ORAL HEALTH STATUS AND TREATMENT NEEDS OF OLDER ADULTS IN NORTH YORK COLLECTIVE LIVING CENTRES

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Oral Health Status and Treatment Needs of Older Adults in North York CLCs

Summary

The Community Dental Health Services Research Unit (CDHSRU), in partnership with the Community Dental Services Division of the North York Public Health Department, conducted a study of the self perceived and clinically defined treatment needs of older adults living in collective living centres in North York. The overall aim was to determine whether two recently developed measures of subjectively-perceived oral health status (GOHAI and OHIP) predicted clinically defined treatment needs to an extent that they could be used as screening instruments in collective-living settings. This report summarizes the clinically-defined oral health status and treatment needs of the study population. The performance of the GOHAI and OHIP and their potential as screening tools is described in a subsequent report.

In general, oral hygiene and periodontal health among the residents of the collective living centres included in the study were poor. Treatment needs were found to be high; with over half the dentate participants requiring restorative care and almost as many periodontal care. Relines, repairs or new prosthetic appliances were required by 46% of the edentulous subjects. A high prevalence of urgent treatment need was found.

Introduction

Institutionalized older adults are known to have a high prevalence of oral health problems, yet report a low frequency of dental visits[1,2,3,4]. Few collective living centres in Ontario offer dental services within their facilities or have dental personnel available for assessment and referral. Delivery of dental care to many in this population is difficult, as residents may be medically or mentally compromised to the degree that they cannot tolerate treatment, while some who could withstand and co-operate with treatment are not ambulatory enough to access care. Even for residents without medical limitations, seeking dental assessment and care may be further complicated by transportation and financial difficulties. Consequently many residents of CLCs exhibit high levels of untreated and often undetected oral health problems.

Many residents in long term care facilities seem to regard deteriorating oral health as an inevitable process of aging, consequently tolerating pain and disability to a greater degree than the rest of the population[5]. Medical care is often delivered independently of oral health care and the negative impact of dental disease on an individual's health and overall function may not be taken into account[6]. Studies assessing the oral health status of residents in CLCs have found a high percentage to have urgent dental problems, ill fitting or uncomfortable dentures, a high need for preventative care and restorative treatment[1,2,4,7].

Rates of edentulism have been steadily declining.[3,8] With more older adults retaining their teeth, the volume of need and the complexity of care required to meet that need is likely to increase overall and within the institutionalized population. In order to ensure that the institutionalized population is able to access appropriate care, screening and referral mechanisms and/or the provision of treatment services within institutions may be required.

Aims and Objectives

This study formed part of a program of research aimed at assessing the relationship between self-perceived and clinically defined treatment needs in

institutionalized older adults. Two subjective oral health indicators the Geriatric Oral Health Assessment Index (GOHAI)[6] and the Oral Health Impact Profile (OHIP)[9] were assessed for their ability to reliably identify institutionalized older adults with a high probability of needing dental treatment. Clinical data was gathered for comparison to subjective data to determine the predictive value of both instruments. Clinical findings are reported here and analysis of the GOHAI and OHIP as screening instruments is presented in a separate report[10].

METHOD AND MATERIALS

Study design, sample selection and data collection

The target population for the study was older adults living in collective-living centres (CLCs) in the City of North York. The Administrators/Directors of 21 CLC's in North York were approached for permission to conduct the study within their facility. Three centres had no eligible residents according to the study's criteria and had to be excluded. Three homes required that the study be approved by their research committee and the process would require five to six months before a decision could be given. These centres were excluded due to time constraints. Refusals were given by two of the centres contacted.

Administrators who gave permission for the study to be conducted in their centre were asked to provide a list of residents who potentially could participate. Any resident with cognitive impairment, too ill to participate, unable to speak English or otherwise judged to be unable to give informed consent was to be omitted from the list. The lists of residents formed the study sample.

At each CLC, the resident lists were given to two hygienists who approached each person individually to explain the methods of the study, its procedures and the confidentiality of the data collected. Special emphasis was placed on ensuring that residents understood that participation was entirely voluntary. If the resident agreed to take part, a signed consent was obtained. The examination team was instructed to exclude any individual who they felt was not capable of taking part because of cognitive or medical problems or if they thought the resident did not fully understand

the study and the consent process. These procedures were judged to be ethical by the Human Subjects Certification Committee at the University of Toronto.

Survey procedures

Residents who gave informed consent were interviewed using either the GOHAI or OHIP questionnaires. The former consists of 12 items designed to obtain information on oral functional problems, pain and the psychosocial impact of oral disorders. The latter is similar except it consists of 49 items, grouped into seven sub-scales. Because this was likely to impose too great a burden on the study subjects, a short-form of 14 selected items was used. The modified instrument contained the two most commonly reported items from each of the seven sub-scales.

The interview was followed by a brief dental examination to determine the oral health status and treatment needs of each subject. The clinical examination protocol used is part of the Adult Dental Epidemiological System developed under the Teaching Health Unit program, with input from the Ontario Society of Public Health Dentists and the Ontario Society of Supervisors in Public Health Dentistry. Items in the examination protocol included the following: dental status (dentate or edentulous), prosthetic status, gingival recession, periodontal status, caries and treatment needs. Gingival recession was measured on six indicator teeth and periodontal status was also scored for six indicator teeth, using the Community Periodontal Index of Treatment Need (CPITN)[11]. Periodontal probing was not conducted on subjects who had medical histories which contraindicated this procedure. A summary of treatment needs were recorded including the categories periodontal, restorative, prosthetic, surgical and urgent.

Statistical Analysis

Data was analyzed using SPSS\PC+ and used mainly descriptive statistics. The Chi-square test was utilized for analysis of categorical data, to test for the significance of group differences in proportions. T-tests were used with numerical data to test for the significance of group differences in means. Associations between

continuous variables were assessed using correlation coefficients and the associated statistical test of significance.

RESULTS

1. Characteristics of subjects

In total, 200 residents from 13 collective-living centres in North York participated in the study. Females outnumbered the males, with 70.5% (n=141) of the subjects being female and 29.5% (n=59) male. Their ages ranged from 64 to 99 years and their mean age was 82.6 years (sd=7.50). One-fifth of the subjects were 90 years of age and older. For purposes of analysis, two age groups were compared, those 64-84 years (57.3%) and 85+ years (42.7%) (Table 1).

2. Dental Status

Just over two-thirds of subjects (69.5%) were dentate and just under one-third were edentulous (30.5%). The prevalence of edentulism was identical for males and females and no differences were observed between the two age groups (Table 2). Among the dentate, the mean number of teeth remaining was 15.4 (sd=7.9). Just over half (52.9%) had 16 or more teeth and 36.4% had 20 or more teeth. There were no differences by age in the number of remaining teeth. The mean among those aged 64 to 84 years was 16.0 (sd=8.0) and the mean among those aged 85 years and over was 14.8 (sd=7.5).

3. Disorders of TMJ, Mucosa, Teeth and Bone

TMJ disorders were found in 28% of the population. Crepitus and deviation was quite evident in some residents, however none were considered disabling enough to warrant a treatment recommendation. Disorders of mucosa where found in 46.5% of the subjects. Referral for treatment of problems such as severe stomatitis were required for 5% of the subjects. One-tenth (9.5%) of the participants exhibited defects of the teeth such as erosion, attrition, fractures or other lesions which resulted in a

treatment recommendation. Bone disorders were primarily atrophy of the mandibular ridge and, though present, no treatment recommendations were considered either necessary or appropriate.

4. Periodontal Status

Periodontal status was assessed by measuring recession levels and CPITN on one or more of the six indicator teeth (Table 3). Recession measurements were obtained from 122 dentate individuals, as 17 dentate people were missing all indicator teeth. Of these, 81.6% had recession of 2mm or more on at least one indicator tooth. The mean recession score was 3.85mm (sd=1.8).

CPITN scores were obtained from 94 dentate subjects. Medical histories which contraindicated periodontal probing and the absence of indicator teeth account for the remainder. Table 3 shows that only 8.5% were periodontally healthy. Half (49.8%) had pockets of 4mm or more and slightly more than one-tenth (12.8%) had pockets of 6mm or more. Periodontal status was not found to be associated with age or gender.

5. Decayed, missing and filled teeth

Table 4 shows the mean number of sound teeth for dentate residents was 6.1 (sd=5.0). A mean of 16.5 (sd=7.8) teeth were missing, a mean of 1.9 (sd=3.0) were decayed and a mean of 5.5 (sd=4.9) filled. Men had more missing and decayed teeth than females, but these differences were not significant. Females were more likely than males to have more filled teeth ($p < .05$). No association was found between age and the mean numbers of missing, filled or decayed teeth.

6. Prosthetic Status and Need

For the maxillary arch the most common prosthetic status was wearing a full denture, as reported for 46.5% of the residents. No prosthetic device was second (23.5%), followed by partial upper dentures (21.5%). For the mandible, 34.0% had no prosthetic appliance, followed by 30% with a full lower denture and 23% with a

partial lower denture. A small portion of residents chose not to wear partial or full dentures even though they possessed them. Stain, calculus or abundant plaque was evident on 34.8% of the residents' dentures.

Denture identification and/or professional cleaning was the most frequent recommendation for maxillary and mandibular prosthetic devices. For the maxilla, reline/repair of full upper dentures was the next most frequent recommendation, followed by new partial dentures. The second most frequent recommendation for the mandible was new partial dentures (Table 5). In some instances where the dentition was not sufficiently complete, the examiners did not recommend dentures if it was unlikely that the resident could tolerate them.

7. Summary of Treatment Needs

Overall, 70.0% of subjects needed dental treatment of one kind or another. Table 6 is a summary of the specific treatment needs detected during the clinical examination. Among dentate subjects, over half (56.1%) needed restorative care (56.1%) and almost half (48.2%) needed periodontal care. A quarter of the dentate (25.9%) needed surgical care, predominantly tooth extractions, and one-in-ten (10.8%) needed urgent care for the relief of pain and/or infection. One-third of the dentate (35.0% and two-fifths of the edentulous (45.9%) needed some form of prosthetic treatment.

Males were more likely than females to require surgical treatment ($p<0.5$). Significance was not found for any other treatment variables by gender.

Discussion

The high proportion of females (70.5%) and the mean age of subjects (82.6 years) are consistent with the results of other studies of institutionalized older adults in Ontario[1,3,7]. The prevalence of edentulism was found to be much lower than in other studies and, in fact, is closer to the prevalence rate found in a recent study of independently living older adults[12]. In addition to the individuals who declined to participate, any residents that were cognitively impaired, unable to understand

English or too ill were excluded from the study. The study results may underestimate the extent and severity of oral health problems in this population, as many of the excluded residents may have the most serious oral problems or compromised dental health.

The degree of treatment need was high even with the probability of exclusions affecting results. Frequency of dental visits and date of last dental visit were not requested so we do not know how long the burden of dental illness had been present or the rate at which dental health problems are developing. The oral health status of this institutionalized population was found to be worse than that found in a recent study of independently living older adults in Ontario[12]. Clinical assessment revealed fewer sound teeth, almost twice the number of missing teeth, less restorations, more decay, poorer periodontal health and more urgent conditions than their independently-living counterparts.

The percentage of dentate individuals requiring urgent dental care was 10.8%, close to the 9.0% found in a study of older adults in East York CLC's[1] . However, large differences were found between the studies when comparing the percentage of residents who needed restorative and surgical care. For dentate individuals in North York, restorative care was needed by 56.1% of the residents and 25.9% required extractions; compared to East York where only 20.0% of the subjects required restorations and 12.0% extractions. These differences may be due to the fact that participants in the North York study had a mean of 16.5 missing teeth, while those in East York had a mean of 25.9 missing teeth. Retention of more of the natural dentition in the North York CLC residents may explain the increased burden of dental disease.

Only 8.5% of the participants displayed periodontal health. Periodontal treatment was recommended for 48.2% of the dentate subjects examined. This treatment refers to the need for periodontal scaling and/or surgical intervention. Poor oral hygiene and a lack of periodontal health indicate that many residents are unable to adequately cleanse their mouths.

It is evident from the clinical findings that the prevalence of untreated dental

problems is high in this population. Consequently, mechanisms to prevent and treat this burden of disease are required. The challenge for dental public health is to develop such mechanisms at a time when resources for dental health are rapidly diminishing.

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Table 1: Selected characteristics of study participants

	n	%
Sex		
Male	59	29.5
Female	141	70.5
Age		
64-84 years	110	57.3
85+ years	82	42.7

Table 2: Dental status by gender and age

	Dentate		Edentulous	
	n	%	n	%
Sex				
Male	41	69.5	18	30.5
Female	98	69.5	43	30.5
Age				
64-84 years	78	70.9	32	29.1
85+	56	68.3	26	31.7

Table 3: Periodontal Health Status - Gingival Recession (mm) & Community Periodontal Index of Treatment Need (%)

Recession	**n**	**mm**
	122	3.8 (sd=1.9)

CPITN	**n**	**0** health	**1** gingival bleeding	**2** calculus	**3** 4-5mm	**4** 6+mm
	94	8.5	8.5	33.0	37.0	12.8

Table 4: Mean Sound, Missing, Decayed and Filled Teeth - Dentate Subjects Only

	All Dentate	Male	Female
Sound	6.25 (5.0)	5.3 (5.3)	6.5 (4.9)
Missing	16.5 (7.8)	18.5 (8.1)	15.7 (7.6)
Decayed	1.9 (3.0)	2.2 (3.4)	1.8 (2.8)
Filled	5.5 (4.9)	4.2 (4.1)	6.1* (5.1)
DMFT	23.9	24.9	23.6

*$p<.05$, t-test
Figures in parentheses - standard deviation

Table 5: Prosthetic Need

Prosthetic Need	Maxilla %	Mandible %
None	46.0	52.5
Denture ID/Cleaning	25.5	22.0
Reline/repair partial	1.5	2.0
Reline/repair full denture	12.5	4.5
New partial denture	11.0	15.0
New full denture	3.5	4.0
New fixed bridge	0.0	0.0
Fixed bridge and denture	0.0	0.0
Implants with prostheses	0.0	0.0

Table 6: Prevalence of treatment needs by dental status (%)

Treatment Need	All Subjects n=200	Dentate n=139	Edentulous n=61
Periodontal		48.2	-
Restorative		56.1	-
Prosthetic	38.5	35.0	45.9
Surgical	18.5	25.9	1.6
Urgent	8.0	10.8	1.6