NUTRITIONAL STATUS IN RELATION TO ORAL HEALTH CONDITION AMONG 6-10 YEARS PRIMARY SCHOOL IRAQI CHILDREN IN THE MIDDLE REGION OF IRAQ

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Abstract

This study was conducted among primary school children in the middle region of Iraq. The total sample composed of 4089 children that were chosen randomly five governorates. The aims of this study were to evaluate the nutritional status of those children and its influence on dental caries, enamel anomalies, gingival health condition according to age gender and governorate.

The assessment of nutritional status was performed using anthropometrics measurement (height and weight) while the nutrient analysis was done through the dietary assessment using food frequency questionnaires, the assessment was converted to nutrient data which was performed using software program especially designed for this study. Diagnosis and recording of dental caries and enamel anomalies were according to the criteria of WHO (1987 and 1997 respectively. Plaque index of Sillness and Löe (1964) and calculus index (Ramfjord , 1959) were applied to assess oral cleanliness. Gingival index of Löe and Silness (1963) used for recording gingival health condition.

The prevalence of malnutrition described by three indicators, height for age, weight foe age, weight for height were found to be 49.00%, 18.20% and 9.70%respectively, where as the

mild malnutrition was the most prevalent grade. Sever malnutrition were found to bee prevalent among males than females. The prevalence of stunting, underweighting and wasting were more prevalent among children in Babyl, Anbar and Baghdad governorates respectively.

Results showed that 13.89% of the total sample was caries free. The dmfs was found equal to 9.44±0.14. While caries experience for permanent teeth were recorded to be equal to 1.76±0.20.Caries experience for primary and permanent teeth were highly significantly differed between governorates, with highest value among children in Diala and Babyl governorates respectively. For the total sample a highly significant and significant differences in mean dmfs were recorded between different grades nutritional status for the three indicators where as the normal children had highly significantly and significantly lower dmfs values than mild and sever stunted as well as moderate underweighting and wasting. Concerning caries experience of permanent dentition, different figures were found, although normal children had higher DMFS values than stunted and mild, moderate underweighting and wasting children, however all these differences were statistically not significant (P>0.05).

It has been found that females more or less demonstrated higher values of number of

erupted permanent teeth than males. Resuls showed highly significant differences between different governorates in all ages with highest value among children in Baghdad governorate. The differences in number of permanent teeth between different grades of nutritional status for the three indicators and approximately in all age groups were highly significant. Where the normal children, more or less, had higher number than malnourished.

In general the prevalence of enamel anomalies was 72.63%, the demarcated opacities as well as hypoplasia were found to be more prevalent type of anomalies for primary and permanent teeth with meanvalues of 0.41±0.1 and 0.32±0.02 respectively for primary teeth, while for permanent teeth the values were 1.96±0.03 and 0.09±0.08 respectively. The differences of number of demarcated opacities and hypoplasia between governorates were found to be highly significant andsignificant for primary and permanent teeth. Results showed that the differences of demarcated opacities for primary and permanent teeth between different grades of nutritional status for the three indicators were highly significant and significant, where the normal children had higher values. Apposite figures found concerning hypoplastic teeth, the significant differences were found only for primary teeth as

the normal children had highly significant and significant lower values than stunted and mild underweighted children.

A mild type of gingival index was reported for the total sample as well as for the majority of governorates while moderate type was reported among children in Anbar and Diala governorate. Highly significant differences were found betweendifferent grades of weight for age and weight for height indicators as the normal children had lower values than mild underweight and higher than mild moderate wasting children.

The daily nutrient intakes for the total sample were recorded to be for protein 49.31±0.45gm, calcium 0.59±0.01gm, phosphorus 0.97±0.01gm, Ca/P ratio 0.59±0.00, iron 12.01±0.14mg, vitamin A 3810±62.24 I.U and vitamin C 90.04±1.27 mg. The daily nutrient intakes were highly significantly differing between governorates, for all nutrients. The daily nutrient intakes were highly significantly differs between different grades of height for age and weight for age indicators. As the amount nutrients were found to be higher among normal children then tended to decrease with increased severity of malnutrition. Highly significant and significant weak negative correlation were found between dmfs and all nutrients except for vitamin C and Ca/P ratio,

on the other hand, Ca/P ratio in addition to vitamin A were found to affect significantly caries experience of permanent teeth but in negative direction. Result of multiple lineare regression showed correlation between nutrients and dmfs, DMFS equal to 0.085, 0.071 respectively, with R^2 value equaled to 0.7%, 0.5% respectively. Results showed a highly significant positive correlation between number of permanent teeth and protein, calcium, phosphorus; the same figure found for vitamin A but in negative direction. Concerning enamel anomalies, all nutrient showed highly significant negative relation with hypoplasia, on the other hand significant correlation with demarcated opacities were only with calcium in positive direction and highly significant with vitamin A in negative direction. As well as vitamin A was recorded to have significant negative correlation with gingival index.