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Correlation between discharge readiness and quality of discharge instructions in Chinese pediatric liver transplant parents

He Ting[1], Tang Li Hua[2], Huang Xiaobo[2], Siti Fatimah Sa'at[1*]

[1]Kulliyyah of Nursing, International Islamic University Malaysia, Malaysia;
[2]Department of Pediatrics, The First Affiliated Hospital of Guangxi Medical University.

*Corresponding author:
Siti Fatimah Sa'at;
Kulliyyah of Nursing, International Islamic University of Malaysia, Jalan Sultan Ahmad Shah, 25200 Kuantan, Pahang, Malaysia;
sitifateemah@iium.edu.my

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ABSTRACT

Introduction: The objective is to examine the present state of preparedness for discharge and the quality of discharge instructions provided to parents of pediatric liver transplant patients and to investigate the relationship between these two factors.

Methods: A total of 103 pediatric liver transplant patients from the Organ Transplantation Department of the First Affiliated Hospital of Guangxi Medical University were chosen as the participants for this study. The study involved administering questionnaires, including a general information questionnaire, the Chinese version of the Discharge Readiness Scale, and the Discharge Guidance Quality Scale.

Results: The overall readiness score for parents of children who underwent liver transplants was 76.91±22.01, with a mean score of 6.41±1.83. The total quality of discharge instruction for these parents was 122.56±23.56, with a mean score of 5.11±0.98. The readiness scores of these parents were positively correlated with the total score of discharge instruction quality ($r=0.651$, $P<0.001$), the content obtained ($r=0.672$, $P<0.001$), and the presentation skills and effectiveness ($r=0.588$, $P<0.001$).

Conclusion: The caliber of nurses' discharge instructions directly influences parents' preparedness for hospital release and predicts readmission risk. Consequently, enhancing the quality of nurses' discharge instructions is a paramount concern for enhancing children's health outcomes. Nurses should prioritize enhancing the quality of discharge counseling, evaluating the healthcare requirements of parents of pediatric liver transplant patients based on their current situations, and implementing tailored nursing interventions to enhance parents' preparedness for the patient's release.

Keywords: pediatric liver transplantation, parents, discharge readiness, quality of discharge instructions.
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INTRODUCTION

Congenital biliary atresia and pediatric hereditary metabolic abnormalities often result in hepatic lesions and may ultimately cause liver failure. In such cases, liver transplantation (LT) is the only efficacious therapy for end-stage liver disease.[1,2] Liver transplantation (LT) is the only efficacious treatment for end-stage liver disease. Children who have liver transplants often experience more severe illness before the surgery, more physical injury after the surgery, and more extended periods spent in the hospital. Enhanced recovery after surgery (ERAS) is increasingly used in the clinical setting and is also being steadily employed to maximize pediatric liver transplantation.[3] Furthermore, it is increasingly being used to enhance the perioperative care of pediatric liver transplantation and reduce the duration of hospitalization. Hospitalization duration is reduced on average.[4] It is crucial to evaluate the preparedness of pediatric liver transplant parents as primary caregivers, as pediatric liver transplant recipients are frequently discharged from the hospital before fully recovering. The higher the level of readiness, the smoother the transition from hospital to home for pediatric liver transplant recipients and the lower the occurrence of complications after discharge.[5] Greater discharge preparedness in pediatric liver transplant patients facilitates a smoother transition from the hospital to home and reduces the incidence of problems after discharge. Health education is essential to clinical treatment and is provided throughout all phases of hospital discharge preparation.[6] It serves as the primary source of information for parents about professional care and significantly impacts child health outcomes. The caliber of discharge instructions serves as an indication of the caliber of teaching administered by nurses and also an indication of the patient's perspective of the instructions offered by nurses.[7] The caliber of discharge instructions indicates the caliber of teaching delivered by nurses, which in turn indicates patient evaluations of the substance and proficiency of the instruction supplied by nurses.[8] Furthermore, research on adults has demonstrated a significant correlation between the caliber of nurse guidance and preparedness for discharge and health outcomes. Patients who

receive discharge instructions of superior quality exhibit greater readiness for discharge, experience successful recovery following hospitalization, and face reduced likelihood of illness recurrence.[9] The significance of providing discharge instructions for juvenile liver transplant patients Discharge instructions play a crucial role in the rehabilitation process of pediatric liver transplant patients after their release from the hospital. There is a lack of research investigating the relationship between the preparedness of parents of pediatric liver transplant patients for release and the effectiveness of the discharge instructions they receive.

METHODS

Materials

The study was a descriptive study that adopted a convenience sampling method to investigate the current status and analyze the correlation between readiness for discharge and quality of discharge instructions in pediatric liver transplant recipients. The convenience sample approach was used for data collection. 103 instances of pediatric liver transplant parents who were admitted to the Organ Transplantation Department of the First Affiliated Hospital of Guangxi Medical University between January 2019 and April 2023 were chosen for the research. The inclusion criteria for parents of children undergoing liver transplantation are: (1) The primary caregiver must be either one or both parents and (2) the parents must have provided informed permission to participate in the research. The exclusion criteria for parents of children receiving liver transplants are (1) parents lacking adequate communication and writing abilities and (2) individuals who discontinued their participation in the research for different reasons.

Data collection procedures

Before conducting the survey, the researcher ensured the reliability of the questionnaire by clearly communicating the study's objectives, the time commitment involved, and the confidentiality of the information to the parents of children who had undergone liver transplants. The researcher also assured the parents that they had the right to decline participation or withdraw from the study at any point and that their decision would not negatively impact their child's future treatment. The questionnaires were given by researchers who had received standardized training. Before administering the questionnaires, the researchers obtained consent from the parents of the child who had undergone a liver transplant. The parents completed a general information questionnaire on the 10th day of the child's hospitalization after the surgery.

Additionally, the parents completed the readiness for discharge scale and the quality of discharge instructions scale 4 hours before the child was discharged. After completing each questionnaire, the researcher meticulously reviewed each one, instantly contacting the parents of children who had undergone liver transplants to address any omissions or mistakes and ensure the accuracy of the responses. In this research, 108 questionnaires were sent, of which 103 valid questionnaires were collected, resulting in an effective recovery rate of 95.37%.

Research tools

1. Survey for gathering basic information A self-created comprehensive survey comprising of the child's gender, age, whether they are a sole offspring, duration of hospital stay, and mode of payment for medical costs, as well as the parents' age, gender, ethnicity, occupation, educational attainment, place of residence, and monthly household income.
2. The Chinese iteration of the Readiness for Hospital Discharge Scale (RHDS) was first created by American researchers Weiss et al. and subsequently revised by Chinese academics.[10] Subsequently, they were refined by Chinese scholars Lin Youhua et al.[11,12] The Readiness for Hospital Discharge Scale (RHDS) was created by American researchers Marianne et al. The scale has 12 items that are categorized into three dimensions: personal status (3 items), adaptation (5 items), and anticipatory assistance (4 items). The scoring system assigns a value between 0 and 10 to each item, resulting in a total score ranging from 0 to 120. A higher total scale score indicates a greater level of preparation for release. The scale's Cronbach's alpha coefficient was 0.890, indicating a higher level of accuracy in assessing an individual's preparedness for discharge. The present study responded to the readiness of liver transplant parents to be discharged from the hospital using scores on 12 items and three dimensions of this scale.
3. The Quality of Discharge Teaching Scale (QDTS) is a measurement tool used to assess the effectiveness of discharge teaching. The scale was first devised by Weiss et al. and subsequently adapted by Wang Binghua et al.[13] The scale was first created by Weiss et al. and then adapted into a Chinese version known as the QDTS by Wang Binghua et al.[13] The scale was first devised by Weiss et al. and then adapted into the Chinese version of the Quality of Discharge Teaching Scale by Wang Binghua et al. The scale has 24 items, which are categorized into three dimensions: the required content dimension (consisting of 6 items), the learned content dimension (consisting of 6 items), and the teaching abilities and effectiveness dimension (consisting of 12 items). The scoring system assigns 0-10 points to each item. The overall score of the scale is determined by adding together the scores of the content, delivery skills, and efficacy aspects. A higher total score indicates a higher quality of discharge instructions the released patient receives.

Data analysis

Data input and analysis were conducted using SPSS 17.0. The mean±standard deviation (SD) was used to depict the present readiness for discharge and the quality of discharge instructions for pediatric patients who underwent liver transplantation. Pearson correlation analysis was employed to determine the association between the quality of discharge instructions and readiness for discharge in these patients. A significance level of $P<0.05$ was used to indicate statistical significance.

Table 1. General information on children with liver transplantation (n=103)

Variables		Number of cases (n)	Percentage (%)
Gender of child	Male	64	62.14
	Female	39	37.86
Age	<1 year	56	54.37
	1-3 years	20	19.42
	4-6 years	16	15.53
	7-11 years	5	4.85
	12-18 years	6	5.83
Any complications	Yes	18	17.48
	No	85	82.52
Only child	Yes	34	33.01
	No	69	66.99
	<21d	15	14.56
Length of hospitalization	21-42d	40	38.84
	>42d	48	46.60
Methods of payment of medical expenses	City and countryside health insurance	50	48.54
	City and town medical insurance	51	49.51
	Own expense	2	1.95

Table 2. General information on pediatric liver transplant caregivers (n=103)

Variables		Number of cases (n)	Percentage (%)
Gender of child	Male	41	39.81
	Female	62	60.19
Age	<25 years	8	7.77
	25-35 years	38	36.89
	36-45 years	54	52.43
	>45 years old	3	2.91
Parent's education	Junior high school and below	48	46.60
	College and below	29	28.20
	Undergraduate and above	26	25.16
Parent's careers	Un-employee	16	15.53
	Farmer	10	9.70
	Workers	21	20.39
	Private firm (PRC usage)	24	23.30
	Business unit	32	31.07
Ethnic group	Han ethnic group	88	85.44
	National Minority	15	14.56
Current address	Countryside	50	48.54
	Cities and towns	53	51.46
Methods of payment of medical expenses	City and countryside health insurance	50	48.54
	City and town medical insurance	49	47.57
	Own expense	4	3.88
Average monthly household income (yuan)	<3000	21	20.38
	3000-5000	39	37.86
	>5000	43	41.74

Table 3. Discharge readiness scores for parents of pediatric liver transplants (mean±SD) unit

Variables	Number of items	Totals	Average
Personal status	3	20.40±5.57	6.80±1.86
Adaptive	5	31.11±9.06	6.22±1.81
Anticipatory support	4	25.40±7.78	6.35±1.94
Totals	12	76.91±22.01	6.41±1.83

Table 4. Quality scores of discharge instructions for parents of children with liver transplants (mean±SD) unit

Variables	Number of items	Total score	Average
Required content	6	31.57±7.37	5.26±1.23
Acquired content	6	40.31±8.87	6.72±1.48
Teaching skills and effectiveness	12	82.25±15.98	6.85±1.33
Totals	24	122.56±23.56	5.11±0.98

Table 5. Correlation analysis between readiness for discharge and quality of discharge instructions for parents of pediatric liver transplants (n=103)

Variables	Required content		Acquired content		Teaching skills and effectiveness		Total Discharge Orientation Quality Score	
	r-value	P	r-value	P	r-value	P	r-value	P
Personal status	-0.328	0.001	0.663	<0.001	0.580	<0.001	0.640	<0.001
Adaptive	-0.342	<0.001	0.645	<0.001	0.558	<0.001	0.621	<0.001
Anticipatory support	-0.406	<0.001	0.687	<0.001	0.605	<0.001	0.668	<0.001
Total discharge readiness score	-0.376	<0.001	0.672	<0.001	0.588	<0.001	0.651	<0.001

RESULTS

Baseline Characteristics

The baseline characteristics of the children and their parents who underwent liver transplantation were displayed in Tables 1 and 2.

Parental preparedness for hospital discharge of children undergoing liver transplantation

The overall ready-to-discharge score of parents of children who had liver transplants was calculated to be 76.91±22.01. Additionally, the average score for each entry was 6.41±1.83, as shown in Table 3.

Evaluation of discharge instructions provided to parents of pediatric liver transplant recipients

The discharge guideline for parents of children with liver transplants achieved a total score of (122.56±23.56) and a mean score of (5.11±0.98), as shown in Table 4.

An investigation on the relationship between the preparedness for release and the effectiveness of discharge instructions in parents of children who have had liver transplants

The scores indicating the readiness of parents for the discharge of their child after a liver transplant were found to have a positive correlation with the overall quality of discharge orientation (r=0.651, p<0.001), the amount of acquired information (r=0.672, p<0.001), and the effectiveness of the presentation skills (r=0.588, p<0.001). Additionally, there was a negative correlation between the readiness scores and the information needed (r=-0.376, p<0.001). Table 5 displays the specifics.

DISCUSSION

Current status of discharge readiness of parents of a pediatric liver transplant

The research found that the overall ready-for-discharge score of parents of pediatric liver transplant patients was 76.91±22.01. The mean score for individual entries was 6.41±1.83, which was lower than the readiness to release children having surgery in previous studies.[14] The average scores of the three aspects were, from highest to lowest, adaptability, anticipatory assistance, and personal status. The lower ratings for anticipatory support and personal status suggest that parents were not adequately prepared for their child's release and relied more on family members for care and emotional support. The rationales for doing the analysis are as follows:

The age distribution of the children in this research was primarily young, with 92 cases (89%) of children aged less than seven years and 56 cases (54.37%) of children aged less than one year. The children were in their early stages of development and lacked sufficient self-care skills. Consequently, they required constant companionship from their caregivers throughout the day. Additionally, some of the mothers were still in the breastfeeding phase and had not fully recuperated both physically and mentally. As a result, the children received limited care from their breastfeeding mothers.

In the study conducted by Rennick et al., it was shown that parents constituted almost 70% of the liver donors for children undergoing liver transplantation. The researchers also noted that when one parent served as the donor, both the donor and their spouse experienced significant psychological stress.[15]

The duration of the children's hospitalization As the duration of hospitalization increases, the caregiver's psychological resilience decreases, leading to a decline in their mental well-being. Within this investigation's scope, 46.60% of the children were admitted to a hospital. Within the scope of this investigation, it was shown that 46.60% of children who had liver transplantation experienced hospitalization for a duration exceeding 48 days. Furthermore, the caretakers of these children reported a lack of positive psychological impact.

Research has shown a correlation between the degree of postoperative healing in children who have had significant surgery and the level of preparedness exhibited by their parents for hospital release. Liver transplantation in children is a significant surgical procedure in pediatrics, and the occurrence or non-occurrence of problems after surgery and the child's healing condition impact the parents' preparedness for hospital release.

Hence, healthcare professionals should offer prompt, empathetic communication and education to caregivers of breastfeeding mothers, caregivers who are parents of donors, and caregivers of children with subpar postoperative healing. This will enhance the caregivers' capacity to provide care and their preparedness for hospital discharge.

Status of the quality of discharge instructions for parents of children with liver transplants

The study assessed the quality of discharge guidance provided to parents of children who underwent liver transplantation. The total score for the guidance was (122.56±23.56). The mean score for the initial guidance was (5.11±0.98). Among the three dimensions evaluated, the skill and effectiveness of delivery had the highest mean score, followed by the content obtained and the content needed. These scores were higher compared to the readiness for discharge of parents of children with other diseases that have been previously studied. The discharge instructions exhibited a modest degree of quality.[16] The reasons for this are as follows:

Children who have liver transplants have an extended hospital stay, allowing caregivers enough opportunity to engage with medical personnel. This facilitates the acquisition of more information about their children's health status and enhances their caregiving skills.

To enhance their understanding of children who have had liver transplants, parents may get valuable information by following the official public account of the Department of Transplantation, specifically the "Transplantation Home" account affiliated with our hospital. Parents of children who have had liver transplants may get further expertise on pediatric liver transplantation by subscribing to the public account "Organ Transplant Home" provided by our organ transplantation department.

Parents of children who have had liver transplants have more avenues for communication with parents of other children who have undergone similar surgical procedures while they are in the hospital. This enables them to get more excellent psychological support and engage in the sharing of caring techniques. Consequently, healthcare professionals must enhance the caliber of discharge instructions provided to parents of children who have undergone liver transplants. This can be achieved by consistently delivering informative health lectures, disseminating updated public information, distributing informative brochures, and creating a WeChat group that caters to families of children who have undergone liver transplants.

The readiness of pediatric liver transplant parents for discharge is associated with the quality of discharge instructions

The research found a strong correlation between the discharge preparedness of parents of pediatric liver transplant patients and the quality of discharge instructions. More excellent quality instructions were linked with greater levels of discharge readiness, which aligns with the results of previous studies.[17,18] This aligns with the findings of other research. The reasons for this can be summarized as follows: when discharge instructions are of higher quality, parents of children with liver transplants gain more specialized knowledge, acquire more advanced caregiving skills, and develop better coping mechanisms for the disease. Additionally, good quality discharge instructions foster a closer doctor-patient relationship, enabling parents to receive specialized knowledge and efficiently enhance their readiness for discharge.

Therefore, this study has several limitations, such as the sample size of this study was only from one hospital with limited sample representativeness. Only part of the correlation between readiness for discharge and quality of discharge instructions for children's liver transplantation was explored, and more in-depth studies should be involved in the future with multi-center, large-sample studies; correlation analyses were mainly used in this study to explore the associations between the variables, and the pathways of action between the variables of interest can be explored and verified in the future by adopting advanced statistical methods based on a large sample.

CONCLUSION

The results of this study show that healthcare professionals adopt various effective ways to develop a case-by-case discharge guidance plan, which is conducive to improving the quality of discharge guidance. It is recommended that pediatric nursing staff do an excellent job in the future of psychological assessment of the parents of children with liver transplantation before the operation to understand the health needs of the parents of the children with liver transplantation. The nursing staff should strengthen the communication with the parents of children with liver transplantation to understand the physical and psychological status of the parents of the children with liver transplantation and provide guidance to the patients with targeted guidance to formulate a plan for discharge from the hospital.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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AUTHOR CONTRIBUTION

All members have contributed equally to the writing of this manuscript.

ETHICAL CONSIDERATIONS

This study was reviewed and agreed to be conducted by the Medical Ethics Committee of the First Affiliated Hospital of Guangxi Medical University.

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