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Source / Izvornik: **Collegium Antropologicum, 2008, 32, 1121 - 1127**

Journal article, Published version
Rad u časopisu, Objavljena verzija rada (izdavačev PDF)

Permanent link / Trajna poveznica: https://urn.nsk.hr/urn:nbn:hr:105:297065

Coll. Antropol. **32** (2008) 4: 1121–1127
Original scientific paper

The Quality of Life during the Treatment of Long Bone Fractures in Children and Adolescents

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A B S T R A C T

This paper evaluates and compares basic emotional reactions towards the illness, as well as the quality of life in relation to the various types of treatment of isolated long tubular bone fractures of extremities in children and adolescents. This prospective clinical research comprehends 135 patients (94 males and 41 females), aged 10 to 18, treated for the mentioned bone fractures in the period from October 2003 till March 2005 at The Departments for Pediatric Surgery of three hospitals: the Clinical Hospital Centre in Rijeka (88.8% of the patients), the Clinical Children's Hospital in Zagreb (9.7% of the patients) both in Croatia, and 1.5% of the patients in the Clinical Hospital in Mostar (Bosnia and Herzegovina). 53.3% of the patients were treated conservatively, 29.6% of them underwent the elastic stable intramedullary nailing (ESIN), while the remaining 17.1% of the patients were treated with other surgical techniques (AO-plates or Kirschner-wire ostheosyntheses). The basic methods were self-reported questionnaires: the Spielberg State Trait Anxiety Inventory (STAI1) to establish momentary anxiety and the Short Form-36 Health Survey (SF-36) to evaluate quality of life, i.e. the perception of the illness during treatment. The STAI1 was administered twice to the patients: within 1 week of the experienced trauma (at baseline) and 6 months after the trauma, whereas the SF-36 was administered only once, i.e. a month after the experienced trauma. Our results point at an increased anxiety indicators in all the patients immediately after the experienced trauma, mostly in patients treated surgically, especially those who underwent the ESIN method; whereas after 6 months from the experienced trauma the anxiety indicators were greatly reduced. The quality of life was better in patients who underwent a conservative treatment, both physically and mentally, than in those surgically treated. This points to the fact that the surgical method itself, despite its type, is an additional stressor which causes additional anxiety and depressive reaction. Our results suggest (from psychological point of view) that the conservative method of treating long bone fractures in children and adolescents should be used since it causes less emotional reactions on the illness ascertaining a better health experience during the treatment than the active surgical treatment (regardless of the type), which should be practised with criticism and according to strict surgical indications. If the surgical treatment should be necessarily adopted, we should take into consideration the possibility of psychologically preparing the patients in order to diminish the psychological reaction on the surgical treatment.

Key words: *adolescents, children, different treatments, long bones fractures, quality of life*

Introduction

There are two basic approaches in the treatment of bone fractures of the locomotory system: the conservative and the active surgical approach. The conservative treatment (CT) is based on a closed type of treatment and comprehends several types of treatment: immobilization only, or reposition of segments by their disconnection with immobilization, a variety of bone, skin or combined extensions. Active surgical treatment (AST) com-

Received for publication September 20, 2007

prehends all active therapeutic procedures adopted in reposing the dislocated segments and their retensions in the corrected position by using diverse ostheosynthetic means. There are several ASTs depending on a vaiety of surgical techniques, i.e. on the various ostheosynthetic means in use. One of the newest surgical methods that is advantaged over the others with its results is the Elastic Stable Intramedullary Nailing (ESIN), originally known as Embrochage Centro-Médullaire Élastique Stable (ECMES)[1–4].

A trauma in the skeleton that grows is different from the one where growing is completed due to everything that the growing process comprehends. However, apart from the differences in organism biology, children and adults differ in the reaction of the organism to traumas, especially towards skeleton traumas such as the cause, the origin, metabolic changes, healing reparatory processes of the damaged tissues, as well as the psychological reactions of the traumatized[5]. The field of children bone trauma of the locomotory system is interesting for researches not only because of relatively frequent incidence (20% of all traumas in children)[6], but also because so far there has not been reached a unique approach in treating this pathology. The conservative treatment has long been the only choice used almost exclusively. Recently, the attitude in favour of active surgical treatment has been, slowly but safely, gaining ground. The reasons for such an upturn are several: surgical technology development, recognition of the children tissue's biological strength, the importance of the psychological moment and the reduction of treatment costs[7–9]. Several authors testified about the good results in adopting various surgical techniques[10–12]. Anyway, even nowadays these two basic approaches in treating fractures of the locomotory system in children and adolescents are still exclusive and polarized.

On the other hand, the holistic scientific aspect in clinical medicine is manifested as a biopsychosocial concept promoting multifactoral approach towards the patient as a whole[13–16]. Basic biopsychosocial principles in approaching the pediatric patient include: age, physical growth, adaptive, physical and social potentials, as well as the complexity of reaction to stress on several levels[17,18]. The period of early and middle adolescence is teeming with changes in relation to parents and »important others» in the life of an adolescent. This is the period when school, society, friends start playing an important role in forming the identity and in becoming independent. This is the period when children have to fulfil two very important tasks: »the internal» one, represented by the greater detachment from the family and the gradual achievement of independence; and the »external», including school commitments and tasks that the society demands. These are rather difficult tasks the adolescent has to face and to overcome them young people have to avail themselves of all the psychological and all the physical strength they have. Everything that disturbs the course of such psychological development, the scholastic achievements or the social life – and the limbs' trauma is exactly such an event – will influence the very lively psychological processes as well as the perceptions of one's own potentials and health, and as a consequence, it may develop into depression and/or depressive reaction.

The limbs' fracture interferes with the ordinary life habits since it unables the adolescent to participate in lessons, in daily meetings with friends forcing the youth again to be more dependent on parental care, which sometimes influences the whole image about oneself.

It is to be expected that the longer the disfunction, the more significant disruptions in growth will occur. Everything that shortens the course of treatment and the social disfunction in adolescents should have less consequences on self-perception of one's health, as well as on the basic emotional reactions to the illness. Thus, it is to be expected that adopting the surgical method, which enables a quicker recovery, has fewer psychological side-effects resulting in a better experience of one's own health capabilities.

The main aim of this research is to establish whether adopting the active surgical treatment in locomotory system fractures among children and adolescents, especially the ESIN method (and consequently a shorter disfunctional period), has, as a consequence, less evident anxiety in adolescents and if during such treatment the self-perceptive experience of the illness and limitations is lessened.

Material and Methods

Participants

The following research was performed prospectively, comparatively and interdisciplinarily on random examinees' sample. It comprised children and adolescents from 10 to 18 years of age who, due to isolated long tubular bone fractures, were hospitalised on the Department for Pediatric Surgery, at the Clinical Hospital Centre in Rijeka in the period between October 2003 and March 2005. In the same period patients who complied with the criteria of the research were found at the Departments for Pediatric Surgery in Clinical Children's Hospital in Zagreb, Croatia and the Clinical Hospital in Mostar, Bosnia and Hezegovina. The basic excluding criteria were politrauma, under 10 years of age (due to the limited surveys used as methods of the research**),** above 18 years of age (since young adults are not treated in Children's hospitals), and fractures of all other bones (not belonging to the locomotory system).

Out of 282 children hospitalised for bone fracture at the Department for Pediatric Surgery of the Clinical Hospital in Rijeka in the above mentioned period, 65 did not comply with the inclusive age criteria, 27 of them had fist or foot fracture, and 31 were excluded due to politrauma and other bone fractures. 39 patients who would comply with the criteria were not registered in time and not included in the research for technical reasons.

In this way we had a sample of 120 patients at the Clinical Hospital Centre in Rijeka, 13 patients at the

Clinical Children's Hospital in Zagreb and 2 patients at the Clinical Hospital in Mostar, the overall amount being 135 children and adolescents, 94 males and 41 females.

The participants were divided into three groups according to the type of treatment: 1. Conservatively Treated Patients (CTP) – 73 of them; 2. ESIN Method Treated Patients (ESIN-MTP) – 40 of them; and 3. Other Surgical Techniques Treated Patients (OST-TP) including AO plates and K-wire ostheosintheses – 22 of them.

Methods and procedure

In whole sample the following methods were used:

1. Half structured demographical questionnaire constructed for the needs of this research. It is a 30 items questionnaire referring to demographical data (including data about school and family of the patients), as well as data linked to the bone trauma and its treatment. Part of this questionnaire linked to the demographical data was filled in the first week of hospitalisation in the form of interviews of the researcher with the patients, that is with their parents for data that the children were unable to give. The part of the questionnaire linked to the course of the treatment and surgery was completed by the researcher who consulted the medical file 6 months after the treatment.
2. For the examination of the basic emotional states of the patients during the treatment of limbs trauma the following instrument was used:
   – Spielberg State Anxiety Inventory (STAI) – 20 items self-evaluating questionnaire with 4 multiple choice answers, for establishing the existence and the level of momentary anxiety (since its sub-questionnaire STAI1 was used)[19]. This questionnaire was used twice, within a week since the hospitalisation (baseline) and after 6 months.
3. To establish the experience of limitation due to the illness, i.e. the quality of life during the treatment the following instrument was used:
   – Short Form – 36 Health Survey (SF-36) – the most widely used instrument currently employed to measure quality of life, 36-item self-reported Medical Outcomes Study[20,21]. It assesses two broad dimensions – physical health and mental health, each consisting of four specific domains or subscales (i.e. eight total). Domains of physical health were: physical functioning, role limitations due to physical health problems, bodily pain and general health perceptions, and domains of mental health were: vitality, social functioning, role limitation due to emotional problems and general mental health. This questionnaire was used only once, a month after the trauma and the beginning of the treatment.

All the examinees and their parents were informed with the aims and the methods of the research and signed the informed consent. An interview with the parents and the children followed, which included information about demographic data. In the end the patients filled the questionnaire on their own in the presence of the researcher, who was there to explain necessary details. None of the examinees, nor their parents, refused to participate in the survey. They accepted it without remuneration.

Statistical analysis

Data were analized with a SPSS statistical package.

For all the adopted questionnaires the reliability of internal consistency expressed with Chronbach alpha coefficient was used.

Result distributions were showed for some demographic and clinical characteristics. To test group differences, the chi-square (χ^2) test was used with data expressed in frequency variables on nominal level form, and t-test for variables expressed on interval level.

For STAI1 questionnaire two-way variance analysis (ANOVA) with one between-factor (type of treatment) and one within-subject factor (first and second measure) were used. As a post-hoc test to differentiate various types of treatment the LSD test was used. For the SF-36 questionnaire analysis a one-way variance analysis (ANOVA) was used, while as a post-hoc test for supplementary comparison between pair groups (type of treatment) – LSD test was used.

Results

A complete demographical distribution as well as the distribution of clinical characteristics of the patients in the sample is shown in Table 1. The whole sample was divided into three main patient groups according to the type of long bone limb's fracture treatment. All three patient groups in the sample had similar age distribution (CTP: M=11.97; SD=1.75; ESIN-MTP: M=12.35; SD=2.42; OST-TP: M=2.91; SD=1.87). More than half of the examinees were males (M=94; F=41). Fracture location according to bone type is significantly different statistically among three types of treatment. Forearm fracture are more frequently treated conservatively; ESIN method treatment is usually practised with upper leg and lower leg bone fracture, and other surgical methods are used for lower leg fractures. However, this chi-square has a too big number of cells with theoretical frequency less than 5, so that it should not be interpreted. Fracture location according to the bone part is statistically very different among the three types of treatment. Conservative and other surgical methods are used more frequently when treating distal part bone fractures, while the ESIN method has so far been privileged in treating proximal and middle parts bone (dyaphisis) fractures. According to the fracture dynamics, all the fracture samples can be divided in two main types: fall and impact (blow). In our sample the cause of fracture had been mainly caused by fall, which was mostly treated conservatively, with statistical significance. Statistically, the seriousness of fractures is significantly different among the three types of treatment. Conservative treatment was more used in

TABLE 1
DEMOGRAPHIC AND CLINICAL SAMPLE CHARACTERISTICS ACCORDING TO THE TYPE OF TREATMENT

Characteristics	Conservatively Treated Patients (CTP)	ESIN Method Treated Patients (ESIN MTP)	Other Surgical Techniques Treated Patients (OST TP)	Total	Analysis
	N(%)	N(%)	N(%)	N(%)	χ^2; p
Gender					
Male	51(69.9)	25(62.5)	18(81.8)	94(69.6)	χ^2=2.51
Female	22(30.1)	15(37.5)	4(18.2)	41(30.4)	p=0.285
Fracture localization					
Forearm	1(1.4)	5(12.5)	2(9.1)	8(5.9)	
Underarm – 1 bone	37(50.7)	1(2.5)	2(9.1)	40(29.6)	
Underarm – 2 bones	26(35.6)	10(25.0)	5(22.7)	41(30.4)	χ^2=67.54
Upper leg	1(1.4)	9(22.5)	0(0.0)	10(7.4)	p<0.001
Lower leg – 1 bone	5(6.8)	5(12.5)	6(27.3)	16(11.9)	
Lower leg – 2 bones	3(4.1)	10(25.0)	7(31.8)	20(14.8)	
Side of fracture					
Right	35(47.9)	15(37.5)	15(68.2)	65(48.1)	χ^2=5.35
Left	38(52.1)	25(62.5)	7(31.8)	70(51.9)	p=0.069
Localization on bone					
Proximal part	4(5.5)	8(20.0)	1(4.5)	13(9.6)	χ^2=38.42
Medium part	18(24.7)	27(67.5)	5(22.7)	50(37.0)	p<0.001
Distal part	51(69.9)	5(12.5)	16(72.7)	72(53.3)	
Complexity of fracture					
Less complex	5(6.8)	1(2.5)	0(0.0)	6(4.4)	χ^2=11.24
Middle complex	57(78.1)	26(65.0)	12(54.5)	95(70.4)	p=0.024
Serious	11(15.1)	13(32.5)	10(45.5)	34(25.2)	
Complications					
Yes	64(87.7)	34(85.0)	18(81.8)	116(85.9)	χ^2=0.52
No	9(12.3)	6(15.0)	4(18.2)	19(14.1)	p=0.771
Cause of fracture					
Fall	51(69.9)	16(40.0)	16(72.7)	83(61.5)	
Impact (blow)	2(2.7)	1(2.5)	1(4.5)	4(3.0)	χ^2=29.36
Traffic accident	3(4.1)	16(40.0)	1(4.5)	20(14.8)	p<0.001
Sport injury	17(23.3)	7(17.5)	4(18.2)	28(20.7)	
Number of fractures					
One	51(69.9)	23(57.5)	17(77.3)	91(67.4)	χ^2=4.74
Two	17(23.3)	10(25.0)	3(13.6)	30(22.2)	p=0.315
Three or more	5(6.8)	7(17.5)	2(9.1)	14(10.4)	
Efficiency of treatment					
The same day	57(78.1)	22(55.0)	14(63.6)	93(68.9)	χ^2=8.83
The next day	9(12.3)	14(35.0)	5(22.7)	28(20.7)	p=0.065
After more days	7(9.6)	4(10.0)	3(13.6)	14(10.4)	

treating less complex fractures (infractio) and middle complex fractures, while ESIN and other surgical treatments prevail in treating serious fractures (complex, multifragmentary and with segment dislocation). All other variables in the demographical group and in the one with clinical characteristics were not statistically very different according to the type of treatment.

Reliability of internal questionnaire consistency used as instruments in this research expressed with Chrombach alpha coefficient, in the first and the second analysis was: for STAI1: 0.883; 0.810 and for SF-36: 0.920. Since normal values are between 0.600 and 0.900 it is evident that the used questionnaires were very reliable.

For temporary anxiety, according to STAI1 results (Table 2), a statistically significant survey effect was achieved (F=20.67; p<0.001), whereas the type of treatment effect (F=0.59; p=0.555) and the interactive effect of the type of treatment and measures (F=1.42; p=0.244),

are not statistically significant. Thus, temporary anxiety is significantly higher at baseline, than in the second survey (after 6 months), without statistically significant results according to the type of treatment.

SF-36 results (Table 3) regarding life quality show statistically significant differences in the general health results, regarding the type of treatment, where patients treated conservatively showed better results than patients treated with ESIN method (especially on subscales of bodily pain and general health) and with other surgical methods (especially on subscale physical functioning). General mental health results showed a difference between patients treated conservatively and those treated with ESIN method (especially on subscale mental health and role-emotional), but the difference showed no significant statistical difference.

TABLE 2
RESULTS ON STAI1 SCALE ACCORDING TO THE TYPE OF TREATMENT AND MEASURES

STAI1 Results	Conservatively Treated Patients (CTP)		ESIN Method Treated Patients (ESIN MTP)		Other Surgical Techniques Treated Patients (OST TP)	
	X	SD	X	SD	X	SD
Baseline	35.21	10.52	37.95	11.72	35.59	7.86
After 6 months	32.62	7.79	32.20	7.94	30.32	7.13

TABLE 3
RESULTS ON SF-36 SCALE (SUBSCALES AND SUMMERY MEASURES) ACCORDING TO THE TYPE OF TREATMENT

Results on SF-36 Scale (subscales and summary measures)	Conservatively Treated Patients (CTP)		ESIN Method Treated Patients (ESIN MTP)		Other Surgical Techniques Treated Patients (OST TP)		Analysis
	X	SD	X	SD	X	SD	F; p
Physical Functioning	23.12	4.53	21.03	6.47	19.18	6.69	F=4.92 p=0.009 1>3
Role-Physical	5.84	1.52	5.55	1.58	5.50	1.82	F=0.62 p=0.541
Bodily Pain	8.19	2.02	7.05	2.37	7.91	2.14	F=3.68 p=0.028 1>2
General Health	20.32	3.64	18.48	4.49	19.91	2.27	F=3.17; p=0.045 1>2
Physical health*	57.47	8.33	52.10	11.19	52.50	9.31	F=5.17 p=0.007 1>2,3
Vitality	17.66	4.68	16.10	4.58	17.59	3.36	F=1.68 p=0.190
Social Functioning	7.86	1.92	7.18	2.25	7.00	1.88	F=2.38 p=0.097
Role-Emotional	4.82	1.23	4.55	1.26	4.95	1.29	F=0.92 p=0.400 1>2
Mental Health	24.03	5.19	21.85	5.53	24.36	3.95	F=2.77 p=0.066 1>2
Mental health*	54.37	10.51	49.68	11.76	53.91	7.63	F=2.70 p=0.071 1>2

* Summary measures

Discussion

Due to many advantages of the ESIN surgical methods in relation to other surgical methods (conservative treatment of long bone limbs' fractures included), and due to the more modern trend of adopting surgical methods of treatment, we tried to establish the place and the efficiency of ESIN surgical method of treating long bone fractures in children and adolescents and to justify its large (sometimes even routine) usage. Since the biomedical model of illness and injury understanding did not give sufficiently clear results in solving the dilemma around the attitude on treating locomotory system fractures in children and adolescents, we used the biopsychosocial model for the same problems in the present research. It is proposed that the biopsychosocial model is the most comprehensive theoretical framework within which to conceptualise and evaluate cognitions and behaviours related to body change strategies among children[22].

Our working hypothesis was that patients treated with ESIN method would show less basic reaction to the illness (depression and anxiety), and life quality would be improved due to a relatively short hospitalisation (only a few days), and due to fewer medical examinations during the treatment, as well as a reduced physical and hygienic limitation in relation to patients treated with other surgical methods, especially conservative ones.

Our results only partially confirm this hypothesis. Namely, patients treated with the ESIN method showed highest depression and anxiety values[23], and weakest life quality values in relation to the other two groups of patients, especially those conservatively treated, who presented lowest depression and anxiety values, and best life quality. However, the second survey showed a reduction of depression mostly in the ESIN group. Changes in anxiety level are more or less the same in all the three groups. Life quality parameter, especially in physical health perceptions showed the lowest results in the ESIN group.

There are several factors that could have caused such a result in the end. First, the seriousness, i.e. the complexity of the fracture could have influenced more the illness reactions by itself, but also connected to the type of treatment (all light fractures in our sample were treated conservatively, and complicated with ESIN method). Moreover, the originally suggested stay in hospital of patients treated with ESIN method was of few days (which implies reduction of treatment costs), with presumed reduced number of medical examinations, which would all affect life quality and a quicker and less painful return to normal life. However, in our daily practice, the average stay in hospital of patients treated with ESIN method was up to 10 days, without major differences in numbers of medical examination from those patients treated with other surgical methods. Finally, individual biological predispositions for a response, i.e. reaction on illness or injury affect the illness and health perceptions and are frequently neglected.

Life quality as final survey integrates several aspects of physical and mental health, as well as social functioning. This is the reason why it was chosen for research in this context (integrated approach). Moreover, one of three main tasks of the life quality instruments is to compare outcomes of different treatment modalities[24].

The primary limitation of this study was the self-reported nature of the data collected from participants, but it is not something unusual for psychological researches. Second, the fact that the life quality dimension was surveyed only once which implies that it lacks a prospective dimension. Third limitation regards lack of bibliography: we were unable to find similar researches (even though there are several not completely compatible regarding pathology and population)[25] and therefore we can not compare our results with others placing them in a wider context, which, on the other hand, contributes to the originality of the research. Finally, our results and conclusions can be taken in consideration only from the psychological aspect of trauma influence on the locomotory system and its treatment in a young organism, which presents only one aspect of the problem. The analysis of the present research should be included in a more comprehensive assessment of treating bone trauma among younger population, regarding numerous advantages of active surgical approach such as reduction of the treatment procedure, a sooner reintroduction of the traumatized into daily life and a significant reduction of treatment costs, as well as lessens the hospitalisation in femur fractures, allowing early mobilization of fractured limb, allowing early integration in the social situation and the earlier rehabilitation than the conservative treatment.

In any case, the injury itself, with its seriousness and the subsequent operation, significantly influences the mental state in children and adolescents as well as their quality of life perception. However, we can assert that despite the modern trend among younger surgeon generations to adopt active surgical approach in treating locomotory system fractures, the conservative approach should still be taken into account. What is more, it should be chosen whenever this is possible and as the first method of approach, if both approaches are indicated. The surgical approach is justified only if necessary and with strictly aimed indications. In that case the most significant advantages of the ESIN method should be exploited and assured: short hospitalisation and less frequent examinations. This research does not talk in favour of the non-critical choice of active surgical treatment of long bone fractures in children and adolescents.

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KVALITETA ŽIVOTA TIJEKOM LIJEČENJA PRIJELOMA DUGIH KOSTIJU U DJECE I ADOLESCENATA

S A Ž E T A K

Ovaj članak evaluira i uspoređuje osnovne emocionalne reakcije na bolest i kvalitetu života djece i adolescenata različito liječenih zbog izoliranih prijeloma dugih cjevastih kostiju ekstremiteta. Radi se o prospektivnom kliničkom istraživanju koje obuhvaća 135 pacijenata (94 muškog i 41 ženskog spola), dobi 10–18 godina, liječenih zbog navedenih koštanih prijeloma u razdoblju od listopada 2003. do ožujka 2005. godine na Odjelima za dječju kirurgiju triju bolnica, i to: Kliničkog Bolničkog Centra u Rijeci (88,8% svih pacijenata) i Kliničke Dječje Bolnice u Zagrebu (9,7% svih pacijenata), obije u Hrvatskoj, te 1,5% svih pasijenata u Kliničkoj Bolnici u Mostaru (Bosna i Hercegovina). 53,3% svih pacijenata bilo je liječeno konzervativno, 29,6% elastičnom stabilnom intramedularnom osteosintezom (ESIN metodom), dok ostalih 17,1% pacijenata drugim kirurškim metodama (poput osteosinteza A–O pločicama ili Kirschnerovim žicama). Osnovne metode rada bili su slijedeći samoprocjenski upitnici: Spielberg State Trait Anxiety Inventory (STAI1) za utvrđivanje trenutne anksioznosti pacijenata i Short Form-36 Health Survey (SF-36) za utvrđivanje kvalitete života pacijenata, odnosno njihove percepcije bolesti tijekom liječenja. Upitnik STAI1 pacijenti su ispunili dvokratno i to unutar 1 tjedan od doživljene trauma i 6 mjeseci nakon traume, dok upitnik SF-36 bio je ispunjen jednokratno i to 1 mjesec nakon traume. Rezultati ovog istraživanja ukazuju na povećanu anksioznost u svih pacijenata neposredno nakon traume, većinom u pacijenata liječenih kirurški pogotovo onih ESIN metodom; dok nakon 6 mjeseci od trauma, anksioznost se značajno reducirala kod svih. Kvaliteta života, kako u kategoriji tjelesnog, tako i u kategoriji psihičkog zdravlja, bila je bolja u konzervativno liječenih pacijenata, nego u onih liječenih kirurški. Sve to ukazuje na činjenicu da je kirurško liječenje samo po sebi, bez obzira na vrstu, dodatni stressor koji uzrokuje dodatnu anksioznu i depresivnu reakciju. S psihološke točke gledišta, rezultati sugeriraju da se može računati na konzervativno liječenje prijeloma dugih kostiju u djece i adolescenata jer izaziva manje emocionalne reakcije na bolest i osigurava bolji doživljaj zdravlja pacijenata tijekom liječenja nego aktivno kirurško liječenje, bez obzira na vrstu, koje bi se trebalo koristiti kritički i striktno prema kirurškim indikacijama. U sličaju kada se kirurško liječenje nužno mora primjeniti, trebala bi se uzeti u razmatranje i mogućnost psihološke pripreme pacijenata s namjerom izbjegavanja psihološke reakcije na kirurško liječenje.