



# A study of the relationships among the hepatocellular carcinoma patients, symptom distress, depression and quality of life

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## INTRODUCTION

Because the early symptoms of liver cancer are barely noticeable, treatment is often delayed, and the treatments in the later stages are less effective. Consequently, liver cancer mortality ranks second among all the cancer mortalities in Taiwan. Patients with liver cancer may experience discomfort or loss of body functions after receiving hepatic chemotherapy or hepatic trans catheter arterial chemoembolization. In addition, these patients must bear the psychological stress of uncertain disease prognosis and a high cancer recurrence rate. Thus, they are prone to developing negative emotions such as hopelessness and depressed, undermining their quality of life.

During the course of a disease, patients with liver cancer are prone to experiencing physiological discomfort and depression symptoms. Most related studies have investigated factors related to the physiological symptoms, depression, and quality of life of patients with liver cancer. However, few of them have explored depression and discomfort caused by the various types of treatment. In addition, no consensus has been reached concerning the factors that influence these patients' quality of life. In this study, the symptom distress, depression, and factors influencing the quality of life of patients with mid- and late-stage liver cancer were examined in relation to various types of cancer treatment.

## AIM

This study aimed to investigate the related factors among symptoms distress, depression, and quality of life in patients with Hepatocellular carcinoma.

## METHODS

In this study, a cross-sectional research method was employed, in which the purposive sampling method was adopted to select 100 in-patients with liver cancer receiving hepatic chemotherapy and hepatic trans catheter arterial chemoembolization at a regional hospital in southern Taiwan. Data were collected using a structured questionnaire, where the questionnaire asked for the patients' demographic information and contained a European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core-30 and the Depression subscale of the Taiwanese version of the Hospital Depression and Anxiety Scale. A descriptive statistics, independent sample t-test, single-factor analysis of variance, and Pearson product-moment correlation analysis were conducted using SPSS22.0.

## DISCUSSION

Assessment of socioeconomic and psychological factors is recommended for further management to HCC patients. The present findings are useful for design of intervention protocols and development of clinical practice guidelines intended to manage the well-being of HCC worldwide.

## RESULTS

This study to investigate the correlates of health-related quality of life (HRQoL) in HCC population using stepwise regression analysis. The results showed that age and disease stage were significant factors correlated with overall HRQoL. Specifically, for every one-year increase in age, the average HRQoL score decreased by 0.367 points, indicating that older age was associated with poorer overall health-related quality of life. These findings provide valuable insights into understanding the factors influencing HRQoL in HCC population and may have implications for developing targeted interventions to improve their well-being.

**Table 1. Relationship between demographic attributes, disease characteristics, evaluation of treatment effect, quality of life, depression and anxiety, and brief symptom rating scale in patients with hepatocellular carcinoma (n=101)**

| Variables                                          | Categories            | N  | Global health status |       |          | Function |       |          | Symptom |       |          | Depression and anxiety |      |          | Brief symptom rating scale |      |           |
|----------------------------------------------------|-----------------------|----|----------------------|-------|----------|----------|-------|----------|---------|-------|----------|------------------------|------|----------|----------------------------|------|-----------|
|                                                    |                       |    | Mean                 | SD    | F/t      | Mean     | SD    | F/t      | Mean    | SD    | F/t      | Mean                   | SD   | F/t      | Mean                       | SD   | F/t       |
| Gender                                             | ① Male                | 73 | 63.36                | 16.48 | t=-.368  | 92.02    | 10.22 | t=1.338* | 7.42    | 7.75  | t=-      | 9.44                   | 5.65 | t=-.710  | 1.32                       | 1.83 | t=-1.412* |
|                                                    | ② Female              | 28 | 61.90                | 20.72 |          | 86.51    | 20.88 |          | 10.04   | 12.90 | 1.004*   | 10.39                  | 6.70 |          | 2.18                       | 3.03 |           |
| Age                                                | ① <59                 | 24 | 65.28                | 16.97 | F=1.595  | 92.50    | 7.99  | F=.994   | 7.17    | 7.01  | F=.477   | 8.38                   | 5.48 | F=.891   | 1.42                       | 2.17 | F=.437    |
|                                                    | ② 60-69               | 37 | 64.41                | 19.71 |          | 90.87    | 16.77 |          | 9.43    | 12.64 |          | 9.32                   | 6.50 |          | 1.54                       | 2.39 |           |
|                                                    | ③ 70-79               | 29 | 63.22                | 16.29 |          | 90.88    | 14.50 |          | 7.00    | 6.88  |          | 9.93                   | 5.82 |          | 1.41                       | 2.04 |           |
|                                                    | ④ >80                 | 11 | 52.27                | 12.96 |          | 83.84    | 13.52 |          | 9.00    | 7.89  |          | 12.27                  | 6.18 |          | 2.27                       | 2.57 |           |
| Education                                          | ① < High school       | 77 | 66.26                | 17.81 | t=-.296  | 90.71    | 13.40 | t=.269   | 8.18    | 8.24  | t=.063   | 9.71                   | 6.28 | t=.34    | 1.53                       | 2.21 | t=-.176   |
|                                                    | ② ≥ High school       | 24 | 63.89                | 17.49 |          | 89.81    | 16.49 |          | 8.04    | 12.86 |          | 9.67                   | 5.31 |          | 1.63                       | 2.39 |           |
| Marital status                                     | ① Unmarried           | 26 | 59.94                | 17.32 | t=-      | 89.06    | 11.84 | t=-.600  | 8.92    | 8.13  | t=.482   | 10.96                  | 5.79 | t=1.237  | 2.12                       | 2.39 | t=1.489   |
|                                                    | ② Married             | 75 | 64.00                | 17.77 | 1.011    | 90.99    | 14.85 |          | 7.88    | 9.92  |          | 9.27                   | 6.09 |          | 1.36                       | 2.17 |           |
| Religion                                           | ① No                  | 17 | 62.75                | 18.19 | F=1.922  | 91.63    | 9.25  | F=1.734  | 7.65    | 9.47  | F=.731   | 9.29                   | 6.36 | F=.979   | 1.65                       | 2.50 | F=.598    |
|                                                    | ② Taoism              | 66 | 61.49                | 17.89 |          | 88.48    | 16.33 |          | 8.97    | 10.15 |          | 10.29                  | 6.42 |          | 1.70                       | 2.32 |           |
|                                                    | ③ Buddhism            | 17 | 66.67                | 14.43 |          | 96.60    | 3.34  |          | 5.94    | 6.29  |          | 8.24                   | 3.58 |          | 1.00                       | 1.66 |           |
|                                                    | ④ Christianity        | 1  | 100                  | -     |          | 100      | -     |          | .00     | -     |          | 3.00                   | -    |          | 0.00                       | -    |           |
| Income (NTD/month)                                 | ① Dependent           | 66 | 61.49                | 16.91 | F=2.257  | 88.96    | 16.23 | F=.970   | 8.88    | 10.31 | F=1.520  | 10.12                  | 6.39 | F=.762   | 1.74                       | 2.51 | F=.957    |
|                                                    | ② <37,000             | 19 | 71.93                | 18.47 |          | 95.09    | 7.28  |          | 4.16    | 5.10  |          | 7.84                   | 4.25 |          | 0.84                       | 1.12 |           |
|                                                    | ③ 37,001-43,000       | 11 | 57.58                | 20.23 |          | 91.92    | 7.59  |          | 9.18    | 9.78  |          | 9.91                   | 6.92 |          | 1.36                       | 1.50 |           |
|                                                    | ④ >43,001             | 5  | 60.00                | 9.13  |          | 90.22    | 13.02 |          | 11.40   | 7.44  |          | 10.80                  | 5.07 |          | 2.20                       | 2.95 |           |
| Body mass index (BMI)                              | ① Underweight         | 5  | 56.67                | 9.13  | F=.453   | 86.67    | 9.81  | F=1.172  | 8.60    | 5.46  | F=.864   | 10.40                  | 4.98 | F=1.347  | 1.40                       | 1.14 | F=1.494   |
|                                                    | ② Normal weight       | 47 | 62.06                | 18.94 |          | 88.89    | 15.56 |          | 8.98    | 9.07  |          | 1.74                   | 6.54 |          | 1.68                       | 2.29 |           |
|                                                    | ③ Overweight          | 27 | 63.27                | 18.23 |          | 90.12    | 16.02 |          | 8.96    | 12.16 |          | 9.41                   | 5.71 |          | 2.04                       | 2.72 |           |
|                                                    | ④ Obesity             | 22 | 65.91                | 15.83 |          | 95.25    | 7.07  |          | 5.27    | 6.82  |          | 7.68                   | 2.23 |          | 0.73                       | 1.42 |           |
| Hepatitis B (HBV)                                  | ① No                  | 50 | 60.33                | 17.46 | t=-1.486 | 87.96    | 16.47 | t=-1.812 | 10.00   | 11.55 | t=1.964* | 10.34                  | 6.25 | t=1.051  | 1.88                       | 2.57 | t=-1.452  |
|                                                    | ② Yes                 | 51 | 65.52                | 17.64 |          | 92.88    | 10.94 |          | 6.33    | 6.46  |          | 9.08                   | 5.81 |          | 1.24                       | 1.84 |           |
| Hepatitis C (HCV)                                  | ① No                  | 84 | 64.38                | 17.99 | t=1.832  | 91.19    | 13.08 | t=1.102  | 7.20    | 7.41  | t=-      | 9.65                   | 5.88 | t=-.178  | 1.32                       | 1.89 | t=-1.652* |
|                                                    | ② Yes                 | 17 | 55.88                | 14.36 |          | 87.06    | 18.46 |          | 12.82   | 15.72 | 1.442*   | 9.94                   | 6.92 |          | 2.71                       | 3.35 |           |
| TNM stage                                          | ① I                   | 37 | 64.41                | 13.70 | F=2.423  | 94.83    | 8.15  | F=4.048  | 5.49    | 5.56  | F=2.963  | 7.32                   | 4.45 | F=4.452  | 0.86                       | 1.51 | F=2.721*  |
|                                                    | ② II                  | 25 | 68.33                | 19.25 |          | 93.07    | 8.54  | **       | 6.84    | 8.17  | *        | 9.44                   | 5.26 | **       | 1.56                       | 2.08 | ④>①       |
|                                                    | ③ III                 | 9  | 51.85                | 13.03 |          | 86.91    | 11.25 | ①>④      | 12.22   | 10.40 |          | 12.00                  | 5.79 | ④>①      | 1.56                       | 1.67 |           |
|                                                    | ④ IV                  | 30 | 60.00                | 20.34 |          | 84.07    | 20.79 |          | 11.30   | 12.63 |          | 12.17                  | 7.33 |          | 2.40                       | 2.97 |           |
| Recurrence of the disease                          | ① No                  | 63 | 64.95                | 16.20 | t=1.469  | 93.86    | 7.45  | t=2.670  | 6.79    | 7.29  | t=-      | 8.68                   | 5.06 | t=-2.055 | 1.25                       | 2.00 | t=-1.651* |
|                                                    | ② Yes                 | 38 | 59.65                | 19.62 |          | 84.91    | 19.84 | *        | 10.39   | 12.04 | 1.669*   | 11.39                  | 7.12 | *        | 2.05                       | 2.55 |           |
| Evaluate the response to treatment in solid tumors | ① Progressive disease | 31 | 57.53                | 20.57 | F=1.546  | 81.79    | 20.75 | F=6.755  | 12.77   | 12.86 | F=4.032  | 13.32                  | 6.71 | F=6.551  | 2.52                       | 2.59 | F=3.549*  |
|                                                    | ② Stable disease      | 21 | 64.29                | 15.17 |          |          |       | ***      |         |       | **       |                        | ***  |          |                            | ①>④  |           |
|                                                    | ③ Partial response    | 3  | 61.11                | 19.25 |          | 96.30    | 4.63  | >①       | 7.67    | 7.51  |          | 9.33                   | 5.69 |          | 2.33                       | 3.22 |           |
|                                                    | ④ Complete response   | 46 | 66.12                | 16.14 |          | 94.78    | 7.22  |          | 5.59    | 6.79  |          | 7.65                   | 5.09 |          | 0.91                       | 1.59 |           |

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

**Table 2. Correlation analysis of depression and anxiety, brief symptom rating and quality of life**

| Variables                  | Global health status | Function | Symptom | Depression and anxiety | Brief symptom rating scale |
|----------------------------|----------------------|----------|---------|------------------------|----------------------------|
| Global health status       | -                    | -        | -       | -                      | -                          |
| Function                   | .685***              | -        | -       | -                      | -                          |
| Symptom                    | -.626***             | -.783*** | -       | -                      | -                          |
| Depression and anxiety     | -.685***             | -.805*** | .704*** | -                      | -                          |
| Brief symptom rating scale | -.598***             | -.812*** | .732*** | .774***                | -                          |

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

**Table 3. Stepwise regression analysis of predictors of quality of life (EORTC-QLQ-C30)/ Global health status**

| Variables | B       | Standard error | F     | 95% CI         | p     |
|-----------|---------|----------------|-------|----------------|-------|
| Age       | -0.367  | 0.167          | 4.806 | -0.035, -0.698 | 0.031 |
| Stage     |         |                |       |                | 0.046 |
| I         | Ref.    | Ref.           | Ref.  | Ref.           | Ref.  |
| II        | 5.249   | 4.433          | 1.402 | -3.551~14.048  | 0.239 |
| III       | -12.553 | 6.304          | 3.965 | -0.039~-25.067 | 0.049 |
| IV        | -3.464  | 4.19           | 0.683 | 4.853~-11.78   | 0.41  |

## ACKNOWLEDGMENTS

The authors thank all the other authors of the included studies.

**KEYWORDS:** Depression, hepatocellular carcinoma, quality of life