

Dental Anxiety of Parents in an Israeli Kibbutz Population and their Prediction of their Children's Behavior in the Dental Office

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Background: Previous studies have suggested that a child's dental anxiety is mainly influenced by the maternal dental anxiety. As modern society evolves the conventional structure of the family changes and both parents take equal part in the child's upbringing. **Aim:** The aims of the present study were: 1. To evaluate and compare the levels of dental anxiety among kibbutz-bred and city-bred parents, whose children were dentally treated.; 2. To examine the effect of selected sociodemographic variables on parental attitudes toward the dental situation on their dental anxiety; 3. To assess the parents' ability to evaluate their children's future behavior at the dental office. **Study design:** seventy-four parents, 44 from a kibbutz and 31 that live in a city comprised the study population. Dental anxiety was assessed by using Corah's Dental Anxiety Scale and Kleinknecht's Dental Fear Survey. The future behavior of the parent's child in the dental office was evaluated by Parental assessment of child's behavior. **Results:** No significant difference was found in the level of dental anxiety between kibbutz-member parents and city parents. Gender had no significant influence on the levels of dental anxiety among parents. **Conclusions:** The old axiom that dental anxiety is more prevalent among women is questioned. Dental anxiety of children may be equally influenced by both parents.

Key words: dental anxiety, closed communities, socio economic

INTRODUCTION

Dental anxiety represents a general state in which the individual experiences a level of apprehension and is prepared for a negative event to happen. Dental phobia is a severe type of dental anxiety, which may result in avoidance or endurance of the dental experience with significant discomfort¹. Klingberg and Broberg used the term dental fear and anxiety (DFA) to describe strong negative feelings associated with dental treatment among children and adolescents whether or not the criteria for a diagnosis of dental phobia are met. They estimated that 9% of the children and adolescents exhibit DFA with a decrease in prevalence with age².

Dental fear has a negative effect on the child's quality of life, especially concerning social and emotional wellbeing³. Children with high levels of dental anxiety have a higher caries experience than children with low levels of dental anxiety⁴. Moreover, dental caries experience has a negative effect on dental fear. Raadal *et al* reported that children with many carious lesions at the age of 5 years were at a high risk for being dentally anxious at 10 years of age⁵.

Dental behavior of children is greatly influenced by the attitude of the parents. A significant relationship between parental and child dental fear was found, particularly in children 8 years and younger^{6,7}. Mothers leave a more pronounced mark; mothers with a high level of dental anxiety exert a negative influence on their children in the dental situation⁸⁻¹³. The underlying reason for this effect on the child may originate from the traditional division of family tasks.

This usually results in the mother accompanying the child to the dentist. As such, the dental anxiety of the father, and its effect on his children, has been largely ignored.

Furthermore it was shown that parents are able to predict their children's level of cooperation during dental treatment by estimating their children's fear and behavior¹⁴.

A kibbutz is a community, chiefly agricultural, organized under collectivist principles¹⁵. Those who choose to live in a kibbutz come from all social classes. They receive the same housing and free medical and dental services. Children born in a kibbutz until the late 70's of the previous century, lived in a shared community, no different from a boarding school. All the children lived in common dormitories, while the parents lived in their own houses. The daily

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activities, including health issues were run under the supervision of a nursemaid. The dental services were given free to all the kibbutz's members in the kibbutz's dental clinic. In most kibbutz communities the dentist treated adults and children alike and no pediatric dentist was available. As a result many adults recall their dental experience as a bad one, and report high levels of DFA. In the last two decades kibbutz communities experienced social changes, such as a shift to house living for the whole family and some degrees of privatization of services, dental ones included.

In 1994 Peretz and Zadik reported a high level of DFA among parents living in a kibbutz, with women expressing higher dental anxiety than men¹⁶. In that study, all parents had children who had undergone dental treatment.

The aims of the present study are: 1. To evaluate the DFA levels of parents who were born and raised in a kibbutz vs. parents who were city bred; 2. To examine the effect of selected sociodemographic variables or parental attitudes toward the dental situation on their dental anxiety; 3. To measure the parents' ability to evaluate their children's future behavior at the dental office.

Whereas the literature uses various definitions to specify dental fear and dental anxiety², in the present study the term 'dental anxiety' is applied throughout to cover all nuances of both terms of this phenomenon.

MATERIALS AND METHOD

The study sample consisted of parents whose children currently received dental treatment. Three clinics in 3 different kibbutz communities and one clinic located in a small Community town. The same pediatric dentist has been available in all clinics during the last 5 years (TR), and the children attended routinely every 6 months. Reminders for dental visits reached the children via a notice to the parents.

For the purpose of the study they were divided into two groups.

Group A- Parents who were born or lived most of their lives in a kibbutz.

Group B- Parents who did not live in a kibbutz.

The study was approved by the ethical committee of the Tel Aviv University.

Each parent was asked to fill, independently at home, without conferring with each other, on a voluntary basis, a 4-part questionnaire:

Part A- consisted of demographic parameters and dental history: gender; age; level of education (<12 years >12 years); place of residence; dental treatment by a single dentist as child; time of the last visit to the dental office (<12 month/ >12 months); the reason for the last visit to the dental office (regular check-up/ emergency/ routine treatment).

Part B- Corah's Dental Anxiety Scale (DAS) (17) (Figure 1), which comprises of four multiple-choice questions dealing with the individual's subjective reactions about: 1- Anticipation; 2- Waiting room- waiting in the dentist's office for treatment; 3- Drilling- having teeth drilled; and 4- Scaling- having teeth scaled (Figure 1). Five possible answers that are rated in ascending order from 1 to 5 were provided; each question thus carries a possible maximum score of 5, with a total possible maximum of 20 for the entire scale. Corah *et al* (1978) suggested that "a score of 13 or 14 should make the dentist suspicious that he is dealing with an anxious patient. A score of 15 or more almost always indicates a highly anxious patient"¹⁷.

Part C- Dental Fear Anxiety Scale (DFS). The original DFS questionnaire was developed by Kleinknecht *et al*¹⁸. It contained 27 items to identify specific fear stimuli and measure patients' reactions. The questionnaire assessed items concerning the avoidance of dentistry, physiological arousal during dental appointment and various items of dental stimuli. In addition, one item asks for an overall rating of general fear of dentistry and four items solicit information concerning reactions to dentistry among family and friends. Later, the authors reduced the DFS to 20 items as a result of a factor analysis¹⁹. The current DFS is composed of 20 items, 5-point scales, comprising three dimensions: 1- Avoidance of dental treatment (two questions- max score of 10); 2- Somatic symptoms of anxiety (five questions- max score of 25); 3- Anxiety caused by dental stimuli (thirteen questions- max score of 65).

Part D- Parental assessment of child's behavior (PA) adapted from the work of Wright and Alpern¹⁰, evaluating the future behavior of the parent's child in the dental office as perceived by the parent (Figure 2).

The questionnaire was given personally to each individual, and was returned individually to one of the authors (TR).

Statistical evaluation

Data was analyzed utilizing an SPSS (Statistical package for the social sciences) 15.0 software (SPSS Inc., Chicago, IL., USA). T-test was used for comparing the scores of the DAS, DFS and of PA with regard to the various parameters. 2 way Anova test was used to compare the scores in the DFS according to education levels.

RESULTS

Seventy four parents of children who attended the dental office and volunteered to fill the questionnaire participated in the study. Group A consisted of 44 parents (29 females and 15 males) with an average age of 40.65± 6.35 years. Group B consisted of 31 parents (24 females and 7 males) with an average age of 43.6±4.12 years. Table 1 summarizes the distribution of gender, age, education level, and previous dental experience of the participants.

Table 1. The distribution of gender, age, education level, and previous dental experience of the participants.

		Group A (n=44)	Group B (n=31)	Total (n=75)
Gender	Females	29	24	53
	Males	15	7	22
Age (mean± SD)		40.65± 6.35	43.6±4.12	41.8± 5.7
Age (range)		25-57	32-54	25-57
Education (years)	<12	14	4	18
	>12	30	27	57
Treated by single dentist as child?	Yes	39	25	64
	No	5	6	11
Time of last dental visit (years)	<1	33	20	53
	>1	11	11	22
Reason for last visit	Check-up	22	10	32
	Emergency	6	4	10
	Routine treatment	16	17	33

Figure 1. Corah's Dental Anxiety Scale (DAS).

1. If you had to go to the dentist tomorrow, how would you feel about it?
 1. I would look forward to it as a reasonably enjoyable experience.
 2. I wouldn't care one way or the other.
 3. I would be a little uneasy about it.
 4. I would be afraid that it would be unpleasant and painful.
 5. So anxious that I sometimes break out in a sweat or almost feel physically sick
2. When you are waiting in the dentist's office for your turn in the chair, how do you feel?
 1. Relaxed
 2. A little uneasy
 3. Tense
 4. Anxious
 5. So anxious that I sometimes break out in a sweat or almost feel physically sick
3. When you are in the dentist's chair waiting while he gets his drill ready to begin work on your teeth, how do you feel?
 1. Relaxed
 2. A little uneasy
 3. Tense
 4. Anxious
 5. So anxious that I sometimes break out in a sweat or almost feel physically sick
4. You are in the dentist's chair to have your teeth cleaned. While you are waiting and the dentist is getting out the instruments that he will use to scrape your teeth around the gums, how do you feel?
 1. Relaxed
 2. A little uneasy
 3. Tense
 4. Anxious
 5. So anxious that I sometimes break out in a sweat or almost feel physically sick

Figure 2. Parent assessment of child behavior (PA). Adapted from Wright and Alpern,

1. How do you think your child has reacted to past medical procedures?
 1. Very poor
 2. Moderately poor
 3. Moderately good
 4. Very good
2. How would you rate your child's anxiety (fear, nervousness) at this moment?
 1. Very high
 2. Moderately high
 3. Moderately low
 4. Very low
3. How do you think your child will react to this procedure?
 1. Very poor
 2. Moderately poor
 3. Moderately good
 4. Very good
4. In the last two years, my child has experienced actual pain in connection with medical procedures:
 1. Quite often (3 or more times)
 2. Occasionally (one or two times)
 3. Never
5. How do you feel about the previous treatment experience?
 1. Very poor
 2. Moderately poor
 3. Moderately good
 4. Very good

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Table 2 demonstrates the mean dental anxiety scores of the parents according to the DAS. No significant differences were found between the kibbutz members parents (Group A) and the city-parents (Group B) ($p>0.05$). The total DAS scores for both groups were 9.38 ± 3.6 and 8.8 ± 2.24 respectively. Also, no significant gender difference was found in either group ($p>0.05$).

Table 2. Mean dental anxiety scores of the parents according to the DAS (t-test).

	Group A (n=44)	Group B (n=31)
	Score (mean± SD)	Score (mean± SD)
Anticipation	2.93± 0.87	2.74± 0.68
Waiting room	1.9± 1.07	1.61± 0.71
Drilling	2.47± 1.08	2.35± 0.75
Scaling	2.06± 0.97	2.09± 0.83
Total	9.38±3.6	8.8±2.24

It can be seen that among the four items, the anticipation revealed the highest score in both groups (2.93 ± 0.87 and 2.74 ± 0.68 respectively). The score for “waiting in the waiting room” was the lowest in both groups (1.9 ± 1.07 and 1.61 ± 0.71 respectively)

Table 3 shows the mean scores of the parents according to the DFS. Parents in group A (kibbutz residents) demonstrated higher scores in all items (avoidance of dental treatment, somatic symptoms of anxiety and anxiety caused by dental stimuli), however these differences were not statistically significant ($p>0.05$).

Table 4 shows the score for the parents’ assessment of their child’s behavior. No significant differences in the scores of both groups were found. Age, gender, and previous dental experience of the parents did not have an impact on the scores of the DAS, DFS, and the PA.

Comparing the scores in the DFS according to education levels, revealed that in the “Avoidance of dental treatment” section (Figure

3), the influence of the education level among kibbutz member parents was significant: Kibbutz member parents with a high school education presented significantly higher scores than kibbutz member parents with an academic education (2.82 ± 1.47 vs. 1.48 ± 0.73 respectively) ($p=0.003$). In city-parents, no difference was found when comparing scores of parents with a high school education to parents with an academic one (1 ± 0 and 1.22 ± 0.37 respectively).

DISCUSSION

Dental anxiety was examined in two groups of parents to pediatric dental patients: kibbutz community members and city parents. The reason for choosing parents was to emphasize the fact that the dental issue was present among the participants. The level of dental anxiety was studied using two scales: DAS and DFS. The results show no severe dental anxiety or dental phobia in either kibbutz-member parents or city parents. In addition, the results demonstrated no difference between the anxiety scores of both groups in both scales (9.38 ± 3.6 vs 8.8 ± 2.24 in DAS and 37.77 ± 17.94 vs 33.83 ± 9.68 in DFS). Furthermore, no difference was found when comparing the scores of both groups according to the parents’ gender or other socio-demographic parameters. This finding is in contrast to a previous study that found that in a kibbutz, mothers showed significantly higher levels of dental anxiety than fathers¹⁶, but in accordance with another study which reported no gender difference²⁰. It seems that the past assumption that women present higher levels of dental anxiety^{17,18}, is no longer relevant. Comparing the scores of the current study to those of the previous¹⁶, reveals that the average scores in the previous study were similar to the scores of the kibbutz-member parents in our study in both scales. The fact that most participants in our study were females may strengthen the suggested trend that dental anxiety is no longer higher among women.

The level of dental anxiety as represented from the “Avoidance of dental treatment” section of the DFS may show that the anxiety

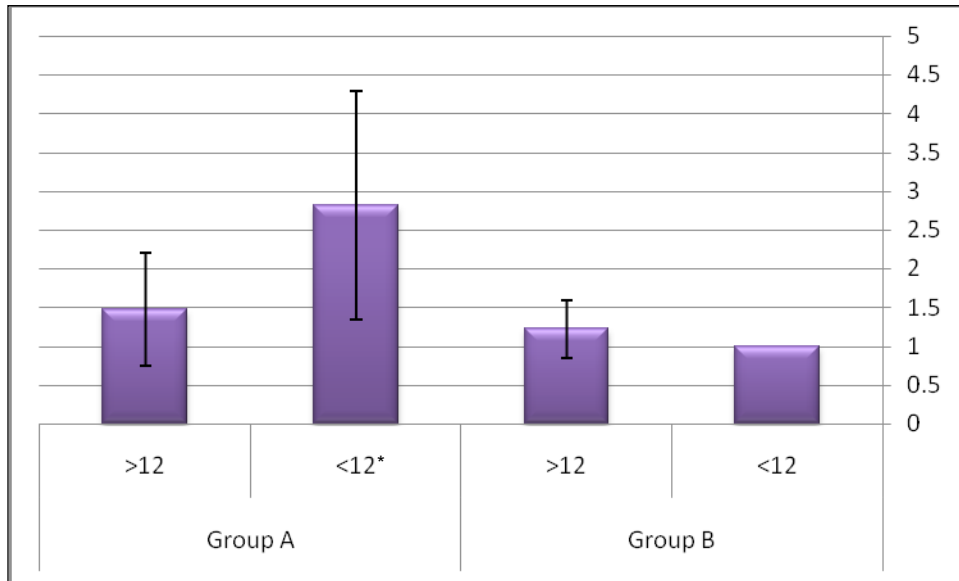
Table 3. The mean scores of the parents according to the DFS (t-test).

	Group A (n=44)		Group B (n=31)	
	Score (mean± SD) [max score]	Score per question (mean± SD)	Score (mean± SD) [max score]	Score per question (mean± SD)
Avoidance of dental treatment	3.81± 2.38 [10]	1.91± 1.19	2.38± 0.71 [10]	1.19± 0.25
Somatic symptoms of anxiety	7.72± 4.18 [25]	1.54± 0.83	7.51± 2.89 [25]	1.5± 0.57
Anxiety caused by dental stimuli	26.22± 12.4 [65]	2.01± 0.95	23.9± 7.18 [65]	1.84± 0.55
Total	37.77± 17.94	1.82± 0.92	33.83± 9.68	1.51± 0.41

Table 4. Parental assessment of child’s behavior scores (PA)

	Group A (n=44)	Group B (n=31)
	Score (mean± SD)	Score (mean± SD)
How do you think your child has reacted to past medical procedures?	3.23± 0.86	3.61± 0.5
How would you rate your child’s anxiety at this moment?	3.27± 0.87	3.52± 0.63
How will your child react to this procedure?	3.2± 0.7	3.5± 0.5
Frequency of experiencing actual pain in medical procedures	2.6± 0.6	2.6± 0.6
How do you feel about the previous treatment experience?	3.3± 0.8	3.8± 0.4

Figure 3. Parents scores regarding “Avoidance of dental treatment” (in the DFS scale) according to education levels (2 way Anova)



* p=0.003

level is influenced by the level of education among the kibbutz-member parents. The parents with twelve years or less of formal schooling showed significantly higher dental anxiety scores than parents with an academic education. Interestingly, the scores in the city parents were similar regardless of the education levels, and were similar to the scores of the kibbutz-member parents with an academic background.

Traditionally, a kibbutz was an example for a community with equal standards: financial, social, economical and educational. In recent years however, many kibbutz communities have undergone a privatization process, abandoning their original social principles, and became more similar to city communities²⁰. These changes may, in part, be the reason for the general similarity in the dental anxiety score of Kibbutz-member parents and city parents.

Although no significance was found between kibbutz-member parents and city parents with regard to the PA scores, kibbutz-member parents tended to grade their children higher (less anxious) than the city parents. Nevertheless, both groups of parents described their children’s future behavior as “moderately good”. This could be due to the fact that the parents and the children visit the same clinic on a regular basis for a long period of time, thus developing a good rapport with the dentist, and strengthening the “Pedodontic treatment triangle”. Parents’ prediction of good cooperation of their children in the dental office may be related to the level of dental anxiety of the parents, since it has been shown that a strong relationship exists between parents’ level of dental anxiety and their children’s dental anxiety²².

Our study faces a limitation: the relatively small number of participants. Further studies are needed to better understand the role of parental dental anxiety in the dental encounter of their children. Nevertheless, our study pours some light on this important subject.

CONCLUSIONS

No significant difference was found in the level of dental anxiety between kibbutz-member parents and city parents. Gender had no significant influence on the levels of dental anxiety among parents thus questioning the old axiom that dental anxiety is more prevalent among women. Dental anxiety of children may be equally influenced by both parents. Parents with low levels of dental anxiety tend to predict their children’s behavior at the dental clinic as a good one.

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