Stressors and Coping Patterns of the Children Undergoing Cardiovascular Surgery and their Caregivers

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Abstract

Background: Children undergoing cardiovascular surgery are exposed to many stresses due to their admission in the hospital these stressors are usually due to invasive procedures, physical stress, changing in their body image and social isolation. This leads to major psychological disturbance as anxiety and depression. **Aim:** The aim of this study was to assess the stressors and coping patterns of children undergoing cardiovascular surgery and their caregivers. **Sample**: descriptive study subject of 80 child and their caregivers, who divided into two equally matched groups' the study and control groups. **Setting:** This study was conducted at heart diseases and vascular surgeries department at Ain Shams hospitals affiliated to Ain Shams University. **Tools for data collection:** they consisted of questionnaire to assess of the study subjects (physical, psychological, social, and financial) stressors and coping behavior scale to measure their adaptive attitude **The result:** There as highly statistical significant difference between study and control groups as regards physical, psychological and social of items of Caregivers' stressors pre/post **Conclusion:** cardiovascular surgery imposes physical, psychological and social stressors upon the children undergoing cardiovascular surgery and their caregivers and coping patterns were adopted to deal with these stressors. It is recommended that, positively. **Recommendations**: the nurses should help caregivers and their children undergoing cardiovascular surgery to detect resources of stress and empower their coping patterns.

Keywords: stress –children –caregivers –cardiovascular surgery –coping pattern

Introduction

Stress is the body reaction to a change that requires a physical, mental or emotional adjustment or response. Stress results from a change in the environment that is perceived as challenging, threatening, or damaging to the person's dynamic balance or equilibrium **(Schacter et al., 2011).**

The presence of an accompanying person, especially a parent, is essential for coping with the hospitalization of the child, especially in complex situations such as heart disease. Heart defects can often be corrected through surgery, assuring for parents to expect a normal life, though it involves the use of invasive diagnostic and treatment **(Italian Journal of Pediatrics, 2010).**

Cardiac surgery presents unique challenges due to cardiopulmonary bypass (CPB), surgical trauma, anaesthesia, and pre-existing cardiac morbidities. Prompt recognition and treatment are essential to minimizing early postoperative morbidity and mortality **(Neal and Dickert, 2010).**

Coping is the process of thoughts and behaviors' that people use to manage the internal and external demands of situations

they appraise as being stressful or exceeding their own resources. Coping efforts seek to manage, master, tolerate, reduce or minimize the demands of a stressful environment. Coping is a process of attempting to solve threats to ego integrity **(Folkman, 2010).**

This is in harmony with a child who copes with adversity through the social channel seeks support and control through the structure of his or her relationships. The roles and responsibilities assigned to a child within a social context such as a family or a classroom can increase connections and decrease isolation, as well as restore emotional security and strengthen the child's sense of well being. Extracurricular activities that expand a child's socialization and collaboration skills are to be encouraged **(National Association of School Psychologists, 2004).**

Nurses play a key role in improving quality of child care. After a complete history and physical examination are done, a variety of imaging tests can confirm the diagnosis. Nurse's role often plays a critical role in the identification and supportive management of cardiovascular disorders. The opportunity to work with child preoperatively provides benefits for both the child and nurse. The goals of a preoperative meeting with the child are to plan care pre and postoperatively. The nurse has an active role preoperatively and postoperatively **(Wong, 2010).**

Significant of the problem

Cardiac child and their families face significant physical, emotional and psychosocial challenges and stressors, identifying these stressors, coping patterns and psychosocial state of children and their families for children undergoing would be very useful to help them to adapt and cope positively with stressful surgery and its related consequences.

Aim of the study

This study aimed to assess stressors and coping patterns of children undergoing cardiac surgery and their caregivers.

Subjects and methods

Research design:

A descriptive design was used to conduct this study.

Setting

The proposed study was conducted at the inpatient cardiovascular surgery department, Intensive care unit, and intermediate care department and outpatient cardiac surgery clinics.

Sample:

A purposeful study subjects consisting of 160 children and their caregivers who are undergoing open heart surgery for different types of open heart surgery were selected from the cardiac surgical unit which admitted to Ain Shams University Hospitals during the time of the study. The criteria of the study inclusion was both genders, Age of children ranged between 6≤ 18 years old and Children undergoing cardiovascular surgery for the first time in their lives. The exclusion criteria the complicated cases will be excluded as shock, coma, etc.

Data collection tools:

I. Interviewing questionnaire: it will be designed by the researcher and written in simple Arabic language to gather data in relation to:

Part 1- Concerned with: sociodemographic characteristics of the studied children such as (age, gender, rank, educational level and residence ….. etc).

Part 2- Sociodemographic characteristics of the children's accompanying caregivers including age, educational level and occupation.

II. Stressors' Scale by **(Miles and Brunsser, 1998)**: it was used to assess the physical, psychological, social and financial stressors experienced by the studied subjects. The studied subjects will answer either Yes (for presence of the stressors) or No (for absences of the stressors). The studied subjects will be given (2) point for presence of the stressors and (1) point for absence of the stressors. The scale consists of 79 statements divided into 4 kinds of stressors (physical, psychological, social and financial).

Scoring system: The studied subjects' total levels of stressors were divided into:

- Mild stressors (59 ≤ 87)
- Moderate stressors (87 ≤ 115)
- Severe stressors (115 ≤ 176)

III. Coping Patterns Scale by **(Jalowiec and Powers, 1991)**: It was used to assess the children and their mothers coping patterns towards cardiac surgery. It is a three points scale according to the degree of positive coping, the numerical values allotted to each response was as; always, sometimes and never. Where, (3) points were given for always able to cope, (2) point was given for sometimes able to cope and (1) point for never able to cope. Coping patterns scale for the caregivers contains (33) statements while the coping patterns scale for the children contains (28) statements.

Scoring system: According to the given responses the studied caregivers coping patterns were categorizes into either:

- Score ≤ 50 referred to negative coping.
- Score 50: ≤ 99 referred to positive coping.

The studied children coping patterns were categorizes into either:

- Score ≤ 42 referred to negative coping.
- Score 42: ≤ 84 referred to positive coping.

Pilot study:

A pilot study was carried out from the first of May 2013 to the end June. The pilot study was including10% of the study subject, involving children suffering from cardiac disease and their accompanying caregivers The necessary modifications were carried out as revealed from the pilot study and subjects included in the pilot study were excluded later from the study sample.

Ethical considerations:

Consent was obtained from the studied subjects, they were given an opportunity to refuse the participation or

withdraw from the study and they were assured that the information would be used for research purpose only (confidential). Research ethics were followed including informing subjects about the study.

Field work:

The actual field work was carried out from the he first of October 2013 to the end March 2014 for data collection and implementation of nursing intervention.

The researcher was available 3 days /week from 8 o'clock a.m to1 o'clock p.m, the researcher introduce herself to the head of the nurse of the inpatients departments and outpatient cardiac surgery clinic, explain the purpose of the visit and gave her a simple explanation about the program, its expected outcomes to the children undergoing cardiac surgery and their accompanying caregivers.

Administrative design:

An official permission was obtained by submission of a formal letter issued from the director of Faculty of Nursing, Ain Shams University to the director of the previously mentioned settings to collect the necessary data for the current study after a brief explanation of the purpose of the study and its expected outcomes.

Statistical analysis:

The gathered data was revised, coded, tabulated and statistically analyzed by using number and percentage distribution.

Results

Table (1) shown that the mean age of study and control group (14.75±3.62). Regarding gender there was slightly more than half of the studied children (60%) were male child, Regarding to ranking it was found that (35%) of the studied children were ranked as second child. As regards child's level of education it was clear that (60%) of the studied children were in the stage of preparatory education.

Table (2): revealed that the mean age of the studied caregivers in the study group was (29.523±19.327) years. Regarding to educational level nearly less than 1 third (27.5%) of them were illiterate in the studied group. As regard employment there were three quarter of the studied of caregivers not working.

Table (3): revealed that, less than three third (72.5 %) of the studied children were having moderate physical stressors. While less than two quarters (72%) and more than half (72%) of the studied children were having moderate psychological and social stressors respectively.

Table (4): illustrated that**,** nearly more than three quarters (77.5 %) of the studied caregivers were having mild physical stressors**,** less than two quarter (67.5 %) of them were having severe psychological stressors. while moderate stressors (70%) and less than two third (60%) of the studied caregivers were having moderate social and financial stressors respectively.

Table (5): regarding to coping patterns of the studied subjects it was found that, less than two third (75% and 82.5 %) of both children and their caregivers were positively able to cope with the child's undergoing cardiac surgery.

Table (1): Distribution of the studied children according to their characteristics **(**n=80).

Characteristics		Study group n=80	
		N	%
Age (years)	6: < 9	1	20
	9:<12	2	27.5
	12 :< 15	18	22.5
	15 :≤ 18	24	30
Mean + SD			14.75±3.62
Gender	Male	48	60
	Female	32	40
Rank	First	24	30
	Second	28	35
	Third	12	15
	Fourth	16	20
Child's Educational Level	Primary	12	15
	Preparatory	28	35
	Secondary	24	30
	Escaped	16	20

Table (2): Distribution of the studied caregivers according to their characteristics (n=80).

Characteristics		Study group n=80	
		N	%
Age(years)	<20	2	2.5
	20:< 30	18	22.5
	30 :< 40	40	50
	40 :≤ 50	20	25
Mean + SD			29.523±19.327
Educational level	Illiterate	22	27.5
	Primary	22	27.5
	Preparatory	6	7.5
	Secondary	14	17.5
	Diplomas	6	7.5
	High education	10	12.5
Employment	Working	18	22.5
	Not working	62	77.5

Table (3): Number and percentage distribution of the studied children according to their physical, psychological and social stressors.

	Types of stressors	No n=80	%
	Mild	12	15
Physical stressors	**Moderate**	58	72.5
	Severe	10	12.5
	Mild	10	12.5
Psychological stressors	**Moderate**	58	72
	Severe	12	15
	Mild	6	7.5
Social stressors	**Moderate**	28	35
	Severe	46	57.5

Table (4): Number and percentage distribution of the studied caregivers s according to their physical, psychological, social and financial stressors.

Types of stressors		No n=80	%
	Mild	62	77.5
Physical stressors	**Moderate**	14	17.5
	Severe	4	5
	Mild	2	2.5
Psychological Stressors	**Moderate**	24	30
	Severe	54	67.5
	Mild	10	12.5
Social stressors	**Moderate**	56	70
	Severe	14	17.5
	Mild	0	0
Financial stressors	**Moderate**	26	32.5
	Severe	48	60

Table (5): Distribution of the studied children according to their coping patterns (n=160).

Groups	Coping patterns	Pre	
		N	%
Study	Negative	20	25
	Positive	60	75

Discussion

Nurses play a key role in improving quality of child care. After a complete history and physical examination are done, a variety of imaging tests can confirm the diagnosis. Nurse's role often plays a critical role in the identification and supportive management of cardiovascular disorders. The opportunity to work with child preoperatively provides benefits for both the child and nurse. The goals of a preoperative meeting with the child are to plan care pre and postoperatively. The nurse has an active role preoperatively and postoperatively **(Wong, 2010).**

The nurse, as a member of the interdisciplinary health team, usually spends most of her/his time with the child and is an important player in the child's postoperative management. As well, the nurse must not ignore the children's families. Moreover, careful assessment, planning, implementation, and evaluation assist the children in returning to optimal function quickly, safely, and as comfortabley as possible. The opportunity to work with child preoperatively provides benefits for the child, family and also nurse **(Johnson & Oski, 2009).**

The present study aimed to assess stressors and coping patterns of children undergoing cardiovascular surgery.

As regards socio-demographic characteristics (table 1) of studied children the results revealed that, the mean age of study children was 14.75±3.62 years this result was accordance with **Morsya, (1997)** in this study the age of children was 7 to 16 years old. Those age groups were especially chosen starting from school age as children will be able to comprehend instruction.

The results of the current study revealed that there was male 48% higher more than female32% the caregivers more stressors than who had child female In this respect, **Hamed, (2013)** who assessed regarding that child sex, mothers who had male infants experienced more stressors especially psychological stressors than mothers of female. This may be related to the Egyptian culture in which parents especially that live in rural areas, tend to prefer male than females.

Regarding rank it was found that that more than one third (35% and 30%) of the studied children were ranked as second child this finding supported by **(Ibrahim, 2012)** it was found that more than two thirds (38%) of them were ranked as the second child.

Regarding to (table 2) As regards socio-demographic characteristics (table 2) of studied caregivers the results revealed that, the mean age of study children was (29.523±19.327) years. As regards the educational level nearly less than 1 third (27.5 %) of them were illiterate in the study group and were one third in the control group. As regard employment there were three quarter of the study and control were not working, this finding agreement with study done by **(Badri, 2008)** who found that 86% were illiterate and 94% of them were not working.

As regards psychological stressors of the studied children table (3), the present study illustrated that, more than half of the studied children were having moderate psychological stressors. These finding were highly supported by this result of the study supported by **Gregory et al. (2009)** stated that psychological stress is result of reactivity within a person to their own personal thought for feeling.

Badri (2008) showed that the psychological stressors it was found that, a higher mean score with statistically significant difference of children and their mothers at ICU and intermediate care department. These stressors include (in children) feeling anxiety, sadness from operation and getting away from parents. While in mothers there was feeling from unsuccessful of operation or any of its stages. Guilt, anxiety, sadness, getting away from the child when admitted at ICU and sometimes tough relation from hospital staff. The researcher believes that the overall stressors scores pattern would peak during the ICU stay and diminish again postoperatively to levels still higher than the baseline preoperative score due to presence of the child in anxious nature environment of ICU in addition to child's physical and psychological suffering.

In relation to the studied children social stressors table (3), the present study showed that, less than two quarters of the studied children were having severe social stressors. This finding was in agreement with **Badri (2008)** showed that, children and their mothers have feelings of social isolation and inadequate social support, generally they showed negative attitude toward life.

Regarding to the studied caregivers stressors table (4), this study illustrated that, nearly more than three quarter of the studied caregivers were having mild physical stressors, This finding was supported by **Doherty, et al.(2009**) who mentioned that mothers with chronically ill children suffer from physical stressors due to frequent follow-up, hospitalization, fatigue due to spending all their times with their children.. In addition, small family size reduces the physical burden on mothers which in-turn reduces the physical stressors that could face them in caring for their children.

As regards psychological stressors of the studied caregivers table (4) it was found that, less than two third of the studied mothers were having severe psychological stressors. This finding with highly supported by **Franck et al. (2010)** the stress of the parents remained moderate to high throughout their children's hospitalization regardless of the severity of illness. Mothers' and fathers' stress scores were Pearson's product-moment correlation to find interrelationships between stress, coping and nursing support of parents and Independent sample 't' test to find mean difference of level of stress among parents were used. The stress scores where classified into three levels, i.e., high stress moderate stress and low stress Majority of the parents experienced stress (58%). Mild negative correlation was found between nursing support and stress) implying that nursing support reduced stress. The study results showed that hospitalization of the child is a stressful experience among parents

These results were highly supported by **Ramirez et al. (2014).** The caregivers of children with congenital heart disease undergoing cardiac surgery are under stress due to the uncertainty of the surgical outcome and the stressful experience of being admitted in an intensive care unit.

These finding was agreed with **Youngblut (2005)** Parents' early reactions (stressors, concerns), were influenced by parents' mental health, social support,

objective and perceived injury severity. Mothers reported more stress than fathers regarding the child's behaviour and emotions, communication with staff, and their parental role. The study concluded that mother-father couples rated their child. The severity similarly, mothers experienced more stress than fathers. Social support decreased the stress of mothers but not of fathers.

In relation to the studied caregivers social stressors table (4) the current study clarified that, less than two third of the studied mothers were having moderate social. **Badri (2008)** showed that, children and their mothers have feelings of social isolation and inadequate social support, generally they showed negative attitude toward life.

Regarding the studied caregivers financial stressors table (4) this study showed that, less than one two third of the studied mothers had moderate financial stressors. This finding was consistent with these results were supported with the study done by **(McManus et al., 2011).** Parents also report increased caregiver burden when there are few resources available to help them find good healthcare and support for their child In fact, parents of poor, minority, and uninsured children struggle to provide and coordinate their child's health care because many do not have easy access to or knowledge of resources available. Without proper access to resources, financial burdens arise, the child's health care needs continue to go unmet, and parents spend prolonged time searching for help.

As regard of the current stressors revealed that highly statistical significant difference of caregivers of coping pattern These result of study supported by **Fischer et al. (2007),** social support "has been found in a number of studies to be an important buffer against family crisis factors, and to be a factor in family resiliency promoting family recovery, and as a mediator of family distress. According to caregivers who perceived higher levels of informal and formal social support reported lower levels of depression, anxiety, and anger. The researchers also found that lower levels of social support served as the most powerful predictor of depression and anxiety in parents of children chronic illness **Jennifer (2011).**

Coping patterns were grouped into three categories: family integration (relying on family members to assist in the care of non -hospitalized children); knowledge of the hospital experience (gathering information about the child's diagnosis); and maintaining social support (going for a walk with a friend). Positive coping patterns increase hope and help one feel his stress could be manageable with support found in the coping patterns, a strong spiritual belief system was also consistently reported by parents to be a necessary part of being able to cope **(Gray, 2006).**

As regard of the current stressors revealed that highly statistical significant difference of children of coping pattern this is in harmony with a child who copes with adversity through the social channel seeks support and control through the structure of his or her relationships. The roles and responsibilities assigned to a child within a social context such as a family or a classroom can increase connections and decrease isolation, as well as restore emotional security and strengthen the child's sense of well being. Extracurricular activities that expand a child's socialization and collaboration skills are to be encouraged **National Association of School Psychologists, (2004).**

Conclusion

Based on the results of the present study, it was concluded that, children undergoing cardiac surgery and their caregivers are facing many stressors

resulting from vital operation. These stressors include, all aspects of life as physical, psychological, social and financial that increases the burden imposed on the affected children, their caregivers and the community as well. As regards coping with stressors both caregivers and children are using type of coping methods to deal with stressful situation.

Recommendation

This study recommended that, emphasize the importance of assessing stressors of the children undergoing cardiac surgery and their caregivers & provide appropriate nursing intervention to alleviate stressors and promote positive coping with this chronic illness and its prolonged treatment.

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