

# **EVALUATION OF A DENTAL HEALTH EDUCATION PROGRAMME FOR CAREGIVERS OF ELDERLY PEOPLE IN NURSING HOMES.**

**Summary of Masters treatise 1993, Dr Peter Lloyd King**

## **ABSTRACT**

An education programme for caregivers of elderly people in nursing homes in Sydney, Australia has been evaluated. The aim of the programme was to develop the knowledge, attitudes and behaviour needed for the prevention of dental disease in their clients. The programme was developed and then presented to 65 caregivers in 6 different nursing homes. An evaluation was carried out.

The programme improved the knowledge of the caregivers about the value of fluoride for elderly people and improving the behaviour of caregivers in the application of fluoride using mouth rinses and toothpaste.

The programme had the impact of caregivers taking more responsibility for the oral hygiene of their clients; both dentate and edentulous clients.

The programme substantially increased the number of caregivers who implement dietary advice to their clients to improve their clients' dental health.

The programme improved the caregivers knowledge about what cleaning agents are recommended for dentures and increasing the number of caregivers who take precautions to prevent the fracture of dentures when they are being cleaned over a sink.

Key words: caregiver, elderly; education programme; dental health; evaluation.

## **INTRODUCTION**

Demographic studies indicated that the number of elderly people in Australia and other developed and developing countries has increased greatly in the last thirty years. This trend is expected to continue at a great rate during the next decade. Many reports have confirmed that the oral health of elderly people is far from satisfactory even in countries with comprehensive welfare services and available resources for oral health (1,2,6).

Those elderly people who live in nursing homes are often frail, have poor manual dexterity and rely on the knowledge and skills of their caregivers to control and prevent dental disease. Hence, programmes promoting oral health for the aged in nursing homes needs to focus on educating the caregivers of these people (5).

The need for dental health education of caregivers of elderly people is widely acknowledged and strongly recommended after investigations into the dental needs of elderly people (3) (4).

In response to this need a methodology was established to design and evaluate an education

programme for caregivers of elderly people in nursing homes to develop the knowledge, attitudes and behaviour needed for the prevention of dental disease in their clients. There is a need to evaluate programmes to determine their impact and effectiveness.

## METHODS

Caregivers, dentists and related health professionals in New South Wales were surveyed to ensure that the programme objectives were relevant to these particular caregivers; the information was based on an up-to-date understanding of dental diseases; the learning opportunities in the programme used high quality materials and were arranged to maintain the interest of the group for the duration of the programme.

An impact evaluation was designed to assess the effect that the programme had on the knowledge, behaviour and attitude of the caregivers. A lesser emphasis was placed on testing knowledge since the time required to test all of the cognitive objectives of the programme would have hindered the ability to present the programme in the time permitted by the nursing home. Five questions requiring a true or false answer were used to test knowledge. Ten questions requiring a yes or no response were used to test behaviour. Five questions tested attitudes using a 5 point Likert scale. Caregivers could respond to the attitude in question by strongly agreeing, agreeing, undecided, disagreeing or strongly disagreeing. This pre-test requested that the caregivers did not record their name. The test was given to the caregivers just prior to presenting the programme and was called the 'pre-test'. After one month the test was given to each of these caregivers again and called the 'post-test'.

Materials of established acceptance were used in the programme. These included part of the video "*It's a Mouthful*" and some slides from the Danish series "*The dental problems of the elderly*" by John Christensen. Demonstrations and guided discussions were also used in the programme to meet the objectives.

Arrangements were made at 6 nursing homes to pre-test the caregivers and present the programme. A total of 65 caregivers attended the programme. All nursing homes were requested to have a VCR and a television screen available as well as a wall available for the projection of slides. The programme required one hour, and was presented by the writer, in every nursing home, introducing himself as a dental surgeon who works in the Special Care Unit of the Westmead Centre for Oral Health. In the first 10 minutes of the programme, after a brief introduction, the caregivers each filled out the pre-test. One month later the writer returned to each nursing home and each of the caregivers who attended the programme filled out the post-test. Five of the caregivers had left their jobs, leaving 60 caregivers.

The test consisted of five questions testing knowledge, ten questions testing behaviour and five questions testing attitudes. The statistical significance of the difference between the pre- and post-test was determined using the t-test for the knowledge and behaviour questions. A "t" value of two or more was considered a statistically significant difference. The chi-square test was used to determine the statistical significance of the change in attitudes between the pre-test and the post-test.

## RESULTS

## **Knowledge of caregivers**

Of the 5 true/false questions used to test the knowledge of caregivers, two were answered significantly better in the post-test compared with the pre-test.

Those questions that gave a statistically significant improvement were:

- ◆ *Fluoride is most important for children but has little effect on the natural teeth of elderly people.*

An improvement in the correct response, from 61% answering false in the pre-test to 92% in the post-test.

- ◆ *Toothpaste is the recommended cleaning agent for dentures.*

An improvement in the correct response, from 50% answering false in the pre-test to 73% in the post-test.

Those questions that did not show a statistically significant difference in the correct response were:

- ◆ *The roots of teeth decay more easily than the crowns of teeth.*

Answered correctly as true by 50% in the pre-test.

Answered correctly as true by 48% in the post-test.

- ◆ *Where no natural teeth are present, the mouth does not require any cleaning.*

Answered correctly as false by 98% in the pre-test.

Answered correctly as false by 97% in the post-test.

- ◆ *If the gums bleed during tooth brushing, they should not be brushed.*

Answered correctly as false by 84% in the pre-test.

Answered correctly as false by 88% in the post-test.

## **Behaviour of caregivers**

Of the ten yes/no questions used to assess the behaviour of caregivers, seven were significantly different in the post-test compared to the pre-test. All seven indicated an improvement in behaviour.

Those behaviours that gave a statistical significant improvement were:

- ◆ *I actively discourage clients from eating lollies throughout the day.*

An improvement in the best response from 28% answering yes in the pre-test to 63% in the post-test.

- ◆ *I actively encourage clients to use artificial sweeteners in their tea or coffee.*

An improvement in the best response from 18% answering yes in the pre-test to 60% in the post-test.

- ◆ *I ensure that a fluoride toothpaste is used every time a client's teeth are brushed.*

An improvement in the best response from 65% answering yes in the pre-test to 85% in the post-test.

- ◆ *I clean the natural teeth of all my clients for them.*

An improvement in the best response from 58% answering yes in the pre-test to 76% in the post-test.

- ◆ *Every time I clean a client's dentures over a sink, I place a face washer in the sink or fill the sink with water.*

An improvement in the best response from 48% answering yes in the pre-test to 86% in the post-test.

- ◆ *I use fluoride mouth rinse to apply fluoride to my client's teeth.*

An improvement in the best response from 16% answering yes in the pre-test to 68% in the post-test.

- ◆ *I clean the gums of those clients who have full dentures.*

An improvement in the best response from 51% answering yes in the pre-test to 80% in the post-test.

Those behaviours that did not give a statistically significant improvement were:

- ◆ *When I accompany a client to a dental visit, I ensure that a thorough medical history of the client is available for the dentist.*

Answered yes in the pre-test by 84%.

Answered yes in the post-test by 84%.

- ◆ *I sometimes clean clients' dentures in the shower receptacle during their shower time.*

Answered no (best response) in the pre-test by 52%.

Answered no in the post-test by 65%, a 24% improvement.

- ◆ *I clean all of my clients' dentures for them.*

Answered yes in the pre-test by 73%.  
Answered yes in the post-test by 73%.

### **Attitudes of caregivers**

The five questions testing attitudes of caregivers were:

1. *Dental disease can be severe enough to interfere with aspects of your clients' lives.*
2. *It is important for elderly people in nursing homes to get preventive dental care.*
3. *Caregivers require special skills to maintain oral health for their clients.*
4. *Since most elderly people in nursing homes who have some teeth will eventually lose those teeth, regular dental check-ups are not important.*
5. *For those elderly people in nursing homes who have none of their own natural teeth, regular dental check-ups are not important.*

The total weighted score for attitudes in the pre-test was 1309. The total weighted score for attitudes of caregivers in the post-test was 1258. With a chi value of 5.7 this difference in total weight was not significant. Qualitative information arising from these attitude questions is considered further in the discussion.

## **DISCUSSION**

The programme was well accepted by the caregivers. A process evaluation of the programme was carried out and, in brief, over 90% of the caregivers scored 4 or 5 on a scale of 1 to 5 to describe the course as encouraging, well done, informative and having made good use of visual aids.

Using the Likert scale to test the attitudes of caregivers, questions 1 and 2 indicated positive attitudes about the need for preventive care and the impact of dental disease. In the pre-test, 7 per cent of the caregivers were either undecided or disagreed that dental disease can be severe enough to interfere with aspects of their clients' lives. In the post-test all caregivers either agreed or strongly agreed with the statement. Hence the majority started the programme with this positive attitude and one month after the programme, all caregivers had this favourable attitude. The second question addressed the importance of clients receiving preventive dental care. In the pre-test a positive attitude towards preventive care was indicated with all caregivers either agreeing or strongly agreeing with the statement. This attitude was maintained in the post-test.

The need for regular dental check-ups was not as well supported in both the pre-test and the post-test. Questions 4 and 5 addressed this issue. In regard to regular dental check-ups for clients with some of their own teeth, 24 per cent of the caregivers were either undecided, agreed or

strongly agreed that check-ups were not important. This attitude remained unchanged by the programme since 26 per cent responded in the same way in the post-test. Furthermore, 18 per cent of the caregivers were either undecided, agreed or strongly agreed that for clients who had none of their own natural teeth left, regular dental check-ups are not important. This attitude remained unchanged by the programme since in the post-test 17 per cent responded in the same way.

The third question asked if caregivers require special skills to maintain oral health for their clients. In the pre-test 37 per cent were either undecided, disagreed or strongly disagreed that caregivers require special skills to maintain oral health for their clients and in the post-test 32 per cent responded in the same way. While the discussion about the behaviours of caregivers will highlight the fact that caregivers did change their behaviour after the programme, it appears that they do not perceive these new behaviours as being special skills.

The attitudes of the caregivers reflect a belief that dental disease is a significant problem for the elderly and that it is important for elderly people in nursing homes to get preventive dental care.

The concept that fluoride is most important for children but has little effect on the natural teeth of elderly people showed a 50 per cent improvement in the correct response. This is consistent with an increase (334 per cent) in the number of caregivers who said in the post-test that they used a fluoride mouth rinse to apply fluoride to their clients' teeth. Furthermore, it is consistent with the 31 per cent increase in the number of caregivers in the post-test who ensure that a fluoride toothpaste is used every time a client's teeth are brushed. These results indicate a good response to the information stressing the importance of fluoride for the elderly and the value of toothpaste as well as mouth rinses to apply the fluoride.

In the pre-test, 50 per cent did not know that the roots of teeth decay more easily than the crowns of teeth and in the post-test 52 per cent answered the same way. It was hoped that caregivers would learn from the programme that the elderly are at a high risk of dental decay due to the higher susceptibility of the roots of teeth to tooth decay.

When asked which caregivers ensured that a thorough medical history of the client accompanied them to a dental visit, 84 per cent responded yes in both the pre-test and the post-test.

The majority of caregivers (84 per cent) were already aware prior to the programme. That the statement, "*If the gums bleed during tooth brushing, the gums should not be brushed*" was false. However, there was a 32 per cent increase in the post-test in the number of caregivers who clean the natural teeth of all their clients for them. Also, there was a 58 per cent increase in the number of caregivers who clean the gums of those clients who have full dentures. This is consistent with the 98 per cent correct response in the pre-test to the statement "*Where no natural teeth are present, the mouth does not require any cleaning*".

There was a 125 per cent increase in the number of caregivers who actively discourage their clients from eating confectionery throughout the day and a 240 per cent increase in the number of caregivers who encourage clients to use artificial sweeteners in their tea and coffee. Hence, the general dietary advice that aims to prevent tooth decay in the elderly was used by many of the caregivers after the programme. However, even with this large improvement, 40 per cent of caregivers in both questions still do not encourage the use of artificial sweeteners and 37 per cent fail to discourage clients from eating confectionery throughout the day.

There was a 43 per cent improvement in the correct response to the knowledge question "*Toothpaste is the recommended cleaning agent for dentures*". The education programme emphasised that toothpaste was too abrasive for denture acrylics and that soap was a better alternative.

The behaviour that changed in the post-test in relation to the care of dentures was that more caregivers said that they take the precaution of placing a face washer in the sink or fill the sink with water when cleaning a client's denture over a sink. There was an 86 per cent improvement in the number of caregivers taking this safety precaution in the post-test. The cleaning of client's dentures in the shower receptacle was discouraged and while the percentage of caregivers who did not carry out this practice rose from 52 per cent in the pre-test to 65 per cent in the post-test, the increase was not statistically significant. Client's dentures were cleaned for them by 73% of caregivers and there was no change in this figure in the post-test.

The dental health education programme for caregivers of elderly people made a significant impact on the behaviours of the caregivers who attended the programme. The evaluation was worthwhile to establish the degree that the education programme changed the knowledge, behaviours and attitudes of the attending caregivers. The 60 caregivers in Sydney took more responsibility for the oral hygiene of their clients, offered more dietary advice to their clients, increased the use of fluoride toothpaste and mouth rinse, and instigated precautions to safeguard dentures during cleaning procedures. Favourable attitudes towards the dental needs of their clients were maintained. These changes were recorded one month after the education programme was delivered.

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