

# Knowledge of Nursing Staff on Postoperative Pain: The Case of the Laquintinie Hospital in Douala, Cameroon

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## Abstract

**Background and objective:** Pain is a major concern in the surgical environment, but its management remains insufficient due to several factors related to the nursing staff, the organization of the structure or the patient himself. The objective of this study was to assess the knowledge of the nursing staff on postoperative pain at the Laquintinie Hospital in Douala. **Methodology:** This was a cross-sectional study carried out at the Laquintinie Hospital in Douala from September to December 2018. Participants were consecutively selected among members of nursing staff in charge of operated patients in the visceral surgery, trauma surgery, surgical reanimation, gynaecology and obstetrics services. Socio-professional data and data related to knowledge of postoperative pain were collected from this personnel using a pre-tested semi-structured questionnaire. **Results:** With regard to knowledge of postoperative pain, the proportion of correct answers to the knowledge questions was 61.4%. This proportion varied significantly with the specific training received on pain and the specialization of the nursing staff ( $p < 0.001$ ). **Conclusion:** The results of the study reveal knowledge in this population that deserves to be improved with a view to better management of patients undergoing surgery.

## Keywords

Nursing Staff, Postoperative Pain, Knowledge

## 1. Introduction

Post-surgical pain is one of the most important concerns in the surgical setting,

as all surgical patients are exposed to it [1]. Its management requires a multidisciplinary approach [2]. Studies have shown that more than 80% of patients undergoing surgery had postoperative pain [3] [4] [5]. This pain is predictable, often acute [6] and constitutes a major physiological and psychological stress factor [7]. It also leads to an expansion of the postsurgical hospitalisation [8] and can become chronic [9]. The extent of complications related to postoperative pain depends on the quality of its management and justifies the attention paid by health care professionals improving quality of life of patients undergoing surgery. However, the management of this pain is regularly described as non-optimal [10] [11] [12] [13]. Several factors related to patients and the organisation of surgical services have been cited to justify this inadequacy in the management of postoperative pain. Among them, the knowledge and perception of postoperative pain by the nursing staff appear to be recurrent [12]-[19].

The aim of this study was to assess the knowledge of the nursing staff about postoperative pain in the surgical, gynaecological and surgical reanimation departments of the Laquintinie Hospital.

## **2. Materials and Methods**

### **2.1. Study Design and Population**

This was a cross-sectional study conducted at the Laquintinie Hospital in Douala from September to December 2018. The study population was nursing staff in charge of operated patients. Participants were consecutively selected among members of visceral surgery, trauma surgery, surgical reanimation, gynaecology and obstetrics departments who provided a written consent.

### **2.2. Study Variables and Data Collection**

Data were collected using a pre-test semi-structured questionnaire designed by the authors (see **Appendix 1**). This questionnaire was adapted from international Guidelines on Management of Postoperative Pain [20] [21] [22] [23]. It was made up of 18 questions grouped under two items. The first item concerned socio-professional characteristics of participants and was constituted of 7 questions and the second concerned their knowledge on postoperative pain and was constituted of 11 questions. In this item, 21 right answers were proposed to the participants.

The participants' level of knowledge was considered sufficient for those who provided at list 80% of the right answers (16 right answers for this item), as described by Mc Caffery and Robinson as the minimum level of knowledge about postoperative pain [24]. It was given to each participant to fulfill the questionnaire alone without the investigators' help. The questionnaire was pre-tested with similar nurses' staff in a hospital in Douala (Cameroon).

### **2.3. Data Analysis**

The data were analyzed using SPHINX PLUS<sup>2</sup> software version 5.1.0.7 Lexica

Edition. This analysis consisted of the calculation of averages and proportions. The Chi-square test was used to compare the level of knowledge between the different groups. The results were considered significantly related for p values below 0.05.

## 2.4. Ethical Considerations

This study was authorized by the Ethics Committee of the University of Ngaoundéré (Ref.: 2018/120/UN/DFS/CD-SBM) and the Ethics Committee of the Laquintinie Hospital of Douala (Ref.: 3972/AR/MINSANTE/DHL/CM). An informed consent form was signed by each participant.

## 3. Results

### 3.1. Socio-Professional Characteristics of the Participants

A total of 51 health care personnel (16% men and 84% women) were included in this study. Their average age and on-the-job time in the profession was  $36.10 \pm 8.74$  years and  $10.98 \pm 8.70$  years respectively. The majority of these participants were staff who did not specialise in the care of patients undergoing surgery (58.8%) and had been trained in postoperative management (64.7%). The socio-professional characteristics described are presented in **Table 1**.

**Table 1.** Distribution of nursing personnel according to socio-professional characteristics.

Variables	N = 51	%
Gender		
Female	43	84.3
Male	8	15.7
Age, (average: $36.10 \pm 8.74$ years)		
Less than 30	15	29.4
From 30 to 35	11	21.6
From 35 to 41	14	27.5
From 41 to 47	5	9.8
From 47 to 53	3	5.9
53 and over	3	5.9
Specialty		
Specialist Nurse	21	41.2
Non-specialist Nurse	30	58.8
Seniority in the profession (average: $10.98 \pm 8.70$ years)		
Less than 6	14	27.5
6 to 11	18	35.3
11 to 17	10	19.6
17 and over	9	17.6

**Continued**

Seniority in the service (average: $6.92 \pm 6.13$ years)		
Less than 6	27	52.9
From 6 to 11	12	23.5
From 11 to 17	7	13.7
17 and over	5	9.8
Training received on postoperative pain		
Yes	33	64.7
No	18	35.3
Type of training received on postoperative pain		
Initial training	20	60.6
Continuing education	13	39.4

**3.2. Knowledge of Postoperative Pain by Participants**

The level of knowledge of postoperative pain among participants in this study was estimated at 61.4%. The most well-known aspects of postoperative pain were: the influence of the type of surgery (82.4%), the possibility of preventing postoperative pain (94.1%) and the administration of intravenous analgesics as first-line treatment in the immediate postoperative period (80.4%). The less-known items were the haemodynamic effect as one of the effects of postoperative pain on the rest of body (11.9%), the existence of a preoperative pain as a factor influencing postoperative pain (7.8%) and hetero-rating scale as a pain tools assessment (13.7%). The overall knowledge of the nursing staff about postoperative pain in this study is presented in **Table 2**.

**3.3. Socio-Professional Characteristics and Level of Knowledge of the Nursing Staff about Postoperative Pain**

With regard to the statistical link between socio-professional characteristics and knowledge, only the specific training received on postoperative pain and staff specialisation had a significant relationship with the level of knowledge ( $p < 0.001$ ). No link was found between knowledge and the type of training received ( $p = 0.999$ ), seniority in the service ( $p = 0.784$ ) and profession ( $p = 0.934$ ). The relationship between socio-professional characteristics and level of knowledge is presented in **Table 3**.

**4. Discussion****4.1. Socio-Professional Characteristics of the Participants**

This study investigated knowledge of the nursing staff on postoperative pain at the Laquintinie Hospital (Douala, Cameroon). A total of 51 nursing staff members were included in this study: 43 women (84%) and 8 men (15.7%). The majority of women among participants has also been reported by several authors in similar studies [25] [26]. This finding supports the general observation that there

**Table 2.** Participants' knowledge on postoperative pain.

Aspects of knowledge about postoperative pain	Correct answers	
	N*	%
Type and impact of postoperative pain		
Postoperative pain is nociceptive pain	29	56.9
Postoperative pain can have an impact on the body	42	82.4
The effects of postoperative pain:		
Psychological	28	66.7
Haemodynamic	5	11.9
Digestive	22	52.4
Cardiorespiratory	31	73.8
Factors influencing postoperative pain		
Age	11	21.6
Gender	14	27.5
Anaesthesia technique	40	78.4
Type of surgery	41	80.4
Anxiety	28	54.9
Existence of preoperative pain	4	7.8
Prevention of postoperative pain		
Is it possible to prevent postoperative pain?	48	94.1
Prevention of postoperative pain begins in the preoperative period	38	79.2
Evaluation of postoperative pain and its tools		
Is the hetero-rating scale a tool?	7	13.7
Is verbal rating scale a tool?	17	33.3
Is numeric rating scale a tool?	23	45.1
Is visual analog scale a tool?	14	27.5
Postoperative pain management		
Patient's opinions and the level of understanding should be considered in the postoperative pain management	29	56.9
Postoperative pain management is very important	39	76.5
The recommended route of administration pain medication is intravenous	44	86.3
It is right for the patient to expect complete pain relief	41	86.4

\*Number of participants who have given correct elements of knowledge for each item.

are more women than men in care settings [27]. The average age of the participants ( $36.10 \pm 8.74$  years) was close to those reported by Nahid *et al.* in Iran (33.5 years) and Houzou *et al.* in Togo (35 years), respectively [28] [29]. With regard to their professional characteristics, only 41.2% of the study participants were specialised in the management of patients undergoing surgery. This includes

**Table 3.** Socio-professional characteristics and level of knowledge of the nursing staff about postoperative pain.

Socio-professional characteristics	Level of knowledge		P
	N	%	
Specific training received on the postoperative pain			
Yes	489	64.4	<0.001
No	162	39.3	
Type of training received on the postoperative pain			
Initial training	317	75.8	0.999
Continuing education	219	58.6	
Staff specialisation			
Specialised personnel	317	68.6	<0.001
Non specialised personnel	267	40.5	
Seniority in the service (in years)			
Less than 7	337	47.9	0.784
7 to 14	174	65.9	
Greater than 14	84	54.5	
Seniority in the profession (in years)			
Less than 11	350	54.9	0.934
11 to 20 years	202	61.2	
Greater than 20	71	46.1	

nurses' anaesthetists and surgical nurses, who are effectively trained in the management of postoperative pain during their professional training. Priority should be given to them during recruitments for services where patient undergo surgery. However, nurses who are not specialised in management of patient undergoing surgery need continuous education focused on specific issues like postoperative pain management in order to be able to work effectively with patient undergoing surgery. Indeed, continuous training is known to allow professionals to upgrade their knowledge and skills [30]. In this study, 35.3% of the participants have never been trained on postoperative pain management during their professional training or continuous education. Beyond initial or continuous education, seniority of nurses in services where patients undergo surgery may help them improving their knowledge and skills in managing operated patients. The study results revealed that 52.9% of the participants had spent less than 7 years in selected departments.

#### 4.2. Participants' Knowledge of Postoperative Pain

The influence of the surgery and anaesthesia methods on postoperative pain was known by the majority of study participants (78.4%). In addition, 94.1% of the participants knew that it is possible to prevent postoperative pain and 79.2% of

them knew that this prevention starts in the preoperative period. These proportions are close to those reported by Lokossou *et al.* [31], and corroborate international recommendations according to which nursing staff should carry out preoperative assessment in order to identify patients at risk and adjust their management [20] [21]. It is now known that discussing about pain management with patients in the preoperative period contributes to improve postoperative pain management outcomes [32].

Difficulties faced by caregivers in assessing patients' pain have led experts to build and promote various pain assessment tools [20]. For many reasons, some of them are more popular than others. Numerical and verbal rating scales are known to be easy to use [33] [34] [35], while visual analog scale presents higher reliability and validity that make it commonly used in medical practice and research [36]. The results of this study indicate that only 27.5% of the participants knew that the visual analog scale is a tool for pain assessment. This lack of knowledge of pain assessment tools by study participants may reflect lack of pain management in our context. Concerning the recommended route of administration pain medication, most of the participants (86.3%) were aware that the intravenous route is the one recommended for pain medication in postoperative period. These results show that the knowledge of study participants about the route of administration of the analgesics are in line with international recommendations according to which the intravenous route is the best for administering first doses of analgesics in the postoperative period [21] [22] [23].

As suggested by McCaffery and Robinson, the minimum level of knowledge about postoperative pain was set at 80% in this study [24]. The level of knowledge about postoperative pain found in the study population was estimated at 61.4%. Therefore, the observed level of knowledge was considered insufficient in the study population. The nature of the questionnaire used to assess the level of participants' knowledge about postoperative pain in this study may have played a role in the insufficient level of knowledge observed [37]. Previous studies have revealed lower levels of knowledge about postoperative pain in others countries. Nahid *et al.* and Zanolin *et al.* have reported 45.7% and 47.6% levels of nursing knowledge on postoperative pain in Jordan and Italy respectively [28] [37]. The differences observed between our results and those of these studies may be due to differences in knowledge assessment tools used.

Managing postoperative pain requires a minimum qualification. This qualification is acquired during the initial and continuous training of nursing personnel in which assessment tools, prevention and management are well studied. Qualified personnel are intended to have higher quality of knowledge and practice than those who are not. In this study, participants who received specific initial or continuous training on postoperative pain presented higher level of knowledge than those who did not ( $p = 0.001$ ). Although, several elements could explain this finding, particularly the quality of the training received, the importance that the nursing staff attaches to continuing education and the period elapsed between the continuing education received and the evaluation during

our study. Otherwise, there was no association between type of training (initial or continuous) and the participants level of knowledge about postoperative pain. A similar observation to this finding has been done by Gordon *et al.* [38].

No association was found in this study between level of participants' knowledge and their seniority in their different departments in one hand, and their seniority in the nursing profession in the other hand. Concerning lack of association between participants' knowledge and seniority in their different services, the results of the present study are closed to those reported by Al-Shaer *et al.* [39]. The lack of association concerning participant's knowledge and seniority in services found in this study suppose a problem of Learning by doing principles in our context. According to Gil-Lacruz *et al.* Learning by doing training is an interesting potential for improvement of quality of health care and skills of health person [40]. Also, as in previous studies, seniority in profession had not shown any association with participants' level of knowledge [41] [42].

## 5. Limitations

The main limitation of the study is the small sample size of the study population. However, all the participants were in charge of operated patients and, their answers may reflect the knowledge about postoperative pain management of nursing staff in the Laquintinie Hospital at the moment of this study.

## 6. Conclusion

The study shows that the level of knowledge of the nursing staff about postoperative pain is insufficient at the Laquintinie Hospital in Douala and that staff training is only of real interest when it provides specific knowledge about postoperative pain.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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## Appendix 1

### Semi-structured questionnaire on knowledge of nursing staff on postoperative Pain at the Laquintinie Hospital in Douala (Cameroon)

#### 1) Socio-professional characteristics of the Nursing Staff

Choose one answer

N°	Identification
1	Age (in years)
2	Gender <input type="checkbox"/> Female <input type="checkbox"/> Male
3	Category of nursing staff <input type="checkbox"/> Specialist Nurse <input type="checkbox"/> Non-specialist Nurse
4	Seniority in service (in years)
5	Specific training received on post-operative pain <input type="checkbox"/> Yes <input type="checkbox"/> No
6	If yes, what type of training was received? <input type="checkbox"/> Initial training <input type="checkbox"/> Continuing education
7	Length of service (in years)

#### 2) Knowledge of postoperative pain by Nursing Staff

Choose the correct(s) answer(s)

8	Is postoperative pain a nociceptive type of pain?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know
9	Do you think that post-operative pain can have an impact on the body?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know
10	If so, which ones?	<input type="checkbox"/> Cardiorespiratory <input type="checkbox"/> Hemostasis <input type="checkbox"/> Digestive <input type="checkbox"/> Psychological
11	What factors influence postoperative pain?	<input type="checkbox"/> Gender <input type="checkbox"/> Anaesthetic technique <input type="checkbox"/> Type of surgery <input type="checkbox"/> Anxiety <input type="checkbox"/> Age <input type="checkbox"/> Presence of pre-operative pain
12	It is possible to prevent postoperative pain?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know
13	When does the prevention of postoperative pain begin?	<input type="checkbox"/> Pre-operatively <input type="checkbox"/> Per-operatively <input type="checkbox"/> Post-operatively
14	By what means do you carry out the evaluation of the postoperative pain?	<input type="checkbox"/> By hetero-rating scale <input type="checkbox"/> By verbal rating scale <input type="checkbox"/> By numeric rating scale <input type="checkbox"/> By visual analogue scales <input type="checkbox"/> By analgesic consumption <input type="checkbox"/> By patient complaint <input type="checkbox"/> No assessment
15	Is the patients' opinions and the level of understanding should be considered in the postoperative pain management?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know
16	Is the management of postoperative pain very important to you?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know
17	What is the recommended route of administration of opioid analgesics on patients with severe pain?	<input type="checkbox"/> Intra-muscular; <input type="checkbox"/> Intravenous; <input type="checkbox"/> Oral route <input type="checkbox"/> Subcutaneous <input type="checkbox"/> Intra-rectal
18	Does the patient have the right to expect complete relief of pain after treatment?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know