

## **SAFETY CULTURE IN OBSTETRIC NURSES' CLINICAL PRACTICE**

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### **ABSTRACT**

**Objective:** to identify the safety culture dimensions that influence obstetric nurses' clinical practice.

**Method:** an observational, analytical and cross-sectional study, carried out from September 2018 to May 2019 at two maternity hospitals integrated in a hospital center in the Central region of Portugal. A total of 70 obstetric nurses answered the Hospital Survey on Patient Safety Culture. The data were submitted to descriptive and inferential analysis. The dimensions were considered strong when they presented scores  $\geq 75.0\%$  of positive answers, and deemed as problematic with scores  $\leq 50.0\%$ .

**Results:** the "Teamwork within units" dimension was the one that obtained scores above 75.0%. The "Supervisor expectations", "Feedback and communication about errors", "Communication openness", "Organizational learning" and "Hospital handoffs and transitions" dimensions obtained scores between 50.0% and 65.0%. The "Non-punitive response to error", "Frequency of events reported", "Management support for patient safety" and "Staffing" dimensions had scores below 40.0%.

**Conclusion:** the results of this study show that "Teamwork within units" is a strong safety culture dimension in maternity hospitals. However, the prevalence of a punitive culture, underreporting of adverse events, insufficient number of obstetrical nurses and little commitment of the hospital management are considered as problematic dimensions that influence obstetric nurses' practice. This assessment of the safety culture contributes to planning interventions that reduce the incidence of errors and improve the safety of obstetric care.

**DESCRIPTORS:** Obstetric Nursing. Patient safety. Safety management. Organizational culture.

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# CULTURA DE SEGURANÇA NA PRÁTICA CLÍNICA DOS ENFERMEIROS OBSTETRAS

## RESUMO

**Objetivo:** identificar as dimensões da cultura de segurança que influenciam a prática clínica dos enfermeiros obstetras.

**Método:** estudo observacional, analítico, transversal, realizado em duas maternidades integradas em um centro hospitalar da região Centro de Portugal, no período de setembro de 2018 a maio de 2019. Um total de 70 enfermeiros obstetras respondeu ao *Hospital Survey on Patient Safety Culture*. Os dados foram submetidos à análise descritiva e inferencial. As dimensões foram consideradas fortes quando apresentaram scores  $\geq 75,0\%$  de respostas positivas, e consideradas problemáticas, quando apresentaram scores  $\leq 50,0\%$ .

**Resultados:** a dimensão “trabalho em equipe dentro das unidades” foi a dimensão que obteve scores acima de 75,0%. As dimensões “expectativas do supervisor”, “feedback e comunicação sobre o erro”, “abertura na comunicação”, “aprendizagem organizacional” e “transferências e transições hospitalares” obtiveram pontuações entre 50,0% e 65,0%. As dimensões “resposta ao erro não punitiva”, “frequência da notificação de eventos”, “apoio à segurança do paciente pela gestão” e “quantidade de profissionais” apresentaram scores abaixo de 40,0%.

**Conclusão:** os resultados deste estudo mostram que o trabalho em equipe dentro das unidades é uma dimensão forte da cultura de segurança nas maternidades. Contudo, a prevalência de uma cultura punitiva, de subnotificação de eventos adversos, uma quantidade insuficiente de enfermeiros obstetras e pouco comprometimento da gestão hospitalar são consideradas como dimensões problemáticas que influenciam a prática dos enfermeiros obstetras. Essa avaliação da cultura de segurança contribui para o planejamento de intervenções que reduzem a incidência de erros e melhoram a segurança da assistência obstétrica.

**DESCRITORES:** Enfermagem obstétrica. Segurança do paciente. Gestão da segurança. Cultura organizacional.

# LA CULTURA DE SEGURIDAD EN LA PRÁCTICA CLÍNICA DE ENFERMEROS ESPECIALIZADOS EN OBSTETRICIA

## RESUMEN

**Objetivo:** identificar las dimensiones de la cultura de seguridad que influyen la práctica clínica de enfermeros especializados en Obstetricia.

**Método:** estudio observacional, analítico y transversal, realizado en dos maternidades integradas en un centro hospitalario de la región Central de Portugal entre septiembre de 2018 y mayo de 2019. Un total de 70 enfermeros especializados en Obstetricia respondió la *Hospital Survey on Patient Safety Culture*. Los datos se sometieron a análisis descriptivo e inferencial. Las dimensiones fueron consideradas sólidas cuando presentaron puntuaciones  $\geq 75,0\%$  de respuestas positivas, y problemáticas cuando obtuvieron valores  $\leq 50,0\%$ .

**Resultados:** la dimensión “Trabajo en equipo dentro de las unidades” fue la que obtuvo puntuaciones superiores al 75,0%. Las dimensiones “Expectativas del supervisor”, “Feedback y comunicación sobre los errores”, “Apertura en la comunicación”, “Aprendizaje organizacional” y “Transferencias y transiciones hospitalarias” obtuvieron puntuaciones entre 50,0% y 65,0%. Las dimensiones “Respuesta no punitiva a los errores”, “Frecuencia de eventos notificados”, “Apoyo de la gerencia a la seguridad del paciente” y “Dotación de profesionales” presentaron porcentajes inferiores al 40,0%.

**Conclusión:** los resultados de este estudio demuestran que el “Trabajo en equipo dentro de las unidades” es una dimensión sólida de la cultura de seguridad en las maternidades. Sin embargo, la prevalencia de una cultura punitiva, de la subnotificación de eventos adversos, una dotación insuficiente de enfermeros especializados en Obstetricia u el bajo nivel de compromiso de la gerencia hospitalaria se consideran dimensiones problemáticas que influyen la práctica de los enfermeros especializados en Obstetricia. Esta evaluación de la cultura de seguridad ayuda a planificar intervenciones que reducen la incidencia de errores y mejoran la seguridad de la asistencia obstétrica.

**DESCRIPTORES:** Enfermería obstétrica. Seguridad del paciente. Administración de la seguridad. Cultura organizacional.



## INTRODUCTION

Patient safety is a growing concern for health organizations, where complex and unpredictable activities are developed that can lead to undesirable events. Some studies have shown that, on average, one out of ten patients is subjected to an adverse event during hospitalization<sup>1</sup>.

More than one third of maternal deaths and a substantial proportion of life-threatening conditions for women are attributed to complications arising during labor, delivery or the immediate postpartum period, where preventable adverse events are related to any physical or mental harm to the pregnant woman, fetus or newborn<sup>2</sup>.

At the national and international levels, guidelines have gradually emerged in recent years that have allowed changes in the care practices, for a safe professional practice in the Obstetrics area, namely: the Obstetrics and Gynecology Screening - Priorities document<sup>3</sup>; the Pocket Book for Nurses Specialized in Maternal and Obstetric Health<sup>4</sup>; the Intrapartum care for a positive childbirth experience document<sup>2</sup>; the checklist for safe deliveries<sup>5</sup>; and the surgical safety checklist created by the World Health Organization, which can be applied in C-sections<sup>6</sup>.

The 74<sup>th</sup> General Assembly of the World Health Organization defined a 2021–2030 Global Action Plan for Patient Safety, which aims at eliminating preventable harms in health care, allowing to avoid harms or even prevent the deaths of millions of patients, as a result of unsafe health care worldwide<sup>1</sup>. In Portugal, the new 2021-2026 Patient Safety National Plan was launched, which is based on five fundamental pillars: the safety culture; leadership and governance; communication; prevention and management of safety incidents; and practices in safe environments. The fifth pillar of this plan includes in targets 5.1 and 5.2 the actions related to the implementation of safe practices related to childbirth safety<sup>7</sup>.

Promoting women's safety is essential in obstetric care units, as each intervention can involve a double risk of maternal and fetal morbidity and mortality<sup>8</sup>. The Joint Commission Sentinel Event Alert reveals that, in 47 perinatal death or permanent disability cases studied, the main causes of adverse events were the following: communication; organizational culture; teamwork through hierarchization of organizational structures; competence of the team; the orientation and training process; supervision problems of physicians and obstetric nurses: and insufficient prenatal information<sup>9</sup>.

Obstetric nurses focus on the needs of the woman/couple/family, preventing complications during health/disease processes throughout the reproductive cycle, taking into account the best scientific evidence available. However, the problem of the safety culture in maternity hospitals has not been a priority requirement for health institutions, even though it is essential for care quality and is related to values, attitudes, perceptions, competencies and individual and group behavioral patterns that influence how professionals perceive and act on an organization's safety issues<sup>10</sup>.

It is urgent to adopt strategies that contribute to the development of a safety culture, which reduces the frequency and severity of errors in the care of women and newborns<sup>11</sup>. This process requires prior knowledge of the safety culture, identifying the existing weaknesses in maternity hospitals, in order to instigate proactive attitudes in all actors involved<sup>8</sup>.

Assessing the safety culture allows providing measurable data, identifying areas for improvement and implementing change processes to improve the quality of maternal and obstetric health care<sup>12</sup>. Particularly in maternity wards, safety can be influenced by the organizational culture, teamwork, communication, non-punitive responses, and staff perceptions about patient safety<sup>8</sup>.

Creating a safety culture is a hard task, requiring resilient work teams capable of maintaining actions and adapting to the pressure of different clinical risks intrinsic to health care activities<sup>13</sup>. However, we are still not at the desired safety culture level, when the number of obstetric nurses is insufficient to meet the specialized care needs, when a punitive culture and underreporting of adverse events, and when little commitment and support by the hospital management predominate in obstetric units regarding the patient safety issues<sup>14–16</sup>.

Assessing the safety culture in organizations has become a necessity, especially in the obstetrics area, which will allow identifying the potential and problematic dimensions and, consequently, designing specific interventions to promote women's safety. The objective of this study is to identify the safety culture dimensions that influence obstetric nurses' clinical practice.

## METHODS

An observational, analytical and cross-sectional study was carried out, which was guided by the Strengthening the Reporting of Observational studies in Epidemiology (STROBE) tool<sup>17</sup>. The non-probability convenience sample consisted of 70 obstetric nurses from two maternity hospitals integrated into a hospital center in the Central region of Portugal. Data collection took place between September 2018 and May 2019.

In the inclusion criteria, all nurses who developed functions related to providing direct care to pregnant/postpartum women were considered. The exclusion criteria considered were performing functions as a nurse-manager and being temporarily absent from the service during the data collection period due to being under a medical certificate, vacation leave or other type of leave.

The data were collected through an *ad hoc* questionnaire that allowed sociodemographic characterization (gender, age, marital status, academic qualifications) and professional characterization (professional experience, professional experience in the current institution, training in patient safety), also integrating the Hospital Survey on Patient Safety Culture (HSOPSC) – version 1, prepared by the Agency for Healthcare Research and Quality (AHRQ). The HSOPSC developed by the AHRQ assesses the safety culture and monitors its evolution, in order to promote changes and improve health care quality<sup>18</sup>. This instrument has great potential to identify the safety culture determinants, encompassing forty-two items in the form of an ordinal Likert-type scale, graded in five levels: from 1 (I totally disagree or never) to 5 (I totally agree or I always agree).

HSOPSC assesses 12 patient safety culture dimensions, which are grouped into three broad categories: in the context of the unit, in the hospital context and outcome variables. The dimensions in the context of the unit are as follows: teamwork within units (dimension 1); supervisor/manager expectations and actions promoting patient safety (dimension 2); organizational learning - continuous improvement (dimension 3); feedback and communication about errors (dimension 6); communication openness (dimension 7); staffing (dimension 10); and non-punitive response to error (dimension 12). The dimensions in the hospital context include management support for patient safety (dimension 4), teamwork across units (dimension 9) and handoffs and transitions (dimension 11). The safety culture outcome variables include the following: overall perception of patient safety (dimension 5); frequency of events reported (dimension 8); and two single-item variables, which are evaluated separately (patient safety level and number of events reported in the last 12 months)<sup>19</sup>.

The original version of this instrument was translated, culturally adapted and validated for the Portuguese spoken in Portugal, with authorization requested from the author who validated the instrument<sup>20</sup>. After approval by the Ethics Commission integrated in the Innovation and Development

Unit - Clinical Trials Center and the Management of the hospital center in the Central region of Portugal, the questionnaires were delivered on paper, with a written request for consent, reinforcing the anonymous and confidential nature of data processing. The informed consent included the study description, risks, benefits, confidentiality, relevant researcher contact details, voluntary participation and the right to withdraw from the study at any moment. The questionnaires were returned in a sealed envelope separately from the Free and Informed Consent Form.

Taking into account the population of both maternity hospitals (142 obstetric nurses), 125 questionnaires were handed out, 70 of which were returned to the researcher, which represents a 56.0% adherence rate, exceeding the minimum goal set by the authors of the instrument, which would be 50.0% according to AHRQ criteria<sup>19</sup>.

The HSOPSC results were analyzed and interpreted following the methodology proposed in the AHRQ user guide<sup>19</sup>. The negatively worded items were inverted (A5, A7, A8, A10, A12, A14, A16, A17, B3, B4, C6, F2, F3, F5, F6, F7, F9, F11). The authors of the scale recommend that, to ease data analysis, all five answer levels of the original Likert-type ordinal scale be recoded into 3 answer levels (Positive, Neutral and Negative). The percentage of positive answers corresponds to the combination of the following answer possibilities: "I totally agree", "I agree", "Always" and "Most of the time", taking into account the questions asked. The level considered "Neutral" consists of the midpoint of the scale, corresponding to the combination of "I neither agree nor disagree" and "Sometimes" answers according to the type of question. The percentage of negative answers corresponds to the combination of the following answer possibilities: "I totally disagree", "I disagree", "Never" and "Rarely", taking into account the questions asked.

The safety culture dimensions were calculated by determining the mean percentage (not weighted) of only the positive answers to the items in each dimension<sup>19,20</sup>. The percentage of positive answers given to the items was considered by dividing the number of positive answers by the total number of answers (Positive, Neutral and Negative). The AHRQ considers that positive evaluations equal to or greater than 75.0% designate dimensions that represent strong safety culture areas, and that mean values of positive answers equal to or less than 50.0% indicate problematic dimensions<sup>21</sup>.

The sociodemographic data were analyzed using descriptive statistics. The professional context variables investigated (time of professional experience and having training in patient safety) were verified through inferential statistics. The Mann-Whitney U statistic was used for the inferential analysis, in order to identify the groups that differ statistically from each other. The comparison groups are made up of obstetric nurses with a professional experience of less than or equal to 20 years (n=33) and obstetric nurses with a professional experience of more than 20 years (n=37). The other group for comparison refers to the "training in patient safety" variable, with obstetric nurses who underwent training in patient safety (n=5) and those who did not undergo such training (n=65).

Regarding the "time of professional experience" variable, in the Mann-Whitney tests, the hypotheses were elaborated as follows: (null hypothesis)  $H_0$  - The distribution of the Dim i median functions of obstetric nurses who have 20 or fewer years of experience and those with more than 20 years are identical (where  $i = 1,2,3,4,5,6,7,8,9,10, 11$  and  $12$ ); and (alternative hypothesis)  $H_1$  - The distribution of the Dim i median functions of obstetric nurses who have 20 or fewer years of experience and those with more than 20 years are not identical (where  $i = 1,2,3,4,5,6,7,8,9,10, 11$  and  $12$ ).

As for the "training in patient safety" variable, in the Mann-Whitney tests, the hypotheses were prepared as follows: (null hypothesis)  $H_0$  - The distribution of the Dim i median functions of the obstetric nurses who underwent training in patient safety and those who did not are identical (where

$i = 1,2,3,4,5,6,7,8,9,10, 11$  and  $12$ ); and (alternative hypothesis)  $H_1$  - The distribution of the Dim  $i$  median functions of the obstetric nurses who underwent training in patient safety and those who did not are not identical (where  $i = 1,2,3,4,5,6,7,8,9,10, 11$  and  $12$ ).

We used the Mann-Whitney test, with 95% confidence intervals (CIs) calculated for Hodges-Lehmann Median Difference independent samples<sup>22</sup>.

All tests considered a Type I error of 5%<sup>23</sup>. The IBM® SPSS® Statistics for Windows software program, version 27.0, was used for the statistical data analysis<sup>24</sup>.

## RESULTS

The sample consisted mostly of female nurses (90.0%), with a mean age of 46 years old. Most of the participants were married or living in stable relationships (61.4%). As for their academic qualifications, 27.1% had a master's degree and 71.4%, a graduation degree in Nursing. Regarding the time of professional experience, 52.9% had more than 20 years of experience and had worked for a mean of 20 years in the institution where the study was carried out. Only 7.1% of the nurses participated in training on patient safety, with topics related to quality and safety, prevention of falls, healthcare-associated infections and safety at work. The other characteristics are described in Table 1.

**Table 1** – Sociodemographic and professional characteristics of the obstetric nurses. Coimbra, PT, Portugal, 2018-2019. (n=70).

Variables	Mean	Standard Deviation
	n	(%)
Age (years old)	45.5	9.0
Professional experience in the current institution (years)	19.58	8.9
Gender		
Female	63	90.0
Male	7	10.0
Marital status		
Single	15	21.4
Married/ <i>De facto</i> union	43	61.5
Divorced	8	11.4
Widowed	4	5.7
Academic qualifications		
Bachelor's degree	1	1.4
Graduation degree	50	71.4
Master's degree	19	27.1
Professional experience		
<20 years	33	47.1
>20 years	37	52.9
Professional experience in the current institution		
<20 years	39	57.7
>20 years	31	44.3
Training in patient safety		
Yes	5	7.1
No	65	92.9

Regarding the safety culture dimensions, the mean percentages of positive answers varied from 19.5% to 78.2%. The “teamwork within units” dimension reached a score above 75.0%, as mentioned by the authors of the scale<sup>21</sup>. The “supervisor/manager expectations and actions promoting patient safety”, “feedback and communication about errors” and “communication openness” presented percentages of positive answers between 60.0% and 63.6%. In six dimensions, the mean percentage of positive answers was below 50.0%, as can be seen in Table 2.

This study found that 40.0% of the obstetric nurses classified the patient safety level as acceptable and 24.3% as weak or very weak, verifying that most obstetric nurses (85.7%) did not report any event in the last 12 months. The other characteristics are described in Table 3.

**Table 2** – Positive answers to the patient safety culture dimensions. Coimbra, PT, Portugal, 2018-2019. (n=70).

Safety culture dimensions	No. of items	Mean % of positive answers
In the context of the unit		
Teamwork within units	4	78.2
Supervisor/Manager expectations and actions promoting patient safety	4	63.6
Organizational learning – Continuous improvement	3	51.9
Feedback and communication about errors	3	60.0
Communication openness	3	60.5
Staffing	4	35.7
Non-punitive response to error	3	19.5
In the hospital context		
Management support for patient safety	3	21.0
Teamwork across units	4	40.4
Hospital handoffs and transitions	4	57.8
Safety culture outcome variables		
Overall perception of patient safety	4	44.8
Frequency of events reported	3	21.0

**Table 3** – Assessment of patient safety and number of events reported in the last 12 months. Coimbra, PT, Portugal, 2018-2019. (n=70).

Variables	n	(%)
Patient safety level		
Very weak	1	1.4
Weak	16	22.9
Acceptable	28	40.0
Very good	24	34.3
Excellent	1	1.4
Number of events reported		
None	60	85.7
From 1 to 2 event reports	9	12.9
From 3 to 5 event reports	1	1.4

As for the “professional experience” and “training in patient safety” variables, no statistically significant differences were found regarding the safety culture dimensions, as can be verified in Table 4.

**Table 4** – Association of the professional variables (professional experience, training in patient safety) with the patient safety culture dimensions. Coimbra, PT, Portugal, 2018-2019. (n=70).

Variable	Professional experience (n=70)				p-value*	Training in patient safety (n=70)				p-value†
	<20 years (n=33)		>20 years (n=37)			No (n=65)		Yes (n=5)		
	Median	95% CI†	Median	95% CI†		Median	95% CI†	Median	95% CI†	
Dim. 1‡	4.00	4.00;4.25	4.00	4.00;4.25	0.525	4.00	4.00;4.25	3.75	3.25;4.25	0.478
Dim. 2§	3.75	3.75;4.00	3.50	3.25;4.00	0.371	3.75	3.75;4.00	3.25	3.00;4.00	0.247
Dim. 3	3.33	3.00;4.00	3.67	3.67;4.00	0.380	3.33	3.33;3.67	3.00	3.00; 4.00	0.492
Dim. 4¶	2.33	2.00;3.00	3.00	3.00;3.33	0.078	2.67	2.67;3.33	3.00	3.00;3.67	0.241
Dim. 5**	3.00	2.75;3.75	3.00	2.75;3.50	0.493	3.00	2.75;3.50	2.75	2.25;3.75	0.801
Dim. 6††	3.33	3.33;3.67	3.67	3.67;4.00	0.971	3.67	3.67;4.00	3.33	3.00;4.00	0.528
Dim. 7‡‡	3.67	3.33;4.00	3.33	3.33;3.67	0.853	3.67	3.67;4.00	3.00	3.00;4.00	0.207
Dim. 8§§	2.00	2.00;3.00	2.67	2.00;3.33	0.115	2.00	2.00;3.00	2.67	2.00;4.33	0.634
Dim. 9	3.25	3.25;4.00	3.25	3.25;3.75	0.201	3.25	3.25;3.75	3.25	3.00;4.00	0.604
Dim. 10¶¶	2.75	2.50;3.25	3.00	3.00;3.50	0.317	3.00	3.00;3.25	2.75	2.25;3.00	0.172
Dim. 11***	3.50	3.50;4.00	3.50	3.25;4.00	0.428	3.50	3.50;4.00	3.25	3.00;4.25	0.835
Dim. 12†††	2.33	2.33;3.00	2.67	2.67;3.33	0.571	2.67	2.67;3.00	2.33	2.33;3.00	0.540

\*According to the Mann-Whitney test at 95% confidence; †95% CI for Hodges-Lehmann Median Difference independent samples; ‡Dim. 1 = teamwork within units; §Dim. 2 = supervisor/Manager expectations and actions promoting patient safety; ||Dim. 3 = organizational learning - continuous improvement; ¶Dim. 4 = management support for patient safety; \*\*Dim. 5 = overall perception of patient safety; ††Dim. 6 = feedback and communication about errors; ‡‡Dim. 7 = communication openness; §§Dim. 8 = frequency of events reported; |||Dim. 9 = teamwork across units; ¶¶Dim. 10 = staffing; \*\*\*Dim. 11 = handoffs and transitions; †††Dim. 12 = non-punitive response to error

## DISCUSSION

In the current study, only the “teamwork within units” dimension reached the necessary percentage of positive answers to be considered a strong patient safety culture dimension, obtaining a score of 78.0%<sup>21</sup> and considered a dimension that promotes a safety culture in maternity hospitals<sup>25</sup>.

Good interaction across the teams, mutual support and respect exert a positive impact on obstetric care and allow for more efficient and accurate decision-making<sup>26</sup>. However, the “teamwork across units” dimension was considered a weak area, with a score of 40.0%, a percentage that is identical to the international literature<sup>16,27</sup>, possibly reflecting the lack of support and coordination across hospital units.

The “supervisor/manager expectations and actions promoting patient safety”-dimension presented a mean percentage of positive answers of 64.0%, which suggests that obstetric nurses recognize the supervisor’s role in promoting patient safety. International studies<sup>16,28</sup> confirm that the role of the supervisor/manager promotes a learning culture, raises awareness and is associated with increased involvement of health professionals in improving obstetric care quality.

The “feedback and communication about errors” and “communication openness” dimensions obtained a mean positive percentage of 60.0%<sup>16</sup>, evidencing that health professionals are informed about the errors and openly discuss ways to prevent them. However, when we talk about communication, we cannot forget the “hospital handoffs and transitions” dimension which, despite obtaining a mean

percentage of positive answers with a score of 57.8%, is an area that needs improvement interventions<sup>25</sup>. Health professionals advocate standardized guidelines and protocols for efficient communication of the content of handoffs in obstetrics services, as they are aware of the potential risks of brief, inaccurate or incomplete handoffs, oftentimes aggravated by lack of time and reduced human resources<sup>29</sup>.

Discussing potential risks eases learning, encourages positive changes and allows triggering emotions and feelings in the professionals, who carry with them the enormous responsibility of providing care to women and newborns every day<sup>30</sup>. However, in this study, the “organizational learning - continuous improvement” dimension obtained a mean percentage of positive answers of 51.9%, with results similar to those found in international studies, which show that a significant proportion of participants are not currently involved in quality and safety initiatives<sup>25,31</sup>. The results of this dimension reveal that obstetric nurses need to work on this area with the objective of achieving effective gains, as well as that they should demonstrate an authentic commitment to learn from risk situations and use this learning to promote improvements, in an integrated perspective by the entire multiprofessional team, thus fostering a fairer culture<sup>32</sup>.

In the current study, the “communication openness” and “feedback about errors” dimensions obtained scores above 50.0%; however, obstetric nurses are still reluctant to report adverse events, as verified by the significantly low mean percentage of positive answers (21.0%) in the “frequency of events reported”. This result is explained by the high number of obstetric nurses (86.0%) who did not report event in the last 12 months. In addition, in a research study carried out in 12 obstetric units from Norway, it was reported that only a very small percentage of severe obstetric events were reported, as these units lack a traditional culture of reporting events and learning about them<sup>15</sup>. It is known that transparent and correct reporting of the analysis of adverse events is a prerequisite for learning, managing risks and increasing the reporting culture<sup>15</sup>. Some international studies show that the reasons for underreporting include work overload, forgetfulness, devaluing of the error and lack of feedback about the reported events<sup>33</sup>.

Underreporting of adverse events is associated with the “non-punitive response to error” dimension, which also obtained one of the lowest mean percentages of positive answers, with a score of 20.0%, similar to studies carried out in other international hospitals<sup>14,34</sup>. The Nursing team’s lack of knowledge or understanding regarding the possibility of errors in care provision can trigger feelings of shame, guilt and fear, which can be aggravated by the punitive culture still prevalent in health institutions<sup>14</sup>. A Norwegian study conducted in obstetrics units reveals the existence of a blaming culture, disregarding the systemic factors involved in the occurrence of an error<sup>15</sup>. Obstetric nurses also report that the professional stress levels increase due to the fear of legal proceedings<sup>35</sup>.

In Portugal, the problem of event underreporting may be associated with the fact that the reporting system does not safeguard non-identification of the professionals. As long as there is no legal regulation of the incidents systems in Portugal that ensures confidentiality and non-punishability of the notifications, the notification of an adverse event can be used as evidence in a lawsuit<sup>36</sup>.

The “staffing” dimension was also considered a weak safety culture area, with a mean percentage of positive answers of 36.0%, with similar results also found in a European study<sup>25</sup>. Organizations with an insufficient number of health care providers face several consequences, such as work overload, exhaustion and insomnia, which in turn lead to a lower quality in the care offered to women<sup>8</sup>. An effective number of obstetric nurses is crucial for women’s safety during delivery, and workloads above the appropriate level can increase between 8.0% and 34.0% the probabilities of safety incidents, intensifying the physical and emotional fatigue of health care providers<sup>28,37</sup>. A study conducted in an Obstetrics and Gynecology unit also reported insufficient staffing in the units and the need to work overtime to solve problems regarding structural shortage of health professionals<sup>16</sup>.

In the current study, the “overall perception of patient safety” dimension also had a mean positive percentage of less than 50.0%, with a score of 48.0%, a value close to the results of international studies<sup>27,33</sup> and which shows that the procedures and systems in health organizations are not always capable of preventing errors and that, therefore, there are problems related to patient safety.

The “management support for patient safety” dimension obtained a mean percentage of positive answers of 21.0%, evidencing that obstetric nurses recognize that the management area does not provide an environment of trust and motivation in hospital institutions and is little committed to patient safety. If managers are not committed to promoting a safety culture, health professionals will hardly feel committed and responsible for patient safety<sup>14</sup>. Obstetric nurses mention rigid organizational structures as a barrier to effective interprofessional work, making it difficult to promote a safety culture<sup>30</sup>, with very limited support from the organization and managers to change practices in the workplace to benefit women and newborns<sup>38</sup>.

In the current study, no statistically significant differences were found between the “professional experience” variable and the safety culture dimensions; however, an international study evidences that more time of professional experience is associated with better patient safety culture perceptions in the “supervisor/manager expectations and actions promoting patient safety” and “organizational learning - continuous improvement” dimensions<sup>39</sup>. However, it is verified that the median values are higher among obstetric nurses with more than 20 years of professional experience in six of the safety culture dimensions.

With regard to the “having training in patient safety” variable, no statistically significant differences were found with the patient safety culture dimensions, a result that might have been predicted due to the reduced number of obstetric nurses who had received training in patient safety. However, we can see that obstetric nurses who underwent training in patient safety obtained higher median values than those who did not in the “overall perception of patient safety”, “non-punitive response to error”, “handoffs and transitions” and “staffing” dimensions. If the sample were enlarged, this may suggest that we might obtain differences regarding this variable, revealing that having training in patient safety could provide greater awareness among obstetric nurses about the importance of adequate human resources and systems for patient safety, the need to change from a punitive culture to a fair culture of learning from errors and valuing moments of care handoffs and transitions.

The literature mentions that knowledge and skills about the patient safety culture, acquired through continuous training and established and supported by the hospital management, allow preventing errors and contributing to a more objective approach to the incidents that occur<sup>40</sup>.

As limitations of this study, we mention its non-probability sample, which limited data representativeness and precluded generalizing the results. In addition to that, the safety culture assessment may include the use of qualitative approaches to enable a deeper understanding of the obstetric nurses’ perceptions and provide insights into areas for improvement.

The researcher experienced countless adversities in data distribution and collection through the questionnaires made available face-to-face. Some obstetric nurses were not very motivated to answer the questionnaire, as they feel that their opinions are not valued and do not lead to significant changes in the safety area.

This study with obstetric nurses from two maternity hospitals with different characteristics reveals important contributions to increasing knowledge about the safety culture in obstetric care units, which will serve as a basis for designing interventions that guarantee safe Nursing care in maternity hospitals. This study is essential to continuously assess the safety culture, diagnosing vulnerable areas, in order to promote quality and safety of the care offered to women, providing important data that may be useful to discuss the problem in the teaching plans of the nursing degree and the master’s degree courses in Maternal and Obstetric Health Nursing.

## CONCLUSION

“Teamwork within units” is a strong dimension in promoting a safety culture in maternity hospitals. However, six dimensions were considered problematic and in need of priority intervention: “non-punitive response to error”; “frequency of events reported”; “teamwork across units”; “management support for patient safety”; “staffing”; and “overall perception of patient safety”. The safety culture dimensions influence each other and are also influenced by the training of obstetric nurses.

The study data expose weaknesses in obstetric care health institutions that compromise health professionals, managers and supervisors, when establishing approaches and improvement methods to reduce the impact on the safety of women and newborns. Investments should be made in cooperation across hospital units, in adequate staffing, in promoting the reporting of adverse events and in a fair and transparent culture, in order to improve the safety of maternal and obstetric health care.

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## NOTES

### ORIGIN OF THE ARTICLE

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### CONTRIBUTION OF AUTHORITY

Study design: Brás, CPC, Barbieri de Figueiredo MCA, Ferreira MMC.

Data collection: Brás CPC.

Data analysis and interpretation: Brás CPC, Barbieri de Figueiredo MCA, Ferreira MMC.

Discussion of the results: Brás CPC, Barbieri de Figueiredo MC, Ferreira MMC.

Writing and/or critical review of the content: Brás CPC, Barbieri de Figueiredo MCA, Ferreira MMC.

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### CONFLICT OF INTEREST

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