

Childhood stress and the perception of family support of children undergoing orthopedic surgery

Gabriella Ribeiro Nakao¹, Paula Hiromi Ito², Rafael de Oliveira Pontes¹, Regina Célia Villa Costa²

ABSTRACT

Objective: The objective of this study is to investigate the correlation between the levels of stress of children from 11 to 14 years of age after orthopedic surgery, and their perceived quality of family support received during the process of physical rehabilitation. **Method:** This is a cross-sectional study with qualitative and quantitative analysis, developed in a rehabilitation center, in Sao Paulo. The following instruments were applied in the patients: Childhood Stress Scale (CSS) and Perceived Family Support Inventory (PFSI), along with a characterization questionnaire of the participants, which was applied to the patients caretakers. **Results:** Data was statistically analyzed and statistical significance was observed between the adaptation factor (PFSI) and the domain of psychological reactions with depressive component (CSS). There was significant correlation between the total score of the CSS and PFSI – 73%. Children with significant levels of stress presented low/medium-low perception of family support. **Discussion:** Patient's perception regarding their environment and relations is an important indication of how they deal with adverse situations of their social life, according to association found in this study. **Conclusion:** The aspects related to child's cognitive and emotional maturity contribute to the perception of family support quality. It is important that further studies are conducted to enlarge discussions in this area.

Keywords: Rehabilitation, Orthopedics, Adaptation, Psychological, Family Relations

¹ Psicólogos Aperfeiçoandos, Associação de Assistência à Criança Deficiente – AACD.

² Psicóloga, Associação de Assistência à Criança Deficiente – AACD

Mailing address:

Associação de Assistência à Criança Deficiente - AACD
Gabriella Ribeiro Nakao
Av. Professor Ascendino Reis, 724 São Paulo - SP
CEP 04027-000.
E-mail: gabi.nakao@gmail.com

Received on November 16, 2016.

Accepted on May 09, 2017.

DOI: 10.5935/0104-7795.20170012

INTRODUCTION

The rehabilitation of children who undergo orthopedic surgery bears issues that permeate the patient relationship, such as fears, fantasies, and anxiogenic situations which may change stress levels. Families, in their own singular lifestyle, may experience, within their interpersonal scenario, stressful situations, as a surgery, that may lead to health disturbances; in this scenario, the social and familiar supports play fundamental role.¹ This concern require scientific investigations that yield data for analysis and comprehension regarding the relationship between stress and the patient perception of emotional resources found by the patient within the family as a coping factor, along the physical rehabilitation after a surgery.

Regardless the specificity of population (child, adolescent, adult, elderly) that one wants to work on, clarity in the definition of stress and its measurement is crucial for the design of appropriate and effective interventions to reduce it.² Stress is a reaction of the organism formed by physical and / or psychological components, caused by the psychophysiological changes that occur when the person is confronted with a situation that, in one way or another, irritates, annoys, excites, confuses or even makes them immensely happy. This means that the biochemical process of stress is independent of the cause of tension and that the necessary element for its triggering is the sudden need to adapt to some fact or change. The stress process can be initiated, depending on the magnitude of the effort involved, when the human, adult or child, requires an adaptation.³ Put another way, stress is related to the individual's adaptive capacity in the face of a situation that require adaptive effort.⁴

The process of adaptation of the individual occurs by biopsychosocial interaction, through the acquired capacity of abstract, symbolic or propositional thinking, a more advanced way of dealing with concepts and data of reality. It is in this moment of development that the child, from the eleven years of age, is able to appreciate the needs and feelings of others, which is only allowed for their intellectual and emotional development.⁵

Due to the phase that is in the process of physical and cognitive development, it is expected that the public to be studied, comprised in the age group from eleven to fourteen years of age, will undergo important transformations, not only related to physical aspects, but also , for a longing for achievements and

a change in behavioral patterns due to the strong demands of the social environment in the various contexts, including in the school environment when the child's interest in establishing social bonds and the accumulation of educational demands is aroused, in other words, they are not linked only to family relationships anymore, they are expanding the field of contact with other groups.⁶

In the post-surgical context of a hospital environment, one must take into account aspects of the disorganization of the daily life faced by the patient, which can cause psychological suffering due to the physical state and emotional dependence in which it is awakened by feelings of insecurity and fragility, a moment marked by the perception of the need for emotional support received through family members, especially in the case of orthopedic patients who are subjected to many invasive and aggressive procedures that can trigger terrible fantasies in these individuals.⁷

In a physical rehabilitation center, postoperative physical therapy treatment is expected to begin soon after surgery, and in the period of patient hospitalization, the treatment guidelines vary per the diagnosis and surgical protocol. After hospital discharge, the patients are referred to the physiotherapy for outpatient control and begin the rehabilitation treatment. Upon discharge from the hospital, patients and family members will be monitored and advised in an outpatient facility.⁸

The patient's ability to cope with adverse psychological conditions depends directly on the family's ability to support the emotional demands of the individual, in a singular way, in the elaboration of mourning.⁹ The family can be considered an important factor as to the social function exerted on the interpersonal relations, psychic life, feelings, behaviors and mental health of the individual.¹⁰

Family support means the amount of protection and care that the children receive from their parents, under the aspects of affection, sensitivity, encouragement of autonomy and independence, cooperation and acceptance.¹¹ It is considered that the family support, included as one of the forms of social support, contributes to the individual in the physical and psychological aspects that grant beneficial effects to the member of the family that receives it, as it is satisfactorily perceived by the patient, as he or she acknowledges the availability of family members. This perception allows the individual to feel welcomed and recognized in their psychological needs, acting as a stress-reducing factor, when there are social exchanges established in this relationship.^{11,12}

Thus, it is necessary to comprehend the relationship between the perception of family support and stress. This study intends to contribute to an understanding of the child with physical disability, in relation to the emotional aspects experienced in the postoperative period.

OBJECTIVE

To investigate, through psychological assessments and questionnaire characterization of the participants, the correlation between the stress variable of the post-operative child and the perception that it has of the family support, in the process of physical rehabilitation

METHODS

This is a qualitative and quantitative cross-sectional study. Patients of both sexes, from 11 to 14 years of age, who were submitted to the postoperative protocol and were followed up at a physical rehabilitation center in the city of São Paulo were included in the sample. Concomitantly, their caregivers were included. Patients who did not have the autonomy to communicate, that is, those who needed another person to interpret their answers and patients who did not understand the instructions of the evaluation instruments were excluded from the sample. Fifty patients met the criteria, however, 26 did not remain in the process, due to hospital discharge, discontinuation due to absences, unavailability of schedule and refusal to participate in the study. Therefore, the sample consisted of 24 patients and their respective caregivers. It was later verified that 20 patients were from the Cerebral Palsy clinic (CP) and 04 from the external post-fixation Congenital Malformation clinic (CMF).

The study was approved by the institutional Ethics Review Board (approval number 56064416.0.0000.0085). The data were collected from June to July of 2016, after the participants read, understood, and signed the Informed Consent Form. The duration of each evaluation and interview was on average 50 minutes. The caregiver answered the questionnaire characterizing the participants, prepared for the purposes of this research and applied by one of the researchers. The questionnaire was composed of questions related to the identification of the patient, the caregiver, and their socioeconomic aspects. The responses were recorded by the researcher who, soon after the end of the interview

requested the caregiver to review and validate the integrity of the information provided.

Concomitantly, and in a separate room, another researcher applied two validated psychological assessment tools: Child Stress Scale (CSS)^{13,14} and Family Support Perception Inventory (FSPi).¹⁰ The CSS assesses the presence of significant signs of stress in children from six to fourteen years of age, making it possible to determine the most frequent type of reaction in the child and thus facilitating the adequate control of stress.^{13,14} It consists of 35 items related to stress reactions: physical; psychological; psychological with depressive components; and psychophysiological. The responses are given in a five-point Likert scale (0, never happens to 4, always happens), depending on how often individuals experience the symptoms pointed out by the items. By presenting significant signs of stress, according to certain criteria, the subject is classified into one of the sequenced stages of stress: alert phase, resistance phase, quasi-exhaustion phase and exhaustion phase. Each item on the scale is tied to a particular factor of the stress indicative reactions.¹⁵

The FSPi assesses how people perceive family relationships in terms of affectivity, autonomy and adaptation among members. This Inventory comprises the public in the age group from eleven to fifty-seven years. The FSPi composed of three factors. The first is named Factor 1 - Affective-Consistent, which deals with expressions of affection between family members (verbal and nonverbal), interest, communication, interaction, respect, empathy, clarity in rules, consistency of behaviors and verbalizations, as well as problem-solving skills. The Factor 2, called Family Adaptation, is expressed in questions regarding negative feelings and behaviors in relation to the family, such as anger, isolation, incomprehension, exclusion, non-belonging, shame, irritation, aggressive relationships (fights and shouts), and perception that family members compete with each other, are self-interested and blame each other on conflicts, rather than trying to have more pro-active relationships. The Factor 3 that composes the Inventory is called Autonomy, which assimilates the relations of trust, freedom, and privacy among the members.¹⁰ The Family Support Perception Inventory (FSPi) uses the score obtained by the three possible alternatives (almost never or never, sometimes, almost always or always) and classifies the perception of family support, regardless of the sex of the individuals, as low, medium-low, medium-high and high, according to the raw score obtained by the Affective-consistent, Family Adaptation and Family Autonomy scores.¹⁰

The chi-square test was used for the statistical analysis of the association between two ca-

tegorical variables (independent variables of the study and the CSS and FSPi scales). For the analysis of the correlation between the two variables dependent on the study (CSS and FSPi scale), the Spearman test (non-parametric) was used, since the sample had less than 30 individuals. Statistical significance was established when $p < 0.05$. The statistical software used was SPSS version 21.

RESULTS

The sample consisted of 24 children and their respective caregivers. The majority of children (75%) were boys. The mean age of the children was 12.46 years (SD=1.18). Most of the caregivers (79.17%) were women, the majority represented by the mothers (62.5%), followed by the fathers (20.83%), grandmothers (12.5%) and aunts (17%). Regarding the marital status of caregivers, 58.33% were married or in a stable union, 12.5% were divorced, and 29.17% were single. 41.67% of the children reported that the parents had al-

ready been divorced at some point. Regarding the educational background, all children had incomplete elementary school, and 33.33% of the caregivers reached middle school, 54.17% high school and 12.5% had a college degree. In the labor situation, 33.33% of caregivers were employed, 50% were housewives or house-husbands and 16.67% were unemployed. Regarding family income, 12.5% received up to 1 minimum wage (MW) per month, 33.33% received between 1 and 2 MW per month, 37.5% between received between 2 and 4 MW per month and 4.17% failed to report. Of the twenty-four children in the sample, 83.33% were patients of the CP Clinic and 16.67% of the CMF Clinic.

The results obtained in the FSPi and CSS were associated with the data of the characterization questionnaire of the participants. There was a significant association ($p=0.04$) between results for total FSPi frequency and age of the subjects in the sample, as well as a tendency for a significant association between CSS results and monthly family income higher than two MW ($p=0.06$) (Tables 1 and 2).

Table 1. Perception of children's family support and sociodemographic characterization

Sociodemographic characterization		FSPi – Total score			
		Mean (score)	Standard Deviation	Qui-square test	P value
Sex	Male	62.9	12.4	0.1	0.81
	Female	60.0	11.7		
Age	11-12 years	58.8	10.1	4.2	0.04
	13-14 years	65.5	13.3		
Family income	Up to 2 MW	59.5	11.1	0.1	0.83
	2+ MW	64.0	13.1		
Caregiver sex	Male	61.0	13.0	0.1	0.77
	Female	62.5	12.1		
Caregiver relationship	Father	61.0	13.0	0.6	0.76
	Mother	62.0	11.2		
	Grandmother	62.3	20.3		
	Aunt	70.0	0.0		
Caregiver education	Up to middle school	58.7	10.2	2.5	0.11
	Above middle school	64.3	12.8		
Marital status	Married / Stable union	62.9	11.3	0.6	0.74
	Single	63.1	12.0		
	Divorced	56.7	18.6		
Parents' divorce	Yes	60.6	13.2	0.1	0.73
	No	63.3	11.4		
Housing	Own home	61.7	12.3	0.3	0.56
	Not own home	63.1	12.1		
Labor status	Housewife or househusband	60.9	12.9	0.8	0.66
	Regularly employed	62.4	13.4		
	Unemployed	65.5	7.2		

Table 2. Child stress and sociodemographic characterization

Sociodemographic characterization		CSS_ Total Score			
		Mean (score)	Standard Deviation	Qui-square test	P value
Sex	Male	32.8	23.6	0.5	0.48
	Female	25.2	12.1		
Age	11-12 years	40.1	22.3	1.5	0.22
	13-14 years	21.8	16.4		
Family income	Up to 2 MW	24.0	12.8	3.6	0.06
	2+ MW	39.6	24.5		
Caregiver sex	Male	21.8	15.8	0.1	0.77
	Female	33.3	22.3		
Caregiver relationship	Father	21.8	15.8	0.6	0.76
	Mother	32.9	17.6		
	Grandmother	45.7	40.1		
	Aunt	3.0	0.0		
Caregiver education	Up to middle school	32.1	20.8	0.0	0.92
	Above middle school	30.2	22.3		
Marital status	Married / Stable union	25.8	15.6	0.6	0.74
	Single	32.6	21.5		
	Divorced	51.0	38.2		
Parents' divorce	Yes	37.3	27.4	0.1	0.73
	No	26.4	15.2		
Housing	Own home	31.8	24.4	0.1	0.77
	Not own home	29.3	14.6		
Housing	Housewife or househusband	26.6	15.6	0.8	0.66
	Regularly employed	42.5	27.9		
	Unemployed	20.8	14.2		

When compared to the group of children who are identified in the age groups between 11 and 12 years old, the group of children belonging to the age group of thirteen and fourteen years old presented a higher quality of perception of family support (Table 1).

In the results (Table 2), it was observed that children from families with income up to 2 MW, did not present significant signs of stress and that, on average, children from families with income greater than 2 SM, were already in the phase of alertness.

By analyzing the degree of correlation between the domains of the instruments, it was observed that the Adaptation factor of FPSI with the domain of Psychological reactions with depressive component of the CSS ($p=0.007$, $r=-0.53$) was the only statistically significant. However, there was a significant association between CSS score and FPSI ($p=0.04$) (Table 3), what evidences that, in this study, the majority of children (73%) with significant signs of stress had low/medium-low perception of family support, whereas the minority (27%), had high/medium-high perception of family support. It was observed

that 46% of the children in the sample presented significant signs of stress, from which 82% were in the alert phase, and 9.0%, in the resistance phase and near-exhaustion phase, respectively.

DISCUSSION

Every patient's reaction has, as a basic element, their experiences, their symbolic universe and their own way they face and engage their conflicting episode of hospitalization and treatment that they endure in their "right here and right now", determined by their historicity, socio-environmental variables that surrounds them and the relationships established between the healthcare team, family and the patient themselves. In this context, the interpretation that the patient gives to the surgical act gains a greater prominence than the act itself and it determines the patient's reactions and relation with the event.¹⁵

From the results of this study, it was observed that the older the child, the better

the perception of family support, which refers to the aspects of cognitive development arising from the individual's biopsychosocial interaction process, when there is the upcoming of new cognitive abilities. These new abilities contribute to the formation of different forms of children apply to achieve their perception regarding the experiences of social interaction, what is extended to their family environment, based on the hypothetical-deductive reasoning, with which they begin to make judgments and construct hypotheses about the future, starting from past experiences.¹⁶

The data obtained in Table 2 indicate that there was a tendency for a significant association ($p=0.06$) in relation those whose family income is higher than two MW and the presence of significant signs of stress, evidencing that, on average, in our study, the children of families living in these conditions were already in the alert phase (searching for an internal equilibrium). Faria & Cardoso¹⁷ evaluated the level of stress of caregivers of children with leukemia. In the sociodemographic characterization of these caregivers, they observed that higher family incomes were associated with stress manifestations. These authors understand that family income is related to greater possibilities of access to private health services, as well as to information, which can lead to a more questioning attitude towards treatment, which can trigger an incessant search for care and greater questionings, demanding caregivers to adapt to the treatment situation. It is possible that this reflects on the emotional state of the children. Stress interposes the relation of the organism by which physical illness reflects psychological aspects integrating the person singularity into the experience.¹²

In the correlation in which there was statistical significance ($p=0.007$, $r=-0.53$), Adaptation Factor of the FPSI with the factor Psychological reactions with depressive component of the CSS, it is understood that the more adapted the children are to the environment, they are less likely to have those reactions. Studies^{18,19} have shown that depression and family support have been pointed out in the literature as associated constructs. Rarely the quiet, passive patient, seen as "nice" is favorable. Often, behind this seemingly "adequate" behavior lies apathy, depression or even a masked depression, which will usually result in complications and difficulties for the patient and healthcare teams in the immediate or late postoperative period and throughout their process of rehabilitation and social and family reintegration.¹⁵

The patient's perception of the environment with which he or she interacts is an

Table 3. Relation between the total scores of CSS and FPSI

	FPSI	CSS						Significance	
		Stressed*		Non-stressed*		Total		Qui-square test	P value
		n	%	n	%	n	%		
Total	Low / Medium-low	8	73	3	23	11	46	5,9	0,04
	High / Medium-high	3	27	10	77	13	54		

important indication of coping with adverse situations experienced in the social environment, according to the association found in this study and, therefore, the importance of carrying out new studies that may address the related aspects or the family support to the child and the adolescent, as well as to verify if the hospitalization time and the economic conditions of the families, can influence in the quality of life of these patients as predictors of stress, in the context of the physical rehabilitation, during the periods pre and post-surgical, as well as peri-surgical.

In this way, we seek to use psychology resources, combined with other technical services, aimed at contributing to the emergence of the singularity of the child and the adolescent yielding a personalized service, that listens to the patients and provide psychological reception to the patient, the family and the multiprofessional healthcare team in the hospital context and physical rehabilitation.

CONCLUSION

From the results of this study, we concluded that the aspects related to the cognitive and emotional maturity of the child contribute to the quality of perception of family support

and that children that are more adapted to the environment are less likely to present psychological stress reactions associated with depressive characteristics. Thus, we revealed the need for greater attention of the multiprofessional healthcare teams of physical rehabilitation towards psychosocial and socioeconomic factors of the families when treating children and adolescents. It is important that new studies with the previously proposed themes are carried out to broaden discussions in this area.

REFERENCES

- Mombelli MA, Costa JB, Marcon SS, Moura CB. Estrutura e suporte familiar como fatores de risco de stress infantil. *Estud Psicol.* 2011;28(3):327-35. DOI: <http://dx.doi.org/10.1590/S0103-166X2011000300004>
- Lucarelli MDM, Lipp MEN. Validação do inventário de sintomas de stress infantil – ISS - I. *Psicol Reflex Crit.* 1999;12(1):71-88. DOI: <http://dx.doi.org/10.1590/S0102-79721999000100005>
- Lipp MEN, Arantes JP, Buriti MS, Witzig T. O estresse em escolares. *Psicol Esc Educ.* 2002;6(1):51-6. DOI: <http://dx.doi.org/10.1590/S1413-85572002000100006>
- Martins LAN. Residência médica: estresse e crescimento. São Paulo: Casa do Psicólogo; 2005.
- Rosa M. Psicologia evolutiva: problemática do desenvolvimento. 7 ed. Petrópolis: Vozes; 1993.
- Limongi SCO. A linguagem na criança de onze a catorze anos: sua expressão no período formal. In: Bossa NA, Oliveira VB. Avaliação psicológica do adolescente. 4 ed. Petrópolis: Vozes; 1998. p.105-31.
- Giacomini M, Galvan G. A atuação do psicólogo no contexto hospitalar com pacientes ortopédicos. In: Ismael SMC. A prática psicológica e sua interface com as doenças. 2 ed. São Paulo: Casa do Psicólogo; 2010. p.173-84.
- Castanho AAG, Previatto TLC. Fisioterapia pós-operatória na paralisia cerebral. In: Borges D, Moura EW, Lima E, Silva PAC. Fisioterapia: aspectos clínicos e práticos da reabilitação. São Paulo: Artes Médicas; 2005. p. 61-74.
- Cavalcante, FG. Pessoas muito especiais: a construção social do portador de deficiência e a reinvenção da família. Rio de Janeiro: Fiocruz; 2003.
- Baptista MN. Inventário de Percepção de Suporte Familiar (IPSF). São Paulo: Vetor; 2009.
- Campos EP. Suporte social e família. In: Melo Filho J, Burd M. Doença e família. São Paulo: Casa do Psicólogo; 2004. p.141-61.
- Nery CR. Dos pressupostos teóricos. In: Nery CR. Compartilhando para crescer: experiências psicoterápicas em Gestalt-Terapia. Curitiba: Juruá; 2013. p. 22-38.
- Lipp MEN, Lucarelli MDM. Escala de Stress Infantil - ESI: manual. São Paulo: Casa do Psicólogo; 1998.
- Lipp MEN, Lucarelli MDM. Escala de Stress Infantil - ESI: manual. 2 ed. São Paulo: Casa do Psicólogo; 2005.
- Sebastiani RW. Atendimento psicológico no centro de terapia intensiva. In: Camon VAA. Psicologia hospitalar: teoria e prática. 2 ed. São Paulo: Cengage Learning; 2015. p. 35-40.
- Bee H, Boyd D. A visão de Piaget sobre as operações formais. In: Bee H, Boyd D. A criança em desenvolvimento. 12 ed. Porto Alegre: Artmed; 2011. p. 186-88.
- Faria AMB, Cardoso CL. Aspectos psicossociais de acompanhantes cuidadores de crianças com câncer: stress e enfrentamento. *Est Psicol.* 2010;27(1):13-20.
- Souza MS, Baptista MN, Alves GAS. Suporte familiar e saúde mental: evidência de validade baseada na relação entre variáveis. *Aletheia.* 2008;(28):32-44. DOI: <http://dx.doi.org/10.1590/S1414-98932008000200004>
- Baptista MN, Souza MS, Alves GAS. Evidências de Validade entre a Escala de Depressão (EDEP), o BDI e o Inventário de Percepção do Suporte Familiar (IPSF). *Psico-USF.* 2008;13(2):211-20. DOI: <http://dx.doi.org/10.1590/S1413-82712008000200008>