RIASE
REVISTA IBERO-AMERICANA DE SAÚDE E ENVELHECIMENTO
REVISTA IBERO-AMERICANA DE SALUD Y ENVEJECIMIENTO

IMPACT OF CONSTIPATION ON CRITICAL PATIENT: SCOPING REVIEW

IMPACTO DA OBSTIPAÇÃO NO DOENTE CRÍTICO: SCOPING REVIEW

IMPACTO DEL ESTREÑIMIENTO EN EL PACIENTE CRÍTICO: LA SCOPING REVIEW

Ana Filipa Silva – University Hospital Centre of the Algarve, Faro, Portugal.
ORCID: https://orcid.org/0000-0001-9068-7245

Paula Sapeta – Dr. Lopes Dias Higher School of Health, Polytechnic Institute of Castelo Branco, Castelo Branco, Portugal.
ORCID: https://orcid.org/0000-0001-6667-2326

Corresponding Author/Autor Correspondente:
Ana Filipa Silva – University Hospital Centre of the Algarve, Faro, Portugal. afabreus@gmail.com

Received/Recebido: 2021-10-29 Accepted/Aceite: 2022-03-24 Published/Publicado: 2022-05-17

DOI: http://dx.doi.org/10.24902/r.riase.2021.7(3).507.423-436

ABSTRACT

Objective: Map available evidence on the effects of constipation on the health of the critical patient.

Methods: A scoping review based on the JBI criteria was performed to answer the PCC question: What evidence is available on the effects of constipation on the health of critical patients admitted to intensive care? The electronic search was conducted in a single phase in August 2021, using the EBSCOhost platform, applying the health descriptors combined with the Booleans "AND" and "NOT", in the sequence: "constipation" "AND" "Critical Care" "AND" "Patients" "NOT" "child*" "NOT" "animals".

Results: From the 330 available studies, we selected only 5, which met the predefined criteria. It was found that constipation is a problem with high incidence in critically ill patients and related to multiple factors. Treatment may be pharmacological or non-pharmacological.

Conclusions: Early detection and treatment is recommended. The nurse plays an essential role in the patient assessment, in recording bowel elimination patterns, as well as in the institution of preventive measures and patient treatment. There was no reference to the length of stay, or the benefit of early rising. A reduction in the risk of constipation associated with the use of omeprazole or ranitidine was observed, but further studies are suggested.

Keywords: Constipation; Critical Care; Patients; Drug Therapy; Non-pharmacological treatment.

RESUMO

Objetivo: Mapear a evidência disponível sobre os efeitos da obstipação na saúde do doente crítico.

Métodos: Foi realizada uma scoping review, baseada nos critérios do JBI para responder à pergunta PCC: Qual a evidência disponível sobre os efeitos da obstipação na saúde do doente crítico internado em cuidados intensivos? A pesquisa eletrónica foi realizada numa única fase em agosto de 2021, utilizando a plataforma EBSCOhost e aplicando os descritores em saúde combinadas com os booleanos "AND" e "NOT", na sequência: "constipation" "AND" "Critical Care" "AND" "Patients" "NOT" "child*" "NOT" "animals".

Resultados: Dos 330 estudos disponíveis, selecionámos apenas 5, que cumpriam os critérios predefinidos. Percebeu-se que a obstipação é um problema com grande incidência no

doente crítico, estando relacionada com múltiplos fatores. O tratamento pode ser farmacológico e não farmacológico.

Conclusões: É recomendada a deteção precoce e o seu tratamento. O enfermeiro assume um papel imprescindível quer seja na avaliação do doente, no registo do padrão da eliminação intestinal, quer na instituição de medidas preventivas e de tratamento do doente. Não houve referência quanto ao tempo de internamento, nem ao benefício do levante precoce. Observou-se a redução do risco de obstipação associado a uso de omeprazol e ranitidina, porém sugerem-se mais estudos.

Palavras-chave: Obstipação; Cuidados Intensivos; Paciente; Tratamento Farmacológico; Tratamento Não Farmacológico.

RESUMEN

Objetivo: Mapear la evidencia disponible sobre los efectos del estreñimiento en la salud del paciente crítico.

Métodos: Se ha realizado una scoping review, basada en los criterios del JBI, para responder a la pregunta PCC: ¿Cuál es la evidencia disponible sobre los efectos del estreñimiento en la salud del paciente crítico internado en cuidados intensivos?, utilizando la plataforma EBSCOhost, aplicando los descriptores sanitarios combinados con los booleanos "AND" y "NOT", en la secuencia: "constipation" "AND" "Critical Care" "AND" "Patients" "NOT" "child*" "NOT" "animals".

Resultados: De los 330 estudios disponibles, sólo se seleccionaron 5, que cumplían los criterios predefinidos. Se comprobó que el estreñimiento es un problema con alta incidencia en los pacientes críticos y relacionado con múltiples factores. El tratamiento puede ser farmacológico o no farmacológico.

Conclusiones: Se recomienda la detección temprana y el tratamento. La enfermera desempeña un papel esencial en la evaluación del paciente, en el registro de los patrones de eliminación intestinal, así como en la institución de medidas preventivas y en el tratamiento del paciente. No hubo ninguna referencia a la duración de la estancia hospitalar, o el beneficio de levantarse precozmente. Se observó la reducción del riesgo de estreñimiento asociada al uso de omeprazol y ranitidina, por lo que se sugieren más estudios.

Palavras-clave: Estreñimiento; Cuidados Intensivos; Pacientes; Tratamiento Farmacológico; Tratamiento No Farmacológico.

INTRODUCTION

Functional bowel disorders have a high worldwide prevalence, with a huge negative impact on people's quality of life, and constipation is one of the frequent disorders in critically ill patients[1-3]. However, it has not been a priority in the treatment of critically ill patients, despite its recurrent incidence and associated complications[4].

Constipation is understood as a compromise of the gastrointestinal system, with a reduction in the frequency of ejections (less than three ejections/week), associated with a set of symptoms that suggest a change in the pattern of elimination, namely, feeling of incomplete evacuation, feces of hard or lumpy characteristics and the need for manual extraction of feces[5,6]. However, these criteria are directed to outpatients, since in the context of a critically ill patient, their condition is significantly altered compared to their usual way of life at various levels[7].

Critically ill is the one "whose life is threatened by failure or eminence of failure of one or more vital functions and whose survival depends on advanced means of surveillance, monitoring and therapy"[8]. Thus, it is understood by constipation in the critically ill patient, when the first ejection takes place between the third and the sixth day after the patient's admission to the intensive care unit[7].

Complications associated with constipation in the critically ill patient occur with increased days of assisted mechanical ventilation and difficulty in ventilatory weaning, longer hospital stay in intensive care, increased intra-abdominal pressure, ischemia and intestinal perforation, colon obstruction, vomiting, delayed gastric emptying and consequently intolerance to enteric feeding, risk of pulmonary aspiration and poor prognosis compared to non-constipated patients[7,9,10]. However, to the detriment of other interventions aimed at preserving life, constipation has not been a priority in the treatment of critically ill patients[4].

From the above, the need arose to identify the best evidence about the impact on the health status of the critically ill patient, so the following question was defined: what evidence is available on the effects of constipation on the health of critically ill patients hospitalized in intensive care and the possible influence on hospital stay, mortality, and mechanical ventilation, in the days of hospitalization, enteric nutrition, and other treatment measures?

METHODOLOGY

Considering the starting question, they adopt the PCC strategy:

P – Population: critically ill.

C – Concept: the effects of constipation on critically ill patients, namely the influence on length of stay, mortality, mechanical ventilation, days of hospitalization, enteral nutrition, and other treatment measures.

C – Context: admission to an intensive care unit, whether polyvalent or monovalent.

This scoping review is based on the criteria recommended by the Joanna Briggs Institute (JBI) and may add quantitative, qualitative, mixed studies or systematic reviews of the literature[11].

The choice of this methodology was due to the scarce bibliography on the subject, so it will allow the addition of a greater number of studies.

The present review has as general objective to map the available evidence on the effects of constipation on the health of critically ill patients, in order to operationalize it were defined as specific objectives:

- Determine the incidence of constipation in critically ill patients;
- Describe the effects of constipation on critically ill patients, namely the influence on length of stay, mortality, mechanical ventilation, days of hospitalization, enteral nutrition, and other treatment measures;
- Identify which treatments are instituted including pharmacological and/or non-pharmacological treatment.

Inclusion criteria – full-text studies were considered available, peer-reviewed and published between January 2016 and August 2021 (this time horizon is due to the need to obtain the most recent evidence, and also because we are aware that there are new drugs in use); adult patients (18 ≥ 18 years); performed in the context of intensive care units (ICU) whether multipurpose or monovalent, for example burn units, coronary or neurocritical; in English or Portuguese.

Exclusion criteria – studies whose results did not fit the question and research objectives; whose population was pediatric; methodological quality below 70%.

In the research strategy, they were defined as constipation keywords; critical care; patients, and the words were validated as health descriptors, according to the DeCS, issue 2017[12].

The electronic search was carried out in a single phase in August 2021, applying the keywords combined with the Boolean operators "AND" and "NOT", following sequence: "constipation" "AND" "Critical Care" "AND" "Patients" "NOT" "child*" "NOT" "animals".

The research was conducted in the following: Academic Search Complete, Business Source Complete, CINAHL Plus with Full Text, ERIC, Library, Information Science & Technology Abstracts, MedicLatina, MEDLINE with Full Text, Psychology and Behavioral Sciences Collection, Regional Business News and SPORTDiscus with Full Text.

RESULTS

We have found 330 studies, and their was carried out by reading the title, abstract and the full text (where necessary). Considering the inclusion and exclusion criteria, five studies were selected, following the Prisma flow diagram model, as illustrated in Figure 1↗.

The selected studies were evaluated according to the level of evidence, reliability and relevance, having been applying the critical evaluation grids of JBI, and classified according to the same criteria, as shown in Table 1↗.

The selected studies were published between 2018 and 2021, and there is no similarity to the country where it took place. The studies considered in this review were four quantitative studies and a systematic literature review, which included results in the scope of the incidence of constipation in critically ill patients, their etiology, their effects on critically ill patients and their treatment, pharmacological and non-pharmacological. Therefore, the data gathered were grouped according to the similarity of their meaning and will be discussed by objective topic resulting in recommendations.

Incidence of constipation

Through its analysis, constipation is a problem commonly found in patients hospitalized in intensive care units (ICU), with a high incidence, ranging from 75.8% to 88.6% (E1, E2, E4, E5)[14,15,17,18].

Constipation may be a problem not found at the beginning of hospitalization, but the patient may develop constipation on subsequent days, especially when he or she is sedated (E1)[14]. Some patients may even have several days without evacuating, many do not have any ejection during all ICU stay (E1, E2)[14,15].

Etiology of constipation

No association was found between constipation and vasoactive medication, mechanical ventilation, hemodialysis or even sedation (E1, E2)[14,15]. Shorter time to evacuate was associated with alcoholism, early enteric nutrition, administration of laxatives before or during ICU stay or abdominal massage application (E2, E3, E4)[15-17].

Effects of constipation in the critically ill

Patients who were under noninvasive ventilation or invasive ventilation had the slowest intestinal transit, requiring more days until the first ejection (E1; E2)[14,15]. No association was found between its predictive mortality or index (SOFA, APACHE), and the risk of constipation (E1; E2)[14,15].

Constipation treatment

Measures that can be instituted to the patient as a preventive or resolutive form directed to constipation were identified, and should be individualized and appropriate to each patient, whether pharmacological measures, or non-pharmacological (E2, E4, E5)[15,17,18].

The commonly used laxatives are stimulant laxatives, namely the association of docusate and bisacodil and osmotic laxatives mainly lactulose, and there is evidence of a reduction in the risk of constipation by 20% when omeprazole or ranitidine is administered (E1)[14].

Abdominal massage is promising and safe in the prevention and resolution of constipation. When applied, the patient tends to present intestinal noises more quickly, to evacuate more frequently, consequently reducing the mean ejection time, decreasing gastric volume and abdominal distension (E3, E4, E5)[16-18].

The nurse is the proximity professional, with a privileged position since the initial observation of the patient, identification of a potential or effective problem, as well as in his/her treatment and reassessment (E5)[18].

DISCUSSION

Constipation is a common problem, with a high incidence (75.8% at 88.6%)[14,15,17], presenting slightly higher values than those previously described in the bibliography, 20% to 83%[3].

Although no association has been identified between the time of ejection and vasoactive or sedative medication[14,15], it is known that these drugs can cause constipation, as well as other factors related to the critically ill patient, such as immobility; dehydration; hypotension; hypoxia; inappropriate use of diuretics; electrolyte changes; sepsis; spinal cord injury; neuromuscular disease and late administration of enteric nutrition[4,5,9].

As mentioned, constipation is associated with multiple complications in the critically ill patient[7,9,10]. In the analysis of the studies there was no statistically significant association between the time of ejection and mechanical ventilation, however it was reported that patients who are under noninvasive or invasive ventilation presented the slower intestinal transit[15].

Treatment for constipation should be individualized, and may be pharmacological as non-pharmacological, and the administration of laxatives, administration of early enteric nutrition or abdominal massage is recommended[14-18].

Taking into account the cost-benefit, the treatment of constipation should be initiated by fiber supplementation, followed by the administration of stimulant or osotic laxatives and by gastrointestinal secretors or prokinetic agents, as well as gastrointestinal opioid antagonists in case of constipation secondary to opioid administration[5]. The association of docusate with bisacodil and lactulose is commonly used[14]. Both docusate and bisacodil are stimulant laxatives, so they have a faster effect due to stimulation of disseminated colic contractions[19]. However, it is worth noting the effect of omeprazole and/or ranitidine on reducing the risk of constipation by 20%[14].

Manual abdominal massage helps the mobilization of fecal content, through the large intestine due to the mechanical stimulation that is provoked[20]. It is a safe and promising procedure when applied to the critically ill patient, with benefit both in prevention and in the resolution of constipation[16,17].

Dorothea Orem identified the promotion of elimination as a universal self-care requirement for all people[21]. The nurse plays an important role in monitoring the patient's intestinal pattern. Being a proximity professional, it plays an important role in the identification of a problem, as well as in its treatment and reassessment[18]. This has the duty to "*join the team (...) in any service (...) collaborating, with its own responsibility, in decisions on health promotion, disease prevention, treatment and recovery, promoting the quality of services*"[23].

From this review, the evidence that became more relevant was the early detection of the presence of constipation, the application of abdominal massage and the management of therapy (pharmacological and non-pharmacological). These are interventions that are imposed on nurses within their sphere of competence. Thus, given the complexity of the critically ill patient, it is imperative that nurses evaluate the patient's intestinal pattern on a daily basis, intervene taking into account their self-care needs, or take a guiding and formative role with regard to the adoption of therapeutic measures, in order to regulate and maintain the intestinal pattern.

This also follows the need, in pre-graduate training, to be prepared for these functions and competences, knowing how to act mainly in the prevention, both of constipation and of possible complications.

The scarce bibliography, in the context of constipation in the critically ill patient, was one of the limitations found in the present review.

CONCLUSION

Constipation is a common problem in the critically ill patient, it can happen either at the beginning, as well as during hospitalization, being related to multiple factors, being recommended the institution of preventive measures or treatment, namely the administration of laxatives, performance of abdominal massage or the early institution of enteric nutrition.

Its treatment should be individualized, where the nurse assumes a preponderant role, whether in the evaluation of the patient, as in the institution of preventive measures and treatment of the patient, namely in the performance of abdominal massage and administration of prescribed therapy, as in the records of the pattern of elimination.

In the studies analyzed, no evidence was found on the impact on the number of days of hospitalization and benefit of early lifting in the prevention of constipation. Regarding the use of omeprazole and ranitidine, further studies are suggested to show its benefit in the critically ill patient.

It made sense to include ideas about future investigations: observational or prospection studies and also to establish protocols for action in UCIs, with preventive character and action in situations of constipation with consequences in the critically ill.

Authors' contributions

AFS: Study design, data collection, storage and analysis, review and discussion of results.
PS: Study design, data collection, storage and analysis, review and discussion of results.
All authors read and agreed with the published version of the manuscript.

Ethical Disclosures

Conflicts of Interest: The authors have no conflicts of interest to declare.
Financing Support: This work has not received any contribution, grant or scholarship
Confidentiality of Data: The authors declare that they have followed the protocols of their work center on the publication of data from patients.
Protection of Human and Animal Subjects: The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the 2013 Helsinki Declaration of the World Medical Association.
Provenance and Peer Review: Not commissioned; externally peer reviewed.

Responsabilidades Éticas

Conflitos de Interesse: Os autores declaram a inexistência de conflitos de interesse na realização do presente trabalho.
Fontes de Financiamento: Não existiram fontes externas de financiamento para a realização deste artigo.
Confidencialidade dos Dados: Os autores declaram ter seguido os protocolos da sua instituição acerca da publicação dos dados de doentes.
Proteção de Pessoas e Animais: Os autores declaram que os procedimentos seguidos estavam de acordo com os regulamentos estabelecidos pelos responsáveis da Comissão de Investigação Clínica e Ética e de acordo com a Declaração de Helsínquia de 2013 da Associação Médica Mundial.
Proveniência e Revisão por Pares: Não comissionado; revisão externa por pares.

REFERENCES

1. Lacy BE, Mearin F, Chang L, Chey WD, Lembo AJ, Simren M, et al. Bowel Disorders. Gastroenterology. 2016;150(6):1393-1407. Available from: https://doi.org/10.1053/j.gastro.2016.02.031

2. Fukuda S, Miyauchi T, Fujita M, Oda Y, Todani M, Kawamura Y, et al. Risk factors for late defecation and its association with the outcomes of critically ill patients: a retrospective observational study. j intensive care. 2016;4(33). Available from: https://doi.org/10.1186/s40560-016-0156-1

3. Hay T, Bellomo R, Rechnitzer T, See E, Abdelhamid YA, Deane AM. Constipation, diarrhea, and prophylactic laxative bowel regimens in the critically ill: A systematic review and meta-analysis. j intensive care. 2019;52:242-250. Available from: https://doi.org/10.1016/j.jcrc.2019.01.004

4. Guerra TdSL, Marshall NG, Mendonça SS. Constipation in Intensive Care. In: Rajendram R, Preedy VR, Patel VB, (Org). Diet and Nutrition in Critical Care. Nova Iorque: Springer reference; 2015. p. 235-248.

5. Bharucha AE, Lacy BE. Mechanisms, Evaluation, and Management of Chronic Constipation. Gastroenterology. 2020;158(5):1232-1249. Available from: https://doi.org/10.1053/j.gastro.2019.12.034

6. International Council of Nurses. ICNP Browser. [Web Page] Genève: ICN; 2021. [cited 2021 Jul 10]. Available from: https://bit.ly/2UJxIzR

7. Prat D, Messikab J, Millereuxa M, Gouezela C, Hamzaoui O, Demars N, et al. Constipation in critical care patients: both timing and duration matter. Eur J Gastroenterol Hepatol. 2018;30(9):1003-1008. Available from: https://doi.org/10.1097/MEG.0000000000001165

8. Regulamento n.º 429/2018. Regulamento de competências específicas do enfermeiro especialista em enfermagem médico-cirúrgica na área de enfermagem à pessoa em situação crítica, na área de enfermagem à pessoa em situação paliativa, na área de enfermagem à pessoa em situação perioperatória e na área de enfermagem à pessoa em situação crónica. 16 de julho de 2018. Diário da República N.º 135/2018, série II 16 de julho de 2018 Lisboa; 2018.

9. Vincent JL, Preiser JC. Nutrition Issues In Gastroenterology, series 144 – Getting Critical About Constipation. 2015;39(8):14-25. Disponível em: https://bit.ly/3wHX3HF

10. Pérez-Sánchez J, Fernández-Boronat J, Martínez-Méndez E, Marín-Cagigas ML, Mota--Puerto D, Pérez-Román MC, et al. Evaluation and handling of constipation in critical patients. Enfermería Intensiva. 2017;28(4):160-168. Available from: https://doi.org/10.1016/j.enfie.2017.10.003

11. Aromataris E, Munn Z (Editors). JBI Manual for Evidence Synthesis. JBI, 2020. Available from: www:https://synthesismanual.jbi.global. https://doi.org/10.46658/JBIMES-20-01

12. Descritores em Ciências da Saúde: DeCS. [Web Page]. ed. 2017. São Paulo (SP): BIREME/ OPAS/OMS. 2017. [updated 2017 May; cited 2021 Jul 10]. Available from: http://decs.bvsalud.org

13. Page M, McKenzie J, Bossuyt P, Boutron I, Hoffmann T, Mulrow C, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2021. 372(21).

14. Batassini É, Beghetto MG. Constipation in a cohort prospective in adult critically ill patients: How much occurs and why? Enfermería Intensiva. 2019;30(3):127-134. Available from: https://doi.org/10.1016/j.enfi.2018.05.001

15. Launey Y, Painvin B, Roquilly A, Dahyot-Fizelier C, Lasocki S, Rousseau C, et al. Factors associated with time to defecate and outcomes in critically ill patients: a prospective, multicentre, observational study. Anaesthesia. 2021;76(2):218-224. Available from: https://doi.org/10.1111/anae.15178

16. Ugras GA, Yüksel S, Isik MT, Tasdelen B, Dogan H, Mutluay O. Effect of abdominal massage on bowel evacuation in neurosurgical intensive care patients. Nurs Crit Care. 2020:1-9. Available from: https://doi.org/10.1111/nicc.12575

17. Dehghan M, poor AF, Mehdipoor R, Ahmadinejad M. Does abdominal massage improve gastrointestinal functions of intensive care patients with an endotracheal tube?: A randomized clinical trial. Complementary Therapies in Clinical Practice. 2018; 30:122-128. Available from: https://doi.org/10.1016/j.ctcp.2017.12.018

18. Dionizio LC, Cruz ICFD. Prática interprofissional de enfermagem baseada em evidência acerca de diagnóstico de enfermagem sobre risco de constipação Intestinal em UTI – revisão sistematizada da literatura. Journal of Specialized Nursing Care. 2019;11(1). Available from: https://bit.ly/2VP0UWS

19. Oliveira A, Santos SC, Morna H, Casimiro C. Obstipação Crónica: Recomendações de tratamento médico e cirúrgico. Revista portuguesa de coloproctologia. 2020; 17(1):31-39. Available from: https://bit.ly/3y2TigH

20. Fenton J, Ness W, Hibberts F. Bowel Care: Management of Lower Bowel Dysfunction, including Digital Rectal Examination and Digital Removal of Faeces. Londres: Royal College of Nursing; 2019.

21. Pearson A, Vaughan B. Modelos para o exercício de enfermagem. Lisboa: ACEPS; 1992.

22. Ordem dos Enfermeiros. Estatuto da Ordem dos enfermeiros e REPE. Lisboa: Ordem dos Enfermeiros; 2015.

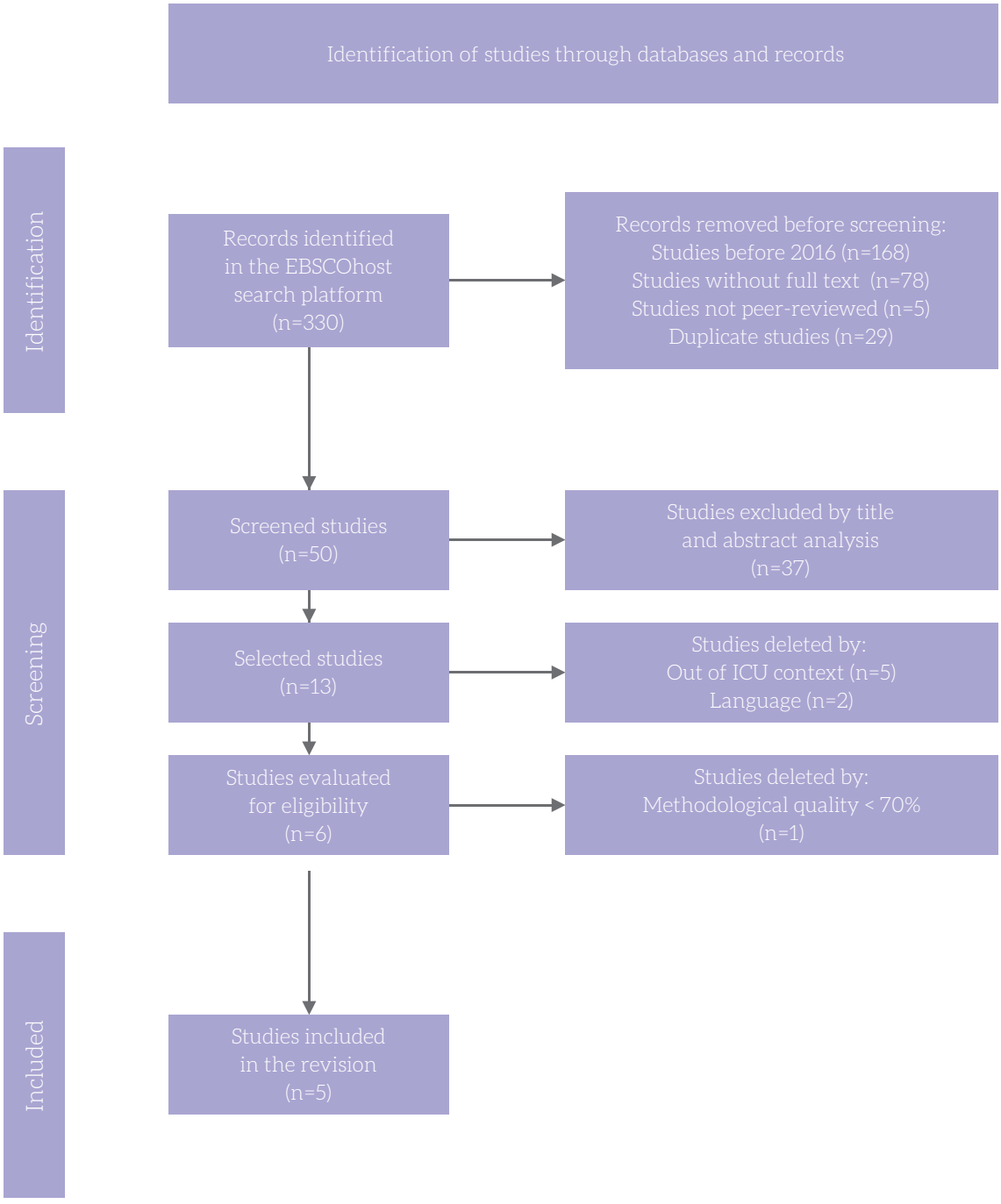

Figure 1 – PRISMA 2020 Flow Diagram[13].
Adapted from Page, *et al* (2020).

Table 1 – Critical evaluation of studies following the JBI criteria.

Study	Author	Year	Country	Level of evidence/study design	JBI Quality	
E1[14]	Batassini & Beghetto	2019	Spain	3.c – Observational/Cohort study with a control group	90,9%	Included
E2[15]	Launey, *et al*	2021	France	3.e – Observational/Observational study without a control group	100%	Included
E3[16]	Ugras, *et al*	2020	Turkey	1.c – Experimental / RCT	100%	Included
E4[17]	Dehghan, *et al*	2018	Iran	1.c – Experimental / RCT	76,9%	Included
E5[18]	Dionizio & Cruz	2018	Brazil and other countries	2.b – Quasi-experimental / Systematic review of the quasi--experimental study and other inferior studies	72,7%	Included