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ORIGINALES

Checklist validation for evaluation of training with clinical simulation of septic patient care

Validação de checklist para avaliação da capacitação com simulação clínica do atendimento ao paciente séptico

Validación de checklist para evaluación de la capacitación con simulación clínica de la atención al paciente séptico

Rafael Luis Bressani Lino [1]
Suelen Alves de Oliveira [2]
Kellyn Patrícia da Silva [3]
Regimar Carla Machado [4]

[1] Intensivist nurse. Student of Nursing Specialization in Cardiology and Critical Care course at the Department of Nursing of the Universidade Federal de São Carlos. Brazil.
[2] Doctor in General and Applied Biology. Professor of Nursing Specialization in Cardiology and Critical Care at the Department of Nursing of the *Universidade Federal de São Carlos*, São Paulo, Brazil.
[3] Physiotherapist. Masters Student of the Postgraduate Program in Nursing, *Universidade Federal de São Carlos*, São Paulo, Brazil.
[4] Doctor Professor. Coordinator and Professor of Nursing Specialization in Cardiology and Critical Care at the Department of Nursing of the *Universidade Federal de São Carlos*, São Paulo, Brazil. regimarmachado@gmail.com

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ABSTRACT:

Aims: Development and validation of the contents of a checklist to evaluate the qualification of health professionals in septic patient care with clinical simulation.
Method: instrument validation study, with two-stage structural design: instrument construction and validation of the checklist contents using the Delphi technique in two rounds.
Results: The content validation was composed of ten items and forty-three sub-items analyzed by the evaluators. Through the Content Validity Index, four items with strong validation evidence were identified, Content Validity Index ≥ 0.8. We restructured the checklist according to the evaluators recommendations, maintaining the ten items, but reducing them to twenty-six sub-items, which in the second round Delphi presented a percentage of agreement above 80% for all variables relevant to the instrument.
Conclusion: This method was effective to validate the checklist contents that will evaluate the qualification of health professionals in septic patient care, through clinical simulation.

Keywords: Validation Studies; In-Service training; Simulation; Sepsis.

RESUMO:
Objetivos: Construir e validar o conteúdo de um *checklist* para avaliação da capacitação de profissionais da área da saúde no atendimento ao paciente séptico com simulação clínica.
Método: Estudo de validação metodológica de instrumento, com delineamento estrutural em duas etapas: construção do instrumento e validação de conteúdo do *checklist* utilizando a técnica Delphi em duas rodadas.
Resultados: A validação de conteúdo foi composta por dez itens e quarenta e três subitens analisados pelos avaliadores. Por meio do Índice de Validade de Conteúdo, identificaram-se quatro itens com forte evidência de validação, Índice de Validade de Conteúdo ≥ 0,8. Reestruturou o *checklist* conforme recomendações dos avaliadores, mantendo os dez itens, porém com redução para vinte e seis subitens, que na 2ª rodada Delphi apresentou percentual de concordância acima de 80% para todas as variáveis pertinentes ao instrumento.
Conclusão: Método foi eficaz para validar o conteúdo de um *checklist* que avaliará a capacitação de profissionais da saúde no atendimento ao paciente séptico, por meio de simulação clínica.

Palavras chave: Estudos de Validação; Capacitação em Serviço; Simulação; Sepse.

RESUMEN:
Objetivo: Construir y validar el contenido de un *checklist* para evaluación de la capacitación de profesionales del área de la salud en la atención al paciente séptico con simulación clínica.
Método: Estudio de validación metodológica de instrumento, con delineamiento estructural en dos etapas: construcción del instrumento y validación de contenido del *checklist* utilizando la técnica Delphi en dos rondas.
Resultados: La validación de contenido fue compuesta por diez ítems y cuarenta y tres subítems analizados por los evaluadores. A través del Índice de Validez de Contenido, se identificaron cuatro ítems con fuerte evidencia de validación, Índice de Validez de Contenido ≥ 0,8. En la segunda ronda Delphi presentó un porcentaje de concordancia superior al 80% para todas las variables pertinentes al instrumento. Se reestructuró el checklist según recomendaciones de los evaluadores, manteniendo los diez ítems, pero con reducción para veintiséis subítems, que en la segunda ronda Delphi presentó un porcentaje de concordancia superior al 80% para todas las variables pertinentes al instrumento.
Conclusión: Método fue eficaz para validar el contenido de un checklist que evaluará la capacitación de profesionales de la salud en la atención al paciente séptico, por medio de simulación clínica.

Palabras clave: Estudios de Validación; Capacitación en servicio; simulación; Sepsis.

INTRODUCTION

Sepsis is a worldwide public health problem and represents the main cause of death in intensive care units (ICU), as it affects millions of people annually, surpassing cases of acute myocardial infarction, stroke and polytrauma[1-3]. The Society of Critical Care Medicine and the European Society of Intensive Care Medicine describe sepsis as a treatable organ failure caused by a deregulated infectious response with a two-point Sequential Organ Failure Assessment (SOFA) score associated with a mortality intra-hospital greater than 10%. In contrast, septic shock consists of mostly irreversible cellular and metabolic alterations, which, associated, increase the death rate of septic patients from 40% to 60%[3-5].

Thus, the Surviving Sepsis Campaign's new guidelines indicate that the use of validated and specific instruments intended to assist professional practice for the screening and early diagnosis of sepsis becomes essential and essential for a better clinical prognosis[1]. Thus, quality continuing education should be offered frequently to health professionals, aiming at effective, resolute and agile care in the face of sepsis[6,7].

In view of this, clinical simulation diffuses as an innovative alternative for health education because it is a useful pedagogical strategy that gives the participant the

contact with a real or potential situation about what he proposes to train. As an objective, there is active participation of the individual and theoretical and practical integration of learning[8-10]. In this method, the member has the opportunity to repeat the proposed activities, continually reflect and evaluate in an evaluative way his learning process[11].

Furthermore, studies of a systematic review of the literature point out that simulated learning allows the construction of technical skills, which jointly confer critical judgment based on clinical thinking, teamwork and elaboration of care management, based on scientific evidence[9,10,12]. However, in order for the method to become effective, a chain of implemented, functioning and organized structural aspects such as realistic simulation labs, trained teachers, clinical guides and checklists[8].

In this sense, it becomes fundamental for the quality in the formation of the individual during clinical simulation, a common language between teacher and student. It is possible to implement highly structured, validated content checklists that will provide uniformity of criteria between students and professors[13]. In view of the above, this research had the objectives of constructing and validating the contents of a checklist to evaluate the training of health professionals in septic patient care with clinical simulation.

METHOD

This is a methodological study consisting of two stages: a checklist for evaluation of health professionals' training in septic patient care with clinical simulation and content validation by using the Delphi technique.

The checklist was outlined based on the scientific literature and on an assistance algorithm of the nurse to the septic patient in the ICU[14]. For its content validation, evaluators, considered experts in the topic addressed in this study, were selected by searching the website of the National Council for Scientific and Technological Development (CNPq - *Conselho Nacional de Desenvolvimento Científico e Tecnológico*) at the Lattes Platform (*Plataforma Lattes*), in June 2017. The selection strategy of experts was based on their defining characteristics, establishing themselves as inclusion criteria: being nurses with a master's degree and/or doctor's degree in the area and with at least one year of practical experience in ICU and/or strategies through simulation. Regarding exclusion criteria, it was considered the non-compliance of all data collection stages. Finally, sample universe was dependent on the professionals' intentionality eligible for research, being selected at first 24 experts, contacted by electronic mail (e-mail), by means of a formal letter referring to the objectives, purpose and development of the study, in addition to requesting their consent through the signing of the Free and Informed Consent Form (FICF). Nonetheless, ten professionals accepted to participate in the proposal.

As a form of organization of checklist validation, a tool was used directed to the evaluators' analyzes, structured in two parts. The first, related to the criteria characterizing the participants and the second, a conceptual and operational evaluation of the checklist. Initially, the instrument was structured with ten main items and forty-three subitems: 1. Recognition of Suggestive Signs of Sepsis (subitems 1-5); 2. Hemodynamic Monitoring (subitems 6-8); 3. Peripheral Venous Access (subitems 9-11); 4. Collection of Laboratory Tests, Lactate and Cultures (subitems 12-18); 5. Antibiotic Therapy (subitems 19-21); 6. Volume Replacement (subitems 22-25); 7.

Vasoactive Drugs (subitems 26-33); 8. Inotropic treatment (subitems 34-36); 9. Ventilatory Support (subitems 37-40) and 10. Behavioral Aspects (subitems 41-43).

The checklist's content validation was carried out through the Delphi technique, in which the construct was validated based on the consensus of opinions of a group of experts, in an articulated and structured way, in stages[15,16]. Thus, in the Delphi's first round, from July to August 2017, of the ten evaluators that accepted to participate in the research, only seven participants returned the instrument evaluated within the agreed time period of 30 days.

For this step, experts evaluated the instrument by a Likert scale with 4 levels of importance and possibility of a single response for each variable of the instrument with additional space for suggestions: Completely Appropriate (4); Appropriate (3); Partially Appropriate (2); Inappropriate (1) [17]. The statistical treatment considered the categories FA and A that obtained a favorable consensus of 80% of the experts, this index of agreement being based on other validation studies[14,16,17].

The first stage analysis generated reformulation and refinement of the initial checklist's content, respecting the evaluators' suggestions, and the scientific literature, now composed of ten items and twenty-six subitems. In the second Delphi phase, in October 2017, the reformulated instrument was sent to the same evaluators, who, upon receipt, had a twenty day return period. Nevertheless, only six returned with the evaluated checklist. This stage aimed at in the individual analysis of each item and subitem regarding objectivity, simplicity, clarity, pertinence and variety. There was a dichotomous evaluation, with answers YES or NO and with a favorable consensus> 80% of specialists. They had a new opportunity to present suggestions and observations relevant to the improvement of the instrument.

The data collected were compiled in a spreadsheet of the program Microsoft Excel® and its statistic made in the statistical program SPSS, version 20.0, adopting *p* value ≤ 0,05 with a confidence interval of 95%. Descriptive analysis (frequency, mean, median and standard deviation) and inferential variables were performed using Pearson's Chi-Square test (X^2). Agreement among experts was analyzed using the Content Validity Index (CVI) ≥ 0.8, calculated by the number of evaluators agreeing with the item by the total number of evaluators. As for the sum of all "Completely Appropriate" and "Appropriate" responses in the Delphi's first round and "yes" in the second round, a percentage of agreement above 80% was adopted for the variables considered relevant to the checklist.

This study complied with the formal requirements contained in Resolution 466 of 2012 of the Guidelines and Norms for Research Involving Human Beings of the Brazilian Health Board (*Conselho Nacional de Saúde*), and was approved by the Research Ethics Committee under number 1,311,211.

RESULTS

In the Delphi's first round, seven female evaluators (100.0%), living in the states of Minas Gerais (14.3%), Piauí (14.3%), Rio de Janeiro (14.3%), Rio Grande do Sul (14.3%) and São Paulo (42.8%) participated. As for titration, all were nurses, with a broad sense of Intensive Care (85.7%) and *stricto sensu* Nursing in Cardiology and/or Emergency: Masters (100.0%) and Doctors (71.4%) with articles published in the area

of sepsis or clinical simulation (14.3%). Of these, 85.7% had teaching experience, research and/or extension in Cardiology and/or Emergency and/or Intensive Care and 41.42% in the area of simulation. Regarding clinical practice, 100.0% had professional experience in emergency or intensive care, with an average time of 10.5 (± 5.85) years.

Regarding the variables related to the study in the Delphi's first round, seven evaluators analyzed the instrument composed of ten items (Table 1). So, six participants underwent modifications according to the results of the CVI <0.8, aiming at meeting the statistical analyzes, experts' suggestions and scientific evidence.

Table 1. Training checklist items with clinical simulation to the septic patient evaluated in the Delphi's first round, by evaluators. São Carlos, SP, Brazil, 2017.

Variable	Yes		No		Total		CVI
	n	%	n	%	n	%	
1. Recognition of Suggestive Signs of Sepsis	6	85.71	1	14.28	7	100.0	0.85
2. Hemodynamic Monitoring	6	85.71	1	14.28	7	100.0	0.85
3. Peripheral Venous Access	5	71.42	2	28.57	7	100.0	0.71
4. Collection of Laboratory Tests, Lactate and Cultures	5	71.42	2	28.57	7	100.0	0.71
5. Antibiotic Therapy	6	85.71	1	14.28	7	100.0	0.85
6. Volume Replacement	4	57.14	3	42.85	7	100.0	0.57
7. Vasoactive Drugs	5	71.42	2	28.57	7	100.0	0.71
8. Inotropic Treatment	4	57.14	3	42.85	7	100.0	0.57
9. Ventilatory Support	3	42.85	4	57.14	7	100.0	0.42
10. Behavioral Aspects	6	85.71	1	14.28	7	100.0	0.85

Note: Likert Scale: Completely Appropriate or Appropriate = Yes, Partially Appropriate or Inappropriate = No; CVI = Content Validity Index.

The results of this round show extremely satisfactory CVI for four items, with a total value of 0.85.

Initially, the Delphi's second round was attended by seven evaluators. Nonetheless, there was a withdrawal that did not affect the validity and quality of the results, because according to previous studies, withdrawals are predicted in the use of this technique[18-19]. Therefore, after reformulation of the evaluation checklist tool of, the ten items were retained. However, the number of subitems was reduced as described in methods. Evaluators' analyses in the second stage are shown in table 2, with levels of agreement above 83.3%, considered excellent and total percentage of 93.3%.

Table2. Agreement percentage of the instrument items in the Delphi's second round, based on the analysis of evaluators. São Carlos, SP, Brazil, 2017.

Variable	Yes		No		Total	
	n	%	n	%	n	%
1. Recognition of Suggestive Signs of Sepsis	6	100.0	0	0	6	100.0
2. Hemodynamic Monitoring	6	100.0	0	0	6	100.0
3. Peripheral Venous Access	5	83.3	1	16.6	6	100.0
4. Collection of Laboratory Tests, Lactate and Cultures	5	83.3	1	16.6	6	100.0
5. Antibiotic Therapy	5	83.3	1	16.6	6	100.0
6. Volume Replacement	5	83.3	1	16.6	6	100.0
7. Vasoactive Drugs	6	100.0	0	0	6	100.0
8. Inotropic Treatment	6	100.0	0	0	6	100.0
9. Ventilatory Support	6	100.0	0	0	6	100.0
10. Behavioral Aspects	6	100.0	0	0	6	100.0

Note: Evaluation of each item in a dichotomous form, "Yes" or "No", based on the following criteria: Objectivity, Simplicity, Clarity, Relevance and Variety.

Continuing this step, agreement presented by evaluators was considered through the dichotomous evaluation of each item. Suggestions pertinent to checklist validation were accepted and gathered in the final document, which was structured according to Chart 1.

Chart 1. Training checklist with clinical simulation of the septic patient. São Carlos, SP, Brazil, 2017

PERFORMANCE ITEMS EVALUATED	APPROPRIATE	INAPPROPRIATE	NOT PERFORMED	NOT APPLIED
1. RECOGNITION OF SUGGESTIVE SIGNS OFSEPSIS				
1. Nursing history was collected	☐	☐	☐	☐
2. Vital signs were checked	☐	☐	☐	☐
3. Patient was scanned as very urgent and referred to emergency room	☐	☐	☐	☐
4. The emergency unit's physician on duty was called	☐	☐	☐	☐
2. HEMODYNAMIC MONITORING				
5. The pulse oximeter was installed	☐	☐	☐	☐
6. The monitor ECG cables was correctly installed	☐	☐	☐	☐
7. The noninvasive pressure cuff was installed and the blood pressure (BP) was measured	☐	☐	☐	☐
8. The thermometer cable was installed or the digital thermometer was placed in the patient's axillary region	☐	☐	☐	☐

To be continued...

PERFORMANCE ITEMS EVALUATED	APPROPRIATE	INAPPROPRIATE	NOT PERFORMED	NOT APPLIED
3. PERIPHERAL VENOUS ACCESS (PVA)				
9. Peripheral puncture was performed with aseptic technique in the upper limbs (region of the ulnar fossa) or in the external jugular vein, using a catheter over a calibrated needle (nº18)	☐	☐	☐	☐
10. The peripheral puncture was correctly identified	☐	☐	☐	☐
4. COLLECTION OF LABORATORY TESTS, LACTATE AND CULTURES				
11. Routine laboratory tests were performed: arterial blood gas, blood count, coagulogram, creatinine, bilirubin, and C-reactive protein (CRP), and the lactate dosage was included	☐	☐	☐	☐
12. A culture sample was collected from all outbreaks suspected of infection (uroculture, blood culture, oropharynx culture or tracheal secretion after endotracheal intubation) prior to the initiation of antibiotic therapy	☐	☐	☐	☐
5. ANTIBIOTIC THERAPY				
13. The prescribed antibiotic was administered within the first hour after the diagnosis / suspicion of sepsis	☐	☐	☐	☐
6. VOLUME REPLACEMENT				
14. Crystalloid (30ml/kg) was administered, void volume expander of the first choice, as requested	☐	☐	☐	☐
15. Mean Blood Pressure (MBP) values ≥ 65mmHg were appropriated to consider that hypotension responded to volume replacement	☐	☐	☐	☐
7. VASOACTIVE DRUGS				
16. Vasoactive drugs were administered as requested, with Noradrenaline being the first choice	☐	☐	☐	☐
17. The central lumen was identified as suitable for infusion of vasoactive drugs (internal jugular vein, subclavian artery or femoral vein)	☐	☐	☐	☐
18. Materials were correctly separated for insertion of the Central Venous Catheter (CVC)	☐	☐	☐	☐
19. The need for insertion of the IBP catheter (Invasive Blood Pressure) was identified	☐	☐	☐	☐
20. The member in which the IBP catheter was located was evaluated for the time of peripheral perfusion, temperature and local staining	☐	☐	☐	☐
8. INOTROPIC TREATMENT				
PERFORMANCE ITEMS EVALUATED	**APPI**			
9. VENTILATORY SUPPORT				
22. Signs suggestive of Acute Respiratory Insufficiency (ARI), an attack on SpO2, $PaCO_2$, PaO_2 and pH values were identified; skin coloration - cyanosis; peripheral capillary perfusion and respiratory rate	☐	☐	☐	☐
23. Endotracheal intubation materials	☐	☐	☐	☐

were correctly separated for mechanical ventilator assembly					
10. BEHAVIORAL ASPECTS					
24. Effective communication with staff was established		☐	☐	☐	☐
25. Leadership and teamwork were demonstrated		☐	☐	☐	☐
26. Effective communication with patient and family was established		☐	☐	☐	☐
21. Dobutamine was administered according to medical advice, maintaining 2 - 20 µg/kg/min					

DISCUSSION

At the end of the validation the checklist to be used in the training of professionals in the health area to the septic patient was structured by 10 items and 26 subitems that indicated a highly satisfactory general CVI, with the purpose of guiding the teaching-learning process by simulation in septic patient care.

Sepsis and septic shock due to its high mortality and significant health costs represent a worldwide problem[5,6,19]. In this setting, the new guidelines of the Surviving Sepsis Campaign emphasize the importance of using validated and specific instruments that support professional practice[1]. The content that structures these instruments should be based on the best evidence available, where their content validation by experts in the area of interest makes the product appropriate to the use.

In the Delphi's first round, six items presented CVI lower than the stipulated for this study, being reformulated, after evaluation of the evaluators, in content and theoretical foundation: Peripheral Venous Access (reduced to 1 subitem); Collection of Laboratory Tests, Lactate and Cultures (reduced to 2 subitems); Volume Replacement (4 subitems); Vasoactive Drugs (8 subitems); Inotropic Treatment (3 subitems); and Ventilatory Support (4 subitems). Thus, in the Delphi's second round, all the evaluators demonstrated agreement on the proposed variables for the checklist, which in its final version was concise, of course, with pertinent content and scientific background[8,13].

The content covered in the checklist is based on the guidelines of the Surviving Sepsis Campaign, guiding the clinical practice of the health team to reach an early diagnosis, target-based therapy and a consequent reduction in mortality[1]. By being translocated to the educational setting, it becomes a practical guide for professional performance in patients with sepsis, and can be used as a valid method for the analysis of simulation efficacy as a teaching strategy[1-3]. The variable "Recognition of Suggestive Signs of Sepsis" addresses fundamental aspects of nurses' performance for early diagnosis, which incorporates the collection of their health history, verification of vital signs and, consequently, the screening of suspected cases as urgent. It comes against studies that demonstrate the non-adoption of these measures, directly provoking the mortality and severity of the disease[1,3,20]. Consequently, the delay in diagnosis becomes an impediment to the initiation of therapy, adversely impacting mortality[20]. Professionals training on signs suggestive of sepsis becomes the premise of success and should, according to the *Instituto Latino Americano da Sepse* (ILAS - Latin American Sepsis Institute), be part of the institutional routine of institutions, so that prioritization of patient care and consequent early treatment from the emergency unit[20].

Regarding “Hemodynamic Monitoring”, this item represents a primary element of septic patient care, evidencing changes as the disease progresses and allowing the analysis of the efficacy of the initial treatment[20,21]. Emphasizing this item in a training model during the simulation strategy, embeds the relevance of the nursing team in the accomplishment of this activity, in which the skilled professional differs the vital signs outside the normality patterns and their possible complications[21]. Study shows that hemodynamic monitoring of the bed evolves the patient’s prognosis when used for immediate therapeutic decision making in the presence of hemodynamic instability[22].

The pillars that support the treatment of sepsis, contemplate the therapeutic interventions of the initial management in the first 3 and 6 h after the diagnosis. The Peripheral Venous Access (PVA) is essential for the treatment of the septic patient, in which the reversal of tissue hypoperfusion, administration of broad spectrum antibiotics and use of vasopressors in hypotension refractory to volume replacement requires an intravenous infusion route[1,20]. Above all, this item was validated and corroborated with the literature, which portrays the importance of the skill domain in the technique of peripheral venous catheterization to provide the administration of drugs and drugs in emergency situations[23].

Regarding the analysis of the item of laboratory and lactate exams, it helps the diagnosis of organic dysfunction caused by sepsis, as well as completing the application of the SOFA score at ICU[3]. The approach of this content for nursing education seeks to provide skills regarding the laboratory changes present in sepsis, treatment repercussions and related clinical complications[1,3,20]. In addition, it bases the nurses’ performance regarding the initial management in the first 3 and 6 hours, competing with the lactate collection in 30 min post-diagnosis and cultures prior to the antibiotic therapy in 1 hour[1,3,20].

Regarding the cultures, the objective is to identify the causative agent of sepsis by making antibiotic therapy directed to the etiological microorganism[20]. The ILAS emphasizes the importance of collecting hemoculture, cerebrospinal fluid, urine, feces, secretions and abscesses from patients presenting signs suggestive of infection before initiating antibiotic administration[20]. It is suggested to at least collect two sequential culture samples in a short time at different sites to increase sensitivity to the bacterial or fungal agent[20].

The “Antibiotic Therapy” variable is considered to be the primary treatment for the septic patient, and a broad-spectrum antibiotic should be administered intravenously within the first hour after diagnosis. A study shows that adequate and early antibiotic therapy promotes favorable outcomes for the patient, since the identification of the infectious agent and the containment of the infection have the purpose of obtaining clinical evolution[20].

It should be emphasized that antibiotics administration should focus on the care for its dilution, route of administration, infusion rate, drug compatibility and adverse reactions, in order to provide maximum therapeutic efficacy[24]. Moreover, it is the health team’s responsibility to continuously monitor the administration of the proposed antibiotic therapy, evaluating its effectiveness in relation to the infectious focus and possible suspension of the medicines[25].

Another important aspect validated in the checklist is volume replacement, in which crystalloids, at a dose of 30 ml/kg, are the expanders of choice for hypotension or hyperlactatemia[1,26]. In cases of refractory hypotension with volume replacement, vasopressors are recommended, initially noradrenaline (up to 0.03 U/min), followed by vasopressin aiming to increase the mean blood pressure[1,26]. In addition, dobutamine is indicated for myocardial dysfunction[1]. The literature reports the importance in the management of vasopressors by the team during care for the septic patient, such as indication of the drug, dilution, route of administration, infusion care, monitoring of adverse reactions and compatibility with other solutions. It is intended to minimize the risks inherent in the use of this therapeutic class and to provide a practical guide on the use of these drugs in emergency units[27].

The “Ventilatory Support” item is important, since the septic patient presents greater propensity to the development of acute lung injury, since the pulmonary parenchyma when suffering from sepsis injury, considerably aggravates the critical clinical picture of this patient[1]. In this way, it is pertinent that the health team be able to identify the signs suggestive of acute respiratory failure, in order to adopt initial measures that aim to minimize the deleterious effects of the injury. Concerning the multidisciplinary team, it was verified and identified abnormalities in the physical examination and in the values of arterial pressures of the gases, through the interpretation of the gasometry test. When identifying signs suggestive of acute respiratory failure, it is the responsibility of these professionals to provide the initial support and plan their assistance in order to respond to the emergency immediately, providing the necessary materials for orotracheal intubation and mechanical ventilator assembly[28].

Regarding behavioral aspects, effective communication should be considered as essential to build a relationship with the patient and family, which guarantees safety and quality of care. In this context, evidence-based health supports the clinical decision regarding clinical judgment and resources, as well as patient preferences[29]. Thus, communication becomes essential to perform care, in which the sphere of a patient is passive to the service, but rather, seeks the effective action of this in the therapeutic[30]. In addition, communication among the nursing team should be optimized according to the care given to the client, and the nurse as the team’s leader should improve the understanding of the other, share information and direct tasks[30], being the premise of effective communication.

The results indicated a statistically significant quality in the checklist validation, however the number of participants who accepted to participate in the study was identified as a study limitation, with only six evaluators completing both Delphi. The literature describes the withdrawal of members[18-19]. Nonetheless, this limitation is reduced when analyzing the quality of specialists, who were mostly subject matter experts, masters and doctors in the field, in addition to having an average of ten years of practical experience with critical patients.

Regarding the topic addressed’s impact, there is a gap in knowledge, in front of the construction and theoretical-practical checklists validation that safely evaluate the methodology by simulation or even for the development of simulated settings. In this way, the study brings to the area of nursing/health an innovative scientific advance and based on evidence.

CONCLUSION

The checklist achieved a high degree of validity and reliability, due to its objectivity, simplicity, clarity, pertinence and variety, as well as having a group of highly trained and experienced evaluators. Moreover, the content evaluated by the experts, provided CVI ideals to its construct, and can be safely used for evaluation in the training of health professionals in septic patient care through clinical simulation.

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