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Research Article

Trends in Finnish Public Orthodontic Ca
Professionals' Perspective

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Abstract

The study maps out orthodontic care in Finnish municipal healt
previous ten years reported by chief dental officers, and asses
orthodontic services. The data were collected by questionnaires
Finland. Of all 0–18-year-olds, 11% were receiving orthodontic t
the health centres). The most frequently used appliances were h
economic resources and the lack of orthodontic expertise were
decreasing the volume of services. The orthodontists mentioned t
guidelines as the most important aspects that should be improvec
they suggested increasing the number of specialist orthodontists a

1. Introduction

In Finnish health centres, orthodontic treatment is an important pa
all of which are free of charge up to the age of 18 years. In the e
adolescents to the health centres was connected with orthodon

depression later in the1990s, most health centres had to restrict public dental health care was gradually changing, and today, dent services. Despite this development, it is generally accepted endangered. Each municipal health centre can decide on the exte the access to orthodontic treatment varies considerably [2, 3].

In countries with publicly funded orthodontic services, dentists pl treatment [4, 5]. The access to orthodontic treatment is influen orthodontists for assessment and the sufficiency of services. A influenced by the thoroughness of examination, the consistency perceived efficacy of treatment. Different guidelines have bee treatment need, but they do not seem to have much impact on th In Finland, the most frequently applied method in the assessmer from Grainger's TPI-index [8] by Heikinheimo [9] that is used in ten represents the most severe malocclusions or craniofacial ma most frequently applied cut-off level entitling to treatment is 7. H varies between grades 2 and 8 according to the resources of the he

The availability of services is greatly influenced by the distribu countries, the majority of specialists live in the largest cities or populated areas, this may lead either to restrictions in access to given by general dentists [10]. In Finland, the availability of sp country. In most health centres, the role of specialist orthodontist but general dentists commonly provide treatment at least in all cer

When public orthodontic care of children and adolescents is evalu orthodontic services as such and the perspective of the entire examine orthodontic care in Finnish municipal health centres i development during the past ten years as viewed by the local c working in the health centres.

2. Methods

In April 2002, two different semistructured questionnaires were s Finland. A questionnaire was sent to all local chief dental offic questionnaire was based on an earlier questionnaire, which mappe in 1992 [2], and it inquired about the number of personnel inv number of orthodontic patients and visits, the use of removal orthodontic care in the previous ten years, and the chief dental research is needed. A follow-up letter was sent to the chief dental

Another different questionnaire was sent to all 146 specialist orth 2001, regardless of their type of employment. The names and adc files of the Finnish Dental Society. The answers received concerni main indications for starting treatment in children at each develo choice of appliances have been analyzed in a previous study [11].

The present study includes only the answers of those responde specialists or consultant orthodontists, or who provided comm because they possessed real facts about activities in health cent asked to evaluate, in open questions, orthodontic services and op report recent changes in their treatment practices, to give sugges suggest orthodontic issues needing further research.

Responses were received from 177 chief dental officers, and after
The total response rate was 76%. The nonresponding chief den
covering areas with fewer than 10 000 inhabitants. Six nonrespo
covering areas with 10 000–20 000, another six with 20 000–

In all, a response was received from 83 specialist orthodontists.
centres and were excluded from the study; 70 respondents wo
included in the study. Twenty-two of the 63 nonrespondents worl
and ten cooperated as consultant orthodontists with the health ce
respondents and nonrespondents working in or cooperating with th

3. Results

3.1. Orthodontic Care in Municipal Health Centres in 2001

Orthodontic services were provided in all the responding health
measured by the percentage of 0–18-year-olds wearing orthodon
11.4 (SD 6.4, range 2–43%). The mean percentage of children w
centres with fewer than 10 000 inhabitants. The mean percenta
differences were not statistically significant. The percentage of ort
olds was, on average, 30.7 (SD 10.6, range 2–66% among health
associated with the ratio of orthodontic visits (Table 1).

Table 1: The volume of orthodontic services
2001 measured by the number of 0–18-year-
of orthodontic visits of all visits in the age grou

A quadhelix was the most frequently used appliance in primary de
A headgear was the most frequently used appliance both in the ag
to 13 years (Table 2).

Table 2: The appliances mentioned as the
appliance in the age groups 7–9 and 10–13 y

The most frequent way to obtain orthodontic expertise, used by
with a consultant orthodontist. Every fifth health centre h
Commissioned services were purchased in 34% of health centres.
frequent in the small health centres with fewer than 20 000 inha
any specialist expertise at their disposal. The ways of obtaining ort
sizes are given in Table 3. Specialist orthodontists' working time
orthodontic treatments in all the responding health centres.

Table 3: How orthodontic expertise is obt
measured as the number of inhabitants in the

In almost all the health centres (94%), general dentists treated s
they spent on orthodontic treatments represented 64% of the to
health centres. Delegation of orthodontic tasks to dental auxiliar
working time represented 14% of the total working time spent on

Seventy-four percent of chief dental officers reported major chang
the previous five years. In thirty-four health centres, major char
services (Table 4). Most of these changes concerned orthodor
orthodontists had increased in twenty-seven and decreased in seve

Table 4: Changes in the volume of orthodonti
by local chief dental officers (N = 34).

3.2. Specialist Orthodontists' Views on Orthodontic Care in

The specialist orthodontists proposed that specialists should not gi
treatment planning, consultation, and difficult treatment. Forty-fi
division between specialists and general dentists; thirty-three (47%
mainly by delegating simpler treatments to them: treatment with
face mask, and removable appliances. Seventeen respondents (24
dentists in difficult treatments and the number of treatments starte

Only one specialist orthodontist wanted to decrease delegation t
delegation by devolving routine tasks more often. The most co
impressions (51% of respondents answering this question), re
education and motivation (42%), bonding of brackets (15%), and

Eighty-one percent of specialist orthodontists had made some
preceding ten years. The most frequent changes concerned the a
of these, the adoption of an eruption guidance appliance was mos
changes in the timing of treatment (54%), with the majority (
fourteen respondents were delegating orthodontic tasks to general

When the specialist orthodontists were asked to name those featu
be of good quality, 55% listed the population-based system in the
professional skills of specialists, and 20% professional skills in the

When assessing public orthodontic care as a whole, the orthodo
access to orthodontic treatment and unsatisfactory routines in
mentioned improvement suggestion was an increase in specialist n

Table 5: Aspects in need of improvement an
specialist orthodontists (percentage of respond

Both respondent groups stressed the need for research on treatm
efficacy of treatment methods was similarly mentioned by bo
effectiveness was especially emphasized by the orthodontists (Tabl

Table 6: Suggestions for subjects for fur
respondents in parenthesis).

4. Discussion

There was a wide variation in the extent of orthodontic services
access and delivery of treatment also seemed to be the main

cooperating with health centres. The economic depression in the
of orthodontic services, and more health centres had increased tha

The earlier survey on public orthodontic care of children and adol
possible to evaluate the changes in services during the ten-yea
generally increased, but the 20-fold differences among health cer
guidance appliance, was introduced during the period. The eruptic
use of removable plates and functional appliances in the early tr
auxiliaries had increased, and delegation was widely accepted by tl

The information on orthodontic treatment delivery in health centre
nonresponding health centres were smaller ones, which obviously
data. Because this evaluation concentrated on public services prov
include only the views of the orthodontists working in or cooperatir

The methods of measuring the volume of orthodontic treatment va
comparisons [3, 12, 13]. According to Chestnutt et al. [12], the
Britain between 1993 and 2003. Correspondingly, we found that
receiving orthodontic treatment had increased from 7.6% in 1992

The average share of orthodontic visits of all dental visits of childre
in 1992 [2] to 30% in this study. An explanation for the increase ir
of general dental visits [14]. Furthermore, in 1998, the National
Health published a report recommending longer oral examination i
the large variation among health centres in the share of orthodor
this change.

Most of the changes in providing orthodontic services were rela
increase in the number of orthodontists was reported more oft
organize specialist services seem to differ between small and larg
study, the availability of health centres' own orthodontic expe
health centres employing their own salaried specialist had incr
regardless of their size, have an equal responsibility to organize tr
be one reason why the percentage of health centres purchasing
1992 to 34% in 2001.

According to the respondents in the present study, the weakened
for reducing children's orthodontic services. The effects of ecor
have been evaluated in Denmark and in Sweden [16, 17]. Accordi
orthodontic services cannot be defended by a decreasing need c
orthodontic treatment seems to lead to an increased consumpt
restraints seemed to decrease the number of treatments provid
demanding good compliance [18].

It has been suggested that the costs of orthodontic services could
by delegation of tasks to dental auxiliaries [19]. The delegation c
Nordic countries, but is applied most widely in Denmark and Swec
by the systematic training of orthodontic assistants [20]. In Finla
of orthodontic tasks to auxiliaries had increased from 28% to 61%
to be largely accepted among Finnish orthodontists. They were
treatments to general dentists with the premise that the planning c

The orthodontists were concerned about the great variation in tl

them suggested that national guidelines should be established to r
has also been suggested earlier as a good tool for reducing vari
Guidelines on the screening of malocclusions and the assessment
access to and volume of treatment. Furthermore, the inefficient r
treatments, which were also mentioned, could be improved by nati

5. Conclusions

National guidelines and delegation of orthodontic tasks were su
variation among the health centres. The retirement of orthodon
orthodontists' suggestion to increase the number of specialist
orthodontic services should be established without further delay b
personnel working in orthodontic teams. Furthermore, develop
treatment process might increase both the uniformity and effective

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