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Targets for improving patient outcomes after major gastrointestinal cancer surgery: the value of perioperative care

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Chapter 6

Patient Perspectives on Consequences of Resectable Colorectal Cancer Treatment: a Qualitative Study

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List of Abbreviations

EORTC; European Organization for Research and Treatment of Cancer, ICHOM; International Consortium for Health Outcomes Measurement, LARS; Low-Anterior Resection Syndrome, VHBC; Value-Based Health Care

Abstract

Background: Colorectal cancer is diagnosed in approximately 500,000 patients each year in Europe, leading to a high number of patients having to cope with the consequences of resectable colorectal cancer treatment. As treatment options tend to grow, more information on these treatments' effects is needed to properly engage in shared decision-making. This study aims to explore the impact of resectable colorectal cancer treatment on patients' daily life.

Methods: Patients (≥ 18 years) who underwent an oncological colorectal resection between 2018 and 2021 were selected. Purposeful sampling was used to include patients who differ in age, comorbidity, (neo-)adjuvant therapy, postoperative complications and stoma presence. Semi-structured interviews were conducted, guided by a topic guide. Interviews were fully transcribed and subsequently thematically analyzed using the framework approach. Analyses were done by using the predefined themes: 1) daily life and activities, 2) psychological functioning, 3) social functioning, 4) sexual functioning and 5) healthcare experiences.

Results: Sixteen patients with a follow-up between 0.6 and 4.4 years after surgery were included in this study. Participants reported several challenges they experience due to poor bowel functioning, stoma presence, chemotherapy-induced neuropathy, fear of recurrence and sexual dysfunction, however, they were reported not to interfere much with daily life.

Conclusion: Colorectal cancer treatment leads to several challenges and treatment-related health deficits. This is often not recognized by generic patient-reported outcome measures, but the findings on treatment-related health deficits presented in this study, contain valuable insights which might contribute to improving colorectal cancer care, shared decision making and value based healthcare.

Introduction

In Europe, colorectal cancer is diagnosed in approximately 500,000 patients each year, leading to a high number of patients that has to live with the consequences of colorectal cancer treatment [1]. The cornerstone of colorectal cancer treatment is surgical resection, which encompasses invasive and high-risk procedures with a total complication rate of up to 30% and 30-day mortality of about 2% [2-4]. Currently, patient psychological and functional outcomes next to oncological outcomes after resectable colorectal cancer treatment are gaining more interest, due to increased overall survival, improved oncological care and more awareness of the sequelae of cancer survivorship [5, 6]. Together with an increasing trend towards shared decision-making, (recurrence-free) survival is not the only important factor taken into account during treatment planning and patient counseling, but also the anticipated quality of life after treatment [7]. Since this post-treatment quality of life should also be part of the decision-making process regarding treatment options, treatment decisions may be impacted. Therefore, treatment options such as, "watch and wait" after clinical complete response to neoadjuvant therapy may be preferred [8]. To adequately engage in shared decision-making, information on how surgical treatment of colorectal cancer affects daily life and quality of life after colorectal cancer surgery is essential. Colorectal cancer surgery may lead to a decreased quality of life, as well as decreased daily functioning and decreased physical functioning [9]. However, a previous study of our group showed that quality of life returns to a level similar to the preoperative level one-year after surgery, which seems paradoxical since various treatment-related health deficits may arise [10].

Earlier studies have shown that coping mechanisms in patients with malignant diseases might be leading to a relative underestimation of the effect of treatment-related health deficits on patient-reported quality of life [11, 12]. Insight into long-term consequences of colorectal cancer treatment for daily life and explicit patient consideration on treatment decisions might positively influence the long-term quality of life and lead to a higher acceptance of possible consequences. Additionally, rehabilitation programs might be more focused on these consequences [13].

This study aims to explore the impact of resectable colorectal cancer treatment on patients' daily life. With a qualitative approach more in-depth information on patients' perspectives might be obtained. The major themes from the cancer-specific European Organization for Research and Treatment of Cancer (EORTC) qlq-C30 questionnaire are studied [14]. These themes are often affected by colorectal cancer treatment. Furthermore, the findings of this explorative study could expose outcomes with a high burden on patients' daily life. Ultimately, this information can be used for patient information, shared-decision making and treatment planning. Also, the knowledge

gained by this study may provide leads for the optimization of long-term postoperative care and rehabilitation programs in colorectal cancer patients.

Methods

Setting

A purposive sample was retrieved from a cohort of patients who underwent surgery for colorectal cancer between 2018 and 2021 at the Leiden University Medical Center (LUMC), a tertiary teaching hospital in the Netherlands. Purposeful sampling was used to include patients of a different age, comorbidity, (neo-)adjuvant therapy, postoperative complications and stoma presence.

Participants

Patients (≥ 18 years) after curative intended colorectal resection for primary carcinoma were approached during follow-up appointments. To be eligible, participants had to understand and speak Dutch. Patients were included until no further pertinent information and themes were forthcoming from at least three interviews, suggesting that data saturation was reached [15, 16].

Ethics approval

The Medical Ethics Committee Leiden Den Haag Delft assessed the study protocol for this study (ref. no. N21.168) and concluded that no formal review was needed, as this study was not conducted under the Medical Research Involving Human Subjects Act (WMO). All study participants were given verbal and written information about the study and signed an informed consent form.

Semi-structured interviews

To learn more about the perspectives of patients towards the effects of oncological colorectal treatment on their daily functioning, a qualitative approach was used [17-19]. For the semi-structured interviews, a topic guide was developed. The topics were based on the cancer- EORTC qlq-C30 questionnaire and an expert-opinion; 1) daily life and activities, 2) psychological functioning, 3) social functioning, 4) sexual functioning and 5) healthcare experiences [14]. Semi-structured interviews were selected as a method, because it offers flexibility to gather in-depth perspectives and leads to rich thematically-structured narratives with participants [18]. The interviews were conducted online via Zoom by one investigator, a trained medical doctor involved in surgical oncology (RTK).

Analysis

The interviews were fully audio-taped and manually transcribed. A theoretical thematic analysis of the transcripts was performed together by two researchers (RTK, BAMS) to identify patterns in the data [17]. The analysis was done by using the framework approach, and followed the following sequential steps: (1) familiarizing with the data, (2) developing a coding scheme, based on the aforementioned themes, using ATLAS.ti 9, (3) coding of the transcripts, the coding scheme was applied independently by two coders and discussed until an agreement was reached, (4) summarizing the data for data interpretation [19]. The researchers met regularly and discussed the coding scheme as it developed during data analysis.

Results

Participants

In total, 16 patients participated in this study, 9 were male and ages ranged from 54 to 79, (Table 1). Patients were interviewed between 0.6 and 4.4 years after surgery. Six participants had a primary tumor located in the colon and 10 had a rectum-located tumor. Six participants received neo-adjuvant therapy and 3 received adjuvant chemotherapy. A stoma was constructed in 7 participants of which 3 were closed at time of the interview. Major complications, requiring a reoperation, occurred in 6 participants of which 3 experienced an anastomotic leakage.

Daily life and activities

Multiple participants reported to have poor bowel functioning with increased stool frequencies: *"I have stool at least 10 times a day"* (P16). This influences their daily life, for example their work and their mobility: *"I visit other companies for work and you prefer not to go to the toilet there, but I often have to go"* (P16) and *"When I'm on the road, I always think: am I nearby or can I be at a toilet within ten minutes?"* (P4) and *"Two hours is really the maximum that I can walk, because then I have to go to the toilet."* (P2) To avoid these unwanted situations, some participants reported that they pay extra attention to their diet: *"When I eat a lot of legumes and herbs, then it gets really wrong."* (P4) and *"I have to be careful with oil"* (P14).

Having a stoma is also reported to present certain challenges in daily life. It took a while for most participants to get used to. In the beginning, they felt insecure and had several problems, such as uncontrollable flatus and stoma bag leakages. Fortunately, at the time of the interviews, most patients reported to experience almost no stoma-related fecal leakage, but still have a fear of getting a stoma bag leakages. Furthermore, participants reported that they did not want to be dependent on nurses or family *"you*

Table 1 – Study participant characteristics. * At time of the interview

ID	Age* (years)	Gender	Comorbidities	Tumor stage	Time since surgery * (years)	Type of Surgery	Stoma	Postoperative complications	Reoperation	(Neo-) adjuvant therapy
P1	69	Male	Hypertension, Obesity, Hypercholesteremia	cT3bN0/ypT2N1M0	2.1	Laparoscopic abdominoperineal resection	Colostoma	Urinary retention	No	Neo-adjuvant chemotherapy and radiotherapy
P2	56	Female	Abdominal surgery	pT4aN2b	3.5	Laparoscopic sigmoid resection	-	-	No	Adjuvant chemotherapy
P3	54	Female	Orofacial surgery	pT3N0	1.1	Laparoscopic low-anterior resection	Colostoma	Anastomotic leakage, Pulmonary embolism	Yes	-
P4	68	Female	-	cT2N1M0/ypT0N0	3.9	Laparoscopic low-anterior resection	-	-	No	Neoadjuvant brachytherapy
P5	75	Male	Diabetes Mellitus type II, Hypertension, Hypercholesterolemia	pT3N1b	2.5	Laparoscopic sigmoid resection	-	-	No	Adjuvant chemotherapy
P6	69	Female	Cataract surgery	pT3N0	3.0	Laparoscopic low-anterior resection	Colostoma	Anastomotic leakage, abdominal abscess, SIADH	Yes	-
P7	57	Male	-	pT2N1M0	0.7	Laparoscopic hemicolectomy left	-	-	No	Adjuvant chemotherapy
P8	62	Female	COPD, Hypertension	pT3N0	4.2	Open transverse colectomy	Colostoma (reversed after 1 year)	Hemorrhage	Yes	-
P9	77	Male	Urolithiasis	pT2N0	4.4	Laparoscopic Hemicolectomy right	-	-	No	-
P10	67	Female	Appendectomy	pT1N0	3.2	Laparoscopic low-anterior resection	-	-	No	-

Table 1 – Continued

ID	Age* (years)	Gender	Comorbidities	Tumor stage	Time since surgery * (years)	Type of Surgery	Stoma	Postoperative complications	Reoperation	(Neo-) adjuvant therapy
P11	79	Male	Nephrectomy, multinodular goiter	pT2N0	0.6	Laparoscopic sigmoid resection	-	-	No	-
P12	74	Male	Cystoprostatectomy	pT2N1b	0.6	Open abdominoperineal resection	Colostoma	Small bowel perforation	Yes	-
P13	54	Male	-	cT3N1/ypT1N0	3.2	Laparoscopic low-anterior resection	-	-	No	Neo-adjuvant chemotherapy and radiotherapy
P14	57	Female	Hypertension	cT3N1/ypT2N0	3.3	Laparoscopic low-anterior resection	-	-	No	Neo-adjuvant radiotherapy
P15	70	Male	Diabetes Mellitus type II, Hypertension, Peripheral venous insufficiency	cT3N1/ypT3N1c	2.6	Laparoscopic low-anterior resection	ileostoma (reversed after 3 months)	Ureter perforation	Yes	Neo-adjuvant chemotherapy and radiotherapy
P16	63	Male	Hypertension	cT3aN2M0/ypT2N0	4.2	Laparoscopic low-anterior resection	ileostoma (reversed after 6 months)	Anastomotic leakage, Urinary retention	Yes	Neo-adjuvant chemotherapy and radiotherapy



can tell me how to do it, because I want to do it myself; I have to accept it and I have to deal with it" (P3). Participants reported that they learned to cope with a stoma: "I always say, it never makes you happy, that you have it, but I can deal with it quite well" (P6) and "Sometimes I even forget that I have a stoma" (P1).

Additionally, some participants complain about chemotherapy-induced neuropathy in their feet, which greatly influences their ability to walk: "It's mainly my right foot. Because of that foot I will probably also walk slightly different, which causes problems in my knees and my back" (P2). Furthermore, chemotherapy-induced neuropathy of the hands is reported not only to cause pain, but also to affect activities in daily life: "Before I get my hands on small objects, I sometimes have to make multiple attempts, because I don't feel it well" (P7).

Most participants reported that it took a while before they were fully recovered from surgery "The surgery itself was not such a problem for me, because I thought: that's part of it, but in the end it took quite a while before I was fully recovered" (P10). After full recovery most participants reported that not much has changed in daily life: "In the end nothing has really changed in my daily life" (P15). Although almost all of the patients face some negative influences of the treatment on their daily lives, in some cases it did positively change their general perspective on life: "I look at what I can do, there is a solution for everything" (P4) and "I can still live and be a happy person" (P5).

Psychological functioning

The interviews showed that colorectal cancer treatment may have an impact on a patient's psychological functioning. Multiple participants reported that, after colorectal cancer treatment, the fear of cancer recurrence plays a major role in their daily living, "Once you are diagnosed with rectal cancer, the fear of recurrence is always on the back of your mind" (P12). Consequently, as part of this fear, participants are more aware of anything they feel within their bodies: "You are more aware of things you feel, this makes you worry more" (P8). Also, their confidence in their own body and physical health is sometimes decreased "When I feel something in my body I keep wondering if this is normal or if I should visit the doctor" (P2). Not only do participants experience fear towards their own bodies, the follow-up hospital visits are also reported as frightening events: "Every time I have a CT scan or blood test, it is still exciting for me" (P8).

Some participants also reported changes in their mindset after the treatment, for instance: participants are more consciously enjoying their lives, are better in dealing with work-related issues and are more aware of their goals in life: "I do not make a big fuss about some things anymore, for example at work" (P16) and "I have more plans, I want to get more out of life now" (P15). Additionally, participants reported changes in their

perspectives towards themselves: "I have learned a lot about myself, you can do more than you think" (P6) and "I am more aware of my own body" (P8).

Furthermore, postoperative complications, such as hemorrhage and anastomotic leakage, have been reported by the participants as influential on their mental health: "Especially with an emergency reoperation, you are upset for a while. That has had quite a big influence, but it is now going great again" (P12) and "I still suffer from flashbacks, for instance when I have to go to the toilet at 2am I remember that was the moment when the bleeding started back then" (P8).

It was also reported that some participants do cope differently with their disease, for example some are hesitant to speak about their colorectal cancer treatment: "I do not really like to speak about my colon cancer, because I do not feel the need to discuss this with other people, since they always have an 'irrelevant' story about someone else with cancer" (P12). Others say it helps them to talk about it "I'd like to talk about it because it relieves me" (P13). Participants with a stoma reported that they are usually open about having a stoma: "I'm not ashamed of it at all, but I don't want to confront people with it" (P1).

Social functioning

A few participants reported that the diagnoses of colorectal cancer and treatment had no influence on their social functioning: "Actually, little has changed in that respect" (P4). Some participants report that they felt supported: "You discover how many dear friends and people you have around you" (P2) and "I knew he would always be there for me. He did a fantastic job" (P8). Some relationships were deepened seeing another side of each other "The bond with my children has definitely deepened after treatment" (P6), and some reported that this was even more with people who also had to deal with cancer: "They know a bit more about what I went through, than people who have never had to deal with it" (P13).

Stoma may lead to specific challenges, as participants with a stoma reported that the fear of stoma-related stool leakage or uncontrollable flatulence does influence social functioning "During social appointments I am sometimes afraid that the stoma will leak, then you are not relaxed" (P3).

Sexual functioning

Participants, male and female, reported several challenges regarding sexual functioning as a consequence of their colorectal cancer treatment, while some were not sexually active anymore. Erectile dysfunction and being unable to ejaculate was reported as a major issue "I do not get a good erection anymore and ejaculation is not possible at all. I do have medication for this, but it is not the same as it was before surgery" (P1). As medication for erectile dysfunction might offer some solution, several participants reported that

the loss of the ability to spontaneously engage in sexual activities is a burden on their sexual functioning. Furthermore, bowel functioning might interfere with sexual functioning *"I am a bit more hesitant, because I am afraid of losing stool"* (P10), along these lines a stoma might have a negative impact as well *"In the beginning, the stoma frightened us"* (P8). Abdominal scars after laparotomy is also reported to be of influence on sexual functioning. When issues arise, participants stated that talking about this with their partners was very helpful *"We talk well about sexuality, therefore it has not become a problem"* (P15). Contrastingly, some other participants do report not to experience any difficulties or changes regarding sexuality: *"nothing really changed"* (P7).

Healthcare and treatment experiences

Participants reported several factors which they consider as important during colorectal cancer treatment, and which might impact daily life during treatment, and follow-up. Good explanation about the surgical treatment and perioperative care is reported as very important: *"The explanations by the doctors about the surgery were good, luckily because I like to know everything"* (P3), *"Whenever I had a question it was answered"* (P7) and *"Before surgery, I knew what was going to happen and the possible consequences"* (P11). Additionally, involvement and openness of medical personal was reported as important: *"You can call the stoma nurses at any time to solve some issues that might occur"* (P1) and *"The enormous concern and dedication of the surgeon helped me a lot and felt very supportive"* (P6). Others reported to find it difficult to find answers to their questions: *"I would like to know if the symptoms I experience are normal"* (P9).

Conversely, also negative experiences regarding doctor-patient communication after complications have been reported: *"The surgeon who operated on me the first time never spoke to me after the complication, which I thought was a pity"* (P16). Furthermore, the way of communication might affect patient-doctor communication: *"Due to COVID-19 most of the appointments were by phone, therefore you cannot really discuss all your questions"* (P2). Waiting on results is reported as a factor on mental health: *"I have been waiting for 3 months on the results of genetic tests, which was quite long which bothered me"* (P2). Other negative factors that have been reported were: *"Usually I can sleep anywhere, but in the hospital, it was very bad"* (P12) and *"I had a pulmonary embolism which was detected quite late, this was a pity because, in hindsight, as I understood the symptoms were very clear"* (P3).

Discussion

This study aimed to explore and gain insights into patient perspectives on the consequences of colorectal cancer treatment for their daily life. Health deficits as consequence of colorectal cancer treatment that were reported were poor bowel

functioning, the presence of a stoma, chemotherapy-induced neuropathy of hands and feet due to chemotherapy, sexual dysfunction and fear of recurrence. Poor bowel functioning impacted daily life and activities, since patients reported to use the bathroom more frequently and had to pay more attention to their diet. Whereas, patients with a stoma reported to be afraid of stoma-related fecal leakage and uncontrollable flatus from their stoma in social situations. Patients who suffered from chemotherapy-induced neuropathy in hands and feet reported altered sensory functioning and pain during activities. Sexual dysfunction is reported to be a result of erectile function loss or ejaculation function loss. Also, the presence of a stoma or abdominal scars affected sexual functioning. Some patients reported to have an increased fear of recurrence when their follow-up appointment is coming up, and some reported that they trust their body less than before the diagnosis. Furthermore, social functioning is rarely affected. Also, coping style mechanisms seem to be different between patients: some patients do feel the need to talk about their situation, whereas others prefer not to speak about their colorectal cancer. However, overall, patients reported that daily life remains fairly unaffected by colorectal cancer treatment, since patients experience only minor interference with daily life. These findings suggest that various coping mechanisms are in place.

As witnessed from a prior conducted study by our group, patients report that over time their quality of life seems to be returning to preoperative levels, suggesting that they face no or minor challenges or treatment-related health deficits [10]. However, as also shown in the current study and other literature, patients who underwent colorectal cancer treatment may still experience various challenges and health deficits. These challenges and health deficits differ based on the treatment they received [20-23]. The findings of this study suggest that most challenges that are frequently reported after colorectal surgery are bowel related. The functional bowel complaints which these patients reported, were similar to the ones that are described in literature as low-anterior resection syndrome (LARS). However, the LARS-score was not formally determined in this study [24, 25]. It has been shown that quality of life in patients reporting LARS is significantly impaired [26, 27]. Still, patients with a stoma also reported specific stoma-related challenges, such as worrying about stool leakages and uncontrollable flatulence, which is consistent with previous literature [28].

In line with a prior study, postoperative complications can in some cases affect the doctor-patient relationship. This urges, amongst other reasons, preoperative counseling of patients with information of the risks of surgery [29]. A noticeable complaint that was frequently reported by patients in our study that underwent (neo-)adjuvant chemotherapy, was peripheral neuropathy. In accordance with existing literature, patients reported that symptoms decrease over time, but a large proportion of patients

keeps experiencing complaints [30-32]. These complaints of chemotherapy-induced peripheral neuropathy do, however, not affect global health status, but impair physical- and role functioning [31].

Another domain that is reported to be affected in this study, and in accordance with literature, is sexual functioning, which may be decreased as a result of colorectal cancer treatment [22]. As previously studied, sexual dysfunction may be caused by both surgery and radiotherapy. Additionally, the presence of a stoma is also described to negatively affect sexual activity in this study as well as in previous research [33-35].

Furthermore, previous studies have shown that coping strategies, to cope with treatment-related health deficits and challenges, differ between patients. This is similar to what was witnessed under the psychological functioning theme in this study [36]. Previous studies in both patients with ovarian carcinoma and colorectal carcinoma showed that patient may have various coping strategies, and that coping might even be enhanced as result of cancer survivorship [11, 12, 37]. The coping style that is used by patients might explain the underestimation of the effect of treatment-related health deficits (e.g., poor bowel function, chemotherapy-induced neuropathy) on quality of life, since patients are able to live a modified life with the use of various strategies and self-management techniques to maintain their quality of life [38]. Additionally, there is considerable individual variation between patients on how these self-management strategies are undertaken [39].

The knowledge acquired by this study on challenges that patients face after treatment could be taken in to account by making treatment decisions and by implementation of new treatment strategies [40, 41]. For example, recently, studies have reported a complete mesocolic excision as a new surgical technique for right-sided colon cancer, which entails a more extensive procedure to ensure adequate lymphatic resection [42]. While an alternative strategy might be to make the colonic resection more precise and potentially less extensive by performing a sentinel node procedure instead of a complete mesocolic excision [43]. In theory, a less extensive resection might lead to a lower rate of postoperative complications and better functional bowel outcome [44]. Additionally, in case multiple treatment options exist, information on postoperative consequences of the treatment on quality of life and the associated treatment-related health deficits may entail important information for patients during shared decision-making. Furthermore, as shown in this study, some patients reported that good preoperative education on the consequences of colorectal cancer treatment is important to them. Explicit patient consideration of their treatment and certain trade-offs are shown to have a positive effect on long-term quality of life, as it leads to increased acceptance of treatments' consequences [13, 26]. As shown in this study, after

colorectal cancer treatment, patients may face various treatment-related health deficits in various domains (e.g., psychological, social, physical) [20]. In addition, these patients have an increased risk of other health issues, such as adverse effects of treatments and psychosocial challenges [45, 46]. Therefore, optimizing post-treatment psychological-, sexual-, nutritional-, and cognitive functioning of colorectal cancer survivors could be an integral part of rehabilitation programs. However, some treatment-related health deficits may not be treatable, reliable outcome data on these sequelae may render important knowledge to incorporate in preoperative patient education and in shared decision-making.

Value based-health care

The insights of this study are important in light of the newly introduced management strategy value-based healthcare (VBHC). An important element of VBHC is measuring outcomes and costs for every patient [47, 48]. To measure patient outcomes uniformly, a standard set of patient-centered outcomes was developed by The International Consortium for Health Outcomes Measurement (ICHOM), including survival and disease control, disutility of care, degree of health, and quality of death [49]. Using both generic and disease-specific questionnaires. Trying to streamline implementation of the patient-reported outcome measurements, some have suggested only to use generic quality of life assessment strategies. However, this study shows that one must be cautious in only using these generic patient-reported outcome sets and quality of life questionnaires, since these might give a too limited image of the actual quality of life of a patient. As this study shows, colorectal cancer patients might still experience challenges and treatment-induced health deficits, [37, 50].

Strengths and limitations

First, in this study, differences in complaints were witnessed between sub-groups. However, to study significant differences between sub-groups, a quantitative study design is more applicable. Despite this, this study gives valuable insights into the quality of life and influential factors on daily life after colorectal cancer treatment. A strength of this study is, due to the qualitative approach of this study, complementary and more in-depth insights are gathered that add to previous quantitative studies [51]. Second, this was a single-center study in an academic teaching hospital with relatively advanced/complex cases, which might affect the generalizability. To overcome this issue, purposeful sampling was used to include patients with a different age, comorbidity, (neo-)adjuvant therapy, postoperative complications and stoma presence, therefore patient characteristics and complication rates are not representable for the general population. Third, interviews were held online and via Zoom, since interviews were partly conducted during the COVID-19 pandemic. This might have influenced the quality of the conversations with the participants. However, Shapka et al. showed

no differences in quality between face-to-face and online conducted interviews [52]. Therefore, we expect that our method of interviewing did not majorly affect our results. Last, the sample size in this study is small, but data saturation was reached. This means that no more forthcoming information or themes were gained in the last three interviews, as described by Hennink et al [16].

Conclusion

In conclusion, this explorative study shows that patients who underwent treatment for resectable colorectal cancer, face several challenges and treatment-related health deficits in the long-term, but that these challenges and health deficits lead to only minor interference with daily life. The reported minor interference might suggest coping mechanisms are in place. Frequently reported health deficits after colorectal cancer treatment are the presence of a stoma, poor bowel function, chemotherapy-induced neuropathy, fear of tumor recurrence and sexual dysfunction. The results of this study offer in-depth insights into patient perspectives on the consequences of colorectal cancer treatment. These insights are important in appreciation of generic quality of life questionnaires, in which post-treatment health deficits may be less clearly noticeable and therefore may be underestimated.

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