Perception of Care Givers about Oral Health Services for Institutionalized Elderly - A Mixed Method Study

Running title: Oral Health Services for Institutionalized Elderly

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Perception of Care Givers about Oral Health Services for Institutionalized Older Adults - A Mixed Method Study

**Background:** In India, the absence of formal training in geriatric dentistry and the lack of recognition of it as a specialty contributes to the deterioration of oral health in the older adults. India lacks specific oral healthcare policies for older adults. Additionally, caregivers' perspective in Indian old age homes regarding oral health care services remains underexplored, necessitating further studies in this context.

**Methods:** A mixed method study was conducted, and the quantitative component focused on assessing the oral health status of institutionalized older adults and caregivers' perceptions using a questionnaire. The qualitative part evaluates caregivers' perceptions of providing oral health care services for institutionalized older adults by conducting in-depth interviews.

**Results:** More than 50% of caregivers perceived that the oral health status of institutionalized older adults was fair even though institutionalized older adults has poor oral health status. Barriers include autonomy, difficulty in traveling, lack of financial support, lack of knowledge and time. Approaches for enhancing oral health services for institutionalized older adults include oral health education for older adults and caregivers, monthly dentist visits to the institution, utilization of portable dental chair services, collaboration with dental colleges/dental clinics, distribution of oral health education materials, and provision of oral hygiene aids.

**Conclusion:** Caregivers face barriers in providing oral health care services to institutionalized older adults, especially those who are functionally reliant and cognitively impaired. Findings from our study show that there is a need to collaborate with the dental colleges to provide oral health services in old age homes.

Keywords: Oral health, older adults, institutionalization, caregivers

Introduction
Older people are representative of a vulnerable population group who suffers greatly from oral diseases(1). In 2017, the number of individuals over the age of 60 years exceeded 962 million, twice as large as in 1980(2). The population is ageing in both high-income countries (HICs) and low-and middle-income countries (LMICs), however, by 2050, 80% of the population will be living in LMICs(3). According to the census 2011, the proportion of the older adults in India is 8.6%(4). The rising ageing population will significantly affect healthcare systems, as the older adults are susceptible to frailty and care dependency. When the older adults become frail and in need of complex care, they may be admitted to old age homes(5).

Increasing age is one of the strongest risk factors for poor oral health (6). In India, the only national oral health survey shows that the prevalence of oral diseases such as dental caries, periodontal disease, oral mucosal lesions, and extraoral lesions among the older adults aged between 65 and 74 years for 2002-2003 is 85% and 79.9%, 10.3% and 2.8% (7). 12.3% of older adults reported complete tooth loss (8) and found that older adults who reported tooth loss were 2.38 times significantly more likely to have poor Self-Rated Health (SRH) [2.38; CI: 1.99,2.83]. Dental care and treatment are a greater problem for the institutionalized older adults, which increases the prevalence of oral diseases. Institutionalized older adults have poorer oral health status than non-institutionalized older adults (9). Meta-analysis revealed that institutionalized older adults have a greater prevalence of edentulous (OR = 2.28, 95%CI = 1.68-3.07) and a higher number of decayed teeth (MD = 0.88, 95%CI = 0.71-1.05) and missed teeth (MD = 4.58, 95%CI = 1.89-7.27) (9). Edentulism is related to the inability of an older adult to carry out social activities such as talking with peers and participating in support networks (10).

Older adults populations with non-communicable diseases (NCDs) are also at a higher risk of experiencing oral health issues, and those with inadequate oral health are more likely to struggle with managing their NCDs effectively(11). Poor oral health also raises health care costs and is linked to increased risk for malnutrition(12), pneumonia(13), respiratory disease(14), diabetes(15) and cardiovascular disease(16) and also affects the quality of life(17). Functional limitations related to impairments associated with chronic disabling health conditions often result in this population requiring high levels of support from others with eating or drinking and daily oral care(18). Reliance upon others to maintain a clean mouth and the presence of dysphagia impact oral health considerably(18).

Oral health can be determined by different factors among the older adults, including those who are institutionalized, especially those who have limited functional or self-care ability(19). Providing oral care to nursing home residents is a complex and challenging care task(20). Lack of knowledge and training in providing proper oral care to residents, non-professional and unregulated workforce, high workloads and frequent interruptions throughout their process of care, general dislike of oral care,
general difficulties in providing oral care and lack of staff are contributing factors that deteriorate the oral health of the older adults (20). Oral health of institutionalized older adults, where there were no routine dental check-ups or oral care provisions, had a greater risk of poor oral health. Dental professionals visit old age homes not just to examine or treat a resident, but to teach caregivers simple oral hygiene techniques that can minimize oral health problems for the people in their care (21). Unlike countries like Brazil, Japan, Thailand, and the USA, there is no formal training for geriatric dentistry in India, and geriatric dentistry is not recognized as a specialty. Rather than, “free denture” services by some district health cells and dental schools, there is no specific oral healthcare policy for older adults (22). Even though many qualitative studies have been conducted in countries like Australia (23), Brazil (24, 25), Sweden (26), there is a lack of data from the perspective of caregivers of old age homes in India. Against this background, studies have been planned to explore caregivers’ perception in providing oral health care services to institutionalized elderly.

Methodology

A mixed method study was conducted from 1st June 2019 to 30th October 2019 in various old age homes in Bengaluru. The quantitative component involves assessing the oral health status and caregivers’ perceptions regarding the oral health status of institutionalized older adults. The qualitative part entails evaluating caregivers' perceptions in providing oral health care services for institutionalized older adults. The participants signed a written informed consent form and the study was approved by the Ethics Committee (XXXXXXXXXXXXXXXXXXXXX).

Quantitative data collection includes the sociodemographic details of the caregivers and data on caregivers' perceptions of the oral health of inmates, including the frequency of teeth cleaning (e.g., "How often do you clean his/her teeth?"). were collected. Additionally, the oral health status of institutionalized older adults was assessed using "World Health Organization (WHO) oral health performa-2013”.

For qualitative data, a research team consists of two dental public health specialist (S.K.M and K.P) and a postgraduate student of Public Health Dentistry (A.J). A.J conducted interviews and primary data analysis. S.K.M and P.K involved in study design and review of the analysis. Researchers decreased bias by refraining from reading relevant literature during data collection and analysis and avoiding discussions about their opinions. Furthermore, the researchers had no personal interest in the result. The principal investigator conducted A.J conducted prepared the Key Informant Interview (KII) guides based on the literature review and brainstorming with the research team.

The questionnaire includes sociodemographic details about the caregiver, followed by questions such as: How important is oral health for the older adults? What oral health services are provided at this institution? What are the barriers to providing oral health services or maintaining oral health for
institutionalized older adults? What services would be useful for improving the oral health of institutionalized older adults? Do you have any further suggestions for improving oral healthcare? Is there anything else that you would like to add?

The qualitative data collection involved conducting face-to-face in-depth interviews (IDIs) with caregivers at the old age homes. The interview questions delved into the caregivers' perceptions of providing oral health care services to institutionalized older adults. Participants were given advanced notice before the interview, a broad outline of the subject to be discussed, an indication of the type of information required of the participant, the reasons why the research was being carried out and how the information they provided would be used. An initial interview with a few opening questions was conducted to develop rapport-building between the investigator and the participant. The in-depth interviews ranged in duration from 30 to 45 minutes. All interviews were digitally recorded with the participant's consent. Initially, the data underwent transcription in Kannada and were sent to participants for member checking. Subsequently, an expert translated the data into English with a clear understanding of both languages.

A convenience sample of 54 institutionalized older adults and 54 caregivers, assigned to the selected institutionalized individuals, were enrolled for quantitative data. With assistance from caregivers, oral health status was assessed. For qualitative data collection, the purposive sampling method was utilized. After obtaining permission from the administrators of four different old age homes, it was decided to interview a minimum of 12-15 caregivers from each home. However, due to data saturation, the final sample comprised 12 caregivers. Participants who had been working as caregivers for at least six months or more at the time of data collection were included in the study.

Quantitative data were collected and analyzed using the SPSS (IBM Corp. Released 2023. IBM SPSS Statistics for Windows, Version 29.0.2.0 Armonk, NY: IBM Corp).

a. Sociodemographic variables b. perceptions and practice of caregivers, and c. oral health status of institutionalized older adults were presented descriptively.

For qualitative data, the recording was transcribed into verbatim. Initially, verbatim was read thoroughly. The translated document underwent data analysis through coding using the inductive method. Primarily, manual coding was conducted by two coders. Qualitative research data analysis occurred concurrently following each interview. The investigators then jointly compared the emerging themes and re-examined the data to achieve consensus and confirm thematic saturation using a code-recode strategy.

Results

Among 54 caregivers, 41 (75.9%) were females and 13 (24.1%) were males. More than 50% caregivers aged above 35 and 70.4% rendered their services to inmates' full-time employment (Table 1). More
than 50% of caregivers perceived that the oral health status of institutionalized older adults was fair (Table 2). 87% of the caregivers did not provide any support for brushing the teeth of institutionalized older adults. Mean DMFT was 15.52 (± 8.23). 76% of institutionalized older adults have periodontal pocket and 64.8% of individuals have loss of attachment (Table 3).

12 in-depth interviews were conducted with the caregivers. Among the participants 8 were female and 4 were male. The participant's age ranged from 35 to 53 years. Table 4: Summary of categories and subthemes developed from the quotes.

**Barriers in providing oral health services to institutionalized older adults at inmates level include**

i. Autonomy/ lack of cooperation

Most caregivers reported that older adults are reluctant to co-operate with them to provide oral health care and prefer self-reliance. Interestingly, the inmates believe in the perfection of self-performed actions.

"Sometimes when we want to support inmates in brushing, They react aggressively." - Male caregiver, participant no. 3.

"Most inmates are not ready to cooperate with us and want to do independently." - Female caregiver, participant no. 7.

"They believe if they do it by themselves, it will be perfect." - Male caregiver, participant no. 11.

ii. Difficulty to travel

The caregiver's statement indicates potential willingness among inmates to engage with dental treatment if it were made more accessible.

"It is challenging for the inmates to travel".- Female caregiver, participant no. 2.

"Health condition of the inmates is preventing them from utilizing the dental treatment; if the dentist can come here and provide the treatment, then they may be ready".- Male caregiver, participant no. 12.

iii. Lack of financial support

Caregivers highlighted the financial barriers faced by inmates in accessing dental treatments and highlighted anticipated neglect of care for older adults or institutionalized parents, particularly from their own children. This raises broader questions about social support systems and familial relationships.

"dental treatments are costly here. Inmates don't have financial support".- Female caregiver, participant no.1

"Mostly inmates' children won't look after their parents once they are admitted to the institution".-
Barriers in providing oral health services to institutionalized older adults at caregiver level include

i. Lack of knowledge

Caregivers is not informed about the specific oral health needs of the older adults population. The dearth of awareness may result in overlooking preventive measures, early detection of dental issues, and appropriate interventions. Furthermore, the misconception that oral health problems are an inevitable part of aging prevents caregivers in providing oral health services to the inmates.

"Oral health problems at this age are common; they are part of ageing." - Female caregiver, participant no. 2.

"We cannot do anything about oral health problems of the older adults; as age increases, there will also be some problems with mouths." - Female caregiver, participant no. 5.

"Generally, I will take care of general health, but I'm not aware of taking care of oral health" - Female caregiver, participant no. 8.

"I did not know that oral health will be prevented by appropriate intervention at this age" - Male caregiver, participant no. 11.

ii. Lack of time

Most caregivers reported that the scarcity of time, mainly due to the demands of routine care for older people, poses a substantial barrier to provide oral health services in institutionalized settings. The intricate nature of older adults care, encompassing medical, mobility, and emotional support, may inadvertently sideline oral health considerations.

"Time is not enough to take care of the general health itself; more than half of the time is spent making them do their daily routines." - Female Caregiver, participant no. 1.

"We caregivers are taking care of at least five inmates. To handle everything we won’t get much time" - Male caregiver, participant no. 10.

iii. Inadequate training for caregivers

Caregivers mentioned that inadequate training leads to a lack of awareness regarding proper oral hygiene practices, early signs of dental problems, and appropriate intervention strategies. This knowledge gap can result in suboptimal oral health outcomes for older adults residents in institutional care.

"If we are trained, we can provide oral health services." - Male caregiver, participant no. 3.
Suggestions in providing oral health services to institutionalized older adults were

i. Oral health education for older adults / caregivers

Caregivers reported that well-informed targeted education ensures maintaining oral hygiene, recognizing early signs of dental issues, and actively participating in their own oral care. Simultaneously, providing caregivers with comprehensive training programs equips them with the knowledge and skills needed to navigate the specific challenges associated with ageing-related oral health.

“Even if we are ready, they are not ready, so first we should create awareness among inmates that oral health is important”. - Male caregiver, participant no. 10.

ii. Monthly visit by dentist

Implementing a monthly visit by a dentist to an old age home is a proactive approach to providing essential oral health services for institutionalized older adults. This will ensure regular and consistent dental check-ups, allowing for the early detection and prevention of oral health issues.

“There is a limit to the amount of oral health care we can provide to inmates, so if doctors are coming and examining, it will be better”. - Male caregiver, participant no. 11.

“visit by the dentist can have more impact in improving the oral health status of the inmates”. Female caregiver, participant no. 6.

iii. Portal dental services

As most of the institutionalized older adults finds difficulty to travel, caregivers agrees that portal dental chair services at old age homes will benefit the older adults. This will ensures convenience and accessibility, eliminating the need to navigate external dentist. Additionally, the use of portal dental chairs supports regular check-ups, preventive care, and even minor treatments, contributing to the overall well-being of the older adults.

“As most of the inmates are not ready to travel and utilize dental treatment, it would be better if services could be provided in old-age homes”. - Female caregiver, participant no. 4.

“If the treatment required by the inmates can be provided here itself it will be better”. – Male caregiver, participant no. 12.

iv. Oral health education materials
Distributing informative materials, such as pamphlets, brochures, and visual aids, can empower older individuals with valuable knowledge about the significance of oral hygiene and preventive care and helps in reinforcing the information. “memory loss is an important problem faced by the inmates, so if reinforcement of oral health education is needed”. - Female Caregiver, participant no. 1.

“It will be better if instructions are written in a paper in local language and distributed between inmates”. - Female Caregiver, participant no. 6.

v. Collaboration with dental clinics/ dental colleges

Most of the caregivers highlighted that establishing collaborations between dental clinics or dental colleges and old age homes will help older adults to access specialized dental care without leaving the familiar environment. Dental professionals and students can conduct regular on-site check-ups, screenings, and treatments, addressing oral health needs efficiently. “Need of tie-ups with dental clinics or colleges”. - Female caregiver, participant no. 5.

“Monthly visits by the dental teams will help in improving oral health condition of the older adults”. – Male caregiver, participant no. 12.

vi. Provision of oral hygiene aids

Caregivers demanded the provision of oral hygiene aids to ensure residents had easy access to essential oral hygiene aids, such as toothbrushes, toothpaste, dental floss, and mouthwash. “Most of the inmates don’t have toothbrush or toothpaste they are just using their fingers for brushing”. - Female caregiver, participant no. 1.

“Inmates won’t buy toothpaste and toothbrush by themself, so if it is provided for free they may use it”. - Male caregiver, participant no. 12.

Discussion

This study aimed to examine the oral health status and explore perceptions of oral health service in old age homes using a mixed method approach. This type of research offers valuable insights into the fundamental conceptual processes and operational dynamics often disregarded by more quantitative approaches. Even though our results showed that oral health condition of institutionalized older adults is poor, consistent with the study conducted by Bhadauria et al. (27), and prasad et al (28), caregivers perceived the oral health of older adults as fair which indicates lack of knowledge or awareness about the oral health condition. When comes to the practices, nearly 50% percent of the caregivers does not...
provide the support the older adults in providing support oral hygiene care and this results was concordance with the findings by Dharamsi et al.(29).

After interviewing 12 caregivers of institutionalized eldelry in Bangalore, we have gained some understanding of the barriers in providing timely oral health care for institutionalized older adults and suggestions that need to be adopted.

Barriers in providing oral health care services were (i) Autonomy/ lack of cooperation: older adults with the mental or physical impairment often neglect the oral health service by the caregivers which was according to the findings by the Lindquist et al. (26). The lack of co-operation by the older adults was the most common obstacle reported by caregivers. Negative attitudes and bad moods are disincentives to those who have to carry out oral care, leading to inadequate service (23,24,30,31).(ii). Difficulty to travel: The caregivers mentioned that lack of appropriate transport or inability of inmates to travel alone impedes their ability to seek dental care outside of their immediate environment. De Mello also agreed that difficulty in moving is one of the barriers to providing oral health care (24). (iii). Lack of financial support: The high cost of dental care poses a substantial barrier, particularly for inmates who lack the financial means to meet their dental needs. This underscores a notable inequality in accessing essential healthcare services within the incarcerated population. The observation highlights the need for targeted interventions, including exploring more affordable dental care alternatives and implementing financial assistance programs. Findings from grounded theory analysis by Paulsson et al., 2002 (30) and qualitative study by Paley et al., 2004 (23) was consistent with our findings. (iv). Lack of knowledge: Caregivers frequently possess limited knowledge and education regarding oral hygiene care and dental diseases, which constrains their capacity to offer suitable assistance to residents. Reis et al. (31) evaluated the caregivers’ perceptions of the oral health of institutionalized older adults and found that the majority believed that loss of teeth was part of the ageing process, corroborating our findings. A study by Wardh et al., 2011 stated that 35% of nursing home personnel had no formal education in oral health care (32). (v). Lack of time: Caregivers identified conflicting priorities in their daily work routines lack of time as serious factors for not providing oral care for older adults. Rushed care from lack of time is an especially important trigger of responsive behaviors(20). Findings form other studies also support the evidence (23,30,31). To overcome this barrier, there is a critical need for streamlined care protocols, ensuring that sufficient time is allocated to address the unique dental needs of institutionalized older adults individuals. By recognizing the importance of oral health within the broader spectrum of care, institutions can foster a more holistic approach, ultimately enhancing the overall well-being.

The data demonstrated that a combined strategic approach is needed at the macro and process levels
to address the identified barriers. Firstly, oral health education explicitly targeted at the older adults is crucial. By providing tailored information about oral hygiene practices, common dental issues, and the importance of regular check-ups, older adults can be empowered to maintain their oral health actively. Studies need to evaluate the effectiveness of educational strategies tailored to care aides’ needs to reduce barriers identified in providing oral care (14). Supplementing these strategies is the distribution of oral health education materials. Pamphlets, brochures, and visual aids can serve as valuable resources, reinforcing key messages and promoting consistent oral care practices. Monthly visits by dentists represent another vital strategy. These regular check-ups facilitate early detection of dental issues and ensure timely intervention. Additionally, the personal interaction with a dentist can help build trust and alleviate any concerns, contributing to a positive attitude towards oral health. Portable dental chair services further enhance accessibility by bringing dental care directly to the older adults in institutionalized settings. This innovation addresses mobility challenges and ensures on-site treatment and preventive care. Mobile services or on-site treatment rooms were suggested to facilitate regular on-site visits (23). Collaboration with dental clinics and colleges extends the reach of specialized care to old age homes. This partnership not only benefits the institutionalized older adults but also provides practical training opportunities for dental students. The provision of oral hygiene aids is a simple yet effective strategy. Ensuring that residents have access to toothbrushes, toothpaste, and dental floss encourages regular oral care practices.

Enhancing the standard of oral health services within the institution could be achieved through an ongoing evaluation of the oral care provided to the older adults. This assessment should consider the involvement of inmates, caregivers, and administrators, prioritizing clinical effectiveness and efficiency and factors such as quality of life and autonomy. Integrating the promotion, prevention, and recovery of oral health into the regular care routine of institutions is essential for fostering sustained improvements in oral healthcare.

**Conclusion**

Perceptions of caregivers about the oral health of institutionalized older adults is fair, even though the oral health status is poor. Barriers to not rendering oral health services include autonomy, difficulty to travel, and lack of financial support, lack of knowledge and time. Suggestions for improving oral health services for institutionalized older adults include oral health education for older adults and caregivers, monthly visit of dentist to the institution, utilization of portable dental chair services, collaboration with dental colleges/dental clinics, distribution of oral health education materials and provision of oral hygiene aids. To provide comprehensive oral health care services in old age homes, there is a need to develop an institutional policy by collaborating with the dental colleges. Additionally, it’s time for a realistic strategic action plan from Dental Public Health professionals to address the
unique challenges and strive towards promoting better oral health outcomes and overall well-being among institutionalized older adults.

References


4. Ageing and health India [Internet]. [cited 2023 Apr 5]. Available from: https://www.who.int/india/health-topics/ageing


Table 1: Sociodemographic details of the caregivers

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<td>35-44 years</td>
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<td>45-55 years</td>
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<td>Graduate</td>
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<td>1.9</td>
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<td>Primary school</td>
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<td>1.9</td>
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<td>Employment status</td>
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<tr>
<td>Full time</td>
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<td>Part time</td>
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<td>Voluntary</td>
<td>6</td>
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n= study participants; %= Percentage
Table 2: Perceptions and practices of oral health care by caregivers

<table>
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<tr>
<th>Perceptions of caregivers about oral health of institutionalized older adults</th>
<th>n</th>
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<tr>
<td>Good</td>
<td>11</td>
<td>20.4</td>
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<td>Fair</td>
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<td>Poor</td>
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How often do you clean his/her teeth?

<table>
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<th></th>
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<tr>
<td>Never</td>
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<td>87</td>
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<td>Not everyday</td>
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<td>One time per day</td>
<td>6</td>
<td>11.1</td>
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n= study participants; %= Percentage

Table 3: Oral health condition of institutionalized older adults

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<tr>
<th>Oral Health Condition</th>
<th>n</th>
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<tr>
<td>Dental caries</td>
<td>Mean DMFT 15.52±8.23</td>
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<tr>
<td>Periodontal Pocket</td>
<td>Healthy 13 24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>pocket&gt;=4 41 76</td>
<td></td>
</tr>
<tr>
<td>Loss of attachment</td>
<td>0-3mm 19 35.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;=4mm 35 64.8</td>
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n= study participants; %= Percentage; DMFT= Decayed, Missing, Filled Teeth
Table 4: Summary of categories and subthemes developed from the quotes

<table>
<thead>
<tr>
<th>Categories</th>
<th>Sub-theme</th>
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<tr>
<td>• Lack of knowledge</td>
<td>Barriers at inmates level</td>
</tr>
<tr>
<td>• Time</td>
<td></td>
</tr>
<tr>
<td>• Inadequate training for caregivers</td>
<td></td>
</tr>
<tr>
<td>• Autonomy/ Lack of cooperation</td>
<td>Barriers at caregivers level</td>
</tr>
<tr>
<td>• Difficult to travel</td>
<td></td>
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<tr>
<td>• Lack of financial support</td>
<td></td>
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<tr>
<td>• Oral health eduction for <em>older adults</em> /</td>
<td>Suggestions for improving oral health services</td>
</tr>
<tr>
<td>caregivers</td>
<td></td>
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<tr>
<td>• Monthly visit by dentist</td>
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<td>• Portable dental chair services</td>
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<td>• Oral health education materials</td>
<td></td>
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<tr>
<td>• Collaboration with dental clinics/ dental</td>
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<tr>
<td>colleges</td>
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<tr>
<td>• Provision of oral hygiene aids</td>
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