

CONSIDERATIONS REGARDING THE QUALITY OF LIFE IN PATIENTS WITH TRAUMA ADMITTED TO AN EMERGENCY DEPARTMENT

P. M. Bogdan, Elena Ariela Banu*, Cristina Marin, Zina Tiron,
Eva Maria Elkan, C. Guțu, Raisa Eloise Barbu
“Dunărea de Jos” University, Galați, Romania
Faculty of Medicine and Pharmacy

*Corresponding author: E-mail: banuariela@yahoo.com

CONSIDERATIONS REGARDING THE QUALITY OF LIFE IN PATIENTS WITH TRAUMA ADMITTED TO AN EMERGENCY DEPARTMENT (Abstract): Quality of life (QoL) is an important outcome indicator in assessing interventions and medical treatments, in order to understand the burden of disease and identify health issues. **The study aim** was to assess the QoL of patients admitted in an Emergency Department, with polytrauma, by applying the SF-12 validated questionnaire. **Materials and methods:** The study group consisted of 101 subjects, aged 15-17, admitted in the “Sf. Ioan” Children’s Emergency Hospital, Galati. **Results:** The Cronbach alpha coefficient was 0.707; mean age 16.43 ±0.88; 69.3% males; 56.4% from urban areas; traumas diagnosed in 19.8% of patients. The mean SF-12 score was significantly lower in patients with sprain (score=89.20) or polytrauma (score=89.90) (p=0.018); slightly lower in patients whose physical and emotional health greatly affected social activities. The degree of impairment in the patient who felt a lot of change in physical and/or emotional health reduced the SF-12 score by 20% (p=0.829). Very intense body pain was associated with a 24% lower SF-12 global score (p=0.308). The mean level of SF-12 scores differed significantly depending on the general health status (p=0.001): on the total study group, a reduced impairment of the QoL was revealed, the mean score was 91.95±7.67, representing 85.9% of the maximum value recorded; the lowest mean value was recorded in patients with a poor general condition (86.67±11.93). **Conclusions:** The QoL in pediatric patients admitted with various types of trauma did not differ significantly between age groups, sexes or residential environments. The global SF-12 score revealed a decrease in the QoL, due to by the very intense bodily pains that significantly affected the patients’ physical and emotional health. **Keywords:** CHILD, EMERGENCY, QUALITY OF LIFE, QUESTIONNAIRE.

The concept of quality of life (QoL) was included as one of the basic principles in the Constitution of the World Health Organization (WHO) through the very definition of the notion of health as “a state of physical, mental and social well-being and not merely the absence of disease or infirmity”. Currently, there is an increasing

interest in the field of QL and specific attention is paid to traumatic brain injury, orthopedic injuries, family stress and post-traumatic stress disorder (1). Studies have noted difficulties with variability in participant characteristics, health-related quality of life measures, and duration of patient follow-up across cohort studies over longer

periods of time (2).

The QoL in children significantly affects that of the parents and the family. Vast pediatric conditions, from common viral and bacterial infections (3), tuberculosis (4) from minor trauma to polytrauma, have an important impact on the QoL in pediatric patient and their families. There are a number of questionnaires available to assess the quality of pediatrics, which are versions of: The Child Health Questionnaire (CHQ); the assessment questionnaire of the quality of life of the child and parents (Child Quality of Life Parent and Child Forms - TACQOL), etc. (5). The Quality of Life Questionnaire, Short Form (SF-12) was developed by the Medical Outcomes Study. The abbreviated form survey instrument provides a solution to the problem faced by many medical investigators of having to restrict the length of the survey. The instrument was designed to reduce respondent burden while achieving minimum standards of accuracy for the purpose of group comparisons involving multiple dimensions of health (6).

The study aim was to assess the QoL of patients admitted in an Emergency Department (ED), with various polytrauma, from Galati county, by applying a validated questionnaire.

MATERIALS AND METHODS

The study group consisted of 101 subjects, aged between 15 years and 17 years and 11 months, admitted in the ED, „Sf. Ioan” Children’s Emergency Hospital, Galati.

Questionnaire method. The SF-12 (Short Form-12) questionnaire was applied to assess the health status of pediatric patients aged between 15 and 17 years and 11 months, admitted to the ED with trauma.

The informed consent was applied for each patient and for the relative (adult), later he freely consented to answer the questions.

Questionnaire validation. The Cronbach alpha coefficient was calculated = 0.707 and respectively the value based on the standardized items 0.716., so this questionnaire was validated for the Romanian language for our group of patients.

Statistical methods

The data were also processed with the help of statistical software *MS Excel 2010* and *SPSS version 18.0*. The significance threshold used was 95% ($p < 0.05$). The statistical normality of the series of values and checking whether they are contained was checked with Skewness or Kurtosis tests. The mean, median, minimum and maximum values were considered as primary indicators, as well as the standard deviation, the coefficient of variation as dispersion indicators. Nonparametric chi-square tests or the Kruskal Wallis test were used to compare two or more frequencies within the same study group.

RESULTS

Demographic data

Regarding the age group, it varied from 15 to 17.9 years; mean age 16.43 years ± 0.88 ; 69.3% were male subjects (78.3%; 63.6%, respectively 68.9%; $p=0.542$); 56.4% from urban areas (65.2%; 60.6%, respectively 48.9%; $p=0.172$). The most frequent diagnosis was represented by sprains (29.7%), especially in 33.3% of 16-year-old children and contusions (21.8%), more frequently in the 17-year-old age group (26.7%). Traumas were identified in 19.8% of patients, more frequently at 16 years (27.3%), and fractures at 13.9% of the total, more frequently at 15 years (17.4%) and 17 years (17.8%) (tab. I).

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TABLE I
Distribution of cases according to diagnosis and age groups

Diagnosis	15 years (n=23)		16 years (n=33)		17 years (n=45)		Total (n=101)	
	n	%	n	%	n	%	n	%
Arthralgia	-	-	1	3.0	-	-	1	1.0
Contracture	1	4.3	-	-	-	-	1	1.0
Avulsion	-	-	1	3.0	-	-	1	1.0
Contusion	2	8.7	8	24.2	12	26.7	22	21.8
Sprain	7	30.4	11	33.3	12	26.7	30	29.7
Fracture	4	17.4	2	6.1	8	17.8	14	13.9
Injury	3	13.0	9	27.3	8	17.8	20	19.8
Polytrauma	4	17.4	1	3.0	5	11.1	10	9.9

Analysis of the questionnaire, with the selective presentation of the items

Item 1. General health status. Depending on the diagnosis (p=0.039), the subjects

with trauma assessed their general health status as “good” (55%); the subjects with polytrauma rated their general health status as “good” (70%) (fig. 1).

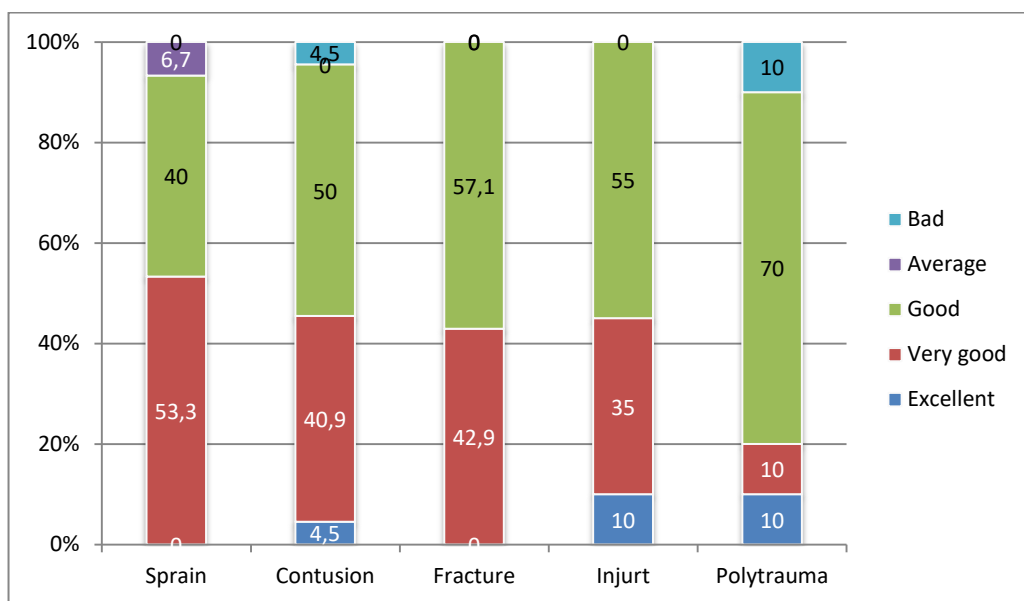


Fig. 1. General health status according to diagnosis

Item 3. Limitation of physical activities depending on the current health status. The activities with the greatest limitation were strenuous activities (52.5%); moderate activities (49.5%) (p=0.001).

Item 10. Affecting social activities by the state of physical or emotional health. 10.9% of subjects believe that physical or emotional health sometimes affected social activity, and 45.5% rarely; most of the

time. Depending on the diagnosis, it was highlighted as follows ($p=0.880$): in patients with sprains - most of the time

(6.7%); most of the time (64.3%) in patients with fractures; most of the time (15%) in trauma patients (fig. 2).

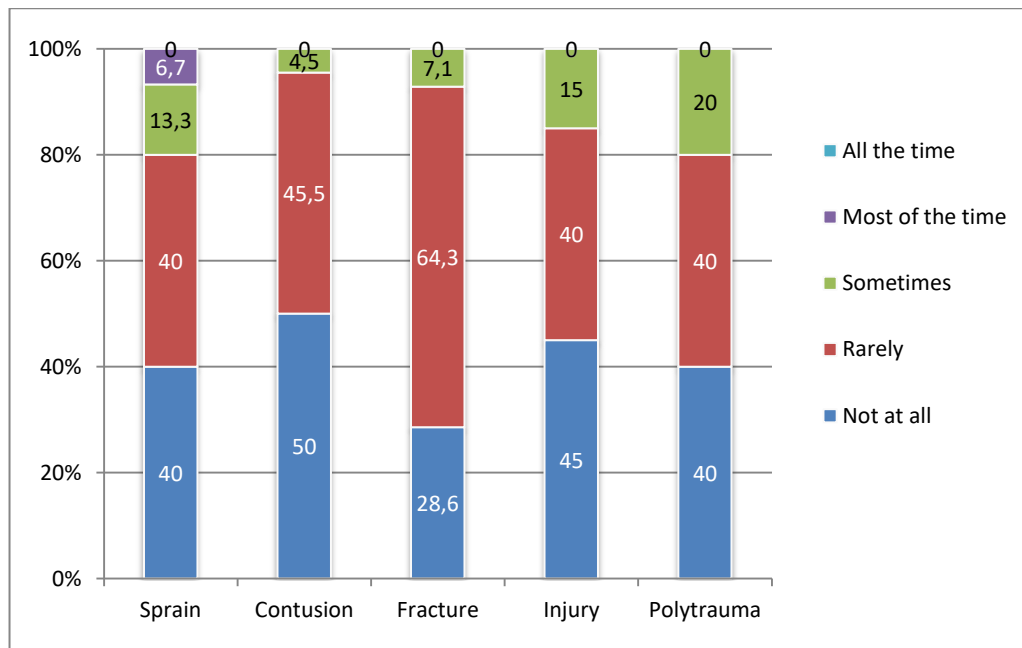


Fig. 2. The influence of social activities by the state of physical health or emotional depending on the diagnosis

Evaluation of scores for the applied questionnaire

The mean SF-12 score was slightly higher in the 16-year-old age group (91.61; 92.61; respectively 91.64; $p=0.839$). The

mean SF-12 score was slightly lower in females (92.33 and 91.10 respectively; $p=0.460$). The mean SF-12 score was slightly lower in urban patients (91.23 vs. 92.89; $p=0.284$) (fig. 3).

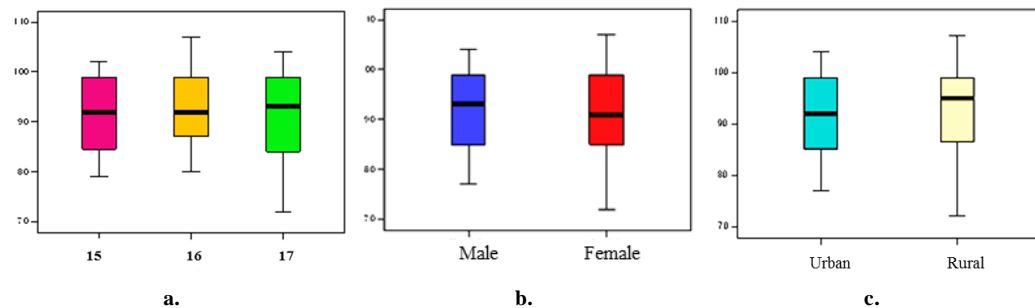


Fig. 3. The average level of the SF-12 score compared by age groups (a.) and compared by gender (b.) and residence areas (c.)

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The mean SF-12 score was significantly lower in patients with sprain (score=89.20) or polytrauma (score=89.90) and significantly higher in patients with contusions (score=96) (p=0.018) (tab. II).

The multivariate analysis revealed that

the limitation of physical activities due to the health status (R square =0.046; p=0.339), accompanied or not by emotional limitations (R square =0.060; p=0.699) did not significantly affect the QoL (tab. III).

TABLE II.
Descriptive indicators of SF-12 score by health status

Gender	N	Mean	Std. deviation	Std. error	Confidence interval 95%		Min	Max	F test (ANOVA) p
					-95%CI	+95%CI			
<i>General health status</i>									
Bad	3	86.67 <small>p=0.884</small>	11.93	6.888	57.03	116.30	77	100	0.484
Good	50	91.56 <small>p=0.999</small>	7.48	1.058	89.43	93.69	78	104	
Very good	44	92.45 <small>p=0.999</small>	7.64	1.152	90.13	94.78	72	107	
Excellent	4	95.25 <small>p=0.999</small>	8.18	4.090	82.23	108.27	83	100	
Total	101	91.95	7.67	0.763	90.44	93.47	72	107	
<i>Current health status</i>									
Much better now	3	91.00 <small>p=0.984</small>	13.86	8.000	56.58	125.42	83	107	0.019
Something better	17	94.53 <small>p=0.882</small>	6.22	1.508	91.33	97.73	80	101	
About the same	43	93.86 <small>p=0.038</small>	7.33	1.118	91.60	96.12	78	104	
Something worse	32	88.75 <small>p=0.104</small>	7.19	1.272	86.16	91.34	72	104	
Much worse	6	88.50 <small>p=0.038</small>	8.36	3.413	79.73	97.27	82	104	
Total	101	91.95	7.67	0.763	90.44	93.47	72	107	

TABLE III
Global score according to physical and emotional activities limited by the health status

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,214 ^a	,046	,006	7,650	,046	1,149	4	96	,339
2	,245 ^b	,060	-,011	7,713	,014	,477	3	93	,699

a. Predictors: (Constant), I4d, I4a, I4b, I4c

b. Predictors: (Constant), I4d, I4a, I4b, I4c, I5c, I5b, I5a

DISCUSSION

QoL measurement is currently an important outcome indicator in evaluating interventions and medical treatments (7), in understanding the burden of disease, in identifying health inequalities, in allocating health resources and in epidemiological studies (8) and health surveys (9). In clinical practice, it has been suggested that QoL tools can be useful in identifying and prioritizing health problems for patients (10), facilitating communication between patients and medical staff, identifying hidden or unexpected health problems (11), as decision aids and in monitoring changes in patients' health or detecting responses to treatment (12).

In our study, the SF-12 health-related quality of life score was slightly lower in patients whose physical and emotional health greatly affected social activities. The degree of impairment in the patient who felt a lot of change in physical and/or emotional health reduced the SF-12 score by 20% ($p=0.829$). Very intense body pain in the past four weeks was associated with a 24% lower SF-12 global score, but the difference was not statistically significant ($p=0.308$). The difference between the mean levels of SF-12 global score was not statistically significant according to the impairment of usual work by the pain felt in the last four weeks. The degree of impairment in patients who experienced a lot of pain decreased the SF-12 score by 14% ($p=0.706$). Physical and emotional health status that affected social activities was not significantly associated with SF-12 global score. The degree of impairment in patients who felt most of the time the change in social status decreased the SF-12 score by 17% ($p=0.898$).

The mean level of SF-12 scores differed significantly depending on the general

health status ($p=0.001$): on the total study group, a reduced impairment of the QoL was revealed, the mean score was 91.95 ± 7.67 , representing 85.9% of the maximum value recorded; the lowest mean value was recorded in patients with a poor general condition (86.67 ± 11.93), without significant differences compared to the mean level recorded for the other responses ($p=0.884$); the highest mean value was recorded in patients with an excellent general condition (95.20 ± 8.18) without significant differences compared to the average level recorded for the other responses ($p=0.999$).

As compared to the previous year, the mean level of SF-12 scores registered significant differences according to the current health status ($p=0.019$): the lowest mean value was registered in patients with a much worse current state (88.50 ± 8.36), significant difference compared to the average level recorded for the other responses ($p=0.038$); the highest average value was recorded in patients with a general condition currently approximately the same as the previous year (93.86 ± 7.33) ($p=0.038$).

As shown by other recently published studies, the decrease in the health-related quality of life of children after trauma contributes to the increase in caregiver stress and family burden. Posttraumatic stress correlates with changes in QoL and with significant impact on the child's physical, social and family activities. The development of QoL instruments for children and adolescents has continued in recent years, especially with regard to specific questionnaires (13).

Since QoL is subjectively evaluated through questionnaires (14), further studies would be necessary to follow the evolution of QoL over time, in these patients, which we intend to do in the near future.

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CONCLUSIONS

The QoL in pediatric patients admitted in ICU with various types of trauma did not differ significantly between age groups, sexes or residential environments. The global SF-12 score revealed a decrease in the QoL, generated by the very intense bodily pains that significantly

affected the patients' physical and emotional health.

CONFLICT OF INTEREST AND FUNDING

The authors declare that there is no conflict of interest and they received no funding.

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