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Survey Of Erosion, Caries, and Rampant Caries Prevalence among Kindergartens' Children In the Southern Iraqi City of Nasiriya

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ABSTRACT

Abstract ± Objectives: The ideal of this study was to determine the frequency of dental corrosion in preschool children in Nasiriya, south of Iraq and to relate this to caries and rampant caries in the same children. Styles A sample of 823 children (2 ± 5 years) was drawn from 20 kindergartens. Clinical examinations were carried out under standardized conditions by a trained and calibrated monitor. Dimension of corrosion was concerned to primary maxillary incisors and used a scoring system and criteria grounded on those used in the UK National Survey of Child Dental Health. Caries was diagnosed using BASCD criteria. Rampant caries was detected as caries affecting the smooth crown of teeth of two or further maxillary incisors. Results Of the 823children, 239 (29) had substantiation of corrosion. For 163 children this was concerned to enamel but for 117 it involved dentine and/ or pulp. Caries was diagnosed in 585 (71%) of the children and rampant caries in 256 (31%). The mean dmft for the 823 children was 4.1 (”4.12). Of the 292 children who had caries but not rampant caries, 97 (33%) had erosion, a significantly higher proportion than the 64 (21%) out of 302 who were clinically caries free (SND‰ 2 .72, P_0.01). Of the 256 with rampant caries, 62 (24%) also had evidence of erosion.
Conclusions: The level of erosion was like that seen in children of an equivalent age in the UK. Caries was a risk factor for erosion in this group of children.

Keywords: *Dentistry, Prevalence, erosion, caries, rampant caries, Kindergartens' Children, southern Iraq.*

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INTRODUCTION

Dental caries continues to play a dominant part in thinking and practice in child oral health throughout the world but tooth wear and, more particularly, corrosion have surfaced more lately as a problem affecting children and adolescents. Corrosion is a direct result of chemical action on the tooth face and is caused primarily by acids. These may include gastric acid that comes into contact with the teeth during regurgitation or, more frequently, acid contained in the diet (Çolak; etal. 2013). The type of acid, the nature of the food or drink which contains it, and the pattern of consumption are all believed to be important in determining the goods of the acid. Subjects may also vary in their vulnerability to corrosion, and saliva is believed to play an important influence on the circumstance and inflexibility of corrosion as well as caries (Bartlett. 2006).

Numerous foods and drinks that are acidic in nature are also high in non-milk foreign sugars so that caries and corrosion might be anticipated to do together in at least a proportion of cases. Still, examinations of corrosion have been largely confined to European countries, where caries has declined with time.

It has been suggested that corrosion may be more common amongst those who are less susceptible to caries but there appears to have been little disquisition of the relationship between the two. There has also been lower consideration of corrosion in countries and societies, particularly developing countries, where caries affects an advanced proportion of children. (Johansson; etal. 2012)

Middle Eastern countries have experienced especially rapid-fire development and modernization with commensurable changes in life and diet for important of the population. These changes are likely to have influenced oral health. In Iraq, for illustration, traditional salutary habits and practices have continued but foods and drinks typical of westernized diets are now cheap and readily available, particularly in major metropolises. (Larson & Story. 2009). As in numerous developing countries, a high proportion of the population of Iraq is under 15 times of age and recent studies

have demonstrated that caries represents a particular problem amongst children in Iraq (Jamel; et al. 2004). In utmost cases, information has been confined to academy children but there have been a small number of studies of youngish age groups. In one, a mean dmft 1-2 was reported for 3 – 5- time- pasts attending a in Mosul north of Iraq in 2009 (Jazrawi, 2009).

Whilst this study has demonstrated the veritably high frequency of complaint, there has been little or no information about corrosion in children in the in Nasiriya, south of Iraq, one of the fourth major metropolises in Iraq and the second largest metropolises in south of Iraq and has a population of Roughly 2 million. The points of this study were to determine the frequency of corrosion in a sample of children attending Kindergarten kindergartens in Nasiriya and to relate the presence of corrosion to that of caries and rampant caries in the same group of children.

Material and method

The sample was drawn from 2 – 5- time-old children attending kindergarten kindergartens in Nasiriya. All those included had lived in the Iraq throughout their lives. Agreement for the study was attained from Directorate of Education DhiQar Nasiriyah Kindergarten Department in Iraq. A list of all kindergarten kindergartens in the megacity was attained from the Department of Education DhiQar Nasiriyah Kindergarten Department in Iraq.

The kindergartens were stratified according to backing sources (private or public) and by area of the megacity (north, south, east, and west) Of the 97 kindergartens listed, 16 were public Kindergarten, attended by 1054 children. The remaining 81 were private Kindergarten attended by 6179 children during 2020 – 2021. Slice was carried out to include 200 children from public Kindergarten (50 from each area of the megacity) and 623 children from private Kindergarten (157 from north,south, east and 156 children from west area). These figures were designed to allow estimation of the effect of academy type attended as well as furnishing a reasonable representation of children in the megacity.

An aggregate of 24 Kindergartens (5 public and 19 private) were aimlessly named from each of the four geographic areas of the megacity (north, south, east, and west). Letters were transferred to parents requesting concurrence to their child being examined in kindergartens and asking them to complete a short questionnaire.

All children in named Kindergartens were eligible to take part. Forms were thus transferred to parents of an aggregate of 823 children. Examinations were carried out for caries, rampant caries and for corrosion of maxillary incisor teeth. Children were examined by one monitor in a classroom at the academy under standardized lighting conditions using a Daraya light (Daraya lighting Ltd, Leighton Buzzard, Luton, UK).

Each child was examined supine and data recorded by a trained adjunct, opinion was visual with a Aeroplan mouth wood used to help visibility and cotton rolls employed to remove any food remnants or debris where necessary.

All teeth and crown of teeth were examined for caries using BASCD criteria and scoring system (Knj Pitts; et al 1997).

Rampant caries was defined as being when caries affected smooth crown of teeth of two or further maxillary incisors (Downtime; etal. 1971). Examination for corrosion was confined to primary maxillary incisors and used the scoring system shown in Excursus 1, which has been tested preliminarily (Al-Malik; et al. 2001).

Wear for all crown of teeth was noted but, for the purposes of the study and as in former checks of corrosion in primary teeth (O'Brien; etal. 1994), only corrosion affecting palatal and/ or buccal crown of teeth was scored as corrosion, wear confined to incisal crown of teeth was barred from farther analysis. Training and estimation exercises were conducted before the study. Duplicate examinations of an aggregate of 30 children progressed 4 – 5 times attending two kindergarten kindergartens by two observers, gave anointer-examiner value of0.85 for crown of teeth diagnosed as carious. Reprise examinations of 30 children were made during the study to check-ins-examiner reproducibility of caries and corrosion (Downtime; et al. 1971).

Results a value of0.96 for crown of teeth diagnosed as carious, and0.92 for crown of teeth diagnosed as having corrosion. For each child a questionnaire was supplied to parents through the academy to be completed before the examination was carried out. This included general information on the child's age and gender, any habitual illness and drug taken by the child, as well as socio-profitable questions including maternal occupation and education.

For this paper, academy type and social class grounded on father's occupation were used as pointers of social class. The bracket of occupations was grounded on that utilized in the Oral Health status of children in Iraq 2009 (Al-Alousi.2009) and was like the Registrar-General's Bracket of Occupations (OPCS.1980).

Results

An aggregate of 823 children progressed 2 – 5 times were included in the study 467 boys and 356 girls. The youthful was 2 years and 11 months and the oldest 5 years and 2 months. There were 121 children progressed 2-3, 298 aged 4 and 404 aged 5. In all, 623 of the children were from private kindergartens and 200 from kindergartens that were intimately funded. Frequency of corrosion caries and rampant caries. (Table 1) The frequency of corrosion and of caries and rampant caries is shown in Table 1. Estimates are given independently for children from private and intimately funded kindergartens and for the sample.

To allow for the difference between sample and population in the type of academy attended, weighted estimates of frequency and of dmft and dmfs are also given in this table. Of the 823children included in the check, 262. (42.3) had substantiation of tooth crown loss affecting labial and/ or palatal crown of teeth of one or further of their maxillary incisors at clinical examination. These children were regarded as having loss that was wholly or incompletely a consequence of corrosion. In the case of a farther 294 (47.2), wear was visible but was confined to the incisal edges of the teeth (wear involving incisal edges was also seen in 211of the 262 children with corrosion). There was little difference in frequency of corrosion for the two types of academies and the weighted estimates of frequency for these two groups of children in the megacity were thus nearly the same (33.4). For those children with corrosion, the mean number of teeth affected was2.7 (º0.97) per child.

There was substantiation of caries in 642 children in the sample (78) and 263 children (32) were diagnosed as having rampant caries (Table 1). Original weighted estimates for the population were 72 with caries and 33 with rampant caries.

Mean dmft for the sample studied was (4.69), (0.13) per child,this average dmft was made up of (3.56) decayed (0.29)missing and (0.48)filled teeth. Mean dmfs was (11.89) (0.49), also composed of (8.92)decayed (2.09) missing and1.12 filled teeth. Erosion in relation to age and to social class

The frequency of corrosion and its inflexibility in relation to age and to social class grounded on the occupation of the head of family and the academy type attended is shown in (Table 2).

For 172 of those with corrosion this was scored as being confined to enamel (score 1) but for 95 it had extended into dentine (score 2) and/ or pulp (score 3) of the tooth (Table 2).

The frequency of erosion in relation to age (Table 2) showed some substantiation of an increase with age27 (28%) of those aged three years or lower showed substantiation of corrosion compared to 147 (42%) of those aged four years but this relationship wasn't statistically significant when tested. Neither frequency nor inflexibility was significantly related to gender. 145 (41%) of the children those aged five years.

Table 1.Tack place of erosion,caries and rampant caries

	Public Kindergrten *n*(%)	Priate Kindergrten *n*(%)	Total	Weighted Estimate(%)
Erosion	61 (30.5%)	201 (32.4%)	262 (42.3%)	33.2%
Caries dmft(“SE)	213 (75.8%) 4 (“0.3)	429 (70.4%) 5.1 (“0.2)	642 (78%) 4.69 (“0.13)	72.2% 4.43 (“0.15) 12.1
Rampant caries dmft(“SE)	89 (31.7%) 13.4(“0.63)	174 (31%) 12.51(“0.47)	263(31.4%) 11.51(“0.49)	32.6% 10 (“0.47)

Table 2. Relationship between erosion, age of children and Father's occupation

	No. of children&(%)				
Factors	No. of children	With no erosion	With any erosion	With erosion concede to score 1	With erosion scored 2 or more
Age group					

3 years	**120**	**93 (74%)**	**27 (28%)**	**19 (65%)**	**8 (25%)**	
4 years	**364**	**217 (58%)**	**147 (42%)**	**89 (56%.1)**	**58 (44%)**	
5 years	**339**	**194 (59%)**	**145 (41%)**	**86 (54%)**	**59 (46%**	
Total	**823**	**504 (66%)**	**319 (38%)**	**194 (59%)**	**125 (36%)**	
Father's occupation						
professional	**68**	**41 (77%)**	**27 (23%)**	**17 (69%)**	**10 (31%)**	
Middle class	**483**	**309 (64%)**	**174 (36%)**	**113 (65%)**	**61 (35%)**	
Unskilled	**272**	**185 (68%)**	**87 (32%)**	**62 (71%)**	**25 (29%)**	
Total	**823**	**535 (68%)**	**288 (31%)**	**192 (19%)**	**96 (31%**	
School type						
Private	**623**	**430 (69%)**	**193 (31%)**	**137 (71%)**	**56 (29%)**	
Public	**200**	**134 (67%)**	**66 (33%)**	**44 (68%)**	**22 (32%)**	
Total	**823**	**564 (68%)**	**259 (32%)**	**181 (69%)**	**78 (30%)**	

Table 3. Frequency of caries and rampant caries, mean dmft and dmfs in relation to age group,social class grounded on father's occupation & academy type.

Factors	No. of children	No. (%) of children With no caries	With rampant caries	dmft (”) SD	dmfs (”) SD
Age group					
3 years	120	90 (75%)	30(25%)	3.5(”4.7)	7.9 (”13.5)
4 years	364	251 (69%)	92(31%)	4.8(”4.1)	12.6 (”15.2)
5 years	339	220 (65%)	119(35%)	5.1(”4.7)	14 (”15.8)
Total	823	582 (71%)	241(29%)	4.7(”4.5)	11.1 (”14.6)
Father's occupation					
professional	68	44 (64%)	24(36%)	3.5(”4. 1)	8.7 (”11.6)
Middle class	483	348 (72%)	135(28%)	5. 1(”5.1)	14.2 (”16.4)
Unskilled	272	190 (70%)	82(30%)	5.1(”4.8)	13.7 (”15.3)
Total	823	582 (71%)	241(29%)	4.6(”4.4)	12.5 (”15.1)
School type					
Private school	623	442 (71%)	181(29%)	4.41(”4.5)	11.5 (”14.3)
Public school	200	140 (74%)	60(26%)	5.52(”5.1)	14.4 (”16.6)
Total	823	582 (72%)	241(28%)	4.80(”4.4)	12.1 (”15.7)

c^2 for difference in prevalence of caries in relationship to father's occupation‰8.26, *P*‰0.04.
c^2 for difference in prevalence of rampant caries in relationship to father's occupation‰4.38, *P*‰0.26.
Mann-Whitney test for differences in dmft and dmfs between the school types: * dmft*P*‰0.002, ** dmfs*P*‰0.006

The professions had corrosion, as did 27 (23%) of those with fathers from the middle class and 174 (36%) of those whose fathers held unskilled or other occupations 87 (32%). Differences in relation to social class grounded on occupation weren't statistically significant.

Frequency and inflexibility of corrosion in relation to academy type suggested that there was also little difference in frequency of this condition between children attending the two academy types.Frequency of caries and rampant caries and dmft in relation to age and to social class Frequency of caries, rampant caries, dmft and dmfs values in relation to age are shown in (Table 3).

Frequency and inflexibility of caries and rampant caries according to the age group at the time of examination shows that frequency increased with age, from 65 at age 3 up to 69 in 5- time-old children (for caries) and from 31 at age 3 up to 35 in 5- time- pasts (for rampant caries).

Also, dmft and dmfs increased with age,the smallest frequency of caries was seen in children from advanced professional families. Frequency in children from other social classes was little different,analogous pattern was seen in relation to rampant caries, with smaller children from advanced professional families showing substantiation of rampantcaries.

Differences in relation to social class were statistically significant (P ½0.039) for caries but not for rampant caries. In all, 442 (71) children from private kindergartens and148 (74) children from public Kindergartens had some caries expressions.

Comparison of the proportion of children with caries in each academy type showed the difference between them of 3, just statistically significant (P °0.05). Rampant caries (i.e., caries affecting smooth crown of teeth of two or further maxillary incisors) was diagnosed in 241 (33) of all the children examined. This aggregate included 168 (34) children from private Kindergartens and 73 (41) from public Kindergartens.

As in the case of caries, comparison of the two sample proportions with rampant caries showed the difference of 7 between kindergartens to be statistically significant (P °0.01). There was a difference between academy types in dmft and dmfs (1.2 in dmft and2.2 in dmfs) with lower values for children in private kindergartens. Differences were tested using Mann-Whitney-tests and were verified as statistically significant.

The relationship between corrosion and caries the connections between the presence of caries and of corrosion and between the presence of rampant caries and of corrosion are summarized in (Table 4). Because of the implicit difficulty in measuring rampant caries and corrosion in the same tooth face, the relationship between the presence of caries banning rampant caries and that of corrosion was also considered and results included in (Table 4). Of the 641 children who had any caries experience, 276 (32) had substantiation of corrosion. This was 5 advanced than the 27 of children without caries who had corrosion. Smaller children with rampant caries (67 of the 241; 28) had substantiation of corrosion than those without this form of complaint (43 of 182; 27). Neither of these differences was statistically significant.

In discrepancy, the relationship between presence of caries banning rampant caries and of corrosion proved to be statistically significant (z ½2.34, P,). Of the 400 children who had caries but not rampant caries, 209 (36) had corrosion, a significantly advanced proportion than the 43 (27) out of 182 who were caries free (Table 4).

Table 4. Relationship between caries, rampant caries and erosion

		No. (%) of children			
	No. of children	With no erosion	With any erosion	With erosion score 1	With erosion scored 2 or more
With caries but excluding rampant caries	400	248 (61%)	209 (36%)	124 (23%)	85 (14%)
With rampant caries	241	122 (52%)	67 (28%)	38 (19%)	29 (11%)
With any form of caries experience	641	370 (58%%)	276 (32%)	185 (24%)	91 (13%)
Without caries on examination	182	134 (73%)	43 (27%)	28 (16%)	15 (9%)
Total	823	504 (62%)	319 (31%)	213 (22%)	106 (14%)

Multivariate analysis Multivariate analysis was carried out using logistical retrogression analysis for the issues of corrosion, caries, and rampant caries. All variables were included at the launch and those failing to show a significant relationship were latterly removed in an accretive fashion. The final model summarized in Table 5 shows that the only factor remaining significant in the outgrowth of corrosion was caries banning rampant caries (OR ½1.4). Confidence intervals showed that for children with caries banning rampant caries, the OR in the population was between1.4 and1.6. In an analogous analysis for caries, the final model showed that factors which were singly related to the complaint were academy type (OR ½1.7) and the age of the child (OR ½1.5).

Table 5 Results of logistical retrogression for corrosion, caries and rampant caries retrogression coefrcient (B), standard error (SE), signifcance (P), odds rate (OR) with 95 CI for OR

						95% CI for OR	
	Variable	B	SE	*P*	OR	Lower	Upper
Erosion Caries	Caries excluding rampant caries*	0.345	0.1569	0.003	1.480	1.231	1.978
	School type*	0.623	0.1379	0.002	1.755	1.221	2.332
	Age*	0.530	0.1156	0.001	1.553	1.182	1.768
Rampant caries	School type*	0.488	0.1331	0.002	1.610	1.198	2.213

* **Coding used:**
Caries excluding rampant caries: 0‰no caries, 1‰caries excluding rampant caries.

School type: 1‰ private, 2‰public. Age: 1‰3 years old, 2‰4 years old, 3‰5 years old.

The final model related to rampant caries showed again the significance of academy type (OR ½1.6).

Discussion

This study was concerned with corrosion, caries, and rampant caries in children in Iraq. Caries is well recognized as a significant oral health problem in the country, but little is known about corrosion. Corrosion, like caries, is a result of acid attack on the tooth face and may have common threat factors. The end of the study was to determine the frequency of corrosion in 2 – 5- time-old preschool children in Nasiriya, south of Iraq, and to relate the presence of corrosion to that of caries and rampant caries. Slice was grounded on kindergartens that had been stratified into those intimately and those intimately funded. Weighted estimates for the population were deduced using SPSS but the design effect (of clustering) wasn't considered to be significant and wasn't included in the analysis. The study used positive concurrence with forms transferred out through the kindergartens as a result a proportion of children didn't take part.

It's apparent from the results that the frequency of corrosion in this age group falls within the range seen in the UK, being lower than was reported for 5 – 6- time- pasts in the National Survey of Child Dental Health, where further than half were affected, and advanced than the frequency of roughly 20 reported for youngish children (Murray; et al. 2015).

The estimate is also little different from the 30 reported for 3- time- pasts in USA (Liu; etal. 2007). Findings were also analogous to results of these studies demonstrating that corrosion occurs most frequently on palatal crown of teeth and that further central than side incisors are affected. In utmost children in the sample included in the present disquisition who had substantiation of corrosion, two or further teeth affected. Also, in the study of1.5 –4.5- time-old children, where palatal and/ or buccal corrosion was present, further than two crown of teeth per child were affected (Taji& Seow.2010)

In the current study, as in the large public studies in the UK, examination was confined to primary maxillary incisors. The advanced frequency of 50 seen in one study in the West Midlands may have been incompletely because all primary teeth were included, as well as a different indicator being used. It has been emphasized that isolation between causes of wear may be delicate. In this check, as in former studies in the UK, dimension was confined to palatal and labial crown of teeth and wear affecting incisal edges was specifically barred. (Sullivan & Curzon.2000) Had these crown of teeth been included in the present study, 561 children (68)could be regarded as having some experience of tooth wear. That 262 out of 823 children (42) had wear affecting incisal edges as well as corrosion indicates that the two processes may well do coincidently in a high proportion of cases. Exact distinctions may be especially delicate in these cases. Findings gave little Suggestion of any harmonious relationship between corrosion and social class measured through academy type or father's occupation. The lack may be a real one and the effect of social factors on diet, for

illustration, may not be sufficient to impact corrosion. Findings of a relationship in once studies (Sullivan & Curzon.2000), (Luo; etal. 2005). May thus have been chance results and a consequence of slice variation. This may be borne out by the fact that no relationship was demonstrated in at least one former large study (Taji& Seow.2010).

The absence may also have been related to the styles of social class assessment employed. Further conventional measures of socio-profitable status similar as those grounded on father's occupation, for illustration, are complex, frequently including further than one element. In Iraq, they may also be made more delicate to use by the pace of modernization and social change affecting the country. The income of numerous people has increased greatly within a short time interval and their lifestyles and value systems may well have altered radically in consequence. Nonetheless, the system used was one that has been employed preliminarily (Auad; etal. 2009).

It may also be that those habits and practices which impact corrosion relate else to social factors in Iraq than in other countries. It's of note that not all former examinations have demonstrated a relationship between corrosion and social factors and results have occasionally been antithetical. Indeed, if a relationship does live, it may not be sufficiently strong to appear constantly in all studies. Frequency estimates for caries were analogous to those seen preliminarily in study in Iraq. (Ahmed; et al.2007).

Values reported for 3-5 times old in the Iraq have been in the region of 71 – 75 and dmft values have ranged from4.2 to5.6 (Al-Mendalawi& Karam.2014).

Simple comparisons suggest that the values seen are also like estimates for youthful children in another corridor of Iraq, studies over the last 18 times have reported frequency estimates ranging from 60 to 79 and dmft values from0.3 to6.15 (Ahmed; et al.2007), (Al-Mendalawi& Karam.2014), (Jamel; et al 2004), (Jazrawi, 2009). The same was true for rampant caries.

The 34-frequency reported then was within the range of 27 – 40 reported for a group of 3 – 5- time- pasts in Tikrit megacity of Iraq (AL-Nassary& Mohammed.2019).

Caries has been shown to relate easily to social class with, in westernized advanced countries, situations of complaint being advanced amongst children in the smallest classes and those whose families were especially underprivileged (Reisine& Douglass.1998).

The trend for caries to be advanced in children from middle social classes has also been seen in youthful children in at least one study in Iraq (Jazrawi, 2009); the present study showed the same trend. Caries was more current and dmft and dmfs were advanced in children from intimately funded kindergartens. Findings were less harmonious in relation to father's occupation, maybe again reflecting difficulties in assessing social class effectively in Iraq society at the present time. A former study carried out using molted and uprooted teeth has demonstrated that corrosion and caries can affect the same tooth or tooth face (Taji& Seow.2010). This was verified in this check where, in discrepancy to former reports, results handed substantiation that corrosion and caries do together, and that caries may be a threat factor for corrosion in at least some children.

The relationship between corrosion and rampant caries was less egregious. This antithetical finding may have been at least incompletely a consequence of the difficulty in measuring both forms of tooth towel loss in the same crown of teeth of primary incisors.

The lesions of rampant caries and corrosion are veritably different, corrosion performing in smooth, candescent, and shallow blights and rampant caries in further localized, rough, destructive, and deeper lesions. It thus seems doubtful that there was confusion between opinion of the two pathological processes. In endless teeth and in westernized countries caries may be a slower process than corrosion but this may not be true in primary teeth in a population with much advanced caries situations.

It may be that in at least some cases, superimposition of the lesser and more rapid-fire destruction of caries had effectively masked or removed any substantiation of corrosion. An indispensable explanation might be that corrosion may itself promote the mechanisms of rampant caries in this population. The failure to see a relationship between the two in other studies, including some in which corrosion was more current, makes this feel doubtful. Still, farther exploration would be of value in understanding further exactly the relationship between the two processes. In conclusion, corrosion affected nearly one-third of the sample of children drawn from kindergartens in Iraq, a frequency analogous to that seen in studies of children of original age in the UK. (O'Brien 1994).

Caries frequency and inflexibility were high. There was no substantiation to suggest that corrosion affected further of those children whose vulnerability to caries was low and in this sample of children, caries proved to be a significant predictor for corrosion.

Appendix 1

Scoring system and criteria used for diagnosis of erosion (Holt; et al. 1983).

Score 0: No evidence of tooth wear: No loss of enamel surface features, no change of contour.

Score 1: Tooth wear into enamel: Loss of enamel surface features giving a smooth glazed, shiny appearance. Relatively wide, shallow concavities on enamel, dentine not involved. Increased translucency of the tooth due to loss of enamel thickness. Evidence of ‘‘rimming’’ around the cervical margins.

Score 2: Tooth wear into dentine: Extensive loss of enamel with dentine involvement. exposure of dentine and/or secondary dentine.

Distinct evidence of ‘‘rimming’’ around the cervical margins.

Score 3: Tooth wear into pulp: extensive loss of enamel and dentine with pulp exposure.

Score 4: Cannot be assessed: extensive caries, fractures, large restorations, or missing teeth.

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