

## School Children Dental Health, Dental Fear and Anxiety in relation to their Parents' Dental Anxiety: Comparative Study

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### Abstract:

The aims of the study were to assess children oral health risk, and their dental hygiene practices, discovering children's dental fear and anxiety, understanding children's coping mechanisms, and investigate the relationship between parental dental anxiety and their children dental fear and anxiety. Research design: A comparative cross-sectional study was used to complete this study. Setting: The study was conducted at three primary governmental schools which affiliated to the ministry of education one in Egypt (Zagazig city) and two in Saudi Arabia (Bisha city). Sample: Two hundred child aged (7-12 years and above) and their parents were included in the study from Saudi Arabia and Egypt who fulfilled the selected criteria. Tools: 1) A questionnaire sheet was used to collect the study data included socio-demographic data and oral health risk assessment tool and dental hygiene practices, 2) Dental Subscale of the Children's Fear Survey Schedule (CFSS-DS), 3) Dental Cope Questionnaire (DCQ), and 4) Corah Dental Anxiety Questionnaire (CDAS). The study results indicated that 20% and 41% of Saudi and Egyptian children were at high oral risk, and satisfactory dental hygiene practices found in 25% of Egyptian children compared to 55% of Saudi children. 70% of Saudi and 89% of Egyptian children used less destructive coping strategies and this difference was highly statistically significant. Egyptian parents dental anxiety was highly positively correlated with child dental fear and child dental anxiety ( $p < .01$ ). The study findings concluded that 50% and 37% of Saudi and Egyptian children respectively had moderate oral health risk. Significant difference was seen in the dental hygiene practices among both groups. The anxiety level of parents in the two groups was significantly different and so, influence the anxiety levels and coping strategy of their children. The study recommended that the role of both school health nurse and pediatric nurse practitioner should be activated to provide oral health screening, early risk assessment, and preventive services as well as appropriate referrals to children who are at the highest risk for childhood caries, also enhancing practices of palliative measures to decrease children's anxiety and make them feel relaxed enough to cope with treatment, and conducting health education programs at schools regarding dental hygiene and tooth brushing to enhance children dental health.

**Keywords:** School children, dental hygiene practices, fear, anxiety, coping strategy.

### I. Introduction:

Children often face a variety of stressful dental procedures and experience dental anxiety when attending appointments. In particular, dental procedures can be stressful experiences. Dental caries, tooth decay, predominantly affect children. As a result, these children may have oral problems that can affect systemic health. Whenever oral health is compromised, the overall health of a person and the quality of his or her life may be at risk<sup>(1)</sup>.

The assessment of oral health status and its related care is a largely neglected area of nursing practice. Although, nurse practitioners are on the front line of children's health care delivery. They can play an important role in providing oral health screening, early risk assessment, and preventive services as well as appropriate referrals to children who are at the highest risk for early childhood caries<sup>(2)</sup>.

Every child should begin to receive oral health risk assessments by 6 months of age by a qualified pediatrician or a qualified pediatric health care provider. The Caries Risk Assessment Tool (provided and continually updated by the American Academy of Pediatric Dentistry) and can be used to determine the relative risk of caries in children<sup>(3)</sup>.

Dental fear is a specific type of fear, an individual emotional reaction to threatening stimuli, and is common among children and adults. Despite innovations in dental equipment and treatment procedures, part of the population experiences dental fear that can be problematic and may have adverse impact on dental treatment outcome<sup>(4)</sup>.

Dental anxiety is it a form of anxiety that occurs when the patient is presenting to the dentist or just with the anticipation of dental treatment experience; it may be a slight or very excessive dread of anything being done to the teeth. Dental anxiety in adults is associated with poor health, poor oral health practices, irregular dental attendance, increased incidence of caries and dental fear in their offspring. Poor parental oral health practices may militate against good oral health in children. If children continue to neglect to care for their teeth at home they are likely to suffer negative effects on their dental health<sup>(5)</sup>.

A number of factors have been associated with dental fear and anxiety (DFA) psychosocial, behavioral, sociodemographic, and genetic. It has been shown that adults have often already acquired dental anxiety from childhood. Painful and unpleasant stimuli associated with dental treatment may lead to the development of DFA. However, among children with comparable dental history, some have DFA, while others do not. Thus, it has been suggested that discrepancy between previous dental experiences and onset of anxiety and fears may be explained by differences in child rearing and personality traits. Self-perceived oral health has been significantly associated with parental support. Family environment and culture have been associated with dental phobias, and it has been hypothesized that family environment is a model for learning that influences development of dental anxiety<sup>(6)</sup>.

An anxious or fearful parent may affect the child's behavior negatively as children develop anxiety with the existence of anxious people around them. Dental behavior of children is under the influence of the parent's attitude and

parents with high level of anxiety exert a negative influence on their children. Parents exert a significant influence on their child's behavior, especially if they had previous negative dental experiences<sup>(7)</sup>.

Children use a variety of coping strategies to manage potentially stressful dental treatment-related events<sup>(8)</sup>. Coping may be seen as a defense mechanism, which deals with threats to an individual's psychological integrity<sup>(9)</sup>. Many children, however, try to cope with the potential stress involved in dental situations by means of uncooperative behaviors, aiming to either completely avoid dental treatment or to interfere with the process of carrying out specific dental procedures<sup>(10)</sup>. In this regard, Klingberg<sup>(11)</sup> found that 61% of dentally fearful children presented with destructive coping behaviors and did not, therefore, collaborate with the dentist during treatments.

## **II. Significance of the study:**

Parental behavior towards oral health may be considered a modeling process in which children imitate adult model. Unfortunately, advances in dental treatment methods, technology and increased knowledge, did not have any impact on the reduction of children's dental anxiety over the past few decades as shown by various studies conducted in several countries across a wide range of cultures. In particular, dental caries, tooth decay, predominantly affect children and often face them to a variety of stressful dental procedures and experience dental anxiety. Furthermore, dental fear and anxiety in childhood may persist to adulthood and is a significant predictor for avoidance of dental visits in adulthood. This pinpoints childhood as a critical stage for preventing and intercepting dental fear and anxiety, thereby assisting them to protect their oral health and improve their dental practices.

## **III. Research design:**

A comparative cross-sectional study carried out in governmental schools in Egypt and Saudi Arabia.

## **IV. Aim of the study:**

Was to assess school children dental health, dental fear and anxiety in relation to their parents' dental anxiety.

### **Objectives:**

1. Assess children oral health, and their dental hygiene practices.
2. Discovering dental fear and anxiety among children.
3. Understanding coping strategies of a child's dental fear and anxiety.
4. Investigate the relationship between parental dental anxiety and their children dental fear and anxiety

### **Research questions:**

1. Are the school children dental health, dental fear, anxiety and coping strategy affected with their parents' dental anxiety?
2. Are there relations between children sociodemographic variables and their dental health, dental fear, anxiety and coping strategy?
3. Are child's dental health and coping strategy affected with their dental fear and dental anxiety?

## **III. Subjects and methods**

### **Research hypotheses**

There is a significant positive correlation between parental dental anxiety and their children DFA.

There is positive correlation between children DFA and their dental health risk.

### **Setting**

The study was conducted at the three primary governmental schools which affiliated to the ministry of education one in Egypt (Zagazig city) and two in Saudi Arabia (Bisha city).

### **Sample**

Two hundred child aged (7-14 years) and their parents were included in the study. (100 child from one school in Zagazig, and 100 child from two schools in Bisha). The sample size was calculated will by (OpenEpi version 2 calculator) depending on the power of the study 80% and 95% confidence interval and percent of dental fear and anxiety of school children.

### **Inclusion criteria for the participants were:**

- Age was determined from 7-12 year and above.
- School students who had previous dental visits.

### **Tools for Data collection:**

- 1- **Questionnaire sheet** was used to collect socio-demographic data such as child's age and gender, and parent's gender, education, employment status, marital status, and monthly income and Oral health risk assessment and dental hygiene practices tool include:
  - A. Oral health risk assessment tool, contain 12 assessment items for the presence of demineralization, caries, gingivitis, bleeding gums, pain during chewing, and restoration. Each item was rated on a two point Likert Scale: 1= present and 0 = not present scored and classified into low risk " score of 1-4" , moderate risk " score of 5-8" and high risk" score of 9-12".
  - B. Dental hygiene practices consist of 10 questions including tooth brushing technique. Each item was rated on a two point Likert Scale: 1= Done and 0 = Not Done and classified into unsatisfactory practice "score of 1-6", and satisfactory practice "score of 7-10

## **2- Dental Subscale of the Children's Fear Survey Schedule (CFSS-DS):**

Developed by Cuthbert and Melamed<sup>(12)</sup> which consists of 15 items, covering various aspects of dental and medical situations, and scored from 1 (not afraid) to 3 (very afraid) on a 3-point scale, with total scores ranging from 15 to 45. Children who scored above 30 on CFSS-DS were defined as high dental fear, children scored more than 15 and less than 30 defined as moderate dental fear children, and who scored less than 15 were defined as low dental fear children.

## **3- Dental Cope Questionnaire (DCQ):**

Developed by Versloot et al<sup>(8)</sup>. The DCQ contains 15 coping strategies related to the dental setting, and the child is asked to rate use of each strategy in Part A by indicating "yes" scored (1) or "no" (score 0) and score perceived effectiveness of each strategy that is used by indicating "not at all," "a little," or "a lot" in the part B of the DCQ. Not at all scored (0) and pit to very much scored (1). It contains 3 subscales, destructive (4 items), external (5 items), and internal (6 items). In each subscale scoring  $\leq$  median means less use coping strategies and more than median means more use.

## **4- Corah Dental Anxiety Questionnaire (CDAS):**

Developed by Corah<sup>(13)</sup>, it has four items, about four dentally related situations, and where respondents are asked to indicate which option is closest to their likely response to that situation. Items are scored on a scale of 1 (no anxiety) to 5 (extreme anxiety) and summed to give an overall anxiety score ranging from 4 to 20. Dental anxiety was classified as moderate (CDAS score of  $\leq 12$ ), high (CDAS score of 13–14), or severe (CDAS score 15 or more) anxiety.

### **Validation of tool:**

Five professors from nursing faculty revised the tools for clarity, applicability, comprehensiveness; understanding and ease for implementation and according to their opinion minor modification were done.

### **Pilot Study:**

A pilot study was carried out before the actual study on 10 percent of sample in to estimate the time needed for data collection, the necessary modifications were done, and these participants were excluded from the sample.

### **Reliability:**

Reliability of the tool done by test and retest of the pilot study sample and in same place but in different occasion and no changes were done in the tool.

### **Procedure**

A review of past and current available literature relevant to the problem and theoretical knowledge of the various aspects of the problem using books, articles, periodicals and magazines in order to get a clear picture of all aspects related to the problem of the research. CFSS-DS, DCQ, and CDAS questionnaires were translated from English into Arabic; some experts from the English language institute at Zagazig University revised it for any modifications.

The researcher met with children and their parents separately at schools and invited them to participate after explaining the purpose of the study. Those who agreed to participate were interviewed individually by the researcher using the data collection tool. Each interview lasted for about 20 minutes. The study was carried out from January to March 2015.

### **Ethical Consideration**

The nature and purpose of the study was explained to the directors of the selected schools as well as the classes' teachers to obtain their cooperation. All the information that is obtained from the participated children was be treated with the almost confidentiality. Clarification to any point of the study tools was provided to the classes' teachers if needed to ensure accuracy of the participants' responses.

## **IV. Statistical analysis:**

Analyses were conducted with the SPSS version 17.0 software. In the analysis, we calculated the percentages of oral health risk, dental hygiene practices, parent dental anxiety, child dental anxiety, child dental fear, and coping strategies and their efficacy in KSA and Egypt. Parents' age, sex, education, work, marital status, family income; and their children sex

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and age. Differences in the prevalence rates in previous variables were tested using the chi-square test. Correlations between variables were analyzed with Pearson correlation coefficients. Linear regression analysis was performed for detection of the most significant predictors of oral health risk, dental anxiety, dental fear and coping strategies. Probability less than 0.05 is considered significant.

**Table (1): Sociodemographic characteristics of Egyptian, Saudi parents and their children.**

Variables	KSA % (n=100)	Egypt % (n=100)	X <sup>2</sup>	p-value
<b>Parent sex:</b> Father	60.0	50.0	2.02	0.16
Mother	40.0	50.0		
<b>Education:</b> Illiterate	6.0	13.0	7.88	0.05
Primary	20.0	8.0		
Secondary	30.0	32.0		
University	44.0	47.0		
<b>Work:</b> Work	73.0	70.0	0.22	0.64
Not work	27.0	30.0		
<b>Marital status:</b> Married	88.0	92.0	1.04	0.59
Divorced	4.0	2.0		
Widowed	8.0	6.0		
<b>Income:</b> Enough	57.0	49.0	25.86	.000
Enough and save	37.0	18.0		
Not enough	6.0	33.0		
<b>Child sex:</b> Male	40.0	50.0	2.02	0.16
Female	60.0	50.0		
<b>Parent age :</b> M ± SD	41.94 ± 8.82	40.04 ± 6.07	T-test: 1.78	0.08
<b>Child age :</b> M ± SD	10.54 ± 1.91	10.08 ± 1.95	T-test: 1.69	0.09

Table (1) shows that near half of parents were university educated in both Saudi and Egyptian (44%, 47%) respectively. Most of Saudi and Egyptian parents have work (73%, 70%) respectively and married parents represented (88%, 92%) respectively in both groups. Half of parents and child sex in Egyptian group was male, however in Saudi group 60% of parent sex was male and 60% of their children sex was female. Also, this table shows that mean age of Saudi parents and their children were 41.94 ± 8.82 and 10.54 ± 1.91 respectively. Also, mean age of Egyptian parents and their children were 40.04 ± 6.07 and 10.08 ± 1.95 respectively. As regards income 57% of Saudi and 49% of Egyptian parents had enough income and the difference between the two groups was highly statistically significant (p=0.000).

**Table (2): Assessment of Saudi and Egyptian children oral health risk and dental health practices.**

Oral health risk	KSA % (n=100)	Egypt % (n=100)	X <sup>2</sup>	p-value
Low oral risk	30.0	22.0	10.4	.006
Moderate oral risk	50.0	37.0		
High oral risk	20.0	41.0		
<b>Dental hygiene practices</b>				
Unsatisfactory Practice	45.0	75.0	23.4	0.000
Satisfactory Practice	55.0	25.0		

As regards the assessment of children oral health risk, table 2 shows that less than one quarter (20%) of Saudi children were high risk compared to less than one half (41%) of Egyptian children, however 50% and 37% of Saudi and Egyptian children respectively had moderate oral health risk. The difference was highly statistically significant (p=0.005).

Satisfactory dental hygiene practices found in only one quarter (25%) of Egyptian compared to more than one half (55%) of Saudi children, and on the other hand unsatisfactory dental hygiene practices represented in less than half of Saudi children (45%) , and 75% of Egyptian ones. The difference was highly statistically significant ( p=0.000).

**Table (3): Level of dental anxiety among Saudi and Egyptian parents and their children.**

Variables	KSA % (n=100)	Egypt % (n=100)	X <sup>2</sup>	p-value
<b>Parent dental anxiety</b>			15.07	0.001**
Low	26.0	13.0		
Moderate	31.0	24.0		
High	12.0	33.0		
Severe	31.0	30.0		
<b>Child dental anxiety</b>			5.85	0.053
Low	17.0	8.0		
Moderate	19.0	15.0		
High	18.0	30.0		
Severe	46.0	47.0		

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As observed in table 3, one third of Egyptian parents had high dental anxiety (33%) compared to 12% in Saudi parents. Less than one third (31%) of Saudi parent had moderate dental anxiety compared to 24% of Egyptian parents, this difference was highly statistically significant (p=0.001). As regards child dental anxiety, near half of Saudi and Egyptian children had severe dental anxiety (46.0% and 47.0%) respectively and this difference wasn't statistically significant (p=0.053).

**Table (4): Dental fear and coping strategies among Saudi and Egyptian children.**

Child dental fear	KSA % (n=100)	Egypt % (n=100)	X <sup>2</sup>	p-value
Low	4.0	1.0	2.27	0.32
Moderate	52.0	49.0		
High	44.0	50.0		
<b>Child Coping strategies</b>				
Destructive: More less	30.0 70.0	11.0 89.0	11.075	0.001**
Internal : More Less	68.0 32.0	75.0 25.0	1.2	0.27
External : More Less	59.0 41.0	53.0 47.0	.73	0.39

As regards child dental fear, Table 4 shows that more than half of Saudi children (52%) had moderate dental fear compared to 49% in Egyptian group. However, half of Egyptian children (50%) had high dental fear compared to 44% in Saudi group and this difference wasn't statistically significant (p=0.32). Majority of Saudi (70%) and Egyptian (89%) children used less destructive coping strategies to cope with dental pain (70%,89%) respectively. The difference between two groups was highly statistically significant (p=0.001). More than two thirds of Saudi (68%) compared to (75%) of Egyptian children used more internal coping strategies. Also, more than half of both groups used more external coping strategies. There is no statistically significantly difference between the two groups as regards to internal and external coping strategies.

**Table (5): Correlation among study variables in Saudi and Egyptian children and their parents**

Variables	KSA			Egypt		
	Child dental anxiety	Child dental fear	Child coping strategies	Child dental anxiety	Child dental fear	Child coping strategies
	r (p)	r (p)	r (p)	r (p)	r (p)	r (p)
Parent dental anxiety	.059(.56)	.328(.001**)	-.217 (.03*)	.421(.000**)	.339 (.001**)	-.034 (.735)
Child dental anxiety		.173 (.086)	.104 (.303)		.436 (.000**)	.038 (.706)
Child dental fear			-.099 (.33)			.140 (.165)

(\*) Correlation is significant at the 0.05 level

(\*\*) Correlation is highly significant at the 0.01 level

As observed in table 5, Saudi parents dental anxiety was positively and highly correlated with child dental fear (p=0.001) and statistically significantly correlated with their children coping strategies (p=0.03). However, it wasn't correlated with child dental anxiety (p=0.56). Also, Saudi child dental anxiety wasn't correlated with child dental fear and coping strategies. Saudi child dental fear wasn't correlated with coping strategies. Regarding Egyptian group, parents dental anxiety was highly positively correlated with child dental fear and child dental anxiety (p<.01). Also, child dental anxiety was highly positively correlated with child dental fear (p=0.00). However coping strategies were not correlated with parent dental anxiety, child dental anxiety, and child dental fear (p=0.735, 0.706, and 0.165) respectively.

**Table (6): Multiple linear regression analysis of factors predicting parent dental anxiety, child dental anxiety, child dental fear, and oral health risk (significant predicting presented only).**

Variables	Unstandardized Coefficients		Standardized Coefficients Beta	t-test	P value
	B	Std error			
<b>Parent dental Anxiety score</b>					
Constant	7.543	1.067		7.068	.000
Parent sex (reference: male)	1.99	.525	.259	3.793	.000
Nationality (reference: Saudi)	1.071	.522	.140	2.052	.04
Excluded variables: parent age, education, work, marital status, income, child age, child sex, and coping strategies					
<b>Child dental anxiety score</b>					
Constant	16.631	1.304		12.755	.000
Child age (reference: older age)	-.372	.118	-.217	-3.159	.002
Income (reference: enough)	.726	.291	.172	2.499	.013
Excluded variables: nationality, parent age, parent sex, education, work, marital status, child sex, and coping strategies					
<b>Child dental fear score</b>					
Constant	40.654	2.272		17.890	.000
Parent age (reference: older age)	-.199	.046	-.286	-4.351	.000
Parent work (reference: not work)	-4.248	.849	-.363	-5.006	.000
Parent income(reference: Enough income)	1.622	.485	.240	3.345	.001
Excluded variables: nationality, parent sex, education, work, marital status, income, child age, child sex, and coping strategies					

**Oral health risk score**

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Constant	.990	.367		2.696	.008
Child sex (reference: female)	-.353	.103	-.234	3.421	.001
Dental hygiene practice (reference: satisfactory)	.358	.078	.301	4.586	.000
Nationality (reference: Saudi)	.375	.099	.250	3.799	.000
Parent education (reference: higher education)	-.130	.052	-.170	2.490	.014
Excluded variables: parent age, parent sex, work, marital status, income, child age, and coping strategies					

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As shown in table 6, mothers have more dental anxiety than fathers in both groups. As the model reveals, female parents is the most influencing predictor as shown by the standardized coefficient and Egyptian parents have more dental anxiety than Saudi. As regards child dental anxiety score, the table illustrate that, as the child age increased child dental anxiety decreased. Also, with not enough income child dental anxiety increased. As the model reveals, income is the most influencing predictor as shown by the standardized coefficient.

With increasing parents age, child dental fear decreased. Also, child whose parent has work experience more dental fear. With not enough income child dental fear increased. As the model reveals, income is the most influencing predictor as shown by the standardized coefficient. As regards oral health risk score, male children are higher oral health risk than female, Also, children with unsatisfactory oral hygiene practice are at higher oral health risk than children with satisfactory oral hygiene. Egyptian children are at higher oral health risk than Saudi. With lower parent education their children experience high oral health risk. As the model reveals, dental hygiene practice is the most influencing predictor as shown by the standardized coefficient.

### **V. Discussion:**

Less is known about the association between parental and their children's dental fear and anxiety in school-aged children. A recent review of 43 studies published at 2007 indicated that the majority of studies indicate a significant correlation between parental and child dental fear<sup>(14)</sup>.

The findings of this study revealed that mean age of Saudi and Egyptian children were  $10.54 \pm 1.91$  and  $10.08 \pm 1.95$  respectively, This finding was in line with American Academy of Pediatric Dentistry<sup>(3)</sup> recognizes children and adolescent period, which is considered to range from age 10-18, and is a marked time for a thrust of caries activity due to a lack of oral health care habits and practices.

The present study found that 50% Saudi children had moderate oral health risk compared to 41% of Egyptian children were at high oral risk, the difference was statistically significant. This result could be due to children age, school age strongly associated with dental caries and dental pain experience, this result was in line with Elbahnasawy<sup>(15)</sup>, who found that half of students have pain during chewing ,two thirds have bleeding gum and dental decay, while the majority complains of dental pain, also these finding are in accordance with Hale,<sup>(16)</sup> who mentioned that most of the studied sample visits the clinics of the school complain from dental problems which affect on the body system especially the GIT.

Although the availability of health services and high level of health insurance for children in Saudi Arabia more than Egypt, the study findings revealed that less than half of Saudi children and the majority of Egyptian children had unsatisfactory dental hygiene practices. This finding was in accordance with Elbahnasawy<sup>(15)</sup>, who found that more than half of the children have unsatisfactory practices about dental hygiene practices. Also, Asuman,<sup>(17)</sup> mentioned that most of the students has unsatisfactory practice regarding teeth hygiene, while the study was in contrast with Kaste<sup>(18)</sup> who mentioned that most of the study sample has satisfactory practice regarding teeth hygiene, and this may due to the different culture of every country.

Hemlatha<sup>(19)</sup> stated that children dental anxiety is seen in approximately (6-15%) of the sample and is a learned process of unpleasantness to one's own environment. In our study high and sever level of dental anxiety presented in 18% , 30% and 46%, 47% in Saudi and Egyptian children respectively and this is in agreement with Dikshit<sup>(20)</sup> who mentioned that 16.8 % of the children showed high to severe dental anxiety.

In the present study 31% and 29% of Saudi and Egyptian parents had moderate dental anxiety; this was in line with Dikshit<sup>(20)</sup> who found that 37.6% of parents showed moderate dental anxiety level.

The findings of the current study revealed that slightly more than half and near half of study sample in Saudi and Egyptian children have moderate dental fear. Also 44% in Saudi compared with 50% in Egyptian children have high dental fear. This difference wasn't statistically significant. This result was in line with result of Al-madi & Abdellatif<sup>(21)</sup> who found that more than half of Saudi children experience moderate fear. However, this result is disagreeing with Olak<sup>(22)</sup> who found that 6% of children experienced fair, moderate or severe general dental fear by using one single fear question.

The result of current study found that majority and slightly more than half of Saudi and Egyptian children used more internal and more external coping strategies, the difference wasn't statistically significant between the two groups, also majority of Saudi and Egyptian children used less destructive coping strategies to manage dental fear and the difference was highly statistically significant. This result can be interpreted as the mean age of children in both groups more than 10 years old as the children grow up they learned the getting angry (destructive coping) and needing external support (external

coping) which are less effective in coping with pain than internal coping strategies, they learn to manage their problems themselves with less external support. This result goes on line with the result of Versloot<sup>(8)</sup> who found that internal coping strategies were the most effective, followed by external and destructive strategies to manage dental fear.

In the present study, there was highly statistically significant positive correlation between parental dental anxiety and child dental fear in Saudi and Egyptian group and correlated with child dental anxiety in Egyptian children. This result interpreted as parents serve as a model for development of dental fear and anxiety in their children. This result goes on line with the study of Coric<sup>(23)</sup>, and Tickle<sup>(24)</sup> who found that children whose parents are anxious are more likely to report anxiety. Themessl-Huber<sup>(14)</sup> in their review about dental fear found that a significant relationship between dental fear of parents and their children.

Kraljevic<sup>(25)</sup> revealed that parents may have a specific cognitive style for coping with pain which influence children's response to pain experiences. This is in agreement with the result of Al-Medi & Abdellatif<sup>(21)</sup>, and current study which found highly statistically positive correlation between child dental anxiety and dental fear. However, child dental anxiety and fear didn't correlate with coping strategies in Saudi and Egyptian group.

The result of current study found that mothers exhibit more dental anxiety than fathers. This may be due to real differences in anxiety levels between genders and a greater readiness among females to acknowledge feeling of anxiety. This result agreed by Alkhalifa<sup>(26)</sup> who found that mothers exhibited a higher level of dental anxiety than fathers. Also medical and psychological research on human response to pain stimuli had generally found that females report higher levels of anxiety (they have lower thresholds) and exhibit less tolerance for pain at given stimulus intensities than males Newton<sup>(27)</sup>. Current study revealed that Egyptian parents have more dental anxiety than Saudi, this may be related to culture difference.

In the present study, children whose parents have work experience more dental fear, it may be as a result that most of the study sample of Saudi and Egyptian parents were workers and they may be busy to routinely follow-up their children oral health. Also, with low income, children had more dental anxiety and fear, this may be related to less concern with regular dental check-ups and follow up for dentist and so these children didn't check their teeth until they had an urgent oral health problem which need invasive and traumatic procedure.

The result also found that, as the child age increased their dental anxiety decreased. This result could be due to increase maturity level of older children, also the older children have had the chance of more dental visits of positive nature and this has helped to reduce this anxiety, while younger children have not yet this opportunity. This result agreed with the result of Elbahnasawy<sup>(15)</sup> who found school student's age strongly associated with their anxiety. These findings are in agreement with a study conducted by Klingberg & Broberg<sup>(4)</sup> found that age was strongly associated with dental anxiety. Moreover, these findings were consistent with that reported by Baier<sup>(28)</sup> the etiology of dental anxiety in children is multifactorial, being associated with age, socioeconomic status, oral health status and dental pain experience.

The current study revealed that, with increasing parent age, their child dental fear decreased. This may be related to fear of parent transfer to their children. As the parents become older their fear decreased so fear of their children decreased. This result agreed with the result of Ten Berg<sup>(29)</sup> who found that fear of various dental procedures decreased with increasing age.

The present study found that children with unsatisfactory oral hygiene practice are at higher oral health risk than children with satisfactory oral hygiene. This result could be due to the association between oral hygiene such as teeth brushing and oral health status. These findings were consistent with Elbahnasawy<sup>(15)</sup> who found that 60 to 90 percent of the school children were suffered from dental caries and half of them had unsatisfactory practices about teeth brushing.

## **VI. Conclusion:**

It can be concluded from the present study that 50% and 37% of Saudi and Egyptian children respectively had moderate oral health risk. There was highly significant difference seen in the dental hygiene practices between the two groups. The anxiety level of parents in the two groups was statistically significant different and so influence the anxiety levels of their children. The dental anxiety level in Saudi and Egyptian children wasn't statistically significant. Children in both groups used less destructive coping strategy.

## **VII. Recommendations:**

- The role of both school health nurse and pediatric nurse practitioner should be activated to provide oral health screening, early risk assessment, and preventive services as well as appropriate referrals to children who are at the highest risk for childhood caries.
- Conducting health education programs at schools regarding dental hygiene and tooth brushing to enhance children dental health.
- Practices of palliative measures to decrease children's anxiety and make them feel relaxed enough to cope with treatment.

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