

Original Research Article

Perceptions on Oral Care Needs, Barriers, and Practices Among Managers and Staff in Long-Term Care Settings for Older People in Flanders, Belgium: A Cross-sectional Survey

Ellen Palmers, MPsy,^{1,*} Lynn Janssens, MSD,² Inès Phlypo, MSD,² Kris Vanhaecht, PhD,³ Johanna De Almeida Mello, PhD,^{1,4} Luc De Visschere, PhD,² Dominique Declerck, PhD,¹ and Joke Duyck, PhD¹

¹Department of Oral Health Sciences, KU Leuven, Leuven, Belgium. ²Department of Oral Health Sciences, University of Ghent, Ghent, Belgium. ³Department of Public Health and Primary Care, KU Leuven, Leuven, Belgium. ⁴LUCAS-Centre for Care Research and Consultancy, KU Leuven, Leuven, Belgium.

*Address correspondence to: Ellen Palmers, MPsy, Department of Oral Health Sciences, Population Studies in Oral Health, KU Leuven, Kapucijnenvoer 7/a, Box 7001, 3000 Leuven, Belgium. E-mail: ellen.palmers@kuleuven.be

Received: April 1, 2022; Editorial Decision Date: July 15, 2022

Decision Editor: Steven M. Albert, PhD, MS, FGSA

Abstract

Background and Objectives: This study aimed to explore oral health perception and oral care needs, barriers, and current practices as perceived by managers and staff in long-term care organizations for older people in Flanders.

Research Design and Methods: This is a cross-sectional study where 2 questionnaires were developed, one for managers and one for caregivers, and were validated in Flemish long-term care organizations. Descriptive analyses and multivariable generalized linear models evaluated the main outcomes and their associations with determinants such as the size of the organization, the presence of an oral health policy, collaboration with a dentist, among others.

Results: A total of 145 managers and 197 caregivers completed the questionnaire. More than 50% of caregivers and managers perceived their residents' oral health as mediocre to good. Collaboration with a dentist ($B = 0.84$) and oral health care involvement ($B = 0.08$) within the organization showed a strong association with a positive perception of oral health. Lack of time (57%) and care resistance (70%) were the most important barriers perceived by caregivers. Guidelines concerning oral care were not available or were unknown to 52% of the caregivers. Having an oral health policy within the organization was strongly associated with the correct use of guidelines for daily care of natural teeth ($B = 1.25$) and of dental prosthesis ($B = 1.15$).

Discussion and Implications: The results emphasize that collaborating with a dentist and the presence of an oral health policy in care organizations are important for a positive perception of the oral health of the residents and for the adoption of guidelines by caregivers and managers. In addition, training on handling care refusal should be included in the overall training. These results are crucial input for the development of a methodology for implementing a structured oral care policy in long-term care facilities.

Translational Significance: The analysis of oral health care perceived needs, barriers, and current practices is the first step of an intervention mapping structure that ultimately aims to improve oral health in long-term care settings. It is essential to identify caregivers' barriers and needs regarding oral health and oral care in order to develop an effective and innovative intervention, in this case, the installation of an oral health policy in care organizations, that overcomes the observed barriers and meets the indicated needs. These results are crucial input for the development of a methodology for implementing a structured oral care policy in long-term care facilities.

Keywords: Barriers, Caregiving—formal, Needs-assessment, Nursing homes, Oral health

Background and Objectives

The population of adults older than 80 years of age increases (1). Improvements in oral care delivery and awareness of the importance of oral hygiene lead to an increase in older people retaining their natural teeth (2). Functional or cognitive decline challenges daily oral care, which may lead to oral infection and additional preventable oral health problems (3–6). Research reveals that 50%–75% of the older population have at least one active caries lesion (7). Oral hygiene and periodontal conditions are worse compared with the general population (8–10). However, older adults' awareness of their unfavorable oral health status is limited despite the importance of oral health for their general health and well-being (11). Good oral hygiene does have a preventive effect not only on oral pathology, but also on general health problems, such as aspiration pneumonia (12, 13), cardiovascular risks (14), diabetes control (7), cognitive decline (15), and fall incidents (16). Besides the physical effects, good oral health is also important for overall quality of life (17,18).

Several determinants are important to consider with respect to the oral health of this population. Socioeconomic status, gender, age, general health problems, cognitive impairment, and biological oral health factors are determinants that influence oral health (19). These determinants are not (or not easy) changeable. Other determinants are more susceptible to change, such as individual (eg, life style), environmental (eg, care setting), and interpersonal determinants (eg, caregivers' attitude). All these determinants are important to consider because they can bring about barriers or enablers to oral health care. Several barriers can exist at the level of each of these determinants. Barriers can be situated at 4 different levels (20,21). Organizational barriers can be present, such as time pressure, the lack of an oral health policy, and nonavailability of materials and products (22,23). Barriers found at caregiver level are, for example, unpleasantness of the task and lack of knowledge and skills of the caregiver (24–26). Examples of barriers at the level of the older person are refusal or resistance to care, lack of support by the family, and level of care dependency (24–26). And finally, barriers concerning oral health situations themselves, for example, bad condition of oral

health and underestimation of the seriousness of the oral health problems as such cause a barrier for the caregiver.

To improve oral health in care-dependent older adults, the goal is to develop interventions that empower care organizations and caregivers toward better oral care. Development of such interventions should be done systematically, for example, using an intervention mapping structure (27). This article considers the first step of intervention mapping, being a needs analysis of caregivers in care homes concerning oral health. This article has 4 aims. The first aim is to explore how oral health of the residents is perceived by the managers and caregivers. The second aim is to investigate the oral care needs experienced by the caregivers. The third aim is to detect the barriers that are experienced by the caregivers when performing oral care. The fourth and final aim is to ascertain current oral care practices as perceived by the caregivers within the organizations.

Knowledge about the needs of the organization and caregivers is essential to determine the focus of the intervention. Furthermore, a clear view on needs and barriers can increase awareness of policy makers about the importance and problematic condition of oral health in care-dependent older persons. In addition, the identified barriers and the proposed solutions can be used as a base to compose much-needed oral health indicators for quality control in care organizations. Additionally, we wanted to explore following hypotheses. First, organizations collaborating with a dentist and organizations with an established oral health policy have a better perception of oral health or experience other needs and barriers compared to organizations without. Second, personal (experience, profile, and contact with oral health in job description) and organizational (size, management system, region) characteristics are associated with the caregivers' perception of oral health, perceived needs, barriers, and use of current practices.

This study, therefore, assessed managers' and caregivers' perceptions of oral health care, their perceived needs, and barriers toward oral care and current oral care practices in long-term care settings. The goal is to gather relevant information for the development of a methodology for implementing a structured oral care policy in long-term care facilities.

Research Design and Methods

This cross-sectional survey was designed as an overall inventory study. The survey was commissioned by the Flemish government and carried out as 2 online questionnaires between January and February 2018.

Participants

The target population consisted of the managing board and professional caregivers responsible for the daily care in long-term care settings for older individuals. Participants who did not consent were deleted from the analyses as no information on them could be shared. The objective was to include as many organizations working with frail older persons in Flanders as possible. Separate hyperlinks to complete each questionnaire (Q1 for managers and Q2 for caregivers) were sent by email to 913 residential and home care organizations. All relevant data of these organizations were online available from the Flemish government. To allow analysis of caregivers answering pattern on an organizational level, we strived for a minimum of at least 10 caregivers per organization. Therefore, the email asked the manager to send the caregiver questionnaire to at least 10 caregivers.

Instrument

An existing questionnaire, used to assess barriers in care homes in 2010, served as a basis to develop the new questionnaires (6). In a first round, 4 coworkers of the scientific staff of the Flemish Institute for Oral Health (3 dentists and 1 psychologist) selected questions considered relevant. New questions were added based on a literature search (22,28,29). Next, the questionnaire was sent to an expert panel, consisting of 6 dentists with expertise in gerodontology and oral health promotion, 1 health care policy expert, and 1 marketing professional, for individual feedback and content validation. Their input resulted in the development of 2 questionnaires. To evaluate face and content validity, the questionnaires were sent to caregivers and managers of 2 care organizations. Thirty-seven caregivers filled out the online questionnaires using Google Forms and were asked to assess the clarity and relevance of each question. Based on their comments, improvements were made to eliminate ambiguity of some questions and to optimize answer options. The question “*is daily oral care part of your job description*” was added. In a final round, the 2 versions of the questionnaires were revised and approved by the same expert panel using individual feedback by email.

The final version of the questionnaire for managers was divided into 3 sections and consisted of 19 closed multiple choice questions and Likert scales. The first section questioned personal characteristics. A second section explored the perception of the managers concerning the oral health of the residents and the perceived need for

oral health education and skills training. The final section consisted of questions about the organization, such as management system (nonprofit organization, private organization, Public Centres for Social Welfare [OCMW]), capacity of the organization, and the presence of an oral health care policy in the organization, variables that could be associated with their perceptions of the oral health, needs, barriers, and current practices. The final version of the questionnaire for the caregivers was also divided in 3 sections. Sections 1 and 2 collected the same information as the questionnaire for the management. Additionally, the caregivers' profile in the organization, years of experience, and their role in daily oral care were inventoried. The third part questioned their perceived barriers and perception of current practices.

Procedure

The online survey was carried out using Google Forms. The managing board received an email with information about the purpose of the survey and hyperlinks to both questionnaires. They were asked to fill in the management questionnaire and to forward the hyperlink for the caregiver questionnaire to the caregivers within their organization. If the caregivers did not have access to a computer, the managing board could ask for a PDF version of the questionnaire and return the filled-in documents to the researchers by post. As a first step participants were informed about the study purpose, confidentiality handling, anonymity, and the principal of voluntary participation. The protocol was approved by the ethics committee of the Ghent University Hospital (No. B670201733146). Two weeks after the first email, a reminder was sent to the same contacts.

Analysis

Closed questions were analyzed with IBM SPSS statistics V24.0. Descriptive analyses were used to summarize the data on frequency, means, and variability. Both questionnaires were linked using the postal code and the name of the organization. The organizational characteristics of the caregivers were linked and entered in the caregiver database based on the name of the organization and postal code. To explore the association of personal and organizational characteristics on perceived needs, barriers, and practices, multivariable generalized linear models with ordinal and linear regression analyses were used.

Results

Participant Characteristics

Table 1 shows the characteristics of the participating management staff and caregivers. The manager questionnaire was filled out by 145 managers out of 918 contacted organizations (response rate: 15%). Most of them were professional managers (77.2%), about 5% were head nurses, and

Table 1. Characteristics (Demographic and Organizational) of Participating Caregivers ($N = 197$) and Managing Board Members ($N = 145$) in Frequency and Percentage

Variable	Option	Caregivers ($N = 197$)		Managers ($N = 145$)	
		N	%	N	%
Personal characteristics					
Employment	Self-employed	3	1.5		
	Employed in an organization	194	98.5		
Type	Home care	14	7.1	6	4.1
	Residential care	182	92.4	137	94.5
	Informal caregiver/other	1	0.5	2	1.4
Gender	Male	21	10.7	50	34.5
	Female	176	89.3	93	64.1
	X	0	0	2	1.4
Age (years)	<30	46	23.4	10	6.9
	31–40	61	31.0	27	18.6
	41–50	38	19.3	41	28.3
	51–60	50	25.4	65	44.8
	61+	2	1.0	2	1.4
Experience	Less than 1 years	5	2.5	8	5.5
	1–5 years	47	23.9	31	21.4
	6–15 years	61	31.0	43	29.7
	16–25 years	38	19.3	31	21.4
	More than 25 years	46	23.4	32	22.1
Educational degree	Secondary school (high school)	41	20.8	2	1.4
	Higher education (extended education in addition to secondary school)	144	73.1	92	63.4
	University degree	12	6.1	51	35.2
Role in providing daily oral care	Almost none	42	21.3		
	Moderate	40	20.3		
	A lot	115	58.4		
Profile	Manager			112	77.2
	Head of nursing	22	11.2	7	4.8
	Medical responsible			8	5.5
	Oral health responsible			4	2.8
	Nurse	88	44.7		
	Nurse aid	49	24.9		
	Occupational therapist	20	10.2		
	Speech therapist	5	2.5		
	Social worker	3	1.5		
	Physiotherapist	2	1.0		
	General practitioner	1	0.5		
	Other	7	3.5	14	9.7
Organizational characteristics ($N = 174$)					
Region	Brussels	0	0	3	2.1
	West Flanders	63	32	43	29.7
	East Flanders	41	20.8	37	25.5
	Antwerp	31	15.2	27	18.6
	Flemish Brabant	23	11.7	21	14.5
	Limburg	39	19.8	14	9.7
	Missing				
Management system	Nonprofit	0	0	73	50.3
	OCMW (Public Centres for Social Welfare)	85	48.9	49	33.8
	Private	84	48.3	20	13.8
	Missing	5	1.8	3	2.1

Table 1. Continued

Variable	Option	Caregivers (N = 197)		Managers (N = 145)	
		N	%	N	%
Size	Less than 50 older persons	6	3.4	10	6.9
	50–100 older persons	58	33.3	52	35.9
	101–150 older persons	16	9.2	37	25.5
	More than 150 older persons	94	54.0	46	31.7
Oral health project*	Yes	56	32.2	42	29.0
	No	118	67.8	103	71.0
Gerodent project†	Yes	21	12.1	22	15.2
	No	153	87.9	121	83.4
Collaboration with dentist	Yes	116	66.7	86	59.3
	No	58	33.3	58	40
Oral health policy	Yes	112	64.4	77	53.1
	No	62	35.6	67	46.2

Notes:

*Oral health project: any type of project aiming to improve oral health of older people.

†Gerodent: Oral care project in East and West Flanders, which consists of a mobile dentist cabinet visiting nursing homes and providing oral care to the residents, as well as training and guidelines for oral health policy.

5.5% were medical staff responsible for quality of care. Most of the participating managers worked in a residential care organization (94.5%) and have received a higher education (63.4%) or had a university degree (35.2%). The mean age of this group was 47 years old ($SD = 9.5$; range 20–64) and most of them were female (64.1%).

The web-based caregiver survey was completed by 180 caregivers and 17 completed the paper version (Table 1). Of the 197 caregivers, 174 (88%) could be linked to 59 different organizations (41%). Of 118 different organizations represented in the sample, 63 could not be linked to caregivers of the same organization. The number of caregivers per organization who participated ranged from 0 to 11 caregivers. All questionnaires were included when consent was obtained to the informed and ethical questions, even if they were not fully completed (online all questions were mandatory). The mean age of the caregivers was 41 years ($SD = 11.18$; range 19–61). Most caregivers were nurses (44.7%), nursing aids (24.9%), head nurses (11.2%), or occupational therapists (10.2%). Most caregivers were female (89.3%), worked in residential care (92.4%), and received higher education (79.2%).

More than half of the participants were working in the province of West Flanders, one of the 5 provinces of Flanders. About 30% of the participating nursing homes are also from this province, which shows an overrepresentation for this region, as residential care is uniformly distributed in Belgium, mostly according to the number of inhabitants of the region. In fact, the province of West Flanders has about 20% of the total of residential care homes in Flanders. As half of the participating care organizations were nonprofit (50.3%), this gives a good representation of the care organizations participating in the study

when compared with the real situation, as about 53% of nursing homes in Flanders are private but have a nonprofit system. The 34% of nursing homes of the type OCMW, organized by the Public Centers for Social Welfare, correspond to about 25% of the reality in the Flemish region. The OCMW nursing homes are also nonprofit, but have no private system. Similar to the number of care residents in Flemish nursing homes, the participant organizations had a diverse number of residents. The majority of the participant organizations (61%) had a medium size (from 50 to 150 residents), corresponding to the majority of the residential care sector in Flanders, where about 70% of the nursing homes have a medium size. In the study, large organizations (above 150 residents) were about 32% and small size care organizations (below 50 residents) were about 7%. The presence of an oral health policy was reported by 53% of the managers and 59% affirmed that their organization collaborated with a dentist. Participation in an oral care project was reported by 29% of the managers, and 15% participated in a specific oral health program, called the Gerodent project, which combines the installation of a preventive oral health policy in the organization with mobile oral care delivery on site.

Perceived oral health and oral care delivery

The oral health of the clients of the organizations was perceived as good or very good by 40%, as mediocre by 43% and as poor by about 10% of the managers (Figure 1). (Supplementary Table 1). Caregivers reported the oral health of their residents to be good or very good in 31%, mediocre in 53%, or poor in 11% of the cases. The difference between managers' and caregivers' perceived oral

health of their clients was significant (Pearson $\chi^2 = 11.26$, $p = .047$).

More than 50% of the caregivers reported the provision of oral care to care-dependent residents to be difficult, and 48% found it difficult to motivate semi-dependent residents for the performance of daily oral care. The expectations concerning the performance of oral care by caregivers were considered to be clear for 78% of the managers. A clear point of contact within the organization where caregivers can go to with their questions concerning oral care was reported by 67% of the managers and 90% was convinced that the questions of caregivers concerning oral care could be answered within the organization. For the caregivers themselves, it was even more clear what is expected of them concerning oral health care performance (97%). They also considered that questions concerning oral health could be answered within the organization (83%). It was slightly less clear for caregivers to know who acted as contact point for oral health care-related questions within their organization (65%). Caregivers and managers agreed regarding the questions whether there is a clear contact point and whether they can ask oral health-related questions within the organization. However, managers think that what is expected of the caregivers concerning oral care is less clear to them compared with what the caregivers themselves think (Pearson $\chi^2 = 29.49$; $p < .001$; Table 2).

Generalized linear models showed that caregivers' perception of the oral health status of their residents was significantly positively associated with the collaboration of the organization with a dentist ($B = 0.84$; Table 3). Caregivers

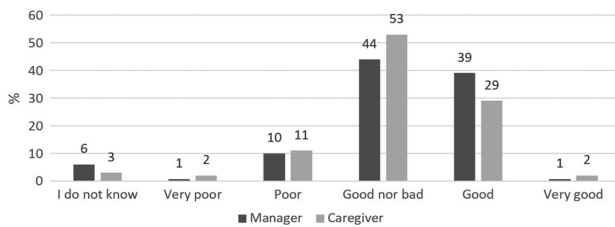


Figure 1. Oral health as perceived by the organization managers and caregivers (in %).

working in organizations that collaborated with a dentist showed more positive perceptions toward oral health. In addition, caregivers indicating that daily oral care performance was part of their duty, perceived oral health significantly better than those who had no role in daily oral care ($B = 0.78$).

Perceived Oral Care Needs

More than 70% of the managers were interested in offering a training concerning oral health, more specifically concerning the cleaning of dental prostheses and dealing with patients with resistant care behavior. Two thirds (66%) of the caregivers were interested in following a training (Supplementary Table 2). More specifically, the topics regarding care refusal and halitosis were preferred subjects for, respectively, 89% and 82% of the caregivers (Figure 2). (Supplementary Table 2). Overall, more than 59% of the caregivers replied that there were some needs regarding oral health and almost 17% argued that there were a lot of needs and shortcomings in oral care. Managers did not perceive significantly more needs compared to caregivers (Pearson $\chi^2 = 2.36$; $p = .669$).

Perceived Oral Care Barriers

Concerning barriers experienced in the performance of oral care, lack of time was mentioned by 57% of the caregivers as an important barrier (Table 4). This was followed by a shortage of staff (45%). Around 38% agreed that lack of skills and knowledge were important barriers, and around 30% reported factors concerning the older person, such as presence of halitosis, deprived oral health, and poor visibility of the oral cavity as a barrier. While performing daily oral care, caregivers were often confronted with older persons who are physically limited in opening their mouth or who refuse oral care. One in 5 caregivers stated that they experienced these difficulties most of the time when performing oral care. Of the 85% of caregivers confronted with physical resistance, almost 26% answered that it concerned only involuntarily physical resistance (eg, patients

Table 2. Statistical Tests of the Differences Between Answers From Participating Caregivers and Managers

Responses	Caregivers, %	Managers, %	Pearson [scolor_start FADADD]χ/[scolor]²	Significance
Clear expectation of oral health-related tasks (yes)	97.00	78.47	29.49	.000***
Possibility to ask oral health-related questions within the organization (yes)	85.28	90.28	3.80	.150
Clear oral health contact point in organization (yes)	65.97	68.06	3.36	.187
Perception of residents' oral health (good or very good)	30.96	40.28	11.26	.047*
Perception of unmet needs/deficiencies in oral health	76.20	80.00	2.36	.669

Notes:

* $p < .05$; *** $p < .001$.

Table 3. Continued

Determinants	Guidelines Dental Prosthesis				Guidelines Natural Teeth			
	95% CI		p	UL	95% CI		p	UL
	B	LL			B	LL		
Experience								
More than 5 years								
Less than 5 years								
Function								
Other								
Nurse								
Nurse aid								
Oral health responsibility								
Yes	0.41	-0.15	0.961	.148	-0.24	0.31	.396	
No								
Age								
Dentist								
Yes	1.22	0.61	1.837	.000***	0.52	1.12	.092	
No								
Policy								
Yes	1.15	0.53	1.770	.000***	1.23	1.87	.000***	
No								
Size								
More than 100 beds	0.44	-0.15	1.036	.146	0.17	0.76	.582	
Less than 100 beds								
Management								
Private	-2.24	-4.63	0.147	.066	-1.59	0.71	.176	
Public center	0.18	-0.41	0.776	.552	-0.31	0.29	.306	
Nonprofit								

Notes: CI = confidence interval; LL = lower limit; UL = upper limit.
 ***p < .001; **p < .01; *p < .05.

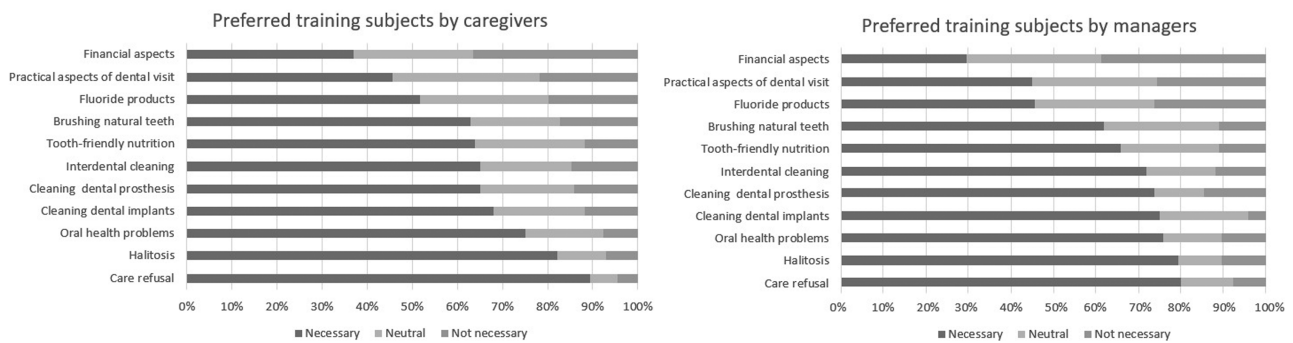


Figure 2. Preferred training subjects by managers and caregivers (in %).

with dementia, Parkinson, etc.) and 18% voluntarily physical resistance. Confrontation with both types of resistance is reported by 40% of the caregivers. Caregivers felt most uncomfortable when the older person showed physical (70%) or verbal resistance (63%). They also felt uncomfortable when an older person had a deprived oral health (eg, patients with a high treatment backlog; 52%) or halitosis (44%). Interdental cleaning was perceived as the most uncomfortable oral hygiene act to perform (43%). On the contrary, cleaning dental prostheses was perceived as the most comfortable task (70%), followed by performing oral hygiene in older persons who do not resist (64%) and motivating care-independent older persons to perform oral hygiene (61%).

In the regression model, results show that caregivers where oral care is part of their daily duties reported significantly less environmental ($B = -1.36$) and less personal barriers ($B = -1.97$) than caregivers where oral care was not part of their daily duties. Caregivers in social profit organizations reported less environmental barriers than those in community care organizations (OCMW; $B = 0.98$; Table 3).

Current Oral Health Care Practices

When caregivers were confronted with physical resistance, several response strategies were used (Supplementary Table 3). About 79% of the caregivers stated that in most cases they tried talking to the older person, followed by using diversion (67%) and the use of humor (57%). When confronted with physical resistance, 37% of the caregivers answered that they use mouth rinse instead of providing standard oral hygiene care and 48% of the caregivers refrained from providing oral care in the majority of cases. According to the caregivers, no guidelines for cleaning natural teeth (31%) or a dental prosthesis (21%) were available in the care organization and about 21% and 16% of the caregivers, respectively, were unaware of such guidelines. According to 7% of the caregivers, guidelines for cleaning natural teeth were supported and followed in the entire organization according. About 20% of the caregivers said that the guidelines were mostly followed

and 17% said they used their own way (Figure 3). In contrast, 14% of the caregivers reported that the guidelines concerning cleaning dental prostheses were followed by the whole organization, whereas 32% said that they were mostly followed and only 11% used their own method. Approximately 4% of the caregivers indicated that protocols were tailored to the individual. Almost 1 in 4 caregivers answered that interdental cleaning was not part of their job description. In addition, about 7% of the caregivers stated that tooth brushing and cleaning of a prosthesis was not included in their job description (Supplementary Figure 1).

The use of guidelines for taking care of natural teeth was strongly associated with the presence of an oral health policy. Caregivers working in care organizations with an oral health policy reported significantly more standardized use of daily oral care guidelines for natural teeth ($B = 1.25, p < .001$) and for dental prostheses ($B = 1.15, p < .001$). The use of guidelines for the daily oral care of dental prostheses was significantly more frequent when the organization was collaborating with a dentist ($B = 1.22, p < .001$).

Between the organizations enrolled in the Gerodent project and those not enrolled, no significant differences were found regarding cooperation with a dentist and having a clear expectation of what oral care tasks are, although a significant difference was found for the presence of an oral health policy in the organization ($p = .019$) and having a contact point for questions regarding oral health ($p = .004$). Concerning barriers experienced in the performance of oral care, for the items lack of time, shortage of staff and lack of material, no significant differences were found between the responses of caregivers working in organizations participating in Gerodent or not. In addition, both groups agreed that lack of skills and knowledge were important barriers, with no significant difference across groups. Regarding the residents' factors, such as presence of halitosis, deprived oral health, and poor visibility of the oral cavity, no differences were found in the perceived barriers. In both groups, caregivers felt equally uncomfortable when the older person showed physical or verbal resistance.

Table 4. Caregivers' Perceived Oral Care Barriers

Responses	Frequencies		
	Uncomfortable [%]	Neutral [%]	Comfortable [%]
1. How comfortable do you feel when...			
Caring for natural teeth	37 [18.8]	67 [34.0]	78 [39.6]
Performing interdental cleaning	84 [42.6]	41 [20.8]	25 [12.7]
Cleaning a prosthesis	8 [4.1]	38 [19.3]	137 [69.5]
Motivating a care-independent elder	15 [7.6]	48 [24.4]	121 [61.4]
Performing oral care with older persons who:			
show verbal resistance	124 [62.9]	36 [18.3]	24 [12.2]
show physical resistance	138 [70.1]	29 [14.7]	17 [8.6]
show no resistance	17 [8.6]	40 [20.3]	126 [64.0]
are edentate	46 [23.4]	72 [36.5]	62 [31.5]
are palliative	34 [17.3]	49 [24.9]	95 [48.2]
have halitosis	86 [43.7]	60 [30.5]	37 [18.8]
have a deprived/bad oral health	103 [52.3]	46 [23.4]	34 [17.3]
2. If you perform oral care for your clients/residents, how often...	Less than half of the time [%]	About half or more [%]	Not in job description [%]
Does the person place his/ her hands in front of the mouth?	135 [68.5]	42 [21.3]	20 [10.2]
Does the person push you away	137 [69.5]	40 [20.3]	20 [10.2]
Does the person move his or her head uncontrollably	142 [72.1]	35 [17.8]	20 [10.2]
Does the person bite you	153 [77.7]	24 [12.2]	20 [10.2]
Does the person spit towards you	164 [83.2]	13 [6.6]	20 [10.2]
Does the person hit or kick you	158 [80.2]	19 [9.6]	20 [10.2]
Does the person refuse the oral care	135 [68.5]	43 [21.8]	19 [9.6]
Doesn't the person open his/her mouth	136 [69.0]	42 [21.3]	18 [9.1]
Can't the person open his/her mouth because of a disability	133 [67.5]	43 [21.8]	21 [10.7]
Aren't you able to perform oral health because of dysphagia	152 [77.2]	24 [12.2]	21 [10.7]
3. To what extent do you see the following as obstacles in performing oral care?	Disagree [%]	Neutral [%]	Agree [%]
Lack of time	47 [23.9]	38 [19.3]	112 [56.9]
Lack of staff	53 [26.9]	55 [27.9]	89 [45.2]
Lack of oral care materials	85 [43.1]	50 [25.4]	62 [31.5]
Executing oral care alone	115 [58.4]	58 [29.4]	24 [12.2]
Lack of knowledge	68 [34.5]	55 [27.9]	74 [37.6]
Lack of skills/training	67 [34.0]	56 [28.4]	74 [37.6]
Lack of self-efficacy	94 [47.7]	52 [26.4]	51 [25.9]
Respecting personal space of the elder	68 [34.5]	78 [39.6]	51 [25.9]
Visibility of oral cavity	70 [35.5]	66 [33.5]	61 [31.0]
Elder with halitosis	90 [45.7]	47 [23.9]	60 [30.5]
Elder with deprived oral health	83 [26.9]	53 [26.9]	61 [31.0]

Discussion

The aim of this study was to detect managers' and caregivers' perceptions of oral health, and their perceived needs, barriers, and current practices when delivering oral care in long-term care settings for older persons. These results are crucial input for the development of a methodology for implementing a structured oral care policy in long-term care facilities.

The first aim was to assess the perception of the overall oral health by managers and professional caregivers. Managers perceived oral health of residents more positively

than the caregivers. When the organization is collaborating with a dentist and when caregivers indicate that oral care is part of their daily duties, a more positive perception of oral health was observed. This confirms our hypothesis that collaboration with a dentist is important for the oral health perception. One could argue if this positive perception of oral health is desirable, when research indicates major oral health problems and high oral care needs in frail older people (30). Hennequin et al. observed that caregivers overestimate residents' oral health (31). This implies that oral health problems are missed out and that managing

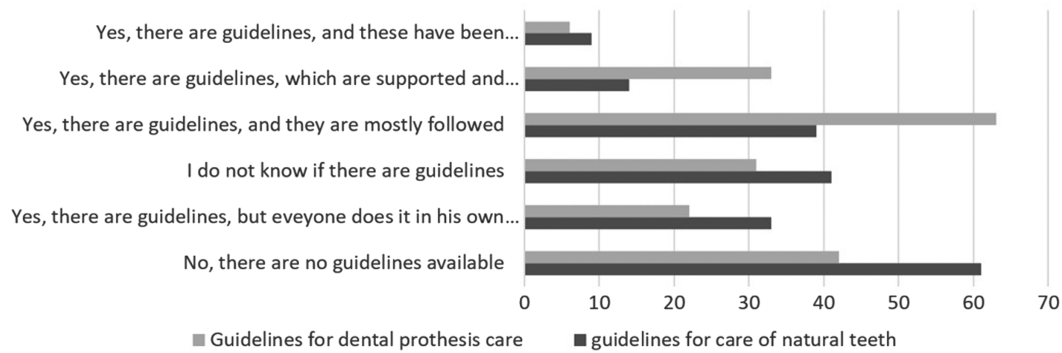


Figure 3. Availability of the guidelines for oral care of natural teeth and dental prostheses reported by the caregivers (%).

boards and caregivers have a too optimistic picture of their residents' oral health. Further research should elucidate the relation between the objective oral health status and the oral health perception of caregivers and management.

The second aim was to detect the needs caregivers and managers experience concerning oral care. The most important finding was the need for training concerning the performance of oral health when the resident refused care. This was also confirmed by the finding that caregivers were most uncomfortable performing oral care when the resident was physically or verbally resisting. De Visschere et al. also found that residents expressing gratitude had a positive effect on nurses' compliance in contrast with unwilling residents (32). One in 5 thought residents of their organizations had a lot of oral care needs and more than half perceived several oral care needs within the residents. This can further enhance the threshold for daily oral care since deprived oral health functioned as a barrier for more than half of the caregivers (32).

Third, this research explored the oral care barriers experienced by caregivers. The most important barrier reported by the caregivers was lack of time. A study by De Visschere et al. explored this barrier and found more than half of the participants saying it was not so much a lack of time that was acting as most important barrier but the lack of priority given to oral care or time management during daily care of the residents (32). As confirmed by the needs expressed by the caregivers they also experience resistance to care as an important barrier; most were uncomfortable with performing oral care when residents showed resistance (physical and verbally). When confronted with residents resisting to oral care, most of the caregivers tried to talk or used humor which can be described as a good way of dealing with resistance. Nevertheless, almost half of the caregivers still use occasionally negative strategies such as stopping to perform oral care or using a mouthwash instead. Caregivers reported less barriers when they had a significant role in performing daily oral care for older individuals. This implies that not only knowledge about oral care is required, but also acquiring skills needed to perform daily oral care in difficult circumstances (25). This need for more training is also confirmed by the fact that

the majority of the caregivers is interested in an on-site oral health training.

The evaluation of the current oral health practices applied by the managers and caregivers revealed that 40% of the organizations did not have an oral health policy and very few organizations made use of adequate guidelines for the oral care of natural teeth. This stresses the need for guidelines concerning preventive oral care in Flanders. It is crucial to include this information in the education of caregivers, to facilitate the implementation, distribution and use of these guidelines. In contrast with all other oral care tasks, interdental cleaning is not considered as part of the job description. This means that it is important to focus on interdental cleaning as a standard part of daily oral care. Even in the general population in Flanders, only 20% reported to use a wooden toothpick and 15% dental floss (9). The finding that the presence of an oral health policy and the use of guidelines for daily oral care are linked stresses the importance of implementing an oral health care policy in long-term care settings and making standardized oral health policies available.

In this study, despite the low response rate, the participating organizations can be considered representative for the Flemish residential care sector. The low response to participation confirms the limited attention paid to oral care in health care. In addition, the comparison between the responses of caregivers and managers in organizations participating or not in the Gerodent project showed that the barriers they perceive in the oral health care for older people are very similar.

Implications

The analysis of the oral health care perceived needs, barriers, and current practices is the first step of an intervention mapping structure that ultimately aims to improve oral health in long-term care settings. It is essential to identify caregivers' barriers and needs toward oral health and oral care in order to develop an effective intervention, in this case, the installation of an oral health policy in care organizations, that overcomes the observed barriers and meets the indicated needs. The results show that contact with oral

care is important for the perception of the caregivers. The more oral health is part of their daily tasks, the better the caregivers perceive oral health and the fewer barriers they experience. Furthermore, education and on-site training on how to perform qualitative daily oral care is needed to promote the use of optimal response strategies when there is care resistance. Lack of guidelines on how to perform oral care in frail older persons underlines the need for more oral care topics to be included in the education of health care students as well as on-site training. Installation of an oral health policy and the collaboration with a dentist encourages basic use of guidelines and protocols in long-term care settings. These outcomes are useful guidelines for the development of a structured oral health policy implementation strategy.

Supplementary Material

Supplementary data are available at *Innovation in Aging* online.

Funding

This research is funded by KU Leuven (C24M/20/063) and the Research Foundation - Flanders (FWO TBM T003220N).

Conflict of Interest

None declared.

Acknowledgment

The authors thank all the participants who took the time to fill out our survey.

Ethics Approval

The protocol was approved by the ethics committee of the Ghent University Hospital (no. B670201733146).

Informed Consent

Informed consent was obtained from all individual participants included in the study.

Data Availability

All data are available upon request.

References

- Wan He, Daniel Goodkind, Paul Kowal. U.S. Census Bureau, International Population Reports, P95/16-1, An Aging World: 2015. Washington, DC: U.S. Government Publishing Office; 2016.
- Müller F, Naharro M, Carlsson GE. What are the prevalence and incidence of tooth loss in the adult and elderly population in Europe? *Clin Oral Implants Res.* 2007;18:2–14. doi:10.1111/j.1600-0501.2007.01459.x
- Rothera I, Jones R, Harwood R, Avery A, Waite J. Health status and assessed need for a cohort of older people admitted to nursing and residential homes. *Age Ageing.* 2003;32:303–309. doi:10.1093/ageing/32.3.303
- Schols JMGA, Crebolder HFJM, van Weel C. Nursing home and nursing home physician: the Dutch experience. *J Am Med Dir Assoc.* 2004;5(3):207–212. doi:10.1097/01.JAM.0000123031.43619.60
- Miremadi S, Cosyn J, Janssens B, De Bruyn H, Vanobbergen J, De Visschere L. A pilot assessment tool of the need for oral health care and cost prediction in institutionalized elderly people. *Int J Dental Hygiene.* 2017;15(4):306–312. doi:10.1111/idh.12222
- RIZIV. *Pilootproject Mondzorg Voor Personen Met Bijzondere Noden (PBN).* 2011. <https://www.inami.fgov.be/nl/publicaties/Paginas/mondzorg-bijzondere-noden.aspx>
- Graziani F, Gennai S, Solini A, Petrini M. A systematic review and meta-analysis of epidemiologic observational evidence on the effect of periodontitis on diabetes: an update of the EFP-AAP review. *J Clin Periodontol.* 2018;45(2):167–187. doi:10.1111/jcpe.12837
- De Visschere LM, Grooten L, Theuniers G, Vanobbergen JN. Oral hygiene of elderly people in long-term care institutions? a cross-sectional study. *Gerodontology.* 2006;23(4):195–204. doi:10.1111/j.1741-2358.2006.00139.x
- RIZIV. *Eindrapport Dateregistratie- En Evaluatie Mondgezondheid Belgische Bevolking 2012–2014.* 2015. <https://www.inami.fgov.be/nl/publicaties/Paginas/studie-mondgezondheid-belgische.aspx>.
- Vilstrup L, Holm-Pedersen P, Mortensen EL, Avlund K. Dental status and dental caries in 85-year-old Danes. *Gerodontology.* 2007;24(1):3–13. doi:10.1111/j.1741-2358.2007.00141.x
- Niesten D. De invloed van kwetsbaarheid op mondzorggedrag en tandartsbezoek van ouderen. *Ned Tijdschr Tandheelkd.* 2015;122(04):210–216. doi:10.5177/ntvt.2015.04.14239
- Sjögren P, Nilsson E, Forsell M, Johansson O, Hoogstraate J. A systematic review of the preventive effect of oral hygiene on pneumonia and respiratory tract infection in elderly people in hospitals and nursing homes: effect estimates and methodological quality of randomized controlled trials. *J Am Geriatrics Soc.* 2008;56(11):2124–2130. doi:10.1111/j.1532-5415.2008.01926.x
- Hollaar VRY, van der Putten G-J, van der Maarel-Wierink CD, Bronkhorst EM, de Swart BJM, Creugers NHJ. The effect of a daily application of a 0.05% chlorhexidine oral rinse solution on the incidence of aspiration pneumonia in nursing home residents: a multicenter study. *BMC Geriatrics.* 2017;17(1):128. doi:10.1186/s12877-017-0519-z
- Dietrich T, Webb I, Stenhouse L, et al. Evidence summary: the relationship between oral and cardiovascular disease. *Br Dental J.* 2017;222(5):381–385. doi:10.1038/sj.bdj.2017.224
- Kimura Y, Wada T, Ishine M, et al. Community-dwelling elderly with chewing difficulties are more disabled, depressed and have lower quality of life scores. *Geriatr Gerontol Int.* 2009;9(1):102–104. doi:10.1111/j.1447-0594.2008.00489.x
- Yamamoto T, Kondo K, Misawa J, et al. Dental status and incident falls among older Japanese: a prospective cohort study. *BMJ Open.* 2012;2(4):e001262. doi:10.1136/bmjopen-2012-001262

17. Niesten D, van Mourik K, van der Sanden W. The impact of having natural teeth on the QoL of frail dentulous older people. A qualitative study. *BMC Public Health*. 2012;12(1):839. doi:10.1186/1471-2458-12-839
18. Porter J, Ntouva A, Read A, Murdoch M, Ola D, Tsakos G. The impact of oral health on the quality of life of nursing home residents. *Health Qual Life Outcomes*. 2015;13:102. doi:10.1186/s12955-015-0300-y
19. Jablonski RA, Munro CL, Grap MJ, Elswick RK. The role of biobehavioral, environmental, and social forces on oral health disparities in frail and functionally dependent; 2005;7(1):75–82. doi:10.1177/1099800405275726
20. Chami K, Debout C, Gavazzi G, et al. Reluctance of caregivers to perform oral care in long-stay elderly patients: the three interlocking gears grounded theory of the impediments. *J Am Med Dir Assoc*. 2012;13(1):e1–e4. doi:10.1016/j.jamda.2011.06.007
21. De Visschere L, de Baat C, De Meyer, et al. The integration of oral health care into day-to-day care in nursing homes: a qualitative study. *Gerodontology*. 2015;32(2):115–122. doi:10.1111/ger.12062
22. Risma KM, Weber-Gasparoni K, Swenson SE, Ettinger RL, Qian F. Group home caregivers' comfort levels regarding physical resistance during oral hygiene care. *Spec Care Dent*. 2015;35(3):123–131. doi:10.1111/scd.12103
23. Jobman KJ, Weber-Gasparoni K, Ettinger RL, Qian F. Caregivers' perceived comfort regarding oral care delivery in group homes: a pilot study. *Spec Care Dent*. 2012;32(3):90–98. doi:10.1111/j.1754-4505.2012.00250.x
24. Vanobbergen JNO, De Visschere LM. Factors contributing to the variation in oral hygiene practices and facilities in long-term care institutions for the elderly. *Community Dent Heal*. 2005;22(4):260–265. <https://doi.org/10.1111/j.1754-4505.2012.00250.x>
25. Hoben M, Clarke A, Huynh KT, et al. Barriers and facilitators in providing oral care to nursing home residents, from the perspective of care aides: a systematic review and meta-analysis. *Int J Nursing Studies*. 2017;73:34–51. doi:10.1016/j.ijnurstu.2017.05.003
26. Wårdh I, Jonsson M, Wikström M. Attitudes to and knowledge about oral health care among nursing home personnel—an area in need of improvement. *Gerodontology*. 2012;29(2):e787–e792. doi:10.1111/j.1741-2358.2011.00562.x
27. Fernandez ME, Ruiter RAC, Markham CM, Kok G. Intervention mapping: theory- and evidence-based health promotion program planning: perspective and examples. 2019;7(August). doi:10.3389/fpubh.2019.00209
28. Forsell M, Kullberg E, Hoogstraate J, Herbst B, Johansson O, Sjögren P. A survey of attitudes and perceptions toward oral hygiene among staff at a geriatric nursing home. *Geriatr Nurs (Minneapolis)*. 2010;31(6):435–440. doi:10.1016/j.gerinurse.2010.08.011
29. Krausch-Hofmann S, De Almeida Mello J, Declerck D, et al. The oral health-related section of the interRAI: evaluation of test content validity by expert rating and assessment of potential reasons for inaccurate assessments based on focus group discussions with caregivers. *Gerodontology*. 2019;36(4):382–394. doi:10.1111/ger.12421
30. Janssens B, Vanobbergen J, Petrovic M, Jacquet W, Schols JM, De Visschere L. The oral health condition and treatment needs assessment of nursing home residents in Flanders (Belgium). *Community Dent Heal*. 2017;34(3):143–151. doi:10.1922/CDH_4086Janssens09
31. Hennequin M, Faulks D, Roux D. Accuracy of estimation of dental treatment need in special care patients. *J Dent*. 2000;28(2):131–136. doi:10.1016/s0300-5712(99)00052-4
32. De Visschere L, de Baat C, De Meyer L, et al. The integration of oral health care into day-to-day care in nursing homes: a qualitative study. *Gerodontology*. 2013;10:13. doi:10.1111/ger.12062