

**THE STUDY OF THE IMPORTANCE ACCORDED TO PERINATAL ASPHYXIA
PATHOLOGY IN THE TRAINING COURSES OF HEALTH PROFESSIONALS*****Asmaa Barkat, Khalid. Barkat, Aicha Kharbach and Amina Barkat**

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ABSTRACT

Study's aim: The aim of this research was to study the teaching of perinatal asphyxia's pathology in the basic and continuing education courses of midwives, nurses and, general doctors involved in the care of asphyxic newborns. **Materials and Methods:** This is a quantitative prospective study, carried out at the level of all birthing centers and maternities of the Rabat-Salé-Kenitra region. It targeted all midwives, nurses and general doctors who meet the inclusion criteria of this study. On the basis of an exhaustive sampling, the mother population was 307 health professionals, and with a response rate of 83.67% the number of respondents was 251. **Results:** This study showed that 64.54% of the health professionals benefited from a course on perinatal asphyxia as part of their basic training. This course includes practical and theoretical aspects in 37%. It was theoretical in 59.9% and only practical in 3.1%. Likewise, she attested that 69% of health professionals who had received a course on perinatal asphyxia stated that the course did not provide them with the necessary knowledge to manage an asphyxiated newborn baby. As she illustrated, 55.7% did not receive any further training related to perinatal asphyxia. And that, 96.2%, of the participated in the continuing education sessions organized in the field of this pathology, declared that these training sessions enabled them to develop their skills relating to the management of asphyxic newborns. **Conclusion:** This study has shown the importance of evaluating the training programs in order to review the teaching of perinatal asphyxia's pathology for the benefit of these health professionals. Also, this study attested the importance to integrate this pathology in the plans of continuing education Of the Ministry of Health, in order to improve health professionals' skills about asphyxiated newborns' care.

KEYWORDS: Perinatal asphyxia, training curriculum, training plan, health professionals.**INTRODUCTION**

Access to health's system through which everyone receives quality health care and enjoys a higher standard of health is a sine qua non of the right to health.^[1]

Although health policies and programs are key pillars for the sacralization of this condition, the role of health professionals is omnipresent. Indeed, according to the Global Strategy on Human Resources for Health to 2030, the success of any health policy and the program cannot be achieved without the availability of human resources with appropriate skills.^[2]

From this perspective, the Moroccan Ministry of Health considers that the generation of human resources and the development of their skills is intrinsically part of its core functions and a fundamental lever for increasing the effectiveness of services and improving performance. This attention has been expressed through the axes of its 2012-2016 sector strategy, which has focused on the quantitative and qualitative development of health

professionals to make them a hinge ensuring the implementation of health programs.^[3]

The health professional has always been the linchpin of the health care system. The vital role that he or she continues to play in implementing health policy, combating disease and promoting the health of the Moroccan population is not to be underestimated. This role has always been at the forefront of the changes and reforms that have taken place in the basic and continuing training of nurses, midwives, and general doctors. In this case, the adoption of the Licence Master Doctorate (LMD) system at the Institutes of Training in Nursing and Health Techniques. Without omitting, efforts have been made, and continue to be made, to ensure that these training courses are of the required quality in both pedagogical and technical terms. The objective being to produce health professionals who are competent in their fields and have a university level and openness to the academic and professional environment.^[4]

However, despite the efforts made, gaps in knowledge related to the management of several diseases have been identified in a wide range of studies and scientific research.^[5]

Furthermore, studies have shown that the clinical decision of health professionals is influenced by several factors. In particular, the scientific knowledge acquired through basic and continuing education. This factor guides the health professionals' decisions and consequently the quality of care provided to patients.^[6]

In view of these observations, considering that at the national level, neonatal mortality, with a rate of 13 deaths per 1000 live births, continues to kill thousands of newborns each year.^[7] And given that perinatal asphyxia is the second direct cause of this mortality.^[8] A question concerning the importance given to perinatal asphyxia in the training descriptions of midwives, nurses and general doctors in Morocco is legitimate. The objective being to study the presence or not of this pathology in the training curriculum of these health professionals as well as the basic courses and in continuing education.

MATERIAL AND METHOD

This is a qualitative prospective study carried out among midwives, nurses and general doctors who meet the inclusion criteria and who work in birthing centers and maternities wards in the seven provinces of the Rabat-Salé-Kénitra region. The choice of this region was not random, but 96.04% of perinatal asphyxia cases hospitalized at the Rabat national reference center for neonatology and nutrition were referred from the Rabat-Salé-Kénitra region.

2.1 Criteria for inclusion

Were included in this study all midwives, nurses, and general doctors who work in maternities and birthing centers of the Rabat-Salé-Kénitra region, and who care for or are involved in the care of newborns at birth.

2.2 Exclusion Criteria

Were excluded from this study, midwives, general nurses, and general doctors who do not take care of newborns at birth, and those who participated in the testing of the data collection tool used in the study.

2.3 Data Collection

The study was carried out through a mixed questionnaire covering the socio-professional information of health professionals, the teaching of perinatal asphyxia as part of the basic training of these professionals, opinions about the training received, the participation of health professionals in continuing education sessions on perinatal asphyxia, the importance of this continuing education in practice, and knowledge about perinatal asphyxia.

2.4 Ethical Considerations

The Ethics Committee of the Faculty of Medicine and Pharmacy of Rabat and the Regional Health Directorate of the Rabat-Salé-Kénitra region have given their approval for this study to be carried out. Informed consent was obtained from each health professional at the time of entry into the study. And participation in the study was free of charge, respecting confidentiality and anonymity.

2.5 Some definitions

2.5.1 Perinatal asphyxia

Perinatal asphyxia is induced by a severe impairment of uteroplacental gas exchange leading to metabolic acidosis and hyperlactacatemia, indicating an impairment of cellular metabolism.^[9]

2.5.2 Criteria for the diagnosis of perinatal asphyxia

This study retained four diagnostic criteria, namely; Apgar below 5 to 5 minutes, neonatal pH below 7, metabolic acidosis, and hypoxoischemic encephalopathy

2.5.3 Elements of the evaluation of the newborn's quality of adaptation to ectopic life

This study retained the following elements: respiration, heart rate; and oxygen saturation.

2.5.2 Socio-professional information from health professionals

The socio-professional information studied in this work concerns the workplace of health professionals, their age, sex, profile and seniority in the position held.

2.5.3 The study of perinatal asphyxia as part of basic training

This research elucidates the study of perinatal asphyxia as part of the basic training of health professionals, by checking whether these professionals have benefited from courses on this subject, in which semester, its hourly volume, and whether it is a practical or theoretical course.

2.5.4 Opinions of health care professionals about the training received

The opinions of health care professionals about the training they received in perinatal asphyxia were reviewed by asking them whether the course they received as part of their basic training was sufficient to provide them with the necessary knowledge for the care of an asphyxiated newborn.

2.5.5 The participation of health professionals in continuing education sessions

The participation of health professionals in continuing education sessions on perinatal asphyxia was studied as part of this work, by investigating whether health professionals have received continuing education on the subject, the structure responsible for the organization of these sessions, the number of continuing education sessions received, the number of days/per training

session, and whether the training has a practical or theoretical aspect.

2.5.6 The importance of continuing education in practice
The importance of the continuing training courses organized in the field of perinatal asphyxia in the practice of health professionals was studied by asking whether these courses have enabled beneficiaries to develop their skills in the care of asphyxiated newborns.

2.5.7 Knowledge of perinatal asphyxia
Health professionals' knowledge of perinatal asphyxia was studied by asking questions related to the definition of this pathology, the elements of its diagnosis, the evaluation of the newborn's adaptation quality to ectopic life, and the gestures to be made before transferring the asphyxic newborn to the neonatal center.

2.4 Statistical analysis

The quantitative investigation, carried out as part of this survey, resulted in a set of information that was manually compiled and presented in Excel for coding and computer analysis using SPSS V 20 software.

RESULTS

3.1 Study Flow Chart

According to **(Figure 1)**, of the 3078 health professionals (midwives, nurses, and general doctors) practicing in the Rabat-Salé-Kenitra region, 9.97% meet the inclusion criteria set by this study, i.e. 307 health professionals. Of these, four midwives and three doctors participated in the pre-test of the questionnaire used in the survey. As a result, the population questioned was 300 people. Nevertheless, with a response rate of 83.67%, the number of health professionals surveyed was 251.

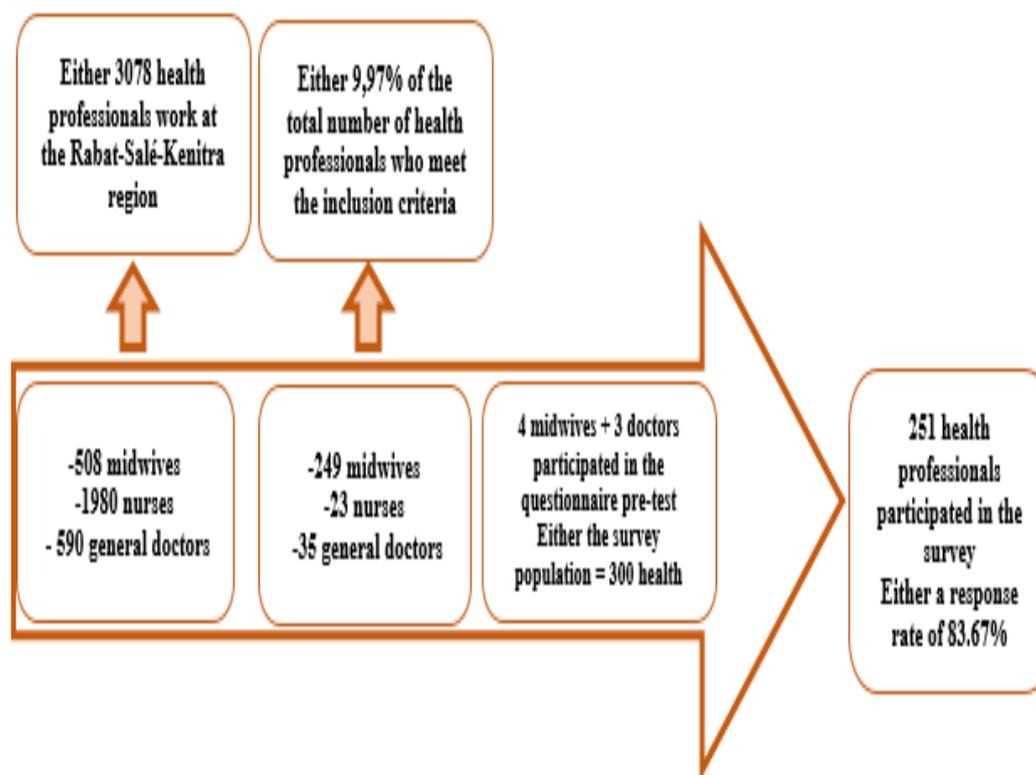


Fig. 1: Summary of the flow of cases participating in the study.

3.2 Socio-professional characteristics of health professionals

According to the survey's results **(Table 1)**, the average age of health professionals was 32.54 ± 12.26 . The health professionals were [30, 40] years old [in 53%, [20, 30] years old [in 28.7%, and [40, 50] years old in 18.3% of cases. The place of work of these health professionals was the province of Kenitra in 27.5%, the province of Rabat in 25.9%, the province of Temara-Skhirat in 10.8%, the province of Salé in 10%, the province of Sidi

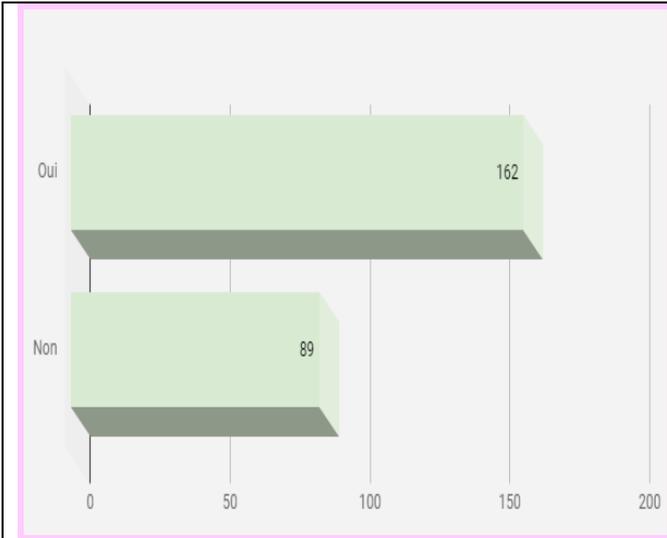
Slimane in 9.6%, the province of Sidi Kacem in 8.4%, and the province of Khemisset in 8% of cases. The sex of health professionals was female in 91.6% of cases. Midwives made up 76.9% of the health professionals who participated in this study, followed by doctors with a percentage of 13.9%, and in the last place, nurses with a percentage of 9.2%. Their seniority was more than 10 years in 41.8%, between [5 and 10 years] in 24.7%, and less than 5 years in 33.5% of responses.

Table 1: Socio-professional characteristics of health professionals.

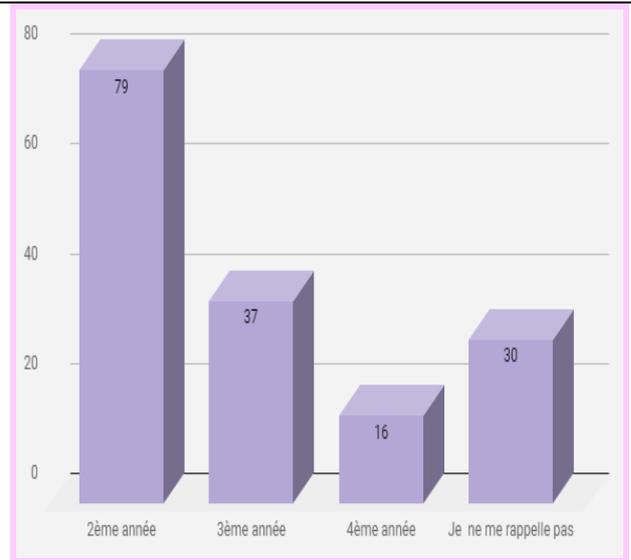
Variables	Health professionals N= 251	
	Effective	Pourcentage (%)
Age of health professionals (mean± SD)	32,54± 12,26	
Age of health professionals		
[20 years, 30 years]	72	28,7%
[30 years, 40 years]	133	53%
[40 years, 50 years]	46	18,3%
>50 years	00	0%
The workplace of health professionals		
Sidi Slimane	24	9,6%
Khemisset	20	8%
Salé	25	10%
Kenitra	69	27,5%
Temara-Skhirat	27	10,8%
Rabat	65	25,8%
Sidi Kacem	21	8,3%
The gender of health professionals		
Male	21	8,4%
Female	230	91,6%
The profile of health professionals		
General doctor	35	13,9%
Midwife	193	76,9%
Nurse	23	9,2%
Seniority of health professionals (mean± SD)	7,37± 5,23	
Seniority of health professionals		
Mois de 5 years	84	33,5%
[5 years, 10 years]	62	24,7%
>10 years	105	41,8%

3.3 The importance given to perinatal asphyxia in the basic training curricula of the health professionals included in this study

According to the results of graphs 1, 2, 3, 4 and 5, 64.54% of health professionals said that they had received a course on perinatal asphyxia as part of their basic training. Whereas, 35.46% said they did not have this course during their studies. They studied this pathology in the second year in 43.21%, in the third year in 14.74%, and the fourth year in 6.37%. The hourly volume of this course was 2 hours in 23.46% of the responses, 20 hours in 15.43%, 4 hours in 14.20%, and 12 hours in 3.09% of the responses. This course has developed the practical and theoretical aspects in 37%. It was theoretical in 59.9% and practical in 3.1% of cases. 69% of the health professionals who had received a course in perinatal asphyxia stated that this course did not provide them with the necessary knowledge to manage an asphyxiated newborn. Whereas, 31% of these professionals said that their course provided them with the essential knowledge for the proper care of an asphyxiated newborn.



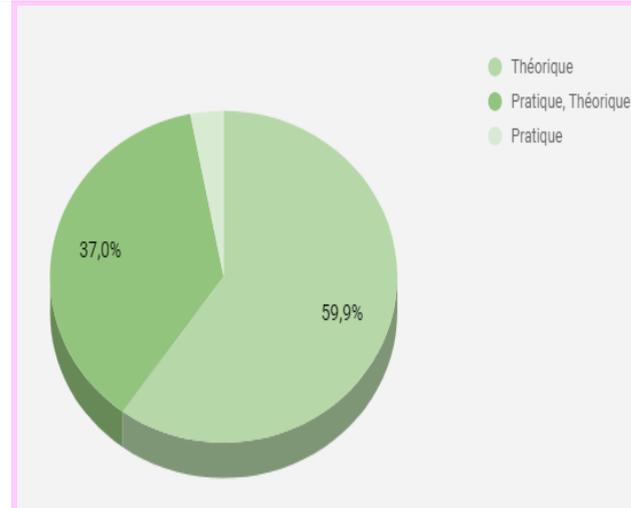
Graph 1: The existence of a course including perinatal asphyxia in the training curriculum of the health professionals of this study



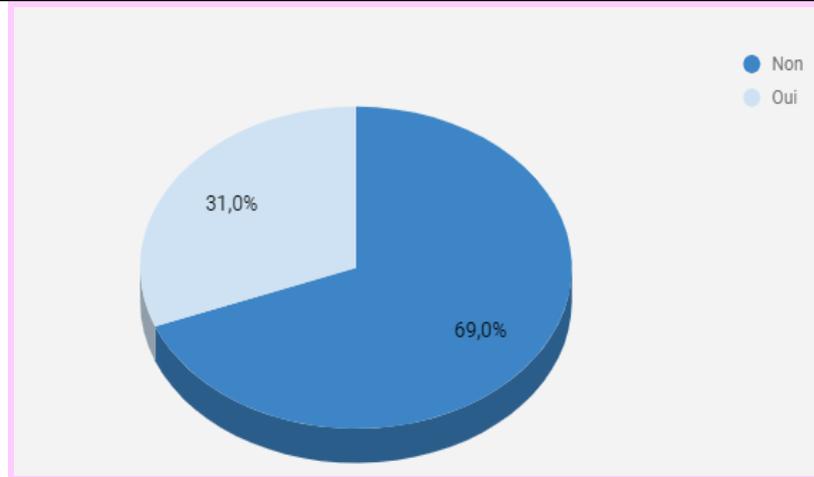
Graph 2: The year of teaching the perinatal asphyxia's course.



Graph 3: The hourly volume of the perinatal asphyxia's course.



Graph 4: The aspect of the perinatal asphyxia's course.

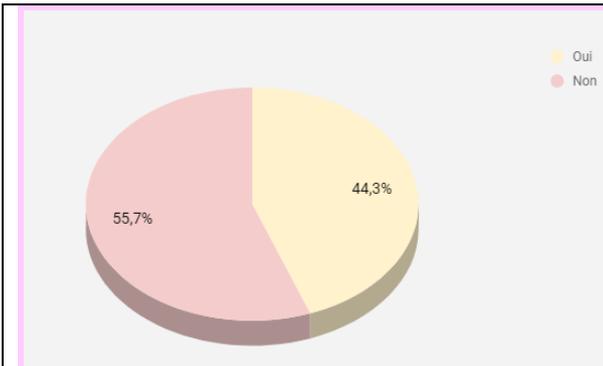


Graph 5: Relevance of the perinatal asphyxia's course.

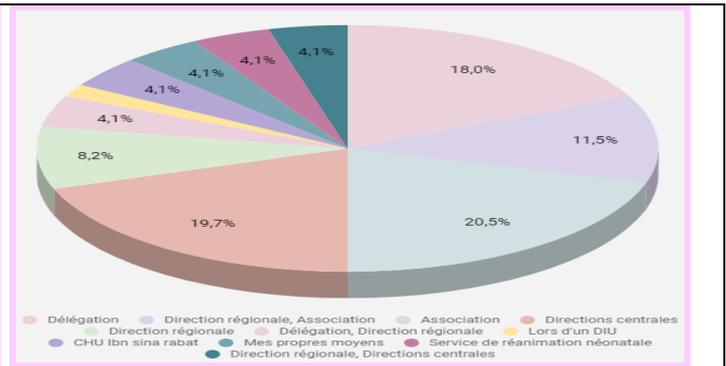
3.4 The theme of perinatal asphyxia in Moroccan continuing education plans

Graphs 6, 7, 8, 9, 10, and 11 showed that 55.7% of health professionals have not benefited from continuing education related to perinatal asphyxia. This compares with 44.3% of professionals who had participated in at least one continuing education course on the subject. Such training was organized by associations in 20.5%, by the central management in 19.7%, and by the health delegation in 18% of cases. 50% of these health professionals have benefited from two continuing education sessions, and 42.3% have attended one

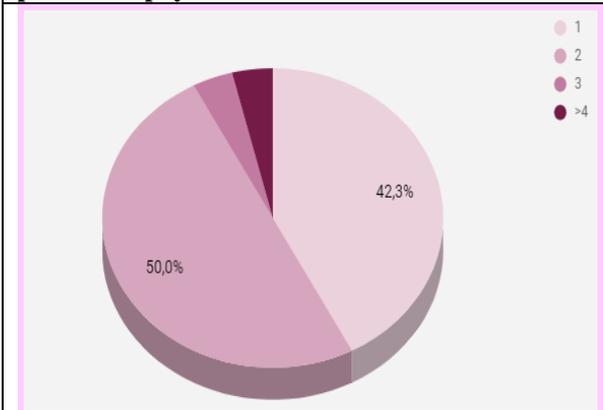
continuing education session. The duration of these continuing education sessions was one or two days in 72% of cases, and 3 days in 20% of responses. The aspect of these continuing education sessions was practical in 61.5% and theoretical in 38.5%. 96.2% of the health professionals, having attended these continuing education sessions, stated that these training sessions enabled them to develop their skills related to the care of asphyxiated newborns. On the other hand, 3.8% said that these training sessions did not benefit them and that they did not acquire new skills.



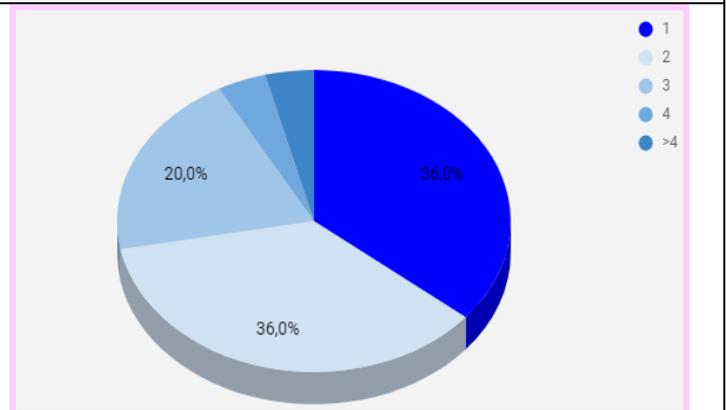
Graph 6: Participation in continuing education on prenatal asphyxia.



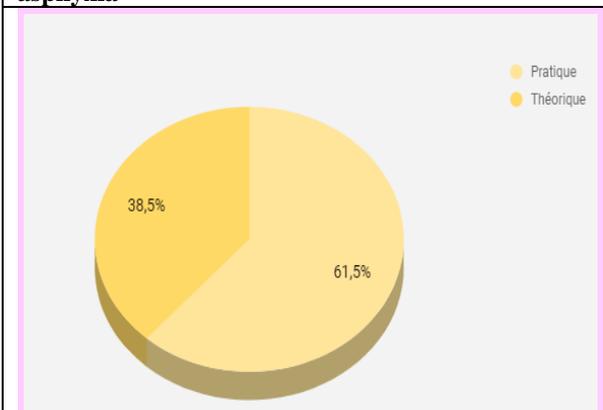
Graph 7: The structure responsible for the organization of continuing education in perinatal asphyxia.



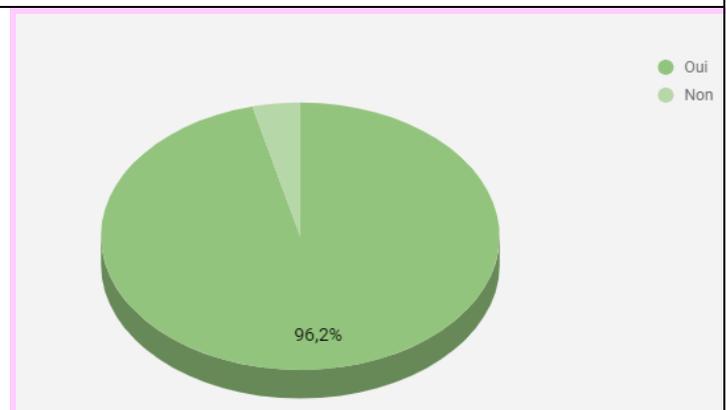
Graph 8: The number of continuing education sessions organized in the field of perinatal asphyxia



Graph 9: Duration of continuing education sessions organized in the field of perinatal asphyxia



Graph 10: The aspect of the continuing education sessions organized in the field of perinatal asphyxia

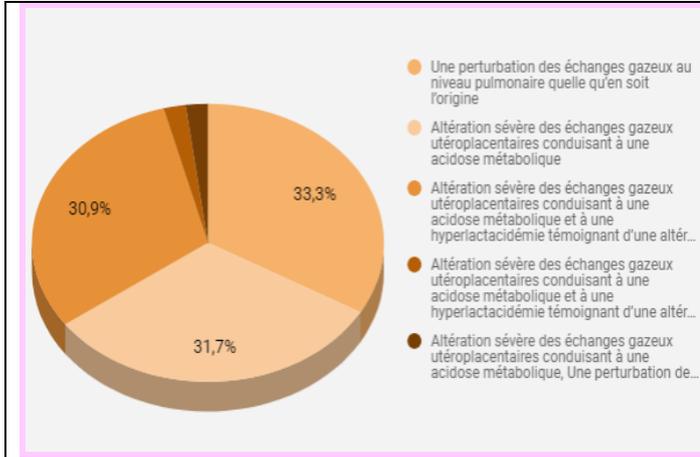


Graph 11: The development of health professionals' skills after attending continuing education sessions

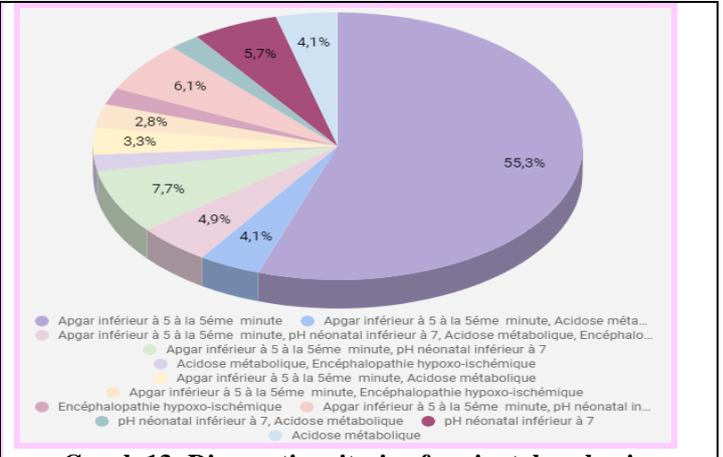
3.5 Health professionals' knowledge about perinatal asphyxia

The results reported in graphs 12, 13, 14 and 15 show that 30.9% of health professionals gave a correct definition of perinatal asphyxia. 4.9% of healthcare professionals were familiar with the diagnostic criteria

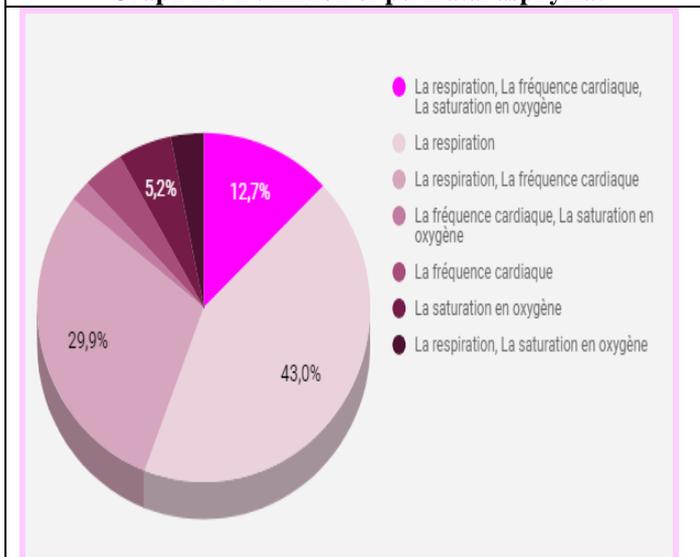
for perinatal asphyxia. 12.7% of the answers knew the elements of the evaluation of the newborn's quality of adaptation to ectopic life. 8.4% of the surveyed gave the necessary gestures to be made with an asphyxic newborn before its transfer to the neonatology center.



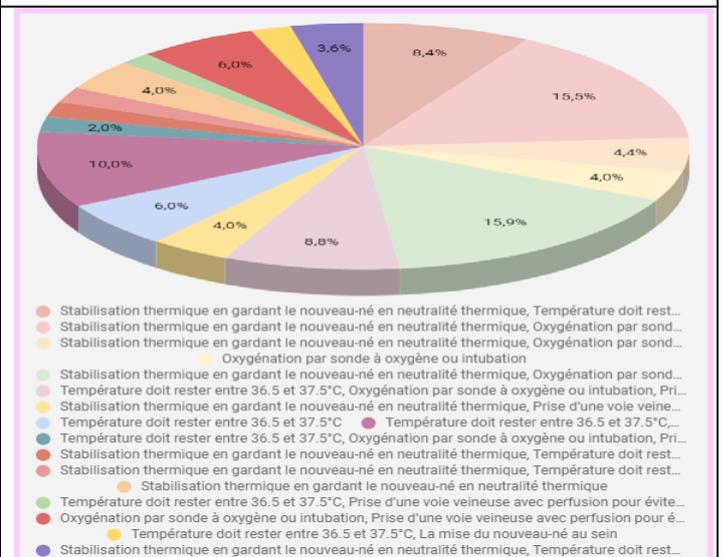
Graph 12: Definition of perinatal asphyxia.



Graph 13: Diagnostic criteria of perinatal asphyxia.



Graph 14: Elements for assessing the quality of newborn's adaptation to ectopic life.



Graph 15: Gestures required before transferring an asphyxiated newborn to the neonatal center.

DISCUSSION

The results of this study showed that a significant percentage of the health professionals surveyed had not received a course or continuing education in the pathology of perinatal asphyxia. This lack of training influence negatively providers' knowledge of this pathology and its management.

64.54% of the health professionals included in this study claimed that they had received a course in the pathology of perinatal asphyxia during their basic training. However, the hourly volume was 2 hours in 23.46%, 4 hours in 14.2% and 12 hours in 3.09%.

Confirming the results of a later study that we carried out on the same subject and which demonstrated, by analyzing the training descriptions of midwives, general nurses and general doctors, that the training description of midwives only dedicates 0.16% of the number of theoretical courses' hours and 0.22% of the hourly volume of practical courses to the pathology of perinatal asphyxia. Moreover, it has proved that the training description for nurses devotes only 0.048% of the hourly volume of theoretical courses to study this pathology, with a complete absence of the practical aspect of its teaching. Similarly, through analysis of the training description for general doctor, she has shown that the hourly volume set for the study of this pathology represents only 0.03% of the total number training hours.^[10]

69% of these health professionals, having studied a course on perinatal asphyxia, stated that this course did not provide them with the knowledge necessary to manage an asphyxiated newborn. Indeed, in a later work we related the importance of increasing the volume of practical and theoretical courses to study this pathology and allow students to acquire the necessary knowledge for the management of an asphyxiated newborn^[10]. Besides several works including those of Jammoul's study which certified the strong relationship between the number of hours dedicated to the delivery of a course and the acquisition of knowledge.^[11]

the results of this study showed that 44.3% of professionals participated in at least one continuing education course on the pathology of perinatal asphyxia. And these training sessions were organized by the central management in 19.7%, by the health delegation in 18%, following collaboration between the regional health directorate and associations in 11.5%, and by the regional health directorate in 8.2%. Moreover, this survey attested that there are other stakeholders who have organized continuing education sessions on perinatal asphyxia. Health professionals reported associations in 20.5%, the neonatal resuscitation service and the Ibn Sina University Hospital in Rabat in 8.2%, as being responsible for organizing the training sessions in which they participated.

96.2% of health professionals, having participated in the continuing education sessions organized on the pathology of perinatal asphyxia, stated that these training sessions enabled them to develop their skills relating to the care of asphyxiated newborns. Corroborating the results of several studies, including the kasri study^[12] and the Vandebuche study,^[13] which reported that participation in continuing education sessions in neonatology led to the development of providers' skills in neonatal management.

Only 30.9% gave a correct definition of perinatal asphyxia. Only 4.9% knew the diagnostic criteria for perinatal asphyxia. Only 12.7% knew the elements of the newborn's adaptation quality evaluation to ectopic life, and only 8.4% knew the necessary gestures to make with an asphyxiated newborn before transfer to the neonatology center. Reaffirming the result sets of several studies showing insufficient knowledge of health professionals for certain diseases, including Barkat's study.^[5] on eclampsia and pre-eclampsia, Drissi's study.^[14] on factors influencing the process of patient management in emergency departments, and the book by Aboussad *et al.*^[15] on health and vulnerability in Morocco.

CONCLUSION

The results of this study illustrated the need to review the hourly volume dedicated to this pathology in the basic training of midwives, general nurses and general doctors, and to take into account perinatal asphyxia, when planning continuing education sessions for the benefit of

these healthcare providers, in order to give more importance to this pathology and allow them, consequently, to acquire the knowledge and skills necessary for the proper care of asphyxiated newborns. In addition to these training courses, it would be appropriate to develop algorithms and recommendations for good practice relating to this pathology by disseminating them on a large scale. Finally, it is essential to maintain the level of knowledge and skills to make continuous training and regular assessments of the practices of providers involved in the management of the newborn concerning screening, care, and prevention of perinatal asphyxia.

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CONFLICTS OF INTEREST

None.

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