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RESEARCH PAPER

Investigating the nutritional advice and support given to colorectal cancer survivors in the UK: is it fit for purpose and does it address their needs?

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Keywords
advice, cancer survivor, colorectal cancer, nutrition, support, survey.

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Abstract

Background: The present study assessed the quantity and quality of nutritional advice and support given to colorectal cancer survivors in the UK.
Methods: A descriptive cross-sectional survey was completed by 75 colorectal cancer survivors recruited through social media and bowel cancer support groups in the UK. The survey consisted of open-ended and closed questions that aimed to explore the nutritional needs, nutritional advice given and other sources of information accessed by colorectal cancer survivors.
Results: Sixty-nine percent of respondents reported that they did not receive any nutritional advice or support from their healthcare team throughout diagnosis, treatment and post-treatment. Colorectal cancer survivors accessed nutritional advice from a variety of sources, mainly cancer charity websites. Respondents expressed their desire for individualised advice relating to their nutritional problems.
Conclusions: The results obtained in the present study indicate that a high proportion of colorectal cancer patients are not receiving the nutritional support that they need to overcome nutritional difficulties. There is an urgent need to improve clinical practice to ensure colorectal patients receive nutritional advice that is both consistent between healthcare professionals and personalised throughout each stage of diagnosis, treatment and post-treatment.

Introduction

Research into nutrition and cancer survival remains preliminary and has several limitations that prohibit its confident translation into specific guidelines for survivors of the disease. Guidance is available from the World Cancer Research Fund/American Institute for Cancer Research (1) from ESPEN (2) and colorectal-specific advice is available from American Cancer Society (3). Guidance tends to recommend that cancer survivors follow the general cancer primary prevention guidelines. However, adherence to these recommendations is poor (4) and baseline knowledge of general or specific risk factors is low in some populations (5). Colorectal cancer (CRC) survivors often experience physical, social and psychological problems at diagnosis, treatment and/or post-treatment with *sequelae* that persist for many years after diagnosis (6) Burden et al. (7) reported themes of 'appetite swings' and 'emotions on changing physicality' in CRC survivors who underwent surgery. These physical and psychological factors can negatively affect quality of life (8,9).

In the UK, the National Institute for Clinical Excellence (NICE) guidelines recommend that after CRC treatment patients should be offered comprehensive advice on managing the effects of treatment on their bowel function, including information on diet (as treatment may include partial resection or temporary or permanent stoma) (10). Furthermore, nutritional advice and education can be effective in improving the overall survival, quality of life and nutrition of CRC survivors during and after radiotherapy (11). Globally, multiple studies have shown that little nutritional information is given to CRC survivors. For example, in a New Zealand study, 67.5% of participants did not receive any dietary advice during treatment (12). In the Netherlands, 79% CRC patients received no dietary advice, with 15% reporting the need for dietary advice (4). Patients who received dietary advice were significantly more likely to make lifestyle change (13). Changes were more likely among survivors who had received advice, did not smoke, were younger than 65 years of age and with no stoma. An Australian study of CRC survivors' information and support needs in relation to health concerns (14) found that the most common theme was around the lack of nutritional advice and support with persistent bowel changes. In the UK, the National Institute for Health Research (NIHR) (15) 'Patient Experience Survey' explored the perceived gaps in nutritional advice and care given to patients with cancer (all sites), reporting that 72% of participants did not receive nutritional support from their healthcare team. The same study also reported the negative impact from the side effects of chemotherapy, weight changes and unmet need for advice on specific foods that patients should consume or avoid.

Qualitative studies have explored the opinions of CRC patients in relation to nutrition advice. Burden *et al.* (7) assessed the experiences of CRC patient with respect to nutritional issues and their relationship with food, noting that CRC patients would have found further information on weight gain useful and exhibited a desire for more nutritional advice. They concluded that CRC patients used trial and error to help themselves with nutritional problems. A separate study (16) reported that participants felt they had been generally well supported by healthcare professionals, although it highlighted a gap in support services surrounding diet and bowel function, and that specific input from a dietitian would have been beneficial. Participants in a study by Beaver *et al.* (17) understood that there is a relationship between diet and bowel function, although they questioned why there is no specific diet available following CRC surgery.

There is little analysis exploring the nutritional advice given to CRC survivors in the UK. The present study aimed to use a previously developed tool, The NIHR patient Experience Survey (15), to investigate the quality of dietary advice in patients living with and beyond CRC.

Materials and methods

Design

The present study comprises a descriptive cross sectional survey carried out in the UK. Ethical approval was obtained from The University of Sheffield, Medical School Ethics (Ref. 013666).

Data collection

This survey was slightly modified from the Patient Experience Survey produced by the NIHR Cancer and Nutrition Collaboration in 2015 (15) specifically to suit CRC survivor groups (see Supporting information, Section 1). The survey has six sections: 'about you', 'nutritional needs in cancer', 'nutrition support from your healthcare team', 'quality and consistency of advice', 'other sources of nutrition support' and 'gaps in nutrition and cancer', with a total of 15 open-ended and 32-closed questions. The survey was delivered online via Google forms (https://www.google.co.uk/forms/about), with paper copies available upon request. Participants were given the opportunity to be compensated for their time with either a £10 shopping voucher or were allowed to nominate a cancer charity to receive a £10 donation on their behalf. Data were collected between May and August 2017, and the survey was publicised via charities, support groups and social media (Facebook and Twitter).

Participants

Participants were eligible for inclusion if they were over the age of 18 years, lived in the UK and had an existing or previous diagnosis of primary CRC. All patients with a diagnosis of CRC were eligible to complete the survey regardless of the stage of the cancer or treatment. Caregivers were also welcomed to respond on behalf of those CRC survivors who felt sufficently unwell to be able to complete the survey themselves.

Statistical analysis

Statistical analyses were undertaken using SPSS, version 24 (IBM Corp., Armonk, NY, USA). Free-text data from the open ended questions were analysed using a reflexive thematic analysis approach [(18)]. Two of the researchers (MS and SLM) independently familiarised themselves with the open text responses. Responses to each question were coded and then clustered into initial themes. The researchers, together with the study lead, reviewed and finalised these themes. Pseudonymised quotations have been included throughout the results section with the aim of substantiating the quantitative data, adding depth and real-life context to our findings. Researcher reflexivity was encouraged throughout, supported by having no prior qualification, education or patient experience in this area.

Results

Sample characteristics

In total, 80 respondents completed the questionnaire (65 online and 15 by paper copy). One return was excluded because the respondent had cancer of the small intestine, and four were also excluded where the patient had a colorectal polyp or adenoma rather than cancer. Seventy-five responses were therefore included in the analysis. The majority of the respondents were female, aged between 60–69 years of age; respondents came from all nine NHS regions of the UK, with over 25% from the Yorkshire region. Sample characteristics are summarised in Tables 1 and 2. All respondents included some free text responses in addition to the quantitative part of the questionnaire.

Over half (56%) of the respondents had finished their treatment and were being monitored. There was an even split of respondents who had/have rectal cancer and colon cancer, with just under half (45.3%) of the respondents having a colostomy (Table 2). Qualitative data analysis carried out by the two researchers independently revealed similar key themes.

Nutritional problems

The most common reported nutritional problems were diarrhoea (73.3%), uncertainty as to what to eat (70.7%), appetite loss (61.3%), and changes to taste and smell (58.7%) (Figure 1). The free-text responses suggested that participants experienced unfavourable/adverse reactions to foods that were previously enjoyed and tolerated but that now caused ‘bowel problems’. They emphasised the physical issues with their bowel: stomach cramps, lack of control and chronic diarrhoea. In addition, one

Table 1 Summary of the demographic characteristics of the respondents to the survey

Respondent characteristics	*n*	%
Patient	70	93.3
Carer	5	6.7
Sex		
Female	50	66.7
Male	25	33.3
Age (years)		
30–39	6	8.0
40–49	7	9.3
50–59	22	29.3
60–69	24	32.0
70–79	11	14.7
80+	5	6.7
Location		
East Midlands	6	8.0
East of England	3	4.0
London	10	13.3
North East	6	8.0
North West	3	4.0
Northern Ireland	1	1.3
Scotland	2	2.7
South Central	6	8.0
South East Coast	3	4.0
South West	7	9.3
Wales	8	10.7
Yorkshire and the Humber	20	26.7

Table 2 Cancer characteristics of respondents, including current position in the diagnosis-treatment-living beyond cancer arc and whether they have a colostomy

Cancer characteristics	*n*	%
Stage		
Early	42	56
Advanced	33	44
Situation		
I am under active surveillance/watch and wait, but not yet started receiving treatment	1	1.3
I am currently receiving treatment	19	25.3
I have finished treatment and I am currently being monitored	42	56.0
I am receiving treatment for my symptoms, but I am not longer receiving treatment for my cancer	13	17.3
Cancer site		
Rectal	38	50.7
Colon	37	49.3
First cancer diagnosis		
Yes	66	88.0
No	9	12.0
Colostomy		
Yes	34	45.3
No	41	54.7

respondent explained that their bowel problems caused psychological issues, as they experienced:

> 'anxiety whilst travelling due to bowel issues' (Male, 70-79, early stage)

Nutritional advice received

The majority of respondents (69.3%) reported that they had received no nutritional advice in relation to their CRC from their healthcare team (rectal cancer = 78.9%, colon cancer = 59.5%). The reasons for this included: not offered advice (69%); did not know it existed (45%) and did not know they had access to it (24%). Four respondents also ticked the option 'I didn't think nutrition was important', one explaining that:

> 'the care team of colorectal nurses were interested only in physical aspects of progress. And would ask if bowel function were ok, but no mention of what might go in the other end!'

There was no significant difference between specific CRC sites (colon/rectum) and whether the respondent received advice ($P = 0.181$, not significant, chi-squared), nor according to colostomy status of the participants at the time they completed the survey, ($P = 0.703$, not significant, chi-squared). In the respondents who received nutritional advice and support ($n = 23$), 56.5% received it from a nurse, 34.8% from a general dietitian and 26.1% from a specialist cancer dietitian. This advice was given in different formats, with 73.9% receiving written advice and 47.8% face-to-face or telephone advice. Just over one-fifth (21.7%) of the respondents who had received advice reported that they had been placed on a special diet. Two respondents said they did not receive nutritional advice, but explained they were:

> 'told to eat what I wanted' (Male, 80+, advanced stage)

and:

> 'I had one session with a dietitian, but received no specific advice' (Female, 60-69, early stage)

For those patients who have received nutritional advice, Figure 2(A) shows that, at each treatment stage, the advice was most frequently about specific foods to eat, followed by foods to avoid and general healthy eating advice. At the diagnosis stage, advice on physical activity/exercise was as common as advice about specific foods to eat. After the treatment stage, advice about general healthy eating, specific foods to eat, foods to avoid and physical activity/exercise were equally received. Figure 2(B) shows a Venn diagram indicating the distribution of the advice given according to the stage of cancer treatment of the patients. Most of the participants received advice during treatment, and approximately one-half at diagnosis and after treatment, with the majority of those receiving advice (74%) already at the post-treatment stage.

Additional comments were made by four of the respondents on other types of nutritional advice they received. One respondent wrote:

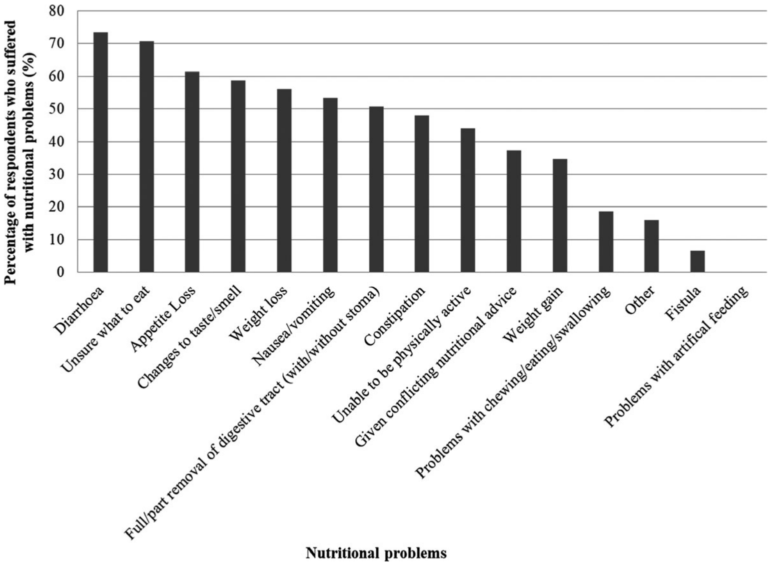

Figure 1 Nutritional problems reported by respondees. The percentage of respondents that reported with each nutritional problem is shown by rank order.

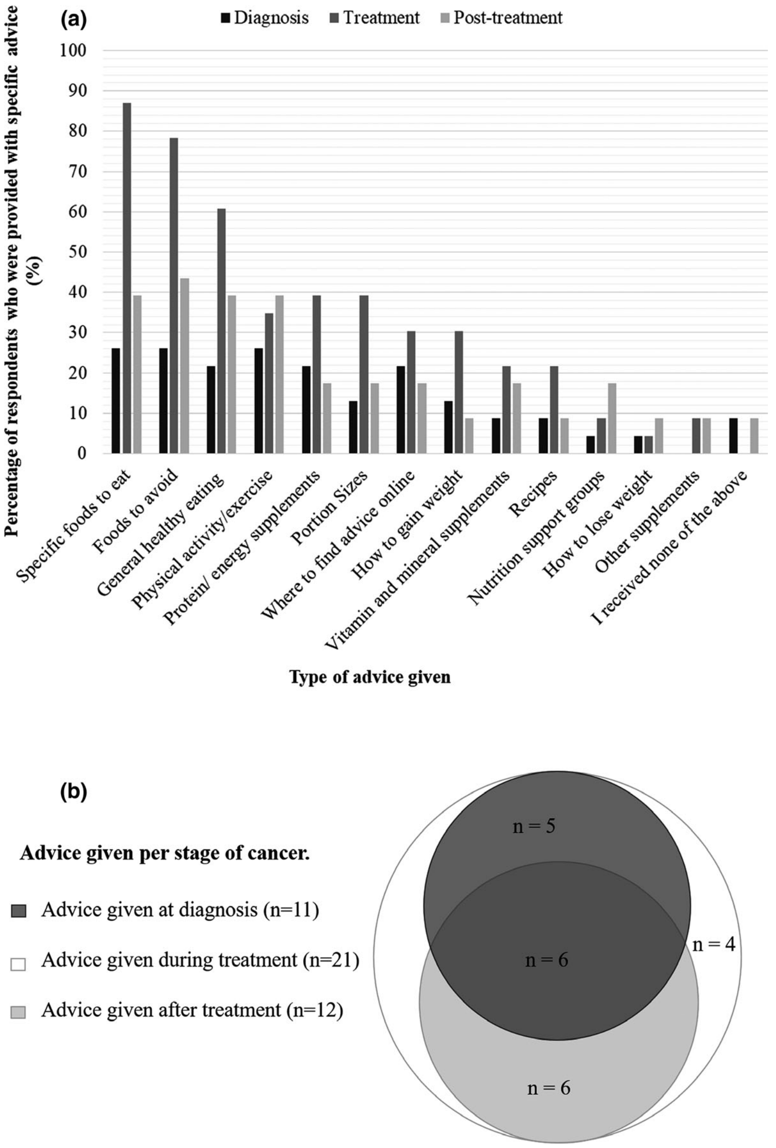

Figure 2 Type of nutritional advice received. (A) The percentage (out of participants who did receive advice) of respondents who received a particular type of nutritional advice at diagnosis or treatment or post-treatment. (B) Venn diagram of the stages of cancer at which participants received advice (*n* = number of participants).

> ‘[I was] encouraged to experiment with foods as each person reacted differently’ (Male, 70-79, early stage)

In the survey, respondents explained that knowing what foods to consume was down to ‘*trial and error*’. Three respondents said that they had received advice that fitted into the categories of ‘general healthy eating’, ‘nutrition support group’ and ‘specific foods to eat’.

Information about what specific foods should be eaten or avoided was collected. Responses included advice on avoidance of foods that had the potential to cause a blockage in their stoma; foods that can alter bowel function (i.e. fruit, vegetables, high fibre foods); and foods that can cause flatulence. Four respondents reported that they had been advised to follow a low residue/high fat diet. Respondent were uncertain when they should move from a low residue diet to ‘normal’ foods.

Patient opinion of nutritional advice received

Respondents who had received advice were asked to rate at diagnosis, treatment and post-treatment, ‘how well were your nutrition needs met?’, ‘how consistent was the advice you received?’ and ‘how easy was the advice to follow?' Opinions on the answers of the three questions were mixed (Figure 3). Three respondents explained that they felt they had received wrong or inappropriate advice commenting that:

> 'nuts and sweet corn appear anecdotal as I was able to eat them whilst I had my stoma' (Female, 50-59, advanced stage)

> 'advising eating sugar based foods seemed totally inappropriate' (Carer on behalf of patient, patient was male, 70-79, advanced stage)

> 'conflict on eating fibre or not' (Carer on behalf of patient, patient was female, 60-69, advanced stage)

Six respondents felt they received conflicting advice within healthcare teams and five respondents reported a perceived lack of consistency between healthcare teams. However, 10 respondents did not know whether there was consistency between healthcare teams.

Other sources of nutritional support

Respondents were also asked if they received any face-to-face or telephone advice about nutrition from other sources. Two-thirds of respondents (66.7%) did not receive any advice from other sources, whereas 16.0% said they received advice from cancer support groups. Most of the respondents (73.3%) reported that they had searched for alternative written sources of nutritional advice, which they had found helpful. Almost half had used cancer charity websites (49.3%), followed by online medical advice (29.3%) and recipe books (28.0%). The most frequented cancer charity websites were 'Macmillan' and 'Beating Bowel Cancer'. Respondents also used social media, including Facebook and patient blogs as a method of finding nutritional advice:

> 'you can see what works for other people with the same diagnosis which can help and try things without being too nervous' (Female, 30-39, early stage)

Using Internet sources for nutritional advice is most common in this data set. Respondents (16%) mentioned in their survey of being part of a cancer support group. One respondent stated:

> 'As a founder member of the bowel cancer group founded 2005. We found that the need was vital to have dietitian's advice, and by word of mouth with new and old group member' (Male, 70-79, early stage)

Another respondent stressed this:

> 'without the help I received from a Support Group, I would not have had the help I needed' (Female, 50-59, early stage)

Hospital food

The overall opinion of the suitability, nutritional quality, appropriateness, appetising nature and personal preference of the hospital food respondents received was mixed. Comments were more often negative (n = 16) than positive (n = 7). Respondents said it was 'terrible', 'poor quality', 'overcooked' and 'smelt awful'. On the other hand, some commented 'I enjoyed it', 'good range', 'diabetic menu available' and 'excellent'.

Three respondents expressed that their personal dietary preferences or intolerances were not taken into consideration. For example:

> 'Most desserts have milk and butter. I am lactose sensitive ... To put in the menu sheet I was lactose sensitive, I still got soups with cream' (Male, 70-79, early stage)

and:

> 'vegetarian assumption was you wanted curry – not suitable after a resection' (Female, 50-59, early stage)

Respondents felt that some hospital food is unsuitable after treatments such as a bowel resection. Those who were treated in a gastrointestinal ward had more positive:

> 'The food on my Ward was specifically designed for people with bowel problems ... and for those who have had surgery .... So low residue, healthy options, white food options, and some stodge!' (Female, 40-49, advanced stage)

Lifestyle advice other than nutrition

Just under half of the respondents (44.0%) received no lifestyle advice. Those who received lifestyle advice were recommended to increase their physical activity (34.7%), reduce sun exposure (24.0%), reduce alcohol consumption (13.3%) and stop smoking (6.7%).

Nutritional needs of colorectal cancer patients

Through thematic analysis of the qualitative data, three main themes emerged about the quantity and quality of

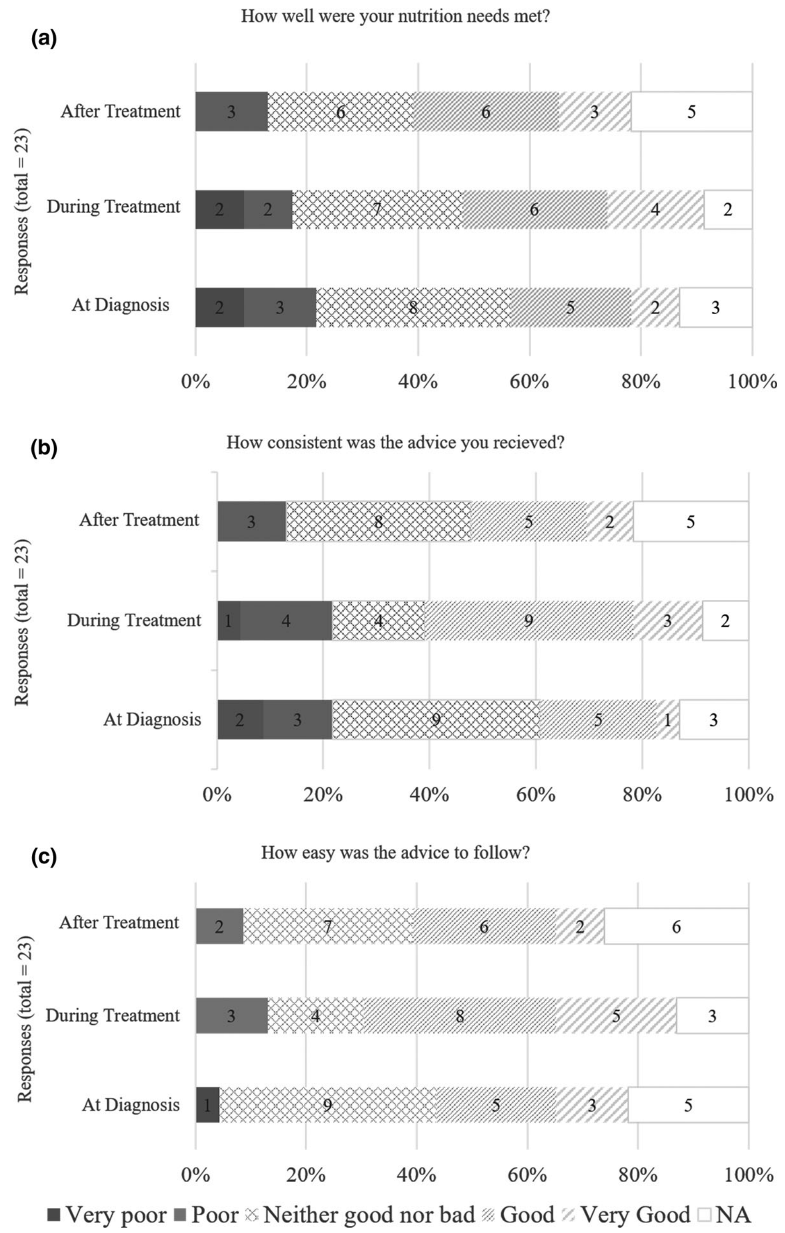

Figure 3 Opinion of the participants of advice received at each treatment stage. Data are expressed as a percentage of those who did receive advice, numbers within segments are the absolute numbers of responses to each question. (A) When asked how well their nutritional needs were met at each stage. (B) When asked how consistent was the advice they received at each stage. (C) When asked how easy was to follow the advice they received at each stage.

nutritional advice and support CRC patients would like to receive.

Theme 1: Lack of nutritional advice

Respondents stressed the importance of receiving advice through each stage of the disease process, diagnosis, treatment and post-treatment. Patients in the present study were interested in learning and expanding their knowledge on nutrition; specifically, what foods to consume or avoid, easily digestible foods and the effects of fibre on the body. Patients with stomas felt that there was conflict in the dietary information that was given specifically related to having a stoma. Frequently, respondents voiced their need to know more about risk factors related to CRC:

> 'I would like to know more about any definable correlation between diet and bowel cancer ... have only really heard speculation regarding processed meats, etc.' (Male, 50-59, advanced stage)

> ‘This [link between lifestyle factors and cancer] should then be communicated more robustly. I feel we are as a society too worried about hurting people’s feelings by telling them the risks posed by their choices’ (Female, 70-79, early stage)

Participants appeared to want different levels of advice. Some wanted to know the evidence behind risk factors, whereas others wanted to know what foods to avoid to prevent cancer. Repeatedly, respondents reported that they would like to know how to consume a healthy diet and reintroduce foods whilst avoiding any nutritional problems. Furthermore, they wondered how to achieve weight control healthily. To avoid diet related difficulties, patients tried to find which foods they could or could not tolerate by exposing themselves to them:

> ‘Because most people react differently at certain foods people need to experiment along with personal guidance’ (Female, 50, early stage)

> ‘Always eat small meals, eat often, don’t eat food that won’t break down, avoid food that gives you gas’ (Female, 60, early stage)

> ‘that just that although [advice was] well-meaning and gratefully received, none worked’ (Male, 50-59, advanced stage)

Theme 2: Individualised aid from healthcare professionals

The option of seeing a specialist to talk about nutrition and any relating concerns was something that participants valued. The most frequently mentioned healthcare professional was the ‘dietitian’. Participants explained that it would be beneficial to have the opportunity to seek individualised advice and ask questions about nutritional problems and conflicting advice they acquired from different sources:

> ‘All patients should be seen by dietitian before they have operation in the bowel’ (Male, 70-79, early stage)

Respondents stressed that individualised help would enable CRC patients to attain the right information:

> ‘getting the right information for each person, just because I can eat something does not mean it is the same for everyone’ (Female, 60-69, early stage)

Furthermore, that this would give reassurance that diet and lifestyle change are aiding their recovery and easing their symptoms.

Theme 3: Treatment side-effects and bowel function impairment hinder ability of following a healthy diet

Throughout the survey, respondents described the side effects of treatment they were experiencing. They expressed an interest in acquiring nutritional knowledge regarding how to overcome or ease their side effects (e.g. dysgeusia, nausea, loss of appetite and altered bowel habits). Patients found difficulty eating and digesting specific foods, which would vary from person to person. The most common food groups mentioned were fruits and vegetables, such as ’*uncooked onions*’ or ’*tomatoes*’, or in general, foods rich in fibre:

> ‘I am unable to eat fruit or vegetables – after surgery I was informed that my bowel would no longer be able to cope with these foods but would need to eat things which can be easily digested such as chocolate’ (Female, 60-69, early stage)

Often bowel difficulties were associated to having a stoma. Common problems were pain, diarrhoea, stoma blockages and odours. ’I eat the smallest amount of fibre to avoid severe pain and blockages’. Additional stoma related problems were ’ileostomy scars’; ’loose stool’ or ’anxiety when travelling due to diarrhoea/constipation issues’.

The conflict between healthy eating, and bowel difficulties was also reflected in advice they received or found, it was ’conflicting on eating fibre or not’.

Carer on behalf of patient, patient was female, 60–69, advanced stage

> ‘I have found that colostomy advice appears to be different to cancer advice’ (Female, 50-59, early stage)

Some participants attributed the cause of the difficulties to the treatment. For example, alteration of appetite made it difficult to find ’*tasty foods*’ and:

> ‘the only nutritional/dietetic hiccup was due to the effects of radiotherapy, not the cancer itself’ (Female, 50-59, early stage)

Discussion

The present study examined the quantity and quality of nutritional advice and support received by CRC patients in the UK. The data obtained provide insight into the gaps in nutritional care and support in CRC patients across the UK and are comparable in scale to previous studies (4,12,15). The application of a survey that collected quantitative and free-text data was shown to enrich and contextualise quantitative outcomes with respect to the nutritional advice and support that CRC patients receive, as well as nutritional problems that they experience and advice that they would find beneficial. Limitations of this work include that it was convenience sampling; by sampling survivor groups, it may skew towards individuals already seeking support; it is limited to a single cancer type; data on time subsequent to diagnosis/treatment were not included in the questionnaire and may obscure recall bias. Nonetheless, the findings align with a previous study using this questionnaire (15) and with the available literature in this area.

The present study corroborates the findings from previous work that used the same data collection tool (15). Gaps in nutritional advice have been identified that address the side effects of chemotherapy: weight changes and altered reactions to specific foods. Our findings add further detail to this relating to the impact of gastrointestinal problems. What has been reported suggests that CRC patients experience fewer problems with dysgeusia (distorted taste) and weight loss than reported the general (all-sites) cancer population, although a larger proportion are unsure what to eat, experience diarrhoea and had a full/part removal of the digestive tract (with/without stoma) impacting on their quality of life. Not surprisingly, these nutritional problems are more specific to CRC, as a result of the treatment burden of surgery, radiotherapy and chemotherapy (7,19). Overall, the present study suggests that there is in general a lack of nutritional advice and support given to CRC patients (with or without a stoma) and those who do receive advice have mixed experiences. These findings are also consistent with those reported in previous studies by Pullar *et al.* (12) and Winkels *et al.* (4) that were conducted in New Zealand and the Netherlands, respectively.

It appears that commonly received advice by participants was around the consumption or avoidance of specific foods as a result of treatment-associated digestive issues. This is in contrast to the general cancer population who most commonly received generic healthy eating/cancer prevention advice (15). Through the qualitative analysis of the free-text data, it appears that advice when it was given to CRC patients, focused more on resolving nutritional problems rather than general healthy eating. Nonetheless, the majority of respondents had not received advice, sought nutritional advice from other sources and reported a lack of information available to them at each stage of the cancer journey and treatment process. The NICE CRC guidelines, state that; 'After any treatment, offer all patients specific information on managing the effects of the treatment on their bowel function. This could include information on incontinence, diarrhoea, difficulty emptying bowels, bloating, excess flatus and diet and where to go for help in the event of these symptoms' (NICE, 2011) (10) and is reinforced by calls from the patient community (20). This survey suggests that, in the UK, those guidelines are not being met. Many respondents felt that there was no nutritional support after treatment and no long term help once leaving the hospital. Peritherapeutic guidance is valued by CRC patients, particularly where consolidated by multiple healthcare professionals (21). Post-treatment guidance has been found to ease symptoms and fears about food choices in CRC patients (22) and the findings from the present study confirm that people that have been diagnosed with CRC would find this beneficial. Furthermore, respondents expressed that they would like to have access to dietitians. This is something that is consistent with the findings from Brown, Greenfield and Thompson (16). Individualised advice has the potential of empowering CRC patients by providing them the tools to overcome the nutritional problems they are facing. As stated earlier, previous research has found low adherence to the World Cancer Research Fund/American Institute for Cancer Research general guidelines for diet after cancer, in CRC patients (4,23). In the present study, less than one-third of respondents reported that they had been advised to reduce alcohol consumption or increase their physical activity, suggesting that CRC survivors may not be adequately aware or informed of other risk factors of CRC and cancer prevention guidelines.

Implications for practice

Our findings suggest that there is a lack of nutritional advice and support for CRC patients, especially with respect to the side effects of treatment. Patients consider it important to develop nutritional advice that is personalised and tailored to each phase of the cancer journey: throughout diagnosis, treatment and post-treatment relative to the nutritional problems that CRC patients experience. Distinct skillsets and approaches for healthcare professional engagement are needed across that axis (24).

Although consultations with dietitians may give CRC patients the best support, it is likely that such an approach would be challenging to resource. As patients respond to reinforced messaging (18) and may receive advice from (or approach) other healthcare professionals, including nursing staff and oncology specialist nurses, there may be value in ensuring that the healthcare team is empowered through the development and delivery of accredited continuing professional development in nutrition and lifestyle to support confident advising. Following treatment, there is a role for support groups and third sector/public health agencies with respect to continuing the dissemination of guidance for healthful living because the present study identified charities as a recognised source of reliable information by patients. Evidence suggests that print materials and telephone consultations are practicable with diet and lifestyle advice interventions in CRC survivors (25,26). The changes in clinical practice in response to the COVID-19 pandemic have normalised telephone and online consultations, and there is an opportunity to transform future healthcare provision as a result. (27). As the population ages and consequently the CRC patient population cohort becomes more technology-embracing, electronic personalised feedback could be a solution to the large-scale provision of personal dietary guidance (28). Notwithstanding the medium, a critical challenge for advice in cancer survivorship is the ongoing evidence gap for optimal dietary strategies to prevent recurrence. This unmet need urgently requires addressing (24).

Conclusions

Less than one-third (30.7%) of CRC patients received nutritional advice from a healthcare professional. Where received, this advice does not meet patient expectation, and can be generic and unsuited to the individual's needs; CRC patients would like to have nutritional advice and support given by healthcare professionals, specifically dietitians.

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Conflict of interests, source of funding and authorship

The authors declare that they have no conflicts of interest.
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SLM and MSG undertook the primary data collection, analyses and drafted sections of the manuscript. VH supervised and directed the collection and interpretation of the qualitative data. EAW co-supervised the project and directed the interpretation and analysis of the quantitative data. BMC conceived and supervised the project and drafted the manuscript. All authors had a significant role in the reviewing, editing and interpretation of this paper. All authors critically reviewed the manuscript and approved the final version submitted for publication.

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