

DOI: <https://doi.org/10.36489/saudecoletiva.2021v11i62p5050-5061>

Extracorporeal circulation: perception of undergraduates about the nurse's performance

Circulación extracorporeal: percepción de los estudiantes sobre el desempeño de la enfermera

Circulação extracorpórea: percepção de graduandos acerca da atuação do enfermeiro

ABSTRACT

Objective: to evaluate the perception of nursing students about the role of the nurse in cardiopulmonary bypass. Method: it is an exploratory study, with a quantitative approach, carried out in a higher education institution, in the municipality of Paraíba, with nursing students. A data glue until May 2019, using the questionnaire technique. The data are quantified and presented using tables and graphs, using frequency and percentage analysis, and are discussed in the light of current literature. Results: The data collection provides the following discussion topics: Axis 1- Sociodemographic data, Axis 2- Knowledge about the cardiopulmonary bypass issue, Axis 3- Disease performance in cardiopulmonary bypass. Conclusion: Graduates' incipient knowledge about the discipline, due to cardiopulmonary bypass, is an important demand for the disease, together with a multiprofessional team, to decide, based on the training of the students.

DESCRIPTORS: Nursing; Cardiac surgery; Extracorporeal circulation.

RESUMEN

Objetivo: evaluar la percepción de estudiantes de enfermería sobre el rol del enfermero en el bypass cardiopulmonar. Método: se trata de un estudio exploratorio, con enfoque cuantitativo, en una institución de educación superior, en municipio de Paraíba, con estudiantes de enfermería. Una cola de datos hasta mayo de 2019, mediante la técnica de cuestionario. Los datos se cuantifican y presentan mediante tablas y gráficos, mediante análisis de frecuencia y porcentaje, siendo discutidos a la luz de la literatura actual. Resultados: La recopilación de dos datos proporciona los siguientes ejes de discusión: Eje 1- Datos sociodemográficos, Eje 2- Conocimiento sobre la temática de bypass cardiopulmonar, Eje 3- Desempeño de las enfermeras en bypass cardiopulmonar. Conclusión: Y el conocimiento incipiente de dos egresados sobre o disciplina, debido al bypass cardiopulmonar, es una demanda importante para la enfermería, junto con un equipo multiprofesional, es decir, a partir de la formación de dos estudiantes.

DESCRIPTORES: Enfermería; Cirugía cardíaca; Circulación extracorpórea.

RESUMO

Objetivo: avaliar a percepção de graduandos de enfermagem acerca da atuação do enfermeiro na circulação extracorpórea. Método: trata-se de um estudo exploratório, com abordagem quantitativa, realizado em uma instituição de ensino superior, em um município Paraibano, com graduandos de enfermagem. A coleta de dados foi realizada no mês de maio de 2019, utilizando a técnica do questionário. Os dados foram quantificados e apresentados por meio de tabela e quadro, por análise de frequência e percentual, sendo estes discutidos a luz da literatura vigente. Resultados: A compilação dos dados proporcionou os seguintes eixos para a discussão: Eixo 1- Dados sociodemográficos, Eixo 2- Conhecimento sobre a temática circulação extracorpórea, Eixo 3- Atuação do enfermeiro na circulação extracorpórea. Conclusão: É incipiente o conhecimento dos graduandos sobre o tema, pois a circulação extracorpórea é uma demanda de enfermagem, junto a equipe multiprofissional, e se direciona a ampliação do conhecimento desde a formação dos estudantes.

DESCRIPTORES: Enfermagem; Cirurgia cardíaca; Circulação extracorpórea; Estudantes.

RECEIVED ON: 12/08/2020 APPROVED ON: 01/04/2021

Wanessa de Araújo Evangelista.

Nurse (UNINASSAU João Pessoa), Post-graduate student in Emergency and ICU (FESVIP), Post-graduate student in Surgical Instrumentation, Surgical Center and Material and Sterilization Center (FAVENI).

ORCID: 0000-0002-5702-5634

Eduarda Ellen Costa Vasconcelos.

Nurse. University Center of João Pessoa Unipê. Post-graduate student in Gerontology by the Excellence Cursos group.
ORCID: 0000-0001-8971-2917

Dayse Gadioli Cavalcante de Brito.

Nurse. University Center of João Pessoa Unipê.
ORCID: 0000-0003-0510-8566

Érica Dionísia de Lacerda.

Nurse by the Federal University of Campina Grande (UFCG), Postgraduate student in obstetric nursing and neonatology by Facene.
ORCID: 0000-0003-0422-088X

Luana Gomes Leitão Rodrigues.

Nurse. University Center of João Pessoa Unipê.
ORCID: 0000-0001-5259-1357

Karla Maria Duarte Silva.

Nursing Graduate Program at the Federal University of Paraíba. Master in Nursing from UFPB.
ORCID: 0000-0002-2542-1755

INTRODUCTION

Extracorporeal Circulation (CPB) is formed by a set of machines, devices, circuits and techniques that momentarily replace the physiological functions of the heart and lungs allowing the heart to stop, incise its walls to be made a detailed and meticulous examination of its interior, under direct vision, to correct congenital or acquired anomalies.⁽¹⁾

The first successful surgery, using CPB, took place on May 6th, 1953, at Jefferson Hospital, located in the United States. The patient was an 18-year-old girl named Cecília Bavolet, with interatrial communication and the surgeon who performed the surgery was Dr. John Gibbon.⁽²⁾ The perfusionist is the team member responsible for planning and conducting CPB procedures. This has as definite prerequisites training in the area of biological sciences and health, due to the high degree of complexity that this activity represents. It is of great relevance that the perfusionist has knowledge of the anatomy and circulatory, respiratory, neurological, renal and blood anatomy to conduct CPB safely.⁽³⁾

It is considered that the nurse is the professional who has all the requirements and theoretical foundation throughout his curriculum, to perform the function

of perfusionist, since this brings with it all the systematization of Nursing, focused on comprehensive, individualized and humanized to meet the patient's needs. The greater degree of proximity of the nurse to the family is another significant factor, providing a link with the objective of reassuring them, clarifying their function and the steps that will be experienced by the patient from the arrival at the surgical center until the postoperative period.⁽⁴⁾

In addition, nurses during their graduation are also able to immediately identify any change in the patient's clinical condition, as well as act quickly with the necessary interventions, having emotional balance to intervene in the most difficult situations, which is extreme importance during performance in cardiopulmonary bypass.⁽⁵⁾

In view of these facts, the following guiding question emerged: what is the perception of nursing students about the role of nurses in cardiopulmonary bypass? This study aimed to: evaluate the perception of nursing students about the role of nurses in cardiopulmonary bypass.

METHOD

This is an exploratory study, with a quantitative approach, carried out in a

higher education institution, in a municipality in Paraíba. The initial sample of the research consists of 94 students of the undergraduate nursing course. The inclusion criteria used to choose participants were: to be properly enrolled in the ninth period of undergraduate nursing and to have taken the basic disciplines necessary to understand the proposed theme and to be interested in participating in the study. And as an exclusion criterion, students enrolled in previous nursing undergraduate periods, those who were not present at the time of data collection and those who left the questions blank would be excluded from the sample. After adapting to the inclusion and exclusion criteria, the final sample totaled 63 students. It is worth noting that the differential percentage of 31 students excluded from the study was due to the absence at the time of data collection (30) and not signing the Informed Consent Form (ICF).

The research was submitted to the Research Ethics Committee, and approved under opinion number 3,323,169 and CAAE: 09287519.6.0000.5177. The ethical aspects recommended by Resolution No. 466/12 of the National Health Council were respected. Data collection was performed in May 2019, using the questionnaire technique, following ethi-

cal principles, with authorization through the IC. The data were quantified and presented by means of a table and table,

by frequency and percentage analysis, which are discussed in the light of the current literature.

RESULTS

Below, the results regarding the compilation of the data, which will be discussed in three thematic axes: Axis 1- Sociodemographic data, Axis 2- Knowledge about the ECC theme, Axis 3- Nurse performance in the ECC, being displayed through frequency and percentage.

Axis of discussion 1: SOCIODEMOGRAPHIC DATA

In Table 1, we can see that there was no percentage of participants referring to the age group of 18 to 20 years, 53 (84%) referred to the age group of 21 to 30 years, 5 (8%) the age group of 31 to 40 years and 5 (8%) the age group 41 to 50 years. Regarding the gender variable, it is possible to observe a greater margin of female participants 52 (83%), compared to male participation 11 (17%).

Regarding professional performance, 51 (79%) were students, 4 (6%) nursing technicians, 3 (5%) pharmacy assistants and 1 (2%) referred to the professions: manager, laboratory technician, businesswoman, grocer, caregiver for the elderly.

Axis of discussion 2: KNOWLEDGE ABOUT THE CPB THEMATIC

Table 1: Distribution of sociodemographic data of the research participants. João Pessoa- PB, 2019.

VARIÁVEIS	N	%
Faixa etária		
18 a 20	0	0
21 a 30	53	84
31 a 40	5	8
41 a 50	5	8
Sexo		
Feminino	52	83
Masculino	11	17
Atuação profissional		
Estudante	51	79
Téc. em Enfermagem	4	6
Gerente	1	2
Téc. em laboratório	1	2
Empresária	1	2
Merendeiro	1	2
Aux. de farmácia	3	5
Cuidadora de idoso	1	2

Source: Researcher's personal source.

Board 1: Distribution of responses regarding knowledge about the CPB theme. João Pessoa- PB, 2019.

PERGUNTAS	RESPOSTAS	N	%
Familiar que realizou cirurgia cardíaca	Sim	16	25
	Não	47	75
Cirurgia que foi realizada	Revascularização do miocárdio.	6	37
	Correção de Doenças Valvares como plastia ou troca de válvulas.	6	37
	Correção de Cardiopatias Congênitas.	2	13
	Transplante cardíaco.	0	0
	Não sei.	2	13
Conhecimento sobre a CEC	Sim	36	57
	Não	27	43
Entendimento sobre CEC	Ato ou efeito de transplantar.	1	2
	Conjunto de máquinas e equipamentos que substituem temporariamente as funções cardiorrespiratórias desempenhadas pelo coração e pelos pulmões.	46	73
	Doença que afeta o sistema circulatório.	0	0
	Circulação sanguínea que corresponde a todo o percurso do sistema circulatório que o sangue realiza no corpo humano.	4	6
	Não sei.	12	19

Abordagem na graduação	Sim	17	27
	Não	46	73
Disciplina relacionada	Saúde do Adulto	14	82
	Saúde da Criança	0	0
	Saúde da Mulher	0	0
	Cirúrgica e CME	3	18
	Nenhuma	46	100

Source: Researcher's personal source.

When asked about a family member who underwent cardiac surgery, a percentage of 16 (25%) answered yes and 47 (75%) no. Of those who answered in the affirmative, we can observe the same percentage 6 (37%) for coronary artery bypass surgery.

When asked about knowledge about CPB, 36 (57%) said they knew the topic and 27 (43%) said they did not. When asked about the understanding of CPB,

46 (73%) indicated the correct alternative to the CPB concept, 1 (2%) indicated the alternative act or effect of transplantation, 4 (6%) blood circulation that corresponds to all the path of the circulatory system that blood takes in the human body and 12 (19%) reported not knowing.

It can be seen a considerable percentage of 46 (73%) who answered that the topic was not addressed du-

ring graduation, in any discipline, compared to those who reported having addressed 17 (27%). Of those who answered yes to the previous question, 14 (82%) said they had seen the theme in the adult health discipline and 3 (18%) in the surgical and CME discipline.

Axis of discussion 3: NURSE'S PERFORMANCE AT CPB

Board 2: Distribution of responses regarding the role of nurses in CPB. João Pessoa- PB, 2019.			
PERGUNTAS	RESPOSTAS	N	%
CEC como campo de atuação do enfermeiro	Sim	33	52
	Não	30	48
Relevância da atuação do enfermeiro na CEC	Sim, pois qualquer integrante da equipe de enfermagem pode atuar nessa área.	15	24
	Não, me interesse por outras áreas.	14	22
	Sim, por ser um novo campo de atuação.	34	54
	Não, é escasso de oportunidade de trabalho nessa área.	0	0
Principais profissionais da CEC	Cirurgião cardíaco, Enfermeiro e Anestesiologista.	26	41
	Cirurgião cardíaco, Instrumentador cirúrgico e Anestesiologista.	28	44
	Cirurgião cardíaco, Técnico de enfermagem e Anestesiologista	1	2
	Cirurgião cardíaco, Anestesiologista e Perfusionista.	8	13
	Cirurgião cardíaco, Fisioterapeuta e Perfusionista.	0	0
Atuação do enfermeiro perfusionista na CEC	Apenas prover os materiais para a Circulação Extracorpórea.	4	6
	Planejar e conduzir a Circulação Extracorpórea.	26	41
	Somente preparar a montagem do circuito da Circulação Extracorpórea.	9	14
	Responsável pela canulação do paciente.	1	2
	Auxiliar o profissional médico no procedimento cirúrgico.	23	37
Diferencial da atuação do enfermeiro frente a atuação de outros profissionais	Sim, pois o enfermeiro é mais capacitado para atuar na docência, ministrando aulas inerentes à sua formação.	7	11

Diferencial da atuação do enfermeiro frente a atuação de outros profissionais	Não, devido aos outros profissionais prestarem assistência apenas no período trans operatório.	2	3
	Sim, por prestar assistência diretamente no período pré, trans e pós-operatório conforme a Sistematização da Assistência de Enfermagem (SAE).	54	86
	Não, pois os outros profissionais tem uma melhor preparação para saber identificar e solucionar as necessidades e mudanças do quadro clínico do paciente.	0	0
	Nenhuma	46	100

Source: research data, 2019.

In table 2, it is possible to observe as the main results, that when asked if they knew that CPB is a field of action for nurses, 33 (52%) answered yes and 30 (48%) no. As for the questioning about the main professionals of the cardiac surgery team with CPB, 26 (41%) answered Cardiac surgeon, Nurse and Anesthesiologist, 28 (44%) Cardiac surgeon, Surgical instructor and Anesthesiologist. Regarding the role of the perfusionist nurse in the CPB, 4 (6%) responded only to provide the materials for the CPB, 26 (41%).

Regarding the question about the differential of the nurse's performance in relation to the performance of other professionals, 7 (11%) answered yes, because the nurse is more qualified to work in teaching, teaching classes inherent to their training, 2 (3%) do not, due to the other professionals providing assistance only in the trans operative period and 54 (86%) yes, for providing assistance directly in the pre, trans and postoperative period according to the Nursing Care Systematization (NCS).

DISCUSSION

Studies show the prevalence of females in undergraduate nursing, corroborating the results found in this research.^(6,7) This predominance is due to the fact that nursing is historically linked to the female figure with the recognition of the first nurses in history.⁽⁷⁾

The role of nurses today goes far beyond the old and hermetic conceptions, considered curricular prisons, so educational institutions must pay attention to training professionals with skills to work in the various fields of

nursing, meeting the requirements of more qualified and specialized professionals.⁽⁸⁾ One of its activities is in the Myocardial Revascularization surgery,

According to the study, approximately 53,8% of the interviewed nurses considered that training during their undergraduate course did not meet the needs of their work activity, compared to 46,2% who would say that the training received met the professional needs.

mentioned in this study, which is the most used method nowadays, however it is a complex procedure and most of the times it needs a support for it to happen and this support is the cardio-pulmonary bypass (CPB).⁽¹⁾

According to the study, approximately 53,8% of the interviewed nurses considered that training during their undergraduate course did not meet the needs of their work activity, compared to 46,2% who would say that the training received met the professional needs.⁽⁹⁾

The Resolution of the Federal Council of Nursing (COFEN) n° 528/2016 standardizes the performance of the Nurse as a Perfusionist, as long as he meets the criteria of having a *latu sensu* postgraduate degree recognized by the Ministry of Education (MEC) or multidisciplinary residency in this area, or having a Specialist Title issued by the Brazilian Society of Extracorporeal Circulation (SBCEC - Sociedade Brasileira de Circulação Extracorpórea), this activity being private to the nurse, within the scope of the nursing team.⁽¹⁰⁾

Cardiac surgery consists of a large multidisciplinary team, but the trio that directly influences the success of the surgery is composed of the surgeon, anesthesiologist and perfusionist. These should be in constant communication, with good integration, working as a team, seeking the best result for the patient.^(11,1)

According to the Brazilian Society of Extracorporeal Circulation, the main activities carried out by the perfusionist are: preparing the assembly of the CPB circuit; perform CPB procedure in cardiovascular surgeries, vascular surgeries, transplants

and other surgical procedures; work in teaching, giving classes inherent to their training; conduct monitoring visits in patients with ECMO (Extracorporeal Membrane Oxygenation) installed, among others suggested by society. ⁽³⁾ The health area is constantly changing and advancing its knowledge through research and technological innovations. Therefore, all professionals must be constantly updated. ⁽¹²⁾

CONCLUSION

The high number of people affected by cardiovascular diseases every year, contributes to the increase in cardiac surgeries, leading hospitals that perform this procedure to hire profes-

The high number of people affected by cardiovascular diseases every year, contributes to the increase in cardiac surgeries

nals trained to perform the role of perfusionist. Faced with this opportunity, a new field of action arises for the nurse specialist in this area to show his differential. The objective of the study was achieved, since after analyzing the data, it was possible to conclude that the percentage of nursing undergraduates who have knowledge about the subject in question is incipient and that even those who claimed to be close to the theme, have no domain about the theme, being evidenced by the percentage of incorrect answers given the questions of the data collection instrument. As study limitations, the bias of the insufficient number of scientific studies on the subject stands out. Thus, I emphasize the importance of developing new research on the topic. ■

REFERENCES

1. Souza MH, Elias DO. Fundamentos da circulação extracorpórea. 2. ed. Rio de Janeiro: Centro Editorial Alfa Rio, 2006.
2. Garzesi AM, Garcia LR, Felicio ML. Cirurgia cardíaca do adulto. São Paulo: Faculdade de Medicina, NEAD, TIS (E-book), [internet] 2018. [cited 2018 set 2] Available from: <http://www.hcfmb.unesp.br/wp-content/uploads/2018/04/cirurgiacardiacaadulto-1.pdf>.
3. Sociedade Brasileira de Circulação Extracorpórea-SBCEC. Informe-se sobre perfusão, [internet] 2018. [cited 2018 nov 22] Available from: <https://www.sbcec.com.br/br/index.php/26-home/slider/17-informe-se-sobre-perfusao.html>.
4. Dienstmann C, Caregnato RCA. Circulação extracorpórea em cirurgia cardíaca: um campo de trabalho para o enfermeiro. Rev. Sobecc, [internet] São Paulo; jan./mar. 2013. [cited 2018 set 16] Available from: http://www.sobecc.org.br/arquivos/artigos/2012/pdf/Artigos-Cientificos/Ano18_n1_jan_mar2013_circulacao-extracorporea-em-cirurgia-cardiaca.pdf.
5. Nascimento FIM, Trindade FB, Uchôa MBR da. Atribuições do enfermeiro perfusionista em cirurgia cardíaca nos hospitais do município de Teresina-PI. R. Interd, [internet] Teresina, v. 7, n. 1, p. 68-75, jan. fev. mar. 2014 [cited 2018 set 17]. Available from: <https://revistainterdisciplinar.uninovafapi.edu.br/index.php/rewinter/article/view/199>.
6. Brasil. Ministério da Educação-MEC. Censo da educação superior, [internet] 2018. [cited 2019 mai 10] Available from: <http://portal.mec.gov.br/docman/setembro-2018-pdf/97041-apresentac-a-o-censo-superior-u-ltimo/file>.
7. Federação Nacional dos Enfermeiros-FNE. As mulheres na Enfermagem, [internet] 2015 [cited 2019 mai 15]. Available from: <http://www.portalfne.com.br/noticias/as-mulheres-na-enfermagem>.
8. Conselho Federal de Enfermagem-COFEN. Mercado de trabalho para Enfermagem amplia áreas de atuação, [internet] 2018 [cited 2019 mai 14]. Available from: http://www.cofen.gov.br/mercado-de-trabalho-para-enfermagem-amplia-areas-de-atuacao_65154.html.
9. Barbera MC, Cecagno D, Seva AM, Siqueira HCH, López MJ, Maciá L. Formação acadêmica do profissional de enfermagem e sua adequação às atividades de trabalho. Rev. Latino-Am. Enfermagem, [internet] Ribeirão Preto, v. 23, n. 3, mai./jun. 2015. [cited 2019 mai 16] Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692015000300404&lang=pt.
10. Conselho Federal de Enfermagem-COFEN. Resolução n. 528/2016. Normas para atuação do enfermeiro perfusionista. [internet] 2016 [cited 2019 mai 14] Available from: http://www.cofen.gov.br/resolucao-cofen-no-05282016_46279.html.
11. Pereira, CHA enfermeira, como perfusionista, na circulação extracorpórea. Lume Repositório Digital, Rio Grande do Sul, [internet] 2013 [cited 2019 mai 20]. Available from: <https://lume.ufrgs.br/handle/10183/152810>.
12. Lavich CRP, Terra MG, Mello AL, Raddatz M, Arnemann CT. Ações de educação permanente dos enfermeiros facilitadores de um núcleo de educação em enfermagem. Rev. Gaúcha Enferm, [internet] Porto Alegre, v. 38, n. 1, abr. 2017. [cited 2019 mai 20] Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S198314472017000100403&lang=pt.