

ORIGINAL ARTICLE

Influence of pediatric disease severity on parental report of children admitted in a tertiary care center PICU

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ABSTRACT

Objective: The objective of this study was to assess influence of the severity of diseases on parental assessment of their child's health care issues.

Design: A cross-sectional study.

Setting: Pediatric ward (PW)/ Pediatric Intensive Care Unit (PICU) at a 1000 plus bed University affiliated hospital.

Methodology: During the study period of 45 days, we offered the parents/guardians of all children who had been hospitalized for 5 to 10 days to participate and provide responses to 37 items that were divided in five categories. The participants (n=99) comprised of two groups: PICU (n=35) and PW (n=64). Responses were analyzed using SPSS statistical software; differences were considered significant at $P \leq 0.05$.

Results: The parents/guardians responses differed in 22/37 queries. Relevant to each category; regarding patient-related statements, significant differences were present in 5/9 responses (all $P < 0.0001$). Regarding support-related statements, significant differences were observed in 4/4 responses (all $P < 0.0001$); and regarding staff-related statements, 7/8 responses differed significantly between two groups ($P = 0.017$ to $P < 0.0001$). Significant differences were found in 5/10 ancillary care-related responses ($P = 0.004$ to $P < 0.0001$) while 1/7 responses differed significantly regarding hospital policies-related statements ($P = 0.02$).

Conclusion: The data show that the children's severity of disease significantly influences the parental reports on quality of health care. As expected, the difference in responses may affect their understanding, judgment and expectations regarding the quality of care. On a broader scale, it may also affect the process of family centered care (FCC). Further multicenter, multiethnic studies will be required to validate these preliminary findings.

Key words: Perception; Health Care Assessment; Children; Severity of illness; Pediatric intensive care unit; Pediatric ward

Citation: Naeem M, Alshahrani A, Omair A, Sindhu S. Influence of pediatric disease severity on parental report of children admitted in a tertiary care center PICU. *Anaesth Pain & Intensive Care* 2013;17(2):141-144

INTRODUCTION

Enhancing quality of care is always emphasized.^{1,2} To achieve this goal, we need to implement various measures including performance assessment of caregivers and parental involvement in evaluating clinical care.^{3,4} However there are multiple dilemmas that need to be considered.⁵ Parental assessment reports are considered as important tools to enhance the quality of care.^{6,7} However, a concern exists that these reports may not gauge the assessment in true essence.⁸ Previous studies evaluated the influence of

perception and other factors upon parental assessment reports.^{9,10} A few studies also assessed the influence of gender and age^{11,12} on parental health care reports. However, current literature is lacking in studies assessing influence of the severity of pediatric illness on parental assessment of health care. There are studies available in which researchers have assessed the quality of care in critical care settings such as neonatal intensive care unit (NICU)¹³ or pediatric intensive care unit (PICU).^{14,15} However, to the best of our knowledge, no study so far has been performed to

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compare the responses of parents whose children are admitted to pediatric ward (PW) or PICU based on the severity of diseases. Herein, the data from this preliminary study show a significant impact of the severity of pediatric illness on parent/guardian responses regarding healthcare in a tertiary care hospital.

METHODOLOGY

The study was conducted at King Abdulaziz Medical City Hospital, a 1000-plus bed tertiary care academic/health institute in Riyadh, Saudi Arabia. The pediatric department at this hospital accommodates on average 7500 cases annually. The pediatric critical-care services include a 20-bed PICU where patients are admitted based on pediatric risk of mortality (PRISM)-III score-related, severity-indexed criteria. This PICU facility admits nearly 750 medical/surgical pediatric patients annually. The study was approved by the institutional review board and research ethics committee of King Abdullah International Medical Research Center with a waiver of informed consent.

In this cross-sectional study, the study response form was offered by the same investigator to parents/guardians of the pediatric patients (1 month-14 yrs old) that were admitted (5-10 days) in PW or PICU. These participants were consecutively enrolled during the study period of 45 days. Patients/parents' characteristics (Table 1) included the patient's age, disease diagnosis, existence of chronic condition(s), number of systems acutely involved at current admission, number of previous hospitalization(s), number of days hospitalized, Pediatric Risk of Mortality Score 3rd version (PRISM-III score), and parent/guardian age and gender.

The existing relevant literature was thoroughly sifted and a study response form was prepared concordant with the specific sociodemographic/cultural needs of the study population. We consulted various models including Children's Healthcare Minneapolis Survey of Inpatient Parent Satisfaction, Picker Survey, and Parent-Form 50/Child Health Questionnaire (PF50/CHQ). The finally-approved response form was evaluated regarding study purpose, content, reliability, validity, and it contained 37 health care assessment statements. The five major statement categories in the response form reflected a global coverage including patients, support, staff, medical care and general hospital policies. To compare between PW and PICU groups, under category 1, we assessed the parent/guardian perception responses related to their children's illnesses. Under categories 2, 3, 4, and 5, we evaluated, respectively, the responses concerning support services, hospital staff, equipment/capacity, and general hospital policies. Quality of care statements required the participants to rate each item on a 5-point Likert-type scale as follows: 1. strongly agree; 2. agree; 3. disagree; 4. strongly disagree; and 5. do not know.¹⁶ For the purpose of statistical analysis, "do not know" responses to any of the total statements were excluded and the 4-point Likert-type scale was modified

into "agree" or "disagree" responses as recommended.¹⁷

The data were analyzed using SPSS statistical software (SPSS, Version 18, Chicago, IL). Categorical variables were expressed as numbers and percentages. Comparison of PW and PICU groups was done for various variables by calculating *P*-values, relative risks, and odds ratio. Two-sample test (Fisher exact test) of proportions was used for analysis. A 2-tailed *P*-value <0.05 was considered as significant for all statistical tests used.

Table 1: Comparison of patient/parent characteristics in Pediatric Ward (PW) and Pediatric Intensive Care Unit (PICU) groups

Characteristic	PW	PICU	P-value
Number of respondents (Parent/Guardian)	64	35	
Median age of patient (yr)	8	5	
Median age of respondent (yr)	34	38	
Respondent's gender			
Male	31	18	0.835
Female	33	17	
Diagnosis: [no (%)]			
Cardiac	7(10.9)	2 (5.7)	0.486
Respiratory	7(10.9)	8(22.8)	0.145
Neurological	14(21.9)	6(17.1)	0.613
Gastrointestinal	4(6.2)	1(2.85)	0.653
Renal	5(7.8)	3(8.6)	1.000
Surgical	6(9.4)	2(5.7)	0.708
Hematology	3(4.7)	0	NA
Endocrine	2(3.1)	0	NA
Trauma (Burns)	7 (10.9)	5(14.3)	0.749
Sepsis/Septic shock	0	7(20)	NA
Other infections	9(14)	1(2.85)	0.093
Chronic conditions			
Yes	29	18	0.674
No	35	17	
Number of systems acutely involved			
More than One	10	21	<0.0001
One	54	14	
Previous hospitalizations (≥1)			
Yes	27	16	0.834
No	37	19	
Days of hospitalization prior to responses (average)	8	6	
PRISM-III score* (average)	4	18	

NA: Not available; * PRISM III: Pediatric risk of mortality score 3rd version. PW: Pediatric ward; PICU: Pediatric intensive care unit

RESULTS

During the study period of 45 days, a total of 162 parents/guardians (102 in PW and 60 in PICU) participated in this study. Among the participants, 38 from PW group and 25 from PICU group responded as "do not know" regarding any statement(s) in the response form. Such responses were excluded from the final analysis as these did not contribute to group comparison. The characteristics of the participants and various variables are summarized in Table 1. A significant difference was found between two groups (35 respondents from PICU and 64 from PW) regarding

22 out of 37 response form statements (Table 2). In category 1 (patient-related queries), significant difference was found in responses to statements concerning child's condition, disease diagnosis, course of illness, treatment and use of alternative medicine (Table 1). Similarly, in category 2 (support-related queries), significant difference was observed in responses related to meetings with primary doctor and/or other medical team members, psychological support, and role of social workers (Table 1). In category 3 (staff-related queries), responses differed significantly regarding nursing care, doctors' availability, consultations with doctors and pharmacists care (Table 1). In categories 4 (ancillary medical care) and 5 (hospital policies), significant differences were observed concerning hospital equipment, hospital capacity, personnel resources, medical errors, and collaboration needs (Table 1).

DISCUSSION

Patient satisfaction evaluation and continued improvement of the quality of patient care are pivotal to good performance of the health care systems. Previous studies mentioned that responders' perception might influence their satisfaction.¹⁸ and that the responses were influenced by factors like gender and global health status of the respondents.¹¹ In complementing and extending the previous studies, this study tested the hypothesis whether the severity of pediatric illness could influence parent/guardian responses to evaluate health care. As the data show, we found a significant difference between two groups regarding 22 out of 37 ($\approx 60\%$) responses. The response difference was most pronounced (100%) for support services. The responses also differed between two groups regarding 87% (7 out of 8) staff-related and 55% (5 out

Table 2: Comparison of parent/guardian perception responses between PW¹ and PICU² groups

Statements regarding		Respondents Agree (%)		
		PW	PICU	P-value
I. Patients	1. You are aware of your child's clinical condition.	89	43	< 0.0001
	2. You are aware of your child's diagnosis.	77	43	< 0.001
	3. You are aware of the prognosis.	47	40	0.534
	4. You are aware of your child's course of illness.	89	29	< 0.0001
	5. Your child is getting sufficient care at home.	58	43	0.207
	6. Your child needs constant observation at home.	70	74	0.816
	7. Your child needs more than one admission per month.	31	34	1.00
	8. Your child is being treated with suitable drugs.	84	51	< 0.001
	9. You may try to get your child treated by using other than allopathic medicines.	16	69	< 0.0001
II. Support	10. You want to meet with all medical team only when child's condition changes.	98	57	< 0.0001
	11. You want to meet with all medical team daily.	78	40	< 0.0001
	12. Your child is receiving good psychological support.	91	37	< 0.0001
	13. You believe that social workers have significant support role.	89	34	< 0.0001
III. Staff	14. Your child's nurse is checking on him/her on regular basis.	98	46	< 0.0001
	15. You think that each child should have a separate nurse.	78	80	1.00
	16. It is better for your child's health to be attended by the same nurse every day.	75	43	0.002
	17. You think that meetings with your child's doctor are important.	98	57	< 0.0001
	18. Increasing doctors' visits will improve your child's care.	86	57	0.003
	19. Second opinion for your child from another doctor would be better.	48	23	0.018
	20. It is better that your child is attended by the same doctor every day.	97	57	< 0.0001
	21. The pharmacist is explaining the drugs being given to your child every day.	25	49	0.025
IV. Medical Care	22. This hospital is equipped with suitable tools required to treat your child.	97	54	< 0.0001
	23. Having more number of beds will ensure better care.	78	51	0.012
	24. Having more doctors will improve the level of care.	78	51	0.012
	25. Having more nurses will improve your child's healthcare.	72	86	0.141
	26. This hospital needs new equipment.	42	49	0.673
	27. You think that the use of computer technology improves caregiving.	98	100	1.00
	28. Hand hygiene improves health care	100	100	Not Computed
	29. Collaboration with other hospitals improves care.	75	46	0.005
	30. The probability of medical errors is a major concern for you.	80	37	< 0.0001
	31. The medical care being given to your child in this hospital can be improved.	77	77	1.00
V. General Policies	32. You are aware of the hospital's rules and regulations.	84	94	0.204
	33. The current visiting hours rules are appropriate.	92	86	0.318
	34. Healthy children should be allowed to visit.	42	67	0.02
	35. You prefer patients' food to be provided by the hospital.	84	83	1.00
	36. You prefer food should be allowed to be brought from home.	64	69	0.825
37. The hospital's rules and regulations are good for you and your family.	92	89	0.717	

¹PW: Pediatric ward; ²PICU: Pediatric intensive care unit;

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of 9) general medical care-related statements. Interestingly, a striking similarity was present in perception responses related to general policies of the hospital whereby only 14% (1 out of 7) responses differed between two groups.

Although the underlying reasons for these differences are difficult to pinpoint, the plausible causes may be multifactorial including factors related to patients, parents, healthcare providers and environment. Consistent with a previous study, the patient-related factors that might influence parental responses included child's illness and communication differences at physical and emotional levels.¹⁹ The other factors that may influence parent/guardian response include stress, anxiety, emotional state, and various levels of parental expectations.^{20,21} The health care providers' related factors that may influence parental response differences include work load, interpersonal communication, and expectations.^{22, 23} Similarly, the environment related factors that may affect responses include noise, crowdedness, entertainment and ease of acclimatization²⁴ within the similar socio-economic and cultural background of respondents. There appears to be a growing need to consider all those elements in the ongoing medical practice and have more emphasis on the family

centered care.

Our study has certain limitations viz. (1) small sample size; (2) limited population groups; (3) single center data; and (4) several other factors that may not have been addressed in the response form used. Therefore, further studies including multiethnic, multicenter, and multinational data will be required to validate these preliminary findings as well as explore a wider range of factors that can influence parent/guardian responses related to health care

CONCLUSION

In conclusion, our data show that the severity of children's disease can influence the parental report of the child health care in the same hospital setting.

Acknowledgments: We are thankful to all of our study participants. We are also indebted to King Abdullah International Medical Research Center and King Saud University of Health Sciences for help with patient recruitment, data processing and analysis.

Conflict of interest: The authors declare no conflict of interest.

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