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Psycho-Social Symptoms Among Children That Underwent Repeated Surcigal Procedures

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Abstract:
Aim: *This study aims to determine the psycho-social influences on 7-18 years old children that underwent repeated surgical procedures. Method: The sample of the present research consists of 71 inpatient children in orthopedics and urology clinics of Hacettepe University Hospital that underwent two or more surgical procedures and consented to participate in the research along with their parents. "Questionnaire on Diagnosis of Psycho-social Symptoms for Inpatient Children" and "Personal Information Form" for children and their parents were used as data collection tools. Data belonging to the questionnaire and scale scores of the research group were evaluated and analyzed using SPSS 16.0 statistical software. Findings:54% of the participating children are male, 60.6% are in 7-12 age interval and primary school students. According to research data, 87.3% of the children underwent orthopedic surgical procedures, 38% underwent 2 to 5 surgeries, 43.7% underwent their first procedure at the age of 0-4 and their last procedure at the age of 11-14. As indicated by psycho-social symptom mean scores attributable to the repeated surgeries underwent by children, anxiety is the most common symptom (6.127±2.472) which is followed by desperation (4.352±2.415), anger and aggression (3.958±2.213), regression (3.169±1.483) and communication issues (2.789±1.897). Conclusion: Anxiety, desperation, communication difficulty, anger and aggression subscale and total psycho-social scores of 6-12 year-old children were found to be higher than those of 12 year olds and older children and additionally the difference between score averages and educational status variable was found to be statistically significant ($p<0.05$). In light of the research findings, particular emphasis was put on the necessity for evaluation of children that underwent repeated surgical procedures on the basis of their ages and other attributes with regard to their psycho-social symptoms.*

Keywords: *Children undergoing repeated surgeries, psycho-social issues, nurse*

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I. Introduction

Evidently, diseases constitute traumas for children of all ages, and various adverse effects of staying in hospitals have been reported for children (1). An unknown environment, unrecognized health personnel, noisy instruments and monitors, unusual odors, medical procedures and related pains, the inability to play around whenever they wish, good or bad past hospital experiences are among the leading factors effecting children in hospitals(1). The child feels anxious about the loss of his/her mother, other family members, home, bed, entourage, school, friends, toys, etc. (2).

In addition to the difficulties related to being sick or staying at hospital, children are exposed to additional challenges due to repeated surgical procedures that have various emotional, social, environmental, family-related and psycho-social effects (1,3,4). Surgical procedures are among the most traumatic experiences not only for individuals of all age groups, but also for children, as they worry about several unknowns and experience psycho-social influences of various levels while waiting for this crucial event. The obscurities as to what is expected, what is likely to happen and when it will happen are regarded as the underlying factors for psycho-social symptoms (5).

The impacts of surgical procedures, commonly implemented for recovering and maintaining health conditions along with the recent developments in technology manifest themselves in the form of psycho-social responses such as regression, denegation, anxiety, depression, fear, sadness, desperation, low self-esteem, body image disturbances, emotional deprivation, social isolation, loss of control, lack of confidence, anger and aggression, refusal of treatment, attention deficit and/or hyperactivity, sleep disorder and nutritional deficiency, fear of death, willing to die and suicide attempts (1,4,6,7, 8, 9, 10, 11)

Undergoing multiple surgical operations and the consequent possibility to encounter situations such as pain, loss of skills, loss of organs and even death are among the situations that prevent children from coping with psycho-social influences.

Some of such symptoms, which are hard to cope with, can spontaneously disappear with advancing age of the child, whereas other persist. This can be due to the failure of his/her mother or both parents or the nurse that is supposed to prepare him/her to the procedure in providing sufficient support. Such psycho-social issues that are known to have adverse effects on social skills and self-concept of children (6) may lead to limitations and lasting impacts in their coming years (12). Lasting and unresolved emotions may result in emotional issues and negative behaviors among children.

The periods that the child and parents are exposed to intense psycho-social influences prior to surgical procedures are initial admission in hospital, pre-surgical tests, the day before surgery, premedication injection and the last hours before surgery (13). It has been reported in domestic studies that nurses implement incomplete patient care applications before and after surgeries, and that effective nursing applications cannot be implemented before and after procedures (Yılmaz 2002). This adversely affects children's adaptation to surgical procedures, reduces the recovery rate, increases the duration of hospital stay, results in mortality, morbidity and disabilities, reduces the life quality and increases hospital costs (4).

The nursing approaches required to increase the coping capabilities of children, experiencing multiple surgical procedures, with the psycho-social symptoms they undergo and to minimize the negative influences of such symptoms include pharmacological and behavioral approaches. Pharmacological methods involve premedication applications prior to surgery. Behavioral methods on the other hand consist of applications such as introducing the hospital and operation room, therapeutic games, reading story books and having the child draw pictures, explaining the child about procedure, informing him/her as to what will happen after the operation and addressing his/her fears, to address the psycho-social influences. Nurse is the primary person that prepares the child and parents for the operation (14) and the issues that require intervention are well-determined to the extent that the pediatric nurse carries out a comprehensive evaluation of the psycho-social symptoms of children that undergo repeated surgical procedures (15, 16). It should be determined how the child is affected by repeated surgeries and how he/she reacts, and it should be ensured that he/she is provided with the counseling and guidance required for preparation to surgical procedures. In this respect, psycho-social issues underwent by inpatient children should be addressed and evaluated with an integrated approach (6, 17). It is commonly stated that, all healthcare professionals, particularly nurses undertake a crucial role in assessment of the psycho-social issues underwent by children (18).

Regardless of their ages and developmental levels, all children feel the necessity for preparation to surgical procedures in physical, emotional and cognitional terms (14). Various research results indicate that, children prepared for adaptation process prior to surgeries undergo lower levels of anxiety after the operation, return to their normal lives in shorter periods and exhibit psycho-social issues such as regressive behaviors, separation anxiety and nutritional problems at lower rates (19). On the other hand, children which are not provided with a well-established preparation program experience issues such as sleeplessness, inappetency and school issues at higher rates (14).

Until school age, information to be provided by nurses for children can be given via dolls or model toys, and meanwhile they should pay particular attention since the child fears loss of control, body damage and death. By means of therapeutic game method child can informed as to why he/she is staying in hospital and undergoing an operation, thus enabling them to better cope with the resulting stress. Trainings provided via game method may improve the children's self-expression capability, enable them to develop positive coping methods, contribute to establishment of a link between home and hospital and help children in regaining the senses of autonomy and competency. Medical toys (such as masks, gloves, bonnets and surgical aprons) (14).

Children in school and adolescence periods undergo a rapid development stage. Children in these stages are of an opinion that operations are likely to change their aesthetical appearance, body image and result in loss of control and separation from their social circle, and accordingly they can feel anxious as a result of such fears. In these periods, children and their parents should be informed about the possible situation to give them an opportunity to get an idea and parents should be instructed to help their children in providing the required control over the process. Children of this age group should be informed at least a week before the operation. In this regard, it would be helpful to introduce them to their peers in the clinic if available, and encourage them to get involved in the group, to help them in developing favorable coping behaviors (20, 21).

Throughout the period until surgery, the emotions and opinions articulated by children should never be considered childish, particular attention should be attached to the emotions expressed by them, and they should be soothed and relieved with white lies such as "they will fear no pain, medication will not affect them, etc.".

It is commonly stated that, trainings provided prior to surgical operations significantly alleviate children's anxiety levels and improve their adaptation to treatment. Pre-surgical training is an indispensible part

of patient care contributing to positive patient outcomes, and one of the most important nursing interventions (22).

This research contributes to the literature by increasing the awareness and knowledge of nurses related to psycho-social symptoms observed among children that underwent repeated surgical procedures, as a means for intervening traumatizing influences on these children.

II. Materials And Method

This research was carried out in Hacettepe University Hospitals on 71 children and their parents that underwent at least two surgical operations and consented to participate in the research, 59 receiving orthopedics and 12 receiving urology treatment among a total of 486 inpatient children staying in 32 orthopedics and traumatology inpatient clinics for a period of six months. No sample selection was implemented.

Research data was collected using a personal information form prepared in accordance with the literature by the researcher and involving 20 questions on demographic information of children and their parents, and 10 questions regarding the disease and surgical procedure history of children, and "Psycho-social Diagnosis Scale for Inpatient Children" developed by Üstün and Kelleci in 2012 to determine the psycho-social symptoms among children that underwent repeated surgeries. Each of the statements in the 3-likert type scale, involving 24 items, were evaluated with "never", "occasionally", and "frequently", and respectively scored as 0, 1 and 2. The highest and lowest possible scores are "48" and "0" respectively (Annex 2). High scale scores are indicative of psycho-social issues influencing the inpatient child. In the scale, Cronbach's alpha scale was specified as 0.90, and the scale consists of anxiety, desperation, communication difficulty, anger and aggression and regression subscales.

Research data were analysed using SPSS (Statistical Package for Social Sciences) for Windows 21.0 software. Descriptive statistical methods (numerical, percentage, average, standard deviation) were used during analyses. During the comparison of quantitative data, the difference between two groups was found with Mann Whitney U test, inter-group comparison of parameters in case of more than two groups was made with Kruskal Walls H-Test; and Mann Whitney Test was used for determination of the group underlying the difference. The obtained results were evaluated with 95% reliability and 5% statistical significance.

III. Findings

Evaluation of research data, obtained from the participant families, was carried out in two stages. The first stage includes the demographic attributes of children and parents (Table 1) and some of the properties of surgical operations underwent by children (Table II). The second stage involves the results of statistical analyses carried out to determine whether the psycho-social symptoms observed among children were effective (Tables –III, IV,V).

Table 1: Demographic Attributes of Children in the Study Group

Children's data	**Count (n)**	**Percentage (%)**
Gender		
Female	32	45.1
Male	39	54.9
Age		
7-12 age group	43	60.6
13-18 age group	28	39.4
Educational status		
Primary school 1. Grade	43	60.6
Primary school 2. Grade	28	39.4

54.9% of participating children are male, 60.6% are of 7-12 age group, 60.6 are primary education first grade students. Mothers of 36.6% are primary school graduates and fathers of 35.2% are high school graduates.

Table 2: Distribution of Children Undergoing Surgery on the Basis of Surgical Procedure Variable

Type of Surgery	**Count(n)**	**Percentage (%)**
Orthopedic Surgery*	62	87.3
Urological Surgery**	9	12.7
Number of Undergone Surgical Procedures		
2-5 times	27	38.0
6-10 times	21	29.6
11-15 times	23	32.4
The age of first surgery		

0-4	31	43.07
5-9	30	42.3
10 and higher	10	14.1
The age of last surgery		
7-10	22	31.0
11-14	36	50.7
15-18	13	18.3
Total	71	100.0

*Fractures, Scoliosis, Kyphosis, Cerebral Palsy, PesDeformation, Osteosarkom, Myopathy, Osteochondroma, Paraplegic Extremity
**Hydrocelle, Chronic Kidney Failure, Urethra Rupture, Renal Calculi, Hypospadias, Ingunial Hernia.

As shown in Table 2, 87.3% and 12.7% of the participating children respectively underwent orthopedic and urological operations, 38% underwent 2 to 5 surgical operations, the age of first surgery for 43.7% is 0-4, and the age of last surgery for 50.7% is 11-14.

Table 3: Psycho-social Symptom Mean Scores of Children Undergoing Repeated Surgeries

	Mean	Sd	Min.	Max.
Anxiety	6,127	2,472	0,000	11,000
Desperation	4,352	2,415	0,000	10,000
Communication Issues	2,789	1,897	0,000	7,000
Anger and Aggression	3,958	2,213	0,000	8,000
Regression	3,169	1,483	0,000	6,000
Total Psychosocial Symptoms	26,394	8,049	0,000	53,000

As indicated by the psycho-social symptom mean scores of children undergoing repeated surgeries, anxiety (6.127±2.472)is the most common psycho-social symptom among children which is followed by desperation(4.352±2.415), anger and aggression (3.958±2.213), regression (3.169±1.483) and communication difficulties (2.789±1.897).

Table 4.Distribution of Psycho-social Symptom Mean Scores of Children in Study Group Based on the Number of Surgeries

	Group	N	Ort	Ss	KW	P	Difference
Anxiety	1-5 Times	27	5,333	2,434	7,175	**0,028**	**2 > 1**
	6-10 Times	21	6,857	2,265			
	11-15 Times	23	6,391	2,536			
Desperation	1-5 Times	27	3,593	2,188	5,419	0,067	
	6-10 Times	21	5,000	2,191			
	11-15 Times	23	4,652	2,707			
Communication Difficulties	1-5 Times	27	2,185	1,711	8,536	**0,014**	**2 > 1**
	6-10 Times	21	3,762	1,895			
	11-15 Times	23	2,609	1,828			
Anger and Aggression	1-5 Times	27	3,370	2,151	4,837	0,089	
	6-10 Times	21	4,714	2,053			
	11-15 Times	23	3,957	2,306			
Regression	1-5 Times	27	2,630	1,418	5,420	0,067	
	6-10 Times	21	3,381	1,359			
	11-15 Times	23	3,609	1,530			
Total Psychosocial Symptoms	1-5 Times	27	17,111	7,261	9,371	**0,009**	**2 > 1**
	6-10 Times	21	23,714	7,458			
	11-15 Times	23	21,217	8,295			

A statistically significant difference was found between anxiety (KW=7.175, p=0.028<0.05), communication difficulties (KW=8.536, p=0.014<0.05) subscale scores, total psychosocial symptom mean scores (KW=9.371, p=0.009<0.05) of the participating children and "the number of operations" variable. Anxiety, communication difficulties subscale scores and total psycho-social symptom scores of children that underwent 6 – 10 surgical operations were found to be higher than those of the children that underwent 1-5 surgeries.

Table 5: Psycho-social Symptom Mean Scores of Children in Study Group on the Basis of the Ages of First and Last Surgeries

	Age of the first surgery	**N**	**%**	**P**	**Difference**	**Age of the first surgery**	**N**	**%**	**P**	**Difference**
Anxiety	0-4	31	44	0,792		7-10	22	31	0,533	
	5-9	30	42			11-14	36	51		
	≥10	10	14			15-18	13	18		
Desperation	0-4	31	44	0,372		7-10	22	31	0,991	
	5-9	30	42			11-14	36	51		
	≥10	10	14			15-18	13	18		
Communication Difficulties	0-4	31	44	0,918		7-10	22	31	0,364	
	5-9	30	42			11-14	36	51		
	≥10	10	14			15-18	13	18		
Anger and Aggression	0-4	31	44	0,772		7-10	22	31	0,939	
	5-9	30	42			11-14	36	51		
	≥10	10	14			15-18	13	18		
Regression	0-4	31	44	**0,036**	**1 > 3 2 > 3**	7-10	22	31	0,350	
	5-9	30	42			11-14	36	51		
	≥10	10	14			15-18	13	18		
Total Psychosocial Symptoms	0-4	31	44	0,739		7-10	22	31	0,622	
	5-9	30	42			11-14	36	51		
	≥10	10	14			15-18	13	18		

As shown in Table 5, there is a statistically significant difference between the regression mean scores of children and their age of first surgical operation (KW=6.628, p=0.036<0.05). Regression scores of children that experienced their first operation in 0-4 and 5-9 age intervals were found to be higher than those of the children that underwent their first operation at the age of 10 or at a higher age.

IV. Conclusion

In this study, determination of the psycho-social symptoms induced by repeated surgical operations on children is aimed. The study is distinguished by determination of whether the psycho-social symptoms such as anxiety, desperation, regression, anger and aggression and loneliness that emotional stress, are observed particularly among children. In this regard, a study group was established and 54.9% of this group consisted of male children and 60.6% consisted of 7-12 year old children. Among these children, 21 (29,6%) underwent 6-10 surgical operations and 23 (32,4%) underwent 11-15 surgical operations.

According to the findings about the psycho-social symptom levels of children undergoing repeated surgical procedures; anxiety is the most common symptom observed among children (%30.04). This is also supported by some of the studies in the literature (24). Lamontagne (25), Devens (26), Watson (27) and Connevon (28) reported that, children that are provided with pre-surgical preparation programs undergo lower anxiety levels after operations and return to their normal lives in shorter periods, also displaying lower levels of postoperative issues such as regressive behaviors, separation anxiety, sleeping issues, nutritional problems, which further supports the aim of this study. Educational status (in the corresponding age group of 6-12) was found to result in significant differentiation for all psycho-social symptoms except regression, whereas 1st graders were found to have higher mean scores (p<0.05). Reportedly, stress and anxiety levels are mitigated

with passing time and gained experience, which enable children to act more consciously and confidently (Kain29). In this regard, the obtained results can be deemed consistent with each other.

As indicated by the relationship between the disease durations and psycho-social symptom levels of participants, the mean score is reduced with increasing disease period in regression subscale ($p=0.006$). Wallander and Varni (30) reported that, at the initial stages of disease, children tend to make more physical contact with their mother, and display regressive behaviors such as thumbsucking and making childish sounds. In this regard, the findings can be regarded consistent with each other. There is a significant relationship between the number of undergone surgical operations and psycho-social symptom levels of children. The highest mean scores belong to [anxiety ($KW=7.175$, $p=0.028<0.05$), communication difficulties ($KW=8.536$, $p=0.014<0.05$) subscales and total psycho-social symptom ($KW=9.371$, $p=0.009<0.05$)] participants that have experienced 6-10 surgical operations. This finding is consistent with the findings of Utens, Verhulst, Duivenvoorden, Meijboom et al. (31). The increasing level of psycho-social symptoms with increasing number of undergone surgical operations is reported to be noteworthy.

V. Conclusion And Recommendations

Anxiety, desperation, communication difficulties, anger and aggression subscale scores and total psycho-social symptom scores of primary school first grade students were higher than those of 2nd grade students and with a significantly statistically difference between mean scores and educational status variable ($p<0.05$).No statistically significant difference was found on the basis of gender, age, age of parents, educational status, period of the disease, type of the operation, and the number of experienced surgeries. In light of these findings, pediatrics nurses can be provided with supporting training programs on psycho-social symptoms within the scope of a course as a means for increasing their awareness, and studies can be carried out with specified focus groups to receive effective results from the training program. Implementation of supporting training programs to raise awareness regarding psycho-social symptoms, provision of such programs within the scope of a course and specifying focus groups for related research can be recommended for achieving effective results.

VI. Research Limitations

Some of the limitations should be taken into account while evaluating the findings of this research. The limited number of participants (71 children) within 7-18 age group staying in a single hospital in a single province makes it hard to make a generalization among children who are exposed to surgical operations throughout the country. Other related studies in the literature have mainly focused on the influences after a single surgical operation. On the other hand, evaluation of effects of repeated surgical operations, in the present research, is considered to be important. The scale used in the present research is expected to make a contribution by evaluation of psycho-social symptoms.

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