

## Mothers' attitudes towards their own presence during invasive procedures on their children

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This study assessed the preferences of 742 mothers regarding their own presence during invasive procedures performed on their children. The relationships between socio-demographical characteristics and preferences of the mothers and disease characteristics of the children were examined. A mother's desire to be present was found to increase with decreasing invasiveness of the procedure as well as with increasing analgesia and sedation provided. The desire to be present was higher in young mothers with higher socio-economic levels and educational backgrounds, with younger children and with children who had undergone prior recurrent interventions. This study demonstrated that most of the mothers preferred to be present during the procedure, and that the ratio of mothers willing to do so increased significantly if the children were sedated. The results suggested that pediatricians can improve the quality of service and physician-patient-family relationship by taking mothers' preferences into consideration.

*Key words:* mother, procedure, child, present.

Children brought into emergency departments following a painful injury or disease are separated from their parents and taken into an unfamiliar environment. They are subjected to invasive procedures under strong lights, hearing words they cannot interpret among people they do not know. Anxiety, fear and, consequently, pain levels in these children increase significantly as a natural result of these factors<sup>1-4</sup>.

Physicians not only have trouble providing care under these circumstances, but are also faced with having to handle physician-patient interaction regarding parental desires to be present during invasive procedures<sup>5-13</sup>. A physician's success in passing this initial step of care swiftly and progressing on to intervention depends on his/her ability to comprehend parental expectations and psychological conditions. Parental attitudes and expectations with respect to children's diseases vary considerably within a country, even from region to region, depending on socio-cultural backgrounds as well as many other factors<sup>14-16</sup>. Therefore, understanding families' feelings and

ideas about these matters is essential in developing patient-physician interaction, health care planning and improving quality of care, particularly at times when invasive emergency interventions are required<sup>15,17-19</sup>.

This study aimed to evaluate mothers' preferences regarding their own presence during invasive procedures carried out on their children and sedation and analgesic administration.

### Material and Methods

Upon obtaining their consents, the study was carried out on mothers of 742 out of 768 children (age range: 6 months-18 years) who underwent invasive procedures consecutively between November 2001 and November 2002 at the Emergency Department, Sedation Room and Intensive Care Unit of Ege University, Faculty of Medicine, Department of Pediatrics.

A questionnaire was developed to evaluate mothers' attitudes towards their own presence during invasive procedures carried out on their children. It was applied to a small group of 20 mothers whose children underwent invasive procedures and was revised accordingly (Table I).

**Table I.** Questionnaire Developed to Evaluate Mothers' Attitudes Towards Their Own Presence During Invasive Procedures Carried Out on Their Children

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I. Sociodemographic evaluation
1. Mother's age, last school of graduation
2. Family characteristics, number of children, any deceased children
3. Father alive/dead
4. Socioeconomic status
5. Child's age, sex, illness
6. Chronically ill child's requirement for repeated invasive procedures
II. Current Intervention
1. Procedure performed on the child on the day of the questionnaire
2. Presence of the mother with the child during the invasive procedure
III. Questions about mothers' towards invasive procedures
1. Mother's response(s) in the event of invasive procedure carried out on their children
2. Mother's preference about her own presence during the invasive procedure carried out on her child while he/she is conscious (If the answer to 2 is Yes 3 and 4 are recorded, if No, 5 is recorded)
3. Mother's idea about how her behavior would be if she was asked to leave the room by the physician
4. The reason(s) for the mother's preference to stay with her child
5. The reason(s) for the mother's preference not to stay with her child
6. The procedure(s) during which the mother would prefer to stay with her child (all procedures described to the mothers).
7. The preference of the mother to stay with her child during the invasive procedures in case of sedation and analgesia (all procedures were described to the mothers).

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All the mothers entered into the study were allowed to be present or not with their children during the procedure according to their choice.

The mothers were interviewed by then same investigator face-to-face immediately after the procedure to complete the questionnaire, which consisted of three parts. The first part concerned the sociodemographic characteristics of the mother, including age, marital status, educational level, socioeconomic status and the number of children she had including any deceased children. Additionally, the child's age, sex, disease and requirement for repeated interventions were recorded. Socioeconomic status was described as high, medium or low according to monthly income per capita, family declaration and interviewer's observation. In the second part of the questionnaire, mothers were asked about the procedure that was performed on their child that day and whether or not she attended the procedure. The third part of the questionnaire was related to the mothers' preferences regarding their own presence during invasive procedures carried out on their children and the reason(s) for this preference.

At the end of the questionnaire six procedures with an increasing level of invasiveness were described to the mothers and they were asked

to imagine that their children required it. They were then questioned whether they preferred to be present next to their child or not and whether this decision would change according to the use of sedatives and analgesics. These six procedures included venipuncture, laceration repair, lumbar puncture, conscious sedation, major resuscitation (including cardiopulmonary resuscitation, defibrillation, endotracheal intubation) and major resuscitation with a risk of patient death<sup>5,14</sup>.

### **Statistical Analyses**

All continuous variables were expressed as mean with standard deviation (SD). A Student's t test was performed to determine the independent continuous variables that had a significant effect on mothers' answers. Comparisons of outcome categories between the groups were assessed using Pearson's chi square test, Fisher's exact or linear by linear association test when appropriate. Multiple stepwise logistic regression analysis of variables found significant in univariate analysis was performed to determine the combination of variables that best predicts mothers' preferences to stay with their children during the invasive procedure. P value <0.05 was considered statistically significant.

## Results

The mean age of the mothers who participated in this study was  $31.7 \pm 11.6$  years (range 18-46 years) and the mean age of their children was  $7.7 \pm 7.3$  (6 months-18 years).

Of these children, 42.4% (n=315) had minor invasive operations such as venipuncture and blood sample collection. Among the more invasive procedures, bone marrow aspiration, lumbar puncture and bone marrow biopsy were the most common (Table II). Of all the mothers, 98% (n=712) wished their children would not remember the operation afterwards, and 84% (n=623) wanted their children to be sedated during the painful invasive procedure in question.

**Table II.** Procedures Performed on the Patients

Procedure	n	%
Intravenous line and blood sampling	194	26.1
Injection	121	16.3
Bone marrow aspiration	107	14.4
Central venous catheter implantation	92	12.4
Bone marrow aspiration + lumbar puncture	82	11.1
Lumbar puncture	59	8.0
Bone marrow biopsy	44	5.9
Liver biopsy	31	4.2
Muscle biopsy	8	1.1
Percutaneous endoscopic gastrostomy	4	0.5
Total	742	100

Fifty-three percent (n=394) of the mothers preferred to be present during the intervention regardless of the level of invasiveness as long as their children were conscious enough to recognize them. Of these mothers, 92.1% (n=363) stated that they would concede willingly if they were asked not to be present; 7.9% (n=31) indicated that they would insist on staying with their children.

The mean age of the mothers who preferred to attend the procedure was significantly younger ( $29.7 \pm 9.8$  years) than that of the mothers who preferred not to attend ( $32.4 \pm 11.5$  years) ( $p=0.027$ ). Similarly, the mean age of the children whose mothers preferred to attend was significantly younger ( $6.8 \pm 4.3$  years) than that of the group whose mothers preferred not to attend ( $9.4 \pm 6.1$  years) ( $p=0.042$ ). Mothers who desired to be present were more likely from higher educational backgrounds and socioeconomic levels or had children subjected to repeated painful interventions or suffering from acute diseases (Table III). However, according to the results of the multivariate analysis, the factors significantly altering the preferences of the mothers to attend invasive procedures performed on their children were only having a child needing repeated invasive

**Table III.** Socio-demographic Characteristics and Preferences of the Mothers

Characteristics		Would you like to be present with your child during an invasive procedure?						p
		Total		Yes		No		
		n	%*	n	%**	n	%**	
Mother's age	<30 years	241	32.5	139	57.7	102	42.3	0.022
	30-40 years	411	55.4	216	52.6	195	47.4	
	>40 years	90	12.1	39	43.3	51	56.7	
Mother's education	University	189	25.5	110	58.2	79	41.8	0.03
	Secondary	175	23.8	97	55.4	78	44.6	
	Primary	371	50.0	185	49.9	186	50.1	
	Illiterate	7	0.9	2	28.6	5	71.4	
Family	Divorced parents	84	11.3	43	51.2	41	48.8	0.71
	Nuclear family	658	88.7	351	53.3	307	46.7	
Number of children	1	252	34.0	130	51.6	122	48.4	0.55
	2 or more	490	66.0	264	53.9	226	46.1	
Deceased children	Yes	49	6.6	28	57.1	21	42.9	0.56
	No	693	93.4	367	53.0	327	47.2	
Socio-economic status	High	147	19.8	86	58.5	61	41.5	0.008
	Medium	525	70.7	282	53.7	243	46.3	
	Low	70	9.4	26	37.1	44	62.9	
Child's age	6 months- 3 years	165	22.2	103	62.4	62	37.6	0.000
	4-8 years	191	25.7	109	57.1	82	42.9	
	9-12 years	212	28.6	104	49.1	108	50.9	
	13-18 years	174	23.5	78	44.8	96	55.2	
Child's illness	Acute	411	55.4	237	57.7	174	42.3	0.005
	Chronic	331	44.6	157	47.4	174	52.6	

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Table III. (Continued)

Characteristics		Total		Would you like to be present with your child during an invasive procedure?				p
		n	%*	Yes	%**	No	%**	
Frequency of procedure***	Repeated intervention	145	43.8	81	55.9	64	44.1	0.007
	Rare intervention	186	56.2	76	40.9	110	59.1	
Child's sex	Female	308	41.5	156	50.6	152	49.4	0.26
	Male	434	58.5	238	54.8	196	45.2	
Father	Dead	8	1.1	6	75.0	2	25.0	0.29
	Alive	734	98.9	388	52.9	346	47.1	
Procedure	Blood sampling/injection	315	42.4	159	50.5	156	49.5	0.21
	Other painful procedures	427	57.6	235	55.0	192	45.0	
Mothers present in	Yes	286	38.6	153	53.5	133	46.5	0.86
	No	456	61.4	241	52.8	215	47.2	
Total		742	100.0	394	53.1	348	46.9	

\* Column percent.  
 \*\* Row percent.  
 \*\*\* Evaluation of the children with chronic diseases.

procedures (OR: 2.35, 95% CI: 1.43-3.88, P=0.012) and the educational level of the mother (OR: 1.82, 95% CI: 1.09-3.05 P=0.023).

Of the mothers who preferred to stay with their children, most believed that their presence would comfort their children. The main reason for choosing not to attend was the mothers' apprehension regarding their own ability to bear watching their children experience pain.

Table IV shows the responses of the mothers as to why they wanted stay (or not) with their children during the invasive procedures.

The mothers' desire to attend the procedure decreased as the level of invasiveness increased. Although mothers' desire to stay increased significantly for each procedure when sedation and analgesics were used, the percentage of the mothers wishing to stay decreased as then level of procedural invasiveness increased (Fig. 1).

Table IV. Mothers' Reasons for Being Present or Not

Question/Answer	n*	%
Why do you not want to be present with your child? (n=348)		
I cannot bear to see my child experiencing pain	320	91.9
I do not believe this will be beneficial for anyone	108	31.0
My presence may affect the performance of physicians negatively	87	25.0
Why do you want to be present with your child? (n=394)		
My presence comforts my child and will help him to be less frightened	359	91.1
My child wants me to be present	347	88.1
I may be more anxious to wait outside	299	75.9
I want to be sure that everything is performed scrupulously	43	10.9

\* Total number of answers is greater than the number of the mothers (n) as they were allowed to give more than one answer.

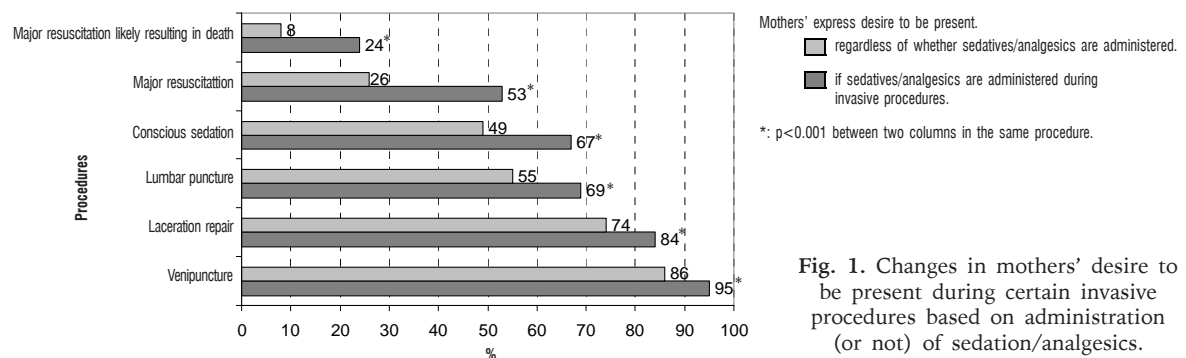


Fig. 1. Changes in mothers' desire to be present during certain invasive procedures based on administration (or not) of sedation/analgesics.



## Discussion

In general, parents' wishes to stay with their children during painful procedures are not considered by the physicians, and often they are asked to leave the room<sup>6,8,10</sup>. However, experience and observations show that parents want to participate in the decision about their own presence, particularly in the emergency departments<sup>5,20-22</sup>, and they prefer to stay with their child during interventions<sup>11-16,23</sup>.

Few studies have addressed the importance of demographical characteristics concerning this issue<sup>14-16</sup>. Although demographical characteristics have not been reported to have a major effect on actual decisions<sup>14,15</sup>. Bauchner<sup>16</sup> stated that better-educated black mothers were more likely to prefer staying, and that having been present during a similar intervention before contributed to an increased desire to be present the second time. This study demonstrated that young mothers with smaller children and with better educational and socioeconomic level are more likely to prefer being present. Impact of the age of the mother and child on the decision to stay was unique to our study in that many other studies indicated that these factors do not cause a significant change in decision. We attributed this difference to the fact that a difference exists in the social and cultural background of young and old mothers. Such a difference is not present in developed countries. Therefore, in studies carried out in hospitals in the United States, age was not detected as a factor altering the decision of mothers to attend invasive procedures performed on their children<sup>16,24</sup>. However, in Turkey, younger mothers who are better educated are more willing to attend these procedures due to their wider view of health and the needs of their child. The same increase in a desire to stay was observed if the invasive procedure was required due to an acute instead of a chronic disease. Mothers of children with chronic diseases who frequently required invasive procedures wanted to be present at a higher percentage compared to those whose children required these procedures rarely. However, multivariate analysis of the results showed that the only factors that significantly altered the mothers' preferences were graduation of the mother from university and her child's requirement of repeated interventions. It may be interpreted that the

mothers who have exact knowledge about the experience that their children will go through are more likely to prefer stay with and support them throughout the procedure. Previous experiences encourage mothers to stay with their children. This finding correlates with a previous study which reported that children who undergo recurrent lumbar punctures found the presence and support of a trusted advocate (parents or nurse) more helpful<sup>24</sup>. Mothers in our study whose children required repeated interventions seemed to learn this from their own children in time.

In this study the mothers indicated that the predominant reason for their desire to stay was the belief that their presence would comfort their children, decrease their fear and help the mothers themselves to feel less anxious; parents interviewed in other studies gave similar responses<sup>16,23</sup>. Randomized controlled trials have demonstrated that mothers believed that their presence decreased their child's anxiety, which is true for older kids whose distress decreases with the presence of the mother, but not for young children whose pain level did not change<sup>15,17,25</sup>. This result may actually be attributed to young children not being able to express themselves and their pain, rather than by the presence of the mother failing to decrease their anxiety. Therefore, in our study the fact that mothers of younger children preferred to stay with their children may be because they better sense their children's emotions. A completely unprecedented reason stated by the mothers in this study for their desire to be present during invasive procedures was to make sure that everything was performed scrupulously.

Our study paralleled the findings of Boie et al.<sup>14</sup> in that the mothers' desire to be present decreased as the level of procedural invasiveness increased. This was actually an expected result because as the level of invasiveness increases it gets harder for the mother to bear watching her child go through the pain of the procedure. Furthermore, the percentage of Turkish mothers in our study who desired to be present during the invasive procedures was lower than for mothers from other nations according to previous studies. Particularly, in case of resuscitation, only 8% of the mothers in our study preferred to stay, while this was reported to be as high as 62-83.4% in the other mothers<sup>11,13,14</sup>. It is possible that individuals

from certain ethnic or national backgrounds may express responses differently. Possibly, the ability of mothers to bear watching their children experience pain or to bear losing a child changes from one population to another. As far as we know, there is no published study on the preferences of Turkish mothers regarding attending or not invasive procedures performed on their children. Due to the conditions and localization of our hospital, the population of this study consisted mostly of well-educated mothers from a higher social background when compared to the average in Turkey. We do not think it reflects the preferences of most of the mothers in the country.

Different characteristics of society may play a role in mothers' preferences<sup>6,14,24</sup>. However, satisfactory administration of analgesics and sedation during invasive procedures may also be a contributing factor in this difference<sup>18</sup>. In general, mothers and children throughout the world do not always have the option of being able to stay together and/or of having sedation administered<sup>2-4</sup>. Painful interventions in children are carried out without adequate analgesics and sedation even in developed countries<sup>18,26</sup>. A major part of the mothers in this study expressed their concern about their children feeling pain and remembering the operation afterwards, and the percentage of mothers desiring to be present increased significantly when the same operation was carried out under the effect of analgesics and sedation, largely due to the mothers' desire to be sure the child did not experience pain and due to the fact that it is easier for a mother to watch her child when he/she is not in pain during the procedure.

In conclusion, each patient has to be assessed separately regarding invasive procedures and sedation. It is essential for physicians to acknowledge the mothers' attitudes in their region of practice when performing invasive procedures. The mothers' experience of fear and pain when their children go through such procedures should be respected and they should be given the opportunity to express their desire to stay by their children during these interventions. Their wish should be evaluated and respected individually and the decision reached should be a mutual one between child-mother and the physician.

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