



Parental satisfaction with pediatric emergency care: a nationwide, cross-sectional survey in Korea

Hye Young Jang, MD, PhD¹, Young Ho Kwak, MD, PhD², Ju Ok Park, MD, PhD³, Do Kyun Kim, MD², Jin Hee Lee, MD²

¹Department of Emergency Medicine, Soonchunhyang University Seoul Hospital, Seoul, ²Department of Emergency Medicine, Seoul National University College of Medicine, Seoul, ³Department of Emergency Medicine, Hallym University College of Medicine Dongtan Sacred Heart Hospital, Dongtan, Korea

Purpose: This study attempted to examine parental satisfaction with pediatric emergency care (PEC) in Korea and investigate the features influencing overall satisfaction.

Methods: A nationwide, cross-sectional survey was conducted among parents who had taken their children to an Emergency Department (ED) in the three years prior to the study. A 21-item, structured questionnaire was administered to the parents through a web-based system. Participants' satisfaction levels and the strength of the association between PEC components and overall satisfaction were rated using a 7-point Likert scale.

Results: In total, 1,000 parents participated in the survey, of which 402 (40.2%) stated that they were generally satisfied with the delivered PEC. Female participants, mothers, and parents with low-acuity patients were more likely to be dissatisfied with the delivered PEC. Although the ED environment was the lowest level of satisfaction, it did not significantly influence the respondents' overall levels of satisfaction. The most influential factors in terms of overall satisfaction were "nurses' professionalism" and "doctors' attitude and proper explanation".

Conclusion: Parents' overall level of satisfaction with PEC is relatively low and is closely related to factors associated with ED personnel.

Key words: Personal satisfaction, Hospital emergency service, Child

Corresponding author: Young Ho Kwak, MD, PhD
Department of Emergency Medicine, Seoul National University Hospital, Seoul National University College of Medicine, 101 Daehak-ro, Jongno-gu, Seoul 03080, Korea
Tel: +82-2-2072-1629
Fax: +82-2-741-7855,
E-mail: yhwak@snuh.org

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Introduction

Being aware of general and specific levels of satisfaction of patients or guardians with medical service is essential to establish patient-centered care and policies at medical facilities. Data related to patient satisfaction with medical facilities have been available since the 1990s. According to previous studies, satisfied patients tend to follow discharge instructions carefully at home, and patient satisfaction is closely related to the level of satisfaction with medical personnel¹⁻⁴.

A recent study showed that 31.2% of the pediatric population in Korea has visited an Emergency Department (ED)⁵. However, the preparedness of EDs for pediatric patients is thought to be suboptimal. Another recent survey⁶ showed that only 5% of hospitals had separate pediatric and adult EDs, and that, as of April 2010, 30% of hospitals did not have a separate pediatric area in their general ED. Accordingly, 76% of the survey respondents, who were healthcare providers in the participating hospitals, predicted that the level of satisfaction among the parents of pediatric patients would be lower than that among adult patients. The importance of being aware of patient satisfaction levels has been suggested,

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but parental satisfaction in Korea has been addressed only once, in a single-center study⁷. Globally, studies of satisfaction with pediatric emergency care (PEC) are rare and tend to be small in size⁸⁻¹².

The aims of this study were to examine parental satisfaction with PEC, and to investigate the factors influencing the overall satisfaction of the guardians. We administered a questionnaire to parents who had taken their ill or injured child to an ED during the previous 3 years. The anonymous survey was conducted nationwide using a web-based mailing system to determine the strong and weak points of PEC in Korea, so that the overall satisfaction level of guardians and pediatric patients can be improved.

Materials and methods

1. Study design and population

Because the satisfaction levels of patients or parents are subjective, the survey was organized according to the categories that are commonly used to measure satisfaction¹³. We used an anonymous, web-based survey system to measure the levels of satisfaction with PEC among Korean guardians.

We adopted a 7-point Likert scale to rate overall satisfaction and the strength of association of factors that may influence the general satisfaction of parents. A low score (1 point) indicated low satisfaction or agreement, while a moderate score (4 points) represented a neutral response to the question; a high score (7 points) represented strong satisfaction or agreement. We contracted with a web-based survey company, which has thousands of e-mail addresses of volunteer respondents. The target population was Korean adults who had brought their ill or injured child (aged <19 years) to an ED during the previous three years. The target number of survey respondents was 1,000. In total, 15,000 e-mails were sent to reach the target number. Because the exact number of individuals in the population of interest (i.e., parents who had experience with PEC during the previous 3 years) was not known, the target number was set by the convenience of analysis. The web-based survey was conducted during a one-month period, September 2011.

E-mails containing the web link to the questionnaire were distributed nationwide, according to the mailing list of the company. In the survey, respondents were first asked about their recent experience with PEC, after which they were allowed to proceed to the next question on a new screen, if qualified. The survey was approved to be exempt from requiring the informed consent of the participants by the Institutional Review Board of Soonchunhyang University Seoul Hospital (Seoul, Korea).

2. Survey content and administration

The structure and components of the questionnaire were as

follows (all factors were rated on a 7-point Likert scale). In the first part, the guardians were asked to rate their overall satisfaction level and to state their willingness to revisit or recommend the ED to others. Next, factors that were thought to influence the overall satisfaction of the guardians with PEC were rated, including personnel, structure and quality of the facility, perceived length of waiting times, and the child-friendliness of the ED environment.

In the second part of the survey, the respondents were asked about their level of satisfaction with specific factors: (1) administration process in the ED (e.g., registration, payment, and process of discharge and admission, including convenience and timeliness); (2) attitude and proper explanation of nurses (e.g., kindness, timeliness, and appropriateness of the content of the explanation); (3) professionalism of the nurses (e.g., professional knowledge and skill); (4) attitude and proper explanation of the doctors (e.g., kindness, timeliness, and appropriateness of the content of the explanation); (5) professionalism of the doctors (e.g., professional knowledge and skill); (6) waiting time (from arrival to decision to discharge/admission); (7) total length of stay (real and perceived); (8) quality of the environment (separate pediatric ED or region, size and preparedness of the waiting room, cleanliness of the bed and equipment, and privacy protection during the stay); and (9) whether the care provided was child-friendly (e.g., efforts made to lessen the fear of the child or consideration of the child's developmental stage).

In the last part, the demographic characteristics of the participants were collected, including sex, age, the relationship of the respondent with the child, age and acuity of the child, average household income, educational achievement of the parents, location and type of ED visited, and previous utilization of a pediatric ED.

The internal consistency index of the survey (i.e., Cronbach alpha) was 0.9493.

3. Data analysis

The collected data were used to investigate the overall satisfaction level and factors influencing the satisfaction levels of the participants. The overall satisfaction and satisfaction level with specific categories were rated using a 7-point Likert scale. Whether an increase in satisfaction regarding a specific category resulted in an increase in overall satisfaction was analyzed. In the analysis, dependent variables were categorized as "unsatisfactory" or "satisfactory". Four points, assigned as expected or neutral, was assigned a rating of "dissatisfied". We used a logistic regression model to evaluate the influence of each satisfaction level on individual categories. All statistical analyses were performed with STATA/MP 12.1 for Windows (StataCorp LP, College Station, TX, USA).

Results

1. Demographic characteristics of the respondents

A total of 1,000 guardians answered the questionnaire. The mean age of the parents was 37±9.9 years. The female to male ratio was 1:1. The average household income was >3 million Korean won (KRW; 1,000 KRW=0.09 US dollars, as of March of 2013), and most of the respondents were graduates of a college or

Table 1. Participants' demographic characteristics

Variable	No. (%)
Sex	
Male	505 (50.5)
Female	495 (49.5)
Age (yr)	
20–29	226 (22.6)
30–39	416 (41.6)
40–49	248 (24.8)
50–59	80 (8.0)
>60	30 (3.0)
Age of the child (yr)	
<1	124 (12.4)
≥1, <8	407 (40.7)
≥8, <13	254 (25.4)
≥13, ≤18	215 (21.5)
Perceived acuity of the child	
Low acuity	608 (60.8)
High acuity	392 (39.2)
Educational level	
High school graduate or less	201 (20.1)
College graduate or more	799 (79.9)
Average household income (monthly)	
<3 million KRW	298 (29.8)
≥3 million KRW	702 (70.2)
Relationship with the child	
Other	455 (45.5)
Father	279 (27.9)
Mother	266 (26.6)
No. of visits to an ED during the previous 3 years	
Once	479 (47.9)
Twice or more	521 (52.1)
Type of ED	
Local emergency facility	400 (40.0)
Local or regional emergency center	600 (60.0)
Location of the ED	
Metropolitan city or urban	649 (64.9)
Suburban or rural	351 (35.1)

KRW, Korean won (the currency of South Korea); as of March 2013, 1,000 KRW=0.9 US dollars; ED, Emergency Department.

university (Table 1). Most of the children referred to were between 1 and 8 years old. The most common relationship of the respondents was parents of the pediatric patient. The participants were distributed evenly throughout Korea.

2. Overall satisfaction and levels of satisfaction in each category

On the question of overall satisfaction with the delivered PEC, 402 of the parents (40.2%) answered that they were “satisfied”, while 275 (27.5%) and 323 (32.3%) responded that they were “neutral/as expected” and “dissatisfied”, respectively. The proportions of satisfied and dissatisfied guardians are summarized in Table 2. For all categories, the number of dissatisfied parents was greater than the number of satisfied parents. The categories that received high ratings for satisfaction were the professionalism of the doctors (45.0%) and the professionalism of the nurses (42.4%). In contrast, the environment of the ED (33.3%) and total length of stay (35.2%) received relatively low ratings.

3. Univariate analysis of the association of the level of satisfaction for each category with the respondents' overall levels of satisfaction

We performed a univariate logistic regression analysis to identify meaningful factors that were closely related to the overall levels of satisfaction of the respondents. The age of the child concerned, educational/economic levels of the respondents, and location and type of the ED showed nonsignificant relationships. Among the evaluated sociodemographic factors, sex (female), relationship with the child (mother), and age of the respondent (30–39 years) were negatively related with the overall satisfaction level. In contrast, parents who visited the ED with a patient of highly perceived acuity were more likely to be satisfied. Higher satisfaction levels in all categories were shown to increase the

Table 2. Overall level of satisfaction and its specific components

Variable	Dissatisfied	Satisfied	Not answered
Overall satisfaction	598 (59.8)	402 (40.2)	0 (0)
Administrative process	607 (60.7)	386 (38.6)	7 (0.7)
Attitude and explanation of nurses	578 (57.8)	418 (41.8)	4 (0.4)
Professionalism of the nurses	567 (56.7)	422 (42.2)	11 (1.1)
Attitude and explanation of doctors	575 (57.5)	419 (41.9)	6 (0.6)
Professionalism of the doctors	546 (54.6)	450 (45.0)	4 (0.4)
Waiting time from arrival to a major decision	639 (63.9)	361 (36.1)	0 (0)
Total length of stay	648 (64.8)	352 (35.2)	0 (0)
Environment of the ED	667 (66.7)	333 (33.3)	0 (0)
Child-friendly considerations	663 (66.3)	337 (33.7)	0 (0)

Values are presented as number (%). ED, Emergency Department.

overall satisfaction level, and the odds ratios (ORs) of “professionalism of the nurses”, “attitude and explanation from the doctors” and “child-friendly considerations” were 9.5, 10.6, and 11.2, respectively (Table 3).

4. Multivariate analysis of the association of the level of satisfaction for each category with the respondents' overall levels of satisfaction

Based on the results of our univariate analysis, we performed a multivariate logistic regression analysis. The results for all categories are included in “Model 1”, while only the statistically significant factors from our univariate analysis were analyzed in “Model 2” (Table 4).

The age and sex of the respondents did not produce significant results in either model. Respondents who were a mother of patients had an OR of 0.3 (95% confidence interval [CI], 0.19–0.60), meaning that the overall satisfaction level was significantly low. In contrast, the perception of “high acuity of the child” was associated with a 1.5-fold increase in satisfaction compared with “low acuity” (OR, 1.5; 95% CI, 1.02–2.18). The professionalism of the nurses was independently associated with improving general satisfaction levels, with OR of 2.6 (95% CI, 1.74–3.90). However, the “environment of the ED” had no significant influence on overall satisfaction levels (OR, 1.3; 95% CI, 0.83–2.02).

Discussion

In this nationwide, cross-sectional survey of Korean caregivers, 40.2% of the respondents answered that they were generally satisfied with PEC. This is comparable with the results of a national survey of 812 adults regarding emergency services (40.4%, the rate of satisfied respondents) conducted by the National Emergency Medical Center of Korea in 2010²⁾. When the participants were asked to rate their levels of satisfaction with eight categories of PEC, the lowest proportion of satisfied parents was obtained for ‘environment of the ED’. This result can be related to the suboptimal preparedness of EDs for pediatric patients across the country. We have a small number of hospitals with a separate pediatric ED or area within the ED; consequently, children are being seen with adult patients in an adult ED area. However, the results of our univariate and multivariate analyses indicate that the “environment of the ED” plays a small role in influencing the overall satisfaction level of the parents. Factors found to be associated with the satisfaction level of the guardians included personnel factors such as “professionalism of the nurses”, “attitude of and explanations provided by the doctors”, and “waiting time from arrival to a major decision”.

A recent study suggested that “timeliness of care”, “empathy”, “technical competence”, “information dispensation” and “pain

management” were the five most important elements in patient satisfaction with an ED¹⁴⁾. Another mail-based study of about 20,000 participants at 123 EDs in Canada showed four predictors of ED satisfaction, including “perceived waiting time to receive treatment”, “courtesy of the nursing staff”, “courtesy of the physicians” and “thoroughness of the physicians”¹⁾. Another study reported that patient satisfaction with a pediatric ED was impacted by “interaction with medical staff of ED”, “appropriateness of provided information”, and “time interval from arrival to meet

Table 3. Univariate analysis of features influencing parents' overall level of satisfaction with pediatric emergency care

Variable	uOR	95% CI
Female sex	0.7	0.54–0.89
Age of respondents (yr)		
30–39	0.7	0.52–0.87
40–49	1.1	0.84–1.51
50–59	1.0	0.66–1.67
>60	1.1	0.55–2.38
Relationship with the child		
Father	1.2	0.87–1.52
Mother	0.6	0.41–0.74
Age of the child (yr)		
>1, <8	1.0	0.78–1.30
≥8, <13	1.0	0.78–1.39
≥13, ≤18	1.1	0.78–1.45
Perceived acuity of the child		
High acuity	1.8	1.38–2.32
Educational level		
College graduate or more	1.2	0.85–1.60
Average household income (monthly)		
More than 3 million KRW	1.2	0.90–1.58
No. of visits to the ED during the previous three years		
More than twice	1.2	0.91–1.51
Type of ED		
Local or regional emergency center	1.3	0.96–1.62
Location of the ED		
Suburban or rural	1.1	0.85–1.45
Administrative process, satisfied	9.8	7.27–13.14
Attitude and explanation of nurses, satisfied	8.9	6.67–11.93
Professionalism of the nurses, satisfied	12.1	8.91–16.38
Attitude and explanation of the doctors, satisfied	10.6	7.91–14.34
Professionalism of the doctors, satisfied	9.5	7.09–12.78
Waiting time from arrival to a major decision, satisfied	9.4	7.00–12.70
Total length of stay, satisfied	9.2	6.80–12.36
Environment of the ED, satisfied	8.8	6.53–11.94
Child-friendly considerations, satisfied	11.2	8.21–15.26

KRW, Korean won (the currency of South Korea); as of March 2013, 1,000 KRW=0.9 US dollars; uOR, unadjusted odds ratio; CI, confidence interval; ED, Emergency Department.

Table 4. Multivariate analysis of factors influencing parents' overall level of satisfaction with pediatric emergency care

Variable	Model 1		Model 2	
	aOR	95% CI	aOR	95% CI
Female sex	1.2	0.72–1.98	1.2	0.74–2.01
Age of respondents (yr)				
30–39	0.9	0.55–1.54	0.9	0.54–1.45
40–49	1.2	0.65–2.13	1.1	0.63–1.97
50–59	1.1	0.52–2.54	1.1	0.49–2.26
>60	1.1	0.33–3.47	0.9	0.28–2.64
Relationship with the child				
Father	0.7	0.39–1.20	0.7	0.43–1.24
Mother	0.3	0.18–0.59	0.3	0.19–0.60
Age of the child (yr)				
>1, <8	1.0	0.56–1.95		
≥8, <13	1.0	0.48–1.90		
≥13, ≤18	1.1	0.55–2.30		
Perceived acuity of the child				
High acuity	1.5	1.02–2.18	1.5	1.02–2.18
Educational level				
College graduate or higher	1.4	0.84–2.30		
Average household income (monthly)				
>3 million KRW	1.2	0.77–1.75		
No. of visits to the ED during the previous 3 years				
More than twice	1.0	0.69–1.49		
Type of ED				
Local or regional emergency center	1.0	0.71–1.53		
Location of the ED				
Suburban or rural	1.5	1.00–2.15		
Administrative process, satisfied	2.2	1.47–3.33	2.2	1.48–3.31
Attitude and explanation of nurses, satisfied	1.8	1.17–2.67	1.8	1.18–2.66
Professionalism of the nurses, satisfied	2.7	1.77–4.03	2.6	1.74–3.90
Attitude and explanation of the doctors, satisfied	1.8	1.18–2.77	1.8	1.19–2.78
Professionalism of the doctors, satisfied	1.6	1.04–2.44	1.6	1.03–2.38
Waiting time from arrival to a major decision, satisfied	2.1	1.38–3.23	2.1	1.37–3.18
Total length of stay, satisfied	1.8	1.15–2.71	1.8	1.16–2.72
Environment of the ED, satisfied	1.3	0.82–2.02	1.3	0.83–2.02
Child-friendly considerations, satisfied	1.7	1.08–2.65	1.7	1.06–2.60

KRW, Korean won (the currency of South Korea): as of March 2013, 1,000 KRW=0.9 US dollars; aOR, adjusted odds ratio; CI, confidence interval; ED, Emergency Department. Model 1 includes all variables in the Table; model 2 includes sex, age, perceived acuity, relationship of the respondent with the child, and satisfaction level for each category.

doctors¹²⁾. Other studies have produced similar results. One study conducted in Europe showed that providing resident physicians with training in communication skills resulted in improved patient satisfaction¹⁵⁾, while another study at a pediatric ED reported that the “perceived quality of the health interaction” and “interpersonal communication” were more important than “comfort or play items of waiting room”¹⁶⁾. The results of these studies are consistent with ours with regard to the emphasis on personnel

and time factors, rather than the structure and quality of the facility or the environment of the ED¹⁾.

Previous studies have shown that more parents with high-acuity patients as determined by triage nurses felt satisfied with the care delivered^{17,18)}. Our study also shows that “high acuity” of the child concerned was closely related to a high level of parental satisfaction, although the child’s acuity was perceived by the parents. According to our study, mothers rather than any other

relatives of the child were significantly less likely to be contented with the delivered PEC. This may represent the higher expectations of mothers for medical care.

To our knowledge, this is the first national survey of the satisfaction of Korean parents with ED services for pediatric patients. Although previous studies of ED satisfaction have been conducted in general or adult-combined EDs with a multicenter setting in multiple countries¹⁻⁴⁾, pediatric reports of parental satisfaction are rare and usually based on small, single-center studies⁷⁻¹²⁾. Our results can be used to find ways to improve parental and patient satisfaction with PEC.

Our study has some limitations. First, the survey was based on the recent experience of parents with PEC; thus, there is a possibility of "recall bias". However, anonymous web-based surveys represent a feasible method for collecting a large amount of data, and we assumed that the method would enable a favorable environment for the respondents. Second, there may be concern about "selection bias" because we identified the respondents from the listings of a commercial survey company. However, the respondents were distributed across Korea, and the proportion of older respondents (>50 years old) was substantial (11.0%) despite the web-based methodology of the study. Third, in our study, the comparison of perceived versus real length of stay was not investigated although a previous study showed that "perceived length of stay" rather than "real length of stay" was more important in determining patient satisfaction, because we depended on the experience of the participants. Therefore, the results related to time factors in our study should be interpreted carefully.

In conclusion, our survey shows that the overall satisfaction of parents in Korea with PEC is relatively low, and is closely related to personnel factors, including the "professionalism of the nurses", "attitude of and explanations provided by the doctors", and "waiting time from arrival to a major decision".

Conflict of interest

No potential conflict of interest relevant to this article was reported.

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