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Health policy analysis on barriers and facilitators for better oral health in German care homes: a qualitative study

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ABSTRACT

Objectives To assess possible health policy interventions derived from the theoretical domains framework (TDF) by studying barriers and facilitators on the delivery of oral healthcare and oral hygiene in German care homes using a behavioural change framework.

Design Qualitative correlational study to evaluate a national intervention programme.

Setting Primary healthcare in two care homes in rural Germany.

Participants Eleven stakeholders participating in the delivery of oral healthcare (hygiene, treatment) to older people, including two care home managers, four section managers, two nurses/carers and three dentists.

Interventions Semistructured interviews conducted in person in the care homes or by phone. A questionnaire developed along the domains of the TDF and the Capabilities, Opportunities and Motivations influencing Behaviours model was used to guide the interviews. Interviews were transcribed and systematised using Mayring's content analysis along the TDF.

Results 860 statements were collected. We identified 19 barriers, facilitators and conflicting themes related to capabilities, 34 to opportunities and 24 to motivation. The lack of access to professional dental care was confirmed by all stakeholders as a major limitation hampering better oral health.

Primary outcome A range of interventions can be discussed with the methodology we utilised. In our interviews, lack of dentists willing to treat patients at these facilities was the most discussed barrier for improving oral health of nursing home residents.

Secondary outcomes Dentists highlighted the need for better incentives and facilities to deliver oral healthcare in these institutions. Differences with urban settings regarding access to healthcare were frequently discussed by our study participants.

Conclusions Within our sample, greater capacitation of care home staff, better financial incentives for dentists and increased cooperation between the two stakeholders should be considered when designing interventions to tackle oral health of care home residents in Germany.

Strengths and limitations of this study

- ► Frameworks grounded in theory allow for a systematic qualitative analysis of dental health policy questions.
- ► The selected qualitative methodology allowed for data saturation and in-depth analysis within this specific setting even within a limited number of participants.
- ► The analysis of qualitative data with our study methodology involves inherent subjectivity, calling for careful consideration of the context of our study and interpretation of our results.

INTRODUCTION

The provision of oral healthcare to older people in care homes is challenging; achieving optimal masticatory function, aesthetics and phonetics while preventing pain and maintaining comfort requires effort and coordination among stakeholders both for providing regular oral hygiene as well as dental treatment.[1] Oral hygiene is different from other forms of body hygiene (cutting nails or hair) as it is sometimes difficult to execute for people with disabilities and when provided by a carer; the endpoint of good hygiene cannot immediately be measured by the carer or the patient (in contrast to other care delivery forms). The provision of dental treatment is a significant facilitator of good oral health among older individuals residing in care homes.[2 3] However, delivering dental treatment is challenging due to (1) specific needs among individuals of this population[4–6] grounded in individual limitations of mobility, cognitive capacities and cooperation, as well as (2) dentists and care staff requiring a specific set of capabilities, motivation and opportunities when caring for this vulnerable group, different to traditional settings.[7–9]

The association between poor oral health and a higher incidence of pneumonia has been registered in a nationwide population study in Korea,[10] which could partially contribute to explaining the 10-fold increase

in cases of pneumonia among care residents.[11 12] Some studies have suggested that professional oral healthcare for care home residents may be cost-effective by reducing the risk of pneumonia in this population,[3 13] however, large, well-designed, trials aimed to detect improvement of quantitative oral health indicators among care home residents receiving oral care programmes have for the most failed to detect significant benefits.[8 14–16] Although there is an abundant number of articles studying the clinical effectiveness of different health interventions and technologies among these patients, a recent scoping review suggested that most of the existing literature is focused on studying health technologies or interventions related to clinical effectiveness using surrogate endpoints such as biofilm removal.[17] Efforts for summarising existing quantitative evidence are complicated by the high heterogeneity and differences between settings.

Importantly, the needs for oral healthcare of care home residents are met through a complex network of actors increasing the difficulty to understand how demographic, cultural or geographic factors could alter oral health outcomes in this population.[18 19] Although more research seems necessary, existing evidence shows that increasing health literacy and facilitating behavioural change among carers and health workers could improve outcomes.[20–22]

Studying qualitatively different interventions by analysing existing barriers and facilitators for better oral healthcare among healthcare workers seems necessary for designing better oral health policies in light of the inconclusive existing evidence. The few available qualitative studies[23 24] in this field have the limitation of not having employed a systematic framework, which would allow for a comprehensive assessment of different barriers and facilitators which may provide a reproducible rationale to evaluate potential interventions. Ideally, efforts should focus on understanding how the delivery of oral healthcare can be affected by behaviour change in the network of actors responsible for dependent elderly people.[25–27]

Our study, therefore, aimed to explore existing barriers and facilitators for oral health policies, consisting of both oral hygiene and dental healthcare, among healthcare workers in charge of care home patients in rural Brandenburg (Germany). We conducted semistructured interviews with various stakeholders to understand changes in behaviour using the Capabilities, Opportunities and Motivations altering Behaviour model (COM-B). Our questionnaire was grounded on the theoretical domains framework (TDF)[28 29] and the behavioural change wheel (BCW), linking our results with an existing literature review that employed the same framework to study the same problem.[29] This allowed for a setting-specific, comprehensive and reproducible assessment of barriers and facilitators that could be analysed under a health policy perspective.

MATERIALS AND METHODS

Research team and reflexivity

Personal characteristics

JG-R and JS conducted the interviews. JG-R is a dentist with a Master of Science in health policy, working at the Charité— Universitätsmedizin Berlin. JS has a bachelor's degree in social sciences, is trained in qualitative methods, and has experience in the qualitative evaluation of public policies. JS acted as the main interviewer with JG-R taking mostly an observing role, guaranteeing clarity and uniformity in the interpretation of questions and answers of medical relevance. Calibration between both interviewers was secured by piloting interviews; moreover, the interviewers had in-depth discussions of relevant aspects, areas of interest, and tone after the interviews. All interviews were conducted in German. Following the interviewees' written consent, each interview was recorded. There was no relationship established with participants before the study commencement. The participants were informed that the researchers were studying how to improve oral healthcare in the population of interest, yet it was explicitly stated that no judgement of individual performance was within the scope of the study. The scientific credentials of the interviewers were reported to the interviewees, as well as information about the research project to secure comfortable participation.

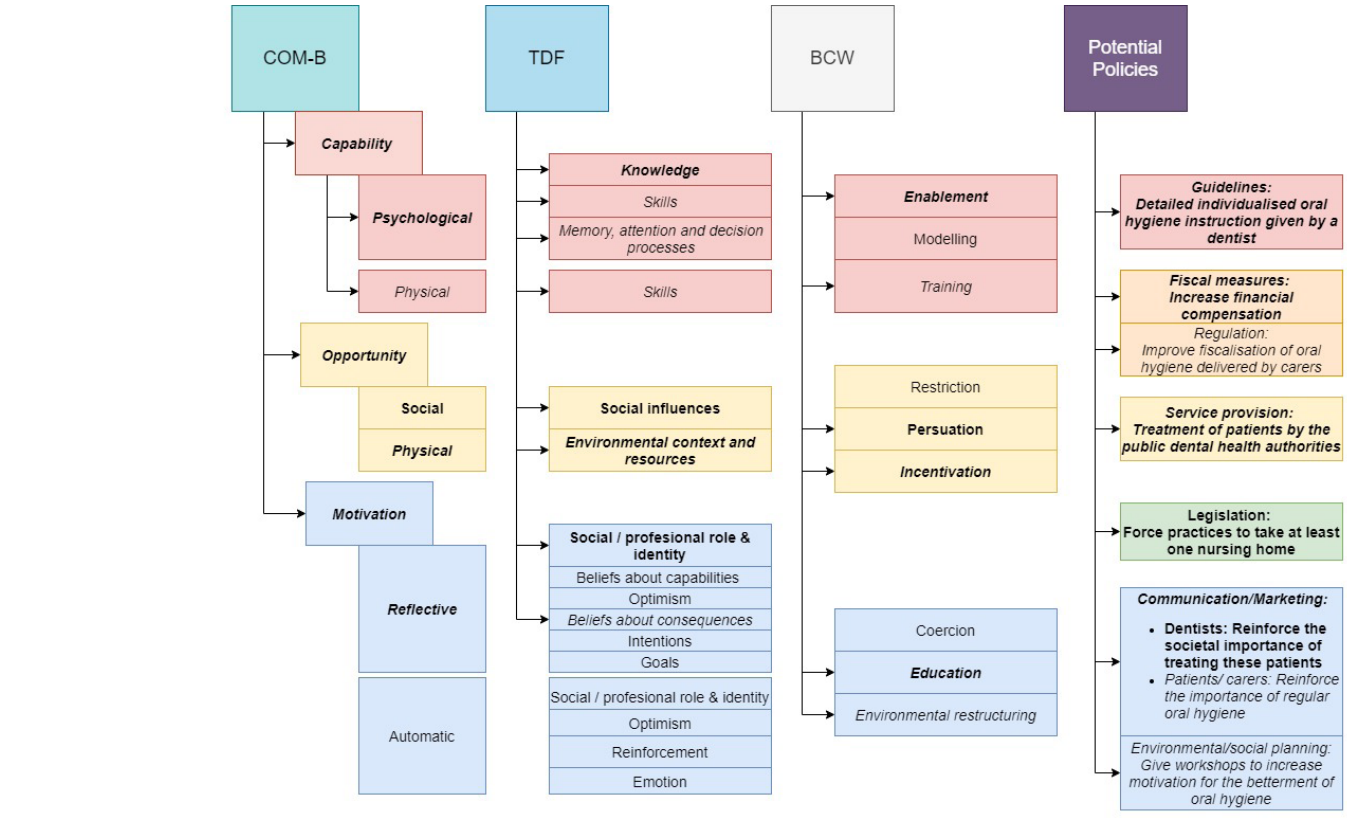
Study design

Methodological orientation and theory

The TDF and the BCW[30] are implementational frameworks for policy analysis validated by a growing number of studies in dentistry.[31–33] They constitute a paired analytical and implementational framework that allows linking capabilities, motivations and opportunities of each stakeholder with identified barriers and facilitators (figure 1). Provided that sufficiently representative data relative to a certain research question is available and that these data are of sufficient quality, the BCW allows for a transparent and reproducible generation of policy recommendations (figure 1). The TDF and BCW have been previously utilised to generate recommendations towards dental health policies.[29 34]

Participant selection

Purposive sampling was used within the two visited care homes to recruit study participants. No financial incentive for participation was provided to the interviewees. Eleven interviews were conducted with carers, section managers and staff managers of care homes ('staff employed at the facility'), in person at their workplace, and with dentists providing care to the patients in these care homes via telephone. The interviews were conducted in a semistructured manner to allow for new topics to emerge. No exclusion criteria were specified. Three carers refused to participate in our study due to lack of time. Staff was approached via the section manager or care home staff manager, who supported consecutive sampling of carers (nurses) who eventually volunteered (or not) to be interviewed during



	Who needs to do something different?	What barriers and enablers need to be adressed?	Which intervention components could help overcome the barriers and enhance facilitators?	How can behaviour change be measured and understood?
Problem 1 - Access to professional dental healthcare is complex for nursing home residents	**Dentists should deliver care to nursing home residents**	**Dentists interviewed** • **Financial incentives** • **Insufficient resources to treat** • **Patients refusing care**	**Barriers: Insufficient financial compensation** **Facilitators: Social component, purpose, specialisation**	• **Higher rates of patients receiving dental treatment the last year** • **Higher professional and personal satisfaction rates for dentists working in nursing homes**
		Intervention design		
Problem 2 - Oral hygiene in nursing home residents is insufficient and complicated to deliver and assess	*Patients and carers should work together to achieve better levels of hygiene*	*Nursing home staff interviewed* • *Patients refusing care* • *Knowledge and skills* • *Beliefs in the importance* • *Communication between stakeholders*	*Barriers: Lack of skills and communication* *Facilitators: Cooperation with dentists*	• *Higher rates of patients receiving dental treatment the last year* • *A reduction of the burden of disease by nursing home residents*

Figure 1 Overview of the analytical process and data flow, and display of identified key themes of barriers, enablers and possible associated intervention types. The figure displays how the domains of the COM-B model interlink with those of the TDF (theoretical domains framework) and the behaviour change wheel (BCW). The COM-B includes possible sources of behaviour that are susceptible to responding to interventions. The TDF helps to make explicit potential areas of intervention which then are reflected in the BCW. The BCW then allows to convert them to a subset of policy categories for developing interventions. In BOLD, the domains are shown (and examples given) that were discussed in our interviews when assessing how to increase the provision of and access to professional dental healthcare of care home residents. In italic, the domains that were discussed in our interviews when assessing how to improve oral hygiene in care homes are indicated. The flow of identified themes for a possible intervention development is shown at the bottom. For example, for the provision of and access to dental healthcare, a lack of dentists attending the care home was identified as the main barrier, while for improving oral hygiene, improved cooperation between carers and patients is necessary. From the flow of themes, possible interventions emerged. COM-B, Capabilities, Opportunities and Motivations influencing Behaviours.

their working hours and according to availability. Dentists included in our study had different contract modalities with the participant care homes (legally binding cooperation, not legally binding cooperation, employed at the care home).

Setting

Stakeholders involved in the care process were interviewed face to face in their own facilities, in a quiet private room. All dentists were interviewed via telephone early in the morning before the beginning of their clinical duties.

Only the involved parties in the conversation were present in the room at the time of the interview. All participants were over 30 years of age and German citizens. We did not ask any participant in our study for further educational or demographic information to maximise anonymity and encourage unrestricted participation.

The towns where the care homes were located had 9000 and 25 000 inhabitants, respectively. They had an area of 113 and 45 km^2, respectively, with a density of population ranging from 230 to 190 inhabitants per km^2. Both towns were located in the German federal state of Brandenburg. This region suffers from an endemic lack of dental professionals,[35] the lowest proportion of patients-to-dentists in Germany,[36] as well as an over proportionally old population,[37] and a higher imbalance between genders in favour of men, who are less willing to work in the care industry.[38 39]

Data collection

The questionnaires were generated by two dental experts in gerodontology (GG and FS), and reviewed by a dentist with a background in social sciences (JG-R) and an interviewer experienced in qualitative studies (JS). Necessary adjustments according to different stakeholders were taken in iterating modifications before being piloted in a controlled setting and agreed by consensus. No repeat interviews were carried out. The interviews were recorded using a voice recorder, and both interviewers took field notes during and after the interviews. The interviews averaged an hour per participant. No new topics emerged in the two final interviews; we hence assume saturation of themes. All interviews were eventually transcribed by a third party. No transcription was returned to the participants.

The developed interview guides covered the various domains of the TDF: (1) knowledge, (2) skills, (3) social influence, (4) social role, (5) environmental context and resources, (6) beliefs about capabilities, (7) beliefs about consequences, (8) reinforcement, (9) emotions, (10) memory attention and decision process, (11) optimism, (12) context and resources, (13) goals, (14) behavioural regulators, (15) perspectives, (16) social and professional identity. Each domain was addressed by a minimum of one question. Respondents were given freedom in their answers to explore topics directly or indirectly related to the question.

Our interviews focused on the following stakeholders involved in the oral care process:

1. Staff, specifically
   a. Care home staff managers (n=2), responsible for all personnel-related decisions of the care home.
   b. Section managers, who coordinate and supervise the clinical duties of other carers in a section of the care home (n=4).
   c. Carers, for example, nurses, care assistants or care aides (n=2), with at least 5 years of experience.
2. Dentists (n=3) with at least 3 years of experience in the treatment of individuals in care homes. (Despite our attempts we could not identify male candidates interested in participating in the study.)

Data analysis, findings, reporting

The interview transcripts were coded using MAXQDA (VERBI, Berlin, Germany). The coding tree was derived from categories according to the TDF domains, constructs, and the barriers and facilitators explored by previous systematic literature reviews utilising the same theoretical grounding.[29] To increase intercoder and intracoder reliability, the process of classification was independently performed by one coder and then reviewed by another (JS, JG-R) a total of three times until consensus was achieved in all quotes selected for inclusion. Disagreements were solved by consulting a third coder (FS). An inductive and deductive content analysis was conducted using Mayring's principles.[30] Identified themes were classified as barriers, facilitators or conflicting themes to (1) improve oral hygiene and (2) provide dental healthcare in care homes. After the classification of all themes, the developed classification was double-checked by two researchers (FS and GG). No feedback was provided by participants towards themes and classifications. Themes and quotes were translated to English for publication and double-checked by back translation once more. We classified all participants' quotes as well as derived themes and classes, subdivided along with capabilities, motivation and opportunities as well as the TDF domains. In order to analyse potential interventions using the BCW, we built on existing work in implementational science[32] using a four-question approach; first: 'Who needs to do what, differently?'; second: 'Which barriers and enablers need to be addressed?'; third: 'Which intervention components could overcome the modifiable barriers and enhance the enablers?'; and fourth: 'How can behaviour change be measured and understood?'.

Reporting of the results follow Consolidated Criteria for Reporting Qualitative Research checklist.[40]

Patient and public involvement

Six in-depth interviews were conducted with care home residents to explore their perceived needs on dental healthcare and hygiene. Statements were collected and compared with our proposed interview structure to secure that all relevant topics in our study reflected the best interest of care home residents. The residents participating volunteered to share their experiences. All of them were female, had different levels of disability according to the German disability grading system, and lived on average 4 years in a care facility.

RESULTS

Overview

We collected 860 statements from the interviewees. Out of those, 685 (79.8%) were considered for inclusion and successfully coded within our framework of analysis. An overview of the themes identified in our study, organised

along with the COM-B model, is provided in table 1. A selection of quotes illustrating each category can be found in online supplemental appendix 1 and further down below. A more detailed breakdown of identified themes and possible derived interventions can be found in figure 1.

Within the 685 statements analysed, 189 (27.5%) were yielded from interviews with dentists, 190 (27.6%) from carers, 176 (25.5%) from section managers and 130 (18.2%) from staff managers of care homes. We identified 19 barriers, facilitators and conflicting themes relating to capabilities, 34 to opportunities and 24 to motivation. All stakeholders in the care homes confirmed the lack of access to professional dental care as a major limitation to improve oral health. All interviewees frequently mentioned differences with urban settings. The dentists explained the lack of cooperation with care homes with missing intrinsic motivation on the dentists' side, mainly due to the lack of financial incentives and high opportunity costs when working in care homes. Also, the shortcomings of equipment (subsumed under 'opportunity' in our framework) were mentioned.

Topics related to the cooperation between dentists and care homes were the most frequently mentioned by all interviewees, with 38 statements related to it. Statements related to economic incentives were mentioned 15 times, with ambiguous findings: Seven statements from workers in the care home were against financial incentives in their activity, while the other eight statements from dentists agreed on the importance of better incentivising professional oral healthcare with sufficient economic incentives to improve the cooperation. In the following sections, we present the facilitators, barriers and conflicting themes, subdivided into stakeholders' COM.

Facilitators

Several facilitators were identified. The following was subsumed under the category of 'Capabilities':

1. Knowledge about the importance of oral healthcare

An important facilitator to obtain higher levels of health is health literacy.[41] Our interviewees reported the following when enquired about the relevance of oral healthcare:

> Yes, all are important to me. The holistic care actually /, because oral care is not decisive for the well-being of my residents, or their health /, is a partial aspect that is just as important as the other aspects of personal care such as decubitus prophylaxis, thrombosis prophylaxis /, we have such a broad spectrum of care/, they are all important for me /, and as I said, it is very important that the staff stays healthy because they should do that afterwards. Section manager2

> It's not one of the most important tasks we have. The tasks are all important. Everything concerning the human being is important. Carer2

Some of our interviewees struggled to identify the causal relationship between poor oral hygiene and health, while frequently comparing it to other forms of body hygiene such as getting a haircut or nail clipping.

However, they frequently acknowledged their limitations and showed a favourable disposition to behavioural change:

> A further training course on oral hygiene would also make sense for me here (as in the nursing home). If a professional were to come and … really demonstrate this, I don't know, such a one-day seminar, one could make use of it. N1

This frequently referred to the necessity for a closer interaction with dentists as one main facilitator to improve oral health (in our analysis under the category of 'Opportunities'):

2. Cooperation with a dentist

> Yes, it's not that a dentist is coming to the care home regularly or anything, yes. Unfortunately, we don't have that. There is one who comes, yes, well, because it is difficult to get appointments. We also have a dentist in the house, who is relatively close by, where we do occasionally go, but that's really when there are problems, yes. So, such a regular control is not carried out here either. Staff manager2

However, depending on the specific setting, this facilitator presents rather differently:

> In theory everything is beautiful, and everything is possible, but in practice, the implementation, sometimes… it's not only up to us, because there aren't enough doctors, or there are enough doctors, but they just don't come. There's nothing we can do. Carer1

> We haven't found one [dentist] yet who is willing to cooperate in something like this [an agreement of cooperation] because I'd say it's a huge effort, yes. That means he has to make sure he's co-supervising the bedbound residents. Section manager2

Our interviewees unanimously strengthened the difficulty to find dentists and general practitioners available to undertake an active role in these facilities. When asked in this regard, the dentists referred mainly to issues related to transport, equipment, special protocols and lack of economic incentives.

> When I visit a patient in the care home, I am at least one hour away from the practice, depending on how far I have to drive, sometimes that is ten kilometres… I have an hourly rate in the practice, let's say 'X', which I do not get back one hundred per cent with the visit of a patient.
>
> I: Mhm. (affirmative) (…)
>
> R: So, in my opinion, the work is underpaid and therefore it is certainly difficult to get dentists to do something like this. Dentist2

Table 1 Identified main facilitators, conflicting themes and barriers to providing oral healthcare and improve oral hygiene to care home residents

		Dentists	Carers/nurses	Care home staff manager	Section manager
Facilitators	Capability	▶ Skills gained through experience	▶ Knowledge of condition/ consequences ▶ Oral healthcare training ▶ Skills gained through experience	▶ Knowledge of condition/ consequences ▶ Oral healthcare training ▶ Skills gained through experience ▶ Belief in the importance of oral healthcare	▶ Knowledge of condition/ consequences ▶ Oral healthcare training
	Opportunity	▶ Social pressure ▶ Social norms ▶ Recognition or award for providing oral healthcare (for nurses)	▶ Social norms ▶ Dentist in the care home ▶ Communication between carers	▶ Dentist available in the care home ▶ Communication between carers	▶ Dentist available in the care home ▶ Communication between carers
	Motivation	▶ Positive emotions towards care homes (sense of purpose) ▶ Resources for oral healthcare in the care home	▶ Professionalism when delivering oral hygiene ▶ Resources for oral healthcare in the care home ▶ Belief in capacity and control of oral healthcare	▶ Resources for oral healthcare in the care home ▶ Belief in capacity and control of oral healthcare	▶ Resources for oral healthcare in the care home
Conflicting	Capability		▶ Belief in the importance of oral healthcare		▶ Oral healthcare training
	Opportunity	▶ Patients' relatives	▶ Patients' relatives' involvement ▶ Standardised manual etc. ▶ Belief in the importance of relatives	▶ Standardised manual etc.	▶ Patients' relatives' involvement ▶ Standardised manual etc.
	Motivation	▶ Professional identity			▶ Professional identity
Barriers	Capability		▶ Skills: Level of education ▶ Knowledge/skills not sufficient ▶ Knowledge/skills: ability	▶ Skills: Level of education	▶ Knowledge/skills not sufficient
	Opportunity	▶ Patients refusing care ▶ Insufficient resources for dentists in the care home ▶ No of carers ▶ Financial incentives	▶ Time restrictions ▶ Patients refusing care ▶ No of carers ▶ Organisation of cooperation between care home and dentists	▶ Individuality of patients ▶ Time restrictions ▶ Patients refusing care ▶ No of carers ▶ Organisation of cooperation between care home and dentists	▶ Time restrictions ▶ Patients refusing care ▶ No of carers
	Motivation	▶ Fear of getting hurt by patients ▶ Negative emotions towards care home (sadness) ▶ Frustration about nurses/carers	▶ Fear of getting hurt by patients ▶ Fear of causing damage/injury ▶ Lack of attention, memory, keeping track ▶ Frustration about coworkers ▶ Level of disability	▶ Frustration about coworkers ▶ Level of disability	▶ Fear of getting hurt by patients ▶ Fear of causing damage/injury ▶ Negative emotions towards oral healthcare ▶ Level of disability

Further details are provided in the main text and the appendix.

Dentists also frequently mentioned the difficulties to work under these conditions due to the resources available:

> They are not sufficient. We also have a possibility to polish teeth, because I still have a cordless handpiece there, but otherwise, you can't really do any fillings or anything. But impressions, and some other things yes, you just need to have everything with you. Dentist1

Under the category of 'Motivation', a third relevant facilitator was identified:

3. Social role and professional identity

The dentists we interviewed seemed to have a high degree of engagement with their communities. Although the importance of working in a care home for the dentists, even by those that did sign an agreement of cooperation with a care home, remains unclear and seemed in some cases conflicting:

> I: would you say that treating these patients in care homes is one of your most important tasks professionally?
>
> R: No. Dentist1

Barriers

Our study revealed two main barriers related to 'Capabilities' linked to a deficit in knowledge and skills:

1. Lack of knowledge and information exchange

We found that lacking knowledge on oral healthcare provision is a barrier, while communication difficulties could possibly play an important role in this regard:

> Because the resident himself (.), did not let us know, or respectively did not let us know in time, or he could not express himself properly so the colleague could not interpret it correctly. Carer2

Furthermore, the lack of flow of knowledge to adapt treatments to the specific needs of this population in cooperation with dentists seems another important barrier. This also seems grounded in the additional burden of adjusting protocols in care homes:

> About guidelines to treat these patients, I can't tell you anything. There are [guidelines] of all types. I'm doing what I've been doing for many years, yes. Dentist2

2. Lack of skills/experience/instruction:

Our interviews confirmed that the level of skills and experience of carers can influence the delivery of oral hygiene to care home residents.

> I'll just say, a full prosthesis, if it doesn't have a full… bottle of adhesive cream on it, you can get it out pretty easily. The problem is if they still have partial dentures. Where they get hooked up. Because when I try to take it out myself, I just manipulate it differently. If I come from behind, I can't just take it out easily. And that's the problem. Yes. I think sometimes, even with some tips or something, you will not necessarily do it better. You would have to make other prostheses or something that makes it easy for the nurse to remove the dentures well. If they fit really well, sometimes you have to fight a little. If necessary, we will just not take the prosthesis out, yes. I can't just pull the tooth out. Carer1

This barrier in the processes of delivering care is perceived also by managers:

> But it certainly also happens that the prostheses are forgotten and not taken out. Yes, that they are still in the next day. Section manager 2

In the category of 'Opportunity', we identified two barriers related to the lack of cooperativeness of some patients and the lack of structural capacities to deliver treatment within these facilities.

3. Patients refusing care

Refusing oral hygiene and treatment was a problem frequently discussed in our study.

> Some bite, some try to punch you, or I don't know what. You need time, so I can't just get in there, ask them to open their mouth quickly, close their mouth and that is it. So, we take little presents, little boxes with us or little toothpaste /, one wants it, the other comes with a doll. You have to be prepared for that. Dentist3

> There is also the resistance that some residents offer. Then we'll just have to try it later /, individually /, as we mentioned before. And if it doesn't work out at all one day, then that's just the way it is. We also have to accept it. This is a resident with dementia who doesn't let you brush his teeth. Carer2

4. Barriers related to the provision of oral/dental care

When consulted about the current equipment and resources to deliver treatment to care home residents, our interviewees reported:

> Yes, a treatment room is always nice when in a care home. In the big care home where I work, it is necessary. At least a chair and a lamp would be much better. Dentist3

When invited to suggest potential solutions, the same dentist interviewed noted that:

> In my opinion, a simple solution would be to simply add money for a chair, in every care home, for a regular prophylaxis assistant who does her work there regularly. Dentist3

5. Unclear responsibility:

Unclear responsibility' has been recorded in the literature as a barrier in the provision of care. It has been discussed that the cooperation of one 'oral health nurse' with a dental professional could be effective to improve the provision of oral care to elderly people (42). We did not find evidence of this barrier in our study, as responsibilities seemed well delimited and formalised in standard

operating procedures in the care homes. Furthermore, during the discussion of this alternative with managers of the care homes interviewed, they reported:

> 'I: Would you say that it makes sense to have a nurse responsible for oral hygiene?
>
> R1: A specially trained nurse for oral hygiene. (…) Well, in principle I don't think that it makes sense at first.
>
> R2: Yes, they may be able to give tips and tricks to help the other nurses overcome technical difficulties. Ideally, a specialised course would be good, but it is difficult to do that for 35 people (…)'. Section manager1

Conflicting themes

Several themes came up which could not necessarily be classified as facilitator or barrier, namely 'frustration about co-workers/nurses/relatives' (motivation), 'organisation of cooperation between care homes and dentists' (opportunities) and 'discussions about the level of patient disability' (capabilities). Based on the interviews, the latter point seems specifically relevant:

> 'Some of them also have an intermediate care level because they have just moved in, but they are really suffering from dementia and no longer understand what I want from them, and of course they don't understand why they should open their mouths now. Yes, we have them, too. They could still do it themselves physically, but they can't do it anymore. That's difficult, too. Carer1
>
> 'There are of course also some who have a high degree of disability / who can and do just about that, yes, of course, I have something like that, too. For example, if I have a resident where I know he has a level of disability of four / but still does it himself. Yes, but with most of them, the higher the level of care, the more we have to provide support.' Staff manager2
>
> 'I: How do you think we could simplify the oral care measures for patients in need of care at the highest level of disability?
>
> R: Ha, if I knew that, I would have done it already. (5) Well, technically it is not possible. It's just not. One is always dependent on the cooperation of the resident. I and she [nurse] does not influence that. How's that supposed to work? I think it's difficult. I think there's no way. Section manager1

DISCUSSION

Gaining a systematic understanding of barriers and enablers to improve oral hygiene and provide access to dental care for care home residents is relevant to derive context-specific interventions.[42] In our study sample, providing dental care by dentists directly in nursing homes, and increasing the competences of carers seemed two promising interventions capable of improving oral health outcomes. Dentists working in this setting expressed internal motivation and identification with their job as facilitators for undertaking a challenging task. Resources seem to be limited in this setting, and financial constrains were frequently mentioned as barriers for a more widespread cooperation between dentists and carers. Interviewees seemed very willing to expand their knowledge on oral healthcare and would like to be instructed on the topic, although introducing new guidelines for dentists could be conflicting and deserving of further study. Expanding carer's oral healthcare knowledge and the acquisition of skills related to it was reported as a viable intervention to provide nursing home residents with better oral care. In our study, patient's refusal, dementia, and differences in the disability spectrum as well as unclear responsibilities on care delivery on oral healthcare delivery seemed like significant barriers requiring more study and attention when designing interventions.

Previous studies related this lack of dentists cooperating with care homes to an absence of opportunities for dentists, for example, lack of transportation, economic incentives and adequate dental equipment at these facilities.[43] Our interviews confirmed these findings while verifying the stakeholders' perception that poor oral health and lack of access to dentistry are strongly linked with one another.[35 36] The implementational frameworks for policy analysis we selected suggest that these difficulties can be overcome with greater capacitation of the healthcare workforce, increased cooperation and better financial incentives.

All interviewees regularly pointed at patients refusing to cooperate as well as the lack of practising dentists as the main drivers for poor oral health outcomes. Some early trials on the effectiveness of protocols to manage refusal of oral hygiene by patients with dementia[44] allow us to expect a reasonable improvement in this regard provided that better capacitation and guidelines are offered. The absence of dentists at care homes is more complex to overcome and requires developing generalised policies or legislation (eg, forcing practices to cooperate with a care home) because of a negative relationship between increasingly specialised health services and their availability outside metropolitan areas.[45]

The following point of analysis seems of importance: The interviewed dentists were aware of the economic trade-offs in the delivery of health services to care home residents. They rightly identified the necessity of adapting their usual treatment concepts to the special needs of this population. Less invasive and costly treatments with a focus on arresting disease activity and increasing patients' quality of life are preferred over bigger rehabilitations and privately liquidated services. Given that the average dental clinic in Germany generates around 50% of revenue via such highly priced and privately paid services,[46] there is a large incoherence between these typical practice setups and the approaches and concepts needed for care homes patients. As a result, under current conditions, most clinics seem poorly suited to meet the expected care delivery in care homes. The associated financial barrier consequently reduces the access of care home residents to professional dental healthcare. Overcoming this may require encouraging dentists to cooperate with several

care homes so that they can specialise in the treatment of this population and achieve economies of scale. Practices specialised in treating care home residents would possibly reallocate their investments from real estate, chair and laboratory to additional efforts in the operational logistics associated with care home care. Alternatively, and emanating from employing the BCW to identify possible interventions to improve dental care in this setting, service provision by public health authorities instead of private dentists could be considered.

Future studies could use the same framework to guide interviews that explore barriers and facilitators in care homes in other settings such as urban areas. Results could be then used to inform setting-specific policy interventions to increase dental care depending on travel distances or the number of practising dentists in a specific area. Studies in rural settings located in different countries could be used to comparatively assess the impact of different economic incentives for care delivery in residential homes. Future quantitative analysis of public insurance databases in Germany could assess differences for patients in care homes to access professional oral healthcare. Studies relating clinical outcomes with the number of carers, education and incentives provided to carers could help to inform alternative policies.

Strengths and limitations

First, and as a strength, we employed validated frameworks grounded in theory to analyse our problem comprehensively and systematically.

Second, and as a limitation, we interviewed only a limited number of participants, further broken down into stakeholder groups derived from a specific setting (this multistakeholder view, however, is a clear advantage as it allows more holistically identifying and understanding barriers and enablers), although we data saturation was achieved.

Third, we acknowledge possible subjectivity in our results and data interpretation inherent to the study design and methodologies selected.

CONCLUSION

Within our study, we can conclude that the presence of dentists in the care homes seems central to capacitate care home staff for delivering better oral hygiene and care to residents. Greater capacitation of care home staff, better financial incentives for dentists and increased cooperation between the two stakeholders are necessary. Policy-makers could incentivise dentists visiting rural care homes and support integrated interdisciplinary oral healthcare to the vulnerable group of the elderly.

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