

Functional Limitations and Impaired Quality of Life Among Hypodontia Children

Quality of Life
Among
Hypodontia
Children

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ABSTRACT

Objective: To find out the functional limitations and impaired quality of life among hypodontia children.

Study Design: A cross-sectional comparative study

Place and Duration of Study: This study was conducted at the Outpatient Department of Nishtar Institute of Dentistry, Multan from July 2015 to January 2016.

Materials and Methods: A total of n=80 subjects were included in this study. They were divided into 2 groups' namely hypodontia group and control group. Each group comprised of 40 subjects. Patients and healthy controls were selected by non-probability convenient sampling technique without any gender discrimination. The age of the selected patients and controls was 11-14 years. Oral health was checked by using dental examination instruments. Data were entered and analyzed using SPSS 20. Mean and the standard deviation was given for quantitative variables like age, etc. Frequencies and percentages were given for qualitative variables like gender, oral clinical changes, etc. The data were analyzed by applying the Chi-Square test and Fisher's exact test. The p-value \leq of 0.05 was considered statistically significant. Urdu Proformas was used for a better understanding of children.

Results: Mean age of the patients suffering from hypodontia was 11.8 (\pm 0.90) years and the mean age of healthy controls was 11.9 (\pm 0.98). Out of n=40 patients, about 11(27.5%) presented with pain, 8(20%) with sores in their mouth, about 29(72.5%) presented with bad breath in their mouth, about 35(87.5%) presented with food stuck in their mouth, about 36 (90%) presented with taking a long time to eat, about 36(90%) presented with difficulty in bite, about 35(87.5%) presented with difficulty in words and about 35(87.5%) presented with difficulty in food. The experimental group showed significantly different results (P-value=0.000) in contrast to the control group.

Conclusion: Hypodontia can have a substantial influence on the life of children, causing oral symptoms, functional limitations. Patients suffering from hypodontia were dissatisfied with their appearance and had a poor quality of life as compared to normal individuals.

Key Words: Hypodontia, Functional limitations, Mastication, Quality of life.

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INTRODUCTION

An extremely common and expensive dental anomaly is congenitally missing teeth or as generally referred to as hypodontia. Patients with misplaced teeth can experience malocclusion, periodontal damage, and inadequate growth of the alveolar bone, decreased chewing capacity, incoherent accent, & further problems in addition to an unfavorable appearance¹.

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Hypodontia may occur individually, in association with a disease, or with other dental abnormalities. If all teeth are missing, it is called exodontia. It usually occurs in hypohidrotic ectodermal dysplasia². In children and adolescents, lower Quality of life is associated with the domain of functional limitations when posterior teeth were missing; while missing anterior teeth exhibited the reduced quality of life on the social and emotional wellbeing domain³.

The prevalence of hypodontia in the general population is 4.6% with no gender predilection⁴. Hypodontia is more common in maxillary teeth and then in the mandibular teeth⁵. Most commonly misplaced tooth is the maxillary adjacent incisor (excluding the third molar) exhibiting a prevalence of 2.1% in the general population. The second premolar is absent in 1.9% people⁶. Most of the patients exhibit mild hypodontia with one or two missing teeth. About 10% of patients have four or more missing teeth which are also categorized as mild hypodontia. While less than 1% have six or more teeth missing which is considered a severe form of hypodontia⁷.

Hereditary and environmental elements are included in the etiology of hypodontia. It occurs due to limited space in the dental arches, physical barriers, destruction of the dental lamina, and purposeful anomalies of odontogenic epithelial layer or the unable mesenchyme to initiate the process^{8, 9}. Hypodontia may be passed down as an autosomal dominant, autosomal recessive or x-linked pattern. Different home box DNAs involved in etiology of hypodontia include Msx1, Msx2 and Pax9¹⁰. The ecological aspects included in the etiology of hypodontia are toxicities, medicines, metabolic, hormonal instabilities & irradiations¹¹.

All over the world, many investigations have been carried out about the effects of hypodontia on the worth of patients' lives. WHO defined Quality of life as "individual's perception of their position in life in the context of the culture and value systems in which they live and about their goals, expectations, standards, and concerns". Quality of life is complex and multidimensional and is related to Oral health.¹² There is an oral health concept well-defined by Dolan, which states that OH means "a comfortable and functional dentition that allows people to continue in their desired social role." This definition includes OH's role already in the individual's performance in daily activities. Through this, we can see that oral health is not only a medicinal state, but the collective factors such as the daily effect of pain or the level of incapacity & dysfunction. These days, as a vital part of the human body, the importance of the oral cavity is acknowledged. Not only the teeth, but some other structures such as gums, associated tissues, muscles, bones, firm & lenient palate, soft tongue of mucosal tissue, lips, salivary glands, chewing muscles, jaws, and temporomandibular joints are conceptualised.¹³

Quality of life instruments help to assess both the psychosocial and physical effects of the illness. Evaluating influence of the sickness on a person which decrease communication gap among parents, patients, & experts dentist. It provides information about the effect of adverse oral health problems on the lives of children & their families and gives guidance on the everyday effect of the daily issues of patients.¹⁴

MATERIALS AND METHODS

A cross-sectional comparative study was conducted in the outpatient department of Nishtar institute of dentistry, Multan, from July 2015 to January 2016. A total of n=80 subjects were included in this study. They were divided into 2 groups' namely hypodontia group and control group. Each group comprised of 40 subjects. Patients and controls were selected by non-probability convenient sampling technique without any gender discrimination. Patients with other chronic ailments and patients with other dentofacial anomalies were excluded from the study. Patients with mental disorders were also

excluded from the study. The age of the study subjects was 11-14 years.

Written informed consent was signed by the participants. Socio-demographic information (name, age, gender, occupation, full address, and family history) was obtained by using proforma-I. Urdu Proformas were used for a better understanding of children. Child perception questionnaire proforma II for children aged 11-14 years was given to the children and they were asked to complete the proforma. The Child perception questionnaire (CPQ) comprised of 17 questions allocated into 4 health domains: oral symptoms, functional limitations, emotional well-being, and social well-being. Sufficient time was given to complete the Proformas and it was reassured that the results would remain confidential. Data were entered and analyzed using SPSS 20. Mean and the standard deviation was given for quantitative variables like age, etc. Frequencies and percentages were given for qualitative variables like gender, oral clinical changes, etc. The data were analyzed by applying the Chi-Square test and Fisher's exact test. The p-value \leq of 0.05 was considered statistically significant.

RESULTS

Out of 80 subjects, n=36 (45%) were males while n=44 (55%) were females. Regarding experimental group consisting of n=40 subjects, n=19 (47.5%) were males while n=21 (52.5%) were females. Whereas, in control group comprising n=40 individuals, n=17 (42.5%) were males while n=23 (57.5%) were females. Overall mean age of our study cases 12.6 years with a range of 11 to 14 years. The mean age of the patients suffering from hypodontia was 11.86 ± 0.90 years and the mean age of healthy controls was 11.9 ± 0.98 .

Out of n=40 subjects in experimental group, central incisor was missing in n=5 (12.6%), lateral incisor was missing in n=20 (50%), second premolar in n=1 (2.6%), both lateral incisors in n=2 (5%), central and lateral incisor in n=10 (25%), lateral incisor and canine in n=2 (5%).

Regarding pain (CPQ), in experimental group n=0 subjects presented with no pain, n=0 with once or twice pain, n=29 (72.5%) with often pain and n=11 (27.5%) with poor health. In control group, subjects presented with no pain, n=36 (90%), with once or twice pain, n=4 (10%), sometimes, n=0 and with often pain n=0.

The experimental group showed significantly different results (P-value=0.000) in contrast to the control group. Regarding sores in subject's mouth (CPQ), experimental group showed statistically significant results (p-value =0.000) as compared to control group. Bad breath from subject's mouth, food stuck in patient's mouth, took longer time for eating, difficulty in words and bite experimental group showed difficulty in bite statistically significant results (p-value=.000), (p-value=.000), (p-value=.000), (p-value=.000) and (p-

value=.000)respectively were observed in experimental group as compared to control group.(Table-1).

Table No.1: Comparison of child perception questionnaire between patients suffering with hypodontia and healthy controls

Group	Never	Sometimes	Often	Everyday	Total	p-value
CPQ Pain in Mouth						
Patients suffering with hypodontia	0 (0%)	29(72.5%)	11 (27.5%)	0 (0 %)	40 (100%)	< 0.001
Healthy Controls	36 (90%)	4 (10%)	0 (0%)	0 (0%)	40 (100%)	
CPQ Sores in Mouth						
Patients suffering with hypodontia	2 (5%)	30 (75%)	8 (20%)	0 (0%)	40 (100%)	< 0.001
Healthy Controls	38 (95%)	2 (5%)	0 (0%)	0 (0%)	40 (100%)	
CPQ Bad Breath From Mouth						
Patients suffering with hypodontia	0 (0%)	11 (27.5%)	29 (72.5%)	0 (0%)	40 (100%)	< 0.001
Healthy Controls	40 (100%)	0 (0%)	0 (0%)	0 (0%)	40 (100%)	
CPQ Food Stuck in Mouth						
Patients suffering with hypodontia	0 (0%)	0 (0%)	35 (87.5%)	5 (12.5%)	40 (100%)	< 0.001
Healthy Controls	40 (100%)	0 (0%)	0 (0%)	0 (0%)	40 (100%)	
CPQ Taking Longer Time to Eat						
Patients suffering with hypodontia	0 (0%)	0 (0%)	36 (90.0%)	4 (10.0%)	40 (100%)	< 0.001
Healthy Controls	40 (100%)	0 (0%)	0 (0%)	0 (0%)	40 (100%)	
CPQ Difficulty in Bite						
Patients suffering with hypodontia	0 (0%)	0 (0%)	36 (90%)	4 (10%)	40 (100%)	< 0.001
Healthy Controls	40 (100%)	0 (0%)	0 (0%)	0 (0%)	40 (100%)	
CPQ Difficulty in Words						
Patients suffering with hypodontia	0 (0%)	1 (2.5%)	35 (87.5%)	4 (10%)	40 (100%)	< 0.001
Healthy Controls	40 (100%)	0 (0%)	0 (0%)	0 (0%)	40 (100%)	
CPQ Difficulty in Food						
Patients suffering with hypodontia	0 (0%)	1 (2.5%)	35 (87.5%)	4 (10.0%)	40 (100%)	< 0.001
Healthy Controls	40 (100%)	0 (0%)	0 (0%)	0 (0%)	40 (100%)	

DISCUSSION

This cross-sectional comparative study was conducted to find out the functional limitations and impaired quality of life among hypodontia children. The results of our study were quite comparable with the study done by Sheena Kotecha and colleagues in Birmingham in 2011. Their results showed that a mean age of 12.6 years with a range of 11 to 14 years¹¹. Another study performed by Turner and his colleagues in 2014 reported that the mean age of their patients was 13 years¹⁵.

A study performed by Al-Ani and his colleagues in 2017 showed similar results to our study. According to their results, patients suffering from hypodontia experience great difficulty in mastication due to a reduced occlusal table. In a current cross-sectional study, it was found that patients suffering from hypodontia have more mastication difficulties if the

primary teeth related with the missing permanent teeth had been exfoliated.¹⁶

Another, the study performed by Ceyhan and his colleagues in 2014 showed similar results to our study. According to their results, Hypodontia have influences on aesthetics, speech and function of muscles in the mouth. As a result, hypodontia can have harmful impacts on the quality of life, though the condition can be well managed and treated by dentists and orthodontists.¹⁷ Another study performed by Wong in 2006 showed similar results to our study. According to their results, 88% of hypodontia children showed functional limitations.¹⁸

The study performed by Laing in 2010 showed different results from our study. According to their study, hypodontia had no impact on the psychosocial domain of the patients, however, trouble in mastication was found.¹⁹ Study performed by Ahmed in Pakistan showed similar results, and According to their results,

Individuals with inherited craniofacial abnormalities showed greater disappointment with their facial profile, low confidence and poor quality of life.²⁰ Alsumait and his colleagues in 2015 showed similar results to our study. According to their study, about 58% children with more than four missing teeth experienced functional limitations.²¹

CONCLUSION

Hypodontia can have a substantial influence on the life of children, causing oral symptoms, functional limitations. Patients suffering from hypodontia were dissatisfied with their appearance and had a poor quality of life as compared to normal individuals. As the number of missing teeth increases functional limitations becoming worse. Therefore, early management of hypodontia is recommended for better oral functioning.

Author's Contribution:

Concept & Design of Study: Qurrat-ul-Ain Fatima
 Drafting: Iqra Tariq, Mehwish Liaqat
 Data Analysis: Asiyah Ahmad, Aman Fatima, Wali Dad
 Revisiting Critically: Qurrat-ul-Ain Fatima, Iqra Tariq
 Final Approval of version: Qurrat-ul-Ain Fatima

Conflict of Interest: The study has no conflict of interest to declare by any author.

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