

# KNOWLEDGE NEEDS OF SPINAL INJURY SURGERY PATIENTS BEFORE DISCHARGE AT THE SPINAL SURGERY DEPARTMENT OF VIET-DUC UNIVERSITY HOSPITAL

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## ABSTRACT

**Objective:** To describe the knowledge needs of patients undergoing spinal injury surgery before discharge from the Spine Surgery Department of Viet Duc University Hospital.

**Method:** A cross-sectional descriptive study was conducted among 150 patients undergoing spinal surgery in the Spine Surgery Department at Viet Duc Friendship Hospital to assess their knowledge needs using the Patient Learning Needs Scale (PLNS).

**Results:** The total PLNS score was  $161,48 \pm 5,78$ . Patients had the highest need for knowledge regarding care, detection of complications, and signs of disease ( $4,28 \pm 0,78$ ). This was followed by a high need for expertise in medication ( $4,17 \pm 0,89$ ) and information about treatment and daily activities ( $4,00 \pm 0,87$ ). The need for knowledge related to the disease itself was lower ( $3,93 \pm 0,91$ ), and the lowest need was for knowledge about community support and care ( $3,82 \pm 1,03$ ).

**Conclusion:** The knowledge needs of 150 spine surgery patients were high.

**Recommendation:** The assessment of patients' knowledge needs should be strengthened and integrated into clinical practice, especially nursing practice, to contribute to comprehensive postoperative care.

**Keywords:** Patient learning needs, spinal surgery, Viet Duc University Hospital.

## 1. INTRODUCTION

Spinal surgery is an invasive intervention commonly indicated for spinal disorders or spinal trauma when conservative treatment, such as medication and physiotherapy, is ineffective, causing severe pain, limited mobility, and impairment in daily activities [1]. During hospitalization, postoperative patients are monitored, cared for, and provided daily health education by nursing staff. However, after discharge, patients face multiple challenges. Therefore, discharge education and assessment of patient knowledge needs are essential to enhance their ability to cope with difficulties at home. Assessing patient learning needs before discharge is a necessary task for nurses as part of the health education process. Nurses play a crucial role in providing information about disease conditions, medications, and recovery processes, and in improving quality of life after surgery [2]. In Vietnam, particularly at Viet Duc Friendship Hospital, few systematic studies have assessed the learning needs of spinal trauma patients before discharge. Identifying these needs provides a

scientific basis for developing educational programs, instructional materials, and tailored discharge planning, thereby improving patient care and treatment outcomes. Based on this rationale, we conducted the study to assess the knowledge needs of patients undergoing spinal injury surgery before discharge at the Spine Surgery Department of Viet Duc University Hospital.

## 2. STUDY SUBJECTS AND METHODS

### 2.1. Study subjects

- Inclusion criteria: (1) Patients aged above 16 years undergoing spinal surgery for spinal injury; (2) Patients indicated for discharge on the day of the interview; (3) Patients or caregivers/guardians (for minors under 18) providing informed consent.

- Exclusion criteria: (1) Patients with reduced or impaired cognitive ability; (2) Patients with impaired communication ability.

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## 2.2. Study setting and duration

The study was conducted in the Spinal Surgery Department at Viet Duc University Hospital from February 2025 to August 2025.

## 2.3. Study design: Cross-sectional descriptive study.

## 2.4. Sample size and sampling method

The sample size was estimated using the formula for calculating a mean value:

$$n = \frac{Z^2_{1-\alpha/2} \sigma^2}{d^2}$$

In which:

+ n represents the minimum required sample size; the standard deviation of the PLNS score derived from the study by Hoang Lan Van et al. (2020) was 0,93 [3].

+ d = 15% and a significance level of  $\alpha = 0,05$ , substitution into the formula yields  $n = 147$ . We rounded this number to 150. Accordingly, the final sample size for patient interviews was 150 participants.

- Sampling method: Convenience sampling.

## 2.5. Variables and data collection tools

Patient demographic variables included age, gender, occupation, education level, and monthly income.

The Patient Learning Needs Scale (PLNS), developed by Bubela et al. (1990) and with a Cronbach's alpha of 0.95, was used to assess patients' knowledge needs before discharge. To comprehensively evaluate these needs, we employed 40 items from the scale. Patients were asked to rate the importance of each item across five domains: (1) Medications, (2) Treatment and daily activities, (3) Community support and care, (4) Monitoring for complications and recognizing symptoms, and (5) Disease-related issues. A 5-point Likert scale was used (1 = not important to 5 = very important). The total PLNS score ranges from 40 to 200, with higher scores indicating greater perceived importance of receiving information before discharge.

## 2.6. Data processing and analysis

Data were entered and cleaned using Excel 2016 and analyzed using SPSS version 26.0. Categorical variables were presented as frequencies and percentages; continuous variables were reported as means, standard deviations, minimum, and maximum values.

## 2.7. Ethical considerations

All participant information was anonymized and kept strictly confidential. Participation was voluntary, and patients could withdraw at any time without affecting their treatment.

## 3. RESULTS

### 3.1. General characteristics of participants

Table 1. General characteristics of patients (n=150)

Characteristics		N	%
Age	Mean $\pm$ SD	61,6 $\pm$ 18	
Gender	Female	61	40,7
	Male	89	59,3
Educational level	Primary education (Level 1)	40	26,7
	Lower secondary education (Level 2)	77	51,3
	Upper secondary education (Level 3)	18	12,0
	Vocational/college education, University/postgraduate education	15	10,0
Occupation	Workers and public employees	11	7,3
	Retired	14	9,3
	Farmers	69	46,0
	Self-employed	56	37,3
Monthly income	<5 million	119	79,3
	$\geq$ 5 million	31	20,7

Table 1 shows that, among the 150 participants, 59,3% were male and 40,7% were female. The mean age was  $61,6 \pm 18$  years. Most had secondary education (51,3%), and the majority were farmers (46%). Monthly income was predominantly below 5 million VND (79,3%).

## 3.2. Patient Learning Needs

Table 2. The Patient Learning Needs Scale (PLNS)

Variables	Level of importance
Disease-related issues	
How can I explain my condition to my family/friends?	$3,4 \pm 1,1$
Where can my family receive counseling to address issues related to my illness?	$4,0 \pm 0,8$
What should I do if I experience gastrointestinal problems?	$4,0 \pm 0,8$
What should I do if I have difficulty urinating?	$4,1 \pm 0,8$
When can I take a shower?	$3,8 \pm 0,9$
How long should I rest?	$4,2 \pm 0,7$
Mean	$3,93 \pm 0,91$



Variables	Level of importance
<b>Community support and care</b>	
How can I complete administrative procedures in the hospital?	3,7 ± 0,9
How can I access home healthcare services?	3,6 ± 1,0
How can I connect with communities of people with similar conditions?	3,3 ± 1,0
Whom can I talk to about my fears or concerns regarding death?	3,3 ± 1,3
How can I recognize emotional responses related to my illness?	3,8 ± 0,9
Where can I seek assistance in coping with illness-related emotions?	3,9 ± 0,9
How can I avoid stress?	3,7 ± 1,1
How do I properly care for my surgical wound?	4,4 ± 0,7
How can I prevent skin irritation?	4,2 ± 0,7
How can I prevent skin redness?	4,2 ± 0,8
Mean	3,82 ± 1,03
<b>Complication monitoring and symptom recognition</b>	
How can I identify complications?	4,4 ± 0,6
What complications might I experience?	4,2 ± 0,8
How can I prevent complications?	4,3 ± 0,7
What symptoms may be related to my condition?	4,3 ± 0,7
How can I manage potential symptoms?	4,2 ± 0,8
How can pain be managed?	4,2 ± 0,8
How does this condition affect my daily life?	4,3 ± 0,8
How might this condition affect my future?	4,3 ± 0,9
Mean	4,28 ± 0,78
<b>Treatment and daily activities</b>	
What is the purpose of my treatment?	3,9 ± 0,9
What are the possible adverse effects of treatment?	4,0 ± 0,8
How should I prepare my meals?	3,7 ± 0,9
Which foods should I eat or avoid?	3,9 ± 0,9

Variables	Level of importance
Which vitamins should I supplement?	4,1 ± 0,8
What should I do if I cannot sleep?	4,1 ± 0,9
Which activities should I avoid? (e.g., lifting heavy objects)	4,3 ± 0,8
Which types of physical exercise should I practice?	4,1 ± 0,8
Mean	4,00 ± 0,87
<b>Medications</b>	
When should I stop taking my medication?	4,3 ± 0,7
What should I do if I develop a drug allergy?	4,3 ± 0,8
How should I take my medication?	4,2 ± 0,9
Why do I need to take this medication?	4,2 ± 0,9
What side effects might occur from the medication?	4,2 ± 0,9
Where can I purchase my medication?	3,8 ± 1,1
When should I take each type of medication?	4,1 ± 0,9
What is the function of each medication?	4,2 ± 0,8
Mean	4,17 ± 0,89
PLNS total score	161,48 ± 5,78 (min-max: 46-200)

Table 2 shows that the PLNS total score was 161,48 ± 5,78.

#### 4. DISCUSSION

This study was conducted on 150 patients who underwent spinal surgery due to spinal trauma at the Spinal Surgery Department of Viet Duc Friendship Hospital. The male-to-female ratio was 1,3/1. This may be explained by the fact that men are more frequently engaged in physically demanding and high-risk

occupations, have higher rates of alcohol consumption, and participate in traffic activities more often than women, making them more susceptible to spinal trauma and consequently more likely to require spinal surgery. Similar findings were reported in the studies by Hoang Thi Tra My (2024) [4] and Omer Boran (2023) [5], where the male-to-female ratios were 1,8/1 and 1,2/1 respectively. The mean age in our study was  $61,6 \pm 18$  years. Most participants had a secondary education level (51,3%), while the proportions with vocational, college/university, or postgraduate education were low. Nearly half of the patients were farmers (46%), and the majority (79,3%) reported a monthly income of less than 5 million VND. Educational level and income are known to influence patients' learning needs. According to Sevgi Deniz (2017), patients with higher education levels tend to have lower learning needs [6].

This study employed the Patient Learning Needs Scale (PLNS) to assess knowledge needs before discharge; however, only 40 of the 50 items were used, excluding questions related to skin care, which were considered less relevant to postoperative spinal surgery patients. The findings indicated that patients had high learning needs, with a total PLNS score of  $161,48 \pm 5,78$ . Hoang Lan Van et al., who also used 40 of the 50 PLNS items and excluded the skin-care domain, reported a lower total PLNS score of  $109,12 \pm 15,69$  [3]. This difference may be attributed to the smaller sample size ( $n = 91$ ) and differences in patient populations, as their study focused on postoperative abdominal surgery patients. Several previous studies using the full 50-item PLNS have reported higher total scores compared to ours. For instance, Betul Guvan (2020) reported a PLNS score of  $215,6 \pm 27,9$  [7]; Omer Boran et al. (2023) reported  $188,74 \pm 27,23$  [5]; Hulya Ustundag et al. (2023) reported  $211,15 \pm 38,49$ ; and Hoang Thi Tra My reported  $200,01 \pm 8,67$  [4]. This discrepancy likely results from differences in the number of items across PLNS domains, as the relevance of each domain varies by patient population, and an increase in the number of items naturally leads to a higher total score. Patients in our study identified complication monitoring and symptom recognition as the most critical information needed after discharge (mean =  $4,28 \pm 0,78$ ). Similarly, information related to medications and treatment/daily activities was also rated as highly important ( $4,17 \pm 0,89$  and  $4,00 \pm 0,87$ , respectively). In contrast, disease-related information ( $3,93 \pm 0,91$ ) and community support and care ( $3,82 \pm 1,03$ ) were rated as less critical. These findings are consistent with those of Hoang Lan Van et al., who reported that information regarding complications and symptoms was the most important (mean = 2,97); medication and treatment/daily activities were also rated as necessary (means = 2,86 and 2,95), while disease-related concerns and community support were considered less important (means = 2,33 and 2,49) [3]. Similar patterns were observed in the study by Hoang Thi Tra My, in which high learning needs were reported for daily living activities ( $38,34 \pm 2,54$ ), complication detection and treatment

( $38,79 \pm 2,64$ ), and medication use ( $31,14 \pm 1,73$ ). In contrast, lower needs were noted for disease-related concerns ( $16,96 \pm 2,09$ ) and community support ( $22,92 \pm 3,34$ ) [4]. Multiple studies have demonstrated that patients are most concerned about medication use, daily activities, and the identification and prevention of complications during treatment. For spinal trauma surgery patients—whose injuries directly affect mobility and daily functioning—postoperative complications such as limb weakness, sensory impairment, and reduced quality of life are major concerns [8]. Consequently, knowledge related to treatment, complication prevention, and daily activities is highly prioritized. Furthermore, the majority of patients in our study were farmers with low education levels (below lower secondary) and low monthly income (<5 million VND). These factors limit their ability to access reliable health information and reduce their financial capacity to seek additional educational resources. Educational level also impacts their ability to comprehend complex medical information. Therefore, assessing patient learning needs should be strengthened and integrated into routine nursing practice to support comprehensive postoperative care.

## 5. CONCLUSION

This study assessed the knowledge needs of 150 patients undergoing spinal injury surgery using the PLNS scale. Overall, patients demonstrated high information needs before discharge, with the highest scores in complication monitoring and symptom recognition, followed by medication-related knowledge and daily treatment activities. Lower needs were noted in disease-related issues and community support. Strengthening patient education and integrating structured knowledge needs assessment into clinical practice, particularly nursing care, is essential for improving postoperative recovery.

## REFERENCES

- [1] van der Horst A.Y., Trompetter H.R., Pakvis D.F.M. và cộng sự. Between hope and fear: A qualitative study on perioperative experiences and coping of patients after lumbar fusion surgery. *Int J Orthop Trauma Nurs* 2019;35:100707.
- [2] Üstündag H, Gül A, Özkaya B. The Determination of Patient Learning Needs After Day Surgery: A Cross-Sectional Study. *J Perianesth Nurs* 2023;38:258–63. <https://doi.org/10.1016/j.jopan.2022.06.002>.
- [3] Hoang Lan Van, Tran Ngoc An, Dinh Thi Hai Bin, Truong Quang Trung. Assessment of discharge information needs among postoperative patients. *Journal of Nursing* 2020;31:31–5.
- [4] Hoang Thi Tra My, Phung Thi Hanh. Assessment of knowledge needs among neurosurgical patients before discharge at the Neurosurgery Department I, Viet Duc Friendship Hospital. Undergraduate Nursing Thesis 2024:36–7.



[5] Boran O, Kose G. A Turkish Study to Identify the Discharge Learning Needs of Spinal Surgery Patients. *J Neurosci Nurs* 2023;55:86–90. <https://doi.org/10.1097/JNN.0000000000000702>.

[6] Sevgi Deniz, Derya Gezer, Sevilay Erden, Sevban Arslan. Assessment of Learning Needs in Patients Hospitalized In the General Surgery Clinic. *International Journal of Caring Sciences* n.d.;10:764–70.

[7] Guven B, Ibrahimoglu O, Elbuken B. Learning Needs of Patients and Their Caregivers After Ambulatory Surgery. *J Perianesth Nurs* 2020;35:283–7. <https://doi.org/10.1016/j.jopan.2019.10.012>.

[8] Hu X, Xu W, Ren Y, Wang Z, He X, Huang R, et al. Spinal cord injury: molecular mechanisms and therapeutic interventions. *Signal Transduct Target Ther* 2023;8:245. <https://doi.org/10.1038/s41392-023-01477-6>.