A pilot-feasibility study of measuring emotional expression during oral care

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A R T I C L E   I N F O

A B S T R A C T

This study explored the feasibility of measuring emotional responses to oral care among individuals with dementia living in residential long-term care (LTC). Eleven residents with dementia were recruited from a U.S. Department of Veterans Affairs LTC unit and were observed eight times before, during, and after oral care episodes. Study participants showed a trend toward more positive emotional expressions during and after oral care (mean ± SD: 6.49 ± 1.57 and 6.27 ± 1.20 respectively) than before oral care (6.15 ± 0.86) at the margin of statistical significance ($p = .08$). Negative emotional expression increased among participants during oral care, from 0.22 ± .35 expressions per minute to 0.60 ± .65 expressions per minute, but returned to baseline after oral care ($p < .01$). Future studies with more representative samples are needed to more fully examine emotional responses to different types of care, adjusting for potential confounders, and to determine whether residents' emotional responses influence staff members' provision of care.

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Introduction

In the United States, 5.1 million individuals have been diagnosed with dementia. That number is expected to nearly triple by 2050.[1,2] Approximately 40% of individuals in residential long-term care facilities (LTC) have dementia that interferes with activities of daily living (ADL). Assisting these residents with ADL presents particular challenges for staff because approximately 17% of dementia patients resist care,[3] and this resistance contributes to poor patient outcomes.[4]

Maintaining proper oral hygiene is a significant determinant of well-being among older adults[5,6]; but oral hygiene care is the most seriously neglected aspect of ADL care.[7–9] Person-level factors, including dementia-related behavioral disturbances and co-morbidities, are the most widely reported explanations for the neglect of oral hygiene care in LTC residents.[10–13] Staff may also interpret negative emotional expressions as resistance to care, which could influence a staff member's decision to forego oral hygiene care. The potential influence of the LTC resident's emotional responses during care has not been well studied.

Understanding the emotional expressions of individuals with dementia is fundamental to implementing person-centered care because emotional expressions provide information about the needs (e.g., unmanaged pain and anxiety) and preferences of individuals who have difficulty expressing their needs verbally. The Centers for Medicare and Medicaid Services (CMS) launched a national initiative to support the use of person-centered, non-pharmacological interventions[14] as an alternative to chemical restraints in managing behavioral manifestations of distress in individuals with dementia. Emotion-oriented care, defined as care modified based on the feelings and emotional needs of individuals with dementia,[15] has been shown to improve care outcomes such as better management of anxiety and quality of life.[15,16] Thus, the purpose of this study was to examine the feasibility of directly observing emotional responses to oral care among individuals with dementia. Our specific research questions were:

Question 1. How do the observed emotional responses (positive and negative expressions) of LTC residents with dementia change before, during, and after staff members provide oral hygiene care?

Question 2. How does the pattern of observed emotional response (positive and negative emotional expressions) to a dementia-specific oral care program change over time?

Methods

We conducted a pilot study to test whether it was feasible to measure directly-observed emotional responses to oral care using a within-subject design with repeated measures. The study was conducted as part of a larger evaluation of a Dementia-specific Oral Health Program (DOHP) implemented in a residential LTC unit operated by the U.S. Department of Veterans Affairs. Emotional response was assessed by direct observation of positive and negative emotional displays on three consecutive days for two weeks then on one day weekly for two weeks. A total of eight observations were made. Each observation lasted approximately 10 minutes and occurred before, during, and after oral hygiene care. Thus, each participant was observed about 30 minutes each day; the total observation time per participant was 240 minutes over the course of four weeks.

Sample and setting

We recruited research participants who resided in a U.S. Department of Veterans Affairs (VA) Community Living Center (CLC), a 100-bed, LTC unit in the southeastern United States. Participants met the following eligibility criteria: (1) ages 65 or older, (2) residents of the CLC for long-term care, (3) a dementia diagnosis from the primary healthcare provider, (4) cognitive impairment determined by cognitive performance score derived from most recent nursing home minimum dataset assessment, (5) a legally authorized representative who could give informed consent for research participation, and (6) assented to DOHP and real-time observation. Veteran residents were excluded if their primary care provider said they were: (1) terminally ill, (2) too ill to participate in oral care because of behavioral disturbance or other clinical problem, or (3) admitted for short-term, post-acute care, respite care, or hospice care.

Oral care intervention program

The DOHP was an evidence-based, resident-centered oral hygiene improvement program implemented by existing nursing staff. It was developed by an inter-professional team (nursing and dentistry) based on a review of studies, practice guidelines, and expert opinions, then implemented in one VA CLC unit by trainers who also provided follow-up coaching. Key components of the DOHP included: (1) mandatory, multi-modal, interactive training in both dementia interaction skills and oral care skills for all levels of nursing staff; (2) standardized documentation of oral assessments and the residents' ability to engage in oral care, using new templates within the electronic health record (EHR); (3) personalized oral care plans developed based on residents' dental and functional status, including a customized packet of necessary oral care supplies for each resident; and (4) weekly interprofessional oral care rounds to provide staff support for addressing challenges to providing oral hygiene care. A more complete description of the program design and implementation has been published elsewhere.[17]

Measures

Emotional response was assessed by the Philadelphia Geriatric Center Affect Rating Scale.[18] The Philadelphia Geriatric Center Affect Rating Scale was developed specifically to measure emotional

expressions in persons with dementia using direct observation and has previously demonstrated high inter-rater reliability and validity.[19,20] The observational scale included descriptive indicators for three positive emotional expressions (pleasure, interest, and contentment) and three negative emotional expressions (sadness, anxiety, and anger).

Procedure

Institutional Review Board (IRB) approval was obtained from the Human Subjects Review Committee at the participating Veterans Affairs Medical Center (VAMC). A research assistant identified CLC residents who met criteria for participation in the DOHP using the CLC's Minimum Date Set (MDS) database and after consulting with the residents' primary care providers. The research team then contacted each resident's legally authorized representative to obtain informed consent. The research team then scheduled observations, and informed CLC nursing staff of the date and time. DOHP training was provided to nursing staff before the study began. The research team explained the purpose of our observation was not to evaluate their skills, but to evaluate the resident's response to care. Prior to data collection, two raters (the first author and a research assistant) trained for three hours by watching video clips of individuals with dementia. The clips, which showed individuals responding to direct care, are part of the "Hand-in-Hand" nursing home staff training program developed by the Centers for Medicare and Medicaid Services. The raters coded the subjects' emotional responses. Then, both positive and negative emotional expressions were calculated by a rate parameter: emotional expression episodes per minute. Mastery with 90% accuracy was established for positive and negative emotional expressions coding before direct observation began.

When direct observation for this study began, emotional responses were assessed by direct observation before during, and after 10-minute oral hygiene care sessions. Because we observed participants' emotional expressions before, during, and after oral care, the total observation period for each participant was 30 minutes. Over the course of the study, observation time for each participant totaled 240 minutes (eight 30-minute observation periods). The presence of any of the six emotional responses was recorded at 10-second intervals. A cell phone timer application signaled the rater through an earbud to mark each 10-second interval.

Data analysis

Linear mixed models were used to account for correlation of emotional response measures (i.e., positive and negative emotional expressions) over time for each participant. We did not include any covariates in the model due to the small sample size (n = 11). SAS 9.3 (SAS Institute, Cary, NC) was utilized to estimate these statistical models.

Results

Sample characteristics

Table 1 contains participant characteristics. Of the 11 participants, 100% were male with an average age of 78.9 years. In terms of cognitive skills for daily decision making, 73% of participants were rated by MDS staff as having moderate to severe impairment. The Resource Utilization Group System (RUGS) III Score that reflected a resident's functional status in LTC[21] ranged from 10 to 17. Higher RUGS scores indicate worse functional status, and overall, the functional status of participants in this study was relatively poor. Overall