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The difference in pain and overall well-being assessment between patients with juvenile idiopathic arthritis, their parents, and physicians in Ukraine

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ABSTRACT

Introduction: The purpose of the study is to evaluate the differences in assessment of pain and overall well-being by patients with juvenile idiopathic arthritis (JIA), their parents, and physicians.

Material and methods: A total of 120 children were included in the study: 60 patients with JIA, 30 patients with reactive arthritis (ReA), and 30 healthy children within age range of five to 17 years. They were accompanied by their mothers. Patient and mother were asked to rate the intensity of the child's pain using a 10-cm Visual Analogue Scale (VAS). The global assessment of child's overall well-being was made by patient, mother, and physician using the same VAS.

Results: The level of agreement between children, parents, and physician in rating the child's present pain and global assessment of the child's overall well-being in JIA patients was good (ICC ≥ 0.75). However, patient-physician agreement in global assessment of overall well-being was much lower compared to patient-parents agreement (ICC = 0.76 vs. ICC = 0.90; $p < 0.05$). The concordance between pain intensity assessments and overall well-being was defined in more than half of the raters. The present study demonstrated that parents were influenced in the VAS assessment by pain complaints, and physical and psychosocial limitations of their children during daily life activities. The physician's estimation of overall well-being was based on joint counts and the results of laboratory tests. While parent and physician were likely to base their judgment using different factors, this did not affect good agreement between their decisions and child report. The similarity is associated with an interdependence of certain factors – for example, the deterioration of joint counts is always accompanied by pain complaints, and physical and psychosocial limitations of children with JIA.

Conclusions: Child's, parent's, and physician's assessment of pain and overall well-being should be considered equally valuable indicators of health status and all of the ratings should be implemented in standard paediatric rheumatology care.

KEY WORDS:

visual analogue scale, rating of pain, global assessment of overall well-being, juvenile idiopathic arthritis.

INTRODUCTION

Pain is one of the most common and distressing symptoms experienced by children and adolescents with

juvenile idiopathic arthritis (JIA). Pain is known to negatively affect all aspects of health-related quality of life, including physical, emotional, social, and role functioning

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[1, 2]. Increased pain also correlated with poor sleep and fatigue in patients with JIA [3].

It is well known that pain associated with JIA fluctuates in intensity both within and across days. Quantitative differences in pain variability in JIA may represent previously unrecognised interindividual heterogeneity that can be used to predict the treatment response. Monitoring variations in pain intensity in a clinical setting may be useful to identify possible triggers of pain and, consequently, help develop alleviating interventions [1].

Valid and reliable assessment of pain is the first critical step in effective pain management. Pain assessment along with other quality measures is recommended for routine testing in paediatric rheumatology as a means of tracking outcomes and generating quality improvement indices [4, 5]. Currently, there is no standardised approach in Ukraine guiding the clinical assessment of pain in children and youths, which should be available to paediatric rheumatologists and other allied health professionals. Regarding other countries, Cohen *et al.* [6] reviewed a total of eight self-report measures that are commonly used to assess pain intensity in children. The Pieces of Hurt Tool, the Faces Pain Scale-Revised, the Oucher, and the Visual Analogue Scale (VAS) have generally been shown to be preferable pain assessment tools in clinical practice and research.

The psychometric properties of VAS have been extensively researched [7–9]. Based on a series of studies, VAS has evidence of good repeatability, construct validity, and criterion-related validity [7–9]. Nevertheless, specific requirements regarding the youngest age for accurate assessment of pain with usage of the VAS are questioned. While some researchers consider the VAS to be suitable for use in children aged over five years, others recommend this scale as most appropriate for children over seven years old [10].

Advantages of VAS include the possibility to make a global assessment of the disease activity in paediatric rheumatology. The patient's, physician's, and parent's global assessments of the disease status are among the most important quantitative measures used to understand patients with JIA and their needs. All these variables have been shown to possess good measurement properties, including responsiveness to clinically important changes in the group of JIA patients and have been selected for inclusion in the ACR Paediatric 30 core set of outcome variables [11, 12].

In rating the child's current disease activity, the physician integrates the information obtained from clinical history, particularly regarding the intensity of pain and the duration of morning stiffness, with the findings of physical examination, specifically focusing on joint swelling and pain on pressure or passive motion, and the results of laboratory tests. Although joint complaints also have a major influence on the parent's assessment, the parent's perception of the child's health status is largely determined

by the ability of the child to cope with arthritis symptoms, namely pain, and by the broad impact of the illness on the child's physical and psychosocial functioning [1, 13]. However, previous analyses of the level of agreement between children, their parents and physician, in rating pain intensity and overall well-being, yielded conflicting results [14, 15]. To our knowledge, there has not been a study examining the differences in the assessment or perception of pain and overall well-being by children, their parents, and physician among the same group of patients with JIA.

The purpose of the study is to evaluate the difference in assessment of pain and overall well-being by patients with JIA, their parents, and physician, and to identify factors associated with possible lack of correlation in Ternopil, Ukraine.

MATERIAL AND METHODS

PARTICIPANTS AND SETTING

Patients with polyarticular onset-JIA, extended oligoarticular, or persistent oligoarticular subtypes according to the Edmonton classification were included in this study. Systemic arthritis was not diagnosed in children. Patients with psoriatic arthritis, enthesitis-related arthritis and undifferentiated arthritis were excluded from the study. The disease onset subtype was defined by clinical symptoms in the first six months of the disease.

A total of 120 children were included in the study: 60 patients with JIA, 30 patients with reactive arthritis (ReA), and 30 healthy children as controls with an age range of 5 to 17 years, and they were all accompanied by mothers. The investigated factor of the study included results of patients', parents', and physician's simultaneous assessment of pain intensity and overall well-being. Verbal informed consent was obtained from both the parent and the children. The group of patients with ReA reported that arthritis was preceded by a history of nasopharyngeal infection in the previous four-week period. The control group consisted of healthy children without any chronic diseases.

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

The full data set by children, their parents, and physician that support the findings of this study are not publicly available due to the restrictions of the ethics approval originally obtained.

PROCEDURE

The demographic and clinical data of the participants were collected from their clinical check-ups and included:

TABLE 1. Demographic and clinical characteristics of the patients of the study

Characteristic	JIA <i>n</i> = 60	ReA <i>n</i> = 30	Healthy children <i>n</i> = 30
Age ¹ (years)	12.5 ± 4.2	8.6 ± 4.9	11.9 ± 3.5
Male (%)	31 (51.6)	19 (63.3)	19 (63.3)
Female (%)	29 (48.4)	11 (36.7)	11 (36.7)
JIA category:			
Polyarticular (%)	29 (48.3)		
Oligoarticular persistent (%)	19 (31.7)		
Oligoarticular extended (%)	12 (20.0)		
Disease duration ¹ (years)	2.6 ± 3.0	0.04 ± 0.06	
Number of active joints ^{1,2}	8.3 ± 10.3	1.5 ± 0.8	
Number of joints with limited range of motion ^{1,2}	3.2 ± 7.0	0.4 ± 0.6	
Number of painful joints ^{1,2}	7.2 ± 8.7	1.4 ± 0.6	
Number of swollen joints ^{1,2}	3.2 ± 5.3	0.5 ± 0.6	
Erythrocyte sedimentation rate ¹ (mm/h)	6.7 ± 8.8	5.2 ± 1.6	
C-reactive protein ¹ (mg/l)	4.3 ± 8.3	4.2 ± 18.2	
Rheumatoid factor positive (%)	8 (13.3)	0	
Chronic iritis (%)	2 (3.3)	0	

JIA – juvenile idiopathic arthritis, ReA – reactive arthritis, ¹mean ± SD, ²ANOVA *p* < 0.05

age, gender, JIA category, and elapsed time between disease onset and study visit to the physician. A comprehensive clinical evaluation was performed, which included several types of measures: the number of active joints, the number of joints with limited range of motion, the number of swollen joints, and laboratory analyses (erythrocyte sedimentation rate [ESR], C-reactive protein [CRP], rheumatoid factor [RF]). All patients were subjected to ophthalmology examinations to exclude chronic iritis. The main clinical features are presented in Table 1.

At the time of the study visit, patient and mother were asked to rate the intensity of the child's pain on a 10-cm VAS (where 0 = no pain, 10 = very severe pain). The global assessment of the child's overall well-being was made by patient, mother, and physician using a 10-cm VAS (0 = very good, 10 = very poor) at the same visit.

Disease activity in JIA was determined by Disease Activity Score (DAS), DAS28, Simplified Disease Activity Index (SDAI), and Clinical Disease Activity Index (CDAI). To obtain the correlations between immune imbalance, pain, and overall well-being of patients with JIA we identified several serum and plasma biomarkers. Biomarkers included clusters of differentiation (CD3, CD4, CD8, CD16, CD22), immunoglobulin (IG) classes IgA, IgM, IgG, IgE, tumour necrosis factor- α (TNF- α), and interleukins: IL-4 and IL-8 in blood serum. The cluster of differentiation expression was evaluated by flow cytometry. The result was presented as the percentage of positive cells from all cells in the selected population. The enzyme-linked immunosorbent assay was used for the detection of class-specific serum antibodies, TNF- α ,

IL-4, and IL-8 values. The results of IgA, IgM, and IgG were expressed in g/l, IgE in IU/l, TNF- α , and IL-4 and IL-8 in pg/ml.

The mothers of patients completed the Ukrainian version of the Childhood Health Assessment Questionnaire (CHAQ) [16]. It measures functional impairment in eight domains (30 items), i.e. getting up, dressing and grooming, eating, walking, hygiene, reaching, gripping, and other activities. The global disability index was obtained by calculating the mean of the eight functional areas (range 0 = best, 3 = worst).

The quality of life of children was assessed by the Ukrainian version of the Child Health Questionnaire (CHQ-PF50) [17]; it was completed by the mother of each patient (100 = best, 0 = worst). The questionnaire included 50 questions divided into 15 concepts: General health perceptions functioning, Role/social limitations – emotional/behavioural, Role/social limitations – physical, Bodily pain/discomfort, Behaviour, Global behaviour, Mental health, Self-esteem, General health perceptions, Change in health, Parental impact – emotional, Parental impact – time, Family activities, and Family cohesion. Physical and psychosocial summary scores were derived from averaging the concepts.

ANALYSIS

We analysed patients' ages, gender, disease durations, and clinical and laboratory results by analysis of variance (ANOVA). Values of *p* < 0.05 were considered as statistically significant. The correlation between children's,

TABLE 2. Results of assessments (mean \pm SD)

VAS Scores range ¹	JIA <i>n</i> = 60	ReA <i>n</i> = 30	Healthy children <i>n</i> = 30
Patient rating of pain	3.52 \pm 1.99	4.47 \pm 2.43	0.54 \pm 1.08
Patient global assessment of overall well-being	3.47 \pm 1.98	4.12 \pm 2.11	0.53 \pm 0.88
Parent rating of child's pain	3.60 \pm 2.05	4.81 \pm 2.14	0.62 \pm 0.96
Parent global assessment of child's overall well-being	3.69 \pm 1.88	4.10 \pm 1.90	0.70 \pm 0.92
Physician global assessment of child's overall well-being	3.35 \pm 1.66	3.12 \pm 1.01	0 \pm 0

¹ANOVA $p < 0.05$; JIA – juvenile idiopathic arthritis, ReA – reactive arthritis

their parents', and physician's assessment in rating pain and overall well-being and JIA severity parameters were compared using Spearman's rank correlation. Correlation coefficients with magnitude > 0.7 indicate variables that can be considered highly correlated, correlations ranging from 0.4 to 0.7 are considered as moderately correlated, and correlations < 0.4 indicate variables that have low correlation.

The difference between children', their parents', and physician's assessment in rating pain and overall well-being was estimated by the intraclass correlation coefficient (ICC). For the interpretation of ICC values, the following classification was used: < 0.4 = poor, 0.4–0.74 = moderate, ≥ 0.75 = good correlation.

Univariate analyses were performed to determine correlations of each possible explanatory variable with the absolute amount of discordance between children and parents, and children and physician, in rating pain intensity and overall well-being. The amount of discordance was calculated by subtracting the score of each child from the score of each of the other raters.

Patients were separated into the following three groups: 1) no discordance = VAS assessment between two applicants within 1 cm of each other; 2) negative discordance = parent's or physician's assessment overrated by more than 1 cm relative to child's assessment; 3) positive discordance = parent's or physician's assessment underrated by more than 1 cm relative to child's assessment. In summary, a negative discordance indicates that the parent or physician perceived pain or disease status worse than did the child. A positive discordance indicates that the parent or physician perceived

pain or disease status as better than did the child. The comparison of qualitative variables between discordance categories was performed by Fisher's exact test (ϕ). The statistical analyses were performed using commercially available software Statistica ver. 10.0 (TIBCO Software Inc., London, United Kingdom).

RESULTS

Our analysis of VAS score showed higher rates of pain and deterioration of overall well-being in patients with JIA and ReA compared to healthy children (Table 2). No significant differences were observed in the pain scores and global assessment of overall well-being recorded by children, their parents, and physician within the groups of patients with JIA, ReA, and healthy children. There were also no discernible differences among the mean pain rating and overall well-being by different raters among children with JIA and ReA.

Because the primary objective of the study was to investigate the difference in pain and overall well-being assessment in JIA completed by patients, their mothers, and physician, the ICC was chosen as an indicator of reliability. The level of agreement in present pain and overall well-being assessment among raters, measured through the ICC, is shown in Table 3. The level of agreement between children and parents in rating of child's present pain and global assessment of child's overall well-being was good in both JIA and ReA patients. Although we found good agreement in global assessment of child's overall well-being between physicians and patients of both groups, lower agreement was found between par-

TABLE 3. The level of agreement between child, parent, and physician in rating present pain intensity and global assessment of child's overall well-being*

VAS characteristic	Level of agreement			
	JIA, <i>n</i> = 60		ReA, <i>n</i> = 30	
	child–parent	child–physician	child–parent	child–physician
Parent's rating of child's present pain	0.90	–	0.98	–
Parent's global assessment of child's overall well-being	0.90	–	0.90	–
Physician's global assessment of child's overall well-being	–	0.76	–	0.90

*values are the Spearman's correlation coefficient; only significant correlations ($p < 0.05$) are reported, JIA – juvenile idiopathic arthritis, ReA – reactive arthritis

TABLE 4. Distribution of discordance based on patient with juvenile idiopathic arthritis, parent, and physician VAS scores ($N = 60$)

	Discordance				Type of discordance			
	Absent (<i>n</i> [%])	Present (<i>n</i> [%])	Fisher criterion		Negative (<i>n</i> [%])	Positive (<i>n</i> [%])	Fisher criterion	
			ϕ	<i>p</i>			ϕ	<i>p</i>
Child's rating of pain – parent's rating of child's pain	37 (61.7)	23 (38.3)	2.59	< 0.01	10 (43.5)	13 (56.5)	0.89	> 0.05
Child's global assessment of overall well-being – parent's global assessment of child's overall well-being	36 (60.0)	24 (40.0)	2.21	< 0.05	7 (29.2)	17 (70.8)	2.97	< 0.01
Child's global assessment of overall well-being – physician's global assessment of child's overall well-being	31 (51.7)	29 (48.3)	0.37	> 0.05	16 (55.2)	13 (44.8)	0.79	> 0.05

ents and patients with JIA. Surprisingly, a higher level of agreement was seen in the well-being scores between physician and children with ReA compared to JIA patients.

Analysis of the difference in rating of pain and global assessment of overall well-being in JIA between children and parents, and children and physicians, revealed no discordance in more than half of the raters (Table 4). However, the patient-physician difference of concordance/discordance for global assessment of overall well-being was not significant. We also did not find a significant difference in negative or positive discordance between child's and parent's rating of child's pain in JIA, whereas positive discordance prevailed in global assessment of overall well-being made by children and their parents.

The Spearman's correlations between pain and overall well-being assessment made by children enrolled into the study, their parents, and physicians and JIA severity measures are presented in Table 5. The children's present pain correlated significantly with their own assessment of disease duration and number of affected joints, and correlated less with CHAQ and CHQ tools, compared to their parents' assessment. The results indicated the same tendency between child's and parent's global assessment of child's overall well-being. The physician's global assessment of child's overall well-being was highly correlated with almost all indicators of JIA severity, except CHAQ and CHQ tools. Only child's overall well-being evaluated by physician was less correlated with C-reactive protein level and rheumatoid factor values. It is of interest that the child's rating of present pain showed low correlation with number of CD3+ and CD4+ in blood serum.

DISCUSSION

This is the first study on the discordance between patient's, physician's, and parent's global assessments in JIA, conducted in Ukraine. VAS rating of pain and assessment of overall well-being by children, their parents, and physician are simple, easy to score, and reliable clinical measures that allow translation of qualitative clinical impressions into quantitative data. Substantial disagreement between parents and physicians over disease severity can lead to difficulty in assessing the efficacy of treatments or in evaluating the need for additional interventions [18].

To our knowledge, there is no study relating the evaluation of differences in the perception of pain and overall well-being by children with JIA, their parents, and physician in the same research. Furthermore, a series of earlier studies that measure the agreement between children, their parents, and physicians in rating pain intensity and overall well-being have shown conflicting results [14, 15]. We therefore investigated the difference in pain and overall well-being assessment in JIA between children, their parents, and physician with the determination of the most valuable indicator among the Ukrainian population.

In our study, there were no statistically significant differences in the VAS assessment between children, their parents, and physician in the group of patients with JIA. It means that children, parents, and physician perceive pain and overall well-being in JIA almost identically. The same situation was detected in the groups of patients with ReA and healthy children. Previous studies have shown that perception of the disease may vary widely depending on what patient or his/her parent or physician were asked about, but often they are quite controversial. Some studies found an increasing tendency for parents to overestimate the child's pain [13, 18], others indicated that physicians tend to give a higher rating of pain and global assessment compared to children and parent estimates [14].

While analysing the reasons for the absence of difference in VAS assessment between children, their parents, and physician we excluded the influence of parent's or physician's rater factor. Pain and overall well-being were assessed by the mother only, because a lot of studies demonstrated disagreement between mothers and fathers in VAS rating and poor agreement between children and fathers in rating present pain [19, 20]. To ensure homogeneity of judgment and examination technique an experienced paediatric rheumatologist assessed the global assessment of disease activity and overall well-being. All of the children in this study were Ukrainian-speaking, so the results cannot necessarily be extrapolated to other languages or situations in which questionnaires are completed with the help of an interpreter.

Due to the good agreement observed, we believe it necessary to assess factors influencing such results. Culture is commonly regarded as a factor in VAS assessment by children, their parents, and physician in JIA in dif-

TABLE 5. Level of correlation between patient-, parent-, and physician-reported VAS scores and juvenile idiopathic arthritis severity measures* (N = 60)

Parameter of JIA	Child's rating of present pain	Child's global assessment of overall well-being	Parent's rating of child's present pain	Parent's global assessment of child's overall well-being	Physician's global assessment of child's overall well-being
Disease duration	-0.31	-	-0.29	-	-
Child's rating of present pain	1.00	0.87	0.90	0.83	0.69
Child's global assessment of overall well-being	0.87	1.00	0.84	0.90	0.76
Parent's rating of child's present pain	0.90	0.84	1.00	0.87	0.57
Parent's global assessment of child's overall well-being	0.83	0.90	0.87	1.00	0.76
Physician's global assessment of child's overall well-being	0.69	0.76	0.57	0.76	1.00
Number of active joints	0.36	0.51	0.31	0.52	0.67
Number of joints with limited range of motion	-	-	-	0.26	0.50
Number of joints with pain	0.42	0.56	0.37	0.55	0.60
Number of swollen joints	0.31	0.48	0.26	0.44	0.55
DAS	0.62	0.76	0.54	0.77	0.78
DAS28	0.55	0.69	0.48	0.67	0.77
SDAI	0.55	0.71	0.48	0.66	0.74
CDAI	0.55	0.72	0.49	0.66	0.72
Erythrocyte sedimentation rate	-	-	-	-	-
C-reactive protein	-	-	-	-	0.35
Rheumatoid factor	-	-	-	-	0.35
CD3+	-0.34	-	-	-	-
CD4+	-0.36	-	-	-	-
9 CHAQ domains:					
Dressing	0.35	0.47	0.43	0.50	0.40
Arising	-	0.31	0.43	0.44	0.30
Eating	0.29	0.44	-	0.39	0.47
Walking	0.41	0.39	0.49	0.53	0.35
Hygiene	0.27	0.35	0.46	0.52	0.30
Reach	0.30	0.42	0.43	0.46	0.43
Grip	0.33	0.51	0.33	0.49	0.56
Activities	0.44	0.45	0.59	0.60	0.40
Disability index	0.45	0.53	0.58	0.66	0.52
15 CHQ health concepts and the 2 summary scores:					
Global health	-0.53	-0.48	-0.57	-0.54	-0.42
Physical functioning	-0.45	-0.51	-0.45	-0.64	-0.52
Role/social limitations – emotional/behavioural	-0.41	-0.42	-0.41	-0.49	-
Role/social limitations – physical	-0.41	-0.46	-0.50	-0.56	-0.31
Bodily pain/discomfort	-0.65	-0.65	-0.76	-0.70	-0.55
Behaviour	-	-	-	-	-
Global behaviour	-	-	-	-	-
Mental health	-	-	-	-	-0.29
Self esteem	-	-	-	-	-
General health perceptions	-	-0.29	-0.38	-0.36	-
Change in health	-0.32	-0.31	-0.46	-0.45	-0.34
Parental impact – emotional	-	-0.27	-0.35	-0.39	-
Parental impact – time	-	-0.28	-0.42	-0.43	-
Family activities	-	-	-0.27	-0.34	-
Family cohesion	-	-	-	-	-
Physical summary score	-0.37	-0.44	-0.54	-0.56	-0.42
Psychosocial summary score	-	-	-	-	-

*Values are the Spearman's correlation coefficient. Only significant correlations ($p < 0.05$) are reported, JIA – juvenile idiopathic arthritis

ferent countries. The same results confirm those from previous studies [21, 22]. In Ukraine, a mother can take leave in order to be able to provide ongoing support and care for child with JIA. In our opinion, it enables mothers to be better informed about the difficulties in children's everyday activities because of joint pain and joint limitations.

The agreement between children, parents, and physician in rating pain and overall well-being was good in the cohort of JIA and ReA patients. However, physician-child agreement in global assessment of overall well-being was lower than parent-child agreement. Different studies about the correlation between children, parents, and physicians in rating of the intensity of the child's pain and overall well-being have reported from poor to good agreement [14, 18, 19], which is similar to our study.

In this study among Ukrainian children with JIA, concordance in rating of pain and global assessment of overall well-being in more than half of the raters was defined and was compared with other researcher's results [18, 19, 23]. Notably, discordance between child's and parent's global assessment of overall well-being usually occurred in a positive direction (the parent scored the child's well-being higher than did the patient). We found that this discordance in assessments of pain between patient and parents as well as assessment of child's well-being between patient and physician was not overrated or underrated.

Our results confirm the notion that the parents and physicians perceive children's disease status in JIA differently. Furthermore, it is well known that family members and physicians may have widely different perspectives relating to their beliefs about health and illness, their expectations of medical care, their priorities for treatment, and the ways in which they interpret information about the child's disease [18, 23]. The present study demonstrated that parents were guided by pain complaints, and the physical and psychosocial limitations of their children in daily life activities, in VAS assessment. The physician's estimation of overall well-being was based on joint counts and the results of laboratory tests. This contention is supported by the correlations between the physician's global assessment of the child's overall well-being and DAS, DAS28, SDAI, and CDAI results. Physician's global assessment of the child's overall well-being was poorly correlated with C-reactive protein level and rheumatoid factor values: it is obviously related to integration of the information obtained from clinical history and results of laboratory tests.

While both parent and physician were likely to base their judgment on the different measures, this did not affect good agreement between their decisions and the child's report. This is associated with an interdependence of certain measures – the deterioration of joint counts is always accompanied by pain complaints, and physical and psychosocial limitations of children with JIA. These findings indicate that child's, parent's, and physician's perception of pain and overall well-being were found to be

a reliable indicator of health status, and all of them should be used in clinical practice.

Nevertheless, our study had some limitations. However, there were similar rates of levels of agreement in previously published studies. Unfortunately, there remains no gold standard for measuring agreement between children's, parents', and physicians' assessments of pain and well-being [19]. We have chosen certain tools that represented clinically important differences of the measured outcomes in the best way, from our viewpoint. Different definitions of disagreement can lead to changes in percentages of raters' agreement but would not change the relative proportions of child's over-reporting or under-reporting. We did not investigate the impact of socioeconomic status of the family, mother's age, habits, and educational level on the agreement between children and parents. The main limitation is the lack of an interdisciplinary, multidimensional, and comprehensive approach combining self-report, behavioural, cognitive, social and environmental, medical, and biological parameters, which are required for an ideal assessment of pain and overall well-being in children [14].

CONCLUSIONS

In a Ukrainian group of children with JIA (Ternopil, Ukraine) agreement between children, parents, and physician in rating of pain and overall well-being was good. However, agreement between children and physicians in global assessment of overall well-being was much lower than the parent's rating. The concordance in rating of pain and global assessment of overall well-being was defined in more than half of the raters. In VAS assessment the parent's rating reflected the child's pain complaints, and physical and psychosocial limitations in daily activities; the physician's estimation of overall well-being was based on joint counts and the results of laboratory tests. Thus, child, parent, and physician ratings of pain and overall well-being should be considered equally valuable indicators of health status and all of the ratings should be implemented in standard paediatric rheumatology care.

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DISCLOSURE

The authors declare no conflict of interest.

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