´The value of nurses in oncological prehabilitation.´

A narrative review.

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Abstract

Objective: To present the best current evidence about the role, scope, added value and expertise of nurses during the prehabilitation trajectory of patients with gastro-intestinal cancer.
Methods: Literature searches were performed between June 2022 and January 2023, with a final search on January 25th. The search strategy included four steps, following the Joanna Briggs Institute Manual. Two researchers contributed to the study selection process. The results were categorized according to the domains of multimodal prehabilitation. The Handbook of Carpenito was used to link the results to nursing diagnoses, interventions and nurse sensitive outcomes.
Results: Searching CINAHL, PubMed, Google Scholar databases and searching websites yielded in 86 unique titles. Eventually, we obtained 38 full text documents based on title and abstract, 0f which 18 were eligible.
Conclusion: Nurses can diagnose, screen, access and intervene within the four elements of prehabilitation (physical, nutritional and psychological care, smoking and alcohol cessation) and have a pivotal role in every part.
Implications for nursing practice: It is necessary that nurses obtain close monitoring of the patient, give support throughout the whole cancer and prehabilitation trajectory and are able to practice shared decision making. Furthermore, because the field of cancer prehabilitation is rapidly evolving, it is critical that education and training will be ongoing to keep track of advances in the scientific literature.

Keywords: prehabilitation, nursing care, nursing diagnosis and interventions, nurse sensitive outcomes, gastro-intestinal cancer, person-centered care

Highlights: This paper describes the role and scope of nurses within the four elements of prehabilitation and will impact the nursing care within the prehabilitation trajectory of patients with cancer.

What is already known
Prehabilitation trajectories contribute to improving lifestyle choices and influencing risk factors to reduce postoperative complications, the overall hospital stay and lower health care costs.

What this paper adds
An overview of the best current evidence on the role, scope, added value and expertise of nurses during the prehabilitation trajectory of patients with GI cancer, consisting of relevant nursing diagnosis, interventions and outcomes within four specific domains.

1. INTRODUCTION

For the treatment of gastro-intestinal (GI) cancers, surgery is often recommended [1-3]. Patients undergoing complex gastrointestinal surgery are at high risk of major postoperative complications[1]. Postoperative complications can lead to increased morbidity and mortality. Moreover, postoperative complications can lead to an increased duration of hospital stay and thereby healthcare costs [4,5]. Additionally, numerous GI cancers need to be treated with neo-adjuvant therapies, such as chemotherapy and radiation therapy [3]. The implementation of neo-adjuvant therapies, can have a major impact on the physical condition of patients with GI cancer who are also scheduled for surgery [3,6]. In recent years prehabilitation has been in upraise, to improve surgical outcomes and accelerate recovery[7]. Prehabilitation, is ''a process from cancer diagnosis until the beginning of treatment and includes physical, nutritional and psychological interventions that improve patient's health and functional capacity to reduce the incidence and the severity of current and future impairments with cancer, chemo-radiotherapy and surgery'' [8].

Prehabilitation can use the classic waiting period between diagnosis and surgery to a period in which patients can improve lifestyle choices and influence the risk factors to reduce postoperative complications, the overall hospital stay and lower the health care costs [9-11]. The use of prehabilitation programs is especially important among GI cancer patients, as these patients often already experience functional decline and complications as a result of not only their decease but also the neo-adjuvant therapies [1].

The need for nursing competencies in prehabilitation

Since nurses guide and care for patients with cancer throughout the whole patient journey, they are expected to play a vital role in prehabilitation, both as case managers as well as for their expertise on nursing diagnoses and attending nurse-sensitive patient outcomes, such as malnutrition, reduced mobility, having fear, feeling of loss and risky behavior for once health [12-16]. These nursing diagnosis need to be assessed to successfully provide a person-centered prehabilitation program which includes physical status, nutritional status, psychological status and smoking and alcohol cessation to GI patients [17]. Nurses may be the only consistent provider the patient sees throughout the whole cancer journey and unlike the role and competencies of i.e. physiotherapists and dieticians during the prehabilitation trajectory, the nursing role, competences and tasks during the person-centered prehabilitation trajectory of patients has not yet been described [18-20].

The aim of this article is to present the best current evidence on the role, scope, added value and expertise of nurses during the prehabilitation trajectory of patients with GI cancer, opting for treatment.

2. METHOD

This narrative review was conducted to get an overview of published research evidence of the nurses' added value in cancer prehabilitation, specifically for patients with GI cancer. A narrative review seeks to summarize the current literature and consolidate knowledge on a particular topic [21].

Search strategy

We performed literature searches between June 2022 and January 2023, with a final search on January 25th, 2023. The search strategy included four steps, following the Joanna Briggs Institute Manual (JBI) [22]. In step one, we searched the databases of PubMED, CINAHL and the search engine Google (Scholar) to identify relevant keywords, such as ''Gastrointestinal Neoplasms, Neoplasm* '',"Nurse's Role", "Nursing" and "Nursing Care''. In step two, we used these keywords to build elaborated search strings for an advanced search in the databases of PubMed and CINAHL (Table 1). All keywords were connected by Boolean operators without limitation of year of publication. In step three, we hand-searched reference lists of articles that we included. Finally, in step four we searched for grey literature using the search engine Google and relevant and actual educational nursing books. RefWorks software was used as a reference management system to screen duplicate publications.

Table 1: Keywords

	Pubmed	CINAHL
Prehabilitation	Prehab*	Prehab*
Gastrointestinal cancer	gastrointestinal neoplasms, neoplasm*, tumor, cancer, lymphoma, malignan, oncolog*, carcinom*, colorectal*, gastrointestinal, esophagi*, intestin*, cecal, cecum, duodenal, duodenum, ileal, ileum, jejunal, jejunum, gastric, stomach, gastronintestinal.	Gastrointestinal Neoplasms+, Neoplasms+, neoplas*, tumor* OR tumour* OR cancer* OR lymphom* OR malignan* OR oncolog* OR carcinoma*)) AND (colorectal* OR colon* OR rectal* OR Gastrointestinal OR Esophag* OR Intestin* OR cecal OR cecum OR duodenal OR duodenum OR ileal OR ileum OR jejunal OR jejunum OR gastric OR stomach OR gastrointestinal)))
Nursing care	("Nurse's Role"[Mesh] OR "Nursing"[Mesh] OR "Nursing Care"[Mesh] OR "Nurses"[Mesh] OR "Nursing Staff"[Mesh] OR nurse[tiab] OR nurses[tiab])	(MH "Nursing Role" OR MH "Nurses" OR MH "Nursing Care" OR MH "Nursing Staff, Hospital" OR nurse OR nurses)

Study selection process

Initially, we screened titles and abstracts or summaries and we excluded articles and papers that were irrelevant for our research question or beyond the scope of this review (Table 2). After screening titles and abstracts or summaries, we obtained articles and papers that fitted our research question and further scanned these for eligibility. Two researchers of the research team contributed to the study selection process by both performing title-abstract and summary screening and full-text screening independently on all potential titles. After discussing discrepancies, such as including other cancer populations, full agreement was reached on which articles and papers to include in the review.

Table 2: In- and exclusion criteria

Inclusion criteria	Exclusion criteria
- Peer-reviewed articles or reviews of primary research - Grey literature including policy papers, guides or guidelines, or web-pages.	- Not written in Dutch or English - Not specified for cancer patients

Data synthesis and analysis

Two researchers extracted data from the included papers. Descriptive information was extracted from the articles to fill in a data extraction form in Microsoft Excel. Extracted descriptive information included authors, date of publication type of article, focus of the article and the relevant information for the review. Furthermore, findings were discussed and practical summaries were formulated.

The results were categorized according to the domains of multimodal prehabilitation, including physical care, nutritional care, psychological care and alcohol and smoking cessation. The latest version of the handbook of Carpenito was used to specify the results according to nursing diagnoses and nurse sensitive outcomes [13]. We discussed the findings that followed from this process iteratively throughout the analysis. We included findings on nursing care and nurse sensitive outcomes in the cancer prehabilitation care continuum. The list of summaries was discussed with all authors. This resulted in a final overview of findings for nurses on how to provide the best nursing care for GI patients in the prehabilitation continuum.

3. RESULTS

Searching CINAHL, PubMed databases and websites for literature yielded 86 unique titles. Eventually, we obtained 38 full texts documents based on title and abstract screening, by hand searching eligible articles and by searching for grey literature. Of these full text documents, 18 were eligible. From the included articles, we extracted nursing interventions relevant for prehabilitation in order to find specific nursing diagnosis in GI oncology care, and classified them within the four elements of prehabilitation; physical care, nutritional care, psychological care and smoking and alcohol cessation.

Physical care

According to Carpenito, [13] the symptoms of a patient need to be assessed and the degree of exercise tolerance needs to be determined with the patient to diagnose a patient with the nursing diagnosis ' mobility, impaired' or 'activity tolerance, decreased '. In addition, questionnaires and physical tests can be done to support the diagnosing. Questionnaires, e.g. Katz-ADL, is used by nurses to assess a patients ability to perform Activity of Daily Living (ADL) [23] [7]. A simple and objective measure of functional capacity is the 6-min walk test (6MWT), that measures the distance a patient can walk in 6 minutes [24,25]**.** Exercise training is a physical intervention of multimodal prehabilitation a nurse can advise [13]. There are three main categories within the physical intervention: aerobic, resistance and flexibility [24]. In terms of physical care, nurses could recommend that people with cancer perform cardiopulmonary exercises of a moderate to vigorous intensity (e.g. electromagnetically braked cycle ergometer, resistance training) for 30–60 minutes, three to five times each week, depending on their tolerance. This exercise should begin sometime between cancer diagnosis and treatment [26]. Simply giving the patient the advice of walking is not enough [27]. According to Shun et al, [27] behavioral change should be promoted by the nurse to encourage the patients' personal commitment and the quality of the physical intervention. According to Dana et al, [28] the personal commitment of the patient and the adherence to the prescribed intervention depends on the nurses close monitoring, encouragement and continuous feed-back to the patients effort [28].

Nutritional care

According to Bruns et al (2019), the nursing diagnosis 'nutrition imbalanced, less than body requirements' can be timely assessed and underpinned by nurses in conversation with the patient, in addition to screening instruments such as the Malnutrition Universal Screening Tool (MUST) and Short Nutritional Assessment Questionnaire (SNAQ)[7]. In the MUST, three independent criteria are used; current weight status, using body mass index (BMI), if a patient had unintentional weight loss and if a patient has an acute disease which effects producing or likely to produce no nutritional intake for more than five days [29] [30]. The SNAQ consists of three questions; did a patient lose weight unintentionally, did a patient experience a decreased appetite over the last month and whether or not a patient used supplemental drinks or tube feeding over the last month [31].

The nurse should discuss nutrition as soon as possible and referral to a dietitian at the time of diagnosis is encouraged and often required [13,32]. Additionally, the goal and progress of nutrition should be discussed with the patient during the whole oncological journey [13,32].
There is not ''one diet fits all'', as each patient's needs, treatment and activity level varies [32,33]. Additionally, dietary plans need to account for individual habits, preferences and cultural differences. According to the literature we found, nursing interventions mostly consist of an advice to eat small portions on a regular base daily, especially foods that are rich in proteins and vitamins [13,32]. The consumption of easy digestible foods such as eggs, yoghurt and cheese can help obtain sufficient calorie intake [13,32]. For patients who already experience weight loss or anorexia, drinking nutritional supplements that are high in protein can help consume sufficient calories [32]. To improve the visual appearance of a meal and trying novel foods should be encouraged by the nurse to make

meals more appetizing [32,34]. The improvement of physical activity can also help stimulate the appetite and increase nutritional intake [33,34]. Additionally, nurses are the first in line in detecting nutrition impact symptoms caused by the disease or the therapy, such as the nurse sensitive outcome: nausea [33,34]. They are therefore the most appropriate professionals to provide medical or psychosocial support if these symptoms occur [33,34]. If patients experience nausea, nurses can advise to eat small portions at a regular basis, avoid unpleasant smells and images, avoid strong smelling and tasting food, and avoid laying down two hours after the meal [13]. Additionally, according to Carpenito, [13] the nurse should check regularly whether the desired nutritional intake has been achieved.

Psychological status

The nursing diagnoses 'anxiety', 'grieving', 'powerlessness' and 'spiritual distress' can be underpinned by nurses timely in patient's conversations and assessments, in addition to screening instruments [13]. Various instruments have been developed to assess mood and anxiety state, such as The Generalized Anxiety Disorder 7 (GAD-7) questionnaire [7]. It is a valid and efficient tool to screen for generalized anxiety disorder and assessing its severity in clinical practice and research [7]. The Patient Health Questionnaire 9 (PHQ-9), including nine questions, consist of the nine criteria on which the diagnosis of DSM-IV depressive disorders is based [7]. The Hospital and Depression Scale (HADS) is a 14 question measure with seven items each for depression and anxiety [7]. It generates separate scores for anxiety and depression as well as a combined score for psychological distress [7]. We found that nurses are crucial in providing encouragement and emotional, intellectual and psychological support to patients and their relatives, as part of a personalized approach to prehabilitation [13,28,32]. In terms of psychological care, nurses could teach stress management skills (e.g. deep breathing strategies for coping with anxiety, relaxation techniques) to help decrease patients' stress related to cancer or cancer treatment [13,26]. Another intervention a nurse can give is to advice meditation or yoga [7,13]. Patients who experience stress and anxiety can be referred to do cognitive training in the form of psychological counseling [7,13]. Furthermore, it is essential for the nurse to provide the patient with detailed information of the upcoming treatment and hospitalization, to reduce anxiety. Additionally, it is essential to inform the patient about the possibility to contact former fellow-patients [7].

Smoking and alcohol cessation

The nursing diagnosis 'risk prone health behavior' and 'risk for delayed surgical recovery' are diagnoses that need to be addressed for prehabilitation to succeed [13,32]. The nurse is ideally placed to have this discussion and start the process of behavioral change before treatment starts [13,17,32]. Achieving lasting and meaningful behavioral change requires the full assessment of an individual's needs, including motivation and skills, as well as social, educational, cultural and economic needs [13,32]. Shared decision making is a key element in the prehabilitation trajectory [32,35], and is essential for the behavioral change to take place [13]. In addition, the nurse can refer to psychosocial or social support mechanisms, such as a referral to professional counseling, self-help material and individual or group behavioral support [32]. Pharmacological interventions include all forms of nicotine replacement therapy. A combination of these strategies is encouraged [32].

DISCUSSION

This paper describes the value of person-centered nursing care and nursing expertise in the prehabilitation trajectory of patients with GI cancer, based on nursing diagnoses, interventions and nurse sensitive outcomes. Frequent occurring nursing diagnosis in patients diagnosed with GI-cancer are related to the four elements of prehabilitation: physical care, nutritional care, psychological care and smoking and alcohol cessation. Nursing interventions are available and essential to apply within all four elements of prehabilitation, to follow up on nursing diagnosis and subsequently improve the prehabilitation trajectory, the oncological treatment and possibly even the cancer prognosis of patients diagnosed with GI cancer. To support a patient towards better health management, shared decision making and behavioral change, specific skills are essential. Additionally, it is necessary for nurses to have knowledge about the content of the four elements of prehabilitation, nursing diagnoses within these four elements and the interventions needed to arrive to eligible nurse sensitive outcomes. For example, to reduce the risk of malnutrition, sufficient knowledge about good and sufficient nutrients is necessary to implement evidence based interventions. Nurses do not only need knowledge, but also need the skills to provide high quality and evidence based patient education [36,37]. Patient education in practice, however, generally does not always prioritize evidence-based assessments and interventions, even though they are part of bachelor of nursing curricula [38,39]. It is critical for nurses to be proactive in their quest for research knowledge, so the gap between the new theories and practice in terms of prehabilitation can shrink [39]. To ensure nursing education is not only evidence-based, but also personalized to a patient's needs, it is crucial for nurses in prehabilitation settings to raise awareness on the health literacy concept. Sufficient health literacy is fundamental to supporting and engaging patients and their relatives to take part in prehabilitation programs and insure person-centered care is provided [40].
When looking at the improvement of patient outcomes and experiences prior, during, and after oncological surgery, patient activation by nurses is one of the major factors. Patient activation is in order when a patient is recruited to be an active partner in their surgical journey and is educated and empowered to make changes to their health situation [41]. Besides that, a prehabilitation program is also largely based on a patient's 'intrinsic motivation'. It is known that a significant number of patients lack a basic understanding of health information provided by health care workers, which makes participation and engagement in their own health decisions even more difficult [40].
In the long run, close contact and monitoring within a patient-nurse relation throughout the prehabilitation trajectory is of most importance. Nurses are the primary contact for patients' concerns and they have an important role to keep contact with patients for support and motivation during the prehabilitation trajectory [28,37,42-44]. It is however important to realize that, in daily practice, caring relations vary for every nurse and patient, and also should be if they are to be recognized as being person-centered relations. Every patient-nurse relation therefore needs to be established throughout close contact and, specifically, within the context of shared decision making processes.

Limitations

The goal of this review was to gather relevant information from various resources regarding the value of person-centered nursing care in the prehabilitation trajectory of patient with GI cancer. Relevant documents may have been missed, due to the rapid increase of both academic and grey literature about prehabilitation.

Implications for nursing practice

- Close contact and monitoring between patient and nurses throughout the prehabilitation trajectory is of utmost importance to make prehabilitation trajectories succeed.
- Nurses need to be educated on the four prehabilitation elements, which specific frequent occurring nursing diagnosis and nurse sensitive outcomes are relevant and which nursing interventions they can implement.

- Nurses need to be made familiar with shared decision making processes to make sure person-centered care can be provided.
- Nurses need to be made familiar with behavioral change mechanism and patient activation to make participation and engagement of patients in health decisions possible.
- The education and training of nurses concerning prehabilitation has to be ongoing to keep current with advances in the scientific literature.

CONCLUSION

This review gives a summary of evidence on what person-centered nursing care within the prehabilitation trajectory of GI cancer patients consists of. We discussed what nursing diagnosis, interventions and relevant nurse sensitive patient outcomes are within the prehabilitation trajectory, and what requirements are needed for the person-centered nursing care to be successful. Nurses can diagnose, screen, assess and intervene within the four main elements of prehabilitation and have a pivotal role within every part. Additionally, it is necessary that nurses obtain close monitoring of patients, and support patients throughout the whole cancer and prehabilitation trajectory and are able to practice and apply shared decision making processes. Furthermore, since the field of cancer prehabilitation is rapidly evolving, it will be critical that educational programs and training will be ongoing to keep current with advances in the scientific literature.

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