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- ☐ Same or slightly different resubmission
- ☐ Resubmission with major updates or changes
- ☒ Entirely new submission

**Title**

(Maximum of 15 words)

eHealth as a tool to support dental hygiene of frail elderly: an explorative study

**Author(s) details**

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**Abstract**

(Maximum of 500 words)

*Background:*

Good dental hygiene is important to prevent or reduce frailty in the elderly. Research shows that 66% of elderly patients admitted to a nursing home have bad dental hygiene. During their stay, dental hygiene remains moderate to bad. To start addressing this issue, a group of students (nursing, occupational therapy, computer science and health care technology), part of an exchange collaboration facilitated through our Vitale Delta Research Program, have been researching 1) why caregivers struggle to give

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good dental hygiene, 2) which eHealth applications could support the (professional) caretakers and the elderly in performing appropriate dental hygiene, and 3) to develop an app to support dental hygiene.

#### *Methods:*

Mixed methods were used including literature review and quantitative research. A first literature review focused on caregivers' support for good dental hygiene and helped designing the questionnaire. This questionnaire was held amongst third-year nursing students who have had an internship of at least 20 weeks in elderly care. A second literature review helped to determine design requirements for a dental hygiene app that can be used by elderly patient as well as their (professional) caregivers.

#### *Findings:*

The questionnaire was completed by 36 third year nursing students. Results indicate that main reasons for insufficient dental hygiene performed by nurses include insufficient knowledge of protocols, lack of skills and time, opposition of the patient and low priority. In addition, respondents indicated that an eHealth application with explanation, pictures, videos, examples and a reminder function and a possibility for report could help nurses to optimize dental hygiene care in their elderly patients.

Results from literature review on the design of an eHealth application used by both elderly caretakers and (professional) caregivers indicated that the application should ideally have the colors green or blue, font Arial size 13,5 and have large buttons. It was found that music stimulated brushing teeth. The developed app includes a step-by-step narrated dental care instruction video, a 2-minute timer with a choice of jazz or classical music. Questions in the app assess the condition of mouth and dental hygiene, allowing patients and/or their (professional) caregivers to report the condition and identify problems at an early stage.

#### *Discussion:*

To make sure that the contents of the app were correct, a dentist reviewed the step-by-step description and the video and concluded it was conform guidelines.

The app was tested among different family members of the students but not with the elderly or with people in the care of elderly. It is not yet known whether the app matches with the caregivers and caretakers and meets their needs. Further research among nurses and elderly of the app is therefore needed to be able to determine the usability and effectiveness of the app for nurses and the elderly. The research was done amongst nursing students, with little experience in the field. Experienced nurses might have a different view or have different needs. Further research amongst experienced nurses throughout the country is recommended to be able to generalize the results.

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**Erderly's good dental hygiene is important. Nursing students researched the challenges for good dental hygiene, possible support of eHealth and developed an app to support dental hygiene. Check our poster to view their results.**