

Assessment of Nurses' Knowledge of the Management of Pre-Eclampsia in a Hospital Setting: The Case of the Van Norman Clinic. Bujumbura-Burundi

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Abstract

Background: Pre-eclampsia is one of the pathologies of pregnancy that causes serious maternal and fetal complications. Good nursing management of pre-eclampsia could stabilize and limit possible maternal and fetal complication.

Aim: This study aims to assess nurses' knowledge of the management of pre-eclampsia. This is a descriptive prospective study conducted at the Van Norman Clinic over three-month period from November 1st, 2020 to January 31st, 2021 to assess the knowledge of nurses assigned to the Patient reception service, Emergency service, Gynecological-Obstetrics service and Community Medicine department on the management of pre-eclampsia. Data were treated using Microsoft Word and analyzed by Statistical Package for Social Scientists version 16 (SPSS). During the period of our study, we collected 40 nurses out of 44 nurses, which represents 90.9% (n = 40) of the nurses assigned to the Patient reception service, Emergency service, Gynecological-Obstetrics service and Community Medicine department. Among the 40 cases collected, 30% respondents did not give the true definition of pre-eclampsia. Our study also showed that 70% of nurses had not been trained on the management of pre-eclampsia and 90% had not used nursing theories in their practice while the Inquiry-Based Practice (IBP) and Evidence-Based Practice (EBP) applications were known in 7.5% of cases. With regard to the nursing management of pre-eclampsia, 62.5% of cases knew the first gestures of management while 90% of cases did not know the overall nursing management of pre-eclampsia. Last of continuing education, use of nursing theories and lack of resuscitation were the main obstacles observed in the nursing management of pre-eclampsia.

For better nursing management of pre-eclampsia, emphasis should be placed on building staff capacity and executing the care plan by applying nursing theories.

Keywords

Pre-Eclampsia, Eclampsia, Nursing Theories, Nurse, Management, Hypertension, Nursing

1. Introduction

Pre-eclampsia is one of the common pathologies of pregnancy, leading to many potentially serious maternal and fetal complications [1]. Thus, pre-eclampsia, also called “toxemia of pregnancy”, is a complication of pregnancy characterized by an increase in blood pressure and protein levels in the urine. It occupies an important place among the cardiovascular pathologies associated with pregnancy, because of its frequency, which is estimated at 20% of hypertensive women in the world, and its lethality, which remains high in developed countries [2] and still in Africa [3]. According to WHO, women die as a result of complications during pregnancy or childbirth and the WHO study states that pre-eclampsia is third only to severe bleeding and postpartum infections [4]. In developed countries, the incidence of pre-eclampsia is low (0.5% - 2%) and their prognosis has been improved thanks to the progress of obstetrics, resuscitation and neonatology. In Europe as well as France, the frequency of pre-eclampsia is 2.0% of all pregnancies [5]. In Asia, almost one out of ten of maternal deaths are due to hypertensive disorders and Latin America, the figure rises to one-quarter [6]. In Africa, as in Mali and Benin, pre-eclampsia accounts for 10% to 30% of maternal and neonatal deaths [7]. In Burundi, a study conducted on hypertension and pregnancy at the Kamenge University Hospital Center showed that pre-eclampsia accounts for 48 per 100,000 births [8]. For the management of pre-eclampsia, antihypertensive and anticonvulsant drugs are used in the treatment and prevention of eclampsia [9]. However, well-established nursing monitoring using nursing theories may reduce the occurrence of complications of pre-eclampsia. The aim of our study is to assess whether nurses are aware of the signs of pre-eclampsia and to determine whether nursing theories are applied when managing pre-eclampsia. The interest of our study lies in the use of nursing theories to properly manage pre-eclampsia in hospital settings and scientifically, this topic can serve as a source of documentation for further research and provide relevant information in the same field.

2. Background

Pre-eclampsia is one of the most common pregnancy pathologies, leading to many potentially serious fetal and maternal complications [10]. Maternal complications are multiple and fetal damage can range from intrauterine growth re-

tardation to fetal death in utero [6]. In Burundi, the Ministry of Public Health and the Fight against AIDS, through its National Reproductive Health program, has already set up a mentoring system to strengthen the capacities of health professionals in the management of obstetrical emergencies, of which pre-eclampsia is a part. Given the relatively high and severe risks to the mother and fetus, efforts to effectively manage pre-eclampsia are desirable. Thus, nursing management based on nursing theories could stabilize and limit possible maternal and fetal complications. In our study, we will rely on nursing theories to effectively manage pre-eclampsia.

3. Conceptual Framework

A theory represents a deeper level of reality than the model and describes how the model works. We could say that the model represents the structure and the theory represents the functioning. A theory is defined of its conception, orientation to the state of human health, prediction of nursing theories as well as its approval during rational diagnosis [11]. Evidence Based Practice and Inquiry Based Practice theories are used in Nursing. For Ingersol, EBP is the conscious, explicit and judicious use of the best current research evidence in the personalized management of each patient [12]. Dicenso *et al.* place clinical expertise at the heart of the EBP process, since it integrates all the components that form the basis of its definition [13]. Melnyk and Fineout-Overhol propose that implementing EBP requires cultivating a research mind, asking the question of interest comprehensively using a systematic approach, researching and critiquing the most relevant evidence, applying a change in clinical practice considering all dimensions, evaluating the results of change, and disseminating these results [14]. To proceed with our study, we focused on two theories of nursing, namely the theory of Callista Roy and that of Imogene King. Callista Roy's theory focuses on the person who is the patient. The nursing interventions proposed by Callista Roy are based on the evaluation of the patient's behaviors and the factors that influence the level of adaptation. Among the advantages of this theory is the development of analytical and synthesis skills in students who have received such education so that the improvement of the quality of care which the population can benefit. Based on Callista Roy's theory of adaptation, the nurse must evaluate any woman with pre-eclampsia so that she does not have complication [15]. With this own and prescribed role, the nurse undertakes an intervention to be able to adapt a patient in his environment in order to achieve balance [15]. Imogene King's theory selects universal ideas or concepts that apply to all human beings and represent for her the conceptual basis of nursing [16]. In general, his theory is based on interacting systems of nursing and the theory of achieving goals. In his theory, nursing is an interactive process by nature, and these transactional interactions lead to the achievement of goals. According to King, a disturbance during the action or interaction hinders the achievement of goals and makes the transaction impossible. By linking with King's theory, the nurse monitors the patient with pre-eclampsia by very close maternal and fetal monitoring

to achieve balance. Theoretical application and theoretical contribution of professionals involved in the management of pre-eclampsia were presented in **Table 1** and **Figure 1**.

4. Methodology

Our prospective descriptive study was conducted at the Van Norman Clinic, one of the health facilities of the Hope Africa University all created by Free Methodist Church of Burundi, over a period of three months from November 1st, 2020 to January 31st, 2021. It is located in the Ngagara zone, District 8, Ntahangwa Commune in the city of Bujumbura. In terms of health administration, the Van Norman Clinic remains under the shelters of the North District in the Bujumbura City Hall. Our research population was composed of nurses from the Van Norman Clinic, all of different levels and specialties assigned to the Patient Reception Service, Emergency service, Gynecological-Obstetrics service and community medicine service with a full-time or part-time contract. The aim of our study is to contribute to the reduction of maternal and neonatal morbidity following pre-eclampsia through the use of nursing theories.

Table 1. Theoretical application in the management of pre-eclampsia [15] [16].

Callista Roy's theory	Imogene King's theory	Common forces oriented for the management of pre-eclampsia
It facilitates the nurse in understanding the patient according to his condition	It guides the professional mainly in decision-making. She guides professionals to respect the protocol for the management of pre-eclampsia and eclampsia	Both theories guide and direct professionals in the organization and application of patient care
It allows nurses to develop more skills to manage pre-eclampsia and its complications	It allows professionals to perform their role with precision	Both theories enable quality nursing care
It adapts nursing care according to the patient's condition	It guides practitioners in providing nursing care aimed at improving the patient's condition	The two theories guide and direct professionals in improving the vital prognosis
It helps providers meet screening steps for pre-eclampsia and its complications	It guides providers in the diagnosis of pre-eclampsia and its complications	Both theories guide practitioners in decision-making
It adapts conventional media for gesture notification	I allows the notification of screening gestures (result of proteinuria, state of consciousness, geostationary age in amenorrhoea weeks, fetal heartbeat)	Both theories guide and direct healthcare professionals in the diagnosis of pre-eclampsia and its complications
It helps practitioners make follow-up visits to patient with pre-eclampsia to prevent progression to eclampsia	It guides nurses in monitoring pre-eclampsia	Both theories guide nurses in the prevention of complications (eclampsia)
It guides professionals to respect the management protocol for pre-eclampsia and eclampsia	It helps the nurses to act according to the instructions of the protocol for the management of pre-eclampsia and eclampsia	Both theories guide nurses in the prevention of complications (eclampsia)

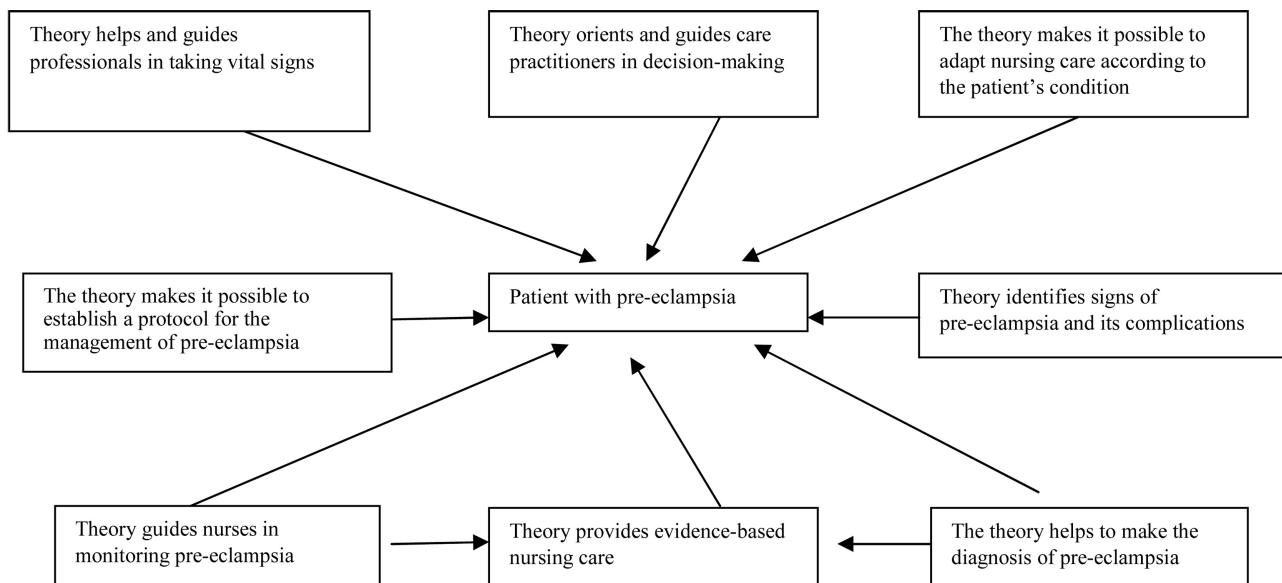


Figure 1. Theoretical contribution of professionals involved in the management of pre-eclampsia [12] [13] [14] [15] [16].

The choice of our sample was based on convenience while respecting the presence of nurses during delivery in their respective departments. In addition, the daily schedule of activities in the same departments, the number of nurses taking into account the nurses posted were also parameters for the orientation of the sample as a whole. The sample consisted of 40 nurses out of 44 nurses working at the Patient Reception service, Gynecological-Obstetrics and community medicine services who readily answered our questionnaire ($n = 40$) (See **Appendix**).

All nurses assigned to the Patient Reception service, Emergency service, Gynecological-Obstetrics service and Community medicine service of the Van Norman Clinic were included in this study. Excluded were nurses on leave, nurse trainees and those who did not respond to our questionnaire.

A self-administered questionnaire with eight parameters addressing demographics data, knowledge of pre-eclampsia, diagnosis of pre-eclampsia, prioritization of needs, application of care, comprehensive management of pre-eclampsia, theoretical application in the make of pre-eclampsia and complications of pre-eclampsia. The questionnaire has 25 items divided into eight parameters. The first is the demographics data with 2 items exploring age and gender; the second parameters with 3 items exploring definition of pre-eclampsia, women exposed to pre-eclampsia and period of exposure to pre-eclampsia; the third with 5 items exploring signs of pre-eclampsia, cases of pre-eclampsia in the service, differential diagnosis of pre-eclampsia, classification of pre-eclampsia and received case of pre-eclampsia during the work; the fourth with 3 items exploring making of nursing care, presence of urine strips, blood pressure monitors and drugs for pre-eclampsia in the service, the fifth with 3 items exploring presence monitoring of protocol for pre-eclampsia and eclampsia, measuring of blood pressure and proteinuria and prevention of pre-eclampsia in the service; the sixth with 3

items exploring knowledge of first steps of managing pre-eclampsia, knowledge of general management of pre-eclampsia and medications administered according to the protocol; the seventh with 2 item exploring knowledge of one or more nursing theories in managing of pre-eclampsia and factors that affect the nursing management of pre-eclampsia; the eighth with 2 items exploring pre-eclampsia complications and death due to pre-eclampsia complications.

The score of the results was classified referring to the items scored by participants in each section of variables. It was bad for those whose score less than 50%, medium for those whose score over 50%. Authors did not test the validity and reliability of the questionnaire.

4.1. Data Collection

The data were collected using a questionnaire developed and sent to the nurses who made up our research population. The questionnaire was presented in English and in French. The questionnaire items focused on the definition of pre-eclampsia, pre-eclampsia training, the application of nursing theories in the management of pre-eclampsia.

4.2. Data Analysis

A statistical Package for Social Scientists version 16.0 and Microsoft Excel were used to analyze data. The data analysis was guided by taking into account the different parameters used in the data collection. The results were presented in the form of graphs and tables.

5. Results

During the period of our study, we collected from 40 nurses who responded to our questionnaire on the management of pre-eclampsia out of 44 nurses, which represents 90.9% ($n = 40$) of cases.

5.1. Socio-Demographic Data of Participants

The age of participants ranged from 20 to 60 years. Majority of participants were aged between 20 - 30 (57.5%) while participants whose age between 31 - 40, 41 - 50 and 51 - 60 were accounted respectively 27.5%, 10% and 5% (**Figure 2**).

According to sex, the results show that the majority of our respondents were female (70%) versus 30% male (**Figure 3**).

Thus, the details of our study have been reported in **Table 2**.

25 nurses know the definition of pre-eclampsia (62.5%). The knowledge of vital signs was represented by a rate of 37.5% (15 nurses), the knowledge of differential diagnosis of pre-eclampsia in 20% of cases (8 nurses), the classification of pre-eclampsia in 30% of cases (12 nurses), the pre-eclampsia training in 30% of cases (12 nurses), application of nursing theories in 10% of cases (4 nurses) including Enquiry-Based Practice and Evidence-Based Practice all in 7.5% of cases (3 nurses). Concerning the management of pre-eclampsia, the first gestures were

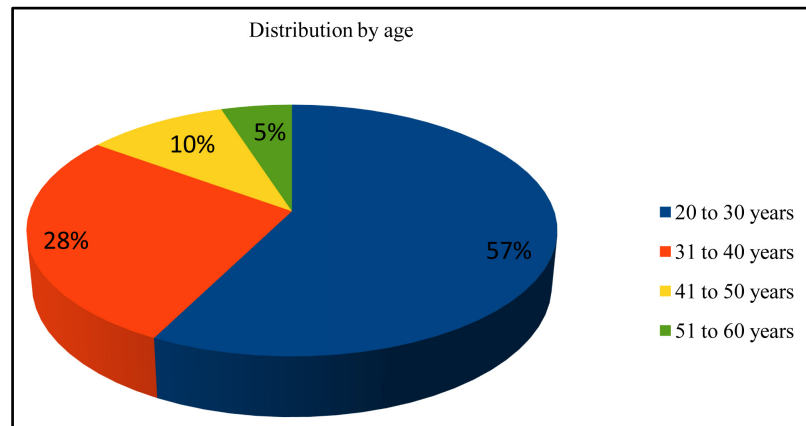


Figure 2. Distribution of respondents according to age.

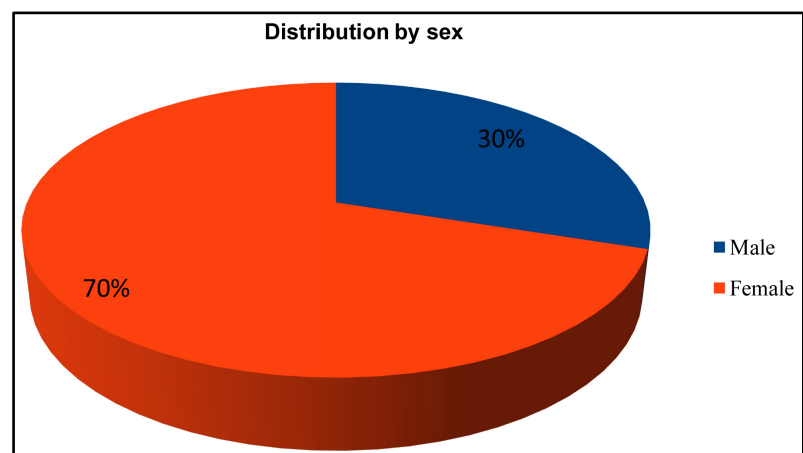


Figure 3. Distribution of nurses according to sex.

performed in 62.5% of cases (25 nurses) while overall management of pre-eclampsia was performed in 10% of cases (**Table 2**).

5.2. Barriers during Pre-Eclampsia Management

Barriers which affect the best practice during pre-eclampsia management were represented in **Figure 4**. 30% of participants don't have freedom in decision making, 10% of concerned nurses have an insufficient capacity building, bad care leadership management at 20% and 40% of respondents don't have adequate time to do well the practice.

6. Discussion

About age of respondents, the results of our work showed that the majority was reported in intervals between 20 years to 30 years at 57.5% of the participant. However, the data in **Figure 2** showed that the majority of nurses in the Van Norman Clinic were young. The results could be explained by the fact that the young nurses were newly hired while knowing that the opening of the Van Norman Clinic is recent (2012). Therefore, as they did not have enough experience,

Table 2. Details of the study nurses (interviewees) in knowledge of management of pre-eclampsia.

Type of parameters	Yes		No	
	Number	%	Number	%
Knowledge of the definition of pre-eclampsia	25	62.5%	15	37.5%
Knowledge of the signs of pre-eclampsia	15	37.5%	25	62.5%
Knowledge of differential diagnosis	8	20%	32	80%
Knowledge of the classification of pre-eclampsia	12	30%	28	70%
Pre-eclampsia trained nurses	12	30%	28	70%
Implementation of nursing care plan during the management pre-eclampsia	5	12.5%	35	87.5%
Application of a nursing theory	4	10%	36	90%
Application of Inquiry Based Practice theory (IBP)	3	7.5%	37	92.5%
Application of Evidence Based Practice theory (EBP)	3	7.5%	37	92.5%
Knowledge of the first steps taken to manage pre-eclampsia	25	62.5%	15	37.5%
Knowledge of overall management of pre-eclampsia.	4	10%	36	90%

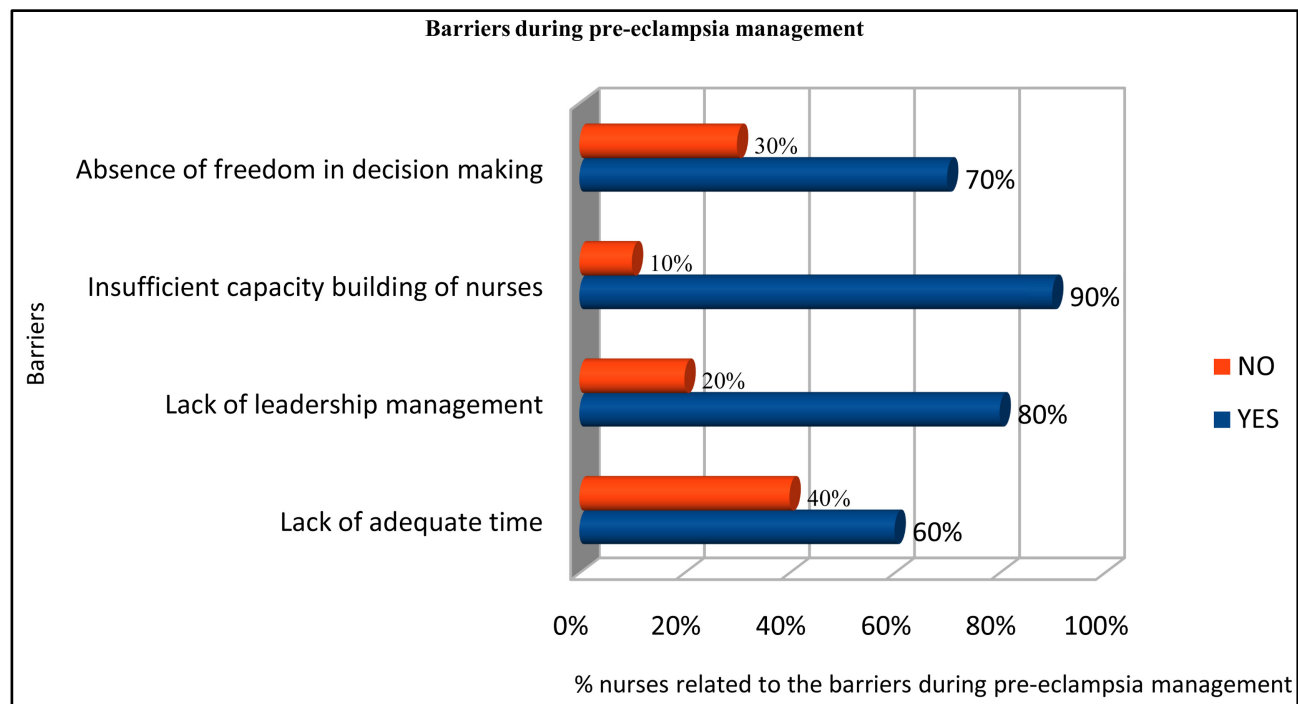


Figure 4. Barriers which affect the best practice during pre-eclampsia management.

there is a need to deliberately improve or supplement knowledge in the management of pre-eclampsia. As a result, older nurses have experience in providing nursing care according to various clinical situations even if training is acquired until retirement [17]. As for our contribution, we propose the capacity building of all nurses who work in reception, emergency service, maternity service and

community medicine service, especially since our respondents were mostly young. In France, Sandrine Brandin, in her study on the evaluation of professional practices at the Port-Royal maternity hospital in Paris reported that 40% of respondents were in the 20 - 30 years group [18]. Thus, the work of this author shows that the staff nurses was junior to be able to respond to various practices. A 2016 study by Genny G. *et al.* on evidence-based practice among University hospital nurses in French-speaking Switzerland demonstrated that age is not a variable involved in the application of nursing theories. Our results are close to those of Sandrine Brandin in that the majority of our respondents were in the 20 - 30 age group (40% against 57.5% of our series) and different from those of Genn G. who does not consider age as a factor in the provision of quality care.

For gender of respondents, the results showed that the majority of nurses were female (70%) compared to 30% male (Figure 3). This female predominance may be due to the history of nursing, which was previously preserved for women. As a result, men nurses entered other fields besides nursing. In terms of our contribution, anyone can follow nursing regardless the gender. A study carried out in France 2011 by Sandine Brandin on the evaluation of professional practices at the Port-Royal Maternity Hospital in Paris showed that women nurses occupied a rate of 65% compared to 35% of men [18]. Our results are similar to those of Sandrine Brandin who found that the majority of nurses were female.

Regarding the knowledge of definition of pre-eclampsia, we noticed that 62% of our respondents defined correctly pre-eclampsia while 38% of respondents did not know the true definition of this pathology. Even though 62% of cases knew the definition of pre-eclampsia, most of them did not know that pre-eclampsia occurs after 20 weeks of amenorrhea; the results of our series could be explained by insufficient capacity building of nurses. However, all nurses should clearly define pre-eclampsia to guide the diagnosis to prevent possible maternal and fetal complications that can occur at any time. As for our contribution, we rely on the interventions proposed the nursing theorist Callista Roy based on the evaluation of behaviors that influence the level of adaptation [15]. Based on this theory of adaptation, every nurse must evaluate any pregnant and postpartum woman to eliminate the signs of pre-eclampsia hence the need for staff training for better nursing management of pre-eclampsia. Bah A. in his study on high blood pressure on pregnancy at the Donka University Hospital in Guinea, found 17.05% of cases of hypertension associated with pregnancy with cases of pre-eclampsia [19]. Our study is similar to those of Bah A. and other authors who found cases of pre-eclampsia among pregnant and post partum women.

In terms of knowledge of diagnosis of pre-eclampsia, 62.5% of cases did not know the signs of pre-eclampsia. We noticed again that 70% of respondents did not know diagnosis and classification of pre-eclampsia. Although most respondents responded that they were proficient in the diagnosis of pre-eclampsia, the majority failed to name at least 3 types of hypertension that a woman may have during pregnancy. The data in our series could be explained by insufficient training in the management of pre-eclampsia. Therefore, the diagnosis of pre-eclam-

psia may be late. Indeed, taking vital signs and vital parameters is an essential element in the recognition of pre-eclampsia. It is also important to recognize the differential diagnosis in order to make a good decision. Thus, nurses working in departments that make up our study area should systematically measure blood pressure using a manual blood pressure monitor for any pregnant woman who consults these services. They should also through inspection look for edema of the lower limbs to see the possibility of biological analysis. However, Callista Roy's theory facilitates the nurse in understanding the patient according to his situation [15]. Our contribution has a resemblance to that of Callista Roy in that the nurse must take vital parameters and detect signs pointing to pre-eclampsia and its complications. Nevertheless, the data from our study show that there are a significant number who do not control the diagnosis of pre-eclampsia that need to be trained. Thus, Doumbia F. reported the main functional signs as headache (78.51%), dizziness (47.10%), ringing in the ears (33.05%) [3]. Tidiani, T. *et al.* in their study on the management of pre-eclampsia in the multipurpose intensive care environment of the Point G University Hospital in Bamako had found 100% headaches, 66% epigastric pain in bars, 38% dizziness and 34% vomiting [20]. Samake F in his work on the study the blood pressure figures of pregnant women in prenatal consultation in the Gynecological-Obstetrics Department of the CHU Point G in Dakar in 2015 had found that weight and height were increased in 100% of cases [21]. In short, we will focus on weight again between two exams rather than an isolated weigh-in. Nevertheless, the data from our study showed a significant number of nurses who do not know the diagnosis of pre-eclampsia who need to be retrained. All studies seem to be unanimous that the incidence of pre-eclampsia and/or eclampsia decreases significantly when pregnancy monitoring is rigorous, not to mention perinatal monitoring, which plays an important role in reducing the incidence of complications of pre-eclampsia.

As far as pre-eclampsia training is concerned, only 30% of our respondents have been trained. These results could be justified by the recent opening of the Van Norman Clinic to train all staff and therefore, this situation could increase the incidence of maternal and fetal mortality. Also considering the results of our work, we found that the majority of respondents had a great interest in the development of professional capacities and the elevation of knowledge because training allows the increase of individual and collective efficiency. Thus, training is a way to deepen knowledge, to acquire mastery of new care and administrative techniques. As result, nurses are entitled to capacity building to update and harmonize knowledge while knowing that medicine evolves from day to day. However, referring to Imogene King's theory, pre-eclampsia training guides healthcare professionals to adopt techniques that preserve maternal-fetal health much more [16]. Then Callista Roy's theory allows nurses to develop more skills to manage pre-eclampsia and its complications [15] while Imogene King's theory allows professionals to perform their role accurately [16]. Our contribution is similar to both theories in that nurses need to develop more skills in order

to provide quality care. As for our contribution, we often continuous training for nurses who remain in the reduction of maternal-fetal morbidity and mortality. The work of Aliouane and Djidda Nora in 2017 on the continuing education of health establishments in Algeria showed a training rate of 69.2% [17]. Our results are different from those of Aliouane and Djidda Nora who found a high rate of 69.2% against 30% in our series.

On the knowledge of application of nursing theories, we noticed that 90% of cases did not know the nursing applications such as Inquiry-Based Practice and Evidence-Based Practice in 95.5% of cases. The results showed that 10% of respondents only had used Inquiry-Based Practice and Evidence-Based Practice theories while theories help healthcare professionals a lot in decision-making. The data from our work could be explained by the fact that nurses do not consider their prescribed role with the prescribed role in the management of pre-eclampsia. Therefore, insufficient skills and knowledge in nursing theories constitute a barrier to better management of pre-eclampsia. Starting from Callista Roy's theory of providing evidence-based practice nursing care, our contribution would be to guide healthcare professionals to research and use the results of work already done for better management of pre-eclampsia. However, nurses have a role of their own in providing quality care through the application of evidence-based theories [15]. The most widely used theories are Evidence-Based Practice (EBP) and Inquiry-Based Practice (IBP). Evidence-Based Practice is recognized for its benefits in improving the quality and safety of patient care, and for its contribution to healthcare system economies. A study conducted by Jenny G. in 2016 non Evidence-Based Practice (EBP) among nurses in University hospitals in French-speaking Switzerland showed that 70% of respondents said they were not aware of Evidence-Based Practice [22]. The lack of terminology related to Evidence-Based Practice or erroneous interpretations had been highlighted by Gagnon [23]. Our results are close to those of the study conducted by Jenny G which had shown that EBP was known by only 30% of the respondents. These results are consistent with those of Melnyk *et al.* who suggested the importance of fostering a spirit of openness and management support for culture of research, such as an effective transmission of scientific knowledge in care [14].

As barriers which affect the best nursing practice in the managing of pre-eclampsia, the lack of adequate time to do well the practice, the lack of leadership management, the insufficient capacity building of nurses and absence of freedom in decision making were recognized by the majority of nurses in the respective services of our study with 60%, 80%, 90% and 70%. Those all factors influence negatively the orientation of nursing care. This situation is due to the non-description of tasks of the nurses and preeclampsia may progress to other fatal complications such as eclampsia, retroplacental hematoma, etc. In Burundi, a study conducted by Daniel, M. *et al.* in 2020 found that the inadequate time (80%), the freedom decision making (80%) and the bad care management (70%) were factors that negatively influence good nursing care in hospitals [24]. The same situation has been reported by other authors in several studies on which

have shown that the lack of organization in the service and the lack of leadership management are barriers to nursing practices in hospitals [25]. To overcome this situation, it is necessary for nursing leaders to ask for a sufficient number of nurses and description of nursing tasks.

About using a nursing care, 87.5% of cases did not have a care plan in place and this could promote the onset of complications of pre-eclampsia. Thus, Callista Roy's theory of adaptation guides professionals to respect the management protocol [15] and that of Imogene King helps nurses to act according to the instructions of the protocol of care to achieve the objectives [16]. Our contribution is similar to these two theories while knowing that nurses must follow the protocol for the management of pre-eclampsia. However, the care plan is very important because it helps nurses collect necessary clinical data from the patient with pre-eclampsia in order to analyze and interpret them. Finally, nurses must ensure the availability of the necessary inputs for better care. Koitan and al in 2014 in their study on the quality of parameters monitoring in public and community health facilities in Communes V and VI of the District of Bamako had described a calculation algorithm based on the determination of certain serum markers and the measurement of blood pressure to minimize the complications of pre-eclampsia [26].

As for the management of pre-eclampsia, 62.5% of cases knew the first gestures while 90% of cases did not know the overall management of pre-eclampsia. The study also showed that the protocol was rarely followed because the administration of drugs according to the protocol was done in 37.5% of cases. The results of our series could be justified by the limited training on pre-eclampsia. As a contribution, we propose the capacity building of nurses working in patient reception, emergency service, maternity service and community medicine service to be able to properly ensure the comprehensive management of pre-eclampsia. Therefore, as the majority of nurses have great difficulty for better overall management of pre-eclampsia; this could increase maternal-fetal morbidity and mortality. According to Magee L, the management of pre-eclampsia is primarily based on the correction of high blood pressure, which seems to be the best correlated with the serious neurological complications of pre-eclampsia [7]. Indeed, Samake F. in his work on the study of blood pressure figures of pregnant women in prenatal consultation in the Gynecological-Obstetrics Department of the CHU Point G in Dakar had specified that surveillance is a key element in the management of pre-eclampsia. The objective of early detection would be to be able to introduce effective preventive treatment quickly during pregnancy [21]. With their own role and prescribed according to theorist Hildegard Peplau, nurses systematically measure blood pressure, determine the signs of severity of pre-eclampsia and administer a prescribed treatment for the prevention of complications. Finally, Callista Roy's theory makes it possible to adapt nursing care according to the patient's condition [15] and that of the Imogene King makes it possible to provide nursing care ensuring the stability of patient with pre-eclampsia (achievement of objectives) [16]. Our work is similar to these two studies in

that nurses need to know the overall management of pre-eclampsia while following the protocol.

7. Study Limitations

The study could be extended to several health facilities, but with financial resources, it was conducted in a single health facility.

8. Recommendations

At the end of our work, we would like to make the following recommendations:

To the Van Norman Clinic Management:

To enhance the technical platform for the management of pre-eclampsia and eclampsia;

To provide continuing education for nurses in emergency obstetric and neonatal care;

To retrain nurses in the patient reception service, emergency service, gynecological and obstetrics service and community medicine service in the management of pre-eclampsia;

To recruit a sufficient number of nurses and describe their duties.

To nurses who work in emergency service, gynecological and obstetrics service and community medicine service:

To apply nursing theories such as Evidence-Based Practice (EBP) as well as Inquiry-Based Practice (IBP) to provide quality care;

To develop a care plan for any patient with pre-eclampsia to properly tailor treatment;

To provide a care in accordance with the pre-eclampsia protocol posted in the department.

9. Conclusion

At the end of our study, it appears that pre-eclampsia still provides many complications with a high maternal and fetal fatality rate. Indeed, the diagnosis of pre-eclampsia was known by 62.5% of the nurses surveyed while it should be known by all care professionals to adapt the treatment as soon as possible while ensuring careful monitoring to prevent maternal and fetal complications. On the pre-eclampsia training side, few staff (30%) had been trained on pre-eclampsia. Then, nursing theories were used by only 10% of nurses surveyed. However, capacity building in the nursing management of pre-eclampsia could encourage staff to harmonize practices and especially the application of nursing theories such as Evidence-Based Practice and Inquiry-Based Practice. Pre-eclampsia management protocols are indeed necessary to properly adapt treatment to reduce the incidence of complications.

Conflicts of Interest

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

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Appendix: Survey Questionnaire

A) Demographics Data

1) Age

20 - 30 years old

30 - 40 years old

40 - 50 years old

50 - 60 years old

60 - 70 years old

2) Gender

Male

Female

3) How long are you in the service?

0 - 5 years

5 - 10 years

10 - 15 years

15 - 20 years

More than 20 years

B) Knowledge of pre-eclampsia

1) Do you know the definition of pre-eclampsia?

Yes

No

If yes, is pre-eclampsia characterized by gestational hypertension with proteinuria ≥ 0.3 g/24 hours occurring after 2 weeks of amenorrhea?

Often

Sometimes

Rarely

I don't know

2) Do you know which subjects are exposed to pre-eclampsia?

Yes

No

3) Do you know the period of exposure to pre-eclampsia?

Yes

No

C) Diagnosis of pre-eclampsia

1) Do you detect signs of pre-eclampsia?

Yes

No

Never

If so, could you name at least 3 signs of pre-eclampsia?

.....

.....

.....

2) Do you screen for cases of pre-eclampsia in your department?

Yes

No

If yes, why is that?

Taking blood pressure

Urine collection for proteinuria

Detection of clinical signs

I don't know

3) Are you familiar with the differential diagnosis of pre-eclampsia?

Yes

No

If so, could you name at least 3 types of hypertension that the woman may have during pregnancy?

.....
.....
.....

4) Do you know the classification of pre-eclampsia?

Yes

No

5) Have you received on-the-job training on pre-eclampsia screening and managements standards?

Yes

No

If so, how often did you do the training?

Often

Sometimes

Rarely

D) Prioritization of needs

1) Do you make a nursing care plan when managing pre-eclampsia?

Yes

No

If so, how often do you do it?

Often

Sometimes

Rarely

I don't know

2) Are urine strips and blood pressure devices available in your department?

Yes

No

If so, how often are they available?

Often

Sometimes

Rarely

Never

3) Are all screening inputs available in your department? (Antihypertensive drugs, anticonvulsivant drugs such as magnesium sulfate, urine strips, blood pressure monitors, etc.)

Yes

No

If so, how often are they available?

Often

Sometimes

Rarely

Never

4) Is a shortage of inputs hindering better management of pre-eclampsia?

Yes

No

If so, which ones?

.....

E) Application of care

1) Is there a monitoring protocol for pre-eclampsia and eclampsia in your department?

Yes

No

If so, do you follow the monitoring protocol for a patient with pre-eclampsia?

Often

Sometimes

Rarely

Never

2) Do you detect the number of pregnant women with prenatal evaluation in whom blood pressure and proteinuria have been reported somewhere?

Yes

No

If so, are cases reported in the consultation booklet?

Often

Sometimes

Rarely

Never

3) Have you followed women with mild pre-eclampsia to prevent progression to eclampsia?

Yes

No

If yes, what percentage of women screened for mild pre-eclampsia who received at least 2 home visits?

0%

10% - 20%

20% - 50%

More than 50%

F) Comprehensive management of pre-eclampsia?

1) Do you know the first steps when managing pre-eclampsia?

Yes

No

2) Are you aware of comprehensive management of pre-eclampsia?

Yes

No

3) Have all medications been administered according to the protocol posted in your department?

Yes

No

If so, was the protocol followed?

Often

Sometimes

Rarely

Never

G) Theoretical application in the intake of pre-eclampsia

1) Do you know of a holistic approach to the management of pre-eclampsia?

Yes

No

If so, cloak the approach you know.

a) Inquiry-Based Application (IBP)

Yes

No

b) Evidence-Based Practice Application (EBP)

Yes

No

2) Do you know the factors which affect nurse's knowledge in the managing of pre-eclampsia?

Yes

No

If so, what factors?

H. Complications of pre-eclampsia

1) Have you ever received a case of eclampsia in your ward?

Yes

No

If so, was screening for pre-eclampsia mentioned in his prenatal consultation booklet?

Often

Sometimes

Rarely

2) Is there a death in your department due to complications of pre-eclampsia?

Yes

No

If so, would this death have been prevented with better care?

Yes

No