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Oral health knowledge and dental health practices among schoolchildren in Jerash district/Jordan

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Abstract: *Objective:* This study aims at determining the oral health awareness level, the patterns of dental health practices and their potential relationship with certain socio-demographic factors, including gender (sex), mother's education and the socio-economic status of the family, among 14–15-year-old schoolchildren in Jerash Governorate, Northern Jordan. *Participants and method:* Cross-sectional survey including 1362 public schoolchildren, who completed a self-administered structured questionnaire. *Results:* Overall, the level of oral health knowledge among the surveyed children was low. Of the 1362 schoolchildren included in this survey, only 18 and 17% did know the meaning of plaque and what plaque can cause, respectively. Female performance was significantly better than male performance on two of the six knowledge questions ($P < 0.01$). While 17% of children have never been to the dentist, there are 10% only who visit the dentist on regular basis. The majority (56%) of these pupils said they visit the dentist when there is a serious dental or oral health problem. Fear of the dentist and difficulty in obtaining an appointment with the dentist were the causes of irregular visit to the dental clinic in 28 and 19% of the cases, respectively. *Conclusion:* Results of this study prove that oral health awareness level among public schoolchildren in Jordan is still poor and needs to be improved. Based upon these findings, the establishment of a long-term school-based oral health education programme in Jordan is highly recommended.

Key words: oral health; knowledge; practices; behaviour; schoolchildren; school health; Jordan

Introduction

Improvement in the oral health conditions has been observed in several industrialised countries, especially during the last two

decades. In children, this has been shown by a reduction of dental caries and an improvement of gingival conditions. However, it is noteworthy to mention that this trend of improvement in oral health conditions parallels changing self-care practices, as well as the establishment of school-based preventive oral care programmes (1–4). The reasons for this positive development in oral health conditions are many and somehow complex, but may involve a more sensible approach to sugar consumption, improved oral hygiene practices, fluoride in toothpaste, topical fluoride application and fluoride rinsing (5, 6). Unfortunately, this is not the case in less developed countries. In fact, many developing countries are now facing problems of poor oral health, primarily because of changing life styles and the lack of a systematic oral health care system. A number of reports indicate that the prevalence of dental caries in the permanent dentition of children in the Middle East region, including Jordan, is low to moderate (7–10). Furthermore, only a few oral epidemiological studies of children have been conducted to assess the level of oral health knowledge, behaviour and patterns of dental attendance among schoolchildren in Jordan.

Schools are thought to be the most suitable environment to provide health information to children in order to achieve the goal of health education programme (11, 12). School health programmes in Jordan are one of the major public health awareness programmes in all the public schools. However, school-based dental health education is not yet an integral part of the school health programme in Jordan.

At present, Jordan's total population is approximately 5.2 million, and it is growing at a rate of 2.6% annually. Furthermore, the population of Jordan is young, and 6–18-year-old schoolchildren constitute about one-third of the total Jordanian population, which implies the need for a comprehensive school health programme (13). Such programme should be designed so that it is qualified to provide basic health care services to all these children with emphasis on health education components. An immediate requirement to the provision of adequate school health services through school health programmes is the availability of resources, their allocation and the manpower development.

School health services in Jordan

At present, and according to the Education Act of 1964, Public Dental Services in Jordan are provided free of charge and within the Primary Health Care (PHC) set-up. This strategy implies that since the incorporation of school health services into the PHC centres, oral health services are provided by the dentists in these centres. The dentist in charge of school health services provides periodic dental examination, training activities to teachers, who are in charge of school health activities, on application of sodium fluoride mouthrinse and provision of emergency dental health care to schoolchildren. However, it is to be noticed that dental health services provided to schoolchildren are mainly offered on demand rather than on need. These services are curative-oriented and ambulatory in nature, where they depend mainly on extraction of teeth, with little emphasis on prophylaxis and oral health awareness in general. Furthermore, because of the heavy load of patients of these PHC centres, schoolchildren are provided with minimal conservative care. Preventive oral health care is negligible or non-existent in these public PHC centres (14).

In Jerash Governorate, where 4.5% of the total population of Jordan is living, school health programmes' components are comparable to the national school health programmes in Jordan. However, it is observed that until 1988, the only form of dental care provided to schoolchildren through school-based dental health programme in this Governorate in the north of Jordan was emergency treatment in public dental clinics. No oral health preventive programme existed in public schools. Base-line data at the beginning of the programme already showed that the oral health of children in this Governorate had worsened as seen among the 6-year-olds, where the caries-free children decreased from 19% in 1980 to 9% in 1988 (14).

Study purposes and research questions

Oral hygiene is a basic factor for oral health. Poor oral hygiene leads to dental plaque accumulation, which, in turn, can cause gingivitis, eventually leading to periodontal diseases (15). That is why many clinical studies have been carried out focusing on the role of oral health in the prevention and control of oral disease, and this cross-sectional survey might be one of such studies.

In many developing countries, many children still rely on traditional methods of cleaning their teeth, and their effectiveness on plaque removal is documented (16). To the authors' knowledge, the principle oral cleaning aid used by adults and schoolchildren in Jordan is the toothbrush. However, there is no reliable and valid information available at present to describe the level of dental health knowledge or frequency of tooth brushing among schoolchildren in this district of northern Jordan (17). Furthermore, school health programmes are in charge of providing dental public services to all schoolchildren through primary health care centres, through a cooperative and coordinated effort with the Ministry of Health. No previous studies have been performed on school health services in Jordan, except for their historical development. By describing school health services and health education activities provided for the students, one could highlight the weaknesses and strengths of the system. Therefore,

the purpose of this study was to provide basic information on oral health knowledge, self-reported oral health behaviours, patterns of dental attendance and the potential association with certain socio-demographic factors, such as sex, mothers' education and the socio-economic status of the family among schoolchildren aged 14–15 years in Jerash Governorate using a structured questionnaire.

Methodology

Study population and sampling technique

A list of all public schools was obtained from the General Directorate of Education, Jerash Governorate. All schools with 8th and 9th grade classes (14- and 15-year-old pupils) were included in the study. A total of 52 male and 41 female public schools had met the study criteria and were included in the study. The total target population of schoolchildren enrolled in these schools were 3286 male and 3109 female students. The schools included in this study were randomly selected using a table of random numbers. The 1466 schoolchildren, aged 14 and 15 years, were taken from 10 male and 10 female public schools, randomly selected to form the sample frame of this survey. However, 104 pupils were excluded from the study because of incompleteness of their filled questionnaires and/or of the many missing data in their forms. Therefore, 1362 pupils were included as the total study population and used for the analysis of results of this cross-sectional survey.

Data were collected through a special questionnaire purposefully prepared for this study, and a clinical examination was performed by two well-trained dentists (results of the clinical examination are used for another separate study). Both dental examination and filling of the questionnaire were carried out in the classroom under the direct supervision of the researchers and the school teacher in charge of the health education programme at the school. All questions were of the multiple-choice type, where students made a tick or circle around the most appropriate choice. The questionnaire covered oral health care habits and practices, dental knowledge and attitudes towards dental health visiting pattern. This questionnaire was originally designed in English and then translated into Arabic. While administering the questionnaire, the authors encouraged the students to try their best to answer all the questions; however, they were not compelled. This is why the response rate was very high, reaching almost 93%. The questionnaire was pretested in comparable group of schoolchildren ($n = 25$) in order to assess the validity of the questions. Results of these 25 cases are not included in this study.

The potential effect of mother's education on the oral health awareness in general and the effect of the socio-economic status of the family on the patterns of dental attendance of the surveyed schoolchildren were taken into consideration in the analysis of data. Mother's education was divided into two educational levels: less than high school level and high school level and more, including community and university degrees. The socio-economic status of the family was determined on the basis of the total monthly income of the family in Jordanian Dinars (1 JD is equivalent of 1.4 US$). Families were categorised into two socio-economic classes: low socio-economic and high socio-economic status groups, with family monthly incomes of less than 300 JDs, and 300 JDs and more, respectively.

Data analysis

Collected data were coded and entered into a database program prior to the final analysis using the SPSS-PC package (version 11). Analysis of data included simple descriptive statistics in the form of means, percentages and frequency distribution. The statistical significance was determined by the Chi-square test, and the level of significance was set at $P < 0.05$.

Results

Socio-demographic characteristics of the study population

This cross-sectional study was conducted in Jerash Governorate, Northern Jordan, on 1466 14–15-year-old children, randomly selected from the 6395 schoolchildren enrolled in the 93 public schools in the Governorate. However, of the 1466 participant children in this survey, 104 children (7.09%) were excluded from the study because of incomplete questionnaire and/or missing data in their questionnaires.

As Table 1 shows, 44.2% of the study population were 15 years old and 56.5% were female. More than half (55.1%) of the children's mothers had less than the high school certificate, and the rest had a high school certificate or more, such as a community college or a university degree. Among mothers, 76.6% were housewives (unemployed), while among fathers, only 4.2% were unemployed. However, working fathers were mainly government employees (52.1%), such as school teachers, public administrators, professional soldiers and in clerical jobs. The total family monthly income was less than 300 JDs for almost 90% of the study population. This figure of 300 JDs per month for a Jordanian family is considered, according to the Jordanian standards, as a low family monthly income, which

Table 1. **Socio-demographic characteristics of the study population ($n = 1362$)**

Variables	Number	Percentages
Age groups (years)		
14	760	55.8
15	602	44.2
Sex		
Male	592	43.5
Female	770	56.5
Mother's education		
<High school	750	55.1
≥High school	612	44.9
Mother's occupation		
Housewife	1044	76.6
Public employee[a]	159	11.7
Professionals[b]	28	2.1
Others[c]	131	9.6
Father's occupation		
Unemployed	58	4.3
Public employee[a]	711	52.2
Professionals[b]	66	4.8
Others[c]	527	38.6
Family monthly income		
<300 JDs[d]	1221	89.6
≥300 JDs	141	10.4

[a]School teachers, public administration, soldiers, nurses and clerical jobs.
[b]Doctors, lawyers, University Professors, etc.
[c]Private business, skilled and non-skilled labour.
[d]JDs, Jordanian Dinars.

reflects the overall socio-economic status of the population in this Governorate.

Oral health knowledge

Oral health knowledge of the study population was assessed by several questions, including the definition of dental plaque, dental caries and what can plaque cause, the best time for brushing teeth and how to prevent periodontal diseases.

As Table 2 shows, only 18.8 and 17.6% among these schoolchildren did know the meaning of plaque and what can plaque cause, respectively.

Further, 51.2% knew that the bleeding gum is a sign of gum disease, and 32.8% knew that periodontal disease is prevented by tooth brushing and dental flossing.

The best performance of the study population was on the question related to the best time for tooth brushing, where we found that almost two-thirds (64.1%) of the group recognised that the best time for tooth brushing is before going to sleep.

While male students showed better performance on the first question (definition of dental plaque), we found that female students had significantly higher level of knowledge on the third and sixth questions ($P < 0.01$ for both questions).

The level of mother's education seems to be of minor influence on the oral health knowledge of these children. As shown in Table 3, there are more children to mothers of higher level of education (≥high school level) who answered correctly the different oral health knowledge questions than their peers to mothers with lower educational level (<high school level), but there was no statistically significant difference. However, for the two questions regarding the bleeding gum and the best time for tooth brushing, there was a borderline statistically significant difference associated with the mothers' educational level. Performance of children belonging to mothers with higher educational level was significantly better than that of children belonging to mothers with lower educational level, and *P*-values were <0.05 and <0.004 for the two questions, respectively.

Oral health behaviour

Table 4 illustrates the self-reported dental care practices and the consumption behaviour of sugary foods and drinks among the study population. Of the children, 36 and 18.2% brushed their teeth once, and twice or more per day, respectively. However, 27.3% reported that they do not brush their teeth at all, and 18.4% claimed to brush their teeth on irregular basis (once every other day, or less). Among those who used toothpaste, 27.1% claimed to use fluoridated toothpaste, 19.6% used a non-fluoridated toothpaste and 28.3% confessed that they do not know if their toothpaste is fluoridated or not. There is a significantly higher proportion of female pupils who brush their teeth once, twice or more per day than their peers male pupils ($P < 0.001$ and 0.005, respectively). In contrast, the proportion of children who are not brushing their teeth at all is significantly higher among male than among female pupils ($P < 0.001$). Furthermore, there is a significantly higher proportion of female who used fluoridated toothpaste than male children ($P < 0.001$).

The frequency of sweet consumption among these pupils proved to be very high. Almost all pupils reported to consume sweets in the form of snacks and soft drinks during the breaks at the school. Some 43.7% reported to consume sweets thrice and more per day, 32.5% twice per day and 22.0% consume sweets at least once per day. Overall, there was no significant difference between male and female pupils concerning the frequency of sweets consumption, except for those who consume sweets more than thrice per day, where we found that the proportion of female pupils is significantly higher than their peers male pupils ($P < 0.002$). Concerning their perception of the quantity of sweets consumed, 20 and 69% of them reported that quantity of sweets

Table 2. **Distribution of the study population who correctly answered the questions on the Oral Health Knowledge by gender (sex; $n = 1362$)**

Knowledge questions	Answer distribution			
	All subjects ($n = 1362$)	Male ($n = 592$)	Female ($n = 770$)	*P*-value*
What is dental plaque?				
Soft deposit on tooth	**257 (18.8%)**	**131 (22.1%)**	**126 (16.3%)**	**<0.008**
Hard deposit on tooth	92	120		
Discoloration on tooth	87	110		
Don't know	282	414		
What can plaque cause?				
Weakness of teeth	103	94		
Discoloration on tooth	111	172		
Gum disease	**241 (17.6%)**	**111 (18.7%)**	**130 (16.8%)**	**<0.41**
Don't know	267	374		
Bleeding gum is a sign of:				
Gum disease	**698 (51.2%)**	**269 (45.4%)**	**429 (55.7%)**	**<0.01**
Healthy gingiva	36	26		
Weakness of periodontal tissue	144	127		
Don't know	143	188		
How to prevent periodontal diseases?				
By using soft food	60	101		
By using tooth brush and dental floss	**448 (32.8%)**	**204 (34.4%)**	**244 (31.6%)**	**<0.3**
By using vitamin C	143	171		
Don't know	185	257		
What is dental caries?				
Discoloration on teeth	47	45		
Loss of enamel	264	382		
Destruction of tooth	**536 (39.3%)**	**234 (39.5%)**	**302 (39.2%)**	**<0.95**
Don't know	47	41		
What is the best time for tooth brushing?				
In the morning	156	156		
In the afternoon	44	47		
Before going to sleep	**874 (64.1%)**	**343 (57.9%)**	**531 (68.9%)**	**<0.01**
Don't know	49	36		

The correct answer is given in bold.
*The *P*-value was calculated for the correct answers only.

consumed is high and moderate, respectively, and only 10% perceived that quantity consumed is low and there was no statistically significant difference between male and female pupils.

Table 3. **Frequency distribution of the schoolchildren who correctly answered the Oral Health Knowledge questions by the educational level of their mothers ($n = 1362$)**

Knowledge questions	Levels of mothers' education		
	<High school ($n = 750$)	≥High school ($n = 612$)	*P*-value
What is dental plaque?	135 (18.0%)	122 (19.9%)	0.40
What can plaque cause?	114 (15.2%)	97 (15.8%)	0.79
Bleeding gum is a sign of:	367 (48.9%)	331 (54.0%)	0.05
How to prevent periodontal diseases?	245 (32.6%)	203 (33.1%)	0.88
What is dental caries?	226 (30.1%)	210 (34.3%)	0.11
What is the best time for tooth brushing?	456 (60.8%)	418 (68.3%)	0.004

Taking into consideration the socio-economic status of the family, it is observed that certain oral health behaviours (practices) are significantly influenced by this economic factor. As Table 5 illustrates, out of the pupils who belong to the higher socio-economic status group ($n = 141$), there are 46.8% who use fluoridated toothpaste, while among those who belong to the lower socio-economic status group ($n = 1221$), there are only 24.7% who use fluoridated toothpaste. There is a significant statistical difference ($P < 0.001$). Furthermore, among those who do not use toothpaste or who never brush their teeth, it is found that there are significantly higher proportions of children who belong to the lower socio-economic status group as compared to their peers from the higher socio-economic status group ($P < 0.001$). There are more children in the higher socio-economic status category who brush their teeth once or twice per day as compared to their peers from the lower socio-economic status category, with a statistically significant

Table 4. **Frequency distribution of Oral Health behaviour and practices among the study population by sex ($n = 1362$)**

Variables	All subjects (%)	Male ($n = 592$)	Female ($n = 770$)	*P*-value
Tooth brushing				
Not brushing	27.3	247 (41.8%)	126 (16.3%)	0.001
Irregular	18.4	114 (8.4%)	137 (10.0%)	0.40
Once a day	36.1	154 (11.3%)	336 (24.6%)	0.001
Twice or more	18.2	77 (5.6%)	171 (12.6%)	0.005
Toothpaste used				
I don't use	24.9	231 (16.9%)	109 (8.0%)	0.001
Fluoridated	27.1	129 (9.4%)	240 (17.6%)	0.001
Not Fluoridated	19.6	113 (8.3%)	154 (11.3%)	0.725
I don't know	28.3	119 (8.7%)	267 (19.6%)	0.001
Sweets consumption				
Rarely (zero)	1.7	11 (0.8%)	12 (0.9%)	0.83
Once per day	21.9	116 (8.5%)	183 (13.4%)	0.07
Twice per day	32.5	178 (13.0%)	266 (19.5%)	0.09
≥Thrice per day	43.7	287 (21.0%)	309 (22.7%)	0.002
Perception of sweets' consumption				
Low	10.1	57 (4.1%)	81 (6.0%)	0.652
Moderate	69.2	408 (30.0%)	534 (39.2%)	0.911
High	20.7	127 (9.3%)	155 (11.4%)	0.596

Table 5. **Frequency distribution of the tooth brushing behaviour of the study population by the socio-economic status of the family**

	Socio-economic status of the family		
Variables	Low ($n = 1221$)	High ($n = 141$)	*P*-value
Toothpaste used			
Fluoridated	302 (24.7%)	66 (46.8%)	<0.001
Non-fluoridated	247 (20.2%)	20 (14.1%)	<0.109
I don't know	348 (28.5%)	34 (24.1%)	<0.317
I don't use	324 (26.5%)	21 (14.8%)	<0.001
Tooth brushing behaviour			
Never	351 (28.7%)	22 (15.6%)	<0.001
Irregular	308 (25.2%)	36 (25.5%)	<0.986
Once per day	339 (27.7%)	46 (32.6%)	<0.263
Twice or more per day	223 (18.2%)	37 (26.2%)	<0.030

Table 6. **Patterns of dental visiting behaviour among the study population by the socio-economic status of their families**

	Socio-economic status of the family		
Patterns of dental clinic attendance	Low ($n = 1221$)	High ($n = 141$)	*P*-value
Regular visits	115 (9.4%)	51 (36.1%)	0.000
Irregular visits	213 (17.4%)	16 (11.3%)	0.08
Dental problem	676 (55.3%)	63 (44.6%)	0.02
Never been to the dental clinic	217 (17.7%)	11 (7.8%)	0.003

difference for those who brush their teeth twice or more per day ($P < 0.03$).

Patterns of dental attendance

Dental health practices of the study population were assessed by questions concerning the pattern of their attendance to the dental clinics, the reasons for not visiting the dentist on regular basis and the type of dental care provided during the last visit to the dentist.

As Table 6 shows, we found that 17.0% had never been to the dental clinic and only 12% of these children visited the dentist on regular basis. Nonetheless, we found that the majority of these children (54%) confessed that they visit the dentist only when there is a serious dental or oral health problem. When asked about the reasons for not visiting the dentist on regular basis, 48% of the children said that there is no need for dental visit. Fear of the dentist, difficult appointment with the dental clinic and high cost of dental treatment were the causes in 28, 19 and 5%, respectively. Concerning the dental treatment provided during the last visit, we found that dental extraction and dental filling accounted for 36 and 28%, respectively. Some 8% have received general dental examination (teeth and gum), and only 9.2% did visit the dentist for other dental treatments.

Considering the socio-economic status of the families of these children, Table 6 shows that the proportion of children to families of the upper socio-economic status group, who visit the dentist on regular basis, is significantly higher than the proportion of their peers of the lower socio-economic status group ($P < 0.000$). Furthermore, we found that the negative behaviour of 'never been to the dentist' was significantly higher among children of lower socio-economic group than among children of

higher socio-economic group ($P < 0.003$). This finding is in favour of a strong association between the socio-economic status of the families and the patterns of the dental health practices of their children.

Discussion

In Jordan, oral epidemiological data on schoolchildren are scarce, and no reliable and valid reports are available on oral health, knowledge, behaviour and dental health practices among schoolchildren. Therefore, the present study was undertaken to provide valid information, and furthermore to help in the planning and implementation of potential school-based oral health education programmes in Jordan and, may be, in comparable countries of the developing world.

The level of oral health knowledge of the surveyed children, as shown by results of this study, is poor and is significantly low as compared to Saudi and some European findings (18), except for the knowledge question related to the best time for tooth brushing, where almost two-thirds of pupils did know the correct answer. Female performance was significantly better than male performance on only two of the six knowledge questions ($P < 0.01$). Furthermore, female preference for fluoridated toothpaste is significantly higher than that of their male counterparts ($P < 0.001$), and they tend to brush their teeth more frequently and regularly, once or twice per day, than male students ($P < 0.001$ and 0.005, respectively). These findings confirm that gender remains an important factor associated with the level of oral health awareness and practices, which is in agreement with previous findings from several European and Middle Eastern countries (19–22).

Results of this survey showed that visiting the dentist on regular basis was low or even very low in spite of the availability of very cheap or free-of-charge dental care services at the PHC centres, according to the Jordanian Education Act of 1964. Only 12.1% of the surveyed children visit the dentist on regular basis (once or twice per year). Correspondingly, pain (toothache) and/or symptoms of dental health problems were the dominant reasons for seeking professional dental help. Regular oral hygiene practices of children in this study were less common than found in Kuwaiti children of the same age group (23), and significant proportions of these children had no daily cleaning (brushing) of their teeth. As self-reported by these children, the consumption of various types of sweets and sugary drinks was extraordinarily frequent. This finding is consistent with Kuwaiti, Jordanian and Saudi findings (23–25), but is rather extreme when compared with Western countries' figures on sugar consumption among children (26–28).

Furthermore, results of this survey showed that there is an evident association between the socio-economic status of the family and the pattern of dental clinic-visiting behaviour of their children. We found that there are more children of the upper socio-economic group who visit the dentist on regular basis than their peers of families of the lower socio-economic group ($P < 0.001$). This finding is in agreement with other studies, which have demonstrated that with respect to cost, parents' decisions on the cost of the dental treatment are more likely to influence this factor in relation to the seeking of dental care. There is evidence that as family income increases, the percentage of children visiting the dentist also increases (29). Numerous studies have demonstrated that the health of individuals from the lower end of the socio-economic scale is markedly worse than that of individuals at the upper end. This relationship exists across a broad range of health indicators including dental health (30, 31).

The need for a school-based oral health education programme for schoolchildren in Jerash Governorate, northern Jordan, was confirmed by results of the present study. First of all, the survey showed a clear discrepancy between oral health knowledge and practices (behaviours). On one hand, most of the pupils knew about the causes of caries and the best time for tooth brushing; nevertheless, the consumption of various sugary foods and drinks, in general, was significantly high among these children, where we found that two-thirds of children consume sugary snacks and drinks twice or thrice, and more per day. Many studies have proved that a lack of understanding and awareness of the importance of oral health and its relationship to general good health and well-being affects low use of dental services for many, but this is more true for schoolchildren. Dental services are often considered deferrable and, as a result, patients may not practice good oral hygiene or follow the dentist's instructions until their dental problem becomes painful. In addition, parents' experience and attitudes about dental care may be a factor in the children dental care use (29). Therefore, it is to be recommended that for future oral health education programmes, information given to schoolchildren should aim at improving knowledge about the negative effect of sweet consumption in the development of dental caries and other oral health conditions. In general, more accurate information on preventive measures is needed, especially for schoolchildren who spend considerable time in schools and can be reached at an age when their habits are being formed. Health education programmes in the schools may be conducted internally by health personnel, or by school teachers themselves, provided that these teachers are adequately trained.

Results of this study proved that dental health education programme in public schools in Jerash Governorate is one of these poor programmes and needs to be improved. Thus,

long-term school-based oral health education programmes are to be planned aiming at the improvement of oral health knowledge in general and to help (to assist) in changing attitudes and behaviours towards dental health problems among schoolchildren in Jordan. It is highly recommended that larger studies devoted to the assessment of the oral health awareness level of schoolchildren are to be implemented on the national level in Jordan.

In conclusion, results of this survey showed that, overall, the level of oral health knowledge among the surveyed children is low, but these results confirmed that schoolchildren who have an acceptable level of oral health knowledge and of dental health practices, such as tooth brushing behaviour and dental attendance, tend to be female and children belonging to families of the higher socio-economic status scale.

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