

REVIEW

NURSING CARE IN BOWEL RE-EDUCATION PROGRAMS FOR PATIENTS WITH NEUROGENIC BOWEL*

HIGHLIGHTS

1. 95% of people with neurogenic bowel have constipation.
2. Abdominal massage was the most used nursing care.
3. Bowel re-education promotes bowel evacuation routine.
4. The association of associated maneuvers can reduce constipation.

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ABSTRACT

Objective: to analyze the available evidence on nursing care in Bowel Reeducation Programs for Neurogenic Bowel patients with constipation. **Method:** bibliographic, descriptive, integrative review type study of articles published between 2011 and 2021 in the LILACS, SciELO, BDNF, SCOPUS, and PubMed databases, using the descriptors “Neurogenic Bowel”; “Constipation”; “Nursing”; “Neurogenic Bowel”; “Constipation” and “Nursing”. The analysis was performed through reflective and careful reading about the theme of the study. **Results:** it was perceived that the most frequently performed nursing care in patients with neurogenic bowel included: bowel massage, abdominal press, vessel training, digital-anal stimulation, transanal irrigation, and use of suppositories, contributing positively to the institution of an effective and safe Bowel Re-education Program. **Conclusion:** the present study contributes to the nursing care actions of patients with NB and to the dissemination of findings on the benefits of the Bowel Reeducation Program.

DESCRIPTORS: Health Care; Nursing Care; Nursing; Neurogenic Bowel; Rehabilitation.

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INTRODUCTION

The Neurogenic Bowel (NB), characterized as the interruption of bowel elimination control, regardless of the presence of feces in the rectal canal, occurs due to dysfunction of the colon in not having central nervous control. Moreover, it has important relevance by directly influencing the low quality of life of affected patients¹.

Among the main causes of NB are traumatic and non-traumatic spinal cord injury, multiple sclerosis, spina bifida, Parkinson's disease, and stroke. Consequently, they are responsible for negatively impacting the social integration and personal independence of patients worldwide²⁻³.

Constipation and fecal incontinence are the most prevalent symptoms of NB, affecting about 95% and 75%, respectively, of patients with spinal cord injury and two-thirds of multiple sclerosis patients. Constipation affects over 25-63% of those with Parkinson's Disease, while fecal incontinence occurs in approximately 15% of patients with Stroke³. Other symptoms include abdominal pain and discomfort, feeling of fullness, and bowel dilation, since the process of storing and eliminating undigested food generates the need for help from family members or health care professionals to remove the feces⁴.

In this context, the nurse, as an agent in the multiplication of knowledge and educator in the process of health promotion, acts uniquely in the management of the patient with NB, considering the complexity and specificity of each case⁵. Such conducts are permeated from health promotion, perpetuating in the guidance on new habits of life, in the prevention of injuries, falls and new injuries to the rehabilitation process of the individual in all levels of health care⁶⁻⁷.

Considering this, the present review is in the field of studies that cover the care and educational actions performed by nurses and members of the interdisciplinary team, especially regarding the actions of fecal disimpaction against constipation, responsible for affecting almost all people with NB, aiming to offer adequate care to patients with NB, reflecting on a humanized and scientific assistance that brings biopsychosocial benefits to this population. Thus, it was assumed that patients with NB with constipation experience difficulties in the process of bowel emptying; that the adequate and well-guided management by a bowel re-education program can prevent biopsychosocial complications; and that nurses, as members of the health team, can intervene and provide actions of promotion, prevention, and rehabilitation⁵⁻⁶.

The present study is justified by the need to verify the findings available in the literature that contemplate the nursing care developed, encompassing the Bowel Reeducation Program, in patients with NB who present with constipation. The findings of this review can provide updated and relevant information in the systematization of nursing care for people with NB; assist the clinical evaluation of patients, subsidizing decision-making and bowel emptying maneuvers appropriate for each case; and contribute to the development of techniques and skills of caregivers and patients in the home environment.

We aimed to analyze the available evidence on nursing care in Bowel Reeducation Programs for Neurogenic Bowel patients with constipation.

METHOD

Bibliographic, descriptive, integrative review type study based on what was published in national and international journals from 2011 to 2021. There were five phases: 1) identification of the problem and development of the guiding question; 2) search and selection of publications; 3) data evaluation; 4) data analysis; and 5) presentation of results⁸.

Initially, to answer the proposed objective, the following guiding question was elaborated, based on the PICOT strategy: In patients with Neurogenic Bowel (P), which nursing care (I), through a Bowel Reeducation Program (C), can contribute to the improvement in the pattern of bowel elimination? (O), based on what has been observed in publications over the last ten years (T).

In the second phase of the study, from April to June 2021, the following databases were searched: LILACS (Latin American and Caribbean Literature on Health Sciences), PubMed (Public/Publish Medline), Scopus Nursing Database (BDENF) and SciELO (Scientific Electronic Library Online). The searches were carried out by two blinded researchers with the aid of an instrument built and validated in content and semantics, being adapted to the theme of this study.

Also in this step, the search strategy for the articles was carried out using a combination of the Health Science Descriptors (DeCS): "Neurogenic Bowel"; "Constipation", and "Nursing"; and the Medical Subject Headings (MESH): "Neurogenic Bowel"; "Constipation", and "Nursing", combined with the Boolean logical operator "AND".

Full research articles published in Portuguese, English or Spanish in the last 10 years (2011-2021) addressing the study topic were included. Repeated works, review and opinion articles, course completion papers, theses, dissertations, and abstracts were excluded.

To help understand the selection process, the flow chart in Figure 1 was organized according to the recommendations of the Preferred Reporting Items for Systematic reviews and Meta-Analyses PRISMA Statement⁸.

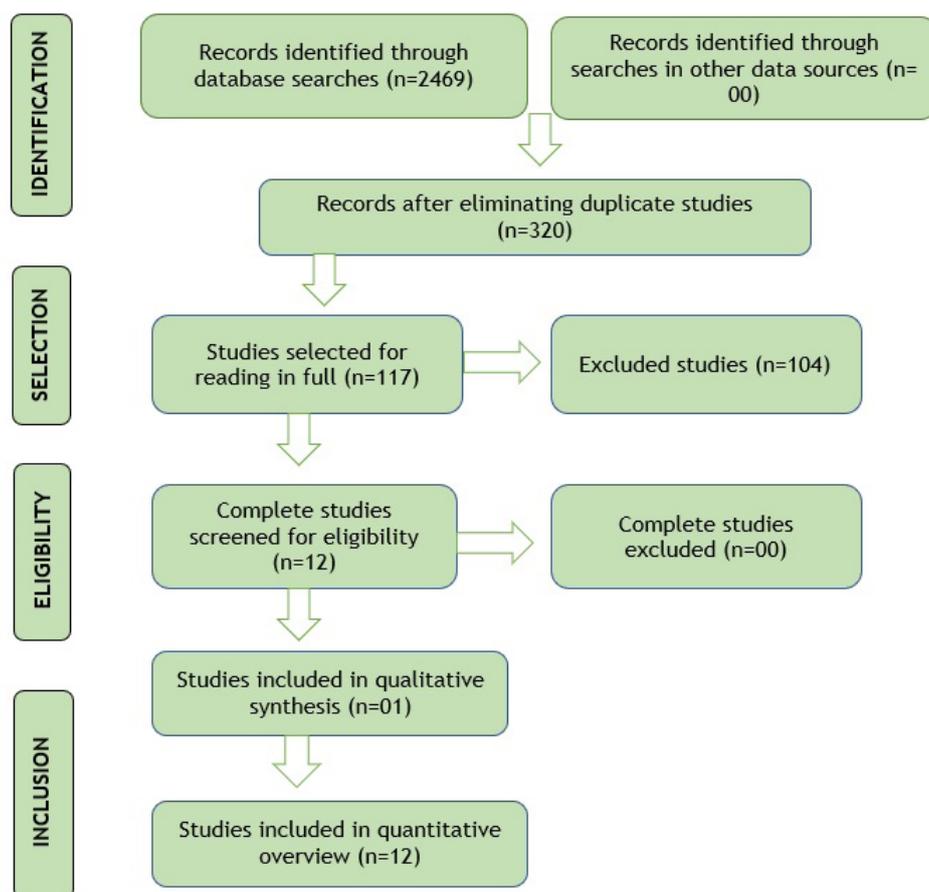


Figure 1 - Flowchart of article selection. Recife, PE, Brazil, 2021

Source: The authors.

In the third phase, when evaluating the data, tables were prepared to extract the most relevant information from the articles included in this study. The first table included the following data: identification of the main author, year, journal, Qualis, level of evidence, and methodology used in the study, while the second table included the objective and the main results and conclusion found.

In the analysis of the articles, the classification of the findings according to the level of scientific evidence was performed; for this, the classification system composed of seven levels was used: level I - evidence derived from systematic reviews or meta-analysis of relevant clinical trials; level II - evidence derived from at least one well-designed randomized controlled trial; level III - well-designed clinical trials without randomization; level IV - cohort and case-control studies; level V - systematic review of descriptive and qualitative studies; level VI - evidence derived from a single descriptive or qualitative study; and level VII - opinion of authorities or expert committee report⁸.

The analysis was performed through reflective and careful reading about the theme of the study, in an organized way through the visualization of the data in an Excel® table, being analyzed the convergences and divergences between the authors, the methods, and the maneuvers used, aiming, continuously, nursing care that can be performed in the Bowel Reeducation Programs. Finally, in phase five, the presentation of the data and the discussion of the articles were related to the bowel emptying practices, as well as their efficacy and their safety for the patients. A flow was organized focusing on the objectivity and clarity of the articles that implied their validation.

RESULTS

In the present review, 13 articles that met the eligibility criteria were analyzed, of which: six in PUBMED, two in LILACS, two in SciELO, two in Scopus, and one in BDEF. Regarding the predominance of publications in international journals, nine were published in English and four in Portuguese.

Information about the studies is shown in Chart 1. Regarding methodology, five of the publications were Randomized Clinical Trials. Regarding the rest of the sample, there was a heterogeneous distribution among the studies: phenomenological analysis (1); exploratory descriptive (1); prospective comparative (1); cohort (1); methodological (2); transversal (1); and deterministic (1).

It was noticed that the most frequently performed nursing care in patients with neurogenic bowel included: bowel massage, abdominal press, vessel training, anal digital stimulation, transanal irrigation, and use of suppositories. According to Chart 1, we also registered articles that contemplated a diet rich in fiber and adequate fluid intake for stool formation and emulsification, and health education to perform emptying techniques.

Chart 1 - Results found in the studies according to: main author, year of publication, country, journal, Qualis, type of study, level of evidence, objectives, results, and conclusion. Recife, PE, Brazil, 2021

Main Author Year/ Country	Journal/ Qualis/ Type of Study/ Level of Evidence	Objective	Results/ Conclusion
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Engler ⁹ 2011/ Brazil	Acta paul. enferm. (A2) Cohort / IV	To know the prevalence of constipation in patients admitted for rehabilitation and to verify the results of two models of conduct instituted for bowel re-education during hospitalization.	Increased fluid intake, respect for the gastrocolic reflex, abdominal massage, and stimulation of defecation daily after breakfast improve functional capacity, bowel frequency, and have been shown to play an important role in improving bowel habit.
Mcclurg ¹⁰ 2011/ Ireland	Int. MS j. (C) Randomized Clinical Trial/ II	To determine the feasibility of performing abdominal massage in people with Multiple Sclerosis.	The results suggested a positive effect of the abdominal massage intervention in improving constipation symptoms.
Faleiros ¹¹ 2013/ Brazil	Rev. Esc. Enferm. USP. (A2) Prospective and Comparative/ IV	To evaluate outcomes of nursing interventions in the treatment of constipation associated with cerebral palsy.	The patient was advised to consume laxative foods and vegetable oils on a daily basis, increase water intake, and perform daily bowel maneuvers. There was total or partial relief of constipation in 90%, improved sleep, decreased irritability, rectal bleeding, anal fissure, voluntary retention of stool, crying, and pain when defecating.
Engkasan ¹² 2013/ Malaysia	J. rehabil. med. (A2) Transversal/ VI	To describe the bowel programs used by individuals with spinal cord injury; and to determine the association between the outcome of bowel programs and various interventions to facilitate defecation.	Digito-anal stimulation techniques, suppository use, manual evacuation, stimulation of the skin around the anus, dietary modifications, and abdominal massages increased evacuation satisfaction in patients with neurogenic bowel.
Ozisler ¹³ 2015 Turkish	Neural Regen Res (B1) Randomized Clinical Trial/ II	To determine gastrointestinal problems associated with neurogenic bowel and dysfunction in patients with spinal cord injury, and to evaluate the effectiveness of the bowel program on gastrointestinal problems and the severity of neurogenic bowel dysfunction.	The institution of a Bowel Reeducation Program with digit-anal stimulation maneuvers, abdominal massage, and Valsalva maneuvers reduced the need for the patient to use enemas and laxative medications frequently. In addition, they reduced symptoms of constipation, incontinence and abdominal distension.
Emmanuel ² 2016 England	PLoS One (A2) Deterministic Study/ IV	Investigate the long-term cost-effectiveness of initiating transanal irrigation in patients with neurogenic bowel who have failed standard bowel treatment.	Transanal irrigation was found to be a treatment strategy that provided cost savings, reduced the risk of stoma surgery, urinary tract infections, episodes of fecal incontinence, and improved bowel dysfunction in cases of conservative treatment failure.
Campoy ⁴ 2018 Brazil	Rev. bras. enferm. (A2) Methodological study/ VII	Produce and validate an educational video on bowel emptying maneuvers to empower individuals with neurogenic bowel in the process of bowel rehabilitation.	The video contributes to the education of individuals with neurogenic bowel by teaching abdominal massage, abdominal press, rectal stimulation, vessel training, and Valsalva maneuver.

Burns ¹⁴ 2018 Canada	Arch. phys. med. rehabil. (A1) Phenomenological study/ IV	To gain a greater understanding of the life experience of individuals with spinal cord injury and neurogenic bowel dysfunction.	Use of suppositories, transanal irrigation, digital stimulation, health education support, and the flexibility of work schedules presented themselves as the main outcomes of the positive experience.
Todd ¹⁵ 2018 England	J. wound ostomy cont. nurs. (A2) Qualitative study/ VI	To explore the experience and perceptions of nurses providing bowel care to patients after spinal cord injury.	Despite performing digital stimulation and using suppositories, many nurses reported not feeling confident about the Bowel Reeducation Program due to lack of training, the training of which may help to decrease the stigma surrounding care delivery.
Rodrigues ¹⁶ 2018 Brazil	J. coloproctol. (Rio J., Impr.). (B3) Methodological study/ VII	To present a standardization of the therapeutic transanal irrigation technique.	Transanal therapeutic irrigation is an effective, well-tolerated and safe procedure, which is more suitable when compared to standard clinical treatment.
Zhang ¹⁷ 2018 China	Journal of Clinic Nursing (B1) Randomized Clinical Trial/ II	To study and compare between two groups, the effect of nursing intervention based on quantitative assessment on bowel function and quality of life in patients with neurogenic bowel dysfunction after spinal cord injury.	Nurse guidance for diet, abdominal massage, potty training, abdominal press, Valsalva maneuver and rectal stimulation decreased bloating, constipation, prolonged defecation, fecal incontinence, and use of evacuation drugs in the patients in the intervention group.
Yin ¹⁸ 2020 China	Medicine (A2) Randomized Clinical Trial/ II	To implement a program to evaluate the impact of nursing interventions based on quantitative assessment on quality of life and bowel function in patients with neurogenic bowel dysfunction after spinal cord injury.	Nurse guidance for diet, abdominal massage, potty training, abdominal press, Valsalva maneuver and rectal stimulation decreased bloating, constipation, prolonged defecation, fecal incontinence, and use of evacuation drugs in the patients in the intervention group.
Azevedo ¹⁹ 2021 Brazil	Rev. Pesqui. Fisioter. (B5) Randomized Clinical Trial/ II	To evaluate the effects of behavioral therapy associated with neuromodulation on neurogenic bladder and bowel in Parkinson's Disease.	Positioning when evacuating, diaphragmatic breathing, diaphragmatic breathing technique, adequate fluid intake, therapeutic abdominal massage, and regular practice of physical exercises related to neuromodulation were associated with improved frequency of bowel movements, greater stool consistency, and elimination of straining to evacuate.

Source: The authors (2021).

DISCUSSION

Based on the results obtained in this review, it was observed that the nursing care of patients with NB should be a strategy based on scientific evidence, to then enable

the stimulus to plan bowel re-education based on programs that allow a better quality of life for affected individuals. Thus, nurses can establish flexible behaviors for patients and caregivers, encouraging self-care and routine bowel movements practices, ensuring respect and individuality for their physiological freedom^{15,17-18}.

The findings revealed that there is a favorable relationship between the institution of a bowel re-education program and patient acceptability. Thus, the development of a program that favors bowel movements routine helps the removal of feces and provides a higher standard of bowel function^{9,12-13,15,17-19}. A longitudinal and analytical study conducted in Brazil with 98 constipated patients found that the implementation of a bowel re-education program, consisting of practices such as increased fluid intake, laxative diet, respect for the gastrocolic reflex, abdominal massage, and stimulation of daily bowel movements after breakfast, contributed positively to increased bowel frequency and decreased difficulty of bowel movements⁹.

Among the main maneuvers considered positive for improving fecal elimination, abdominal massage performed about 15 to 20 minutes after meals, clockwise, respecting the gastrocolic reflex, was highlighted^(9-10,12-13,17-19). A randomized controlled clinical trial conducted with 30 constipated patients in Northern Ireland, guided them to practice abdominal maneuvers for four weeks. The study found that the massage group showed significant improvements, with a decrease in evacuation time from 10 to six minutes, reduced use of oral laxatives, improved stool consistency, and increased frequency of elimination¹⁰.

Accordingly, the association of abdominal massage with Valsalva maneuver, abdominal press, and vessel training optimized the time and reduction of constipation symptoms^{10,17-18}. A randomized controlled trial conducted in China evaluated the effect of a bowel re-education program including abdominal massage, potty training, laxative diet, and abdominal press, performed by nurses on 184 patients with NB. The findings of this study revealed that bowel function scores including bloating, constipation, prolonged defecation, drug dependence on defecation, and fecal incontinence in the observation group were significantly lower than in the control group consisting of 92 patients ($p < 0.05$)¹⁷.

Regarding digital rectal stimulation and the use of suppository to promote fecal disimpaction, evidence was found in five of the studies evaluated. It was observed the meticulous care when describing the approach to perform the digital stimulation, contemplating the respect for the emotions and anguish experienced by the patients^{9,12-15}. It is noteworthy that in qualitative research carried out in London with nurses who provided bowel care to patients in the hospital environment, the findings revealed the feeling of dissatisfaction in performing bowel care due to difficulties in the systematization of the techniques adopted and the need for appropriate training to perform the care offered¹⁵.

Another evidence identified in this review was the laxative diet as an important factor for prevention of constipation and increased bowel transit, highlighting the socioeconomic and cultural conditions of the patient and his family in studies that oriented the insertion of fruits, leafy vegetables, 1.5 to two liters of water per day, and vegetable oils in the diet, daily^{9,11,17-18}. In this sense, a prospective and comparative research, when evaluating the results of nursing interventions in the treatment of 50 patients with quadriplegic cerebral palsy and bowel constipation revealed that the orientations for daily consumption of laxative foods and vegetable oils, increased water intake, and execution of daily bowel maneuvers favored the total or partial relief of constipation symptoms in 90% of the participants. In addition, they contributed to the aspects of quality of life, such as sleep, stress, appetite, rectal bleeding, rectal fissure, voluntary retention of stool, crying, and pain when defecating¹¹.

With respect to the Transanal Irrigation technique, this has proven to be an important maneuver that facilitates bowel elimination. In the studies analyzed, the reader was advised to be careful when performing the technique after the failure of maneuvers considered conservative, such as: massage and abdominal press; potty training; laxative diet and manual fecal disimpaction; vigilance in maintaining water temperature around

37°C; training of patients and family members to perform the technique at home; and the consent of the patient or guardian to start the TI^{2, 14, 16}.

A Brazilian methodological study, developed with patients and caregivers seen at the Evacuation Disorders Clinic at the Clinics Hospital of the Federal University of Minas Gerais, standardized the transanal irrigation technique in four steps: preparation of the patient before treatment; interdisciplinary approach; training of the patient or family member responsible for the patient; and the step-by-step technique itself guided by a nurse. The TI technique was considered effective and safe to be performed in the bowel re-education of patients with evacuation disorders¹⁶.

Also, in relation to health guidelines for patients with NB, the role of nurses as multipliers of knowledge is fundamental to the process of adherence and success of the bowel re-education program. The actions begin, covering from the physiopathology of NB, in which the management options for fecal elimination are included, to the limits that extend beyond the physical body, considered the object of care¹⁹.

To this end, we have relied on the construction of educational technologies capable of favoring the teaching-learning process of patients and families, creating a link between the clarity of information and the construction of knowledge. Among the findings of this review, we analyzed a methodological study that produced and validated an educational video on bowel emptying maneuvers for the training of individuals with NB. The video had the purpose of contributing to the education of patients, the improvement of nursing care and greater effectiveness and efficiency of the activities performed by nurses⁴.

From this perspective, it is believed that nurses have the potential to understand the health-disease process and collaborate to the development of self-confidence, self-care, and improvement in the quality of life of individuals, preparing them to return to their residence and social activities²⁰⁻²¹. It is noted, then, that the studies found in this review indicate positive indicators for the implementation of nursing care in bowel re-education programs in patients with NB. However, it is observed the lack of use of nursing theories to support the practice in a systematized way, to highlight scientific knowledge and the consolidation of nursing as a science.

However, the major limitation of the study may be related to the fact that only the Health Science Descriptors (DeCS and MeSH) were used in the search to retrieve articles related to constipation from the electronic databases, which may have contributed to the fact that some studies on fecal incontinence were not accessed.

CONCLUSION

The findings found in this review from levels of evidence ranging from II to VII identified that nursing care guided by actions of promotion, prevention, re-education, and rehabilitation performed in a Bowel Re-education Program for patients with NB can improve their autonomy and reduce discomfort during bowel movements. The maneuvers performed in the Bowel Re-education Programs can be recommended by nurses from primary to specialized care, with low cost and little risk of negligence, carelessness, and imprudence, since it will favor an assistance based on clinical evidence. Many are the factors that influence the results of the analyzed studies, namely: association of maneuvers with greater chances of positive results, health education with patients and families, patient acceptance, and adaptation to the orientations. However, as a limitation of this review, we list the heterogeneity of the sample, methods, instruments, and techniques used in the different articles analyzed.

Therefore, the need for new studies addressing the importance of this theme

is evident, strengthening the assistance provided by nurses to patients with NB in the Brazilian and global contexts. Moreover, this study contributes to the actions of nursing care to patients with NB and to the dissemination of findings on the benefits of the Bowel Reeducation Program.

REFERENCES

1. Latorre GFS, Padilha AP, Amorim L, Duminelli KG, Nunes EFC. Comprometimentos sexuais em homens com lesão medular: revisão sistemática. *Rev. Med. (São Paulo)*. [Internet]. 2020 [cited in 2020 Dec. 01]; 99(3):286-90. Available in: <https://doi.org/10.11606/issn.1679-9836.v99i3p286-290>.
2. Emmanuel A, Kumar G, Christensen P, Mealing S, Storling Z, Andersen F, et al. Long-term cost-effectiveness of transanal irrigation in patients with neurogenic bowel dysfunction. *PLoS One*. [Internet]. 2016 [cited in 2020 Nov. 25]; 11 (8): e0159394. Available in: <https://doi.org/10.1371/journal.pone.0159394>.
3. Emmanuel A. Neurogenic bowel dysfunction. *F1000Research*. [Internet]. 2019 [cited in 2020 Nov. 27]; 8:1800. Available in: <https://doi.org/10.12688/f1000research.20529.1>.
4. Campoy LT, Rabeh SAN, Castro FFS, Nogueira PC, Terçariol CAS. Bowel rehabilitation of individuals with spinal cord injury: video production. *Rev. Bras. Enferm.* [Internet]. 2018 [cited in 2020 Sept 03]; 71(5): 2376-82. Available in: <https://doi.org/10.1590/0034-7167-2017-0283>.
5. Salvatico KT, Lopes A, Davatz GC. Atualização sobre a assistência de enfermagem aos pacientes com trauma raquimedular. *Revista InterSaúde*. [Internet]. 2020 [cited in 2020 Nov. 23]; 1(2): 2-15. Available in: http://revista.fundacaojau.edu.br:8078/journal/index.php/revista_intersaude/article/view/116.
6. Faleiros F, Santos LM, Bimbatti K, K pppler C. Bowel emptying methods used by German residents living with spina Bifida. *J. wound ostomy continence nurs.* [Internet]. 2021 [cited in 2020 Dec. 01]; 48(2):149-52. Available in: <https://doi.org/10.1097/WON.0000000000000741>.
7. Deng Y, Dong Y, Liu Y, Zhang Q, Guan X, Chen X, et al. A systematic review of clinical studies on electrical stimulation therapy for patients with neurogenic bowel dysfunction after spinal cord injury. *Medicine*. [Internet] 2018 [cited in 2020 Nov. 25]; 97 (41): e12778. Available in: <https://doi.org/10.1097/MD.00000000000012778>.
8. Meireles VC, Labegalini CMG, Baldissera VDA. Tracer methodology and the quality of care: integrative literature review. *Rev. ga cha. enferm.* [Internet]. 2019 [cited in 2020 Nov. 12]; 40: e20180142. Available in: <https://doi.org/10.1590/1983-1447.2019.20180142>.
9. Engler TMN de M, Farage L, Mello PA de. Cons2dctipa o intestinal em pacientes admitidos em Programa de Reabilita o Neurol gica. *Acta Paul. Enferm. (Online)*. [Internet]. 2011 [cited in 2020 Nov. 17]; 24(6):804-9. Available in: <https://doi.org/10.1590/S0103-21002011000600013>.
10. McClurg D, Hagen S, Hawkins S, Lowe-Strong A. Abdominal massage for the alleviation of constipation symptoms in people with multiple sclerosis: a randomized controlled feasibility study. *Int. MS j.* [Internet]. 2011 [cited in 2020 Dec. 25]; 17(2):223-33. Available in: <https://doi.org/10.1177/1352458510384899>.
11. Faleiros F, Paula EDR de. Paralisia cerebral tetrapl gica e constipa o intestinal: avalia o da reeduca o intestinal com uso de massagens e dieta laxante. *Rev. Esc. Enferm. USP*. [Internet]. 2013 [cited in 2020 Dec. 26]; 47 (04). Available in: <https://www.scielo.br/j/reeusp/a/PxhxsShqjGsMgqg8jWmMmrs/abstract/?lang=pt>.
12. Engkasan JP, Sudin SS. Neurogenic bowel management after spinal cord injury: Malaysian experience. *J. Rehabil. Med.* [Internet] 2013 [cited in 2020 Nov. 11]; 45(2): 141-4. Available in: <https://doi.org/10.2340/16501977-1074>.
13. Ozisler Z, Koklu K, Ozel S, Unsal-Delialioglu S. Outcomes of bowel program in spinal cord injury patients

with neurogenic bowel dysfunction. *Neural Regen. Res.* [Internet]. 2015 [cited in 2020 Nov. 05]; 10(7): 1153-8. Available in: <https://doi.org/10.4103/1673-5374.160112>.

14. Burns AS, St-Germain D, Connolly M, Delparte JJ, Guindon A, Hitzig SL, Craven BC. Phenomenological study of neurogenic bowel from the perspective of individuals living with spinal cord injury. *Arch. phys. med. rehabil.* [Internet]. 2015 [cited in 2020 Nov. 07]; 96(1):49-55. Available in: <https://www.sciencedirect.com/science/article/abs/pii/S000399931400968X#!>.

15. Todd C, Woodward S. Experience of nurses caring for patients with neurogenic bowel dysfunction: A qualitative study. *J. wound. ostomy continence nurs.* [Internet]. 2018 [cited in 2020 Nov. 10]; 45(2): 163-167. Available in: <https://doi.org/10.1097/WON.0000000000000413>.

16. Rodrigues BD e S, Buzatti KC de LR, Quintão NPD, Oliveira GM, Pinheiro MM, Rodrigues, FP, et al. Standardization of the technique to perform the transanal therapeutic irrigation. *J. coloproctol.* (Rio J., Impr.). [Internet]. 2018 [cited in 2020 Nov. 20]; 38(4): 351-355. Available in: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S2237-93632018000400351&lng=en.

17. Zhang Y, Xia X, Zhuang X. Effect of quantitative assessment-based nursing intervention on the bowel function and life quality of patients with neurogenic bowel dysfunction after spinal cord injury. *J. Clin. Nurs.* [Internet]. 2018 [cited in 2020 Nov. 15]; 27(5-6); e1146-e1151. Available in: <https://doi.org/10.1111/jocn.14198>.

18. Yin, Q; Wang, C; Yu, J; Zhang, Q. Quantitative assessment-based nursing intervention improves bowel function in patients with neurogenic bowel dysfunction after spinal cord injury. *Medicine.* [Internet]. 2020 [cited in 2021 Jan. 10]; 99(51): e23354. Available in: <https://doi.org/10.1097/MD.00000000000023354>.

19. Azevedo MAR, Lisboa LL, Medeiros CEB de, Almeida VA de, Gonçalves RP. Terapia comportamental associada a neuromodulação no tratamento da bexiga e intestino em indivíduos com Parkinson: um estudo piloto. *Rev. Pesqui. Fisioter.* [Internet]. 2021 [cited in 2021 Apr. 13]; 11(1):50-58. Available in: <https://doi.org/10.17267/2238-2704rpf.v11i1.3313>.

20. Clares JWB, Fernandes BKC, Guedes MVC, Freitas MC de. Specialized nursing terminology for the care of people with spinal cord injury. *Rev. Esc. Enferm. USP.* [Internet]. 2019 [cited in 2020 Nov. 15]; 53: e03445. Available in: <https://doi.org/10.1590/S1980-220X2018014203445>.

21. Santos ACL dos, Leite N de L, Gomes ET, Cabral M de FCT, Cavalcanti AT de A e, Vieira JCM. Elaboration of a hospital protocol for nursing care to patients with intestinal stomata. *Rev. enferm. UFPI.* [Internet]. 2019 [cited in 2020 Nov. 22]; 8(4): 34-40. Available in: <https://doi.org/10.26694/2238-7234.8434-40>.

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