DEVELOPMENT OF AN INDEX FOR PREVENTIVE AND INTERCEPTIVE ORTHODONTIC NEEDS (IPION)

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BChD, Dip Odont (Pret)

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DEVELOPMENT OF AN INDEX FOR PREVENTIVE AND INTERCEPTIVE ORTHODONTIC NEEDS (IPION)

by

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BChD, Dip Odont (Pret)

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'The known is finite, the unknown infinite; intellectually we stand on an islet in the midst of an illimitable ocean of inexplicability. Our business in every generation is to reclaim a little more land'

- T.H. Huxley
DEDICATION

This dissertation is dedicated to my parents who, through many sacrifices, afforded me the opportunity to turn my dreams and aspirations into reality. Their example of integrity and faith in God laid the firm foundation on which I could build my life with confidence.
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The Gauteng Health Department, who contributed financially to this project.
DECLARATION

I, Cobus Emelius Coetzee, declare that the dissertation I am herewith submitting for the degree MChD (Orthodontics) at the University of Pretoria, is my own work and has not previously been submitted for any other degree at any other university.

C.E. Coetzee
18 November 1999
DEVELOPMENT OF AN INDEX FOR PREVENTIVE AND INTERCEPTIVE ORTHODONTIC NEEDS (IPION)

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**MATERIALS AND METHODS**

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SUMMARY

DEVELOPMENT OF AN INDEX FOR PREVENTIVE AND INTERCEPTIVE ORTHODONTIC NEEDS (IPION)

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Preventive and interceptive orthodontic measures may have the advantage of simplicity and economy, but they must be applied at critical stages of development. Malocclusions where early diagnosis and simple preventive and/or interceptive orthodontic treatment may minimise or eliminate the need for later complex appliance therapy have been identified. This has led to the suggestion that screening of the child population for developing malocclusions and applying preventive and/or interceptive orthodontic measures where appropriate, is of the utmost importance.
Over the years a great number of orthodontic indices have been developed but none of these were, however, specifically designed to determine the need for preventive and interceptive orthodontic treatment. The current policy of the South African government, as well as other health care authorities worldwide, is to concentrate on Primary Health Care. This, together with the fact that there is an increasing demand for basic dental services, urge us to place more emphasis on preventive and interceptive orthodontics as part of the Primary Health Care Approach.

It was therefore decided to develop an orthodontic epidemiological index that would determine the need for preventive and/or interceptive orthodontic treatment in six- and nine-year-old children. The result was two separate indices, the Index for Preventive and Interceptive Orthodontic Needs 6 (IPION-6) and the Index for Preventive and Interceptive Orthodontic Needs 9 (IPION-9). A disposable plastic ruler was designed on which all the information needed to use the index is summarised. The ruler is also used to perform certain measurements on study models and patients.

Specific characteristics applicable to preventive and interceptive orthodontics at these two age levels were identified and weighting factors were assigned to each variable. The reliability (reproducibility) and validity of the application of this new index were determined and cut-off points for treatment need were established.

The results showed that the Index for Preventive and Interceptive Orthodontic Needs (IPION) is easy to use and a high level of intra- and inter-examiner agreement was achieved. Cut-off points for different treatment need categories were identified and the validation of the index showed that the index measures what it purports to measure.

The Index for Preventive and Interceptive Orthodontic Needs (IPION) can play an important role in determining the need for early orthodontic intervention in six- and nine-year-old children and will also assist Public Health authorities in planning the distribution of funds available for primary dental care.
OPSOMMING

ONTWIKKELING VAN ‘N INDEKS VIR VOORKOMENDE EN ONDERSKEPPENDE ORTODONTIESE BEHOEFTES (IPION)

deur

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Voorkomende en onderskeppende ortodonsie beskik oor die voordeel dat dit beide eenvoudig en ekonomies is, maar moet tydens spesifieke stadiums van ontwikkeling toegepas word. Sekere wansluitings waar eenvoudige voorkomende en/of onderskeppende ortodonsie behandeling die behoefte aan latere meer omvattende toesteltherapie kan verminder, of zelfs uitskakel, is geïdentifiseer. Dit het daartoe geleë dat voorstelle gemaak is dat gereelde siftingsondersoek van kinders met ontwikkelende wansluitings uitsers belangrik is, ten einde voorkomende en/of onderskeppende ortodonsie behandeling toe te pas, waar nodig.
In die verlede is 'n groot aantal ortodontiese indekse ontwikkel, maar geen een van hulle was spesifiek ontwerp om die behoefte aan voorkomende en onderskeppende ortodontiese behandeling te bepaal nie. Die huidige beleid van die Suid-Afrikaanse regering, asook ander gesondheidsowerhede wêreldwyd, lê groot klem op Primêre Gesondheidsorg. Dit, tesame met die feit dat daar 'n toenemende vraag na basiese tandheelkundige dienste is, noopt ons om meer klem te lê op voorkomende en onderskeppende ortodontie as deel van die Primêre Gesondheidsorgbenadering.

Daar is gevolglik besluit om 'n ortodontiese epidemiologiese indeks te ontwikkel waarmee die behoefte na voorkomende en/of onderskeppende ortodontie behandeling in ses- en nege-jarige kinders kan bepaal. Die resultaat was twee aparte indekse, die Indeks vir Voorkomende en Onderskeppende Ortodontie Behoeftes 6 (IPION-6) en die Indeks vir Voorkomende en Onderskeppende Ortodontie Behoeftes 9 (IPION-9).

Wegdoenbare plastiese lineaaltjie, waarop al die nodige inligting wat benodig word om die indeks uit te voer, opgesom is, is ontwerp. Die lineaaltjie word ook gebruik om sekere metings op studiemodelle en pasiente te doen.

Spesifieke kenmerke toepaslik tot voorkomende en onderskeppende ortodontie in hierdie twee ouderdomsgroeppe is geïdentifiseer en gewigte is aan al die veranderlikes gegee. Daarna is die betroubaarheid (herhaalbaarheid) en geldigheid van die toepassing van hierdie nuwe indeks getoets en afsnypunte vir die behoefte aan behandeling is bepaal.

Die resultate toon dat die Indeks vir Voorkomende en Onderskeppende Ortodontie Behoeftes (IPION) maklik is om te gebruik en 'n hoë vlak van intra- en inter-ondersoeker ooreenstemming is behaal. Sekere afsnypunte vir die verskillende kategorieë van behandelingsbehoeftes is geïdentifiseer en die geldigheidstudie het bewys dat die indeks wel dit meet waarvoor dit bedoel is.

Die Indeks vir Voorkomende en Onderskeppende Ortodontie Behoeftes (IPION) kan 'n belangrike rol speel om die behoefte aan vroeë ortodontiese intervensie in ses- en nege-jarige kinders te bepaal. Dit sal ook Gesondheidsowerhede in die openbare sektor help in hulle beplanning vir die aanwending van beskikbare fondse vir primêre mondgesondheidsorg.
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