NEPAL NATIONAL ORAL HEALTH 'PATHFINDER' SURVEY 2004

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INTRODUCTION

The "Nepal National Oral Health 'Pathfinder' Survey 2004" was launched under the aegis of the Oral Health Focal Point, Ministry of Health and funded by the World Health Organisation. It is the most comprehensive study on the oral health status, oral health knowledge, attitude, behaviour, dietary habits, quality of life impacts and use dental services to be conducted in Nepal.

The survey is an essential activity of the Nepal National Oral Health Policy and National Strategic Plan for Oral Health for Nepal and is necessary for monitoring and evaluation of the impact of strategies aimed at improving the oral health of the nation. The survey followed the guidelines detailed in the 4th edition of the manual published by WHO, "Oral Health Surveys, Basic Methods" (WHO, 1997).

This report provides a summary of the results and offers recommendations for the improvement of oral health in Nepal. The comprehensive report with in depth analysis of the results is available from the Oral Health Focal Point, Department of Health Services, Ministry of Health.

OBJECTIVES

The specific objectives of the Nepal National Oral Health Pathfinder Survey are:

- To collect and analyse data on the oral health status of children and adults in rural and urban Nepal.

  Oral health status includes information on:
  - Oral mucosal condition
  - Need for immediate care
  - Fluorosis of teeth
  - Periodontal status
  - Dentition status
- To collect and analyse information on oral health knowledge, attitude, reported oral hygiene behaviour, dietary habits, oral health impacts on the quality of life and use of dental services by Nepali children and adults of rural and urban Nepal.

DESIGN

The cross-sectional oral health 'pathfinder' survey was conducted by trained and calibrated examiners; and enumerators trained to collect data through an interviewer-administered structured questionnaire. Clinical oral health data was collected according to WHO methodology and criteria. Multi-stage cluster sampling for the random selection of schools was performed.

SETTING

Sixteen (16) rural and urban sites from the 5 development regions and 3 physiographic divisions (Upper Hills, Middle Hills and Terai) were conveniently chosen. Survey of children was conducted in private and government schools in urban centres and government schools in rural areas while adults were examined and interviewed in their homes, in the market place or on the streets.

SUBJECTS

The study population covered 5 age groups: 5-6 years (n = 1027), 12-13 years (n = 1047), 15-16

years (n = 1074), 35-49 years (n = 603) and 50+ years (n = 616).

STATISTICAL ANALYSIS

Data gathered from the survey were entered into the SPSS Version 10.0 programme. Data analysis included frequency distribution for defined clinical conditions, oral health knowledge, attitude, behaviour and utilisation of oral health services; calculation for Kappa; means test using the Mann-Whitney non-parametric test for two independent samples with the level of statistical significance set at 0.05; and association test with the Chi-square test with the same level of statistical significance.

CONSENT

The national oral health pathfinder survey proposal was submitted to the Nepal Health Research Council. Letters were sent to District Education Offices, District Health Offices and to the head masters of the selected secondary schools explaining the purpose of the survey and to seek their co-operation. The purpose of the survey was explained to the subjects, in order to obtain verbal consent for the examination and for the interviews. The subjects were assured that any information gathered or provided would be kept confidential.

VALIDITY OF THE STUDY

Seven dentists and 5 oral health promoters employed the United Mission to Nepal Oral Health Programme on behalf of the Oral Health Focal Point, working either singly or in pairs at each examination site, performed clinical examinations and interviews. They were provided with 2 days of theory and 4 days of practical training in the field concerning examination procedures, interpretation, understanding and application of the codes and criteria for the various diseases and conditions likely to be observed or recorded during the survey. Training was also provided for the execution of the questionnaires and for the interviews. The examiners were trained and calibrated, first using blocks of extracted teeth followed by examination and calibration on schoolchildren and adults under field conditions. The mean inter-examiner unweighted Kappa was 0.87 while the mean intra-examiner unweighted Kappa was 0.95.

RESULTS

1. Dentition Status

5-6-year-old dental caries prevalence was 57.5%, mean dmfs was 5.47 and the mean dmft was 2.70. In the 12-13-year-old age group the dental caries prevalence was 25.6%, mean DMFS was 0.74 and the mean DMFT was 0.50. The dental caries prevalence, mean DMFS and mean DMFT of 15-16-year-olds was 25.6%, 0.74 and 0.50 respectively. The prevalence of dental caries and mean DMFT of adults age 35-49 years was 57.5% and 2.71, and for 50+ year adults it was 69.6% and 6.40. The mean number of teeth per person is 30.7 for 35-49-year-olds and 26.1 for 50+ year adults. Fluorosis amongst younger children and adolescents was very low and not of public health significance. There is a trend of increasing caries in the female age cohort. Nepalis of all age groups in the Western Developmental Region have the highest prevalence of decay while residents of the Terai have the lowest prevalence. A strong association between father's education or education level and DMFT in 15-16-year-olds ($p<0.01$) and adults age 35-49 years ($p<0.000$) was observed. There appears to be a decline in the prevalence of dental caries in Nepal when national, regional and site specific data for 12-13-year-olds is compared. Even though no association was found between dental caries and variables such as sugar consumption, frequency of brushing and fluoride toothpaste; the prevalent use of fluoride toothpaste may be the most probable reason for the decline of dental caries in 12-13-year-old schoolchildren. Dental caries prevalence and experience is low or very low for all age groups in Nepal and are within the goals recommended by WHO and the FDI World Dental Federation (Federation Dentaire Internationale/WHO, 1982) except for the 5-6-year-olds. The mean number of missing teeth in

the adult population is low and is also within the recommended guidelines. Compared to other SEARO countries, the dentition status of Nepalis is good.

2. Periodontal Status

CPI score of 2 (gingivitis and calculus) was dominant in young children and adolescents: 5-6-year-olds (58.2%), 12-13-year-olds (62.8%) and 15-16-year-olds (61%). 43.8% of 35-49-year-old adults and 34.3% of the 50+ adults have the highest CPI score of '4-5 mm pockets', but the mean number of sextants affected is 1.6 sextants for these age groups. The mean number of sextants in 35-49-year-old and 50+ adults with periodontal pockets 6+ mm is small, 0.4 and 0.5 sextants respectively. 35-49-year-old adults from the Upper Hills had significantly poorer periodontium ($p<0.000$). The percent of 35-49-year-old adults with deep pocketing (21.6%) is normal compared with other populations or subgroups in the world. Comparison of CPI data with data collected in Nepal in the 1980s shows that the periodontal health of the adolescents an 35-49-year-olds is improving. Healthy periodontium is significantly associated with regular brushing, fluoride toothpaste, urban location, level of education and not using tobacco products.

3. Oral Mucosal Lesions

The prevalence of oral mucosal lesions amongst the adults was very low (6.5% of 34-49-year-olds and 7.5% of 50+ adults) with 1.2% of the lesions in 35-49 year adults and 0.5% of the lesions in 50+ adults classified as leukoplakia. No oral cancer was detected.

4. Pain And Quality Of Life Impacts

The report of pain and discomfort due to toothache ranges from 18% in 5-6-year-olds to 64% in 50+ year adults. Amongst adolescent schoolchildren, the most frequent reported impact of pain and discomfort is the inability to eat, followed by the inability to speak, lauigh and sleep. With a decrease in dental caries amongst the adolescents, impacts due to pain and discomfort has decreased in the last 5 years. 55% of 50+ year adults reported having trouble eating hard foods.

5. Oral Hygiene Habits

More than 99% of the adolescents and 90% of the 35-49 year adults use their own brush for oral hygiene, while a toothbrush is used by a lesser proportion of the 50+ year adults ((females, 75.4% and males, 68.5%). More urban 50+ year adults (80.2%) than rural 50+ year adults (63%) use a toothbrush. Level of education is an important factor in the type of tool used for oral hygiene amongst adults with the more educated using a brush and the less educated using other instruments ($p<0.000$ in 35-49 year adults and $p<0.001$ in 50+ year adults). Approximately 75% of 12-13-year-olds and 80% of 15-16-year-olds use a fluoride toothpaste while the use of fluoride toothpaste is considerably lower in adults age 35-49 years and adults 50+ years (50% and 28.2% respectively). The consumption of fluoride toothpaste is significantly higher in urban subjects ($p<0.000$) and lower in the Terai compared to other physiographic divisions ($p<0.000$); and higher in schoolchildren attending private schools than government schools ($p<0.000$).

6. Sugar Consumption

Tea with sugar was the most common sugar containing food consumed. Subjects surveyed in the Western Developmental Region consumed more sugar tea daily than other regions. Daily sugar consumption is also the highest in the Western Developmental Region which may be reason for higher caries in this region, but no association was found between dental caries and sugar consumption in this region. Daily sugar consumption pattern is similar in rural and urban adolescents: urban 12-13-year-olds and 15-16-year-olds, 76.1% and 77.8% respectively compared to rural 12-13-year-olds and 15-16-year-olds, 74.9% and 74%, respectively. There was no association between gender and daily sugar consumption in all age cohorts except for male 35-49-year-olds ($p<0.006$).

7. Use Oral Cancer Risk Products

Cigarettes was the most common product used by 35-49-year-old adults (22% every day) and 50+ year adults (26% every day) and the average daily consumption was 8 and 7 cigarettes per day respectively. More 35-44 year-old adults from the Upper Hills (52.2%) use tobacco products (cigarettes, khaini, surtti) than Mid Hills (39.6%) and Terai (37.2%)($p<0.024$). Education is significantly associated with tobacco use amongst 35-49-year-old adults ($p<0.042$) and 50+year adults ($p<0.004$). The higher the level of education, the less the use of tobacco.

8. Knowledge And Attitude

Knowledge concerning the prevention of oral health problems is high amongst the subjects surveyed. A high proportion of the adolescents (94-97%), 35-49-year-old adults (83-86%) and 50+ adults (71-74%) believe or know that brushing is a healthy habit and eating sweet and consuming tobacco are unhealthy habits. However, knowledge concerning fluoride is very low with 72-87% of the adolescents and 88-97% of the adults ignorant on the protective effects of fluoride. There was no significant differences in knowledge and attitude based on location type and education status of adults. In 12-13-year-olds, knowledge concerning tobacco, water fluoride and sweets was associated with parent's level of education and location type in favor of higher education and urban location.

9. Oral Health Care Services

63.5% and 18.3% of the 35-49-year-old and 50+ year adults reported that they did not visit a dentist in the last 2 years because they did not have a need or did not have any serious dental problem. Of the 35-49-year-old adults who reported visiting a dentist, 89.6% went because they had a problem. A very small percentage stated cost or distance to the clinic as barriers to accessing care. Adolescents also report that the main reason they visit a dentist is for relief of pain. Oral examination, dental extraction and cleaning/scaling were the major services provided during dental visits for both adult age groups. The 50+ year adults received more extraction (54.4%) but less cleaning/scaling (15.2%) than 35-49-year-old adults (35.7% and 33.9% respectively). The majority of both adult age groups (67.8%-94.9%) were satisfied or happy with the services such as appointment at a suitable time, location of the dental clinics, reception, and cleanliness.

10. Source of Oral Health Information

Parents and teachers are the most important sources of information on oral health for the adolescents followed by television and radio. 45-55% of the adolescents report receiving oral health education in school the last 12 months which emphasised oral hygiene, importance of teeth and healthy diets. A greater percentage of adolescents in urban schools reported receiving oral health education in schools than in rural schools.

RECOMMENDATIONS

The dentition status and periodontal status of Nepalis appears to be improving. However, there are gender, regional, geographical and social inequalities in oral health. The National Oral Health Policy and the National Strategic Plan for Oral Health (Ministry of Health, 2004a, 2004b) contain sound strategies to reduce inequalities in oral health based on the guiding principals of Health for All (WHO, 1978) and the Ottawa Charter for Health Promotion (WHO, 1986) in an environment of scarce financial and human resources. Priority should be given to the implementation of the following strategies in the National Strategic Plan for Oral Health:

1. Promotion of oral health targeting schoolchildren through the integration of evidence based and culturally appropriate oral health preventive messages in the school curriculum. Emphasis should be placed on the benefits of fluoride, brushing twice a day with a fluoride toothpaste, avoidance of the risk factors which contribute to dental caries, periodontal diseases and oral cancer; and regular visits to a dentists.

2. Promotion of oral health amongst the general public with special attention on women's oral health, the oral health of pre-school children and the elderly. In addition to the above mentioned points, the importance of the deciduous dentition and the importance of proper oral hygiene for young children at an early age should be emphasised. Influencing the toothpaste manufacturing industry to incorporate the appropriate oral health messages into their advertising is more efficient and more effective than the Oral Health Focal Point spending limited funds on mass media communication. Oral health can be promoted in the community through the training of primary health care workers such as auxiliary nurse midwives, maternal child health workers, traditional birth attendants, village health volunteers and female community health volunteers to integrate oral health into their general health messages.

3. Create a more supportive environment for improved oral health through affordable fluoride toothpaste and salt fluoridation. The use of quality fluoride toothpaste is improving the dentition status of the adolescent schoolchildren and reducing the oral health impacts. The use of fluoride toothpastes by the adult population is also associated with healthy periodontium. To make quality fluoride toothpaste more affordable and available to the general populace, the removal of taxes on effective fluoride toothpaste which meet defined criteria has been recommended in the National Strategic Plan for Oral Health. Currently 50% of Younger Adults and 28.2% of Older Adults use a fluoride toothpaste. There are also disparities in fluoride toothpaste consumption in relation to physiological division and location type. The problem of inequitable access to fluoride toothpaste can be resolved through the fluoridation of salt which is part of the National Oral Health Policy. Salt is consumed by 99% of the population and reaches all socio-economic groups.

4. Along with oral health promotion, primary health care workers (health assistants and auxiliary health workers) in the health posts should continue to receive training in the delivery of basic oral health care, primarily oral health education and pain relief throught the extraction of teeth. The majority of Nepalis only attend a health post or dental clinic for pain relief. Scaling of teeth as a part of a package of basic oral health care is not recommended as a priority (van Palenstein Helderman et al., 1999). Calculus is highly prevalent but does not lead to a large mean number of sextants with deep periodontal pockets and loss of teeth. It is also unrealistic economically to propose regular removal of calculus on a population basis (Manji and Sheiham, 1986). A small shift in the whole population brushing their teeth more often with fluoride toothpaste and reducing their exposure to tobacco products will have a major impact on the prevalence and incidence of calculus and periodontal disease.

Every effort should be made to implement these equitable whole population strategies to reduce inequalities in oral health and thereby improve oral health for all.

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