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Title:

Does enhancing Personal Care Assistants' own oral health influence their attitudes and practices towards oral care for residents - a pilot study.

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Does enhancing Personal Care Assistants' own oral health influence their attitudes and practices towards oral care for residents – a pilot study.

Objectives:

To investigate whether, within a residential care facility, increasing personal care assistants' (PCAs) awareness of their own oral health status and self-care skills would alter existing attitudes and behavioural intentions related to the oral health care of residents.

Methods:

PCAs (n=15) in the dementia care unit of a residential care facility in Melbourne, Australia, were invited to participate in a small research project that appeared to test the effectiveness of a work-place oral health educational program in enhancing their own oral health whilst masking the actual outcome of interest, namely its effect on PCAs oral health care attitudes and practices towards the residents.

Results:

Post-intervention the self-reported confidence of the PCAs to identify their personal risk for oral health problems, identifying common oral health conditions and determining the factors contributing to their personal oral health was increased significantly ($p < .05$). Post-intervention the self-reported confidence of the PCAs to feeling confident to identify factors that could contribute to poor oral health of residents, identify resident's higher risk for poor oral health and feeling confident in identifying common oral health conditions in residents was also increased significantly ($p < .05$).

Conclusion:

The results of this pilot study show that the educational intervention to increase the personal care assistants' (PCAs) awareness of their own oral health status and self-care skills increased the confidence of the carers to identify oral health risks in the residents, as well as increasing their self-reported confidence in providing oral care to residents.

Clinical relevance:

Scientific rationale

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Oral health status of functionally dependent older people in residential care remains poor. Research raised doubts about the effectiveness of the education of care staff by itself as an intervention to improve oral health care delivered to frail residents.

Principal findings

This pilot study showed that increased confidence and sense of control of personal care assistants' own oral health and oral health related behaviours could lead to accepting greater responsibility for the oral health care of residents.

Practical implications

More effective oral health promoting programs in residential care might be achieved by first targeting the personal oral health awareness and behaviour of personal care assistants.

Introduction

Oral care in residential care facilities is becoming increasingly important. Often residents in care facilities are functionally dependent on others for some or all aspects of self-care including oral hygiene and oral health related practices. The oral health of functionally dependent older people residing in long term care facilities has been consistently shown to be poor (1, 2). More residents of care facilities are at least partially dentate and the teeth they have present with more complex tooth-and implant supported restorations and dentures (3). The residents are often medically and cognitively compromised and poly-medicated (4) placing them at higher risk for oral conditions such as dental caries, gingival diseases and denture related fungal infections. In addition oral health and general health links have been reported: with compromised oral health associated with respiratory diseases, cardiovascular diseases, diabetes and possibly stroke (5). The incidence of aspiration pneumonia can be reduced by tooth brushing after each meal, cleaning of dentures once a day and professional oral health care once a week (6). Further medical and behavioural complications can be prevented through appropriate preventive care, avoiding increasing costs for the provider and improving quality of life for the resident (2). The most common oral diseases can be prevented or controlled through simple oral hygiene measures and dietary control. Prevention of oral diseases can help to avoid other health costs such as those arising from hospitalization due to aspiration pneumonia (7).

In Australia, personal care assistants or workers (PCAs) are those who assist residents with their daily personal care routine such as showering, toileting and providing assistance with meals. They make up 68% of the workers within long term aged care environments and 81%

of workers within community aged care environments (8). Nolan et al (2008) point out that responsibility for the resident's daily care is often delegated to staff with the least training. These positions often attract limited financial rewards and challenging ratios of care staff to residents. The requirements of the position, may attract carers with high motivation but lower levels of literacy, modest educational background and/or achievement, few learning skills and low self-confidence (9). Not surprisingly there is often a high turnover within this group of carers. In Australia in both residential and community care estimates of 25% turnover per year are reported, while some reports from the US estimate a 50% turnover (10).

Residents and their families expect that the entire individual's nursing and care needs be met (11). Being functionally dependent and requiring oral hygiene care assistance is identified as a risk factor for poor oral health in residents suffering from dementia (2). In residential care facilities in Australia PCAs provide the majority of personal hygiene care for residents including oral hygiene practices (8). Research has shown that oral hygiene care status in residents with dementia was poor despite established guidelines for oral care and the fact that oral care assistance was being provided (2, 4, 12, 13). A number of studies suggest that the personal attitudes and values of PCAs related to oral hygiene remain one of the most significant barriers to residents receiving adequate oral health assistance (12, 14-17). Barriers to providing daily oral care reported by PCAs include the lack of time, a perceived lack of support by facility management, lack of knowledge or training for care staff (12, 18), residents refusal (12, 19) or psychological barriers to perform oral hygiene care in a resident's mouth (20).

A recent systematic literature review (2014) has raised doubts about the effectiveness of the education of care staff by itself as an intervention to improve oral health care delivered to residents (20). The lack of success of this approach may reflect the influence of PCAs' personal attitudes and values mentioned above. To improve oral health care in older residents strategies should be adapted to the specific setting after investigating the target group and barriers to change. The authors suggest a multi-level strategy to try to change behaviours of the physician, PCA, resident's family and management of the facility (1, 20).

The hypothesis in this pilot study arises from the concept of perceived self-efficacy (21, 22) which can be defined as a person's belief in the ability to perform a certain behaviour. Success is an effective way of creating a strong sense of self-efficacy. The more a person believes that a particular behaviour can result in a preferred health outcome, the greater the chances are this leads to adoption of that behaviour (22). If personal attitudes and beliefs of the PCAs themselves are barriers in providing daily oral health care to dependent residents

than improvement in the personal attitudes and values of PCAs towards their own oral health/care may in turn influence reported intended behaviours when caring for residents.

Materials and method

This study targeted PCAs working in the dementia care unit of a residential care facility in a suburb of Melbourne, Australia, with the aim of changing their attitudes and behavioural intention towards the oral health care of the residents. The private facility has 90 beds and provides a specialist unit for care of residents with dementia. Twenty residents live in the dementia specific unit. The facility has 130 staff members and 18 staff members consistently work in the dementia specific unit (in shifts).

The participants were blinded to the true nature of the intervention study in order to reduce the confounding influence of bias and allow the hypothesis of the project to be tested. PCAs were invited to participate in a small research project that appeared to test the effectiveness of a work-place oral health educational program in enhancing their own oral health whilst masking the actual outcome of interest, namely its effect on PCA oral health care attitudes and practices towards the residents.

The PCAs were invited to take part in a personal oral health care program, which was evaluated. The oral health educational program, conducted by an experienced dental health academic, took the form of an interactive practical session of three hours duration. The PCAs consented to having an oral health assessment as part of the training. Immediately prior to the educational program the participants completed a baseline questionnaire developed by the researchers. The questionnaire was presented as an evaluation tool for measuring the effectiveness of the personal oral health improvement program for PCAs themselves. The participants were informed that six months after the program they would be asked to complete the same questionnaire again to assess longer-term learning. The questionnaire consisted of 27 statements related to basic oral health knowledge, attitudes and practices of the PCA (5-point Likert-type scales).

PCAs completed an anonymous general questionnaire regarding their attitudes and practices regarding personal hygiene care for residents 4 weeks prior to the educational intervention. Statements related to confidence about taking care of oral hygiene related tasks with the residents and oral hygiene care were included in the questionnaire and these questions formed

the basis of the before and after analysis. This initial questionnaire was masked as a general audit tool used by the residential care facility as part of continuing quality improvement. Six months after the training program the PCAs were asked by the management to complete the second questionnaire to determine the PCAs attitudes and practices regarding oral hygiene care for the residents. This questionnaire was again masked as a general audit tool used by the residential care facility as part of continuing quality improvement. 5-point Likert-type scales assessed the questions in both questionnaires, with response options ranging from “strongly disagree” to “strongly agree”.

The educational program included the following components:

- Generic oral health information
- Causes of oral diseases (dental biofilm)
- Prevention of oral disease
- The relationship between oral and general health
- Mouth ulcers and oral cancer
- Dental hygiene materials and techniques
- Aspects of oral related quality of life
- Hands-on training how to apply different oral hygiene aids and methods on themselves

Participants were encouraged to specifically address skills related to their own personal oral health. Each PCA received a kit containing oral health materials and an electric toothbrush.

PCAs who consented to participation also had the opportunity to undergo an oral screening by a qualified Dental Practitioner and were then advised of their own oral health status and need for preventive care or dental treatment. The screening involved a visual inspection of the oral cavity with a disposable mouth mirror. No periodontal probing was conducted to ensure that the screening remained non-invasive. During this visual inspection the PCAs were informed about their oral health status and received guidance and instruction in the selection of appropriate oral health materials to achieve better personal oral health. Participants who required professional dental care were referred to local dental services. Those who were eligible for public dental services were referred to the nearest community health centre. Those who were not eligible were encouraged to attend their own dentist or provided with a list of local private providers.

Data were collected from April 2013 to October 2013. Data from the questionnaire were analysed using IBM® SPSS® Statistics, Version 22. Variables were described by calculating frequency distributions, median/range for skewed distributed variables. Of the outcome measures, the variable measuring confidence was ordinal (Likert-Scale 1–5, strongly disagree to strongly agree). Consequently the non-parametric Wilcoxon signed-ranked test was used to assess differences between time points. Statistical significance was based on probability values of $< .05$.

The Universities Human Ethics Committee (UHEC) granted ethical approval: 12-104.

Results

PCAs from the specific unit were invited to participate in the training. Of the 19 PCAs participating in the training 15 also consented to participation in the research; 12 of these 15 PCAs participated in the voluntary visual oral inspection, see table 1.

Five PCAs (33%) reported to have experienced dental pain or oral discomfort in the past six months. During the voluntary screening some PCAs reported delaying visits to the dentist due to financial constraints or planned to go to the dentist when returning to their home country for holidays or family visits.

The level of agreement of PCAs on the statement "I am confident to identify my own risk for oral health problems" post-intervention was significantly higher than pre-intervention ($p = .032$).

At baseline only eight PCAs agreed or strongly agreed with the statement that they could identify the factors contributing to their personal oral health ($Mdn = 4.0$). Post-intervention all PCAs ($Mdn = 5.0$) reported confidence in being able to identify the factors that contribute to their oral health ($p = .023$). The self-reported confidence of the PCAs to identify their personal risk for oral health problems and common oral health conditions also increased significantly six months after the intervention ($p < .05$), see table 2. Post-intervention, the PCAs reported a significantly stronger agreement with the statement about having the adequate skills to look after their own teeth and gums ($p = .003$, compared to pre-intervention).

Before the training 8 PCA's displayed low confidence in identifying factors that could contribute to poor oral health of the residents ($Mdn = 3.0$). Post-intervention 14 PCA's ($Mdn = 4.0$) reported confidence in identifying factors that could contribute to poor oral health of residents. This difference was significant ($p = .003$). Six months post-intervention the confidence to identify why residents are at high risk or poor oral health was significantly higher ($p = .012$) when compared to their confidence before the oral health training. Similar outcomes were found for the confidence in identifying common oral health conditions experienced by residents ($p = .007$) and confidence in managing changed behaviour in patients with dementia to get access to their mouth ($p = .005$).

Significant differences were also found related to the level of agreement about having adequate time to look after the resident's oral health. Post-intervention the PCAs reported a significantly higher agreement with the statement that they have sufficient time for this task compared to pre-intervention ($p = .011$).

The data indicates that the self-reported confidence of the PCAs in identifying their own risk for oral health problems, identifying common oral health conditions in themselves and identifying factors that can contribute to their own oral health increased significantly. Significant differences were found in the (increased) self-reported confidence related to these items in residents.

Discussion

The outcomes of this pilot study support findings in existing literature that it is important to understand the behaviours and attitudes of the caregivers.

The hypothesis of this pilot study was that increasing Personal Care Assistants' awareness of their own oral health and oral health behaviours would impact their self-perceived confidence and might improve awareness towards oral care for the residents. The results of this study provide support for this hypothesis. The most effective way of creating a sense of efficacy is through mastery experiences (22). Intuitively it makes sense that if PCAs increase confidence and sense of control of their own oral health and oral health related behaviours they may be more likely to accept greater responsibility for the oral health care of residents living with dementia. Despite some research that shows most caregivers feel they are adequately informed of the importance of oral care (14), this does not necessarily translate into

confidence to manage their own oral health nor that of the residents in their care. Care-staff need to master the basic skills first to feel confident to deal with the care in day-to-day practice (17). Carers may hold negative personal oral health beliefs such as tooth loss being inevitable, which may impact on their willingness to improve oral health care programs in their residential care facility (15, 23). Lack of awareness about their own personal oral health issues, may also reduce the priority they assign to this type of care for residents.

The diversity of PCAs and the perception towards their own oral health and the oral health care for residents could have implications for future oral health awareness programs in residential care facilities. Varying levels of dental literacy of carers should be assessed before starting an oral health educational program targeting PCAs. With a trend towards a more cultural diverse population of carers, comes the responsibility to provide cultural sensitive education. The participants in this group represented a cultural diverse group of carers, which is comparable with other facilities in Australia. The proportion of PCAs from diverse backgrounds is relatively high compared with other occupations in direct care, and there are higher proportions of them that have been in Australia for 5 years or less (8). Providing the information in a natural context (24), accepting that individual concepts of health may differ (25) and taking the intellectual level of the staff members (9) into account are important.

This pilot study had some limitations. The number of participants was relatively small. We only assessed the self-perceived confidence of the PCAs. We didn't investigate if this increased confidence lead to better oral health outcomes for the residents. Further research with more participants in different locations is necessary. The study was performed in one residential care facility, and environmental factors have not been included in the analysis of the results. A major contributing factor for the success or failure from oral health promoting programs in residential care is the support from the management. In the follow up study environmental factors and possible oral health outcomes for the residents need to be included. Although all these considerations are relevant and can affect the success of an educational program, the key to better success might be a personal focus to the PCAs oral care and integrating the concept of perceived self-efficacy in future oral health training for PCAs.

Conclusion

This pilot study shows that an educational intervention centred on the personal oral health of PCAs increased their confidence in identifying oral health risks in the residents living with dementia as well as increasing their behavioural intentions related to resident's oral health

regimes. Given the cultural diversity of PCAs in this study, more effective oral health promoting programs in residential care could be achieved using educational interventions designed to target the personal oral health awareness and behaviour of the PCAs, considering these carers are from varying cultures, the education program will compliment variations in their cultural awareness related to their own oral hygiene, followed by educational interventions focused on oral care for frail residents.

Acknowledgments:

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Total Participants training	19
Participants consenting to research	15
Participants participating in voluntary oral screening	12
Gender	5 males 10 females
Age group participants	20-30 years – 10 31-40 years – 7 41-50 years – 2
Cultural background	India (1) Kenya (1) Philippines (2) Nigeria (1) Nepal (2) Thailand (1) Vietnam (1) Scotland (1) Australia (5)

Table 1: Demographic data for participants

	Pre-intervention		Post-intervention		N = 15†			
Questionnaire item	Median	SD	Median	SD	n	Z	P	Effect size (r)
I feel confident to identify my own risk of oral health problems	4.00	.961	5.00	.469	14	-2.15	.032*	0.40
I can identify common oral health conditions experienced by myself	4.00	.640	4.50	.519	14	-2.25	.024*	0.42
I feel I have adequate skills to look after my own teeth and gums	4.00	.704	5.00	.633	14	-3.00	.003*	0.56
I feel confident to identify the factors that contribute to my own oral health	4.00	.975	5.00	.469	13	-2.28	.023*	0.43
I feel confident to identify why residents are at high risks of poor oral health	3.00	1.13	4.00	.632	15	-2.51	.012*	0.47
I can identify common oral health conditions experienced by residents	4.00	1.18	5.00	.516	15	-2.68	.007*	0.50
I feel confident to identify the factors that contribute to the poor oral health of dependent residents	3.00	.828	4.00	.516	15	-2.91	.003*	0.55
I feel I am confident to manage changed behaviour in patients with dementia to get access to their mouth	3.00	1.03	4.00	.516	14	-2.83	.005*	0.53
I spend at least 2 minutes taking care of the oral health of the residents at a specific moment during the day	4.00	1.24	4.00	.507	15	-2.38	.017*	0.44
I check the residents mouth regularly for ulcers or sores	4.00	.990	5.00	.514	14	-2.51	.012*	0.47
I feel I have adequate time	4.00	1.12	5.00	.514	14	-2.55	.011*	0.48

to look after a residents oral health								
I perform a daily check of the residents denture (when present)	4.00	.976	4.00	.519	13	-2.17	.030*	0.41
When I feel pressured for time I might consider oral care less important	3.00	1.21	1.00	1.25	14	-1.63	.103	NA

† Valid cases range from 13 to 15 (n differs between variables due to missing data)

* Statistically significant (P < .05)

Table 2: Results of Wilcoxon Signed Ranks Test and descriptive statistics pre- and post-oral health training of PCA's

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