IMPROVEMENT OF KNOWLEDGE, ATTITUDE, AND BEHAVIOR ABOUT ORAL HEALTH IN A POPULATION OF ALCOHOL ADDICTED PERSONS

PAMELA BARBADORO1, DILETTA LUCREZI2, EMILIA PROSPERO1,∗ and ISIDORO ANNINO1,2

1Chair of Hygiene, Infectious Diseases and Public Health Institute, Università Politecnica delle Marche, Italy
2School of Dental Medicine, Università Politecnica delle Marche, Italy

(Received 29 October 2007; first review notified 7 December 2007; in revised form 4 January 2008; accepted 18 January 2008; advance access publication 7 March 2008)

Abstract — Aims: To improve knowledge, attitude, and behavior about oral health and oral cancer prevention in a population of alcohol-addicted persons involved in a residential rehabilitation program in Italy. Methods: A questionnaire was administered to obtain socioeconomic and oral risk factors data, and a complete dental examination was performed. A lecture on oral health risk factors and healthy behaviors was delivered. A pre–post test questionnaire was used to assess the short-term effectiveness of the intervention. Long-term effectiveness was assessed by a follow-up interview at 1 year from the intervention. The independent effect of several covariates on oral health at baseline and on the outcome of the intervention was evaluated. Results: Seventy-six individuals from the residential alcohol rehabilitation program participated in our study. About half had been addicted to alcohol for more than 10 years; 81.6% smoked at the time of survey; 31.0% declared that they never used toothbrushes or that they brushed less than once/day. We found an improvement of 25.0% in exact answers between the pre–post test questionnaire. At 1 year from the intervention, the 42 participants who reached follow up showed a great improvement in knowledge and attitude towards oral health. In particular, toothbrushing had become a daily routine after every meal for 67.1% of participants. Conclusions: Education of alcohol-dependent individuals in a rehabilitation setting may contribute to their attention to oral health and willingness to change habits.

INTRODUCTION

Heavy consumption of alcohol, particularly in conjunction with smoking, is an important risk factor for oral cancer: 75–90% of all cases of oral cancer can be attributed to tobacco and alcohol use, according to Hornecker et al. (2003). The cancer epidemic in developed countries, and increasingly in developing countries, is due to the combined effect of the ageing of populations, and the high or increasing levels of prevalence of cancer risk factors (Stewart et al., 2003).

Although these cancers are easily detectable, the proportion of oral and pharyngeal cancers diagnosed in early stage is low, requiring complex, costly, and often ineffective therapies, and both patient and clinician factors play a role in this delayed diagnosis (Pitiphat et al., 2002; Mignonna et al., 2004). Early detection of malignant and premalignant lesions and reduction in risk behaviors can greatly improve prognosis and quality of life and reduce treatment costs (Mignonna et al., 2002).

In fact, the knowledge of oral cancer risk factors has been reported to be a predictor for having had or being aware of the existence of an oral cancer examination (Cruz et al., 2002). The rehabilitation setting may constitute an opportunity to influence health behaviors through health promotion, especially in high-risk populations, because the timing may be propitious for a willingness to change attitude.

The aim of our study was to improve knowledge, attitude, and behavior about oral health and oral cancer prevention in a population of alcohol-addicted persons resident in a rehabilitation program in Italy.

METHODS

All the hosts of specialized residential rehabilitation clinics in Central Italy (N = 75) were invited to participate in the study, with a response rate of 96.0%. Written informed consent was obtained from study participants at the time of questionnaire administration. The study was performed from January 2006 to February 2007.

A questionnaire was administered to obtain socioeconomic data (gender, age, educational level, occupation); epidemiological data (risk factors: number of years of addiction to alcohol; type of alcohol; quantity of alcohol, number of years of smoking addiction: number of cigarettes; drugs addiction: types; frequency of meals; type and amount of sugar; malnutrition status; prosthetic apparatus and type; other concurrent illnesses); and to assess oral hygiene behaviors and other oral health risk factors (usage and type of toothbrush and frequency of toothbrushing; type of toothpaste; interdental thread; interdental thread, and attendance of dentistry ambulatory visits).

The questionnaire was followed by a complete oral examination performed (by D. L.) according to the WHO criteria (WHO, 1987). Clinical examinations were done under artificial light by means of plane glass mirror, explorer, and a periodontal ball-pointed probe. The WHO caries diagnostic criteria for decayed, missing, and filled teeth (DMFT) were used to evaluate dental caries status and CPITN (Community Periodontal Index of Treatment Needs) was used to assess periodontal health status (Klein et al., 1938; Ainamo et al., 1982). Measurements were performed at four sites per tooth (mesiobuccal, midbuccal, distobuccal, midlingual) of six index teeth (maxillary right first molar, left central incisor and first premolar; mandibular left first molar, right central incisor and first premolar). Total and partial edentulousness, the presence of various types of dentures, and the presence of prosthetic devices were recorded separately for both jaws. Each jaw was examined and classified into one of five categories: no prostheses, one bridge, two or more bridges, partial denture, bridge and partial denture, or complete denture.

∗Author to whom correspondence should be addressed at: Chair of Hygiene, Infectious Diseases and Public Health Institute, Università Politecnica delle Marche, Via Tronto 10/A – 60100 Ancona, Italy. Tel.: +39 0712206030; Fax: +39 0712206032; E-mail: e.prospero@univpm.it

© The Author 2008. Published by Oxford University Press on behalf of the Medical Council on Alcohol. All rights reserved
A comprehensive oral mucosal examination (labial mucosa, buccal mucosa, hard palate, soft palate, tonsils and oropharynx, tongue, floor of the mouth, alveolar processes and gingiva) was performed for evaluating the presence of precancerous lesions. On each subject two mouth mirrors were used for retraction of soft tissues. A sterile piece of gauze was used to retract the tongue during this examination.

All participants received a report of the clinical findings to achieve knowledge of their own actual oral health status.

After the initial assessment, the intervention included a lecture about alcohol and tobacco smoke in oral health pathology, and oral cancer prevention strategies (primary, secondary, and tertiary prevention).

A 10-item test was administered before and after the lecture in order to assess participants’ knowledge and consciousness of alcohol and tobacco smoke responsibility in oral health pathology (i.e., dental caries, periodontal diseases, and neoplasms); knowledge of responsibility of alcohol and tobacco smoke on the participants’ own actual oral health status; and knowledge of primary, secondary, and tertiary prevention strategies in oral health.

Questions regarding oral health knowledge, opinions, and practices were previously validated by an expert panel and pretested with 20 patients. Face, content, and concurrent construct validity were assessed. Face and content validity were established through the evaluation of the questionnaire’s items by both experts in Dentistry and Public Health. Concurrent construct validity was estimated by comparing specifically designed items within the instrument with other items measuring the same concept/knowledge. For example, we evaluated the association between participants’ answers for those who believed that alcohol is a risk factor for oral cancer and those who believed that a heavy smoker is at high risk for oral cancer (Questions 7 and 14).

The reliability coefficient for dichotomous variables (tested by using Kuder Richardson formula 20 test) was 0.784. Based on the pretest, the questionnaire was revised and shortened.

Finally, a brochure on oral health, developed by the investigators, was given to each participant.

The short-term effectiveness of the educational intervention was verified by the McNemar test between the pre–post intervention questionnaire.

The long-term effectiveness was tested after 1 year from the first intervention by a telephonic questionnaire including questions about toothbrushing, dental examination, and attention to oral cancer signs.

Multiple logistic regression models were constructed to assess the independent effect of several covariates on the DMFT index and on the outcome of the intervention after adjusting the effect of confounders. The DMFT was categorized as ≥10 and <10; a DMFT score of 10 was chosen as the cutoff because it represented the median value of the distribution of DMFT score in participating hosts. The outcome of the intervention was measured by toothbrushing frequency (0 = less than once/day or sometimes, 1 = after every meal). The following predictor variables were included in all models: age (continuous); gender (0 = male, 1 = female); educational level (0 = no formal education/completing elementary school, 1 = completing secondary school, 2 = holding any university degree); number of years of alcohol addiction (continuous); number of years of smoking (continuous); utilization of dental health care services (0 = less than once/year, 1 = ≥once/year); and frequency of daily tooth brushing (0 = less than once, 1 = once, 2 = more than once). Explanatory variables that were associated with the outcome at a significance of 0.20 or less in univariate analysis, were included as independent variables to adjust for the indirect effects of other variables in the logistic regression analysis. Association between the characteristics and specific oral/dental health indicators was expressed as odds ratios (ORs) and 95% confidence intervals (CIs). Significance level was set at α = 0.05. All analyses were conducted using the Stata version 9.0 software program (Stata Corp., 2005).

RESULTS

A total of 76 individuals were examined with a response rate of 80.0%; 58 were males (76.3%). Table 1 depicts the distribution of demographic features of the residents involved in the study: 54.4% (N = 49) were 30–49 years old; most were employed in manual work (39.5%, N = 30); 36.8% (N = 28) had attained a high school or college degree education level. About half had been addicted to alcohol for more than 10 years (47.4%, N = 36); the preferred beverage was wine (39.5% N = 30),
but also the association between wine and spirits was common (31.6%, N = 24). A great part of participants (81.6%; N = 62) smoked at the time of the survey. As for oral health risk factors (Table 2), sucrose was used by the 53.9% of residents (N = 41); moreover, 31.6% (N = 24) declared that they never used toothbrushes or that they brushed only once/day. Common fluorinated toothpaste was used by all participants. Two thirds of participants (68.4%, N = 52) never used interdental thread.

About half (44.8%, N = 34) underwent less than one dental examination per year. As a result, 56.6% of them (N = 43) presented a DMFT index value equal or above 10 and 76.3% (N = 58) had a CPITN index value of 2 or 3. The logistic regression model has showed an association between DMFT $\geq 10$ and female gender (females had 4.33 times the risk of male). Patients with more than 10 years of smoking addiction; age (1.85-fold risk for subjects $>49$ years), and years of alcohol addiction (Table 3). Five participants (6.6%) showed mucosal precancerous lesions.

We registered an improvement of 25.0% in exact answers between the pre–post test questionnaires, with an increase from 50.5% to 75.2% (McNemar test $P = 0.001$). In particular, a great improvement was registered in questions concerning the goals of oral hygiene (0.0% right answers before the intervention vs. 85.7% after the intervention).

The intervention was considered concluded after the follow up, at 1 year of distance from the intervention. At that time, the 42 participants reached at follow up (55.3% of the total; 25 males and 17 females), showed an improvement in knowledge and attitude towards oral cancer prevention. In particular, toothbrushing had become a daily routine after every meal for 67.1% (n = 28) vs. an initial proportion of 25.0% ($P < 0.001$). Moreover, 65.9% (N = 27) of participants received a dental examination during the previous year, with a proportion of 53.7% doing it only for a control or dental hygiene.

Variables associated with improved toothbrushing were female gender and more than 10 years of smoking addiction; on the other hand, patients with more than 10 years of alcohol addiction were less likely to change (Table 4).

## DISCUSSION

Although the effectiveness of educational interventions is difficult to evaluate (Gooch et al., 2006; Watt et al., 2006), and interpretation of our results must take into account the fact that 1-year information was only available on 55% of subjects, we can consider the improvement in attention to the oral health of involved subjects as a success, particularly considering the characteristics of the involved patients themselves. The relatively small numbers may reflect the lack of concern about health matters among alcohol-dependent patients, and the difficulties in follow up. However, our survey shows that there are patients in rehabilitation programs for alcoholism who have sufficient motivation to attempt to achieve a healthier life style, as similar studies have already observed (Araujo et al., 2004). In addition, it is well known that programs with more physical amenities had patients who were more involved in self-initiated and community activities and were more likely to successfully complete the program and be discharged to independent living situations (Meier and Best, 2006).
We registered a better long-term outcome regarding oral health attention in females, in accordance with previous studies (Petti and Scully, 2005).

A limitation of the study may be found in the lack of a second oral examination, which was not performed because the evaluation of long-term improvement in oral health was beyond the purpose of the study, and because of effects of changing behaviors on oral health (in particular, oral cancer) are difficult to assess. The clinics involved host clients from all Italian regions, making it operatively difficult to obtain a second oral health examination in a significant number of patients. The prevention of oral cancer has been previously discussed by putting into evidence the role of oral health care in contributing to a more structured health promotion intervention (Ahrens and Bressi, 2006). In fact, as previously evidenced (Dyer and Robinson, 2006) the effect of an isolated intervention of a dental worker on health behavior may be poor. However, the involvement of dental professionals in a more integrated program could help oral health promotion, and integrated care and prevention are addressed as the key points in oral health by the Crete Declaration on Oral Cancer Prevention (Petersen, 2005). A targeted, multiprofessional approach could be of help in high-risk and problematic populations such as that of addicted persons.

The principal risk factors for oral cancer in these subjects are alcohol and smoking. However, the simultaneous interruption of these two habits can be very difficult. Since primary prevention may be unsuccessful, the most immediate paths to follow could be to improve oral health behaviors and to focus on secondary prevention, with, at least, early diagnosis.

REFERENCES


