

## ASSESSMENT OF ORAL HEALTH IN PATENTS WITH VISUAL IMPAIRMENT

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**ABSTRACT**

**Background:** The vision is the fifth sense in human body, with this sense the children can learn and develop the skills and help them in grow up, while if the child lost this sense it may affect a lot of skills that they must learn during 1st to 3rd year of their life, because most of learning and skills development depends on the vision. **Aim:** There is little information available concerning the oral health in patient with visual impairment in Riyadh City. **Methodology:** A total of 118 children 54 are visually impaired from (Al-Noor institution) in Riyadh were selected for the study 26 girls and 28 boys as well as 64 from the control group were selected from Riyadh Elm University 36 boys and 28 girls. **Result:** This study showed that the test group had a higher mean DMFT and dmft components than the control group did. The high caries experience observed in the blind group in the present study coincides with that found in other studies. **Conclusion:** So, the visual impairment child has difficulty with oral hygiene that make the caries prevalence high, also traumatic injury increase special anterior teeth.

**KEYWORDS:** Visual Impairment, Oral Hygiene, Caries, DMFT.

**INTRODUCTION**

The vision is the fifth sense in human body, with this sense the children can learn and develop the skills and help them in grow up, while if the child lost this sense it may affect a lot of skills that they must learn during 1st to 3rd year of their life, because most of learning and skills development depends on the vision.<sup>[1]</sup>

Visual Impairment is defined as: limitation of actions and functions of the visual system, according to WHO & international calcifications of disease the visual impairment has 4 levels: (WHO Aug. 2014).

- Normal vision
- Moderate visual impairment
- Severe visual impairment
- Blindness.

The global major causes of visual impairment according to WHO is uncorrected refractive errors (myopia, hyperopia or astigmatism), 43 %, unoperated cataract, 33%, glaucoma, 2%. About 65% of older aged (50 years & above) are in risk of visual impairment, as well children below 15 are in risk of this disease, it's estimated about 19 million of world populations.<sup>[2]</sup>

The visual impairment and access to oral health consider as challenge for children and their parents, because this kind of impairment is totally depending on parents or care giver in most of their life, so, they may always have a difficulty to use dental care tools like tooth brush or

floss. They can't reach to some area in the oral cavity until they get some help from parents or care giver.<sup>[3]</sup>

In school or institutions of blindness they complain of bad oral hygiene of their students and wide prevalence of caries or traumatic injuries in younger age.

**THE AIM OF THE RESEARCH**

There is little information available concerning the oral health in patient with visual impairment in Riyadh City. The present study aims to.

1. Identify the oral health in patients with visual impairment and compare it to a healthy group of similar age in Riyadh city.
2. Assess parental attention to oral health care of their children and how to deal with in visually impaired child.

**RESEARCH METHODOLOGY**

A total of 118 children 54 are visually impaired from (Al-Noor institution) in Riyadh were selected for the study 26 girls and 28 boys as well as 64 from the control group were selected from Riyadh colleges of dentistry and pharmacy 36 boys and 28 girls Both group aged between 7-15 years old.

General questionnaires "table 1" regarding oral health practices were included. This questionnaire is to determine the level of awareness of the parents or

caregiver regarding the oral health of their children also child awareness about his oral health.

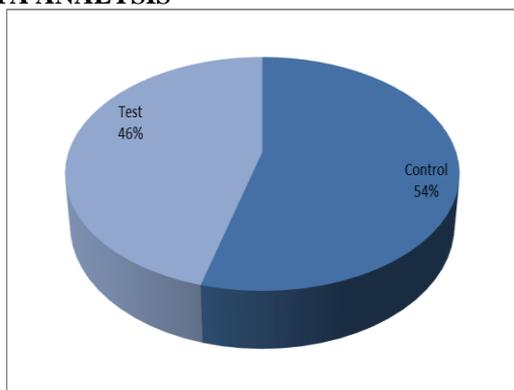
The Clinical dental checkup was done by the examiners using mouth mirror and blunt explorer. Caries was measured using PH strips DMFT/deft index according to WHO criteria. We examined the children if they had any dental traumatic injuries or having nail biting and mouth breathing "table 2".

The data collected were subjected to statistical analysis and results were arrived.

Ethical approval was obtained from Riyadh colleges of dentistry and pharmacy. Registration number (FUGRP/2016/100).

Informed consent was obtained from school authorities and parents. All visually impaired student who required simple dental treatment were referred to undergraduate dental student in Riyadh colleges of dentistry and pharmacy to perform a proposed treatment and giving an oral hygiene instructions. We left a dental object such as gloves, cotton roll, and masks at the school to allow the children to get used to the texture, smells and sensations. Allowing the children to be familiar with these things and to prepare children for their appointments in the clinic.

**DATA ANALYSIS**



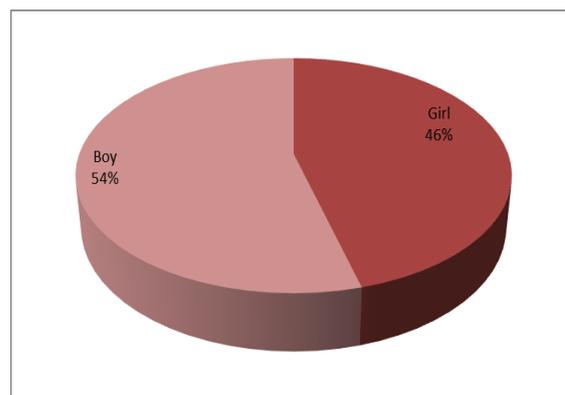
A total of 118 children comprised the sample. Figure 1 shows the distribution of the sample with 54% (n=64) control (healthy) group and 46% (n=54) in test (visually impaired) group.

		pH		p value
		Highn (%)	Lown (%)	
Group	Control	32 (50.0)	32 (50.0)	0.462
	Test	31 (57.4)	23 (42.6)	
Gender	Girl	35 (64.8)	19 (35.2)	0.027*
	Boy	28 (43.8)	36 (56.3)	

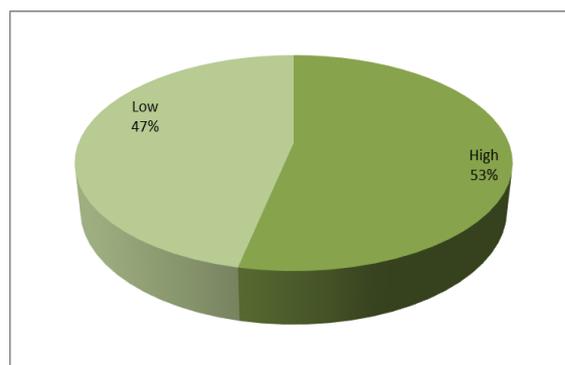
**Table 1: Mean (±SD) of age, dmf, and pH and results of statistical analysis.**

	Group		p value	Sex		p value
	Control	Test		Girl	Boy	
Age in years	10.08±2.419	11.54±2.321	0.001*	9.94±2.343	11.42±2.396	0.001*
dmf	6.48±3.474	7.14±4.238	0.394	7.65±3.977	6.16±3.738	0.016*
pH	6.95±1.872	6.26±0.955	0.131	6.35±1.443	6.88±1.618	0.038*

\* indicates statistical significance.



Fifty four percent (n=64) of the participants were boys and 46% (n=54) girls (Figure 2).



Fifty three percent (n=63) of the participants had a high pH and 47% (n=55) had a low pH (Figure 3).

**RESULT**

The mean (±SD) age, dmf, and pH by group and sex are presented in table 1. The mean age in test group is higher than the control group (p<0.05). The mean dmf was higher and mean pH was lower in test group (p>0.05). Furthermore, the mean age of the boys was higher than girls (p<0.05). The mean dmf was higher in girls and mean pH was higher in boys (p<0.05) (Table 1).

**Table 2: Association of group and gender with pH.**

	Parafunctional Habits	Test	Control
1	Traumatic Injury	2	1
2	Tooth Clenching	1	7
3	Tongue Thrusting	2	5
4	Mouth Breathing	2	6
5	Finger Nail Biting	7	16
6	other	-	-
	Total number of para functional habits	14	35
	Total number of sample	54	54

Test group was more likely to have a high pH than the control group ( $p>0.05$ ) and girls are more likely to have a high pH than boys ( $p<0.05$ ) (Table 2). In addition, there

was a statistically significant negative correlation between dmf and pH ( $\rho=-0.605$ ,  $p=0.000$ ).

**Table 3: Bivariate analysis.**

		Control N (%)	Test N (%)	p value
Who provide the care for the child?	Mother	64 (100.0)	48 (88.9)	0.008*
	Father	0 (0.0)	4 (7.4)	
	Maid	0 (0.0)	2 (3.7)	
How interesting are caregivers with oral health of the child?	Always interested	29 (45.3)	24 (44.4)	1.000
	Interested sometimes	28 (43.8)	28 (51.9)	
	Uninterested	7 (10.9)	2 (3.7)	
Does the caregiver take the child to dental clinic periodically?	Yes	20 (31.7)	4 (7.4)	0.005*
	No	21 (33.3)	26 (48.1)	
	Sometimes	22 (34.9)	24 (44.4)	
How many times the caregiver should take the child to the dental clinic?	Every 3 months	20 (31.3)	2 (3.8)	0.001*
	Every 6 months	17 (26.6)	22 (42.3)	
	Once a year	27 (42.2)	28 (53.8)	
Does the child clean his/her teeth alone?	Yes	50 (79.4)	32 (59.3)	0.019*
	No	3 (4.8)	11 (20.4)	
	Maybe	10 (15.9)	11 (10.4)	
If not who help him \her?	Mother/Father	9 (90.0)	17 (73.9)	0.397
	Sister/Brother	0 (0.0)	2 (8.7)	
	Maid	1 (10.0)	4 (17.4)	
How many times in a day dose your child or caregiver brushes the teeth?	Once a day	30 (60.9)	36 (66.7)	1.000
	Twice a day	20 (31.3)	16 (29.6)	
	Doesn't use it	5 (7.8)	2 (3.7)	
Does the caregiver train the child how to take care of his teeth? (Train to use a brush & put toothpaste on it or use dental floss)	Yes	28 (43.8)	31 (57.4)	0.001*
	No	29 (45.3)	8 (14.8)	
	Sometimes	7 (10.9)	15 (27.8)	
Does your child have suffered from tooth loss due to trauma or dental caries?	Yes	27 (42.2)	23 (42.6)	1.000
	No	37 (57.8)	31 (57.4)	
Dose the child care provider faces difficulty in persuading the child for importance of caring his teeth?	Yes	16 (25.4)	9 (16.7)	0.391
	No	30 (47.6)	32 (59.3)	
	Sometimes	17 (27.0)	13 (24.1)	
Do you think the oral & dental disease effect your child general health?	Yes, greatly effect	43 (67.2)	9 (16.7)	0.000*
	Don't effect	10 (15.6)	21 (38.9)	
	I don't effect	11 (17.2)	24 (44.4)	
How interesting of the school for oral health in terms of seminars, publication, and awareness activity?	Greatly interested	18 (28.1)	27 (50.0)	0.001*
	Not interested	22 (34.4)	4 (7.4)	
	I don't know	24 (37.5)	23 (42.6)	

Cross-tabulation and Pearson Chi-Square/Fisher's exact tests were utilized to know the association (Table 3). Mothers were more likely to provide the care for the child in control group and maids more likely in test group ( $p < 0.05$ ). Caregiver of the control group are more likely to take the child to dental clinic periodically ( $p < 0.05$ ). On the frequency of dental visit, caregivers of the control group are more likely to take the child to the dental clinic every 3 months and test group once a year ( $p < 0.05$ ) and children in control group are more likely to clean their teeth alone ( $p < 0.05$ ).

- On the other hand, caregivers of test group are more likely to train the child how to take care of his/her teeth (Train to use a brush & put toothpaste on it or use dental floss) ( $p < 0.05$ ). However, child care provider of control group are more likely to face difficulty in persuading the child for importance of caring his teeth ( $p > 0.05$ ). Moreover, caregivers of control group are more likely to think that oral & dental disease greatly effect child's general health ( $p < 0.05$ ). Child care providers of test group are more likely to be greatly interested of the school for oral health in terms of seminars, publication, and awareness activity ( $p < 0.05$ ).

## DISCUSSION

- Visually impaired children are challenged every day in their daily activities. The effects of blindness are many, but one of the most common is the inability of the individual to maintain oral health and they may have greater problems accessing dental care. This study reinforces and adds information to differences in prevalence of oral health between blind and normal children by an evaluation of the DMFT and dmft.
- This study showed that the test group had a higher mean DMFT and dmft components than the control group did. The high caries experience observed in the blind group in the present study coincides with that found in other studies.
- Test group was more likely to have a low pH than the control group ( $p > 0.05$ ). The reasons put forward for this difference in caries increment may be difference from biochemical differences in salivary buffering and amount of bacteria living environment, dietary and hygiene habits, different amount of salivary components.
- Findings from this study emphasize to construct a questionnaire for caregiver of the control group are more likely to take the child to dental clinic every 3 months and test group once a year ( $p < 0.05$ ). The prevalence of tooth fracture was high in blind and was found compared to normal is in agreement with other studies who showed that the totally blind to be at greater risk of a fractured anterior tooth.
- Many parents they do not have enough information about their child's dental growth and development and oral health is not important and do not effect general health.

- The limitation in this study was the use of DMFT to measure caries experience. This index usually underestimated caries because it measures only frank cavitation.<sup>[37]</sup> Preventive approach is important for these special groups of children and dentist role is very essential as he/she can provide proper oral health education and help these children to live a healthy life.

## CONCLUSION

- So, the visual impairment child has difficulty with oral hygiene that make the caries prevalence high, also traumatic injury increase special anterior teeth.
- One of the levels of visual impairment is the blindness these child have difficulty in use the dental tools lead to increase the decay and periodontal disease so the child suffer of pain and loosing his teeth. well, we can recommend the parents / care giver have to be learn how to enhance the oral hygiene and help the child to do it by himself, also teach the child the correct way to improve his oral hygiene using the voice and tactile sensation .
- We advise the parents / care giver to take the visual impaired children to the dental office, also in the future any researchers can improve our research and check if any clinics assessed the visual impaired children, tools and how they attitude with them.

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