program on Health Outcomes of the Patients with Liver Cirrhosis". In this study, it was reported that three quarters of the studied patients had an unsatisfactory level of total knowledge regarding hepatic encephalopathy, From the researcher's point of view, the study confirmed that most of the studied patients had an unsatisfactory level of total knowledge regarding hepatic encephalopathy. This finding highlights a critical gap in patient education and awareness, reinforcing the need for structured educational interventions to improve self-management and health outcomes in patients with liver cirrhosis.

Regarding patients' total general health condition about hepatic encephalopathy, more than two-thirds of the studied patients have a satisfactory level of total knowledge regarding hepatic encephalopathy with a mean and standard deviation of 3.56±1.68. These findings are inconsistent with **Alfauomy et al. (2020),** who stated that half of the studied patients had an unsatisfactory level of total knowledge regarding hepatic encephalopathy with a mean and standard deviation of 41.08 ± 6.08. These findings are not in line with **Abdallah et al. (2020)** in their study about "Effect of Self-Management Program on Health Outcomes of the Patients with Liver Cirrhosis", who stated that about half of the studied patients had an unsatisfactory level of total knowledge regarding hepatic encephalopathy with a mean and standard deviation of 17.16 ± 2.80. From the researcher's point of view, the finding that more than two-thirds of the studied patients had a satisfactory level of total knowledge regarding hepatic encephalopathy (mean ± SD = 3.56 ± 1.68) is a positive indicator of patient awareness in this sample. This result may reflect improvements in patient education or access to information. However, these findings are

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inconsistent with previous studies by **Alfauomy et al. (2020) and Abdallah et al (2020).** the disparity may be due to differences in study settings, educational interventions, or patient demographics.

Concerning patients' total reported health condition dimensions of hepatic encephalopathy, about three quarters of the studied patients had high health condition dimensions regarding hepatic encephalopathy, with a mean and standard deviation of 10.66±5.17. These findings are not in line with **Abdulfatah et al. (2023),** who stated that more than half of the studied patients have a poor level of self-care regarding hepatic encephalopathy. Similarly, this finding is not in line with **Attia et al. (2019),** who stated that the majority of the study patients have fair self-care behaviors. From the researcher's point of view, the finding suggests a relatively strong level of patient-reported self-care and awareness. This may reflect effective educational support or improved patient engagement in disease management.

Concerning patients' total self-efficacy related to the management of hepatic encephalopathy, more than two thirds of the studied patients had high self-efficacy regarding hepatic encephalopathy with a mean and standard deviation of 4.67±2.17. These findings are not in line with **Cui et al. (2019),** in their paper entitled "Efficacy of a self-management program in patients with chronic viral hepatitis in China", who stated that the studied patients had a poor level of self-efficacy regarding hepatic encephalopathy. From the researcher's point of view, the finding that is a promising indicator of patients' confidence in handling their condition.

Similarly, these findings are not supported by **Wang et al. (2023),** in their paper entitled "Self-Efficacy, Coping Strategies and Quality of Life among Patients with Chronic Hepatitis B", who stated that the studied patients had a poor level of self-efficacy regarding hepatic encephalopathy with a mean and standard deviation of 6.62±2.17. Also, these findings are supported by **Attia et al. (2019),** in their paper entitled "Assessment of Self-Efficacy and Self-Care Behaviors among Patients with Hepatitis C Virus", who stated that three quarters of the studied patients have a moderate level of self-efficacy. From the researcher's point of view, while the current study's findings indicate that most patients demonstrated high self-efficacy in managing hepatic encephalopathy, this inconsistency may be due to differences in disease type, patient education, or healthcare setting.

**Part III: Relations and correlation between variables under study**

The findings of the current study demonstrated that there was a statistically significant difference between total patients' awareness and gender. As well, the findings of the current study demonstrated that there was no statistically significant difference between total patients' awareness and age, marital status, educational level, occupation, and residence. These findings are supported by **Atya et al. (2019)** in Egypt, who conducted their study entitled "Effect of Nursing Teaching Guidelines among Patients with Cirrhosis on Their Knowledge Regarding Minimizing Hepatic Encephalopathy" and reported that there is a relation between the reduction of a patient's knowledge and the gender of the studied patients. As well, there is a statistically significant relationship between the reduction of a patient's knowledge, educational level, occupation, and residence. From the researcher's point of view, the statistically significant difference found between patients' awareness and gender suggests that gender may play a role in influencing health knowledge regarding hepatic encephalopathy.

The present study revealed that there was a statistically significant difference between total patients' general health condition and gender, while there was no statistically significant difference between total patients' general health condition and age, marital status, educational level, occupation, and residence. This could be due to males and females having physiological and hormonal differences that can affect disease susceptibility, immune response, and overall health conditions. These findings are disagreed with by **Abd Allah et al. (2023),** who clarify that there was high significant statistical relation between patients' total behavior and their sex in average post self-care practice program implementation. Also, there was a statistically significant relation between patients' total behaviors and their marital status in average post self-care practice program implementation.

Results revealed that there was a statistically significant difference between total patients' self-efficacy regarding hepatic encephalopathy and age & marital status. These findings are not in line with **Dong et al. (2020),** who demonstrated that there was no statistically significant difference between total patients' self-efficacy regarding hepatic encephalopathy and age and marital status. From the researcher's point of view, This could be due to the fact that older patients may have greater self-efficacy due to accumulated life experience, coping skills, and long-term exposure to managing health conditions. Patients might have lower self-efficacy due to limited experience with chronic disease management and less engagement with healthcare services.

Also, the finding of the current study revealed that there was no statistically significant difference between total patients' self-efficacy regarding hepatic encephalopathy and gender, educational level, occupation & residence. This finding is supported by **Dong et al. (2020),** who demonstrated that there was no statistically significant difference between total patients' self-efficacy regarding hepatic encephalopathy and educational level. From the researcher's point of view, suggests that these demographic factors may not substantially influence patients' confidence in managing their condition.

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Results revealed that there was a statistically significant correlation between the studied patients' total awareness, self-efficacy, and health condition dimensions regarding management of hepatic encephalopathy. Patients who are well-informed about hepatic encephalopathy, its causes, symptoms, and management strategies are more likely to feel confident in their ability to manage the condition effectively. These findings are supported by **Attia et al. (2019),** who demonstrated that there was a highly statistically significant positive correlation of moderate strength between total self-efficacy and total physical care. From the researcher's point of view, suggests that increased knowledge about hepatic encephalopathy positively influences patients' confidence and ability to manage the condition.

**Conclusion**

Based on the result of the study finding the result concluded that there were less than two third the studies patients had satisfactory level knowledge regarding hepatic encephalopathy and health condition awareness. Additionally, more than two third of the studies patients had satisfactory level of total patients reported health condition dimension, with around two third of patients had satisfactory total self-efficacy. Subsequently that, there was a statistically significant correlation between the studied patients' total knowledge regarding hepatic encephalopathy and awareness, self-efficacy, and health condition, so the results of current study achieved aim of study and answer research questions.

**Recommendations**

**On the light of the findings of the current study recommended the following:**

**At the practice level:**

- Regular monitoring of ammonia levels and clinical status is critical in preventing recurrence. Educate patients and carers on the importance of adhering to prescribed medications (e.g., lactulose, rifaximin) and attending follow-up appointments.
- Counsel patients to avoid alcohol, as it can exacerbate liver dysfunction and precipitate, HE episodes.
- Collaborate with nurses and other healthcare professionals to monitor and adjust treatment plans, including adjusting the lactulose dose and tracking the patient's bowel movements and mental status.

**At the educational level:**

- Develop a comprehensive educational booklet to inform patients with hepatic encephalopathy of potential risks and ways to manage hepatic encephalopathy symptoms.
- Provide clear, patient-centered education regarding the disease process, the importance of medication adherence, and lifestyle modifications such as dietary changes (e.g., managing protein intake) and avoiding hepatotoxic substances.

**At the Hospital administrative level:**

- Establish standardized hepatic encephalopathy protocols, including recommended lifestyle, nutrition, and hepatic encephalopathy management strategies.
- Update hospital policies to include guidelines for the management of hepatic encephalopathy patients.
- Ensure that necessary resources and equipment are readily available in the intermediate unit and inpatient wards.

**Further studies to be performed:**

- Continuous professional training to update healthcare providers on the best practices and latest advancements in hepatic encephalopathy and patient care.
- Engage in studies that explore the impact of educational interventions on hepatic encephalopathy management, especially focusing on reducing hospital readmissions and improving quality of life.
- Research the role of health literacy in the effective management of chronic liver disease and hepatic encephalopathy.
- Study the criteria for liver transplant in patients with advanced liver disease and recurrent HE. Investigate the impact of liver transplant on hepatic encephalopathy resolution and overall survival.
- Research the outcomes of hepatic encephalopathy patients after liver transplantation, especially those who experience hepatic encephalopathy episodes post-transplant.

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