ACTA ODONTOLOGICA SCANDINAVICA
2020, VOL. 78, NO. 5, 362–369
https://doi.org/10.1080/00016357.2020.1728377

Taylor & Francis
Taylor & Francis Group

ORIGINAL ARTICLE

Patients' and health professionals' experience of the Danish fast track treatment pathway for head and neck cancer patients receiving oral rehabilitation

Lærke Fromm Andersen[a], Irene Wessel[b], Klaus Gotfredsen[a] and Esben Boeskov Øzhayat[a]

[a]Section of Oral Rehabilitation, Department of Odontology, University of Copenhagen, Copenhagen, Denmark; [b]Department of Otorhinolaryngology, Head and Neck Surgery and Audiology, Rigshospitalet, Copenhagen, Denmark

ABSTRACT

Objective: This study aims to investigate the responsiveness of the Danish treatment pathway for head-and-neck-cancer (HNC) patients receiving oral rehabilitation.

Material and Methods: Eighteen HNC-patients who had received oral rehabilitation as well as five medical and four oral health care professionals involved in the treatment of HNC-patients filled in a questionnaire on responsiveness. The responsiveness was further described in individual interviews in the HNC-patients and focus group interviews in the health care professionals. All interviews were semi-structured and analysed using the grounded theory.

Results: Patients and health care professionals overall reported good responsiveness of the pathway. Prompt attention was in both groups considered the most important aspect, although the patients found it difficult to cope mentally with the fast-track and the health care professionals reported insufficiencies giving prompt attention. The patients in general described a good relationship with their health care professionals, but along with the health care professionals also reported some problems regarding communication. Further, the health care professionals reported a gap between medical treatment and oral rehabilitation.

Conclusions: The Danish treatment pathway for HNC-patients was, in general, evaluated positively. Communication and relationship between patient and health care professional can affect the responsiveness of the pathway.

ARTICLE HISTORY
Received 3 July 2019
Revised 8 January 2020
Accepted 6 February 2020

KEYWORDS
Head and neck neoplasms; patient satisfaction; health services; delivery of health care; Denmark

Introduction

Worldwide more than 500,000 people are diagnosed every year with head and neck cancer (HNC) and the incidence is increasing [1,2]. Also in Denmark the incidence has increased and about 1600 new patients are diagnosed with HNC yearly, resulting in a prevalence in the Danish population of roughly 14,000 [3]. The Danish health care system is primarily tax-funded and provides free access to many health care services including investigation and treatment for cancer [4]. The treatment of cancer is in Denmark further systemized in structured fast-tracks called treatment pathways [5]. These were introduced in 2007 to improve the treatment by giving the patient a well-organized treatment course and removing unnecessary waiting time, and thereby improving the survival, prognosis and quality of life [6]. The treatment pathway describes communication, coordination, and timeline during elucidation, treatment, and follow-up. This includes a description of surgery, radiation therapy and chemotherapy as well as rehabilitation after the cancer treatment [5,6]. All aspects of the cancer treatment including the oral rehabilitation performed immediately following cancer in HNC patients are publicly paid and free to access if indicated.

Until now, the focus when evaluating fast-track treatment pathways for HNC patients have mainly been on time, including waiting time [7–9], time spent on treatment [5,9], and factors influencing delay in treatment [10,11]. The studies all found that time spent decreases as a result of a fast-track. This focus on time is justified as delay in HNC treatment has been related to poorer survival [11,12]. However, HNC and treatment hereof has a potentially devastating impact on HNC survivors' life [13]. Because of this and because satisfaction with the treatment course is positively associated with the clinical outcome [14], it is necessary also to investigate patients' and health care professionals' experiences of the treatment pathway. In this way, we can learn how to optimize the treatment course, which could result in better treatment outcome, including survival and quality of life [15].

Such an evaluation is very much in line with the World Health Organizations (WHO) notion of responsiveness of a health care system [16]. Responsiveness is defined by the WHO as 'non-clinical aspects related to the way individuals are treated and the environment in which they are treated' [16], and they recommend asking patients of their experiences to investigate the responsiveness [16]. Further, as it has

CONTACT Esben Boeskov Øzhayat eboz@sund.ku.dk Section of Oral Rehabilitation, Department of Odontology, University of Copenhagen, Nørre Allé 20, Copenhagen, DK-2200, Denmark

Supplemental data for this article can be accessed here.

been shown that commitment from all professionals in the health care system is necessary to implement a fast-track treatment pathway [9], it seems natural to involve relevant health care professionals in such an investigation.

This study aimed to use a combined quantitative and qualitative approach to investigate the Danish treatment pathway for HNC-patients who subsequently have received oral rehabilitation. The results will be of benefit for both patients as well as national and international systems in improving and developing HNC-treatment courses. Further, the results of this study will be useful in identifying interventions that may improve the treatment pathway.

Material and methods

Participants and recruitment

The patient-perspective came from HNC-patients from The Capital Region of Denmark who had received treatment for HNC according to the Danish treatment pathway at Rigshospitalet between 2007 and 2016. The patients should subsequently have received oral rehabilitation at either the Specialized Clinic for Prosthodontics at the Department of Odontology, University of Copenhagen or at a private dental clinic with specialty in treating HNC-patients. As we aimed at involving the oral rehabilitation phase in the investigation, the starting point for recruiting participants was the patient lists at the clinics performing the oral rehabilitation. The HNC-patients were invited to participate by telephone or/and letter. Informed written consent was collected from the participants, including permission to access their medical journal from the hospital.

The health care professional perspective came from two groups treating HNC patients in different stages. The first group was involved in the treatment of cancer and consisted of two medical doctors, two nurses, and one occupational therapist. The other group consisted of oral health professionals involved in the patients' oral rehabilitation and included three specialized dentists and one dental nurse. In the results, the health care professionals are referred to as HC1–HC9.

The Danish Data Protection Agency gave permission (j.no. SUND-2017-33) and The Research Ethics Committee for SCIENCE and HEALTH at the University of Copenhagen, approved the project (j.no. 504-0020/17-5000).

Data collection

Data collection took part from September 2017 to February 2018. In the HNC-patients, explanatory variables were obtained from their medical journal and an oral examination. The responsiveness was obtained by a questionnaire and subsequently individual interviews. The health care professionals likewise filled in a questionnaire on responsiveness individually before focus group interviews were undertaken.

By applying a mixed methods approach in the investigation, the strengths of both quantitative and qualitative methods are combined [17]. The mixed methods approach was ensured by using the quantitative and qualitative rigorously and further by integrating both the data collection and the results from the two methods [17].

Explanatory variables

Besides age and gender, the following medical variables were registered: years since diagnosis, location of cancer (c. cavum oris/other type), comorbidity according to the Charlson Comorbidity Index [18] (yes/no), whether the patient had received radiation therapy (yes/no) and TNM stage according to The Union for International Cancer Control [19] (stage I + II/stage III + IV). Oral variables consisted of: number of teeth replaced by a removable prosthesis, and type of removable prosthesis (full/partial).

Responsiveness questionnaire

The responsiveness questionnaire was developed by WHO and originally consists of 74 items within eight domains: *prompt attention, dignity, clear communication, autonomy, confidentiality, choice of health care provider, quality of basic amenities, and access to social support networks* [16]. The questionnaire was used in a Danish form that has prior been rigorously translated and used in a Danish population [20]. Forty-nine of the questions were irrelevant for our study and were excluded, which resulted in a shorter version with 25 items covering the eight domains of responsiveness (see Supplementary Appendix). A version of this questionnaire for use in the health care professionals was created, by changing the words in the questions, having the professionals rating their own and the systems performance.

Twenty-four items (Table 2) were rated on either a four- or five-point Likert scale. The scores from all questions were added to yield an overall score of 24–109 with a higher score indicating a worse impression of the treatment pathway. In the 25th question, the participant was asked to nominate the most and the least important of the eight domains in their opinion.

In questions with four-point ratings, a score of three and four was considered poor, while scores four and five were considered poor if the question had a five-point rating. Questions with at least three poor evaluations or an evaluation in the poorest category were registered as problematic items.

Interviews

Individual interviews were preferred in the patients because of the private nature of the disease. In the health care professionals, two focus groups consisting of the medical and oral health professionals respectively were preferred.

All interviews were semi-structured [21], using an interview guide consisting of the eight domains from the responsiveness questionnaire. Before the interview started the purpose of the study was explained and the participants were asked for permission to audio record the interview. The interviews took place in a quiet non-clinical office with a closed door and the interviewer used private clothing and was seated next to the patient.

During the interviews, all answers and comments regarding the topics were, if indicated, followed up by the interviewer by supplementary questions. Further, patients were

allowed to give statements outside the topics if the interviewer found it relevant for the overall understanding of their view. The interview continued until the interviewer considered that the topics in the interview guide were covered.

Recordings were transcribed and analyses were performed with focus on the pre-determined responsiveness topics and other relevant topics. The first step in the analysis was thus concept-guided coding of the data where statements of interest were coded in concepts as described in the grounded theory [21,22]. After coding, the concepts were grouped into higher-level categories [22], which as a result of the semi-structured nature of the interviews, often are the same as the pre-determined topics. A category was, however, only developed if solid coding was present [22], and new categories could also emerge. Analyses started immediately after the first interview and continued ongoing to include any new topics as soon as possible in the following interviews. This also allowed determination of when saturation was reached, i.e. when no new insights or information were identified in the interviews [21]. When saturation was reached, the inclusion of patients stopped.

Statistics

SPSS version 23 (SPSS, Chicago, IL) was used to perform the statistics on the quantitative data. The significance level was $p < .05$.

To test if the responsiveness scores could be considered normally distributed the Kolmogorov-Smirnov and Shapiro–Wilk tests for normality as well as histograms and Q–Q plots were used. It was found that the scores could be considered as normally distributed and parametric tests were performed.

Two sample *t*-tests were used to test for differences in the patient-reported responsiveness score within dichotomous explanatory variables (gender, location of cancer, TNM-stage, comorbidity, radiation therapy, and type of removable prosthesis). Spearman's correlation was used to test the association between the continuous explanatory variables (age years since diagnosis, and number of teeth replaced) and the responsiveness score. A multiple linear regression analysis with the responsiveness score as outcome variable was performed including all explanatory variables.

Chi-square tests were used to test for differences between patient and professional reports of poor evaluation of the items in the responsiveness questionnaire.

Results

Quantitative data

From the patient lists, a convenience sample of 27 HNC patients who had received oral rehabilitation were identified and 18 (P1–P18) were included. The recruitment and inclusion of participants are shown in Figure 1.

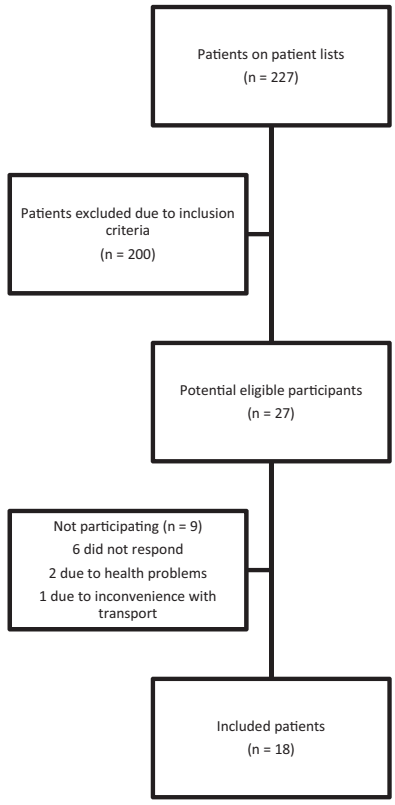

Figure 1. Recruitment and inclusion of participants.

Means and distribution of the explanatory variables in the patients are shown in Table 1. A large range in age, years since diagnosis, and number of teeth replaced is seen. Further, it is seen that most patients had oral cancer, did not have co-morbidity, and had radiation therapy. The participants had a large number of teeth replaced, mainly in the upper jaw.

The mean responsiveness score in the patients was 36.28 and in the health care professionals 46.67. None of the explanatory variables were found to affect the patient-reported responsiveness score significantly (*p*-values $>.08$).

The frequency of poor evaluation in the responsiveness questionnaire is shown in Table 2. The frequency of poor evaluation in the patients was 5.3% with problematic items primarily belonging to the domains *clear communication* and *autonomy*. The frequency of poor evaluation in the health care professionals was 10.2% with problematic items primarily belonging to the domains *prompt attention* and *choice of health care provider*. The health care professionals reported a significantly higher frequency of poor evaluation in the items *get care as soon as wanted* ($p < .01$) and *overall rating of being able to use a healthcare provider or service of your choice* ($p = .04$) compared to the patients.

The distribution of the nominated most and least important domain is shown in Table 3. It is seen that the most important domains reported by the patients were *prompt attention*, *dignity* and *clear communication*, whereas the domain *social support* was nominated as the least important. The most important domain as nominated by the health care professionals was *prompt attention* and the least important *choice of health care provider*.

Qualitative data

HNC-patients

No new information was obtained after seventeen interviews (P1–P17) and saturation was thus reached at this point. Besides the eight domains from the responsiveness-questionnaire, two new domains, *number of practitioners* and *relationship to caregiver*, emerged from the analyses of the interviews.

Prompt attention. The time before diagnosis was by five participants experienced as frustrating and they considered the time before having the initial cancer diagnosis as taking too long as a result of hesitating health professionals.

> 'I think it was a too long time. I believe it was three-four months. (…) It could have been faster.' (P2).

When the diagnosis was established, all patients experienced prompt attention and rapid initiation of their treatment at the hospital.

> 'It went incredibly fast. (…) So from that point, it all started, then it went fast.' (P1).

Even though the accelerated treatment course was considered important with respect to being cured of the cancer, five participants found it hard to cope mentally with the pace.

> 'It goes incredibly fast. But of course, that is also nice. (…) It was more mentally in my head that I couldn't keep up.' (P2).

The controls following the cancer treatment and the dental treatment were in general found to have an acceptable time frame.

Autonomy. The participants, in general, felt well informed about the treatment they received but were usually not asked to choose between different treatments modalities. This was, however, not considered a major problem, as the health care professionals were thought to be more qualified

Table 1. Distributions and frequency of explanatory variables.

Variable	Mean/frequency
Mean age in years (range)	70.2 (52–93)
Gender	
Male	12 (66.7%)
Female	6 (33.3%)
Mean years since diagnosis (range)	4.2 (1–10)
Location of cancer	
Oral cancer	11 (61.1%)
Other cancer type	7 (38.9%)
Comorbidity	
Yes	5 (27.8%)
No	13 (72.2%)
Radiation therapy	
Yes	12 (66.7%)
No	6 (33.3%)
TNM stage	
I + II	6 (33.3%)
III + IV	11 (61.1%)
No data	1 (5.56%)
Mean number of teeth replaced (range)	15.9 (4–26)
Type of prosthesis	
Full prosthesis	10 (55.6%)
Partial prosthesis	8 (44.4%)

Table 2. Frequency of poor evaluations in the responsiveness questionnaire.

Domain and item	Patient-reports ($n = 18$)	Professional-reports ($n = 9$)
Prompt attention		
1: Get care as soon as wanted[a]	1	5
2: Overall rating of getting prompt attention	0	1
Dignity		
3: Health care providers treats with respect	1	1
4: Office staff (receptionists or clerks) treats with respect	1	0
5: Privacy is respected	0	2
6: Overall rating of getting treated with dignity	0	1
Clear communication		
7: Health care providers listen carefully	1	1
8: Health care providers explain things in an understandable way	2	1
9: Health care providers give time to ask questions about health or treatment	3	1
10: Overall rating of how well health care providers communicated	0	0
Autonomy		
11: Health care providers involve as much as wanted in decisions	4	0
12: Health care providers ask permission before starting tests or treatment	5	0
13: Overall rating of getting involved in making decisions as much as wanted	1	0
Confidentiality		
14: Talks with healthcare provider done privately	1	1
15: Health care provider keep personal information confidential	0	0
16: Overall rating of the way the health services kept information confidential	0	0
Choice of health care provider		
17: Get to a health care provider you were happy with	1	1
18: Overall rating of being able to use a healthcare provider or service of your choice[a]	1	4
Quality of basic amenities		
19: Basic quality of the waiting room	0	1
20: Cleanliness of the places	0	1
21: Overall rating of the quality of the surroundings	0	0
Access to social support networks		
22: Allow family and friends to take care of personal needs	1	1
23: Practice religious or traditional observances	0	0
24: Overall rating of allowing interaction with family, friends and to continue customs	0	0

A score of 3 and 4 were considered poor in questions with possible scores ranging from 1 to 4, while score 4 and 5 were considered poor if the possible answers ranged from 1 to 5.

[a]Denotes significant difference between patient and professional report.

Table 3. Most and least important domains of responsiveness.

	Patients		Professionals	
Domain	Most important	Least important	Most important	Least important
Prompt attention	5 (29.4%)	0 (0%)	4 (44.4%)	0 (0%)
Dignity	4 (23.5%)	0 (0%)	1 (11.1%)	0 (0%)
Clear communication	4 (23.5%)	1 (5.9%)	2 (22.2%)	0 (0%)
Autonomy	1 (5.9%)	0 (0%)	2 (22.2%)	0 (0%)
Confidentiality	2 (11.8%)	0 (0%)	0 (0%)	1 (11.1%)
Choice of health care provider	1 (5.9%)	1 (5.9%)	0 (0%)	4 (44.4%)
Quality of basic amenities	0 (0%)	1 (5.9%)	0 (0%)	1 (11.1%)
Access to social support networks	0 (0%)	14 (82.3%)	0 (0%)	3 (33.3%)

to choose the right treatment than the HNC-patients found themselves.

> 'What it should be (which treatment modality) I let the doctors decide because they are the experts in the field.' (P17).

Two participants chose an alternative treatment modality than recommended from the hospital and found their autonomy being accepted by the staff.

Dignity. All participants responded to having a general experience of being treated respectfully and with dignity.

> 'I feel that at the hospital I have been given a very nice treatment and also at the dental clinic. (…) And in a very nice atmosphere.' (P5).

Communication. The participants, in general, found that the communication had mostly been clear and that the health care professionals took the time needed to explain diagnosis, treatments, etc. and answer questions from both the patient and next of kin. It was further found that respectful and clear communication was appreciated among the HNC-patients as a cancer diagnosis has many negative connotations, which makes it important to feel well informed and able to ask questions.

> 'Of course I had to ask questions once in a while, because I'm not a doctor, and there are some things you don't understand right away. Then they just had to explain it in another way. And then I understood.' (P3).

Six participants reported, however, that the communication had not always been clear and the participants did not find themselves informed as much as they wished, especially regarding side effects from the treatments.

> 'No, they never told me, and my wife confirms, that the radiation therapy would mean my glandule down here would not work anymore. (…) I believe that was an important piece of information.' (P12).

Confidentiality. All participants found the confidentiality very good, always being in a private room with doctors when important information was given. Two participants, however, reported a couple of bad experiences regarding confidentiality. One had been given important results and information in a non-private room, and one found that the dental clinic was to open and not very confidential.

Social support. Having a relative or friend by their side during conversations with doctors as well as during the treatment was reported as being of great importance and a great help in both emotional and practical ways. The patients could often not remember all the information that was given and having a husband/wife/child/friend by their site made it easier to remember and to process the experience mentally afterward.

> 'I listen, I listen, but I don't hear anything. (…) There's a lot I don't remember afterward.' (P16).

Participants who after treatment had engaged in social support activities, such as going to lectures on being a cancer patient, talking to people in the same situation, and being member of support groups, had positive experiences regarding this.

Relationship to caregiver Fifteen participants mentioned specific caregivers as being very important in their treatment, mostly in a good way. These individuals meant a lot to the patients. A good relationship and chemistry, and a feeling of these individuals took a personal interest in the patients and their treatment was evaluated highly positive among the patients.

> 'X is an amazing person, also at explaining. (…) It's like you feel, you're the only one in the world who gets all X's attention in the moment you're there, right?' (P1).

On the other hand, individuals treating the patients in a bad way, creating a poor relationship, also made great impressions on the patients in a bad way.

'I almost kicked X out of the room. Well, you don't do that. With seriously ill people you don't come in and act like a clown, do you?' (P1).

Number of practitioners. The HNC-patients had contact with a lot of different health care professionals during their treatment. Of the eleven participants commenting on the number of practitioners, two reported that many practitioners were ok while nine said that they preferred fewer practitioners because it was easier to build a good relationship and felt more confidently.

> 'It was a new doctor, a new doctor every time. (…) Annoying to put it mildly. (…) Every time you come in they have to sit and read it all to know how and why. Everyone does it differently. (…) To me, the most important and best was to have the same people.' (P14).

Quality basic amenities. Besides a few comments on the cleaning at the hospital and waiting areas being a little small, the facilities, in general, were rated as fine. In general, the patients were glad about being treated at a hospital close to their home.

Health care professionals

In the focus group with the medical health professionals working with the cancer treatment, the general opinion on the treatment pathway was positive.

Especially the prompt attention was found to be well-functioning and much faster than before the treatment pathway. They found that sometimes it seems to be a challenge for the patients to cope with the fast approach but that they will manage afterward and then be glad that the treatment was initiated fast.

> 'They straight out tell us, that they are very happy that it goes so fast, but that they are having trouble coping with it.' (HC3)

The personnel experiences that the patients appreciate when having the same practitioner more times but explained that this is not always possible and advisable.

> 'Technically, it is simply not possible. Doctor X has been operating for a hundred years. She simply can't see them all.' (HC2).

The biggest challenge in this group was the feeling of being too busy which takes time from the individual patient. A lot of complaints were in this regard made about the newly implemented chart system at the hospital which was found to take time and focus away from patient care.

> 'It takes the time we don't have, right? (…) We turn our back on them (the patients) in 15 minutes to ordinate something meaningless, where we used to be able to sit and communicate.' (HC2).

Another challenge in this group was identified as it was mentioned that some of the staff did not have good enough abilities in communication. More education in this field was thus sought by our informants since they were aware of the great impact of good communication with the HNC-patients.

> 'A person's perception of how good a communicator they are is not necessarily the way it really is.' (HC2).

Also, the staff pointed out that it was not always clear how the patient should be referred to oral rehabilitation after cancer treatment.

> 'When the treatment is over, then it's like nobody who knows, or at least I don't know, who should do what.' (HC5).

In the oral health professionals, there was a general opinion that the referral from the hospital to dental clinics was inadequate. They found that often the patient is not well informed of options of oral rehabilitation, about oral side effects from cancer therapy, and where they can seek help to get oral rehabilitation. The dental practitioners found this to be unworthy for the HNC-patients.

> 'The biggest problem is that the patients don't know anything about the legislation, know nothing about the possibilities for support. Absolutely nothing. And it is completely random whether they are told anything or not. There are lots who don't know that they have this option. There are lots of them out there.' (HC8).

The group found a need for dental treatment in HNC-patients to be performed at specialized clinics since they had often experienced HNC patients who had been treated at a random dental clinic with very poor results. The group further believed that 'strong' individuals will more often demand a good oral rehabilitation and therefore seek up dentists with a lot of experience whereas the informants found more 'week' individuals, often with poor social support, to be subjects with poor or no oral rehabilitation.

> 'I find it disastrous that some people are running around, who just went through an enormous treatment course, and then they have to consider which dentist to choose, I mean who can do this and who can't, right? You don't have any chance of having an opinion about that, right?' (HC6).

These shortcomings meant that the group believed that early involvement of oral health professionals and an interdisciplinary approach in the treatment pathway was important.

> 'Well, it makes the world of difference (an early interdisciplinary approach). It means, when a resection is performed, and implants are planned with a bridge afterward, it is done' (HC7)

Discussion

Both patients and health care professionals, in general, rated the responsiveness of the Danish HNC-treatment pathway highly positive both in the questionnaires and in the interviews. To increase the usefulness of our results, the discussion will primarily concern the domains that were found most important and those still with challenges to be improved.

Concerning the quantitative results, we did not find any variables significantly influencing the responsiveness score. This is probably because of the ceiling effect, the small number of patients, the heterogeneity of the patients, and because the explanatory variables used were not comprehensive enough.

Early detection and treatment of HNC are important to increase the probability of survival [12,23], and prompt attention was therefore not surprisingly evaluated to be one of the most important domains by both the patients and the health care professionals. Interestingly, the health care professionals in the questionnaire reported that treatment was not always given to the patient when the patient wanted it, whereas this was not considered a problem in the patient reports. This is probably related to our qualitative finding, that even though the patients preferred fast treatment to increase the chances of getting cured, this period is stressful and it can be hard for some patients to cope mentally. This is in line with the findings in a qualitative study in twenty Danish HNC patients going through an accelerated treatment course; fast treatment was most important, but the course was experienced as overwhelming and chaotic [24]. Like in our study, it was also found that good information and communication, as well as a good personal relationship with the staff, was considered very important for the HNC patients [24]. These findings are consistent with other studies concluding that interaction between patient and staff is of great importance to the patient's well-being, satisfaction and to feel positive [14,25], and that failure in an interpersonal

relationship often triggers complaints [26]. This emphasizes the importance of health care professionals to take the time to interact with the patient. Unfortunately one of the negative aspects in the health care professional interview was in fact lack of time and time not spent on interaction.

The interviews with the health care professionals highlighted a gap between the medical and oral treatment; the transition from hospital to the dentist is a challenge. The oral health care professionals in our study suggested that better coordination and a multidisciplinary approach are needed to improve the oral care for HNC-patients. The benefit of integrated oral care in HNC patients was likewise suggested in another study showing that HNC patients in the USA did not receive proper oral care due to problems with continuity of care, cost of care and poor communication [27]. The oral health care professionals suggested that they could be involved at an earlier stage and a plan for oral rehabilitation integrated in the complete treatment plan. Success with such an approach was reported in a study finding that a planned dental treatment performed during the treatment of HNC improves the quality of life [28]. Obvious interventions in this regard would be to have a dentist present at the hospital and/or an increased and early dialogue about treatment plans between the medical doctors and the dentists. This would most likely result in more HNC patients receiving oral rehabilitation and of a higher standard, which in turn would improve their quality of life [29,30].

The mix of quantitative and qualitative methods is rather unique compared to other evaluations of patient satisfaction with fast-track cancer treatment and is considered a great strength of the study. The questionnaire gave a general impression of the responsiveness and the interviews subsequently illustrated the responsiveness in more detail. This not only led to the best investigation but also generated knowledge and ideas for use in future intervention studies.

A limitation of our study is the possible bias in the selection of participants. Since it may only have been the 'strongest' HNC-patients who had oral rehabilitation and the capacity to demand a good treatment course, some negative aspects of the treatment pathway may have been omitted. Further, because enhancements in the treatment pathway have been performed since first introduced in 2007, it is important to put emphasis on the retrospective data collection and notice the large range in years since diagnosis, where some patients had treatment several years ago. Some relevant issues may have been forgotten in the period and thus not reported and some patients further commented on the early pathways while others have experienced the later ones. This, of course, limits our possibility to make firm conclusions on the current treatment pathway. Further, it limits the possibility to compare the patients' reports to the health care professionals, who commented on the current pathway. It also blurs the picture that HNC-patients often need re-treatment of both their cancer and oral treatments. This could mean that the patients with the longest time since diagnosis might comment on the re-treatments rather than the initial treatment. Another limitation is the small number of participants for the quantitative analyses. As saturation was achieved in the interviews, it is, however, considered an appropriate sample size. Regarding the health care professionals included in our study, they were considered relevant and good informants. There are, however, other groups of health care professionals involved in the HNC-patients treatment not included.

Conclusion

The Danish treatment pathway for HNC was in general evaluated very positive by the patients. Communication and relationship between patient and health care professional as well as continuous staff can highly affect the responsiveness of the HNC-treatment pathway both positive and negative. Improvements are needed in the transition from hospital treatment of HNC to the oral rehabilitation at dental clinics.

Disclosure statement

The authors report no conflicts of interest.

ORCID

Lærke Fromm Andersen http://orcid.org/0000-0002-2379-0610
Irene Wessel http://orcid.org/0000-0001-9986-5001
Esben Boeskov Øzhayat http://orcid.org/0000-0001-8656-0292

References

[1] Stuani VT, Santos PSS, Damante CA, et al. Oral health impact profile of head and neck cancer patients after or before oncologic treatment: an observational analytic case-control study. Support Care Cancer. 2018;26:2185–2189.
[2] Rezende TM, de Souza Freire M, Franco OL. Head and neck cancer: proteomic advances and biomarker achievements. Cancer. 2010;116:4914–4925.
[3] Danish Head and Neck Cancer Group. Årsrapport 2017 for den kliniske kvalitetsdatabase DAHANCA. 2017.
[4] Mäkitie AA, Cange HH, Hammarstedt-Nordenvall L, et al. Head and neck cancer management in the Nordic countries: an effort to harmonize treatment. Eur Arch Otorhinolaryngol. 2017;274:2363–2365.
[5] Roennegaard AB, Rosenberg T, Bjørndal K, et al. The Danish Head and Neck Cancer fast-track program: a tertiary cancer centre experience. Eur J Cancer. 2018;90:133–139.
[6] Sundhedsstyrelsen. Pakkeforløb for hoved- og halskraeft. 2016. København: Sundhedsstyrelsen; 2016.
[7] Toustrup K, Lambertsen K, Ulhøi BP, et al. [Accelerated diagnosis and treatment initiation for head and neck cancer patients]. Ugeskr Laeg. 2010;172:279–284. Danish.
[8] Sorensen JR, Johansen J, Gano L, et al. A "package solution" fast track program can reduce the diagnostic waiting time in head and neck cancer. Eur Arch Otorhinolaryngol. 2014;271:1163–1170.
[9] van Harten WH, Goedbloed N, Boekhout AH, et al. Implementing large scale fast track diagnostics in a comprehensive cancer center, pre- and post-measurement data. BMC Health Serv Res. 2018;18:85.
[10] Carlsen AH, Eriksen JG, Godballe C, et al. Impact of age, comorbidity, and WHO performance status on delay of treatment in patients undergoing fast-track work-up for head and neck cancer. J Geriatr Oncol. 2019;10:259–264.
[11] Guttmann DM, Kobie J, Grover S, et al. National disparities in treatment package time for resected locally advanced head and

neck cancer and impact on overall survival. Head Neck. 2018;40: 1147–1155.
[12] Ho AS, Kim S, Tighiouart M, et al. Quantitative survival impact of composite treatment delays in head and neck cancer. Cancer. 2018;124:3154–3162.
[13] Lang H, France E, Williams B, et al. The psychological experience of living with head and neck cancer: a systematic review and meta-synthesis. Psychooncology. 2013;22:2648–2663.
[14] Pascoe GC. Patient satisfaction in primary health care. Eval Program Plann. 1983;6:185–210.
[15] Murray CJL, Evans DB, editors. Health systems performance assessment: debates, methods and empiricism. Geneva: World Health Organization; 2003.
[16] Letkovicova H, Prasad A, La Vallée R, et al. The health systems responsiveness analytical guidelines for surveys in the multi-country survey study. Geneva: World Health Organization; 2005.
[17] Pluye P, Hong QN. Combining the power of stories and the power of numbers: mixed methods research and mixed studies reviews. Annu Rev Public Health. 2014;35:29–45.
[18] Charlson ME, Pompei P, Ales KL, et al. A new method of classifying prognostic comorbidity in longitudianl studies: development and validation. J Chronic Dis. 1987;40:373–383.
[19] Brierley JD, Gospodarowicz MK, Wittekind C, editors. TNM classification of malignant tumours. 8th ed. West Sussex: Wiley; 2016.
[20] Üstün TB, Chatterji S, Villanueva M, et al. WHO multi-country survey study on health and responsiveness 2000-2001. 2001.
[21] Kvale S, Brinkmann S. Interviews: learning the craft of qualitative research interviewing. 3rd ed. Los Angeles (CA): SAGE Publications; 2014. p. 49, 185–189, 261–262, 267–268, 332–337.
[22] Corbin J, Strauss A. Analyzing Data for Concepts. In: Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory. 3rd ed. Thousand Oaks (CA): SAGE Publications; 2012. p. 159–194.
[23] Chen Z, King W, Pearcey R, et al. The relationship between waiting time for radiotherapy and clinical outcomes: a systematic review of the literature. Radiother Oncol. 2008;87:3–16.
[24] Junge AG, Risør MB, Toustrup K, et al. [Head and neck cancer patients' experiences with accelerated diagnostic and treatment programs]. Ugeskr Laeg. 2010;172:274–278. Danish.
[25] Appleton L, Poole H, Wall C. Being in safe hands: patients' perceptions of how cancer services may support psychological well-being. J Adv Nurs. 2018;74:1531–1543.
[26] Petrosyan V, Patel K, Ameerally PJ. Are patients satisfied with the head and neck skin cancer service? An evaluation of outpatient services with a review of published reports. Br J Oral Maxillofac Surg. 2017;55:1018–1023.
[27] Epstein JB, Smith DK, Villines D, et al. Patterns of oral and dental care education and utilization in head and neck cancer patients. Support Care Cancer. 2018;26:2591–2603.
[28] Nunez-Aguilar J, Oliveros-Lopez LG, Fernandez-Olavarria A, et al. Influence of dental treatment in place on quality of life in oral cancer patients undergoing chemoradiotherapy. Med Oral Patol Oral. 2018;23:e498–e505.
[29] Fromm L, Gotfredsen K, Wessel I, et al. Oral health related quality of life, oral esthetics and oral function in head and neck cancer patients after oral rehabilitation. J Oral Rehabil. 2019;46:738–746.
[30] Dholam KP, Dugad JA, Sadashiva KM. Impact of oral rehabilitation on patients with head and neck cancer: A study using the Liverpool Oral Rehabilitation Questionnaire and the Oral Health Impact Profile-14. J Prosthet Dent. 2017;117:559–562.