

Parental stressors in a Pediatric Intensive Care Unit

Estresores parentales en Unidad de Cuidados Intensivos Pediátricos

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Abstract

Introduction: The hospitalization of a child is a situation that produces a high level of stress on parents, especially at the Pediatric Intensive Care Unit (PICU). **Objective:** To determine which are the main stressors perceived by the parents of children hospitalized at PICU and the associated variables. **Patients and Method:** A quantitative, cross-sectional and correlational study, which considers the secondary analysis of data from the IDA project # 201403 of UC School of Nursing: Validation of "The parental stressor scale infant hospitalization in Spanish" (PSSIH modified). Sampling was non-probabilistic by convenience, with 217 parents of children at the PICU of a University hospital, who answered a demographic questionnaire and the modified PSSIH instrument to measure stressors in the PICU environment. **Results:** Three dimensions of stressors were identified: Clinical, Emotional and Communication with the professional team. The clinical dimension was the most stressful, with the factors images or sounds, procedures and interventions and the aspect of the child, dimensions related to behavior and communication with the team were less stressful. In addition, it is associated with a greater perception of stress in the different dimensions, when having: previous experiences in PICU, programmed admission, admission due to cardiac pathology, single child, higher educational level and no partner. **Conclusions:** The modified PSSIH instrument made it possible to determine the main stressors perceived by the parents of children in the PICU, the Clinical dimension being the major stressor. These results are useful for developing local intervention programs according to the particular characteristics of the PICU.

Keywords:

Pediatric intensive care unit;
hospitalized child;
parental stressor;
humanization of assistance;
health facility environment

Introduction

The hospitalization of a child is a situation that produces a high level of stress for parents, especially if it occurs in Pediatric Intensive Care Units (PICU)¹⁻⁸.

Stress is defined by Weinberg and Richardson, 1981, as the response of an individual when the physical or psychosocial demands of a situation exceed the capacity for adaptation⁹.

The research published to date agree that there are several variables associated with Parental Stress (PS) during childhood hospitalization, which can manifest itself in response to different stimuli such as: the environment, personal characteristics and individual perception¹⁰, nature and course of the child's disease, hospitalization history, previous material and personal resources, the available help, among others¹¹. According to the literature¹², these factors or stressors can be grouped into factors derived from the child, the parents, the environment and the clinical team.

Factors derived from the child

These seem to be the most stressful for parents^{1,2,13-16}, such as those related to the signs and symptoms of childhood disease, the physical appearance of the child, the presence of devices and restraints, among others^{11,17-19}.

Factors derived from parents

Chourasia et al. 2013, consider that the most important factor for triggering PS is the alteration of the paternal/maternal role, secondary to hospitalization¹⁸. Also, altered family functioning, sense of disbelief, guilt, frustration, anxiety, anger, and fear are described, which can develop stress and depression in parents, due to their apparent inability to resolve the situation^{4,11,20,21}. The loss of the parental role in the PICU is an important factor in the generation of stress^{1,3,5,6,22,23}, related to the separation of their child and the inability to care for and protect him/her^{24,25}.

Factors derived from the environment

In this context, technological assistance is described, as well as aspects of the hospital environment such as odors, alarms, lights, environmental noise and a large number of people within the unit^{2,4,19,22,26,27}.

Factors derived from the health team

Overly rapid explanations and the use of technical words by professionals are described as stressful, as well as the lack of attention when the professional is required, not knowing the members of the health team, among others^{2,11}.

Stress has been evaluated in Neonatal and Pediatric ICUs^{1,16,18,19,28}, however, in general, the results are measured, that is, the level of stress produced in the parents, but what are the factors that trigger such stress in parents? To date, there is no publication of an instrument validated in Spanish, which solves this question and allows to carry out programmed and preventive changes in environmental management and relationship with parents, according to the local reality of the PICU.

To measure the perception of parental stressors in the PICU, there is the English instrument "The Parental Stressor Scale: Infant Hospitalization (PSS: IH), created by Miles et al (1985), modified by Saied²⁹, which was submitted by this team in the first instance to a rigorous process of instrumental validation.

The objective of this study was to determine what are the main perceived stressors and what variables are associated with this perception? in caregivers of patients hospitalized in the PICU, of a university hospital.

Patients and Methods

Descriptive, observational, cross-sectional study, product of the secondary data analysis of the project Validation of "The Parental Stressor Scale Infant Hospitalization, into Spanish" (PSSIH) modified.

The target population corresponds to parents of children hospitalized in a PICU that cares for children with various pathologies, however, it has a large percentage of patients with heart surgery, because it is a referral center for the resolution of congenital heart diseases. The range of ages ranges from 0 to 14 years of age, with some exceptions, such as cases of chronic patients.

Sampling was non-probabilistic for convenience and the final sample consisted of 217 participants, who met the following inclusion criteria: being over 18 years of age, being the father or mother of a child hospitalized for at least 48 hours in the PICU. Parents with a diagnosis or situation that could alter their perception of reality, registered in the clinical record, were excluded from the sample. All subjects agreed to participate, after signing the Informed Consent.

The instruments applied were a demographic questionnaire and the modified PSSIH, to measure stressors in the PICU environment.

For the data analysis, descriptive statistics were used and for the evaluation of associations, T-Student and Pearson correlation were used, depending on the level of measurement of the variables.

The study was approved by the local Ethics Committee.

Results

I. Child characteristics

The age of the children involved was from 0 -18 years, with an average of three years and a standard deviation of 4.3. Most of them were male (53.2%); 44% were hospitalized for the first time, highlighting 34% with three or more hospitalizations. 61.5% were admitted on a programmed basis. The reasons for hospitalization were due to cardiac problems (60%), neurological problems (14.2%) and the remaining percentage was distributed among oncological, respiratory and other problems.

II. Caregiver characteristics

Regarding the participants, the ages ranged from 18 to 61 years, with an average of 34.6 and a standard deviation of 8.14. Most of them were mothers (61%); university-level education (37.8%), with graduate studies (10.6%) and technical level education (24.9%). Regarding marital status, they declared to be married (53.4%), single (40.6%) and practically two-thirds of the sample (64.5%) also have another child. The vast majority declare having a paid job (78.4%). The highest percentage lives in the Metropolitan Region (57.6%), only 6% live in rural areas.

III. Descriptive for the factors and dimensions of stressors

The Scale of Assessment of Parental Stressors in PICU consists of three dimensions, which include a series of situations that can be considered as stressful for parents during the hospitalization of their child:

1. *Clinical dimension*, which includes stressors: the appearance of the child; images or sounds; procedures or interventions; health team behavior.

2. *Emotional dimension*, which considers: behavior and/or emotional child response; parents role.

3. *Communication dimension with the health team.*

It is observed that the dimension that causes the most stress in the parents corresponds to the Clinic presentation, followed by the Emotional and finally the Communication with the Health Team. In addition, the Clinical dimension presents less dispersion (Table 1).

Regarding the stressors in the Clinical dimension, the “images or sounds” are those that generate more stress in the parents, then there are the “procedures and interventions” and the “aspect of the child”. The “behavior of the health team” is the factor that generates less stress.

In relation to the Emotional dimension, both stressors, “emotional response of the child” and “role of parents”, present similar levels, with a slight increase for “emotional response of the child”.

The characteristics of the sample, the stressful condition of each dimension and the stressors by dimension were analyzed, obtaining the following results:

In the stressors “procedures and interventions”, “emotional response of the child” and “role of the parents”, the participants who had previous experiences of hospitalization of their children in a PICU, declared to be stressed more (Table 2).

Regarding the type of admission, programmed or emergency, two stressors were presented with greater impact: “aspect of the child” and “procedures and interventions”, which are increased in those parents whose children entered on a programmed basis (Table 2).

According to the cause of hospitalization, it is observed that the parents of children admitted with cardiological problems declare a greater stressor quality in relation to “aspect of the child”, “procedures and interventions” and “role of parents”. On the other hand, the “behavior of the health team” and “communication with the health team”, show with less stressful quality (Table 2).

Regarding kinship, it is observed that the stressor

Table 1. Descriptions for stressors according to factor and dimension

Dimensión	n	Min	Max	Media	D. Estandar
Clinical factor total	217	.32	4.46	2.04	0.87
Aspect of the son	217	.00	5.00	2.15	1.35
Images or sounds	217	.50	5.00	2.65	1.02
Procedures and interventions	217	.29	5.00	2.30	1.19
Conduct of the professional team	217	.00	5.00	1.08	0.99
Emotional factor total	217	.00	4.90	1.81	1.22
Emotional response of the son	217	.00	4.80	1.87	1.29
Role of parents	217	.00	5.00	1.74	1.55
Communication factor total	217	.00	5.00	1.12	1.14

“procedures and interventions” is generating a greater perception of stress in mothers (Table 2).

On the other hand, participants with a university or postgraduate educational level tend to perceive greater stress derived from the “health team behavior” and the “communication with the health team” dimension (Table 2).

It is also observed that participants who declare not having a partner at the time of the study, perceive greater stress with respect to the stressors “aspect of the child” and “procedures and interventions”, present in the Clinical dimension (Table 3).

In addition, the parents of single children perceive greater stress derived from the “behavior of the health

Table 2. Comparative analysis according to experience, form of income and cause of hospitalization for the factors and dimensions of stressors (only the factors in which significant differences were found are shown)

Factor	Categories	n	Media	S	T	P
<i>Experience</i>						
Procedures interventions	Without experience	95	2.09	1.14	-2.250	0.025
	With experience	122	2.46	1.20		
Emotional response of the son	Without experience	95	1.58	1.24	-3.046	0.003
	With experience	122	2.10	1.28		
Role of parents	Without experience	95	1.50	1.53	-2.033	0.043
	With experience	122	1.93	1.55		
<i>Factor form of income</i>						
Aspect of the son	Programmed	134	2.32	1.32	2.381	0.018
	Urgency	83	1.88	1.36		
Procedures and interventions	Programmed	134	2.47	1.15	2.688	0.008
	Urgency	83	2.03	1.20		
<i>Factor cause of hospitalization</i>						
Aspect of the son	Other	51	1.62	1.32	-3.924	< 0.001
	Cardiology	115	2.45	1.23		
Procedures and interventions	Other	51	1.84	1.16	-4.551	< 0.001
	Cardiology	115	2.68	1.07		
Conduct of the professional team	Other	51	1.44	1.23	2.674	0.008
	Cardiology	115	0.99	0.87		
Role of parents	Other	51	1.49	1.70	-2.104	0.037
	Cardiology	115	2.04	1.47		
Communication with the professional team	Other	50	1.41	1.27	2.275	0.025
	Cardiology	115	0.99	1.02		
<i>Factor relatives</i>						
Procedures and interventions	Father	84	2.40	0.97	-2.822	0.005
	Mother	133	2.80	1.02		
<i>Factor educational level</i>						
Conduct of the professional team	Basic and technical media	112	0.81	0.70	-4.314	< 0.001
	University and postgraduate	105	1.36	1.16		
Communication with the professional team	Basic and technical media	111	0.87	0.91	-3.409	0.001
	University and postgraduate	105	1.38	1.30		

Table 3. Comparative analyzes according to couple and single hospitalized child for the factors and dimensions of stressors (only the factors in which significant differences were found are shown)

Couple						
Factor	Categorías	N	Mean	S	T	P
Aspect of the son	Single	101	2.39	1.25	2.483	0.014
	With couple	116	1.94	1.39		
Procedures and interventions	Single	101	2.53	1.08	2.732	0.007
	With couple	116	2.10	1.24		
Single son						
Factor	Single son	N	Mean	S	T	P
Team behavior professional	Do not	140	0.97	0.92	-2.109	0.036
	Yes	77	1.27	1.08		
Communication with the work team	Do not	139	0.99	1.09	-2.189	0.030
	Yes	77	1.35	1.21		

Table 4. Age. Significant correlations for age in months with the factors and dimensions of stressors

Dimension		Age in months
Aspect of the son	Pearson correlation	-.177**
	Sig. (bilateral)	.009
	N	217
Procedures and interventions	Pearson correlation	-.261**
	Sig. (bilateral)	.000
	N	217
Role of parents	Pearson correlation	-.186**
	Sig. (bilateral)	.006
	N	217

Table 5. Significant correlations for age of the caregiver with the factors and dimensions of stressors

Dimension		Caregiver age
Aspect of the son	Pearson correlation	-.189**
	Sig. (bilateral)	.005
	N	216
Procedures and interventions	Pearson correlation	-.231**
	Sig. (bilateral)	.001
	N	216
Role of parents	Pearson correlation	-.159*
	Sig. (bilateral)	.019
	N	216

team” and the “communication with the health team” (Table 3).

When considering the ages, it is observed that at a younger age of both the participants and their children, there is a greater perception of parental stress regarding the “appearance of the child”, “procedures and interventions” and “role of parents” (Table 4 and 5).

Discussion

For those who work in highly complex services such as a PICU, which demands a high demand not only from the child as a patient, but also from parents, it is essential to know the psychosocial reality of their immediate environment, considering that they will influence the coping that they have with the disease, hospitalization, and recovery of their child, as well as their active participation in the care and recovery.

Concordant with what is stated in the literature^{1,2,13,16}, the Clinical dimension and everything related to the “aspect of the child” and the “images or sounds” is what would cause the most stress in the parents. On the other hand, within this clinical dimension, in the stressor “procedures and interventions”, parents say that it would be a great relief for them to be able to stay with their children during most of the procedures. This is an aspect to consider for each unit, where the feasibility that parents can voluntarily stay should be evaluated if they prefer.

Frequently in clinical work it is stated that the previous experience of hospitalization in parents and children would be a protective factor against stress, for the learning that has meant, however, in the present study it was observed that parents of children with more of a hospitalization in the PICU present more stress in relation to the “procedures and interventions”, “emotional response of the child” and “role of parents”. As

a result, parents feel more concern about a current hospitalization, due to what has been experienced or observed in other patients, they know the risks implicit in a PICU stay.

Similar situation occurs with the variable “programmed hospitalization” versus “emergency hospitalization”, the possibility of anticipating hospitalization would allow parents and eventually their children to prepare both in practical aspects such as changing family routine and functioning, psychological aspects and emotional, in front of what it means to have an ill child hospitalized³⁰. This logical thinking is contradicted by the results obtained, which indicate greater stress in the “appearance of the child” and “procedures and interventions”, in the case of programmed hospitalizations. This could be explained by considering that 60% of the children involved in the study were hospitalized for a cardiological reason, often as a consequence of performing cardiac surgery, which although is programmed, in most cases, comes implicitly a great emotional burden due to the eventual severity in its evolution.

Likewise, in this group of patients with cardiological problems, it was observed that their parents reported being less stressed by the factors “health team behavior” and “communication with the health team”, probably because they know in advance the treating team, for consultations and/or previous surgeries. In this regard, the literature states that an important factor for parents is to maintain a relationship of trust with the health team and stay informed³¹, it is also suggested that knowing the health team beforehand can reduce levels of anxiety and reduce possible conflicts between the health team and parents^{21,22,24}.

Another result is that there is no significant difference between the days of hospitalization and the various factors and dimensions of the instrument. Regarding the hospitalization duration, some researchers

describe it as a predisposing factor for PS^{1,2,11}. It could be thought that the more days of stay in the PICU, both children and their parents, accumulate fatigue, anxiety, uncertainty, etc., which would mean greater sensitivity to environmental stressors, or, that with the passage of days, learning from the experience could reassure parents and facilitate their dynamics in the PICU, none of these two hypotheses are consistent with the results obtained, so it would be interesting to explain this difference.

The greater stress experienced by mothers versus fathers in the factor “procedures and interventions” could be due to the fact that mothers usually stay longer during the day with their children in the unit and it is during the day in which they occur, greater number of consultations to specialists, examinations and procedures, therefore, it is the mother who has to observe and interact with the health team. It would be interesting to know if this decision, for example, is in common agreement or if it would be different in other social and cultural realities.

Regarding the educational level, the greater stress experienced by fathers or mothers with more education, could be explained by more access to information, knowledge of the disease of their child, understanding of the objectives of the examinations and treatments applied, which would be a factor of tension of the relationship with the professionals of the unit. A systematic review³² refers that parents emphasize the importance of the relationship established with health professionals, the competence of them to incorporate them into decision making, allowing them to carry out their parental role.

Finally, it should be noted that one of the limitations of the study is the external validity, because the place where this research was conducted has specific characteristics, as it is a referral center of congenital heart diseases, which individualize the results more than what is desired.

Conclusions

The modified instrument “The Parental Stressor Scale Infant Hospitalization, into Spanish” (PSSIH) allowed determining the main stressors perceived by parents of children hospitalized in the PICU, where the Clinical dimension is the greatest stressor.

The results obtained in this study could guide on the aspects to be improved in favor of less stress for

parents, considering the local reality, with measures such as education and emotional support, which have shown positive effects in decreasing the level of parental stress^{25,33}.

Likewise, it is necessary that each PICU can evaluate its reality, with the instrument “The Parental Stressor Scale Infant Hospitalization, into Spanish” (PSSIH) modified and validated for the Chilean population, with the purpose of carrying out actions of continuous improvement in the care of the child hospitalized in the PICU and their parents.

Ethical Responsibilities

Human Beings and animals protection: Disclosure the authors state that the procedures were followed according to the Declaration of Helsinki and the World Medical Association regarding human experimentation developed for the medical community.

Data confidentiality: The authors state that they have followed the protocols of their Center and Local regulations on the publication of patient data.

Rights to privacy and informed consent: The authors have obtained the informed consent of the patients and/or subjects referred to in the article. This document is in the possession of the correspondence author.

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Conflicts of Interest

Authors declare no conflict of interest regarding the present study.

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