Gerodontology

WILEY

ORIGINAL ARTICLE OPEN ACCESS

Improving Oral Care in Stroke Patients: Patients' and Carers' Experiences of Oral Care in a Hospital Environment Following Acute Stroke

Hazel Dickinson | Catherine Elizabeth Lightbody | StJohn Crean | Caroline Watkins

University of Lancashire, Preston, UK

Correspondence: Hazel Dickinson (hdickinson1@lancashire.ac.uk)

Received: 9 June 2025 | **Revised:** 23 April 2026 | **Accepted:** 29 April 2026

Keywords: oral care | oral health | patient experience | quality of life | stroke

ABSTRACT

Objective: This study aimed to explore the thoughts and feelings of stroke patients and their carers (family/guardians) about oral care during hospitalisation, and (in turn) inform future research and service development.

Background: Stroke is a leading cause of adult disability and associated physical and cognitive impairments can compromise oral care and oral health–related quality of life. Despite its importance, oral care is under-researched in stroke services, with limited evidence to underpin clinical guidelines, particularly from the perspective of patients and carers.

Materials and Methods: Qualitative research based on interpretive inquiry. A convenience sample of 10 patients requiring assistance with oral care and six carers of stroke patients who lacked capacity were recruited from two Stroke Units from two large teaching hospitals in the Northwest of England, UK. Semi-structured interviews explored participants' experiences of oral care during hospital admission. Interviews were transcribed verbatim and analysed using Framework analysis.

Results: Five main themes were identified: Attitudes to oral health; In-hospital oral care; Factors affecting in-hospital oral care; Impact on the patient; and Facilitators to oral care. Patient and carers explained that having the opportunity to address their oral care and oral comfort was important for their well-being.

Conclusion: Oral care is an essential but often overlooked aspect of stroke recovery, with patients and carers valuing comfort and hygiene despite inconsistent provision. Embedding routine assessment, reliable resources, staff education and family involvement into stroke protocols could reduce complications and establish oral care as a standard, patient-centred practise.

1 | Introduction

In the UK, over 100,000 people have a stroke annually, and there are 1.3 million stroke survivors [1]. Although age-standardised rates of stroke appear to be reducing [2]. Stroke numbers do continue to increase across most areas of the world in both high and low income countries [3]. Stroke is the leading cause of adult disability, and strokes can affect people's performance of everyday care activities. For some stroke patients, their physical and cognitive dependencies affect their ability to perform oral care and maintain oral health. Oral care is essential for many reasons: maintaining a healthy oral cavity, preventing complications and maintaining psychological well-being and quality of life [4–8]. There is increasing evidence supporting an association between high colonisation of oral pathogenic bacteria and chest infection or pneumonia in patients who are medically ill, immuno-compromised, or dependent on others for their oral care [9–13]. In an acute stroke population, dependent stroke patients are more at risk of developing a chest infection in the first few weeks of stroke, with 10% developing a chest infection in hospital [14, 15]. Increasing both length of stay in hospital and mortality [14, 16, 17]. Good oral care may contribute to reducing

the risk of chest infection and pneumonia and improve long term outcomes [17].

The impact of oral care on health and well-being post-stroke has been explored with oral health-related quality of life questionnaires; issues such as reduced ability to chew, halitosis and a feeling that the oral cavity was dirty were found to impact on people's well-being and quality of life [4–8]. Facilitating oral care is essential post-stroke, as it impacts patient outcomes and psychological well-being [4].

Despite the importance of oral care, worldwide guidance is limited with little or no evidence to support the recommendations. The National Clinical Guidelines for Stroke for the United Kingdom and Ireland [18] provide some guidance with regard to oral care interventions, frequency of interventions and staff and family training in providing oral care [19, 20]. The American Heart Association/American Stroke Association [21] and European Stroke Organisation [22] recommendations are medically focused and advocate that oral care protocols should be considered to reduce the risk of pneumonia in patients with dysphagia.

Lack of evidence underpinning guidelines worldwide would suggest that oral care is under-researched. Oral care provision remains a low priority in the hierarchy of care, due to the lack of evidence and being under-resourced. More robust research in oral care may improve service provision, but it would require service-user consultation using qualitative methodologies to ensure research evidence and service developments meet their needs and expectations [23, 24]. This study was part of a postgraduate portfolio of research aimed to explore the thoughts and feelings of stroke patients and their carers (family/guardians) regarding oral care received whilst in hospital and to inform future research in the delivery of oral care in this patient population.

2 | Materials and Methods

An Interpretative Inquiry approach was used. Interpretive Inquiry is a method that allows researchers to gain a greater understanding of people's experiences of ill health and subsequently to inform clinical understanding [25]. This method allows researchers to use their a priori knowledge, such as people's experience of nursing, stroke care and the oral assessment literature to inform the study. Semi-structured interviews were used to capture the patients' and carers' experiences of oral care.

2.1 | Setting and Recruitment

A convenience sample of patients was recruited from a preselected population to enable exploration of oral care experiences across the hospital pathway and different providers. Patients who could consent independently and carers of those patients who lacked capacity to consent were recruited from two Stroke Units from two large teaching hospitals in the Northwest of England, UK: a combined Acute Stroke Unit with a Rehabilitation Unit based on the one hospital ward (CASRU) and a single Stroke Rehabilitation Unit (SRU).

Patients were eligible for inclusion in the study if they were over 18 years of age, had been admitted with a new diagnosis of stroke and required assistance with oral care, and were able to provide consent to participate in an interview. Patients with expressive dysphasia could participate if they were able to make their wishes known. Patients were excluded if they were medically unstable or did not consent to participate. Exclusion was determined by the clinical team.

Carers were eligible to participate in the study if they were a carer or relative of a patient who had been admitted with a new diagnosis of stroke and required assistance with their oral care, lacked capacity, and were unable to provide consent. The carer also had to be over 18 years of age and consented to participate in an interview.

Potential participants were initially approached by a member of the clinical team at each unit; they were provided with an information leaflet and advised that participation was voluntary and that their care would not be affected if they did not participate. Interested individuals were then introduced to Researcher A, who arranged a meeting to explain the study in detail, answer questions and assess capacity to provide informed consent. At the time, Researcher A confirmed the patient's understanding of the study, explained its voluntary nature and their right to withdraw at any time without consequence. Participants were given a minimum of 24 h to consider participation.

2.2 | Data Collection

Data were collected on the patients' age, sex, dentition, side affected by the stroke, severity of stroke according to the Oxford Community Stroke Project Classification (OCSP) [26], presence of dysphagia and feeding method. Total Anterior Circulation Syndrome strokes (TACS) were classed as severe; Partial Anterior Circulation Syndrome strokes (PACS) were classed as moderate; and Lacunar Syndrome stroke (LACS) were classed as mild.

Interviews were conducted by Researcher A, guided by a semi-structured interview schedule. In interpretive research, the researcher guides the data collection to answer a specific question. Using a priori knowledge and information gathered from the literature, an interview schedule was developed to explore the patient and carer's thoughts and feelings of their experiences of oral care in a hospital setting. To ensure relevant areas of discussion were included, prior to the commencement of the data collection, the interview schedule was piloted with a small number of staff and refined according to their feedback.

Following consent, the interviews were conducted at a time and place that was convenient to the participant, in a quiet room in the hospital. Participants who were unable to leave their bed were interviewed by the bedside with the curtains drawn to provide some privacy. Interviews were of 30–45 min duration.

All interviews were digitally audio-recorded, and the recordings were anonymised and stored on a secure computer until they were transcribed verbatim. All participants had the opportunity to verify the content of the transcript.

2.3 | Data Analysis

Data synthesis was undertaken using Framework Analysis [27]. This is a systematic process which is flexible and can be adapted to many qualitative approaches to generate themes and sub-themes (Figure 1). Each transcript was uploaded to Atlas ti and read several times by Researcher A. Initial notes and comments were annotated in the margin and themes were identified.

2.3.1 | Rigour and Reflexivity

Researcher A is a registered nurse with over 20 years' experience in older people's and stroke care, with a background in research, education and service development. Their interest in oral care stems from both clinical observations and personal values, which they acknowledge may influence their perspective. Reflexivity was maintained throughout to minimise bias and ensure rigour. Trustworthiness and rigour were maintained via two researchers reviewing a sample of the transcripts. This included Researcher A and Researcher B (who was an experienced qualitative researcher) randomly coding one-third of the transcripts independently. Once Researchers A and B had immersed themselves in the data, they met to discuss their initial ideas. Themes and subthemes' names were agreed and where there were differences a discussion took place as to the coding that accurately presented participants' perspectives.

2.4 | Ethical Considerations

Ethical approval was granted by the National Research Ethics Service (11/NW/0692) and from the University ethics panel (BuSH022). All patients and carers were provided with written and verbal information and written informed consent was gained before the interviews took place.

3 | Results

3.1 | Participant Characteristics

Ten patients were recruited, five patients from the Combined Acute Stroke and Rehabilitation Unit and five from the Stroke Rehabilitation Unit. The median age of the patients was 78 years (Inter Quartile Range [IQR] 68–85). Nine (90%) were female. Four patients had a left-sided hemiparesis, five had a right-sided hemiparesis and one had no hemiparesis; three patients were categorised as having had a 'severe' stroke, six were considered 'moderate' and one 'mild' stroke. Eight patients had dysphagia at some point during their hospital stay, of whom four had Naso Gastric (NG) feeds commenced and three were still receiving NG feeds at the time of the interview. Five of the eight progressed to a normal diet and fluids, and four still had difficulty controlling their saliva.

Six carers were recruited, of whom two cared for one patient. Three carers were recruited from the Combined Acute Stroke and Rehabilitation Unit and three carers from Stroke Rehabilitation Unit. The median age of the carers was 52 years (IQR 45–54). Five carers were female, of which four were daughters of patients, and one a spouse. The male carer was a son.

Five main themes with sub-themes were identified (Figure 2): Attitudes to oral health; In-hospital oral care; Factors affecting in hospital oral care; Impact on the patient; and Facilitators to oral care.

3.2 | Attitudes to Oral Health

This theme captured participants' personal beliefs, values and practises related to oral care. It reflected the participants' perceived importance of oral health through two sub-themes: medical importance and the importance of oral care.

Step 1 Familiarisation
Familiarisation of transcripts
Making notes on the script of initial thoughts and immersing self in the data.

Step 2 Identifying a thematic framework

Taking the notes made on the transcript, to create key issues and themes that are occurring. These may reflect topics set out in the interview spine, researcher notes and *a priori* knowledge. These themes create the initial categories for the framework.

Step 3 Indexing and charting

The scripts are reviewed again and any quotations identified in familiarisation are indexed with the framework category and a reference is placed in the margin.

Once all the scripts have been indexed the researcher then summarises the thoughts of each individual into a chart which has been drawn from the framework categories.

Step 4 Mapping and interpretation

All the information in the charts is synthesised to visually see how the themes and subthemes relate to one another. Mapping aims to answer the key objectives of the research

FIGURE 1 | Steps of framework analysis.

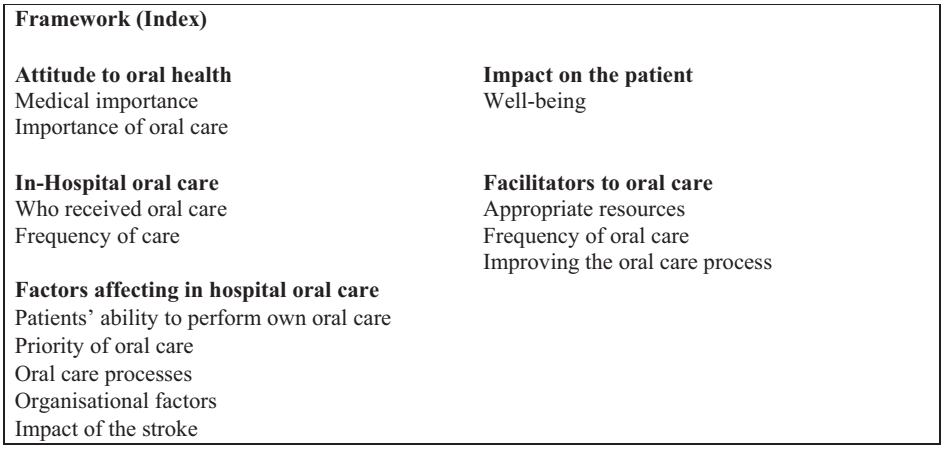

FIGURE 2 | Themes and sub-themes of patients' and carers' experiences of oral care in-hospital.

3.2.1 | Medical Importance

Three patients felt that oral care was important in preventing systemic health problems and complications as described by Patient 1,

> Well, I think it's very important for the simple reason if you don't look after your mouth the germs are going right through your body.
>
> (Patient 1)

> I think it is very important, I mean you don't want bad breath do you.....to make them look good and feel good.
>
> (Patient 5)

Carers also thought that oral care was important in preventing dental disease and preventing medical complications, for example,

> Yeah, cos I think that that means if you have bad oral hygiene then you can get infection or things like thrush or er if you have gum disease. All these things well I mean people used to die of gum disease in ancient times cos nobody was doing anything about the teeth. It's just gets progressively worse.
>
> (Carer 3)

3.2.2 | Importance of Oral Care

Oral health was also viewed by the participants as important from a personal perspective. Six patients reported that having a clean, fresh mouth made people feel better, improved well-being and prevented problems such as halitosis. For example,

> Two or three times a day, certainly after food. Very important because I smoke the brushing, the flossing, the mouthwash, the gargling.
>
> (Patient 5)

Four relatives described oral care as being very important to their relatives because they had long established oral care routines, which included regular cleaning of the teeth and visits to the dentist. Carer 4's comment illustrates this point,

> She was very clear about her mouth hygiene she was very, we all are in the family, very strict. Yes, all her own teeth and she's 84. No but she is, erm, but er very strong on cleaning teeth you know. In fact, she was told by the dentist once not to brush so hard.
>
> (Carer 4)

Carers had strong views about the importance of oral care in sick patients. Three carers such as Carer 1 were surprised about how quickly oral health could deteriorate in stroke patients.

> Again, mouth care is making sure the mouths clean, you know as best could be. It's like your own oral hygiene you know you look after that so why can't it be looked after in a sick patient, I feel disgusted at the way, I'm not disgusted that's a wrong word, surprised, very surprised, I never thought somebodies' mouth could go like that through lack of care.
>
> (Carer 1)

3.3 | In-Hospital Oral Care

This theme explored the nature, consistency and quality of oral care provided to patients during their hospital stay. Participants' comments reflected the practical aspects of care delivery, and two sub-themes were identified: who received oral care; and the frequency of oral care.

3.3.1 | Who Received Oral Care

Two patients reported that nurses appeared to determine who required assistance with oral care without the patient having had any assessment. Patient 6 felt that dependency was key to

nurses' decision-making processes and perceived the nurses deemed patients as requiring assistance with oral care only if they were bed-bound or unwell.

> I think I wasn't as severe as most of them it was only as sort off a mild stroke..... I don't think anybody actually cleans people unless they are absolutely immobile, I don't think anybody, nobodies cleaned my teeth.
>
> (Patient 6)

3.3.2 | Frequency of Care

The provision of patients' oral care was reported as fragmented by the participants. Patient 8 reported poor oral care provision in the Acute Stroke Unit but once they were transferred to the Stroke Rehabilitation Unit, the oral care provision improved.

> I could never understand why they never asked you to clean your teeth (in the acute ward). Unless it was, I was so, I was so poorly then I couldn't do much at all then at the time.
>
> (Patient 8)

Three carers also felt that oral care in the Acute Stroke Unit was limited, and that it was better in the Stroke Rehabilitation Unit, where more resources and equipment appeared to be available. For instance, Carer 4 said,

> In the latter stages they've dealt with it very well in the initial stages in the acute stages ... I think it could have been improved .... Improved quite easily really with not a great deal of resources would have made life a lot better for him.
>
> (Carer 4)

3.4 | Factors Affecting In-Hospital Oral Care

The carers identified that their relative's oral cavity and oral care whilst in hospital were influenced by several factors, including patients' ability to perform their own oral care; priority of oral care; oral care processes; organisational factors and the impact of the stroke.

3.4.1 | Patients' Ability to Perform Own Oral Care

The main factor affecting patients' in-hospital oral care was the physical impact the stroke had on the patient, which affected their ability to maintain a healthy moist oral cavity and prevent complications as described by Carer 3.

> Especially in somebody older like my dad I suppose the nurses almost have to do it for him because he's not capable at the moment.
>
> (Carer 3)

3.4.2 | Priority of Oral Care

In general, oral care provision was perceived as poor by two of the carers. Carer 1 even challenged the nurses about the frequency of their mother's oral care,

> And I brought up the oral hygiene and again this staff nurse said well, yeah it does get done. So, I said well, we can put so many of those swabs in a pot and we can go back and the same amount of swabs will be in the pot. So, she said well, the nurses takes their own trolley around with the swabs on. So, we don't know.
>
> (Carer 1)

One carer suggested that a possible reason for the lack of oral care provision was because the nursing and medical team saw it as a low priority, as illustrated by Carer 6.

> It's not seen as the most important thing, is it?
>
> (Carer 6)

3.4.3 | Oral Care Processes

To avoid dentures being lost whilst nil-by-mouth, two patients said that it appeared that the hospital routine was to send dentures home, as illustrated by Patient 1.

> No as I say they took them home with my clothes because I did not need them.
>
> (Patient 1)

This apparent routine created anxiety for the patients because they had noticed changes in their mouth and face due to weight loss whilst in hospital and they were worried the dentures would not fit again.

A patient highlighted a lack of resources such as a toothbrush and toothpaste and how this impacted on the quality of oral care received, saying:

> But unfortunately, I didn't pack to come here so I'm missing various articles.
>
> (Patient 10)

3.4.4 | Organisational Factor

Patients also commented on how they did not want to ask nurses for oral care assistance because they appeared to be too busy. Patient 8 said they were willing to forgo their normal daily routine of cleaning their teeth three times a day whilst they were in hospital for this reason.

> I don't know whether it's because I don't want to bother them, ask them, say can I clean my teeth again I don't know.
>
> (Patient 8)

A carer also felt that the nurses had too many other tasks to prioritise saying,

> Only that they are very busy isn't it.... Busy ward.
>
> (Carer 3)

and another carer felt that nurses did not have enough time and consequently, patients were reluctant to ask for help. For example,

> (Name) won't ask for anything.... No, no he'll ask me, but he won't ask anybody else, he won't ask anybody else.
>
> (Carer 6).

3.4.5 | Impact of the Stroke

All 10 patients reported that many of the physical problems associated with their stroke such as dysphagia, changes in the facial muscles and sensation of the oral cavity also impacted on their oral health and hygiene. The loss of the oral muscle definition was described by Patient 2 as affecting the wearing of dentures and their ability to control food, making the oral cavity feel uncomfortable. Patient 2 also stated loose fitting dentures affected their ability to communicate with family and were distressing.

> My mouths alright but the teeth drop down now..... I can't speak properly without them in.
>
> (Patient 2)

All carers acknowledged how the stroke had impacted on patients' physical ability to attend to their daily oral health routine as described by Carer 2,

> Especially in somebody older like my dad I suppose the nurses almost have to do it for him because he's not capable at the moment.
>
> (Carer 2)

3.5 | Impact on the Patient

This theme encompassed patient well-being. The patients said that the physical condition of the oral cavity was one of the biggest factors affecting their wellbeing, describing the physical impact of not receiving oral care as 'dry', 'uncomfortable', 'nasty' and 'horrible'.

Two patients referred to how oral care impacts on how the oral cavity feels from a physical perspective and one patient described assessing the level of discomfort. For example,

> Well, you know when you are so dry I just didn't like it, it was uncomfortable...it has been horrible.
>
> (Patient 5)

Three patients reported feeling self-conscious, either because they did not have any dentures in situ or they perceived they had halitosis that their visitors would be able to smell such as Patient 8,

> It's just cos otherwise you get smelly breath and when you're talking to people it's embarrassing.... horrible Yeah it did cos, I kept saying to my husband is my tongue white.
>
> (Patient 8)

The carers also perceived that a dry or unclean oral cavity must negatively affect patients' mood and contribute to a feeling of being unwell. Three carers described how the physical changes they observed such as 'thick saliva', 'dry cracked lips' and a 'thick coating on the tongue' could affect communication, preventing the patient from making their needs known, and causing distress to the patient. For example,

> So, what it must feel like for somebody who's in hospital and is able to take nothing by mouth that build up must be massive, And I think also obviously your teeth are, it's a pet thing of mine if somebody smiles at me and erm and there's no oral hygiene obvious then I have to back away.
>
> (Carer 5)

> It must be terrible just lying there and it not feeling clean.
>
> (Carer 6)

The condition of the oral cavity not only impacted on the patient but also their carers. One carer wanted to reassure their father through a loving kiss, but because of the condition of his oral cavity, they were hesitant in doing this, which made them feel guilty.

> You could see like a real like yellowing filmy stuff over his teeth then sort of white patchy scaly bits on his tongue and sometimes it was very very dry, so it was like a you know snakes skin handbag type of thing it was really cracked and hard. His tongue yeah and .... you know round his gums and that sort of thing and you know your wanting to go and give him a kiss to reassure him and give him a love but ...at the same time kind of thinking hmm no, no, and it's awful because it's your dad and you shouldn't have to feel like that.
>
> (Carer 6)

3.6 | Facilitators to Oral Care

Participants identified several factors that could enhance oral care provision, encompassed in three sub-themes: appropriate resources; frequency of oral care; and improving the oral care processes.

3.6.1 | Appropriate Resources

Patients identified several issues that could enhance oral care provision, including appropriate implements to clean teeth along with having access to resources and equipment that would promote independence in the bathroom, for example:

> A perching stool in the bathroom. To make sure you can get to the sink.
>
> (Patient 8)

Two relatives felt that resources were scarce in hospital, and that patients needed the relevant oral hygiene resources to perform effective daily oral care, they said that they thought the hospital should provide these resources if the patients did not have their own, for example,

> I don't know how much hospitals provide but I firmly believe everybody should be given the means to clean their teeth even if they don't bring their own in.
>
> (Carer 6)

3.6.2 | Frequency of Oral Care

Along with receiving oral care, its frequency was important to all patients, saying that it relieved them of some of their oral symptoms. Patient 3 suggested that oral care should be as frequent as possible and preferably three times a day.

> Everyday...once is practicable, three times though.
>
> (Patient 3)

In addition to receiving oral care, it was important to participants that oral care was provided at regular intervals. Carer 3 suggested oral care should be 2–3 hourly; their comment implied that oral care did not appear to happen this regularly. 'You know it's something that could do with doing several times a day really. As often as can be fitted in. I would say it could really be done every couple of hours at least'. *(Carer 3)*.

3.6.3 | Improving the Oral Care Process

Suggestions on how the oral care process could be improved were raised by six patients; Patient 6 especially felt that oral care should be offered during the morning wash, their comment suggesting that this was not the normal routine.

> Just make sure that everybody is aware when they are washing a patient that they give them the opportunity to having it done you know having their teeth cleaned and their mouth washed.
>
> (Patient 6)

Carer 5 felt that oral care was not initiated until patients reached the ward and they suggested that, to reduce oral complications, oral care should be attended too as soon as the person reaches hospital.

> I think for me as soon as somebody comes into hospital very ill, I think oral hygiene should be taken over straight away before anything has a chance to build up.
>
> (Carer 5)

Another carer described missed opportunities in providing oral care during a patient's hospital stay, suggesting the patient encountered many different people who had the potential to provide oral care. This included health professionals, and family and friends.

> I mean the only other thing would have been in the early stages would have been you know sort of being told about the oral hygiene so that visitors as a family could have helped more and do it more because I mean if we can save a nurse doing a job then that's something we are quite happy to do but we weren't really advised about it or told about it.
>
> (Carer 4)

4 | Discussion

This qualitative study identified five interrelated themes describing how patients and carers experience oral care in hospital following admission for acute stroke: attitudes to oral health, in-hospital oral care, factors affecting care, impact on the patient and carer and facilitators to oral care. Across the pathway, patients and carers alike thought that oral care was valued but frequently fragmented and inconsistently resourced, particularly in the acute phase. One aspect that stood out was the impact oral comfort (dryness, coating, halitosis) had on patients' well-being and social confidence. Study participants also highlighted inconsistent opportunities and limited availability of resources to aid oral self-care or receive timely assistance. The findings suggest a need for routine assessment of patients' oral comfort and ability to self-manage their oral care.

Patients' prioritisation of comfort and well-being is consistent with previous research that shows that stroke survivors commonly experience oral symptoms such as xerostomia, chewing difficulty, and denture problems that compromise oral health-related quality of life (OHRQoL) and affect mood, social interaction and motivation for recovery [6, 7]. Importantly, many stroke patients judge oral health through sensory feedback (clean/fresh vs. dry/uncomfortable), suggesting that patient-reported comfort could be a practical cue to the need for oral care and as an early indication of deterioration that may precede visible findings on inspection [17]. These findings reinforce a patient-centred approach to oral assessment that complements traditional visual cheques by incorporating brief comfort questions and simple functional prompts such as evaluating saliva control and denture fit [17].

Improving stroke patients' oral care has clinical relevance for their general health. Stroke patients are at risk of early infections, and pneumonia is associated with increased length of stay

and mortality [14, 15]. Trials and observational research with older and dependent inpatients indicate that proactive oral care can reduce pathogenic burden and may contribute to lowering respiratory infections, suggesting benefits in post-stroke care [16, 18–20]. However, stroke-specific evidence remains limited and heterogeneous; the latest Cochrane review calls for more robust evaluations of staff-led oral hygiene interventions after stroke and better reporting of implementation fidelity and patient-centred outcomes [21].

Patients and carers in this study described ward-level variability and ad hoc practise, suggesting there is a gap between the guidelines and everyday delivery. Whilst current national and international stroke guidance recognises oral care in dysphagia and aspiration management but provides limited operational detail on assessment content, frequency, resourcing and roles [21–23]. A perception of oral care as a low priority amongst nursing care hierarchies, combined with high workloads and competing tasks, all contribute to missed opportunities in providing effective oral care [28]. To bridge this gap, several recent commentaries and implementation reports advocate explicit integration of oral health assessment into stroke protocols [29, 30].

A recurring message from the patients and career was the value of early, routine offers of care enabling independence (ready access to toothbrushes/paste; safe sink access; denture availability). When oral care was offered reliably, patients reported symptom relief and improved confidence; when resources were scarce or patients were reluctant to 'bother busy staff', care frequency dropped and discomfort persisted [4, 17]. Encouragingly, recent studies show that structured tools (e.g., the Oral Health Assessment Tool (OHAT)) and early dental input shorten time to intervention, increased frequency and improve oral status in hospitalised stroke patients, whilst specialised dental-hygienist support outperforms usual care in rehabilitation settings [30, 31]. Access to specialist dental services may not be available in certain hospitals but it is clear developing services that do include this tertiary service could reduce oral complications and infections following stroke and subsequent bed days. Cross-sectional assessments further confirm that oral health in acute stroke inpatients is poorer than in healthy populations, reinforcing the case for routine, resourced care pathways [32].

4.1 | Strengths and Limitations

This study provides rich, first-hand accounts across two hospital settings, spanning acute and rehabilitation services. This was a part of a doctoral programme of study with limited funding time and resources recruiting from two Northwest hospitals. A sample size of 10 patients and six carers was achieved and, although small, was sufficient for the researcher to reach saturation of the themes [33]. The findings are likely to be of interest and relevance to other health professionals caring for stroke patients.

Trustworthiness was supported through reflexivity, independent coding of a subset of transcripts and member checking of transcripts [24, 25]. Although this was a small-scale study, it has provided a basis for future research to aid the development of service policy and guidelines as well as inform the development and evaluation of an oral assessment tool in stroke patients.

4.2 | Implications for Practise

The evidence to support oral care in stroke remains limited [19, 20]; however, there is a wider body of evidence supporting the positive effect oral care has on patient outcomes [10, 17, 18]. Oral assessment is essential in identifying problems in the oral cavity. Incorporating an assessment of oral comfort and a patient's ability to self-manage in an oral assessment in both acute and rehabilitation settings would enhance the health professionals' ability to detect discomfort and determine functional ability. An oral assessment tool, such as OHAT, offers a validated foundation that could be adapted [30, 34].

As per clinical guidance, oral care should be provided to stroke patients consistently throughout the day [14, 18]. It is important to ensure that all health professionals have the relevant knowledge as to the importance of patients' oral health needs and potential complications. Education programmes on oral care for non-oral health professionals are available. For example, the NHS provide an e-learning healthcare education programme [35] aimed at all non-oral health professionals and through greater knowledge and understanding such programmes would likely raise the priority given to oral care. To help raise the profile of oral care, this training could be considered as part of inductions for new jobs or encouraged through appraisals. Consideration should also be given to guided involvement of families where appropriate; staff-led and caregiver-supported models show promise, but require attention to implementation fidelity and context [31].

Given the high risk of chest infections/pneumonia amongst stroke patients, it would be pertinent for health care managers and leads to consider auditing and raising the profile of oral care to improve patient outcomes; in turn, this would potentially reduce complications and bed days used per patient. In addition, the involvement of other non-oral health professionals is essential and service development may include Speech and Language Therapist contributing to safety huddles to prompt delivery of oral care, especially for patients with dysphagia. The use of safety huddles can also be used to review documentation and address known practise gaps [18, 28]. Transforming evidence into practise is a considerable challenge and more research on how to achieve this with oral care for stroke patients is warranted. The use of translational research can help with engagement and capacity building, along with leadership and support.

5 | Conclusion

Oral care remains an under-prioritised, yet essential, component of holistic stroke care. Patients and carers value oral comfort and hygiene as integral to well-being, dignity and recovery, but current provision is inconsistent and dependent on resources and staff priority. Early, routine assessment that incorporates comfort and ability to self-manage, combined with reliable access to oral care resources, could reduce complications and improve

patient experience. Embedding oral care into stroke protocols, supported by staff education and family involvement, offers a practical route to raising its profile. Future research should focus on implementation strategies and outcome evaluation to ensure oral care becomes a standardised, patient-centred element of stroke care pathways.

Author Contributions

Hazel Dickinson: conceptualisation, methodology, project administration, data curation and extraction, interpretation of data, review and writing. **Catherine Elizabeth Lightbody:** writing, review and editing. **StJohn Crean:** supervision, interpretation of findings, writing, review and editing. **Caroline Watkins:** supervision, interpretation of findings, writing, review and editing.

Acknowledgements

To Dr. Josephine Gibson for secondary analyst review to strengthen trustworthiness.

Funding

Funding from University of Central Lancashire in the form of a PhD bursary.

Ethics Statement

Ethical approval was gained from the National Research Ethics Service (11/NW/0692) and from the University ethics panel (BuSH022).

Consent

All authors have read and approved the final manuscript and consent to its publication. All patients and carers were provided with written and verbal information and written informed consent was gained before the interviews took place. All participants provided written informed consent for participation and use of anonymised quotations in publications.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

References

1. NICE, "What is the Prevalence of Stroke and TIA in the UK?" Published 2022, accessed December 3, 2025, https://cks.nice.org.uk/topics/stroke-tia/background-information/prevalence/.

2. L. Li, C. A. Scott, P. M. Rothwell, and Oxford Vascular Study, "Trends in Stroke Incidence in High-Income Countries in the 21st Century: Population Based Study and Systematic Review," *Stroke* 51, no. 5 (2020): 1372–1380, https://doi.org/10.1161/STROKEAHA.119.028484.

3. M. Du, D. Mi, M. Liu, et al., "Global Trends and Regional Differences in Disease Burden of Stroke Among Children: A Trend Analysis Based on the Global Burden of Disease Study 2019," *BMC Public Health* 23 (2023): 2120, https://doi.org/10.1186/s12889-023-17046-z.

4. G. Schmalz, S. Li, and D. Ziebolz, "Oral Health-Related Quality of Life in Patients After Stroke—A Systematic Review," *Journal of Clinical Medicine* 11, no. 5 (2022): 1415, https://doi.org/10.3390/jcm11051415.

5. M. Schimmel, B. Leemann, P. Christou, et al., "Oral Health-Related Quality of Life in Hospitalised Stroke Patients," *Gerodontology* 28, no. 1 (2011): 3–11, https://doi.org/10.1111/j.1741-2358.2009.00330.x.

6. D. Locker, D. Matear, M. Stephens, and A. Jokovic, "Oral Health-Related Quality of Life of a Population of Medically Compromised Elderly People," *Community Dental Health* 19, no. 2 (2002): 90–97.

7. C. McGrath, A. S. McMillan, H. W. Zhu, and L. S. W. Li, "Agreement Between Patient and Proxy Assessments of Oral Health-Related Quality of Life After Stroke: An Observational Longitudinal Study," *Journal of Oral Rehabilitation* 36, no. 4 (2009): 264–270, https://doi.org/10.1111/j.1365-2842.2009.01941.x.

8. A. S. McMillan, K. C. M. Leung, E. H. N. Pow, M. C. M. Wong, L. S. W. Li, and P. F. Allen, "Oral Health-Related Quality of Life of Stroke Survivors on Discharge From Hospital After Rehabilitation," *Journal of Oral Rehabilitation* 32, no. 7 (2005): 495–503, https://doi.org/10.1111/j.1365-2842.2005.01451.x.

9. O. L. Lam, A. S. McMillan, L. P. Samaranayake, L. S. Li, and C. McGrath, "Effect of Oral Hygiene Interventions on Opportunistic Pathogens in Patients After Stroke," *American Journal of Infection Control* 41, no. 2 (2013): 149–154, https://doi.org/10.1016/j.ajic.2012.02.020.

10. P. Sjögren, E. Nilsson, M. Forsell, O. Johansson, and J. Hoogstraate, "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," *Journal of the American Geriatrics Society* 56, no. 11 (2008): 2124–2130, https://doi.org/10.1111/j.1532-5415.2008.01926.x.

11. C. Sellars, L. Bowie, J. Bagg, et al., "Risk Factors for Chest Infection in Acute Stroke: A Prospective Cohort Study," *Stroke* 38, no. 8 (2007): 2284–2291, https://doi.org/10.1161/STROKEAHA.106.478156.

12. T. Yoneyama, M. Yoshida, T. Ohrui, et al., "Oral Care Reduces Pneumonia in Older Patients in Nursing Homes," *Journal of the American Geriatrics Society* 50, no. 3 (2002): 430–433, https://doi.org/10.1046/j.1532-5415.2002.50106.x.

13. X. Li, K. M. Kolltveit, L. Tronstad, and I. Olsen, "Systemic Diseases Caused by Oral Infection," *Clinical Microbiology Reviews* 13, no. 4 (2000): 547–558, https://doi.org/10.1128/cmr.13.4.547.

14. P. Langhorne, D. J. Stott, L. Robertson, et al., "Medical Complications After Stroke: A Multicenter Study," *Stroke* 31, no. 6 (2000): 1223–1229, https://doi.org/10.1161/01.str.31.6.1223.

15. W. F. Westendorp, P. J. Nederkoorn, J. D. Vermeij, M. G. Dijkgraaf, and D. V. de Beek, "Post-Stroke Infection: A Systematic Review and Meta-Analysis," *BMC Neurology* 11, no. 1 (2011): 110, https://doi.org/10.1186/1471-2377-11-110.

16. I. L. Katzan, R. D. Cebul, S. H. Husak, N. V. Dawson, and D. W. Baker, "The Effect of Pneumonia on Mortality Among Patients Hospitalized for Acute Stroke," *Neurology* 60, no. 4 (2003): 620–625, https://doi.org/10.1212/01.wnl.0000046586.38284.60.

17. M. Lyons, C. Smith, E. Boaden, et al., "Oral Care After Stroke: Where Are We Now?," *European Stroke Journal* 3, no. 4 (2018): 347–354, https://doi.org/10.1177/2396987318775206.

18. Intercollegiate Stroke Working Party, *National Clinical Guideline for Stroke for the UK and Ireland* (Intercollegiate Stroke Working Party, 2023), accessed December 3, 2025, www.strokeguideline.org.

19. M. C. Brady, D. Furlanetto, R. Hunter, S. C. Lewis, and V. Milne, "Staff-Led Interventions for Improving Oral Hygiene in Patients Following Stroke," *Cochrane Database of Systematic Reviews* 4 (2006): CD003864, https://doi.org/10.1002/14651858.CD003864.pub2.

20. P. Campbell, B. Bain, D. L. Furlanetto, and M. C. Brady, "Interventions for Improving Oral Health in People After Stroke," *Cochrane Database of Systematic Reviews* 2020, no. 12 (2020): CD003864, https://doi.org/10.1002/14651858.cd003864.pub3.

21. W. J. Powers, A. A. Rabinstein, T. Ackerson, et al., "Guidelines for the Early Management of Patients With Acute Ischemic Stroke: 2019 Update to the 2018 Guidelines for the Early Management of Acute Ischemic Stroke: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association," *Stroke* 50, no. 12 (2019): e344–e418, https://doi.org/10.1161/STR.0000000000000211.

22. R. Dziewas, E. Michou, M. Trapl-Grundschober, et al., "European Stroke Organisation and European Society for Swallowing Disorders Guideline for the Diagnosis and Treatment of Post-Stroke Dysphagia," *European Stroke Journal* 6, no. 3 (2021): LXXXIX–CXV, https://doi.org/10.1177/23969873211039721.

23. L. J. Damschroder, D. C. Aron, R. E. Keith, S. R. Kirsh, J. A. Alexander, and J. C. Lowery, "Fostering Implementation of Health Services Research Findings Into Practice: A Consolidated Framework for Advancing Implementation Science," *Implementation Science* 4, no. 1 (2009): 50, https://doi.org/10.1186/1748-5908-4-50.

24. J. Rycroft-Malone, G. Harvey, K. Seers, A. Kitson, B. McCormack, and A. Titchen, "An Exploration of the Factors That Influence the Implementation of Evidence Into Practice," *Journal of Clinical Nursing* 13, no. 8 (2004): 913–924, https://doi.org/10.1111/j.1365-2702.2004.01007.x.

25. J. Ritchie and L. Spencer, "Qualitative Data Analysis for Applied Policy Research," in *Analyzing Qualitative Data*, ed. A. Bryman and R. G. Burgess (Routledge, 2002), 173–194.

26. J. Bamford, P. Sandercock, M. Dennis, C. Warlow, and J. J. T. L. Burn, "Classification and Natural History of Clinically Identifiable Subtypes of Cerebral Infarction," *Lancet* 337, no. 8756 (1991): 1521–1526, https://doi.org/10.1016/0140-6736(91)93206-o.

27. N. K. Gale, G. Heath, E. Cameron, S. Rashid, and S. Redwood, "Using the Framework Method for the Analysis of Qualitative Data in Multi-Disciplinary Health Research," *BMC Medical Research Methodology* 13, no. 1 (2013): 117, https://doi.org/10.1186/1471-2288-13-117.

28. W. Jerjes, "Integrating Oral Health in Stroke Care: A Critical Necessity," *Clinical Oral Investigations* 28, no. 11 (2024): 618, https://doi.org/10.1007/s00784-024-06010-9.

29. A. F. Cardoso, L. E. Ribeiro, T. Santos, et al., "Oral Hygiene in Patients With Stroke: A Best Practice Implementation Project Protocol," *Nursing Reports* 13, no. 1 (2023): 148–156, https://doi.org/10.3390/nursrep13010016.

30. K. Matsunaga, A. Yoshida-Tsuboi, K. Inohara, et al., "Effectiveness of Oral Health Care Intervention for Stroke Patients Following the Introduction of Oral Health Assessment Tool," *Geriatrics and Gerontology International* 24, no. 10 (2024): 48–53, https://doi.org/10.1111/ggi.15035.

31. H. C. Chen, H. H. Wei, Y. H. Yang, H. L. To, H. F. Wang, and Y. H. Hong, "Effectiveness of Specialized Oral Care for Post-Acute Stroke Patients," *Rehabilitation Practice and Science* 2024, no. 1 (2024): 10, https://doi.org/10.6315/3005-3846.2242.

32. A. Dziewulska, W. Pawlukowska, A. Zawiślak, M. Masztalewicz, and K. Grocholewicz, "Oral Health in Patients Hospitalized Because of Ischemic Stroke," *Journal of Clinical Medicine* 13, no. 15 (2024): 4556, https://doi.org/10.3390/jcm13154556.

33. M. M. Hennink, B. N. Kaiser, and V. C. Marconi, "Code Saturation Versus Meaning Saturation: How Many Interviews Are Enough?," *Qualitative Health Research* 27, no. 4 (2017): 591–608, https://doi.org/10.1177/1049732316665344.

34. J. M. Chalmers, P. L. King, A. J. Spencer, F. A. C. Wright, and K. D. Carter, "The Oral Health Assessment Tool—Validity and Reliability," *Australian Dental Journal* 50, no. 3 (2005): 191–199, https://doi.org/10.1111/j.1834-7819.2005.tb00360.x.

35. Heath Education England, "Mouth Care Matters. e-Learning for Healthcare (Health Education England)," 2025, accessed September 8, 2025, https://www.e-lfh.org.uk/programmes/mouth-care-matters/.