

**Original Research Article****Quality of Life after Pediatric Cardiac Surgery**

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Phone: 7879493657, Email: [akhilendraparihar007@gmail.com](mailto:akhilendraparihar007@gmail.com)**Abstract****Objective:** *To Measure quality of life after cardiac surgery for paediatric heart diseases***Design:** *Prospective analytical study***Setting:** *Pediatric cardiology clinic of department of paediatrics Shyam shah medical college and Gandhi memorial hospital, Rewa (MP)***Participants:** *study was carried out on 43 children who were operated for different cardiac diseases at least 6 month before the time of study.***Main Outcome Measure(s):** *Quality of life of each individual was measured by using Pediatric Quality Of Life Inventory™ 3.0 Cardiac Module.***Results:** *In respect to heart problem symptoms mean quality of life score was 78.16, in respect to treatment compliance mean quality of life score was 96.16, in respect perceived physical appearance mean quality of life score was 87.98, in respect to treatment anxiety mean quality of life score was 78.16, in respect to cognitive problem mean quality of life score was 89.07, in respect to communication mean quality of life score was 86.43. Maximum children of age <5 year had mild malnutrition at the time of study. Maximum children of age >5 year had normal nutritional status. Out of 70 postoperative children called for study 17 were found to be expired during or sometime after surgery which shows 75.7% survival after Pediatric cardiac surgery.***Conclusions:** *Overall improved quality of life was observed in all children after heart surgery with mean quality of life score >75 in all scales.***Keywords:** *Quality of life, Pediatric cardiac surgery, Pediatric Quality Of Life Inventory™ 3.0 Cardiac Module, QoL.***Introduction**

According to the definition of Gill and Feinstein quality of life rather than being a description of the patients health status is a reflection of the way

that patients perceive and react to their health status and to other, nonmedical aspects of their lives<sup>(1)</sup>. Quality of the life can be assessed ideally directly by the patient, or if it is not possible

(young children, physically handicapped), by someone close to the patient, such as a family member, and finally by a health care provider.

The various dimensions of the HRQOL on patients with heart disease might be assessed using generic or specific questionnaires. The Pediatric Quality of Life Inventory™ 3.0 Cardiac Module is a specific toll that can be easily and quickly applied to measure HRQOL in children and adolescents with heart disease. It is validated for use in clinical practice, where it facilitates the identification of risk, health status, and the results of treatment in paediatric populations with heart disease. The assessment of quality of life in chronically ill children and adolescents has become increasingly important as the mortality rates associated with various chronic diseases have decreased and survival rates increased.

Although medical intervention often results in the improved health status of Pediatric patients, there is evidence to suggest that frequent hospitalizations intrusive medical procedures, and uncertainty of survival, negatively impact childhood development and adjustment<sup>2</sup>. According to an analysis of Pediatric Quality of Life Inventory™ children as young as 5 year old can reliably and validly self- report their HRQoL with an age appropriate instrument<sup>3</sup>.

### Methodology

This is a prospective analytical study conducted in Pediatric cardiology clinic of Department of Pediatric, Shyam Shah Medical College and Gandhi Memorial Hospital, Rewa (MP) over a period of 10 months from December 2014 to September 2015. The study included 43 children aged 2 to 18 years, of both sexes who had undergone surgery for heart disease at least 6 months back. A structured Performa and questionnaire were filled for every child enrolled in the study. The parents and children of study group were informed about the purpose of research and that by filling out the questionnaire they were giving their consent to take part in the research.

Pediatric Quality of Life Inventory™ 3.0 Cardiac Module was used as questionnaire to measure quality of life which includes both parent proxy-reports and child self-reports. The PedsQL 3.0 Module was adopted for the age groups: from 2 to 4 years, from 5 to 7 years, from 8 to 12 years and from 13 to 18 years.

The PedsQL 3.0 Cardiac Module is composed of parallel child self-report and parent proxy report formats. We used child self- reports formats for most of the children except for some who were uncooperative or were unable to answer questionnaire properly where we used parent proxy-report formats. The 27-item PedsQL 3.0 Cardiac Module encompasses Heart Problems (7 items), Treatment (5 items), Perceived physical appearance (3 items), and Treatment anxiety (4 items), Cognitive problems (5 items), communication (3 items) scales for ages 8-18 years and 25 items Heart problems (7 items), Treatment (3 items), perceived physical appearance (3 items), and Treatment anxiety(4 items), Cognitive problems (5 items), Communication (3 items) Scales for ages 5-7 years, while 23-items Heart problems(7 items),Treatment (3 items), Perceived Physical appearance (3 items), and Treatment anxiety (4 items), Cognitive problems(3 items), communication (3 items) scales for ages 2-4 years. 5 points Likert scale is used for the child self-report and the parent proxy report (0, never a problem; 1, almost a problem; 2, sometimes a problem; 3, often a problem; 4, almost always a problem). Items are reverse- scored and linearly transformed to a scale from 0 to 100 points such that higher scores indicate better HRQOL.

### Statistical Analysis

Data were tabulated using Microsoft office — Excel sheet and analysed using the Paired t-test and ANOVA. Frequencies and percentages were calculated for all the categorical variables. Chi-square test was used for analysing categorical variables. P-value <0.05 considered as significant.

**Result**

In our study total of 43 patients were studied. Most of the patients (39.5%) were adolescents (13-18 yrs.). The mean age was 10.24 ± 4.46 years and the median age was 10 years (table-1). Males (n=26) were more than females (n=17). The mean quality of life score obtained in our study with respect to heart problems-symptoms in different age group was in Toddler(83.3%), Young child (79.8%), Child (76%) and Adolescent (76.9). The mean QoL scores with respect to other problem groups in our study in different ages are as follows:

Treatment compliance: Toddler(97.2), Young (96.2), Child(97.3), and adolescent (95%), Perceived physical appearance: Toddler(88.9), Young (91.7), Child (85.6), adolescent (87.3),

Treatment anxiety: Toddler(96), Young child (91.8), Child(96.1), adolescent (93.8), Cognitive problems: Toddler(91.7), Young child(88.9), Child (92.7), adolescent (85.9) and Communication: Toddler(83.3), Young child (83.3), Child ((95.5), adolescent (83.3) (table-2). In our study we found that after cardiac surgery at the time of assessment maximum children(70.1%) of age <5 years were malnourished but had mild malnutrition.(Table-3) while 28.6% had mild stunting(Table-3) and 14.3% had moderate stunting(Table-3). 57.1% of age <5 years had mild wasting. In our study it was found that after cardiac surgery in children >5 years age 50% have normal nutritional status and 33.7% have mild malnutrition while 16.7% have moderate malnutrition (Table-4).

**Table- 1:** Distribution of patients with respect to age (years)

Age Group	Frequency	Percent	Valid Percent
Toddler (2-4 yrs)	6	14.0	14.0
Young child (5-7 yrs)	9	20.9	20.9
Child (8-12 yrs)	11	25.6	25.6
Adolescent (13-18 yrs)	17	39.5	39.5
Total	43	100.0	100.0

**Table 2:** Comparison of Quality of life score among various Age groups (Quantitative)

Parameter	Toddler		Young child		Child		Adolescent	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Heart problem	83.3	7.4	79.8	12.9	76.0	10.4	76.9	12.3
Treatment compliance	97.2	6.9	96.2	7.5	97.3	9.0	95.0	6.1
Perceived physical appearance	88.9	8.6	91.7	8.3	85.6	18.3	87.3	14.8
Treatment anxiety	96.0	6.2	91.8	10.8	96.1	6.9	93.8	12.1
Cognitive problems	91.7	13.9	88.9	14.5	92.7	14.2	85.9	16.2
Communication	83.3	21.1	83.3	18.2	95.5	10.8	83.3	21.9

**Table-3:** Distribution of nutritional status in <5 year old

Group	Weight to Age					Height/Length for age						Weight for Height/Length				
	Normal	Mild wasting	total	Missing system	Total	Normal	Mild stunting	Moderate stunting	Total	Missing system	Total	Normal	Mild malnutrition	Total	Missing system	Total
Frequency	2	5	7	36	43	4	2	1	7	36	43	3	4	7	36	43
Percent	4.7	11.6	16.3	83.7	100	9.3	4.7	2.3	16.3	83.7	100	6.9	9.3	16.3	83.7	100
Valid percent	28.6	71.4	100			57.1	28.6	14.3	100			42.9	57.1	100		

**Table- 4:** Distribution of nutritional status with respect to BMI

Group	Frequency	Percent	Valid Percent
Normal nutrition	18	41.9	50.0
Mild malnutrition	12	27.9	33.3
Moderate malnutrition	6	14.0	16.7
Total	36	83.7	100.0
Missing system	7	16.9	
Total	43	100.0	

**WHAT IS ALREADY KNOWN?**

**The life of post operated Pediatric Cardiac surgery patient has some improvement in Quality of Life**

**WHAT THIS STUDY ADDS?**

**There is definite improvement of Quality of Life after Pediatric Cardiac Surgery and improvement in the nutritional status of the Child**

**Discussion**

In our study total of 43 patients were studied. Most of the patients (39.5%) were adolescents (13-18 yrs). Elnur Tahirovi et al<sup>4</sup> in their study also have maximum patients (34.2%) of same age group. overall improved quality of life was observed in all children after heart surgery with mean QoL score >75 in all scales. This result is comparable to result obtained by ElnurTahiroviet al<sup>4</sup> using PedsQL generic core scale, where same results were obtained in all scales. The mean quality of life score obtained in our study with respect to heart problems-symptoms in different age group was in Toddler(83.3%), Young child (79.8%), Child (76%) and Adoloescent (76.9) (Table-1). All age groups are comparable in QoL score related to heart problems-symptoms. If we compare this with mean QoL score obtained on Physical health scale in study by ElnurTahirovi et al<sup>4</sup> where results were Toddler(89.4%), Young child(88.7%), child(91.3%), teen(88.4%). It is comparable with our result in all age groups. Maximum children in our study gave self reported QoL but we also relied on parent proxy report for some children who were uncooperative or were unable to answer questionnaire properly. But results were not affected by this proxy reported QoL in these children as studies by Dunbar-Masterson C et al<sup>5</sup>, Brosig CL et al<sup>6</sup>, Hovels-Gurich HH et al<sup>7</sup>, Ekman-Joelsson BM et al<sup>8</sup> and Majnemer A et al<sup>9</sup> showed that QoL in children with operated CHD was comparable

according to proxy, self or combined report. We studied nutritional status of children in our study by dividing them into two groups: children < 5 years age and >5 years age. Nutritional status of children in <5 years is assessed by WHO classification of undernutrition measuring Weight for age (Underweight), Weight for Height (wasting) and Height for Age (stunting) while in age group >5 years nutritional status was assessed by Body mass index (BMI) based WHO classification of undernutrition.

In our study we found that after cardiac surgery at the time of assessment maximum children(70.1%) of age <5 years were malnourished but have mild malnutrition.(Table-3) while 28.6% had mild stunting(Table-3) and 14.3% had moderate stunting(Table-3). 57.1% of age <5 years had mild wasting.

Basheir A. Hassan et al<sup>10</sup> who evaluated nutritional status of children with CHD preoperatively found that overall prevalence of malnutrition was 84.0% in patients with CHD and Severe malnutrition was diagnosed in 71.4% of cases. By comparing with Basheir A. Hassan et al<sup>10</sup> we can say that Malnutrition is common in children with congenital heart disease (CHD). But Cardiac surgery has improved patient nutritional status. Ratanachu-EkS et al<sup>11</sup> who assessed nutritional status of children with CHD pre and postoperatively. Preoperatively they found 57% children with normal nutritional status and 40% were malnourished while 3% were overweight

also. In malnourished children 28% were underweight, wasting was present in 22% and stunting in 16%. But postoperatively they noticed that prevalence of underweight and wasting was decreased to 17% and 6% respectively.

In our study it was found that after cardiac surgery in children >5 years age 50% have normal nutritional status and 33.7% have mild malnutrition while 16.7% have moderate malnutrition (Table-3). This definitely shows improved nutritional status as a result of cardiac surgery in these children.

### Conclusion

Overall improved quality of life was observed in all children after heart surgery with mean QoL score >75 in all scales. There was no statistically significant difference noted in QoL among different age groups ( $p$ -value>0.05). Statistically significant low QoL was observed with respect to perceived physical appearance in children who were operated for Rheumatic heart diseases ( $p$ -value<0.05). Maximum children (>70%) of age <5 years had mild malnutrition at the time of study. Normal nutritional status was present in maximum children (>50%) of age>5 years.

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