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Juvenile Idiopathic Arthritis Treatment Satisfaction and Quality of Life in Palestinian Patients

Ruba Mahmoud Abed Ja'afreh

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Prepared by:

Ruba Mahmoud Abed Ja'afreh

B.Sc. Pharmacy from Al-Quds University, Palestine

Supervisor: Dr. Hussein Hallak

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Prepared by: Ruba Mahmoud Abed Ja'afreh

Registration No: 21711670

Supervisor: Dr.Hussein Hallak

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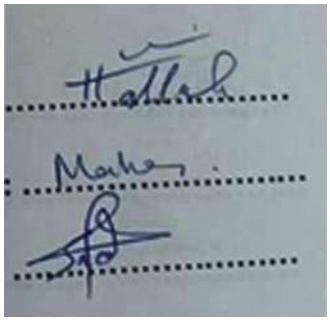
The names and signatures of the examining committee members are as follows:

1-Head of committee: Dr.Hussein Hallak signature: .....

2-Internal examiner: Dr.Maher Khdour signature: .....

3-External Examiner: Dr.Sa'ed Zyoud signature: .....



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Dedication

I lovingly dedicate this thesis to my parents, who never stop giving of themselves in countless ways. To my sisters, who supported me each step of the way and have been my constant source of inspiration. They all have given me the drive and discipline to tackle any task with enthusiasm and determination.

Ruba Mahmoud Abed Ja’afreh

Declaration

I certify that this thesis submitted for the degree of master is the result of my own research, except where otherwise acknowledged and that this thesis has not been submitted for a higher degree to any other university or institution.

Signature: .....

Ruba Mahmoud Abed Ja'afreh

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Abstract

Chronic diseases can affect patient’s life in a very negative way; as such, it is important and necessary to measure the effects of those diseases and their impact in patient's life.

Juvenile Idiopathic arthritis (JIA) is one of chronic inflammatory diseases that affect joints all over the body and leads to several unwanted and maybe severe adverse events.

In Palestine, there are no studies about JIA or its impact on pediatric patients. As such, the aim of this study was to indicate and measure pediatric quality of life as well as measure satisfaction with the treatment they receive. In addition, to determine the factors that can affect quality of life and treatment satisfaction.

This study was conducted over a period of 8 months, which a total of 50 patients were included from two hospitals and a Specialized Pediatric Center in the West Bank under the supervision of their specialist pediatric rheumatologist doctor.

Two different questionnaires were administered to the 50 patients and their parents; one of questionnaire is to measure the pediatric quality of life (PedsQL) Generic Core Scales form. The other questionnaire was to measure patient's treatment satisfaction; we used Treatment Satisfaction Questionnaire for Medication (TSQM) version 1.4. In addition, the study evaluated factors that may affect PedsQL and TSQM including patient's place of living, family relationship with patients, parent’s education level, type of house, family member’s number, parent’s monthly income, parents work status, and the cost of transportation to reveal the impact of JIA on the economic status. Furthermore, a correlation between PedsQL, TSQM scores with each subtype of JIA was determined. Finally, patient’s weight, height, and BMI effect on with TSQM or PedsQL were evaluated.

Results indicate that all patients for all age groups have above average quality of life as well as treatment satisfaction scores. There was no significant effect except with TSQM global satisfaction domain, according to parent’s scores, in which the lowest score of global satisfaction was observed in age group of 8-12 years while the 13-18 year old age group had the highest score with significant difference between age groups.

In case of the hypothesis and comparisons, the results indicated no significant effect except of the following cases:

Parents work status correlated with TSQM effectiveness domain, with the count of children's age groups. In addition, Parents work status correlated with TSQM convenience domain, without the count of children's age groups. The data indicates lower convenience score for working parents.

Family member numbers correlated with PedsQL social function domain in case of no counting of children's age groups. The data indicates relatively higher social function scores with increase in number of family members.

In case of children's weight and height correlation with PedsQL and TSQM, the results showed that both weight and height did not reveal any significant effect on PedsQL domains. On the other hand, there was a significant effect of height on TSQM global satisfaction domain, In which there was a positive relationship between them, that's mean the increase in height indicates higher global satisfaction.

In case of children's weight, there was a significant effect with TSQM side effects domain, in which there is a negative relationship between them, that means that the increase in weight gives lower side effect scores and vice versa.

For BMI, there was a significant effect on both PedsQL domains as well as TSQM. In case of PedsQL, there was a significant effect of BMI on emotional functioning and psychosocial functioning domains. In case of TSQM, there was a significant effect between BMI and the domain of convenience. In which there was a positive relationship between them; that means that the increase in BMI gives a higher scores with the mentioned domains.

According to the information obtained from patient's records, there were 4 patients with uveitis as a complication of JIA. For the medications used, the most commonly used medications were: Prednisone, Methotrexate, Ibuprofen, Folic acid. Biologics like infliximab, Etanercept, Abatacept, Tocilizumab, and Adalimumab were also utilized, occasionally.

In conclusion, all 50 JIA patients have above average quality of life and treatment satisfactions (scores were above 50), noting that the higher the scores the better HRQoL.

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Chapter 1: Introduction

1.1 Background

Juvenile idiopathic arthritis (JIA) is a term that covers several categories (heterogeneous group), each of which covers characterized signs, symptoms and different genetic framework. JIA is considered as the most common cause of arthritis and its related problems in children whose age is less than 16 years old[1-3]. JIA leads to serious disabilities in short and long term[4], the estimated number of JIA patients around the world up to 1 per 1000 children[5]. JIA is featured by pain, inflammation, swelling and limitation of motion of joints[6] accompanied with heat, or tenderness that commonly leads to joint destructions that affects patients quality of life[2, 6]. Causes of JIA are unknown[7], but there is some evidence of it including a multifactorial autoimmune disease with environmental and genetic contributory factors[8]. The existence of several subtypes of JIA and the variation of classification systems of JIA make it difficult for studies to clear the environmental role in JIA[9]. The most common risk factors are infections in addition to genetic susceptibility. Many other factors, such as maternal smoking and stress, are thought to contribute to the pathogenesis[10]. In case of genetic susceptibility, gene involvement seems complex as the disease itself may involve multiple genes regarding immunity and inflammation [2, 11-13].

1.2 Classification of juvenile idiopathic arthritis

The International League of Associations for Rheumatology (ILAR) systems[14], the European League against Rheumatism (EULAR) and the American College of Rheumatology (ACR), are three classification systems suggested over the last few decades for chronic arthritis in childhood[1, 2]. Despite the existence of more than one classification system, none are perfect, this is due to several reasons including the difficulty to classify some patients into any specific subgroup, in addition there were patients who attain criteria for more than one subtype[2]; the ILAR system refers such patients to undifferentiated arthritis patients[15]. Patients who suffer

from juvenile spondyloarthropathies including juvenile psoriatic arthritis and juvenile ankylosing spondylitis were difficult to find a proper characterization and classification for them[2]. All three classification systems are summarized in Tables (1.1), in this thesis I will go with the ILAR system for classification because it was the system the doctor used with patients sample.

Table 1: summary of chronic arthritis in children classification

Summary of classification of chronic arthritis in children		
ACR (JRA)	EULAR (JCA)	ILAR (JIA)
Systemic	Systemic	Systemic
Polyarticular	Polyarticular	Polyarticular RF-negative
Pauciarticular	JRA (RF+ polyarticular)	Polyarticular RF +positive
	Pauciarticular	Oligoarticular
	Juvenile psoriatic	- Persistent
	Juvenile ankylosing spondylitis	- Extended
	Arthritis associated with inflammatory bowel disease	Psoriatic
		Enthesitis-related
		Undifferentiated arthritis

Because of the lack of full understanding of arthritis in children pathophysiology, the classification systems of JIA were built predominantly according to clinical features and findings that highly depend on JIA subtype[10, 16]. Classification depends on difference of disease course, number and locations of joints, systemic symptoms and signs, age of disease onset, and laboratory tests

like rheumatoid factor (RF) and ANA (anti-nuclear antibody) tests, existence of chronic or acute uveitis, HLA allelic associations and finally the family history of the patients[10, 16].

ILAR classification system has been used in the last few years across a number of countries but recently it received a lot of criticisms[17, 18] due to the number of involved joints and the existence of psoriasis as parameters to describe the homogeneous disease entities has been raised as one of the concerns about the system[19]. Another concern is the evidence that showed antinuclear antibodies (ANA) in homogeneous disease subset throughout different ILAR subtypes [18, 20]. Therefore a need for a new discovery classification of JIA is a matter of discussion[21].

In the ILAR classification system there are six different subtypes of JIA according to the inclusion and exclusion criteria, however, there are about 20% of children with chronic arthritis that do not match the criteria for any category, so they are classified under additional seventh subtype called the undifferentiated arthritis[15, 16].

1.2.1 Oligoarticular juvenile idiopathic arthritis

Patients who have 4 or less affected joints during the first 6 months of disease are diagnosed to have Oligoarticular JIA. The affected joints include mostly the lower limbs involving knees and ankles; the knee being more frequently affected joint as a Monoarticular onset followed by the ankle[22, 23] , symmetrical intervention of joints originate in less than one third of cases[24, 25].

In the ILAR classification system, Oligoarticular JIA itself comprises 2 more subcategories; persistent and extended oligoarticular JIA. In case of persistent oligoarticular JIA, the affected joints number remains fixed to four or fewer joints while the extended type of Oligoarticular JIA involves children who evolve active arthritis of five or more joints after the first 6 months of disease. According to statistics, about 50% of oligoarticular patients may have the extended type of the disease, and 30% of them will develop it in the first 2 years following diagnosis[2, 26]. Risk factors for extended disease encompass wrist or ankle arthritis, symmetric arthritis, hand disease, arthritis of two to four joints[24, 27], early disease onset (6 years), female predilection, high risk of iridocyclitis[28, 29], elevated erythrocyte sedimentation rate (ESR) and high frequency of positive ANA[24].

Another concern about extended Oligoarticular JIA is that it might continue into adulthood according to a study that evaluated JIA patients with a period of 16.5 years of follow-up and lead to total remission rate of 12% in patients with extended oligoarticular JIA, compared with 75% in patients with persistent oligoarticular JIA[30].

1.2.2 Polyarticular juvenile idiopathic arthritis

Patients diagnosed with Polyarticular juvenile idiopathic arthritis usually have a symmetrical arthritis in 5 or more joints[2, 10]. At the beginning the affected joints are the large and small one with metacarpophalangeal joints and wrists being the more frequent[31] throughout the initial 6 months[2]. Patients with Polyarticular juvenile idiopathic arthritis could have an acute or insidious onset of manifestation[10], polyarticular split into RF-negative with 20% to 30% of JIA patients and RF positive with 5% to 10% of JIA patients[32]; both types affect girls usually more than boys[2].

RF-seronegative patients frequently promote polyarthritis in early childhood, in opposite to RF-seropositive patients, who promote arthritis during latter childhood and adolescence. Another difference between the two types is that seronegative patients have a variable prognosis. On the other hand, seropositive patients are adolescent girls for the most part with severe erosive disease and symmetric small joint embroilment, also they may express subcutaneous nodules with non-tender, firm lesions over pressure points and tendon sheaths characteristics.

Polyarticular juvenile idiopathic arthritis may also affect the axial skeleton, including cervical spine and temporomandibular joints. Boutonniere deformities comprise the proximal interphalangeal joint flexion and distal interphalangeal joint hyperextension and swan-neck deformities with the proximal interphalangeal joint hyperextension and distal interphalangeal joint flexion commonly affected. Another manifestation of this subtype is the chronic uveitis involvement but in less frequent in comparison with oligoarticular disease[2].

1.2.3 Systemic onset juvenile idiopathic arthritis (SOJIA)

SOJIA is a unique and challenging subtype of JIA, it usually start with an extra articular phenotype at onset including high (39 ºC or higher) spiking fever that persist for 2 weeks with a typical intermittent pattern, exhibiting one or two daily spikes as a double quotidian, followed by fast return to normal baseline. Along with fever, chills appear commonly making patients look ill, but when the fever breaks, patient appears well [4, 33, 34]. Another extra articular manifestation that usually appears with fever is the discrete, circumscribed, salmon-pink evanescent erythematous rash that usually appears with fever spikes and disappears when the fever is gone[2, 35]. Interesting to note that stress or a warm bath may trigger rash.

Trunk and proximal extremities areas, including the axilla and inguinal are the most common places for lesions. There is a condition known as Koebner phenomenon in which it is a linear streak on the skin, and it could be elicited by scratching the skin. The rash is rarely pruritic and is never purpuric[33].

Other extra articular manifestations including, generalized symmetrical lymphadenopathy, hepatosplenomegaly, and serositis; pericarditis, pleural or pericardial effusion, rarely peritonitis[2, 4].

SOJIA extra-articular manifestation affects ten percent of patients only. Arthritis associated with SOJIA usually appear after weeks, months, or even years after the onset of systemic features and can exist as a single episode or become persistent[34]**.** Both large and small joints are affected, most frequently wrists and ankles[31].

In the diagnosis of JIA, the use of laboratory findings makes one more confident of the diagnosis, finding may include anemia (which may be severe), thrombocytosis, leukocytosis, elevated liver enzymes, and elevated acute-phase reactants, and ANA titer (rarely positive)[2]. Patients with severe SOJIA who are inadequately treated have an increased incidence of amyloidosis (1.4%–9%) [2, 36].

SOJIA and in a clinical view is similar to adult onset Still's disease, it's being the only subtype of JIA that not involved with age, gender, or HLA association[2, 31], SOJIA patients have a not

consistent course, with 60% to 85% of patients having a remission or quiescence and up to 37% developing a chronic, destructive polyarthritis.

1.2.4 Enthesitis-related arthritis (ERA)

Enthesitis-related arthritis is another form of JIA that assembles psoriasis JIA with being albeit idiopathic in their etiology and accompany other diseases with some of their characteristics that can appear to resemble ERA with oligoarthritis in which ERA can affect joints of the lower extremity, while the sacroiliac joint is usually not affected for years[7]. ERA is more common in male patients children whose aged 6 years and older, and characterized by the association of enthesitis and arthritis together[35, 37].

ERA can appear with an insidious onset, with the existence of special stamped marks of pain, with or without objective inflammation of peripheral joints, stiffness, and eventual loss of mobility of the back. It is important to suspect ERA in any child with chronic arthritis of the axial and peripheral skeleton, or the inflammation that exist at points where tendons insert to bone (enthesitis). Another helpful diagnostic manifestation of ERA is the presence of enthesitis at the calcaneal insertions of the Achilles tendon, the plantar fascia, and the tarsal area, in conjugation of the seronegativity RF and ANA in most patients[2, 4].

Peripheral arthritis in ERA, commonly affects the joints of the lower extremities and the hip predominantly. In radiographic tests, changes of the joints like sacroiliac joint include joint space narrowing, sclerosis, erosions, osteoporosis of the pelvis, and fusion (a late finding)[38].

ERA and inflammatory bowel syndrome could make the diagnosis a little hard due to the presence of arthritis in the very early stage of inflammatory bowel disease. As such, ERA may be split to two different types of inflammation related arthritis diseases. These are: the acute polyarticular form that assembles the sign and symptoms of bowel disease in a way like a mirror with arthritis being calmed when gastrointestinal disease become well. On the other hand, the second type is independent of the form of the bowel disease make it more typical of ERA. From here there is some manifestation can provide a clue to the right diagnosis of each of them including: the extra-articular manifestations like anterior uveitis, aortitis, muscle weakness, aortic insufficiency, and

low-grade fever, in addition to the laboratory data which can demonstrate a normal to moderately elevated white blood cell count, mild anemia, thrombocytosis and elevated sedimentation rate[2, 38].

The bowel disease is not the only one that ERA can assemble the clinical picture, in some cases ERA may be suspected as ankylosing spondylitis (AS), therefore any limitation in the thorax or back expansion should be documented early. Patients with ERA may also manifest cardiopulmonary and cerebrovascular complications, which are also a remarkable cause of shorter life expectancy[4, 35].

1.2.5 Juvenile Psoriatic Arthritis (JPsA)

Psoriatic arthritis is one of the other shape of JIA that although idiopathic in their etiology, but they also share other diseases characteristics in a high portion of patients. Psoriatic arthritis usually match RF polyarthritis or oligoarthritis, it is also encompass more commonly the small joints[39]. Particularly, psoriatic arthritis is an asymmetric arthritis that usually affects ankles, knees and the small joints of the hands and feet, it's also affects the proximal interphalangeal joints, distal interphalangeal joints, and the tendon sheath inflammation that often lead to a diffuse and swelling of the fingers called ''sausage digit''[2, 4, 40]. Psoriatic arthritis consist of not only the articular parts but also involved extra-articular manifestations like rash that develops in one third of patients with JPsA by 15 years of age, nail alterations that includes pitting, onycholysis, oil-drop sign, dactylitis as a manifestation unless rheumatoid factor is positive[2, 41]. Another extra-articular manifestation is uveitis, in order to prevent the asymptomatic anterior uveitis that may develop in up to 17% of patients. All children with JPsA should have a slit-lamp examination every 6 months[2].

Patients with juvenile psoriatic arthritis (JPsA) must have arthritis and a typical psoriatic rash or the presence of arthritis and one of the following: family history of psoriasis in a first-degree relative, nail pitting or onycholysis, and finally dactylitis, in case of rash missing. There is increasing evidence according to the studies that JPsA is not a homogeneous disease entity, but

evolve at least two separated subgroups: one shares the same characteristics as early-onset ANA-positive JIA, and the other belongs to the spectrum of spondyloarthropathies[4].

1.2.6 Undifferentiated arthritis

Undifferentiated arthritis is selected if patients do not meet the criteria for any of the previous six subtypes or patients who have characteristic under more than one subtype [27, 42].

1.3 Diagnosis:

The diagnosis of JIA and its subtype not easy, diagnosis consists of the exclusion of all possible causes of chronic arthritis in childhood, and inclusion criteria. Thus, an entire clinical evaluation, including family to personal history with recent pathologic events, important clinical signs such as systemic illness, previous infection, duration of fever, rash, pain and morning stiffness, all of this in conjunction with appropriate radiographs and laboratory tests is needed[2, 4, 10]. A detailed physical examination ought to be carried out at all times of first evaluation and follow-up visits in order to examine all body joints[43], all of this helps to diagnose and recognize each of JIA's subtypes during the first 6 months of disease. Important clinical features are important to classify patients into different subtypes, that includes the presence of inflammation at the sites of attachment of ligament, tendon, or fascia to bone (enthesitis), dactylitis, inflammatory lumbosacral pain, serositis, sacroiliitis, psoriasis, nail pitting, fever, and rash[2].

The clinical symptoms of JIA can be variable. Several symptoms common in arthritis are not necessarily diagnostic of JIA, some symptoms and signs can overlap with other disease conditions specially other autoimmune diseases, this leads to a difficulty in diagnosis of JIA and may be mistaken with other conditions.

Take in consideration all of the obvious information about exclusion and inclusion, the diagnosis of JIA and its subtypes demand a differential diagnosis of JIA from another diseases, and maybe similar in manifestation diseases and abnormalities including entities in the broad categories of

reactive arthritis, inflammatory disease, infection, systemic disease, malignancy, and trauma (table 1.2) [2, 10].

Table 2: Differential diagnosis of arthritis

Differential diagnosis of arthritis
Inflammatory
Juvenile idiopathic arthritis
Inflammatory bowel disease
Sarcoidosis
Reactive
Postenteric
Reiter's syndrome
Rheumatic fever
Poststreptococcal
Systemic
Kawasaki disease
Behcet's disease
Henoch-Scho¨ nlein purpura
Serum sickness
Systemic lupus erythematosus
Dermatomyositis

Progressive systemic sclerosis
Infection Septic Osteomyelitis Lyme disease Viral Bacterial sacroiliitis Discitis
Malignancy Leukemia Neuroblastoma Malignant bone tumors: Osteosarcoma Rhabdosarcoma Ewing's sarcoma Benign bone tumors: Osteoblastoma Osteoid osteoma
Trauma Accidental Non-accidental

1.4 Further investigations:

In order to make a clear diagnosis for all of JIA subtypes, additional laboratory tests can be done that involve complete blood examination, examination of the inflammatory markers including; erythrocyte sedimentation rate (ESR), and C reactive protein (CRP). Also autoimmune markers like rheumatoid factor (RF), HLA B27, and anti-nuclear antibodies (ANA), in addition to things like imaging and radiological findings[44] [45] . Radiography can reveal any narrowing of the joint spaces or erosions, can detect growth abnormalities in bones from an early stage or maturation variation. Magnetic Resonance Imaging (MRI) can uncover inflamed synovium and any raising joint fluid[10].

1.5 Mortality

JIA can cause a high rate of mortality with about three to five time's higher rate than normal population [46-48]. This can be due to multiple factors connected to JIA complications like Macrophage activation syndrome (MAS) and secondary amyloidosis that increase the ratio especially in systemic onset JIA patients in which both complication frequently affect the patients[49]. However, since the involvement of cytotoxic agents into the treatment of severe JIA, the deaths related to amyloidosis have been reduced[47]. The increase in mortality is not only limited to the disease itself but also to other factors including treatment related causes, infections, immunosuppression, or cardiac complications, even suicides[47, 50].

1.6 Extra-articular manifestations / associated conditions

1.6.1 Uveitis

Uveitis is defined as inflammation of the uvea, the middle layer of the eye that is composed of the iris, ciliary body and choroid. Many disorders can cause uveitis including inflammatory diseases and that include JIA. Uveitis has more than one type that are classified by where

inflammation happens in the uvea; Anterior uveitis, Intermediate uveitis**,** Posterior uveitis, Diffuse uveitis [51]**.**

Uveitis is one of JIA related complications that happen in about 5-20% of patients, especially with oligoarticular subtype, and RF polyarthritis patients, about 21% of patients with oligoarticular JIA develops a chronic, anterior, nongranulomatous uveitis called as iridocyclitis, and 10% of patients with polyarticular JIA[2]. Despite Uveitis is more common with oligoarticular and RF polyarthritis subtypes[49, 52], it also sometimes develops with psoriatic and enthesitis-related arthritis, on the other hand, none of the SOJIA patients was diagnosed with uveitis[53]. In case of ERA patients, acute uveitis (distinguished from the chronic form common in oligo- and polyarticular disease) may happen in up to 27% of patients, manifested as a unilateral recurrent, with a red, painful, photophobic eye, usually without sequelae[54].

Uveitis is usually asymptomatic, although patients may present with conjunctivitis, unequal pupils, eye pain, and headache[2]. Uveitis often starts at early onset stages of the course of arthritis usually in 4 or 5 years [25, 52, 55]. It may exist at diagnosis, develop during the course of JIA, or maybe exist as an initial aspect of the JIA[2]. Uveitis is most widespread in young girls with oligoarticular disease and a positive ANA titer [49, 52, 56], in which it may exist at diagnosis, appear during the course of JIA, or be an initial manifestation of the JIA. Delayed diagnosed, and poorly treated uveitis can cause vision loss[55, 57, 58], so patients with JIA should be screened routinely to prevent delay in diagnosis of uveitis[2, 53].

1.6.2 Nutrition

Children with JIA commonly have nutritional impairment with a total caloric intake less than their estimated needs, in comparison with the normal daily caloric requirement for a healthy child (80 to 120 kcal/kg/day for the first year with a decline of about 10 kcal/kg for each 3-year period)[2] . JIA patients usually have a smaller lean muscle mass and a high fat mass[59, 60]. In case of SOJIA patients, they commonly have a rise in their resting energy expenditure compared to the healthy one[61, 62]. All of the previous may be a result of IL-1 and TNF-a high level[63]. According to this, one of the important steps in treatment success is to use a dietary guidelines on for healthy

children according to age and sex instead of actual weight , with a dietician or nutritionist participation side by side with the pediatrician particularly in significant malnutrition cases[62].

1.6.3 Growth disturbance

It is one of the most common impairment in children with rheumatic arthritis. Growth retardation and delayed puberty have several causes; Metabolic, Endocrinology, and Malnutrition factors[62].

JIA subtypes have a different average in the severity of growth disturbance; children with SOJIA and polyarticular disease are at greatest risk for diminished linear growth[62].

Localized growth disturbance can result from accelerated bone maturation, micrognathia, or previous closure of the physis, as in brachydactyly. Overgrowth of a lower limb may happen in a patient with chronic inflammation of the knee secondary to hyperemia of inflammation[23].

1.6.4 Osteopenia/osteoporosis

As a result of the disease and its treatment effect on the body, generalized osteopenia and fractures increase in children with JIA, In addition to juxta-articular demineralization[64].

Osteoporosis is known as the parallel loss of bone mineral and matrix, resulting in a bone mineral density (BMD) more than 2.5 SD below the mean for age and sex. Osteopenia is a low bone mass for age with a BMD between 1 and 2.5 SD below the mean for age and sex[65].

Prevention of osteoporosis has become one of the important components of health care promotion in children with JIA, because decreased peak bone mass may increase the risk of adults having premature osteoporosis and increased fracture risk[2].

1.6.5 Macrophage activation syndrome (MAS)

MAS is a critical life-threatening complication of rheumatic diseases in general, especially of SOJIA[66, 67], manifested by excess activation of histiophagocytosis in bone marrow, also in lymph nodes, liver and spleen. MAS influences implicate fever, hepatosplenomegaly ,

lymphadenopathy, and hematologic abnormalities, disseminated intravascular coagulation, and neurologic involvement[7, 67].

MAS Trigger factors maybe a viral illness, different medications alteration or addition; predominantly nonsteroidal anti-inflammatory drugs (NSAIDs), intramuscular gold injections, sulfasalazine, methotrexate (MTX), and more newly, etanercept[68]. Some biomarkers existing can predict MAS result in clarification of diagnosis especially in SOJIA cases; soluble interleukin-2 receptor α, soluble CD163 (sCD163)[69-71], follistatin-like protein 1, a glycoprotein overexpression[72], rise of ferritin with a drop in platelet count, serum transaminases high level, all of this can present as a valuable diagnostic parameters for MAS[73, 74].

In order to facilitate diagnosis, a multinational collaborative effort developed new classification criteria for the syndrome (table 1.3) [75].

Table 3: the new classification criteria of macrophage activation syndrome

New classification criteria of macrophage activation syndrome
A febrile patient with known or suspected systemic juvenile idiopathic arthritis is classified as having macrophage activation syndrome if the following criteria are met: Ferritin> 684 ng/ml and any 2 of the following: Platelet count ≤ 181×10^9 /l Aspartate aminotransferase > 48 units/l Triglycerides > 156 mg/dl Fibrinogen ≤ 360 mg/dl

1.6.6 Secondary amyloidosis

Secondary or reactive generalized amyloidosis is another life threatening complication that can develop because of JIA; it is connected with amyloid protein obtained from the acute phase protein, serum amyloid A. In this case, protein deposits (amyloid) usually gather in body organs; secondary amyloid is a sequence of chronic infection or inflammatory disease like JIA.

Sign and symptoms of Secondary amyloidosis comprise of hepatomegaly with cholestasis, digestive tract abnormalities, splenomegaly, cardiopathy, goiter, and proteinuria, which is considered as the first real sign of amyloidosis.

Monitoring the acute phase response is the most important aim in secondary amyloidosis treatment. In the pharmacological part the use of TNF-a inhibitors may be advantageous, Cytotoxic agents likes chlorambucil and cyclophosphamide can be used to protect and stabilize renal function[7].

1.7 Treatment

The goals of treatment for JIA are suppression of clinical symptoms, therefore control pain inflammation process by; lowering the number of actively affected joints, preserving function, and promoting normal growth, overall development, well-being[2, 10]. Another goal is to prevent the number of disease-and/or treatment-related morbidities such as joint damage, growth disturbances, and functional limitations and therefore an overall quality of life[76, 77]. In order to achieve those aims, the medications treatment should be adjusted every three months at least and the disease activity should be monitored regularly every1-3 months.

None of the available drugs have curative functions[76, 78]. Yet, during the past few years an increase understanding of the disease helped improve treatment, especially through earlier diagnosis and the development of newer medications that help to prevent long term damage to joints, as a result the prognosis has improved[4, 10].

A noticeable advances in JIA treatment have been the arrival of new disease-modifying anti-rheumatic agents (DMARDS), and the remarkable introduction of the biologic medications, which

constitute a great hope for monitoring active disease in patients refractory to or intolerant of conventional DMARDs[2, 4, 7].

It is important to point out the significant participation of multidisciplinary team comprising a pediatric rheumatologist, orthopedic surgeon, specialist nurse, physical therapist, occupational therapist, ophthalmologist, and psychologist, in order to reach an optimal management of a child with JIA[4, 35].

1.7.1 Non-Pharmacological Interventions

Physical therapy and occupational therapy

The point of physiotherapy and occupational therapy in JIA is to improve and preserve patient's activity skills of their daily living with improving their muscle strength as well as range of motion to get back joint function and alignment. As an example, splints can be used to prevent fractures, and improve motion; another therapy is arthroplasty which can be use in cases of severe deformities[2, 4]. Other Standard physical therapy modalities are heat-cold treatment, massage, electrical stimulation, and ultrasound[10].

Joint replacement, irreversible joint contractures, or dislocations can be restore by surgical approaches, in spite of the fact that orthopedic surgery in case of JIA is more limited than in the past. Prophylactic synovectomy, do not alter the long-term outcome in children with joint abnormalities. However, arthroscopic synoviectomy can expand remission duration in case of frequently relapsing joint[79].

1.7.2 Pharmacological Interventions

Nonsteroidal anti-inflammatory medications

Nonsteroidal anti-inflammatory drugs (NSAIDs) are the conventional initial treatment for all JIA categories in almost all patients. However, the application for NSAIDS for more than 2 months is not recommended; if there still an active arthritis[4, 45], there is more common suggestion to start an aggressive treatment earlier in the disease course[7]. NSAIDs are not disease modifying, they are simply a symptomatic medications; they control pain, inflammation and usually they are given 4 to 8 weeks duration before the initiation with a second-line agents[2, 4].

A few NSAIDs are approved for use in children, the most common are naproxen, ibuprofen, and indomethacin, with note that none has demonstrated to be superior to another[4, 80]. Those three NSAIDs are commonly better tolerated by children due to their little gastrointestinal discomfort in comparison with adults[2, 4]. The preference of use for any one of NSAIDs depends on the taste of the drug with the dose regimen being comparable[2].

Naproxen is the most frequent one in use but it must take in consideration that it can cause pseudoporphyria cutanea tarda, a scarring photosensitive rash in some pale skin children[81].

Indomethacin is one of the potent anti-inflammatory medications, usually used with ERA and SOJIA patients. It is important to inform patients about the possibility of headaches, difficulty in concentrating, and gastrointestinal upset that are commonly with indomethacin[82].

In children it is not that common to see serious gastrointestinal complications, however to get over the gastrointestinal problems related to NSAIDs, the cyclooxygenase (COX-2) inhibitors (i.e., celecoxib) may be useful in children experience any gastrointestinal discomfort [83-85]. Meloxicam, an antagonist of both COX-1 and COX-2, has confirmed to be effective and safe in controlled trials[86]. However, recent randomized trials clarified that the cyclooxygenase-2 inhibitors like celecoxib, and meloxicam were no more effective or safer than naproxen[10].

Glucocorticoids

Glucocorticoids are strong anti-inflammatory medications that have a potent side-effect profile; cushingoid appearance, hyperglycemia, reduced growth and bone health, immunosuppression, cataracts and glaucoma, adrenal suppression, peptic ulcer, dyslipoproteinemia, hypertension, avascular necrosis of bone, and central nervous system disturbance[87]. The use of glucocorticoids with SOJIA who suffer from serious systemic manifestations is recommended, but in other JIA categories, use of glucocorticoid should be restricted to patients with more severe pain and functional limitation until the initiating therapy with disease-modifying anti-rheumatic drugs (DMARDs) and/or a biologic agent[2]. In patient with oligoarticular disease, corticosteroid usually are given in addition to NSAID or alone as an intra-articular injection. Intra-articular corticosteroids are increasingly being used and earlier in the disease course, particularly with oligoarticular arthritis[10, 88]. Intra-articular corticosteroids are used for treatment of a few joints in order to reduce inflammatory symptoms and result in functional improvement, so the need for regular systemic therapy can be avoided, as well as reducing systemic side effects of oral medications[89, 90].

In intra-articular corticosteroid, Triamcinolone hexacetonide demonstrated its effect in boosting improvement of arthritis, growth abnormalities and functional disturbances that may persist for many months[91, 92]. Side effects may include infection, atrophic skin changes at the injection site, periarticular calcifications, crystal-induced synovitis, septic arthritis and asymptomatic calcifications on radiographs. Injections can be presented safely every 3 months, with the note that the same joint should not be injected more than three times in one year[2, 4].

The administration of systemic corticosteroids should be limited to extra-articular manifestations of systemic arthritis including high fever unresponsive to NSAIDs, severe anemia, myocarditis or pericarditis, and MAS[93, 94], also high-dose ‘‘pulse’’ intravenous methylprednisolone can be effective in controlling systemic manifestation of arthritis; once disease improvement is noted, steroids should be tapered as soon as possible. A short course of low-dose prednisone may be used in case of severe polyarthritis refractory while awaiting the full therapeutic effect of a recently initiated second-line or biologic agent[2, 4].

1.7.3 Disease-modifying anti-rheumatic agents

Patients with polyarticular disease or oligoarticular disease refractory to intra-articular steroids applied to DMARDs as second line agents. DMARDs that proved to be effective in JIA are sulfasalazine, methotrexate[2, 10].

Other DMARDs used in JIA include: cyclosporine, azathioprine, and cyclophosphamide, with cyclosporine being the less effective between them in controlling JIA, on the other hand it's demonstrate its effect in reducing fever in patients with systemic onset and to have a steroid-sparing effect[7, 95], SOJIA patients have shown high response when treated with intravenous cyclophosphamide and intravenous immunoglobulin[2].

Sulfasalazine

The effect of sulfasalazine can reduce clinical arthritis and laboratory parameters of oligoarticular and polyarticular onset disease, disease activity [96-98]. However sulfasalazine side effect may restrict its use including headache, rash, gastrointestinal toxicity, myelosuppression, and hypoimmunoglobulinemia, therefore a routinely complete blood count and liver transaminases monitoring must be done every 3 months. The use of sulfasalazine declined with the development of newer biological DMARDs[2, 10].

Methotrexate

Methotrexate, a folate inhibitor, since its efficacy (was proved in a controlled trial in 1992) in controlling disease activity and its acceptable toxic effects was demonstrated , methotrexate remains the most frequent widely used classical DMARD[99, 100], particularly with polyarticular and SOJIA patients, its efficacy was also documented in patients with polyarticular and oligoarticular extended disease[100].

MTX can be presented both orally and subcutaneously, with no superiority for any route in effectiveness. However, there is a higher bioavailability of the subcutaneous route at increased doses, other reports showed an increased in efficacy after exchange from oral to subcutaneous

administration. On the other hand, the maximum effect of MTX was observed with parenteral administration of 15 mg/m^2 per week, no additional advantage in giving higher doses up to 30 mg/m^2 per week[101].

Methotrexate side effects include gastrointestinal toxicity (the most common), occurring in 13% of the patients. Hepatotoxicity, oral mucosal ulcerations, teratogenicity, immunosuppression, pulmonary disease, pancytopenia, and an increased risk of lymphoproliferative malignancies[82, 102].Tests to observe complete blood counts, renal function , and liver enzymes should be done every 4–8 weeks (1 to 2 months) with MTX being held in any elevation of transaminases[103]. Take note that irreversible liver disease being rare in children[104].While the use of MTX in patients should be informed to not receive any live virus vaccines because of immunosuppressive effects of the medication. Patients in remission for 1 year can discontinue methotrexate step by step to restrict any possible long-term toxicity[82].

Leflunomide

Leflunomide is an immunosuppressive agent that reversibly inhibits de novo pyrimidine synthesis, therefore, lymphocyte proliferation and differentiation. Leflunomide may mimic MTX in effectiveness and safety, or it can be less effective than methotrexate but with similar adverse event rates. Therefore, leflunomide can be used as another possible option in case of MTX intolerance. However, the use of this medication in childhood arthritis is restricted, on the other hand controlled trial, leflunomide was found to be less effective than methotrexate but with similar adverse event rates[82, 105].

Leflunomide adverse event may include diarrhea, elevated liver enzymes, mucocutaneous abnormalities, and teratogenicity[2, 82].

1.7.4 Other DMARDs

Cyclosporine A effect was reported in severe systemic disease. Case series documented that Cyclosporine A might be used in macrophage activation syndrome. However its use in juvenile idiopathic arthritis is limited.

Other synthetic DMARDs (auranofin, penicillamine, and hydroxychloroquine) do not present any response or effect in JIA, on the contrary of adult patients with rheumatoid arthritis findings[10].

1.7.5 Biologic agents

In recent years, treatment options have also increased in children with juvenile idiopathic arthritis owing to biological medications. All biological medications used in children have been produced to target the etiopathogenesis leading to disease including anti-tumor necrosis factor etanercept, infliximab, adalimumab, the anti-interleukin 1 anakinra, anti-interleukin 6 drugs, and the B-cell depleter rituximab, and others[2, 76].

Etanercept

Etanercept, anti-tumor necrosis factor α (anti-TNFα)[106], is the first and for a prolonged duration the only registered biological medication for use in JIA[10]. The application of etanercept alone or in combination with MTX can be a dynamic treatment of refractory JIA for long periods (up to 2 years) [93, 106, 107]. Etanercept improves quality of life when used for JIA[108], it also can affect growth velocity, bone status and reduce the progression of radiographic joint damage[109-111]. Complete disease stillness can be achieved in half of the patients [112, 113]. Etanercept, when administered twice weekly as a subcutaneous injection, can give a dramatic response, therefore it is highly recommended for patients with extended oligoarticular and polyarticular JIA who have not responded to NSAIDs and methotrexate or were intolerant[2]. However, etanercept is less effective in patients with systemic onset JIA [94, 106, 114]. This goes back to that cytokines (other than TNF-a), can play a more important role in SOJIA, with IL-1,-6, and-18 representing the most likely candidates[7].

Etanercept therapy can be related to serious adverse events including injection-site reactions, upper respiratory tract infection, gastrointestinal symptoms headache, rhinitis, and rash[2, 115]. In addition to the previous side effects, some cases of varicella zoster infection were reported, and other cases of aseptic meningitis[116], therefore pediatric patients with exposure to varicella should discontinue etanercept[82].

Infliximab

Infliximab is a chimeric monoclonal anti-TNF-α antibody[117]. Response to infliximab was the same as etanercept, after it was unsuccessful to show any significant difference after 3 months according to a study, with a high frequency of serious adverse events and autoantibodies for patients [76, 118].

Adalimumab

Adalimumab, a humanized anti-TNF agent, was shown to have high efficacy in children and adolescents with JIA previously treated with other biologic agents, and patients who were either MTX resistant, or intolerant. Adalimumab reportedly introduce response in polyarticular patients [119, 120].

Adalimumab is admitted for use in JIA both in the USA and in Europe, as a subcutaneous injection every 2 weeks[4].

Abatacept

Abatacept is a fully human soluble protein that encompasses the extracellular part of human CTLA4 and a fragment of the Fc region of a human IgG1. When abatacept binds to CD80/86 molecules, it inhibit the interaction between them and CD28 receptor.

The binding between abatacept and the CD80/86 molecules prevents their interaction with the CD28 receptor and, therefore, prohibits the second signal of T cell activation [121].

The effect of abatacept in JIA patients was observed through a double-blind randomized controlled withdrawal trial on a number of polyarticular JIA patients with inappropriate effect response or intolerance with at least one DMARD[121]. On the other hand, abatacept had better efficacy in patients that are unresponsive to anti-tumor necrosis factor, thereby abatacept can be used as a valuable alternative treatmentand is listed for JIA patients that are older than 6 years[121].

Anakinra

Anakinra considered as one of the biologics treating systemic-onset JIA patients, especially that systemic-onset subcategories considered one of the challenging in its treatment[122, 123]. Ankinra is a recombinant IL-1 receptor antagonist that showed a successful response with patient's diagnosed as systemic onset JIA patients[124].

According to the documented observation of a controlled clinical withdrawal trial and case series, anakinra showed superior effects in reducing systemic symptoms in comparison to etanercept[125]. Today, most experts favor anakinra with systemic onset manifestations, but the timing of this treatment is disputable[124].

Canakinumab & rilonacept

Canakinumab, a novel monoclonal IL-1 antibody exhibited a good efficacy and safety in children with systemic JIA and active systemic features[126]. Canakinumab has been approved for the treatment of active systemic JIA in children aged 2 years and older both in Europe and the USA[127].

Rilonacept, another IL-1 antagonist [126, 128], showed a response and good tolerance in 71 children with active arthritis in at least two joints according to a study. In comparison with anakinra that has a short half-life and requires a daily injection, canakinumab and rilonacept have a longer half-life, which enables the administration at longer intervals (every 4 weeks and weekly, respectively)[4].

Humanized anti-interleukin-6 receptor antibody

According to some evidence; SOJIA is an IL-6– mediated disease, patients who received humanized anti-interleukin-6 receptor observed to have a significant improvement in the disease activity indices, in addition to a decline in the acute-phase reactants. In patients who are taking high-dose corticosteroids humanized anti-interleukin-6 receptor antibody can be a useful treatment[2, 129].

Tocilizumab

Tocilizaumab is an IL-6 receptor inhibitor[130] that was evaluated and approved by FDA for use for polyarticular JIA children aged 2 years and older. The most important side effects associated with Tocilizaumab was infection events (4.9/ 100 patient/years)[4, 131].

Autologous stem cell transplantation

Autologous stem cell transplantation were used before biologics in patients suffering from autoimmune disease and it was used successfully in patients with JIA, especially for patients with SOJIA where medication free alleviation was observed. Autologous stem cell transplantation can be used as well for DMARDs, corticosteroids and biologics resistant patients[132]. Autologous stem cell transplantation is connected with high risks involvement including high relapse rates (>30%), and 9% transplant related mortality, therefore the benefit risk ratio must be well thought out[10, 132]. On another hand and according to some studies treatment using Autologous stem cell transplantation attained a full remission for half of the patients who received it after a 12-60 months of follow up[7].

Supplements To prevent the side effects associated with some medications during treatment it is important sometimes to take supplements.

Corticosteroids considering the most medications that expose patients to side effects including osteoporosis and osteopenia therefore there is a need to calcium and vitamin D supplements. Other supplements that may be beneficial for patients who are receiving methotrexate is folic acid in which some studies improves its effects in reducing side effects of methotrexate in addition to it may help to prevent the occurrence of liver enzyme abnormalities, oral ulcerations, and nausea[10].

1.8 Health-related quality life (HRQoL) and QoL

Health-related quality life (HRQoL), an important measure that point out to the way an individual feels about particular aspects of their life with an account to their health or health condition.

HRQoL involves several aspects that emerged as essential health outcome in clinical improvement, population health assessment, clinical trials, and documenting QoL health dimensions. Its measurement has increased throughout the past decade towards improving patient's health as well as defining the importance of health care services [133-135].

HRQoL is like an umbrella that includes several dimensions like patient's perceptions of the impact of disease and treatment functioning in a variety of at a minimum physical, psychological (including emotional and cognitive), and social health dimensions[133, 134] described in 1948 by the World Health Organization WHO.[136]

1.8.1 The PedsQL (Pediatric Quality of Life Inventory)

QoL a term cover several aspects of life aspects including health care services. Thus, HRQoL constitute the most suitable term for QoL health dimensions[137]. For individuals suffering from chronic disease, QoL measurement gives a useful route to define the impact of health care[138]. Since JIA can significantly affect children QoL, emotional, mental and social functions, health-related quality of life can provide a goal for management and treatment[135].

The PedsQL (Pediatric Quality of Life Inventory) is designed to emphasize the child's perceptions of health related quality of life (HRQoL) in children and adolescents ages 2 to 18. It is like a depot of several modules that are either generic or disease-specific approaches. PedsQL are specifically designed for pediatric chronic health conditions that encompass forms for Asthma, Arthritis/Rheumatology, Cancer, Cardiac, Brain Tumor, End-Stage Renal Disease, Diabetes Modules, and Cerebral Palsy, as well as the generic PedsQL Multidimensional Scale, Family Impact Module, Pediatric Pain Questionnaire, and the Healthcare Satisfaction Module[133, 138].

PedsQL 4.0 Generic Core Scales is one of the PedsQL modules developed during the past 15 years. It measures functional status and pain. PedsQL 4.0 Generic Core Scales consist of parallel child self-report and parent proxy-report formats, it covers 4 dimensions (Physical function, emotional function, social function, and school function) that are relevant for Juvenile Idiopathic arthritis patients[139].

1.9 Treatment satisfaction questionnaire for medication (TSQM)

Patient's satisfaction with medication being an important outcome in the health outcome procedure. Treatment Satisfaction Questionnaire for Medication (TSQM) is a widely used generic measure to assess patient's satisfaction; it is a validated and reliable measurement model that helps understand patient's acceptance and satisfaction with a wide variety of medications[140].

Enhancement of patient-focused drug was highlighted as an important aims for US Food and Drug Administration (FDA), by examining the Clinical outcome assessments (COAs)[141]. The TSQM was prepared as a self-report instrument to evaluate patients with chronic disorders. There are three validated versions of the TSQM: Version 1.4 (was designed as a general measure of treatment satisfaction with medication), Version II, and Version 9.

TSQM Version 1.4 contains 4 domains; side effects, effectiveness, convenience (e.g. route of administration, dosing frequency) and global satisfaction. All of these aspects can help in the treatment management and procedure. As an example, the side effects domain can point out the presence or lack of treatment particular adverse events to the physicians in a way that is not typical for clinical practice. Similarly, clinical care can be influenced by the convenience and effectiveness domains. In addition, some evidence indicates that patient satisfaction with their treatment motivates them to continue to use the medications, the adherence to medication and persistence with treatment dosage duration, as well as the right way of using those medications by the patients. These findings seem consistent for various diseases and clinical settings[140, 142].

1.10 Study Objectives

In Palestine, there are no studies about JIA, its related complication or its effect on patient's daily life. In addition, there are no studies about patient satisfaction with their therapy.

From this point, the aim of this study was to investigate the effect of JIA on patient's quality of life as well as their treatment satisfaction in Palestinian patients.

Chapter 2: Literature Preview

2.1 PedsQL

The PedsQL Measurement construction is an assessment model to measure pediatric quality of life and aims to evaluate patients' and parents' awareness of HRQoL in pediatric patients with chronic health conditions with the use of generic, disease specific modules or both[133, 134].

Here we will present a number of studies that utilized Pediatric Quality of Life Inventory (PedsQL) as an instrument showing sensitivity, reliability, feasibility and validity. Both the general and Disease-Specific Modules for children with ages less than 18 are included in child self-report and parent proxy reports. In addition, evidence of PedsQL utility in other constructs in pediatric health care like quality of primary care, costs, needs and barriers are reported[133].

In a study in cancer patients, PedsQL was used as an instrument to measure HRQoL the study included 291 pediatric cancer patients and their parents. The results advocate PedsQL as a valid and reliable measurement for HRQoL; the study clarified the ability of PedsQL model as a measure in clinical and research approaches for chronic health conditions[134].

Another study published in 2006 aimed to seek HRQoL in UK adolescents by using disease specific measure of JIA (JAQQ). The study assumed that as disease gets worse, the HRQoL will decrease. Study results indicate that the adverse events of JIA can be considerable on the HRQoL of JIA patients regardless of their age. The usefulness of JAQQ as a tool for HRQoL was established but the need for another tool for measurements that incorporate developmentally appropriate issues was proposed[143].

2.2 The PedsQL 4.0 Generic Core Scales

The PedsQL 4.0 Generic Core Scales module with child self-report and parent proxy-report designed to measure health-related quality of life (HRQoL) in children and adolescents ages 2–18.

Since 2001, PedsQL 4.0 Generic Core Scales module has been used as a measure in a number of published studies (greater than 345 peer-reviewed journals). The number of adolescents and children tested were higher than 35,000, and it has been translated into more than 65 languages. Those studies used PedsQL 4.0 Generic Core Scales module in both children with chronic conditions and in healthy children[133].

2.1.1 PedsQL 4.0 Generic Core Scales with other disease specific modules

A study published in 2008 was designed to assess the Health-related Quality of Life in children receiving Chemotherapy by using 3 pediatric HRQoL measures to fulfill the study aim. They used 2 modules of Pediatric Quality of Life Inventory (PedsQL): PedsQL 4.0 Generic Core Scales and PedsQL 3.0 Cancer Module, in addition to Child's Health Questionnaire (CHQ), and the Health Utilities Index (HUI). They found that the PedsQL is the most responsive to change, in which there was significantly more change in the PedsQL generic scores when compared with the other 2 scales modules they used, with a 17-point change in the PedsQL generic and a 12-point change in the cancer module. There was less change in the CHQ and HUI scales. They concluded that the PedsQL should be utilized in clinical trials where there is a necessity to determine small changes in HRQoL[144].

2.1.2 PedsQL 4.0 Generic Core Scales and JIA

One important thing in JIA treatment and management is the improved health-related quality of life (HRQoL); it became an important element that is recognized by clinicians and researchers in JIA disease. Disease treatment and complications can affect all parts of children life as well as their family life. From this point of view, documentation of HRQoL for children diagnosed with JIA was done and the results showed worse HRQoL when compared to healthy controls. On the other hand, other studies did not report high differences in psychosocial outcomes like family functioning and distress, social assistance, and HRQoL[135].

On the other hand and from the view of parent proxy-report, a number of studies proved the association of better parent ratings in different aspects like child well-being, pain severity, and

disease activity, with better child self-report. Furthermore, all of these finding supported the association of HRQoL with medical variables in children with JIA[135].

A study published in 2009 evaluated one of JIA subtypes (poly-articular JIA). The study highlighted the effect of this type between JIA patients, the objective of the study was utilizing the Pediatric Quality of Life Inventory (PedsQL) Generic Core Scales, PedsQL Rheumatology Module, and PedsQL Multidimensional Fatigue Scale in order to measure HRQoL in sixty children diagnosed with polyarticular JIA. The results showed low PedsQL Generic Core Scales scores of active disease participants and also a low PedsQL Rheumatology Module scores in comparison with inactive JIA children. On the other hand, the r-scores were similar to the reported scores of the healthy controls[145].

2.3 TSQM

Treatment satisfaction has been vastly used to evaluate the effectiveness of medical treatments with patients and healthcare delivery systems. Studies show that patient's satisfaction with their medication influences their treatment-related behaviors, including their readiness to keep on use the medication and their adherence with medication[146, 147].

In a systematic review of 281 studies that evaluated the association between treatment satisfaction (TS) with adherence, compliance and persistence. Twenty studies showed positive associations between TS and treatment compliance or persistence. The studies included in this review did not provide a consensus on definitions of adherence, compliance, or persistence. Definitions used for these terms were often interchangeable across publications. In addition, there was great diversity in methods used for measuring satisfaction, adherence, compliance, and persistence[148].

TSQM was examined in several studies for chronic conditions. , For example, a study of patients with relapsing multiple sclerosis (RMS) that used a traditional psychometric methods as a comprehensive evaluation of which is the 14 item version of the TSQM (1.4 version). They found that TSQM gives a good assessment and met the requirements of traditional psychometric tests. They also found that item scores were reliable and for which evidence supported their validity as measures of different aspects of treatment satisfaction[142].

2.3.1 TSQM and JIA

In patients diagnosed with JIA, there are a few studies and information about treatment satisfaction.

In a study from Norway, an investigation of synthetic and biologic disease-modifying anti-rheumatic drugs (sDMARDs and bDMARDs) satisfaction in adults who attended Oslo University Hospital from 1995– 2000, with disease duration of more than 18 months. TSQM was used with patients on Methotrexate (MTX) or biologics, the findings of the results showed high patient satisfaction in effectiveness, side effects and global satisfaction domains with biologics when compared to MTX. On the other hand, they found an association between age and TSQM side effect domain in patients treated with MTX. There was no association of disease characteristics in JIA with other domains of TSQM. They concluded that an incorporation of treatment satisfaction in the decision making of the treatment should be taken in consideration in order to assure good health care[149].

2.4 In Palestine

2.4.1 TSQM

With the aim of determining patient adherence and treatment satisfaction in hypertensive patients, a study in Palestine was designed in order to seek patient treatment satisfaction. The TSQM 1.4 was used, the result score showed a good response with adherence, in which significant positive correlation was observed in total adherence and overall TSQM score. The study supported the ability of treatment satisfaction to be used as a reliable measurement of adherence to medications. They conclude that low treatment satisfaction may contribute as a barrier to patient's adherence to treatment[150].

Another study that utilized TSQM 1.4 as a measurement tool, in a cross-sectional study that assessed the relationship between health-related quality of life and treatment satisfaction in Palestine among 385 patients with type 2 diabetes mellitus. The results did not indicate a significant statistical association between Overall Satisfaction and HRQoL, with

sociodemographic and clinical characteristics. They conclude that in order to seek a better quality of life among diabetic patients, elderly patients need to receive more attention in their health and economic status[151].

2.4.2 PedsQL 4.0 Generic Core Scales in Palestine

In 350 preschoolers in the Gaza Strip, Palestine, a cross-sectional study was developed to evaluate Health-related quality of life of Palestinian preschoolers in the Gaza Strip by utilizing PedsQL 4.0 as a measurement. The study results observed that about 65% of the children mothers indicate a severely impaired psychosocial and emotional functioning. The HRQoL was poor in comparison with US children with several chronic diseases. They conclude that Gaza Strip preschoolers have a severely impaired HRQoL with the association effects of both violent and non-violent negative events[152].

In another study in Gaza Strip, the Quality of Life among Children with Cancer (122 children ages between 7 to 18 years) was assessed using PedsQL 4.0 generic core scale. The finding observed a medium level of quality of life in the majority of participants, with social function domain giving the highest score and the emotional function domain being the lowest score[153].

2.4.2 PedsQL and TSQM with JIA in Palestine

Previously, we highlighted the importance of understanding pediatrics quality of life as well as patient's treatment satisfaction as an outcome in management of disease. In Palestine, to the best of our knowledge, no studies determined pediatric quality of life or treatment satisfaction among patients with juvenile idiopathic arthritis. As such, this study is an attempt to characterize patients with JIA and determine the relationship between pediatric quality of life, treatment satisfaction and sociodemographic factors in Palestine.

2.5 Economic Impact of Juvenile Idiopathic Arthritis

Juvenile idiopathic arthritis (JIA) is one of the chronic disease conditions that are able to be destructive to pediatrics. JIA may affect the economic part of the patients and their family, especially its treatment and the need to laboratory tests reporting, and physician visits every now and then; despite all of this, there is a low knowledge of the disease economic impact. Understanding the factors and information relevant to the magnitude of the health care that may associate and influence disease control in a better way. Treatment, health services containing physician's visits and checkups, laboratory tests, and many other things should be considered in JIA cost[154, 155].

In the past 2 decades, only 1 study was published evaluating the economic cost for children with JIA[155, 156]. In 2009 another effort to estimate the direct medical costs in children with JIA compared with controls, and to determine the total direct medical costs with JIA. The findings showed that $1,686 total difference in annualized average direct medical costs in children with JIA compared to controls. They found that medication use, visits to specialists and allied health care professionals, in addition to diagnostic tests associated with higher cost in JIA participants. Furthermore, they showed the relation of higher active joint count was independently associated with higher total direct medical costs; the greater costs were also associated with JIA type, in which patients with polyarthritis or systemic JIA were relative to higher costs[155].

2.5.1 Growth and weight gain impact of juvenile idiopathic arthritis

Growth and weight abnormalities are consequences of JIA in children, the use of some treatment such as corticosteroids in order to manage disease leads to excessive weight gain and growth delay. In 2011, a report of significant height growth delay in oligoarthritis patients treated with systemic corticosteroids[157]. Furthermore, JIA subtypes may play a role in Growth and weight disturbances[158].

Several cross-sectional studies reported impairments in growth with JIA patients (deviation from healthy growth standards in height, weight or body mass index, BMI)[159]. Other studies report

the influence of synthetic disease modifying anti rheumatic drugs (DMARDS) and biologic medications on growth impairment alleviation [158, 160, 161].

In 2017, a published study investigated the impact of JIA on height, weight and body mass index (BMI) development in newly diagnosed children with JIA. They found that the majority of JIA children according to the subtype grew well, with the exception children who had systemic arthritis, uncontrolled disease activity, and/or required prolonged use of systemic corticosteroids, those children had a growth impairment risk[158].

2.6 Pharmacists roles

Pharmacists can support patients with JIA, not only by advising on their medicines but by counseling an issue, such as precautions during treatment (e.g. vaccinations and infections), complementary medicines and in particular, ensuring adherence.

There is a highlight on the need for pharmacists and pharmacy technicians in all sectors, as part of the multidisciplinary team, to support children, young people and families living with JIA in a number of ways, including; referring when JIA is suspected, providing treatment information to support shared decision making, and supporting adherence to therapy, including compliance aids, such as monitored dosage system.

Chapter 3: Materials and Methods

3.1 Participants and Procedure

To achieve the goal of the study, during 8 months period, patients who are formally diagnosed with JIA were interviewed and administered two different forms of questionnaire. The interviewed were done in the special rheumatologist doctor clinic located in two hospitals (AL-Makassed Islamic charitable society hospital Jerusalem, Caritas baby hospital in Bethlehem (CBH)) and a Specialized Pediatric Center.

Due to the limited number of JIA patients in Palestine, we used convenience sample with a sample size of 50 patients.

The 50 patients who participate in the study were from different places in Palestine that included Jerusalem, West bank, and Gaza strip. Throughout the interview, an explanation of the goal of the study was clarified to the participants and their family.

Two modes of administration were used: in person and by telephone, in both modes a child self-report and another report for parents were administered; both of the reports were in Arabic language.

Both forms (the child and the proxy forms) encompass 3 different parts: the Pediatric Quality of Life (PedsQL) Generic Core Scales version 4.0 and the Treatment satisfaction questionnaire for medication (TSQM) Version 1.4 [162]. In addition, the third part covered a sociodemographic and socioeconomic status of both patients and their family.

Previously in the literature preview, there was a mention of two different questionnaire that are associated with Juvenile idiopathic arthritis and rheumatoid arthritis, which they are JAQQ (juvenile idiopathic arthritis quality of life questionnaire) and PedsQL Rheumatology Module; both questionnaire weren't used in this study because they were not available as an translated Arabic version.

3.2 Measures

3.2.1 PedsQL Generic Core Scales part

The PedsQL measure used in this study is Pediatric Quality of Life (PedsQL) Generic Core Scales version 4.0 [163-169], the questionnaire was used after getting the valid Arabic version language questionnaire from ePROVIDE^{TM} (an online support for clinical outcome assessment).

The questionnaire measure covers the following 4 different domains: Physical Function with 8 items, Emotional Function with 5 items, Social Function with 5 items, and School Function with 5 items.

The PedsQL Generic Core Scales was administered to children with the following age distribution:

- Teen report (ages 13-18)
- Children report (ages 8-12)
- Young children report (ages 5-7)

All previous children completed a report

About the parents/ proxy report, the participants' parents or family completed the form of PedsQL with respect to children ages, the report with distributed ages were as the following:

- Parent/proxy report for teens that ages 13-18
- Parent/proxy report for children that ages 8-12
- Parent/proxy report for young children that ages 5-7
- Parent/proxy report for toddlers that ages 2-4

The questionnaire contained phrases asking about particular problem 'during the past month', the response to the question from the participants was applied through a 5 points score in all the reports, except the one for young children report (5-7 ages) in which the response is through a 3 points sore, in order to simplifying the matter for them. For the analysis needs, those scores transformed to a 0 (poorest quality of life) and 100 (highest quality of life) scales.

3.2.2 Reliability and validity of the 23-item PedsQL 4.0 Generic Core Scales

Reliability and validity of PedsQL 4.0 Generic Core Scales module was established in a 2001 publication[139]. PedQL was administered to 1677 subjects (963 children and 1,629 parents) the distribution of the children from a health perspective was as follows: chronic patients, acute patients and healthy subjects. The study results demonstrated an acceptable reliability and consistency in the total score of the scale, furthermore the demonstration of its validity by the use of correlations and factor analysis. They found the ability of PedsQL in recognizing the differences between acute, chronic, and healthy children, with the relation to morbidity and illness burden indicators. In addition, PedsQL^{TM} 4.0 Generic Core Scales proved its ability to extract a factor-derived solution highly harmonious with the a priori conceptually derived scales, more significantly the confirmation of the role of parents' experiences of pediatric primary care quality has been shown[170, 171].

These findings support that PedsQL 4.0 Generic Core Scales may be applicable in research, school health settings, clinical practice, clinical trials, and community populations[170].

As clarified earlier, plenty of studies used Generic Core Scales module as a sole tool or with other measurements of disease. The next section will discuss studies that used Generic Core Scales module alone and with other disease measurement modules.

In a clinical trial of metformin as a treatment for non-diabetic pediatric non-alcoholic steatohepatitis, quality of life (QoL) was used as a method novel for treatment trials in pediatric hepatology. The 23-item pediatric quality of life inventory (PedsQL) 4.0 was utilized. A significant improvement in QoL was observed after treatment. Potential reasons of this improvement encompass beneficial effects of metformin as a treatment, physical activity or the psychological support of collaborating in a clinical trial[172].

PedsQL 4.0 Generic Core Scales was utilized in a study designed to measure the effects of weight-loss diets of different macronutrient compositions (low-carbohydrate low-fat group or high-carbohydrate low-fat diets) on health-related quality of life (HRQoL), also to observe the correlation between changes in HRQoL domains and weight loss during weight-loss programs in obese adolescents.

Results of this study found an advanced improvement in physical, emotional, school, and psychosocial functioning, with an improvement in the PedsQL total score. On the other hand, low-carbohydrate high-fat group showed no improvement[173].

3.2.3 TSQM part

The TSQM version we used in this study Arabic version of TSQM (version 1.4)[162] was used as Arabic is the native language of the respondents.

TSQM [162] is designed for adults age 18 and older. However, few studies used it to evaluate treatment satisfaction in children. In this study, we didn't fill the TSQM questionnaire from children. On the other hand, parents or proxy of children with all ages completed the TSQM questionnaire version.

As mentioned obviously TSQM version 1.4 [162] covers four domains:

- Effectiveness domain focus on three items
- Side effects domain focus on five items
- Convenience domain focus on three items
- and global satisfaction domain focus on three items

Those 14 items focused on what patients think about using the medication. For each item, the respondent were asked to point out their level of satisfaction or dissatisfaction with the medication over the last two to three weeks or since the last time it was used.
Before the patients were asked to complete the questionnaire, the interviewer explained and clarified everything.

3.2.4 The role for parent proxy-report

QoL measurements tend to cover report for both children and their parents or proxy, from the idea that parents are responsible for their children's health, their treatment and their perception in other aspects of their children, their influence and perspectives in HRQoL should to be highlighted. On

the other hand, there is a situation when the child is too ill or fatigued young, too cognitively impaired, or too young to complete HRQoL instrument, in such situation parent proxy-report may be required. Furthermore, the measure of health care and quality of care may be different from parent's perspective; therefore, their perception is important. Preferably, parent and child measurement instruments should evaluate the same designed forms with parallel items to make comparisons between self and proxy report more significant. The parent role is also just as important in TSQM questionnaires and other parts.

Therefore, the forms that were completed by patient's parents/proxy consisted of three parts:

Part of TSQM version 1.4 questionnaire

Part of Pediatric Quality of Life (PedsQL) Generic Core Scales version 4.0

Part about sociodemographic and socioeconomic characteristics

3.2.5 Sociodemographic part

In addition to the two questionnaires, sociodemographic information part was also completed by the proxy/ parents that included the following:

Patient Age (less than 5, from 5-7, from 8-12, and from 13-18)

Patient gender (Male or Female)

Place of living (town, village, or a camp)

Parent's educational level (secondary school or less, diploma, university, part of university)

Parents/proxy relationship with the patient (Mother, Father, Others)

Number of family members (less than 5-7, and more than 8 members)

Accommodation status (own to the family or by rent)

Parents/proxy working status (housekeeper, part timer worker, not working because of the health status, searching for work, not working for other reasons)

Parents/proxy monthly income(less than 1500, from 1500-3000, 3000-5000, more than 5000, or nothing)

Amount of transportation fees (less than 100, from 100-400, more than 400, or by the proxy own car).

3.2.6 Additional data collection

In order to cover all characteristics and to make a full clarification of Pediatric Quality of Life (PedsQL) and treatment satisfaction with JIA patients, some information from patient's record Were extracted under the specialist doctor supervision and with permission from the 2 hospitals and the special center.

The information from patient's record included the following:

• JIA subtype (classified according to the ILAR system of classification).

• The medication that was given before visiting the doctor clinic (used medication), and the medicine that patient's maintained in (during follow ups).

• Sign and symptoms of the disease that happened throughout disease duration (that was observed during follow ups)

• BMI, height and weight (observation to any changes during follow-ups)

• Lab results information (investigation):

- ANA, RF tests

• Observable complication that connected to the disease (Uveitis).

3.3 Data analysis

For data analysis purpose and to test the hypotheses, IBM SPSS *version 20* software was used;

1) Descriptive statistics used (frequency and percentages) for demographic data
2) Means and standard deviation to answer the questions of the study

the use of kruskal walls and man-whitnwy tests, they are nonparametric (distribution free) test and they are used when the assumptions of the parametric tests are not met. Each one is used to compare groups, with the difference of that the man-whitnwy test was used in order to compare 2 groups, while Kruskal-Wallis test was used to compare more than 2 groups.

The following hypothesis were tested:

- There are no differences in at the level of significant in PedsQL or TSQM with respect to JIA subtypes.
- There is no significant difference at the level of significant in PedsQL or TSQM with respect to place of residence
- There is no significant difference at the level of in PedsQL or TSQM with respect to family relationship to children
- There is no significant difference at the level of significant in PedsQL or TSQM with respect to parents level of education
- There is no significant difference at the level of significant in PedsQL or TSQM with respect to type of house
- There is no significant difference at the level of significant in PedsQL or TSQM with respect to monthly income
- There is no significant difference at the level of significant in PedsQL or TSQM with respect to work status
- There is no significant difference at the level of significant in PedsQL or TSQM with respect to family members number
- There is no significant difference at the level of significant in PedsQL or TSQM with respect to cost of transportation

- There is no relationship at the level of significant between BMI and PedsQL or TSQM
- There is no relationship at the level of significant between height PedsQL and TSQM
- There is no relationship at the level of significant between weight PedsQL and TSQM

3.4 Ethical Approvals

The approval to start work on this study was obtained in the first place from AL-Quds University ethical committee(66/REC/2019). We also connected with the TSQM [162] authors at IQVIA RDS Inc [162] and gained approval to use the instruments and the translated Arabic version. About Pediatric Quality of Life (PedsQL) Generic Core Scales version 4.0, the questionnaire was used after getting the valid Arabic version language from ePROVIDE^{TM} website.

After having the aimed questionnaire, and in order to start collecting the samples from the attended hospitals, the ethical approval was obtained from Caritas Baby Hospital (CBH) Medical Research Committee/Ethical Review, AL-Makassed Islamic charitable society hospital Jerusalem, as well as from the Specialized Pediatric Center. All patient's and their adult proxy gave verbal consent to participate in the study.

Chapter 4: Results

4.1 Demographic characteristics

The study included 50 children with their parents, children under age of 5 did not fill the questionnaire because of their age; this makes it 36 children and a 50 parents/ proxy who filled sheets. Patients were divided into 4 categories according to the age as following: below 5 years, from 5 to 7 years, from 8 to 12 years, and from 12 to 18 years of age.

Demographic information included the Distribution of Children by Age Groups, Sex and Place of Residence as shown in Table 4.

The study included 19 male, and 31 female children from all over, most of them are from town and the minimal number from camps. Demographic distribution according to parents/proxy filled sheet also included the, relationship with children, education level of parents, their monthly income, and the type of house they live in. It also included questions about parents work status and the cost of transportation (Table 4.4).

Table 4: Parent's demographic data Distribution of samples

Category	Group	Frequency	Percent %
Children Age (years)	less than 5	14	28%
	5 to 7	9	18%
	8 to 12	20	40%
	13 to18	7	14%
	Sum	50	100%
Children gender	Male	19	38%
	Female	31	62%
PLACE	City	22	44%
	Village	25	50%
	Camp	3	6%
RELATION	Mother	35	70%
	Father	9	18%

	Others	6	12%
EDUCATION	less secondary	24	48%
	Secondary	11	22%
	Diploma	2	4%
	University	13	26%
Place of Living	Own	46	92%
	Rent	4	8%
INCOME	Less than 1500	13	26%
	1500-3000	15	30%
	3000-5000	14	28%
	more than 5000	5	10%
	None	3	6%
WORK	Searching	5	10%
	Working Full or Part time	16	32%
	Housekeeper	27	54%
	not working because of health status	0	0.00%
	not working for other reasons	2	4.00%
Family Members	less than 5	26	52%
	5 to 7	18	36%
	more than 8	6	12%
Transportation cost group	less than ₪100	16	32%
	₪100-₪400	20	40%
	more than ₪400	7	14%
	own car	7	14%

4.1.1 Juvenile idiopathic subtypes

Table 5: Classification of JIA according to ILAR system

Classification of Juvenile Idiopathic Arthritis (JIA)		
Types	frequency	Percent
Polyarticular arthritis - RF negative 4 - RF positive 2 - None 1	7	14%
Oligoarthritis	23	46%
- Oligoarthritis (extended Oligoarthritis)	1	2%
Systemic Arthritis	14	28%
Enthesitis related arthritis	2	4%
JIA (unknown)	3	6%
Total	50	100%

4.2 Questionnaires scores

PedsQL and TSQM Questionnaires scores according to Parents/ Proxy sheet

Kruskal-Wallas test was used to compare means for each axis by age groups. Total PedsQL mean scores showed that the best PedsQL was with 13-18 year age and it was the worst with 5-7 year age group. In addition, the results revealed no significant effect of any domain in case of PedsQL ($P > 0.05$) (Table 6).

Similarly, TSQM domains revealed no significant difference ($P > 0.05$) for all domains with the exception of global satisfaction domain. The 13-18 years age group showed the highest mean value relative to other age groups; p-value is 0.016, which is less than 0.05 indicating significance (Table 7). On the other hand, patients in the age group of 8-12 years old had the lowest score with the global satisfaction domain (Table 7). For other TSQM domains, P values showed that the domain of convenience was the most consistent between age groups.

Table 6: Parents/proxy PedsQL scores

	Age groups								
	less than 5 years		5-7 years		8-12 years		13-18 years		sig
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	
Physical functioning	64.06	30.17	53.29	18.79	57.81	28.18	69.32	25.91	0.620
Emotional functioning	52.14	27.30	73.89	18.67	60.25	25.05	75.00	24.83	0.113
Social functioning	82.86	21.64	71.11	18.16	77.25	18.03	88.57	11.80	0.219
School functioning	76.39	17.81	61.85	25.61	77.89	11.82	65.71	18.80	0.267
Psychosocial	67.70	21.89	68.95	12.66	71.38	15.05	76.43	9.35	0.837
Total PedsQL	65.55	22.08	64.21	13.59	66.60	17.89	74.06	13.29	0.670

Table 7: Parents/proxy TSQM scores

	Age groups								
	less than 5		5-7		8-12		13-18		
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	sig
Global Satisfaction	61.22	24.05	68.25	14.34	53.10	18.88	79.59	15.66	0.016
Effectiveness	67.06	23.72	61.73	15.33	57.78	21.13	70.63	17.19	0.283
Side Effects	89.29	21.85	100.00	0.00	78.44	29.35	88.39	23.50	0.101
Convenience	57.54	23.53	55.56	23.90	58.89	17.14	64.29	11.04	0.641

4.2.1 *PedsQL Questionnaire values according to the children sheet*

In PedsQL questionnaire, the age group of less than five years did not fill the PedsQL questionnaire; instead, only parents/proxy filled the sheet of this category group of age.

Total PedsQL mean scores showed that the best PedsQL was with 13-18 years old age group, and it was the worst with 5-7 years age group. In addition the results revealed no significant effect of any domain in case of PedsQL (P> 0.05) (Table 8).

Table 8: Children PedsQL scores

	Age groups						
	5-7		8-12		13-18		
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
Physical functioning	62.50	21.88	66.56	22.38	72.32	17.81	0.666
Emotional functioning	81.11	17.64	69.75	21.06	77.14	20.18	0.347
Social functioning	65.56	26.51	81.25	19.99	89.29	14.27	0.074
School functioning	80.00	11.95	77.63	18.51	81.43	11.07	0.847
Psychosocial Health	75.93	12.89	75.79	15.73	82.62	10.88	0.536
Total PedQL	71.26	13.83	72.58	16.54	79.04	12.62	0.558

Note: Only parents/proxy filled treatment satisfaction questionnaire (TSQM)

4.3 Correlation Statistics

This section will investigate any correlation between PedsQL or TSQM with sociodemographic factors like gender, place of living with respect to age groups.

For the parents/proxy sheet, the correlation was between PedsQL or TSQM outcome with place living and family relationship with patients. In addition, correlation with parent's education level,

type of house, family member's number, parent's monthly income, parents work status, and the cost of transportation.

Another correlation was explored between PedsQL, TSQM scores with each subtype of JIA. Finally, correlation between weight, height, and BMI with TSQM or PedsQL was completed to reveal their outcome and effects.

● ***Correlation between PedsQL and TSQM scores***.

The results showed a positive relationship between the two questionnaires scores, in which if one of them increased the second also increased and vice versa (Table 9). The most consistent positive correlation was between PedsQL scores and convenience in TSQM scores with data showing that convenience in treatment score was predictor of better QoL. Similarly, side effect domain of treatment satisfaction also showed a positive correlation with emotional functioning, social functioning and psychosocial domains of QoL.

Table 9: Correlation between PedsQL and TSQM

Correlations						
			TSQM			
			Global Satisfaction	Effectiveness	Side Effects	Convenience
PedsQL	physical functioning	Pearson Correlation	0.099	0.091	0.092	0.278
		Sig. (2-tailed)	0.493	0.531	0.527	0.051
		N	50	50	50	50
	Emotional functioning	Pearson Correlation	0.179	0.040	0.319	0.337*
		Sig. (2-tailed)	0.213	0.783	0.024	0.017
		N	50	50	50	50
	Social functioning	Pearson Correlation	0.046	0.177	0.387	0.439
		Sig. (2-tailed)	0.753	0.218	0.006	0.001
		N	50	50	50	50
	School functioning	Pearson Correlation	0.027	-0.121	-0.091	0.269
		Sig. (2-tailed)	0.868	0.452	0.570	0.089
		N	41	41	41	41

	Psychosocial	Pearson Correlation	0.122	0.090	0.334	0.488
		Sig. (2-tailed)	0.397	0.533	0.018	0.000
		N	50	50	50	50
	Totalpeds	Pearson Correlation	0.117	0.088	0.235	0.403
		Sig. (2-tailed)	0.419	0.543	0.101	0.004
		N	50	50	50	50

- Correlation was evaluated between patient's scores and their parents/proxy scores.

PedsQL scores between JIA patients and their parent's showed no significant difference in all domains since P-values was less than 0.05, (tables 10). From total peds scores, children from all age groups indicate better PedsQL scores compared with parents/proxy opinion. On the other hand, children in the 5-7 year old age group revealed the lowest PedsQL compared to the other groups, and the 13-18 years old age showed the best PedsQL scores. In addition, for each of PedsQL domains, the physical functioning domain had the lowest score of all domains in the opinion of both children and parents/proxy.

Table 10: Children and parents PedsQL scores comparison

		Age groups						
		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
physical functioning	parent	53.29	18.79	57.81	28.18	69.32	25.91	0.911
	child	62.50	21.88	66.56	22.38	72.32	17.81	
Emotional functioning	parent	73.89	18.67	60.25	25.05	75.00	24.83	0.849
	child	81.11	17.64	69.75	21.06	77.14	20.18	
Social functioning	parent	71.11	18.16	77.25	18.03	88.57	11.80	0.444
	child	65.56	26.51	81.25	19.99	89.29	14.27	
School functioning	parent	61.85	25.61	77.89	11.82	65.71	18.80	0.110
	child	80.00	11.95	77.63	18.51	81.43	11.07	
Psychosocial	parent	68.95	12.66	71.38	15.05	76.43	9.35	0.984
	child	75.93	12.89	75.79	15.73	82.62	10.88	
Totalpeds	parent	64.21	13.59	66.60	17.89	74.06	13.29	

	child	71.26	13.83	72.58	16.54	79.04	12.62	0.992

4.3.1 Correlating PedsQL or TSQM with sociodemographic outcomes

- The correlation between parents working status and PedsQL or TSQM was evaluated; options provided were as follows: Searching for Work, Working full or part time, full time housekeeper, or not working for other reasons.
  In case of TSQM outcomes, the results showed a significant effect with TSQM effectiveness domain (P was 0.050) (table 11).

  When age groups was not taken into count (Table 12), all domains showed no significant difference with work status ($p > 0.05$) with the exception of TSQM domain of Convenience, p was 0.030, (which is less than 0.05) showing significance. This indicates lower convenience score in relation to work status.

Table 11: Comparison of parents/ proxy TSQM in respect with work status and children age groups

		Age groups								
		Less than 5		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
Global Satisfaction	Searching	85.71	.	53.57	35.36	57.14	.	85.71	.	0.393
	Working	61.90	17.98	47.62	4.12	44.97	11.57	71.43	.	
	housekeeper	65.71	23.28	73.81	20.62	60.00	22.64	82.14	18.90	
	not working for	.	.	78.57	.	.	.	64.29	.	

	other reasons									
Effectiveness	Searching	83.33	.	44.44	15.71	50.00	.	55.56	.	**0.050**
	Working	85.19	12.83	48.15	13.98	46.30	17.57	66.67	.	
	housekeeper	63.89	22.41	64.81	16.04	68.89	19.81	76.39	19.44	
	not working for other reasons	.	.	77.78	.	.	.	77.78	.	
Side Effects	Searching	37.50	.	75.00	35.36	100.	.	100	.	0.984
	Working	100	.	100.	.	74.31	35.55	100	.	
	housekeeper	96.25	11.86	100	.00	80.00	24.97	84.38	31.25	
	not working for other reasons	.	.	100	.	.	.	81.25	.	
Convenience	Searching	11.11	.	36.11	27.50	55.56	.	55.56	.	0.642
	Working	64.81	17.86	40.74	21.03	54.32	10.31	72.22	.	
	housekeeper	68.33	19.25	66.67	24.22	63.33	21.94	58.33	9.62	

	not working for other reasons	.	.	61.11	.	.	.	50.00	.	

Table 12: Comparison of parents/ proxy TSQM in respect with work status

		Sum of Squares	Df	Mean Square	F	Sig.
Global Satisfaction	Between Groups	3155.761	3	1051.920	2.635	0.061
	Within Groups	18362.680	46	399.189	.	
	Total	21518.441	49	.	.	
Effectiveness	Between Groups	2279.890	3	759.963	1.904	0.142
	Within Groups	18364.555	46	399.229	.	
	Total	20644.444	49	.	.	
Side Effects	Between Groups	604.525	3	201.508	.327	0.806
	Within Groups	28351.725	46	616.342	.	
	Total	28956.250	49	.	.	
Convenience	Between Groups	3227.469	3	1075.823	3.261	**0.030**
	Within Groups	15177.469	46	329.945	.	
	Total	18404.938	49	.	.	

- A comparison investigated the number of family members (with options offered being families less than 5 members, between 5-7 members, and more than 8 members); PedsQL domains showed no evidence of significance since P-value was more than 0.05.

  When Parents/ proxy scales of PedsQL and TSQM were evaluated with respect to number of family members (without age groups), the PedsQL Social functioning domain results showed a significant difference in which p was 0.05 (Table 13), it indicates relatively higher social function scores with higher family numbers.

Table 13: Comparison of parents/ proxy PedsQL in respect with family member number

		Sum of Squares	Df	Mean Square	F	Sig.
physical functioning	Between Groups	452.746	2	226.373	0.307	0.737
	Within Groups	34654.604	47	737.332	.	
	Total	35107.351	49	.	.	
Emotional functioning	Between Groups	3217.735	2	1608.868	2.631	0.083
	Within Groups	28744.765	47	611.591	.	
	Total	31962.500	49	.	.	
Social functioning	Between Groups	2055.094	2	1027.547	3.189	**0.050**
	Within Groups	15145.406	47	322.243	.	
	Total	17200.500	49	.	.	
School functioning	Between Groups	332.147	2	166.073	.481	0.622
	Within Groups	13116.634	38	345.175	.	
	Total	13448.780	40	.	.	
Psychosocial	Between Groups	1393.326	2	696.663	2.888	0.066
	Within Groups	11337.428	47	241.222	.	
	Total	12730.755	49	.	.	
Totalpeds	Between Groups	927.588	2	463.794	1.505	0.232
	Within Groups	14481.541	47	308.118	.	
	Total	15409.129	49	.	.	

4.4. JIA related Complication

4.4.1 Growth impairments

Investigated the relationship between PedsQL, TSQM and Height, Weight, and BMI.

● The relationship between heights with PedsQL or Treatment satisfaction was checked, the result showed no relationship between height and PedsQL domains. For TSQM there was a relationship between TSQM domain of global satisfaction and height, P was 0.036 (less than 0.05), in which

there was a positive relationship between them, that means that the increase in height indicates higher global satisfaction (table 14).

Table 14: Relationship between height and PedsQL or TSQM

		Spearman's correlation	Sig.
PedsQL domains	physical functioning	-0.011	0.472
	Emotional functioning	0.185	0.123
	Social functioning	0.033	0.419
	School functioning	0.056	0.365
	Psychosocial	0.148	0.178
	Totalpeds	0.061	0.352
TSQM domains	Global Satisfaction	0.285	**0.036**
	Effectiveness	0.143	0.186
	Side Effects	-0.153	0.171
	Convenience	0.202	0.103

● The relationship between weights with PedsQL & Treatment satisfaction was checked, the result showed no relationship between weight and PedsQL domains. For TSQM there was a relationship between TSQM side effects domain and height, P was 0.014 (less than 0.05), in which there is a negative relationship between them, that means that an increase in weight gives lower side effect scores and vice versa (table 15).

Table 15: Relationship between both PedsQL or TSQM with weight

		Spearman's correlation	Sig.
PedsQL domains	physical functioning	-0.177	0.134

	Emotional functioning	-0.059	0.356
	Social functioning	-0.057	0.362
	School functioning	0.003	0.493
	psychosocial	-0.059	0.356
	Totalpeds	-0.149	0.175
TSQM domains	Global Satisfaction	0.176	0.136
	Effectiveness	0.042	0.397
	Side Effects	-0.344	**0.014**
	Convenience	0.026	0.435

● The relationship between BMI with PedsQL & Treatment satisfaction was checked, the result showed that there was a relationship between BMI and PedsQL with emotional functioning (P was 0.005) and psychosocial (P was 0.008) domains. For TSQM there was a relationship between TSQM convenience domain and BMI, P was 0.008 (less than 0.05). The observed relationship between them was positive, that means that the increase in BMI gives higher scores with the mentioned domains (table 16)

Table 16: Relationship between both PedsQL and TSQM with BMI

		Spearman's correlation	Sig.
PedsQL domains	physical functioning	0.243	.063
	Emotional functioning	0.393	**0.005**
	Social functioning	0.136	0.198
	School functioning	0.181	0.129
	psychosocial	0.374	**0.008**

	totalpeds	0.341	**0.014**
TSQM domains	Global Satisfaction	0.240	0.065
	Effectiveness	0.215	0.088
	Side Effects	0.148	0.178
	Convenience	0.376	**0.008**

4.4.2 Uveitis

Table 17: children with uveitis

Uveitis type	Frequency	Percent
uveitis (Bilateral anterior)	1	25%
uveitis (anterior uveitis)	1	25%
uveitis (left anterior)	1	25%
uveitis	1	25%
Total	4	100%

4.5 JIA related signs and symptoms during each follow up

The most common side effects reported by patients before visit to the pediatric rheumatologist were Joint pain and joint swelling (Table 18).

Table 18: Children signs and symptoms before the specialist doctor visit

signs and symptoms			
		Frequency	Percent
	Fatigue	1	1%

	Splenomegaly	2	2%
	weight gain	1	1%
	Anemia	2	2%
	aseptic meningitis	1	1%
	back pain	1	1%
	Convulsions	1	1%
	Dactylitis	1	1%
	decreased oral intake	1	1%
	extremities pain	1	1%
	eye redness	1	1%
	febrile convulsions	1	1%
	Fever	15	12%
	gastrointestinal problems	1	1%
	high inflammatory marker	1	1%
	hip pain	1	1%
	Inability to walk	1	1%
	joints pain	25	20%
	joints Swelling	29	23%
	joints tenderness	1	1%
	knee Synovectomy	2	2%
	Limping	3	2%
	Morning stiffness	13	10%
	nail fungal infection	1	1%
	Oculocutaneous albinism	1	1%
	oral ulcers	2	2%

	pericardial effusion	1	1%
	Poly arthritis	1	1%
	right arterial enlargement	1	1%
	skin rashes	6	5%
	walk difficulties	3	3%
	weight loss	3	2%
	Sum	125	100%

At first visit to pediatric rheumatologist, the main symptoms were joint tenderness, joint pain and joint swelling (Table 19).

Table 19: Children signs and symptoms at first visit

signs and symptoms			
		Frequency	Percent
	Cushingoid	4	3%
	neck movement difficulties	2	2%
	abnormal gait	1	1%
	back pain	3	2%
	back tenderness	1	1%
	Dactylitis	1	1%
	eye redness	1	1%
	Fever	3	2%

	gastrointestinal problems	1	1%
	hip tenderness	1	1%
	increased appetite	1	1%
	joint tenderness	23	16%
	joint contractures	4	3%
	joint effusion	15	11%
	joint limited movement extension	2	2%
	joint limited movement flexion	4	3%
	joints movement difficulties	1	1%
	joint pain	21	15%
	joint Swelling	27	20%
	Limited jaw opening	1	1%
	Limping	1	1%
	lymph nodes(LN) swelling	2	2%
	Moon face	1	1%
	Morning stiffness	10	7%
	muscle atrophy	1	1%
	PIPs Joints deformities	1	1%
	skin rashes	1	1%
	sleeping difficulties	1	1%
	Thigh atrophy	2	2%
	torticollis	1	1%
	walk difficulty	2	1%
	Total	139	100%

Children symptoms at first follow-up to pediatric rheumatologist remained joint pain and swelling (Table 20).

Table 20: Children signs and symptoms at the first follow up

signs and symptoms			
		Frequency	Percent
	Dactylitis	1	1%
	joints tenderness	4	4%
	neck movement difficulties	2	2%
	Abnormal Nails	1	1%
	back tenderness	1	1%
	Bilateral knee synovitis	1	1%
	Cushingoid	2	2%
	eyes redness	1	1%
	Fever	3	4%
	gastrointestinal problems	3	4%
	hip pain	1	1%
	hip tenderness	1	1%
	increased appetite	1	1%
	joints contractures	2	2%
	joints effusion	6	7%
	joints limited full extension	2	2%
	Joint pain	12	15%
	Joint swelling	15	18%
	joints movement difficulties	2	2%
	joints tenderness	4	5%

	knee swelling	1	1%
	knees effusions	1	1%
	Limping	3	4%
	Morning stiffness	6	7%
	neck pain	1	1%
	sleeping difficulties	1	1%
	Thigh atrophy	1	1%
	Tonsillitis	1	1%
	walking difficulty	2	2%
	Total	82	100%

At the second follow-up visit the overall number of signs and symptoms decreased, yet joints pain and swelling continue to be the main complaint (Table 21).

Table 21: Children signs and symptoms at the second follow up

signs and symptoms			
		Frequency	Percent
	Back pain	3	5%
	back tenderness	1	2%
	Bilateral knee synovitis	1	2%
	Cough	1	2%
	Cushingoid	2	4%
	extremities pain	1	2%
	Fever	4	7%
	Gastrointestinal problems	1	2%
	hand pain	1	2%
	hip pain	1	2%
	joints Swelling	11	20%
	joints tenderness	4	8%

	joint contracture	1	2%
	joints effusion	4	7%
	joint limited full extension	1	2%
	joints pain	12	21%
	knees contractures	1	2%
	limited neck movement	1	2%
	morning stiffness	4	7%
	Thigh atrophy	1	2%
	Urticaria skin rashes	1	2%
	Total	57	100%

The same trend persisted with third visit with joints pain and joints swelling being the most commonly reported sign and symptom (Table 22).

Table 22: Children signs and symptoms at the third follow up

signs and symptoms			
		Frequency	Percent
	Cushingoid	2	5%
	Erythematous pruritic rash	1	3%
	Fever	1	3%
	foot pain	1	3%
	gastrointestinal problems	1	3%
	hand pain	1	3%
	joints tenderness	2	6%
	joint contracture	1	3%
	joints effusion	4	10%

	joint limited full extension	1	3%
	joints Swelling	6	17%
	joints pain	6	16%
	knee effusion	1	3%
	limited neck movement	1	3%
	Limping	2	5%
	morning stiffness	3	8%
	Skin lesion	1	3%
	skin rashes	1	3%
	Tonsillitis	1	3%
	Total	37	100%

The number of patients that came back for 4th or 5th visits was limited, the few that came in had joint pain and swelling as the main signs and symptoms (Tables 23 and 24).

Table 23: Children signs and symptoms at the fourth follow up

signs and symptoms			
		Frequency	Percent
	back pain	1	7%
	enthesitis	1	7%
	gastrointestinal problems	1	7%
	Headache	1	7%
	joints effusion	2	14%
	joints pain	3	20%
	joints Swelling	3	20%
	joints tenderness	1	7%
	Limping	1	7%
	lower extremity pain	1	7%

	Total	15	100%

Table 24: Children signs and symptoms at the fifth follow up

signs and symptoms			
		Frequency	Percent
	joints Swelling	2	50%
	joints effusion	1	25%
	joints tenderness	1	25%
	Total	4	100.0

4.6 Medications used by JIA patients during disease period and up to five follow-up visits

Table 25 below, shows the medications used by patient before first visit to pediatric rheumatologist. The results show that the highest percentage of patients were on methotrexate and Prednisone. This was followed by Folic acid and NSAIDS like ibuprofen. The same trend with medication use was observed following visits with pediatric rheumatologist with a noticeable decrease in prednisone use with successive visits and more reliance of ibuprofen (Tables 26, 27, 28, 29, 30 and 31).

Table 25: Used medications before the doctor visit (by other doctors)

Used Medications			
		Frequency	Percent
	Alfacalcidol	1	1%
	Corticosteroid joint injection	2	3%
	Cyclopentolate	1	1%
	Dexamethasone	1	1%

	Etanercept	1	1%
	Folic acid	10	13%
	Hydroxychloroquine	2	2%
	Ibuprofen	8	10%
	Indomethacin	1	1%
	Infliximab	1	1%
	Leflunomide	2	2%
	Methotrexate	17	22%
	Naproxen sodium	2	3%
	Omeprazole	1	1%
	Paracetamol	1	1%
	Prednisolone	5	6%
	Prednisone	16	21%
	Prednisone eye drop	1	1%
	Sulfasalazine	2	3%
	Vitamin D	2	2%
	Total	77	100%

Table 26: Maintained on medication at the first visit

Maintained on medications			
		Frequency	Percent
	acetylsalicylic acid (ASA)	1	1%
	Alfacalcidol	1	1%
	Calcium	3	3%
	Corticosteroid joint injection	4	4%
	Cyclosporine	1	1%
	Enoxaparin sodium	1	1%
	Etanercept	2	2%
	Ezomeprazole	7	6%
	Folic Acid	17	16%

	Ibuprofen	17	16%
	Infliximab	1	1%
	Iron	2	2%
	Leflunomide	1	1%
	Methotrexate	20	19%
	Naproxen sodium	3	3%
	Piroxicam	1	1%
	Prednisolone	4	4%
	Prednisone	15	14%
	Ranitidine	1	1%
	Tocilizumab	1	1%
	Vitamin A + vitamin D3 drop	4	4%
	Vitamin D	2	2%
	Total	109	100%

Table 27: Maintained on medication at the first follow up

Maintained on medications			
		Frequency	Percent
	acetylsalicylic acid (ASA)	1	1%
	Abatacept	1	1%
	Alfacalcidol	2	2%
	Calcium	1	1%
	Corticosteroid joint injection	4	3%
	Cyclopentolate	1	1%
	Dexamethasone	2	2%
	Enoxaparin sodium	1	1%
	Esomeprazole	6	5%
	Folic acid	24	20%
	Hdroxychloroquine	2	2%
	Hydrocortisone	1	1%

	Ibuprofen	10	8%
	Indomethacin	2	2%
	Iron	3	3%
	Loteprednol etabonate drop	1	1%
	Meloxicam	2	2%
	Methotrexate	23	19%
	Omeprazole	3	3%
	Prednisolone	4	4%
	Prednisone	13	11%
	Ranitidine	3	3%
	Terbinafine	1	1%
	Vitamin A + vitamin D3 drop	8	7%
	Total	119	100%

Table 28: Maintained on medication at the second follow up

Maintained on medications			
		Frequency	Percent
	Acetylsalicylic acid (ASA)	2	2%
	Abatacept	1	1%
	Adalimumab	2	2%
	Corticosteroid joint injection	4	4%
	Cyclopentolate	1	1%
	Dexamethasone	2	2%
	Esomeprazole	2	2%
	Folic acid	18	20%
	Ibuprofen	5	6%
	Indomethacin	2	2%
	Infliximab	1	1%
	Iron	3	3%
	Leflunomide	1	1%

	Loteprednol etabonate drop	1	1%
	Maxitrol	1	1%
	Meloxicam	2	2%
	Methotrexate	17	19%
	Omeprazole	2	2%
	Prednisolone	4	4%
	Prednisone	5	6%
	Ranitidine	2	2%
	Tocilizumab	1	1%
	Vitamin A + vitamin D3 drop	6	7%
	Vitamin D	1	1%
	Total	86	97%

Table 29: Maintained on medication at the third follow up

Maintained on medications			
		Frequency	Percent
	Tocilizumab	1	2%
	Abatacept	1	2%
	Acetylsalicylic acid (ASA)	1	2%
	Adalimumab	2	4%
	Cyclopentolate	1	2%
	Dexamethasone	2	4%
	Etanercept	1	2%
	Esomeprazole	2	4%
	Folic Acid	12	21%
	Ibuprofen	2	4%
	Indomethacin	1	2%
	Iron	2	4%

	Leflunomide	1	2%
	Maxitrol	1	2%
	Meloxicam	2	4%
	Methotrexate	13	23%
	Omeprazole	1	2%
	Prednisolone	2	4%
	Prednisone	4	7%
	Ranitidine	1	2%
	Vitamin A + vitamin D3 drop	4	7%
	Total	57	100%

Table 30: Maintained on medication at the fourth follow up

Maintained on medications			
		Frequency	Percent
	Abatacept	1	3%
	Acetylsalicylic acid (ASA)	1	3%
	Etanercept	1	3%
	Folic Acid	7	23%
	Indomethacin	1	3%
	Iron	1	3%
	Leflunomide	3	10%
	Meloxicam	1	3%
	Methotrexate	7	24%
	Naproxen sodium	1	3%
	Prednisolone	1	3%
	Prednisone	2	7%
	Vitamin A + vitamin D3 drop	3	10%

	Total	30	100%

Table 31: Maintained on medication at the fifth follow up

Maintained on medications			
		Frequency	Percent
	Adalimumab	1	7%
	Folic Acid	3	20%
	Indomethacin	1	7%
	Leflunomide	1	7%
	Methotrexate	3	20%
	Omeprazole	1	7%
	Prednisone	1	7%
	Tocilizumab	1	7%
	Vitamin A + vitamin D3 drop	1	7%
	Total	13	87%

4.7 Descriptive statistics

Means and standard deviation of PedsQL domains with respect to place of living, family relationship with patients, family member's number, education level, type of house, parent's monthly income, parents work status, and the cost of transportation, and family member number, from the parents/proxy sheet.

Table 32. PedsQL means and standard deviation with respect to place of residence

Descriptive				
		N	Mean	Std. Deviation
physical functioning	city	22	63.4943	26.87165

	town	25	61.5952	25.22153
	Camp	3	27.0833	23.45485
Emotional functioning	City	22	65.6818	23.41629
	Town	25	60.6000	28.14842
	Camp	3	55.0000	21.79449
Social functioning	City	22	80.9091	18.49301
	Town	25	78.0000	20.20726
	Camp	3	78.3333	7.63763
School functioning	City	18	74.5370	14.07038
	Town	20	67.9167	21.49306
	Camp	3	85.0000	13.22876
Psychosocial	City	22	73.2828	15.77058
	Town	25	68.0111	17.02974
	Camp	3	72.7778	10.18350
Totalpeds	City	22	69.5792	18.27066
	Town	25	65.7856	17.98901
	Camp	3	56.8841	8.44288

Table 33: TSQM means and standard deviation with respect to place of residence

Descriptive				
		N	Mean	Std. Deviation
Global Satisfaction	City	22	64.9351	21.58774
	Town	25	58.4765	20.93851
	Camp	3	66.6667	17.97580
Effectiveness	City	22	62.3737	19.91545
	Town	25	63.5556	22.22685
	Camp	3	61.1111	14.69862
Side Effects	City	22	84.3750	26.56906
	Town	25	88.0000	23.79382
	Camp	3	93.7500	10.82532
Convenience	City	22	63.3838	14.51338
	Town	25	56.0000	22.90165
	Camp	3	46.2963	11.56481

Table 34: PedsQL means and standard deviation with respect to family relationship

Descriptive				
		N	Mean	Std. Deviation
physical functioning	mother	35	61.1395	26.09506
	father	9	60.0694	33.90221
	others	6	56.2500	22.96397
Emotional functioning	mother	35	60.8571	26.91178
	father	9	70.5556	18.27643
	others	6	60.0000	28.10694
Social functioning	mother	35	79.5714	20.16007
	father	9	82.7778	15.63472
	others	6	72.5000	14.40486
School functioning	mother	28	73.6905	19.25226
	father	7	68.8095	19.47730
	others	6	68.3333	13.66260
Psychosocial	mother	35	70.3651	16.93624
	father	9	74.0432	14.59398
	others	6	66.9444	14.73532
Totalpeds	mother	35	67.0537	18.41195
	father	9	68.7639	18.54462
	others	6	63.3799	14.32125

Table 35: TSQM means and standard deviation with respect to family relationship

Descriptive				
		N	Mean	Std. Deviation
Global Satisfaction	mother	35	64.2857	22.85189
	father	9	51.3235	11.60882
	others	6	63.0952	17.15277

Effectiveness	mother	35	64.9206	22.49713
	father	9	56.1728	17.22322
	others	6	61.1111	9.93808
Side Effects	mother	35	85.0000	24.31034
	father	9	97.2222	8.33333
	others	6	81.2500	37.50000
Convenience	mother	35	61.5873	20.49547
	father	9	52.4691	18.44894
	others	6	50.9259	8.90046

Table 36: PedsQL means and standard deviation with respect to level of education

Descriptive				
		N	Mean	Std. Deviation
physical functioning	less than secondary	24	57.2235	25.90970
	secondary	11	50.3653	27.17266
	diploma	2	56.2500	53.03301
	university	13	75.2404	20.86436
Emotional functioning	less secondary	24	64.7917	29.02320
	Secondary	11	60.9091	24.67977
	diploma	2	45.0000	28.28427
	university	13	62.3077	20.27061
Social functioning	less than secondary	24	80.8333	19.37427
	secondary	11	76.8182	20.28210
	diploma	2	65.0000	28.28427
	university	13	80.7692	16.05280
School functioning	less than secondary	20	69.0833	17.84825
	secondary	8	66.2500	22.95181
	diploma	1	50.0000	
	university	12	82.7778	11.26659

Psychosocial	Less than secondary	24	70.8912	16.03262
	secondary	11	69.0909	19.12116
	diploma	2	50.8333	22.39171
	university	13	74.4444	11.76327
Totalpeds	less than secondary	24	66.0274	18.94027
	Secondary	11	62.1461	15.46872
	Diploma	2	51.9324	34.15975
	University	13	74.9157	13.06514

Table 37: TSQM means and standard deviation with respect to level of education

Descriptive				
		N	Mean	Std. Deviation
Global Satisfaction	less than secondary	24	63.5915	20.12290
	secondary	11	60.3896	20.79139
	diploma	2	82.1429	15.15229
	university	13	56.5934	23.04638
Effectiveness	Less than secondary	24	63.6574	19.58912
	secondary	11	63.6364	20.98848
	diploma	2	72.2222	7.85674
	university	13	59.4017	24.15066
Side Effects	less than secondary	24	89.5833	21.30800
	secondary	11	89.2045	18.97591
	diploma	2	81.2500	26.51650
	university	13	80.2885	33.35086
Convenience	less than secondary	24	59.4907	15.49671
	Secondary	11	56.5657	29.69164
	Diploma	2	66.6667	7.85674
	University	13	57.6923	17.79202

Table 38: PedsQL means and standard deviation with respect to monthly incomes

Descriptive				
		N	Mean	Std. Deviation
physical functioning	less 1500	13	47.4016	24.65741
	1500-3000	15	65.8929	27.36137
	3000-5000	14	62.7870	28.50729
	more than 5000	5	73.1250	23.55180
	none	3	56.2500	21.87500
Emotional functioning	less 1500	13	61.5385	26.56632
	1500-3000	15	62.0000	29.08117
	3000-5000	14	64.6429	21.07352
	more than 5000	5	57.0000	17.53568
	none	3	68.3333	46.45787
Social functioning	less 1500	13	71.9231	19.52973
	1500-3000	15	82.0000	19.89257
	3000-5000	14	83.9286	17.56073
	more than 5000	5	76.0000	17.10263
	None	3	81.6667	18.92969
School functioning	less 1500	11	71.5152	20.90261
	1500-3000	13	69.2308	19.45574
	3000-5000	11	78.3333	17.48015
	more than 5000	4	69.1667	16.41476
	None	2	65.0000	0.00000
Psychosocial	less 1500	13	66.9017	16.32121
	1500-3000	15	70.5000	19.57333
	3000-5000	14	74.8016	11.15559
	more than 5000	5	66.1111	12.32908
	None	3	75.2778	26.01193
Totalpeds	less 1500	13	60.3977	18.41949

	1500-3000	15	68.6653	21.44928
	3000-5000	14	70.0823	13.40361
	more than 5000	5	69.3668	13.58695
	None	3	67.6329	22.94177

Table 39: TSQM means and standard deviation with respect to monthly incomes

Descriptive				
		N	Mean	Std. Deviation
Global Satisfaction	less 1500	13	65.3846	20.17065
	1500-3000	15	60.9524	24.72394
	3000-5000	14	54.9324	18.66462
	more than 5000	5	71.4286	15.15229
	None	3	66.6667	25.08489
Effectiveness	less 1500	13	64.1026	16.13590
	1500-3000	15	62.5926	21.86888
	3000-5000	14	61.9048	26.40696
	more than 5000	5	64.4444	17.82979
	None	3	61.1111	14.69862
Side Effects	less 1500	13	85.5769	22.87657
	1500-3000	15	87.5000	28.44559
	3000-5000	14	89.7321	22.14560
	more than 5000	5	80.0000	28.77716
	None	3	85.4167	25.25907
Convenience	less 1500	13	55.9829	16.42753
	1500-3000	15	59.2593	19.09166
	3000-5000	14	63.8889	21.65406
	more than 5000	5	45.5556	22.36068
	None	3	64.8148	16.03751

Table 40: PedsQL means and standard deviation with respect to work status

Descriptive				
		N	Mean	Std. Deviation
physical functioning	Searching	5	61.2500	23.86076
	part timer	16	66.4063	33.16036
	house keeper	27	58.1900	23.59386
	not working for other reasons	2	39.0625	15.46796
Emotional functioning	Searching	5	53.0000	24.39262
	part timer	16	59.3750	26.63801
	house keeper	27	67.9630	24.93296
	not working for other reasons	2	37.5000	10.60660
Social functioning	Searching	5	67.0000	4.47214
	part timer	16	82.5000	16.53280
	house keeper	27	80.7407	20.41416
	not working for other reasons	2	65.0000	28.28427
School functioning	Search	2	90.0000	0.00000
	part timer	14	73.0952	16.10406
	house keeper	23	69.8551	20.55366
	not working for other reasons	2	72.5000	3.53553
Psychosocial	Searching	5	62.1667	15.82895
	part timer	16	70.9549	17.47602
	house keeper	27	72.8909	15.59695
	not working for other reasons	2	58.3333	4.71405
Totalpeds	Searching	5	61.8750	15.59715
	part timer	16	69.2196	20.96109

	house keeper	27	67.6254	16.58008
	not working for other reasons	2	51.6304	2.30578

Table 41: TSQM means and standard deviation with respect to work status

Descriptive				
		N	Mean	Std. Deviation
Global Satisfaction	Searching	5	67.1429	24.53652
	part timer	16	50.2980	13.85202
	house keeper	27	66.9312	22.33857
	not working for other reasons	2	71.4286	10.10153
Effectiveness	Searching	5	55.5556	18.00206
	part timer	16	55.2083	21.41773
	house keeper	27	67.6955	19.79459
	not working for other reasons	2	77.7778	0.00000
Side Effects	Searching	5	77.5000	31.12475
	part timer	16	85.5469	29.11174
	house keeper	27	88.8889	21.11192
	not working for other reasons	2	90.6250	13.25825
Convenience	Searching	5	38.8889	22.90614
	part timer	16	54.8611	15.43272
	house keeper	27	64.8148	19.05906
	not working for other reasons	2	55.5556	7.85674

Table 42: PedsQL means and standard deviation with respect to family member's numbers

Descriptive				
		N	Mean	Std. Deviation
physical functioning	less than 5	26	57.4691	27.20727
	5-7	18	63.4755	26.60621
	more than8	6	63.5417	28.68652
Emotional functioning	less than 5	26	55.3846	27.60156
	5-7	18	72.7778	20.80881
	more than8	6	62.5000	21.62175
Social functioning	less than 5	26	74.0385	19.39171
	5-7	18	82.2222	16.73515
	more than8	6	93.3333	14.02379
School functioning	less than 5	21	73.0159	17.26926
	5-7	16	69.1667	21.10819
	more than8	4	78.7500	12.50000
Psychosocial	less than 5	26	65.6838	16.95204
	5-7	18	74.9383	13.64177
	more than8	6	79.0278	14.06746
Totalpeds	less than 5	26	62.8055	19.19873
	5-7	18	71.0009	15.15415
	more than8	6	72.5127	16.50903

Table 43: TSQM means and standard deviation with respect to family member's number

Descriptive				
		N	Mean	Std. Deviation
Global Satisfaction	less than 5	26	58.7912	21.31472
	5-7	18	68.1221	19.10178
	more than8	6	55.9524	23.65426
Effectiveness	less than 5	26	60.8974	22.79705

	5-7	18	62.0370	17.59403
	more than8	6	74.0741	17.45069
Side Effects	less than 5	26	82.2115	25.16771
	5-7	18	94.0972	15.82188
	more than8	6	84.3750	38.27328
Convenience	less than 5	26	54.9145	20.86564
	5-7	18	61.4198	16.66364
	more than8	6	66.6667	19.56313

Table 44: PedsQL means and standard deviation with respect to cost of transportation

Descriptive				
		N	Mean	Std. Deviation
physical functioning	less than 100	10	67.9911	19.87379
	100-400	23	61.9824	24.65069
	more than 400	10	50.3125	33.76832
	my car	7	58.4821	32.26045
Emotional functioning	less than 100	10	68.5000	23.10002
	100-400	23	66.9565	26.78785
	more than 400	10	52.5000	17.67767
	my car	7	53.5714	32.10845
Social functioning	less than 100	10	77.5000	22.63846
	100-400	23	79.5652	17.70420
	more than 400	10	83.5000	17.80293
	my car	7	75.0000	20.41241
School functioning	less than 100	10	70.5000	21.53163
	100-400	17	74.3137	19.07641
	more than 400	8	72.5000	16.03567

	my car	6	67.7778	16.92029
Psychosocial	less than 100	10	72.1667	15.09333
	100-400	23	73.0556	17.04865
	more than 400	10	68.4167	12.91263
	my car	7	63.5317	19.25617
Totalpeds	less than 100	10	70.7684	15.03914
	100-400	23	68.8640	17.88082
	more than 400	10	62.1837	16.19294
	my car	7	61.8062	23.58432

Table 45: TSQM means and standard deviation with respect to cost of transportation

Descriptive				
		N	Mean	Std. Deviation
Global Satisfaction	less than 100	10	56.9054	26.73607
	100-400	23	66.4596	20.48063
	more than 400	10	50.7143	13.23518
	my car	7	69.3878	17.84013
Effectiveness	less than 100	10	53.8889	20.79523
	100-400	23	65.9420	21.20820
	more than 400	10	59.4444	16.77945
	my car	7	70.6349	21.44816
Side Effects	less than 100	10	80.0000	28.98755
	100-400	23	86.6848	27.52222
	more than 400	10	87.5000	17.92151
	my car	7	95.5357	11.81139

Convenience	less than 100	10	59.4444	19.43121
	100-400	23	60.8696	19.20694
	more than 400	10	50.5556	23.49007
	my car	7	61.9048	13.39053

Table 46: Weight, height, and BMI during 5 follow ups means and standard deviations

Descriptive		
	Mean	Std. Deviation
Weight	26.48	12.75
Weight f1	25.88	13.23
Weight f2	26.47	13.36
Weight f3	29.37	13.87
Weight f4	30.32	12.68
Weight f5	28.47	7.81
Height	116.86	24.19
Height f1	117.09	25.27
Height f2	115.90	26.19
Height f3	121.32	24.13
Height f4	128.42	22.59
Height f5	126.50	17.02
BMI	18.47	4.93
BMI f1	18.11	4.74
BMI f2	19.10	5.55
BMI f3	17.87	2.07
BMI f4	18.30	2.00
BM If5	17.33	1.53
F refers to follow up; f1 follow up 1, f2 follow up 2…etc		

Chapter 5: Discussion

This study characterized 50 patients formally diagnosed with JIA with the oversight of the specialist pediatric rheumatologist doctor. The patients attended pediatric rheumatology clinic in AL-Makassed Islamic charitable society hospital in Jerusalem, Caritas baby hospital (CBH) in Bethlehem and a Specialized Pediatric Center.

The ILAR system was used as a classification protocol by the pediatric rheumatologist doctor; most patients (48%) were diagnosed with oligoarthritis; that included one patient (2%) who was diagnosed as an extended oligoarthritis patient, that was followed by Systemic Arthritis (28%), Polyarticular arthritis (14%), Enthesitis related arthritis (4%), and 3 patients (6%) were not classified. For polyarthritis diagnosed patients, 4 patients were rheumatoid factor negative, 2 patients were rheumatoid factor positive, and one patient RF was unknown (RF test was not done). This study included 31 females and 19 males, this is consistent with literature reports that autoimmune disease is more common in females than males[174].

The main objective of this study was to determine the impact of JIA on Palestinian children's quality of life and to measure patient's treatment satisfaction.

Our results showed that JIA patients indicate a relatively good quality of life from the opinion of children patients. As that the higher scores indicates better HRQoL. According to PedsQL results, the mean of each domain and age group was higher than 50; more than the half, with the physical functioning domain being the lowest (tables 8). On the other hand, parents scores was lower than the children scores in all domain except for the children who aged from 5-7 in the social functioning domain, but there was no significant effect in any of PedsQL domains (table 10).

This finding is inconsistent to another study results by Ringold et al[145], which found a lower scores in all of PedsQL domains when they compared active polyarticular juvenile idiopathic arthritis patients with inactive patients scores, the parents scores also gives a lower scores with a big difference in the domain of physical health.

For TSQM, results showed a relatively high satisfaction, it did not reveal any negative effects from parents opinions, except for the domain that's cover the global satisfaction part ($p= 0.016$) (Table 7). That significant effect may be was due to the big fear of some patient's parents that the given

medication may not provide a good benefit for their children, or that the medications positive effects may be less than the negative ones especially with the bad reputation of some medications like corticosteroids. The same observation can be made with DMARDs and methotrexate, in which some parents may discontinue their children's therapy because they are not sure that the methotrexate will not harm their children even if they see the good results and that their children health becomes better. In addition, these thoughts make parents delay their follow up visits to the doctor. Data obtained from patient's records show that the numbers of follow or checkups were low, it is important to notice that some patients visited their doctor only once, some of them twice; others had 4 visits, with 5 times as maximum. The periods between those visits were long for some patients while for others it was short.

In a study that attend to investigate the synthetic and biologic disease-modifying anti-rheumatic drugs (sDMARDs and bDMARDs) treatment satisfaction in patients with Juvenile Idiopathic Arthritis, their results showed a higher treatment satisfaction with biologics compared to MTX in the domains side effects, effectiveness and global satisfaction. They also found a linkage between TSQM domain of side effects and age patients using MTX. Most importantly their results didn't reveal any association between TSQM domains and JIA characteristics[149].

It is important to note that other reasons may also affect doctor visits, for example the long distances and poor transportation. Another important reason may refer to the limited income, which may affect several aspects from the inability to pay treatment expenses and all of diagnostic procedure, including the expenses of tests, especially with the need of regular retests for some or specific things like CBC and others. Finally, those limitation may affect their ability to reach the doctor, from an economic review about 40% of patient's parents have to pay about 100-400 NIS for transportation expenses, and 14% of them exceeded the boundaries of 400 NIS.

As a result of the previous information, we evaluated the relationship between quality of life or treatment satisfaction from patient's parent opinions (as they are officially responsible for the children) with sociodemographic and economic aspects: Parent education level, type of house, proxy work status, proxy monthly income, family member's number and finally cost of transportation to the doctor clinic (Results chapter and appendix D).

The results showed that for all of those sociodemographic and economic aspects there was no significant difference for all of quality of life as well as TSQM domains. From the aspect of number of family members, an exception was observed in the results in which PedsQL social functioning domain was significantly different (P was 0.05), when patients age group was not counted.

In a study by Bernatsky, S., et al, they investigated the effect of JIA as a chronic disease on the costs of medications when it was compared to the control, the study results pointed that JIA patients related with a higher costs with several aspects, including health care professionals visits, diagnostic tests and medications. They also found that JIA costs can be higher that other chronic disease like asthma, because of the medications high costs[155].

Away from economic issues and its related problems, and for the assurance of covering all aspects that may affects pediatric quality of life and their treatment satisfactions matters, we investigated the effect of each subtype of JIA and both questionnaire domains. The results showed a good quality of life as well as a good treatment satisfaction in all subtypes of JIA (appendix D).

It is important to observe that there were a number of symptoms during patient's period of disease, as noted from information extracted from patient's records; those symptoms most commonly included joint swelling and pain followed by joint tenderness, joint effusion, and morning stiffness, with all of them counted as characteristic signs of JIA in children. On the other hand, there was a side effect related of treatment itself that included cushengoid syndrome, weight abnormalities, oral ulcers, gastrointestinal problems and others (Tables 18-24).

According to the information extracted from patient records, we found that some patients developed an associated complication with JIA that includes uveitis, we found four patients with uveitis; one of those patients diagnosed with bilateral uveitis, and two were diagnosed with anterior uveitis (Table 17).

Uveitis associated with JIA can be very harmful , some study indicated that JIA can reveal the worst visual prognosis between all of systemic diseases[175].

On the other hand, early diagnosis and the good treatment of JIA may end out with less uveitis severity, in a study for Edelsten et al[176]. The study was made on two groups of uveitis patients, one of them is patients who are diagnosed with JIA and the other are not diagnosed with JIA. The

results showed that if JIA was not diagnosed, patients developed complication related to uveitis more than the group of diagnosed patients. Moreover, the study showed that in case of non-diagnosed patients, uveitis was more severe at onset and it was associated with complication like glaucoma, cataract extraction and poor vision. The authors also refer to a high rate of loss of vision in the group of not diagnosed patients more than the group of diagnosed.

We were also interested in the effects of JIA on the growth, from the information we have, we were able to observe that height, weight of children during different periods according to their follow-ups and therefore we were able to calculate the BMI. Both weight and height showed a decrease at first, then increasing, then decreasing during the disease period. But, as children and teenagers growth may be going fast suddenly especially during their puberty with the possibility to gain or lose weight during this period, therefore the use of Height and weight alone are not truly proper indicators. So BMI was also calculated as a proper tool to indicate obesity, overweight or under normal weight in children.

It is known that chronic inflammation with JIA patients may develop a delay in growth and poor weight gain[158]. The effect of corticosteroid as a treatment to control inflammation may also lead to weight gain and growth delay. As such, we attempted to observe the effects of each one of weight, height, and BMI on patient's treatment satisfaction as well as their PedsQL. Results showed that all of PedsQL domains were not significantly affected when checked with children height and weight. On the other hand, TSQM Global Satisfaction domain P value was 0.036 indicating a significant difference. In case of the correlation between weight and PedsQL, the results reveal no significance relationship. On the other hand, TSQM correlation with weight showed a significant effect with the domain of side effects (P was 0.014). However, when the correlation was checked with BMI, the results showed a significant effect in the Emotional functioning domain (P was 0.005) and psychosocial domain (P was 0.008) of PedsQL and therefore a significant effect on the total PedsQL (P was 0.014). On the other hand, the correlation between TSQM and BMI gives significant effect with the Convenience domain (P was 0.008). During disease period, the use of corticosteroids (especially systemic corticosteroids) with the fear of them from children parents may in some way or another affect the score of both treatment satisfaction as well as PedsQL.

Guzman, J., et al., found that most of the JIA patients in their study were similar to other children in whom they gained weight and grew well, except for some children with systemic arthritis, and some patients who required a long use of systemic corticosteroids, in which they were at impairments in growth probability dangers[158].

In addition to corticosteroids, one of the most frequent medications in use with children throughout follow-up was methotrexate and folic acid, as folic acid may decrease and affect methotrexate side effects[177]. Folic acid was not the only one that was used with patients to support their health but also there was a use of other vitamins and minerals that include iron, vitamin D, calcium, and others (tables 25-31). With NSAIDs being in the first class treatment, the most used one was ibuprofen as it is the only one that exists in liquid dosage form, in addition that ibuprofen is one of the most used NSAIDs in JIA[4]. As NSAIDs can be a cause of unwanted gastrointestinal problems, so the use of gastroprotective co-therapy is recommended [178], our results showed the use of PPI in which they can reduce gastrointestinal side effects. As for biologics, they used infliximab, Etanercept, Abatacept, Tocilizumab, and Adalimumab (tables 25-31).

As indicated in the results, the medications included the use of antibiotics before patient being admitted to the doctor's clinic, or during the disease period, due to the ability of microbiological infections especially with the use of treatment that reduce the immune system activity.

Chapter 6: Conclusion

Juvenile Idiopathic Arthritis (JIA) is a chronic disease of arthritis in children.
JIA symptoms can be severe and may affect patient's life to a great extent with severe complications that will surely be highlighted as significant marks in patient's life in many different ways.
Mean PedsQL and TSQM scores of 50 JIA patients were above average for quality of life and treatment satisfaction (scores were above 50). Questionnaire guidelines indicate that the higher the score the better HRQoL and treatment satisfaction. Total PedsQL and TSQM mean scores were >64 and >53 for all domains, respectively.

PedsQL scores appear similar for all age groups since no statistical significant difference was observed as a function of age. Similarly, PedsQL scores for all domains were similar for parent/proxy and children responses.

For TSQM, the lowest score for global satisfaction was measured for 8-12 years old age group and the highest score was for 13-18 years old age group with the difference showing statistical significance, meaning that global satisfaction domain of treatment improves with patient's age.

Correlation between PedsQL and TSQM domains shows that convenience in treatment score was predictor of better QoL. As such, the health care system should do everything possible to make appointments and treatments as convenient as possible to JIA patients and their parent. Similarly, treatments that result in less side effect correlated with better QoL. Most of the side effects one can anticipate comes from the use of corticosteroids. As such, every effort should be made to use the lowest dose possible for the shortest duration in order to reduce side effects and improve JIA patients QoL.

Parents work status showed a significant relationship with TSQM convenience domain. As such, particular attention should be paid to working parents/proxy to try to make doctor appointments and patient treatment as convenient as possible in order to increase treatment satisfaction.

There was a significant relationship between the number of family members with PedsQL social function domain in parent/proxy evaluation. It is not surprising to find that higher number of family members results in higher social function scores.

Parents/proxy of JIA patients want to see their children grow and live a normal life. As such, it is not surprising to see improved global satisfaction (TSQM) with increase in children height. The relationship between children weight and side effect domain (TSQM) maybe related to the use of corticosteroids that are known to result in increased weight and water retention.

Finally, the significant relationship of BMI with emotional functioning and psychosocial functioning domains of PedsQL seems to be related to the children growing and having an active fulfilling life. Similarly, the significant relationship between BMI and convenience domain (TSQM), suggests easier management in treatment and movement as patients grow and BMI increases.

The number of patients that participated in the study may affect these results therefore; further follow-up investigation about the effects of JIA at pediatric life are recommended.

Patients Treatment Satisfaction with their medication can potentially have an affect on their treatment-related behaviors, such as their willingness to continue to use the medication and their adherence to medication, hence impacting the success of treatment outcomes. Parents work status making them more busy to find a time to communicate with their children doctor, and also influence treatment doses leading to non-adherence.

Non-adherence is a risk factor for a variety of subsequent poor health outcomes, including quality of life.

The advice given to patients by their healthcare professionals to control disease is too often misunderstood, carried out incorrectly, forgotten, or even completely ignored, Even when information is communicated effectively and comprehension is initially high, much of what is conveyed during the medical visit is forgotten within moments of leaving the doctor's office. When physicians erroneously assume that their patients have taken prescribed medication(s), they may make inappropriate medication and/or dosage changes, which can then result in further complications and suboptimal health outcomes. Thus, not only do non-adherent patients fail to benefit from effective medication, they also risk being harmed by less than ideal medication and dosage choices). Therefore Healthcare providers need to explain the specific steps of the regimen, review the most important details, use written instructions, and encourage their patients to ask questions about the regimen for adherence to occur. Also a good amount of information can affect

and alter patient's beliefs about medication especially when it comes to parent's beliefs about height, weight and overall BMI, A connection with other doctors including dietitian or a growth related problem doctor can be beneficial. For all of the above to be held properly, a strong relationship between the doctor and patient will lead to frequent, quality information about the patient's disease and better health care for the patient and their family, it also can lessen the burden of non-adherence and improve healthcare processes and outcomes for patients.

Limitations

This study included some limitations, the most important one is the limited number of patients in Palestine, as a result, there was a difficulty in sample collection of more than 50 patients as JIA is not a common disease. Thus, this study was likely underpowered to detect some of the predicted relationships.

On the other hand, the entire participants in this study were collected, as patients from only one specialist doctor that works in the three clinics from which the patients and their proxy were interviewed.

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Appendices

Appendix A: Informed consent form

حضرات السيدات والسادة المشاركين بالبحث، أرجو من حضرتكم المشاركة في بحث حول مرض التهاب المفاصل الروماتويدي لدى الاطفال والمراهقين . الباحثة طالبة ماجستير في كلية الصيدلة جامعة القدس والهدف من الدراسة المراهقين اليومية من جميع نواحيها /هو معرفة مدى تاثير المرض على حياة الاطفال .

هويتك ستبقى مجهولة كما أن البيانات التى سيتم .مشاركتك فى هذا البحث تطوعية بالكامل وتستطيع الرفض إذا كنت توافق على المشاركة أرجو .الحصول عليها لن تستخدم إلا لأغراض البحث العلمي وستحاط بالسرية التامة منك الإجابة عن الأسئلة بدقة وموضوعية

شكرا لتعاونكم

Appendix B: Sociodemographic information

العمر:----------

الجنس :

- ***ذكر***
- ***انثى***

مكان السكن :

- ***مدينة***
- ***قرية***
- ***مخيم***

العلاقة الأسرية مع المريض :

- ***الأم***
- ***الأب***
- ***آخرون***

الحالة الاجتماعية :

- **متزوج**
- **أرمل**
- **أعزب**
- **مطلق**

المستوى التعليمي :

- ***الثانويةالعامة أو أقل***
- ***شهادة الثانوية العامة***

- ***دبلوم***
- ***شهادة جامعية***
- **جزء من الجامعة**

نوع السكن :

- ***ملك***
- ***إيجار***

الدخل الشهري :

- ***أقل من 1500***
- ***3000-1500***
- ***5000-3000***
- ***أكثر من 5000***

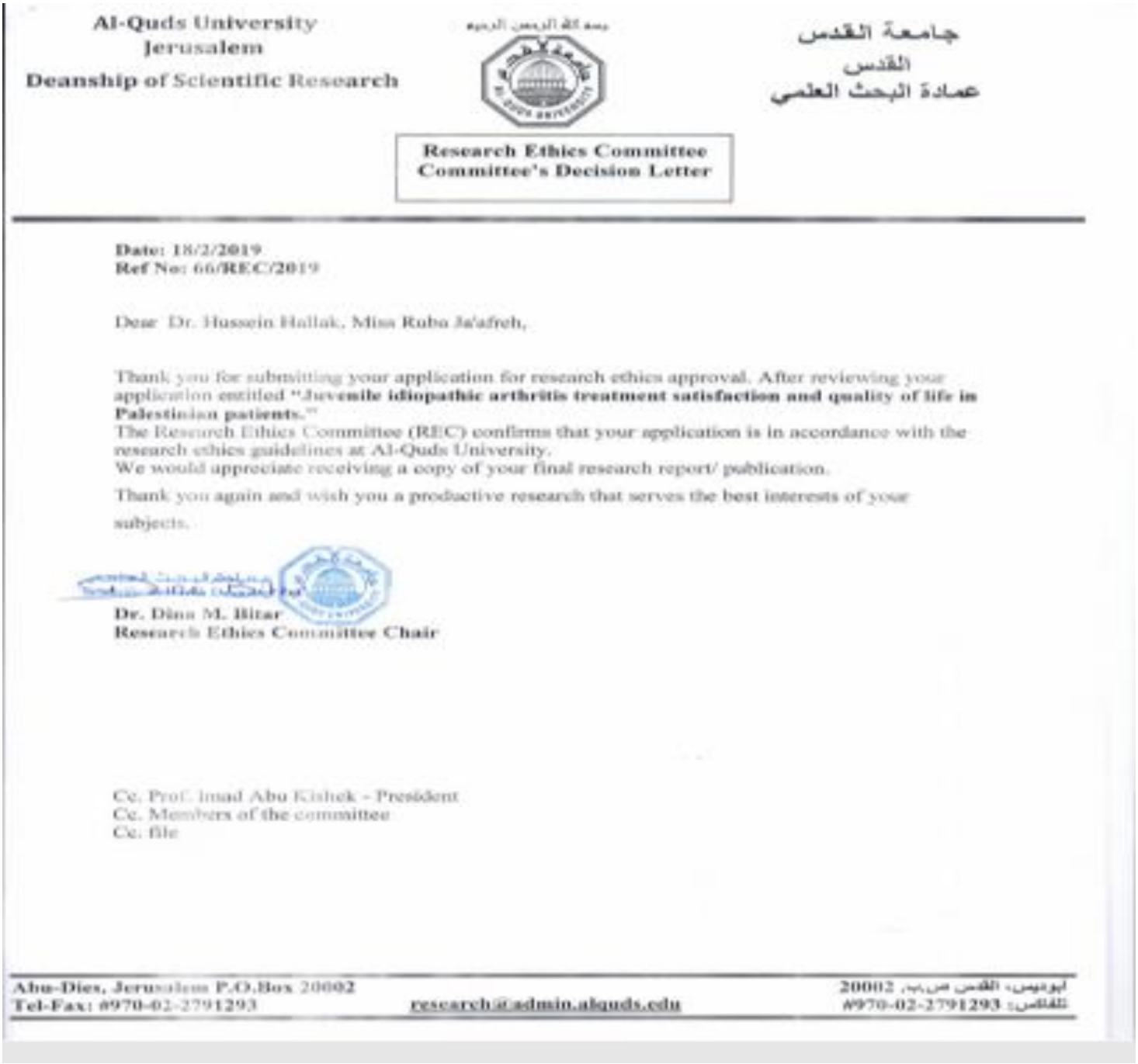
حالة العمل :

- ***ابحث عن عمل***
- ***اعمل بدوام كامل أو جزئي (إما خارج المنزل أو من داخل المنزل)***
- ***ربة منزل بدوام كامل***
- ***لا اعمل بسبب حالتي الصحية***
- ***لا أعمل لأسباب أخرى***

كم طفل يوجد لديك؟ ----------

كم تبلغ تكلفة السفر لتلقي العلاج والرعاية:----------

Appendix C: Al-Quds University Research Ethics Committee approval



Al-Quds University
Jerusalem
Deanship of Scientific Research

بسم الله الرحمن الرحيم

جامعة القدس
القدس
عمادة البحث العلمي

Research Ethics Committee
Committee's Decision Letter

Date: 18/2/2019
Ref No: 66/REC/2019

Dear Dr. Hussein Hallak, Miss Ruba Ja'afreh,

Thank you for submitting your application for research ethics approval. After reviewing your application entitled "**Juvenile idiopathic arthritis treatment satisfaction and quality of life in Palestinian patients.**"
The Research Ethics Committee (REC) confirms that your application is in accordance with the research ethics guidelines at Al-Quds University.
We would appreciate receiving a copy of your final research report/ publication.

Thank you again and wish you a productive research that serves the best interests of your subjects.

Dr. Dina M. Bitar
Research Ethics Committee Chair

Cc. Prof. Imad Abu Kishek - President
Cc. Members of the committee
Cc. file

Abu-Dies, Jerusalem P.O.Box 20002
Tel-Fax: 970-02-2791293
research@admin.alquds.edu
20002 ابوديس، القدس ص.ب.
تلفاكس: 970-02-2791293

Appendix D: Data for results

● Correlating PedsQL and TSQM with sociodemographic outcomes

Table 47: Comparison of parents/ proxy PedsQL in respect with place of residence and age groups

		Age groups								
		less than 5		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
physical functioning	City	61.88	29.60	53.13	27.24	60.80	27.75	86.46	15.42	0.941
	Town	65.28	32.19	53.37	16.38	60.55	24.60	73.88	23.68	
	Camp	.	.	.	.	.	.	39.06	15.47	
Emotional functioning	City	70.00	27.61	76.67	18.93	57.73	24.33	76.67	12.58	0.248
	Town	42.22	22.79	72.50	20.19	62.50	28.78	100.00	0.00	
	Camp	.	.	.	.	70.00	.	47.50	24.75	
Social functioning	City	86.00	23.29	65.00	13.23	79.09	17.29	95.00	8.66	0.798
	Town	81.11	21.91	74.17	20.60	74.38	20.95	90.00	14.14	
	Camp	.	.	.	.	80.00	.	77.50	10.61	
School functioning	City	70.83	5.89	78.33	16.07	77.50	11.61	63.33	23.09	0.467
	Town	79.17	22.05	53.61	26.49	76.25	11.88	55.00	14.14	
	Camp	.	.	.	.	95.00	.	80.00	14.14	
Psychosocial	City	75.94	23.86	73.33	10.00	70.68	15.23	78.33	10.93	0.758
	Town	63.12	20.68	66.76	14.12	71.04	16.35	81.67	0.00	
	Camp	.	.	.	.	81.67	.	68.33	9.43	
Totalpeds	City	69.96	24.53	66.30	15.22	67.14	18.67	81.16	8.79	0.996
	Town	63.10	21.74	63.16	14.11	67.39	18.66	79.32	7.72	
	Camp	.	.	.	.	54.35	..	58.15	11.53	

Table 48: Comparison of parents/ proxy PedsQL in respect with place of residence

		Sum of Squares	df	Mean Square	F	Sig.
physical functioning	Between Groups	3576.282	2	1788.141	2.665	0.080
	Within Groups	31531.069	47	670.874	.	
	Total	35107.351	49	.	.	
Emotional functioning	Between Groups	481.727	2	240.864	.360	0.700
	Within Groups	31480.773	47	669.804	.	
	Total	31962.500	49	.	.	
Social functioning	Between Groups	102.015	2	51.008	.140	0.870
	Within Groups	17098.485	47	363.798	.	
	Total	17200.500	49	.	.	
School functioning	Between Groups	956.111	2	478.055	1.454	0.246
	Within Groups	12492.670	38	328.754	.	
	Total	13448.780	40	.	.	
Psychosocial	Between Groups	340.119	2	170.060	0.645	0.529
	Within Groups	12390.635	47	263.631	.	
	Total	12730.755	49	.	.	
Totalpeds	Between Groups	489.894	2	244.947	0.772	0.468
	Within Groups	14919.235	47	317.431	.	
	Total	15409.129	49	.	.	

Table 49: Comparison of parents/proxy TSQM in respect with place of residence and age group.

		Age groups								
		Less than 5		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
Global Satisfaction	City	68.57	23.47	80.95	4.12	53.25	18.73	85.71	14.29	0.828
	Town	57.14	24.74	61.90	13.30	53.27	21.56	75.00	25.25	
	Camp	.	.	.	.	50.00	.	75.00	15.15	
Effectiveness	City	73.33	9.94	68.52	13.98	52.53	20.69	74.07	23.13	0.711
	Town	63.58	28.75	58.33	16.01	65.97	21.71	69.44	19.64	

	Camp	.	.	.	.	50.00	.	66.67	15.71	
Side Effects	City	92.50	16.77	100.00	0.00	72.16	32.04	100.00	0.00	0.376
	Town	87.50	25.00	100.00	0.00	84.38	26.52	68.75	44.19	
	Camp	.	.	.	.	100.0	.	90.63	13.26	
Convenience	City	65.56	14.38	59.26	16.97	60.61	15.41	74.07	8.49	0.940
	Town	53.09	27.09	53.70	28.04	59.72	18.96	61.11	0.00	
	Camp	.	.	.	.	33.33	.	52.78	3.93	

Table 50: Comparison of parents/ proxy TSQM in respect with place of residence

		Sum of Squares	Df	Mean Square	F	Sig.
Global Satisfaction	Between Groups	563.427	2	281.714	.632	0.536
	Within Groups	20955.014	47	445.851	.	
	Total	21518.441	49	.	.	
Effectiveness	Between Groups	26.431	2	13.215	.030	0.970
	Within Groups	20618.013	47	438.681	.	
	Total	20644.444	49	.	.	
Side Effects	Between Groups	310.156	2	155.078	.254	0.776
	Within Groups	28646.094	47	609.491	.	
	Total	28956.250	49	.	.	
Convenience	Between Groups	1126.394	2	563.197	1.532	0.227
	Within Groups	17278.545	47	367.629	.	
	Total	18404.938	49	.	.	

Table 51: Children Comparison of PedsQL with place of residence and age groups

		Age groups						
		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
Physical function	city	73.44	13.86	71.56	21.72	81.25	15.63	

	town	53.75	24.45	64.58	22.21	67.19	24.31	0.486
	camp			34.38		64.06	19.89	
	Total	62.50	21.88	66.56	22.38	72.32	17.81	
Emotional function	city	92.50	9.57	77.50	15.14	85.00	10.00	0.536
	town	72.00	17.89	63.33	25.00	60.00	28.28	
	camp			50.00		82.50	24.75	
	Total	81.11	17.64	69.75	21.06	77.14	20.18	
Social function	city	72.50	27.54	84.50	20.88	95.00	8.66	0.642
	town	60.00	27.39	80.00	19.69	85.00	21.21	
	camp			60.00		85.00	21.21	
	Total	65.56	26.51	81.25	19.99	89.29	14.27	
School function	city	85.00	12.91	77.50	21.76	78.33	16.07	0.816
	town	75.00	10.00	75.63	14.99	82.50	10.61	
	camp			95.00		85.00	7.07	
	Total	80.00	11.95	77.63	18.51	81.43	11.07	
Psychosocial Health	city	83.33	7.20	79.83	15.74	86.11	1.92	0.650
	town	70.00	13.94	72.13	16.33	75.83	20.03	
	camp			68.33		84.17	12.96	
	Total	75.93	12.89	75.79	15.73	82.62	10.88	
Total Peds	city	79.89	3.71	76.96	16.85	84.42	6.55	0.480
	town	64.35	15.42	69.50	16.23	72.83	21.52	
	camp			56.52		77.17	15.37	
	Total	71.26	13.83	72.58	16.54	79.04	12.62	

● A correlation was completed with respect of the type of relationship between patients and their proxy, in which there were 3 choices: mother, father, or other family members.

Table 52: Comparison of parents/ proxy PedsQL in respect with family relationship and children age groups

	Age groups								
	less than 5		5-7		8-12		13-18		
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.

physical functioning	mother	60.04	26.64	60.86	32.28	60.49	26.93	66.63	17.77	0.397
	father	76.56	33.15	31.25	.	52.50	36.40	93.75	.	
	others	71.88	.00	84.38	.	46.88	.	31.25	4.42	
Emotional functioning	mother	60.50	28.52	52.86	28.99	57.14	24.31	88.75	16.52	0.216
	father	72.50	3.54	50.00	.	75.00	22.91	65.00	.	
	others	62.50	24.75	90.00	.	30.00	.	57.50	38.89	
Social functioning	mother	86.50	18.27	70.71	23.70	76.79	20.34	87.50	15.00	0.864
	father	100.00	.00	55.00	.	81.00	11.94	85.00	.	
	others	70.00	28.28	70.00	.	65.00	.	80.00	7.07	
School functioning	mother	76.33	25.09	68.33	29.60	77.86	11.88	62.50	20.21	0.533
	father	66.67	.	40.00	.	81.25	12.50	50.00	.	
	others	62.50	17.68	90.00	.	65.00	.	65.00	7.07	
psychosocial	mother	72.81	19.15	61.15	20.00	70.60	15.26	79.58	3.15	0.134
	father	82.78	3.14	48.33	.	77.17	13.94	66.67	.	
	others	65.00	23.57	83.33	.	53.33	.	67.50	8.25	
Totalpeds	mother	67.25	18.71	61.81	24.12	67.19	18.08	75.26	7.61	0.305
	father	80.06	13.05	42.39	.	68.06	19.84	76.09	.	
	others	67.86	15.15	83.70	.	51.09	.	54.89	6.92	

Table 53: Comparison of parents/ proxy PedsQL in respect with family relationship and children age groups

		Sum of Squares	df	Mean Square	F	Sig.
physical functioning	Between Groups	123.377	2	61.688	0.083	0.921
	Within Groups	34983.974	47	744.340	.	
	Total	35107.351	49	.	.	
Emotional functioning	Between Groups	715.992	2	357.996	0.538	0.587
	Within Groups	31246.508	47	664.819	.	
	Total	31962.500	49	.	.	
Social functioning	Between Groups	388.873	2	194.437	0.544	0.584
	Within Groups	16811.627	47	357.694	.	
	Total	17200.500	49	.	.	

School functioning	Between Groups	231.717	2	115.858	0.333	0.719
	Within Groups	13217.063	38	347.817	.	
	Total	13448.780	40	.	.	
Psychosocial	Between Groups	188.797	2	94.399	0.354	0.704
	Within Groups	12541.957	47	266.850	.	
	Total	12730.755	49	.	.	
Totalpeds	Between Groups	106.419	2	53.209	0.163	0.850
	Within Groups	15302.710	47	325.590	.	
	Total	15409.129	49	.	.	

Table 54: Comparison of parents/ proxy TSQM in respect with family relationship and children age groups

		Age groups								
		Less than 5		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
Global Satisfaction	mother	70.00	23.52	60.20	22.91	56.63	21.05	83.93	18.79	0.892
	father	53.57	15.15	50.00	.	46.67	9.00	71.43	.	
	others	60.71	15.15	78.57	.	35.71	.	71.43	10.10	
Effectiveness	mother	70.56	25.13	57.14	19.43	62.30	22.66	73.61	21.93	0.903
	father	77.78	.00	50.00	.	46.67	14.49	66.67	.	
	others	58.33	3.93	55.56	.	50.00	.	72.22	7.86	
Side Effects	mother	90.00	21.89	92.86	18.90	77.68	26.71	84.38	31.25	0.145
	father	100.00	0.00	100.00	.	95.00	11.18	100.00	.	
	others	100.00	0.00	100.00	.	6.25	.	90.63	13.26	
Convenience	mother	66.11	25.99	54.76	22.78	61.90	18.60	61.11	4.54	0.460
	father	58.33	19.64	16.67	.	53.33	12.17	72.22	.	
	others	55.56	15.71	55.56	.	44.44	.	47.22	3.93	

Table 55: Comparison of parents/ proxy TSQM in respect with family relationship and children age groups

		Sum of Squares	df	Mean Square	F	Sig.
Global Satisfaction	Between Groups	1214.133	2	607.067	1.405	0.255
	Within Groups	20304.308	47	432.007	.	
	Total	21518.441	49	.	.	
Effectiveness	Between Groups	569.391	2	284.695	0.667	0.518
	Within Groups	20075.054	47	427.129	.	
	Total	20644.444	49	.	.	
Side Effects	Between Groups	1275.694	2	637.847	1.083	0.347
	Within Groups	27680.556	47	588.948	.	
	Total	28956.250	49	.	.	
Convenience	Between Groups	1003.753	2	501.876	1.356	0.268
	Within Groups	17401.186	47	370.238	.	
	Total	18404.938	49	.	.	

- A correlation evaluated PedsQL or TSQM scores and JIA subtypes.

Table 56: Compression between PedsQL with JIA subtypes

	JIA subtypes	N	Mean	Standard deviation	Sig
physical functioning	Oligoarthritis	24	68.6074	24.93469	0.148
	Systematicarthritis	14	58.8967	26.38637	
	Polyarticular arthritis	7	41.0714	15.35481	
	JIA	3	46.8750	42.27422	
	Erthesities related arthritis	2	59.3750	44.19417	
Emotional functioning	Oligoarthritis	24	63.9583	24.62674	0.888
	Systematicarthritis	14	60.7143	25.02746	
	Polyarticular arthritis	7	55.7143	29.92053	

	JIA	3	73.3333	25.16611	
	Erthesities related arthritis	2	65.0000	49.49747	
Social functioning	Oligoarthritis	24	82.7083	17.75309	0.563
	Systematicarthritis	14	79.2857	19.88981	
	Polyarticular arthritis	7	70.7143	23.70453	
	JIA	3	70.0000	13.22876	
	Erthesities related arthritis	2	82.5000	3.53553	
School functioning	Oligoarthritis	20	71.0000	22.74573	0.841
	Systematicarthritis	11	73.1818	13.28020	
	Polyarticular arthritis	5	69.0000	15.96872	
	JIA	3	83.3333	12.58306	
	Erthesities related arthritis	2	67.5000	3.53553	
Psychococial	Oligoarthritis	24	71.7361	16.04690	0.848
	Systematicarthritis	14	70.5952	16.47138	
	Polyarticular arthritis	7	64.4048	19.35723	
	JIA	3	75.5556	15.12295	
	Erthesities related arthritis	2	71.6667	14.14214	
Totalpeds	Oligoarthritis	24	70.7162	17.81418	0.404
	Systematicarthritis	14	66.4074	17.39609	
	Polyarticular arthritis	7	55.3744	16.31281	
	JIA	3	65.5797	18.52084	
	Erthesities related arthritis	2	67.3913	24.59502	

Table57: compression between TSQM with JIA subtypes

	JIA subtypes	N	Mean	Standard deviation	Sig
Global Satisfaction	Oligoarthritis	24	62.2024	21.52970	0.278
	Systematicarthritis	14	55.9529	18.76446	
	Polyarticular arthritis	7	72.4490	24.54642	
	JIA	3	50.0000	0.00000	
	Erthesities related arthitis	2	78.5714	20.20305	
Effectiveness	Oligoarthritis	24	64.5833	23.27301	0.082
	Systematicarthritis	14	53.9683	15.92787	
	Polyarticular arthritis	7	75.3968	14.29306	
	JIA	3	50.0000	11.11111	
	Erthesities related arthitis	2	80.5556	3.92837	
Side Effects	Oligoarthritis	24	88.2813	26.14969	0.594
	Systematicarthritis	14	89.2857	18.41505	
	Polyarticular arthritis	7	83.9286	29.50484	
	JIA	3	87.5000	21.65064	
	Erthesities related arthitis	2	59.3750	30.93592	
Convenience	Oligoarthritis	24	65.2778	21.62544	0.226
	Systematicarthritis	14	51.9841	17.10355	
	Polyarticular arthritis	7	54.7619	13.39053	
	JIA	3	48.1481	16.97250	
	Erthesities related arthitis	2	55.5556	7.85674	

● **Economic outcomes**

Correlation of PedsQL or TSQM with parent's education level, type of house, parent's monthly income, parents work status, and the cost of transportation, each of which were analyzed with taking in count children's age groups as next: less than 5, from 5 to 7, from 8 to 12, and from 13 to 18, and at the same time each one of them were also analyzed without children's age groups.

- First, for parent's education level with the following choices: high school or less, diploma, and university

Table 58: Comparison of parents/ proxy PedsQL in respect with parent's level of education and children age groups

		Age groups								
		less than 5		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	sig
physical functioning	less secondary	53.01	20.93	65.80	34.78	54.17	24.66	55.80	25.53	0.428
	secondary	58.04	14.96	53.13	30.94	43.13	36.20	.	.	
	Diploma	18.75	.	.	.	.	.	93.75	.	
	university	86.88	14.22	40.63	.	75.52	19.51	50.00	.	
Emotional functioning	less secondary	65.00	27.99	60.83	34.27	58.33	27.27	81.00	29.24	0.879
	Secondary	76.25	23.23	45.00	7.07	55.00	26.46	.	.	
	Diploma	25.00	.	.	.	.	.	65.00	.	
	University	57.00	21.68	55.00	.	67.50	23.18	65.00	.	
Social functioning	less secondary	93.75	12.50	75.83	23.11	74.44	20.98	88.00	11.51	0.287
	Secondary	82.50	22.55	57.50	3.54	80.00	20.31	.	.	
	Diploma	45.00	.	.	.	.	.	85.00	.	
	University	91.00	12.45	50.00	.	79.17	13.20	70.00	.	
School functioning	less secondary	77.50	3.54	69.33	30.38	73.75	11.88	58.00	10.37	0.079
	Secondary	42.50	10.61	40.00	.	81.00	12.94	.	.	

	Diploma	.	.	.	.	.	.	50.00	.	
	University	83.33	15.21	85.00	.	80.83	11.14	90.00	.	
Psychosocial	less secondary	78.13	10.68	66.34	22.81	68.06	16.41	75.67	8.55	0.393
	Secondary	75.42	21.74	49.17	1.18	72.00	17.61	.	.	
	Diploma	35.00	.	.	.	.	.	66.67	.	
	University	74.89	14.46	63.33	.	75.83	11.73	75.00	.	
Totalpeds	less secondary	68.05	14.51	66.93	27.45	62.93	19.16	68.90	13.86	0.442
	Secondary	67.63	11.11	50.88	12.01	62.26	19.39	.	.	
	Diploma	27.78	.	.	.	.	.	76.09	.	
	University	79.56	11.80	55.43	.	75.72	13.61	66.30	.	

Table 59: Comparison of parents/proxy pedsQL in respect with parent's level of education

		Sum of Squares	df	Mean Square	F	Sig.
physical functioning	Between Groups	4247.272	3	1415.757	2.110	0.112
	Within Groups	30860.078	46	670.871	.	
	Total	35107.351	49	.	.	
Emotional functioning	Between Groups	766.863	3	255.621	.377	0.770
	Within Groups	31195.637	46	678.166	.	
	Total	31962.500	49	.	.	
Social functioning	Between Groups	561.223	3	187.074	.517	0.673
	Within Groups	16639.277	46	361.723	.	
	Total	17200.500	49	.	.	
School functioning	Between Groups	2312.345	3	770.782	2.561	0.070
	Within Groups	11136.435	37	300.985	.	
	Total	13448.780	40	.	.	
Psychosocial	Between Groups	1000.651	3	333.550	1.308	0.283
	Within Groups	11730.103	46	255.002	.	
	Total	12730.755	49	.	.	
Totalpeds	Between Groups	1550.180	3	516.727	1.715	0.177
	Within Groups	13858.949	46	301.282	.	
	Total	15409.129	49	.	.	

Table 60: Comparison of parents/ proxy TSQM in respect with parent's level of education and children age groups

		Age groups								
		Less than 5		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	sig
Global Satisfaction	less secondary	66.07	15.84	64.29	18.63	53.70	20.83	78.57	18.21	0.557
	Secondary	69.64	17.86	39.29	15.15	61.43	21.78	.	.	
	Diploma	92.86	.	.	.	.	.	71.43	.	
	University	58.57	28.30	85.71	.	45.24	11.66	85.71	.	
Effectiveness	less secondary	65.28	25.41	56.48	14.24	60.49	20.87	76.67	16.85	0.437
	Secondary	75.00	9.62	41.67	11.79	63.33	25.03	.	.	
	Diploma	77.78	.	.	.	.	.	66.67	.	
	University	67.78	30.02	83.33	.	49.07	19.06	55.56	.	
Side Effects	less secondary	100.00	.00	100.00	.00	81.25	26.52	83.75	27.10	0.935
	Secondary	100.00	.00	75.00	35.36	86.25	18.96	.	.	
	Diploma	62.50	.	.	.	.	.	100.00	.	
	University	87.50	27.95	100.00	.	67.71	40.58	100.00	.	
Convenience	less secondary	68.06	20.97	57.41	14.77	58.64	17.37	56.67	9.13	0.231
	Secondary	75.00	23.35	16.67	.00	57.78	25.64	.	.	
	Diploma	61.11	.	.	.	.	.	72.22	.	
	University	51.11	25.58	77.78	.	60.19	10.19	55.56	.	

Table 61: Comparison of parents/ proxy TSQM in respect with parent's level of education

		Sum of Squares	df	Mean Square	F	Sig.
Global Satisfaction	Between Groups	1278.984	3	426.328	.969	0.416
	Within Groups	20239.458	46	439.988	.	
	Total	21518.441	49	.	.	
Effectiveness	Between Groups	352.628	3	117.543	.266	0.849
	Within Groups	20291.816	46	441.126	.	
	Total	20644.444	49	.	.	
Side Effects	Between Groups	862.209	3	287.403	.471	0.704
	Within Groups	28094.041	46	610.740	.	
	Total	28956.250	49	.	.	
Convenience	Between Groups	205.197	3	68.399	.173	0.914
	Within Groups	18199.741	46	395.647	.	
	Total	18404.938	49	.	.	

- Second correlation was with the type of house the family live in with choices of: family own house, or by rent house.

Table 62: Comparison of parents/ proxy PedsQL in respect with type of house and children age groups

		Age groups								
		less than 5		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
physical functioning	own	64.09	24.94	62.63	32.18	58.27	27.31	60.40	25.60	0.245
	Rent	.	.	40.63	.	55.21	39.57	.	.	
	own	62.50	25.10	56.88	29.99	63.24	25.55	76.43	25.12	0.895

Emotional functioning	rent	.	.	55.00	.	43.33	15.28	.	.	
Social functioning	own	86.07	19.03	71.25	21.34	78.82	15.96	85.00	11.55	0.479
	rent	.	.	50.00	.	68.33	30.14	.	.	
School functioning	own	71.67	21.16	64.44	29.70	77.94	12.51	61.43	15.47	0.384
	rent	.	.	85.00	.	77.50	3.54	.	.	
Psychosocial	own	73.12	17.94	62.05	20.86	73.33	14.53	74.29	7.75	0.882
	rent	.	.	63.33	.	60.28	15.69	.	.	
Totalpeds	own	69.16	17.16	62.92	24.78	68.18	16.92	69.56	11.72	0.531
	rent	.	.	55.43	.	57.63	24.67	.	.	

Table 63: Correlation of parents/ proxy PedsQL in respect to type of house

	house kind	N	Mean	Std. Deviation	T	df	Sig.
physical functioning	Own	46	61.1251	26.44904	.682	48	0.499
	Rent	4	51.5625	33.12107	.	.	
Emotional functioning	Own	46	63.9130	25.92539	1.337	48	0.187
	Rent	4	46.2500	13.76893	.	.	
Social functioning	Own	46	80.6522	17.68894	1.768	48	0.083
	Rent	4	63.7500	26.25992	.	.	
School functioning	Own	38	71.4474	18.88471	-.774	39	0.444
	Rent	3	80.0000	5.00000	.	.	
Psychosocial	Own	46	71.4493	16.21591	1.246	48	0.219

	Rent	4	61.0417	12.89873	.	.	
Totalpeds	Own	46	67.7764	17.49115	1.161	48	0.251
	Rent	4	57.0803	20.17254	.	.	

Table 64: Comparison of parents/ proxy TSQM in respect with type of house and children age groups

		Age groups								
		Less than 5		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
Global Satisfaction	own	66.33	21.42	58.04	20.36	54.90	19.35	78.57	15.43	0.108
	rent	.	.	85.71	.	42.86	14.29	.	.	
Effectiveness	own	69.84	21.65	52.78	14.55	57.52	22.82	72.22	16.04	0.514
	rent	.	.	83.33	.	59.26	8.49	.	.	
Side Effects	own	92.86	18.81	93.75	17.68	79.04	28.03	88.39	23.50	0.589
	rent	.	.	100.00	.	75.00	43.30	.	.	
Convenience	own	63.49	23.13	47.22	22.62	60.78	17.40	58.73	9.55	0.076
	rent	.	.	77.78	.	48.15	12.83	.	.	

Table 65: Comparison of parents/ proxy TSQM in respect with type of house

	House type	N	Mean	Std. Deviation	T	df	Sig.
Global Satisfaction	own	46	62.5260	20.78335	.817	48	0.418
	rent	4	53.5714	24.39750	.	.	
Effectiveness	own	46	62.6812	21.10341	-.240	48	0.811
	rent	4	65.2778	13.88889	.	.	

Side Effects	own	46	87.2283	23.38374	.468	48	0.642
	rent	4	81.2500	37.50000	.	.	
Convenience	own	46	58.9372	19.64982	.332	48	0.742
	rent	4	55.5556	18.14437	.	.	

- Third correlation was with family monthly income (that was split to five choices: less than 1500 NIS, from 1500-3000 NIS, from 3000-5000 NIS, and no income).

Table 66: Comparison of parents/ proxy PedsQL in respect with monthly income and children age groups

		Age groups								
		less than 5		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
physical functioning	less 1500	45.68	26.57	62.85	18.76	45.63	31.22	31.25	4.42	0.859
	1500-3000	71.88	18.75	59.38	46.00	63.75	24.67	72.17	17.00	
	3000-5000	61.43	29.08	57.81	24.31	65.18	32.90	.	.	
	more than 5000	85.94	19.89	.	.	50.00	.	71.88	30.94	
	none	65.63	.	.	.	51.56	28.73	.	.	
Emotional functioning	less 1500	65.00	35.00	75.00	25.98	53.00	23.35	57.50	38.89	0.374
	1500-3000	58.33	12.58	47.50	33.29	55.00	29.15	96.67	5.77	
	3000-5000	60.00	25.98	47.50	10.61	72.86	17.29	.	.	
	more than 5000	52.50	31.82	.	.	50.00	.	65.00	.	
	none	100.00	.	.	.	52.50	53.03	.	.	
Social functioning	less 1500	70.00	22.91	66.67	20.21	73.00	24.65	80.00	7.07	0.531
	1500-3000	83.33	28.87	77.50	25.98	78.00	16.05	93.33	11.55	
	3000-5000	96.00	6.52	55.00	7.07	83.57	15.20	.	.	

	more than 5000	85.00	21.21	.	.	55.00	.	77.50	10.61	
	none	95.00	.	.	.	75.00	21.21	.	.	
School functioning	less 1500	75.00	.	60.56	38.74	81.25	12.50	65.00	7.07	0.927
	1500-3000	75.00	35.36	68.33	25.66	77.00	12.55	53.33	10.41	
	3000-5000	68.89	29.92	85.00	.	81.43	12.15	.	.	
	more than 5000	66.67	.	.	.	70.00	.	70.00	28.28	
	none	.	.	.	.	65.00	.	.	.	
Psychosocial	less 1500	65.56	26.48	67.41	14.49	67.17	18.02	67.50	8.25	0.786
	1500-3000	73.33	21.67	61.04	28.23	70.00	18.10	81.11	20.96	
	3000-5000	75.78	10.66	56.67	9.43	79.29	6.73	.	.	
	more than 5000	65.28	21.61	.	.	58.33	.	70.83	5.89	
	none	97.50	.	.	.	64.17	24.75	.	.	
Totalpeds	less 1500	58.47	27.00	67.58	15.30	59.45	21.60	54.89	6.92	0.760
	1500-3000	71.63	14.90	60.31	35.23	67.83	20.14	18.24	5.77	
	3000-5000	69.14	14.74	57.40	2.79	74.38	12.94	.	.	
	more than 5000	74.50	20.90	.	.	55.43	.	71.20	6.92	
	none	83.33	.	.	.	59.78	26.13	.	.	

Table 67: Comparison of parents/ proxy PedsQL in respect with monthly income

		Sum of Squares	df	Mean Square	F	Sig.
physical functioning	Between Groups	3590.030	4	897.508	1.281	0.291
	Within Groups	31517.320	45	700.385	.	
	Total	35107.351	49	.	.	
Emotional functioning	Between Groups	333.388	4	83.347	0.119	0.975
	Within Groups	31629.112	45	702.869	.	
	Total	31962.500	49	.	.	
Social functioning	Between Groups	1187.982	4	296.995	0.835	0.510
	Within Groups	16012.518	45	355.834	.	
	Total	17200.500	49	.	.	

School functioning	Between Groups	673.392	4	168.348	0.474	0.754
	Within Groups	12775.389	36	354.872	.	
	Total	13448.780	40	.	.	
Psychosocial	Between Groups	591.484	4	147.871	0.548	0.701
	Within Groups	12139.271	45	269.762	.	
	Total	12730.755	49	.	.	
Totalpeds	Between Groups	770.187	4	192.547	0.592	0.670
	Within Groups	14638.942	45	325.310	.	
	Total	15409.129	49	.	.	

Table 68: Comparison of parents/proxy TSQM in respect with monthly income and children age groups

		Age groups								
		Less than 5		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
Global Satisfaction	less 1500	71.43	21.43	69.05	16.50	57.14	26.24	71.43	10.10	0.606
	1500 - 3000	42.86	28.57	57.14	19.34	61.43	23.47	83.33	22.96	
	3000 - 5000	68.57	11.96	57.14	40.41	44.56	10.26	..	..	
	more than 5000	75.00	15.15	..	..	50.00	..	78.57	10.10	
	none	92.86	..	..	..	53.57	15.15	..	..	
Effectiveness	less 1500	57.41	19.51	62.96	12.83	65.56	20.56	72.22	7.86	0.142
	1500 - 3000	53.70	28.51	50.00	12.00	67.78	20.93	79.63	22.45	

	3000 - 5000	81.11	19.48	58.33	35.36	49.21	23.45	..	..	
	more than 5000	80.56	3.93	..	..	38.89	..	61.11	7.86	
	none	77.78	..	..	..	52.78	3.93	..	..	
Side Effects	less 1500	87.50	21.65	100.00		73.75	30.75	90.63	13.26	0.974
	1500 - 3000	100.00		100.00		75.00	40.75	79.17	36.08	
	3000 - 5000	100.00	..	75.00	35.36	86.61	26.13	..	..	
	more than 5000	68.75	44.19	..	..	62.50	..	100.00	0.00	
	none	100.00				78.13	30.94			
Convenience	less 1500	57.41	11.56	51.85	11.56	61.11	24.22	47.22	3.93	0.435
	1500 - 3000	57.41	13.98	51.39	27.36	64.44	22.43	62.96	3.21	
	3000 - 5000	81.11	16.01	47.22	43.21	56.35	11.31	..	..	
	more than 5000	27.78	23.57	..	..	44.44	..	63.89	11.79	
	none	83.33				55.56				

Table 69: Comparison of parents/ proxy TSQM in respect with monthly income

		Sum of Squares	df	Mean Square	F	Sig.
Global Satisfaction	Between Groups	1372.701	4	343.175	.767	0.553
	Within Groups	20145.740	45	447.683	.	
	Total	21518.441	49	.	.	
Effectiveness	Between Groups	55.605	4	13.901	.030	0.998
	Within Groups	20588.839	45	457.530	.	
	Total	20644.444	49	.	.	
Side Effects	Between Groups	383.977	4	95.994	.151	0.962
	Within Groups	28572.273	45	634.939	.	
	Total	28956.250	49	.	.	
Convenience	Between Groups	1453.609	4	363.402	.965	0.436
	Within Groups	16951.330	45	376.696	.	
	Total	18404.938	49	.	.	

- Forth correlation was with parents working status; options provided were as follows: Searching for Work, Working full or part time, full time house keeper, or not working for other reasons.

Table 70: Comparison of parents/ proxy PedsQL in respect with work status and children age groups

		Age groups								
		less than 5		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
physical functioning	Searching	71.88	.	79.69	6.63	25.00	.	50.00	.	0.754
	part timer	84.38	27.06	46.88	47.29	63.89	30.90	93.75	.	

	house keeper	57.23	23.22	63.89	29.36	55.63	25.80	62.72	23.45	
	not working for other reasons	.	.	50.00	.	.	.	28.13	.	
Emotional functioning	Searching	30.00	.	65.00	35.36	40.00	.	65.00	.	0.404
	part timer	61.67	18.93	38.33	34.03	65.00	27.27	65.00	.	
	house keeper	66.00	26.44	73.33	17.56	58.00	24.29	93.75	7.50	
	not working for other reasons	.	.	45.00	.	.	.	30.00	.	
Social functioning	Searching	70.00	.	65.00	7.07	65.00	.	70.00	.	0.858
	part timer	98.33	2.89	70.00	25.98	81.11	13.64	85.00	.	
	house keeper	84.00	20.92	78.33	25.66	75.00	21.98	88.75	13.15	
	not working for other reasons	.	.	45.00	.	.	.	85.00	.	
School functioning	Searching	.	.	90.00	.	.	.	90.00	.	0.980
	part timer	79.17	17.68	57.50	24.75	77.78	12.02	50.00	.	
	house keeper	69.17	23.11	63.89	40.97	78.00	12.29	55.00	9.13	
	not working for other reasons	.	.	75.00	.	.	.	70.00	.	
Psychosocial	Searching	50.00	.	66.67	23.57	52.50	.	75.00	.	0.844
	part timer	80.37	4.72	51.94	26.44	74.63	14.36	66.67	.	
	house keeper	73.25	19.58	71.85	14.28	70.33	15.61	79.17	3.97	
	not working	.	.	55.00	.	.	.	61.67	.	

	for other reasons									
Totalpeds	Searching	59.72	.	71.54	17.20	40.28	.	66.30	.	0.874
	part timer	81.15	9.42	49.98	34.95	70.89	17.18	76.09	.	
	house keeper	66.51	18.44	70.84	18.46	65.37	17.78	73.63	10.36	
	not working for other reasons	.	.	53.26	.	.	.	50.00	.	

Table 71: Comparison of parents/ proxy PedsQL in respect with work status

		Sum of Squares	Df	Mean Square	F	Sig.
physical functioning	Between Groups	1623.178	3	541.059	0.743	0.532
	Within Groups	33484.173	46	727.917	.	
	Total	35107.351	49	.	.	
Emotional functioning	Between Groups	2663.287	3	887.762	1.394	0.257
	Within Groups	29299.213	46	636.939	.	
	Total	31962.500	49	.	.	
Social functioning	Between Groups	1385.315	3	461.772	1.343	0.272
	Within Groups	15815.185	46	343.808	.	
	Total	17200.500	49	.	.	
School functioning	Between Groups	770.891	3	256.964	0.750	0.529
	Within Groups	12677.890	37	342.646	.	
	Total	13448.780	40	.	.	
Psychosocial	Between Groups	800.256	3	266.752	1.029	0.389
	Within Groups	11930.498	46	259.359	.	
	Total	12730.755	49	.	.	
Totalpeds	Between Groups	692.847	3	230.949	0.722	0.544
	Within Groups	14716.282	46	319.919	.	
	Total	15409.129	49	.	.	

- Fifth comparison investigated the number of family members; (with options offered being families less than 5 members, between 5-7 members, and more than 8 members).

Table 72: Comparison of parents/ proxy PedsQL in respect with family member number and children age groups

		Age groups								
		less than 5		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
physical functioning	less than 5	65.33	29.34	50.00	30.86	55.31	26.40	51.56	24.31	0.654
	5-7	72.92	7.86	63.89	29.36	58.93	33.29	63.93	27.95	
	more than8	45.31	11.05	100.00	.	63.54	31.61	.	.	
Emotional functioning	less than 5	56.67	26.93	45.00	32.02	53.00	26.79	87.50	3.54	0.332
	5-7	73.33	27.54	73.33	17.56	72.86	17.29	72.00	29.28	
	more than8	72.50	3.54	65.00	.	55.00	31.22	.	.	
Social functioning	less than 5	84.44	18.45	57.00	9.08	70.50	18.63	87.50	17.68	0.199
	5-7	81.67	27.54	78.33	25.66	82.86	15.24	84.00	10.84	
	more than8	100.00	.00	100.00	.	86.67	18.93	.	.	
School functioning	less than 5	73.89	22.65	68.33	25.66	77.50	11.12	55.00	7.07	0.942
	5-7	65.00	21.21	63.89	40.97	77.50	13.69	64.00	17.82	
	more than8	.	.	75.00	.	80.00	15.00	.	.	
Psychosocial	less than 5	68.92	17.06	52.83	20.03	67.00	15.09	76.67	4.71	0.289

	5-7	76.94	25.55	71.85	14.28	76.55	13.27	73.33	8.98	
	more than8	86.25	1.77	80.00	.	73.89	20.02	.	.	
Totalpeds	less than 5	67.56	20.09	51.63	23.52	63.09	17.51	67.93	11.53	0.572
	5-7	74.72	15.23	70.84	18.46	70.04	18.36	70.21	13.08	
	more than8	68.06	3.93	88.10	.	70.29	22.91	.	.	

Table 73: Comparison of parents/ proxy TSQM in respect with family member number and children age groups

		Age groups								
		Less than 5		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
Global Satisfaction	less than 5	65.08	24.08	57.14	21.43	47.86	11.69	89.29	15.15	0.320
	5-7	78.57	12.37	73.81	20.62	56.80	21.05	74.29	14.81	
	more than8	53.57	15.15	42.86	.	61.90	33.76	.	.	
Effectiveness	less than 5	69.75	25.78	50.00	18.43	53.89	18.15	83.33	23.57	0.798
	5-7	62.96	13.98	64.81	16.04	56.35	23.45	67.78	12.67	
	more than8	80.56	3.93	61.11	.	74.07	25.05	.	.	

Side Effects	less than 5	88.89	22.92	90.00	22.36	68.75	26.84	100.00	.	0.328
	5-7	100.00	.00	100.00	.00	96.43	9.45	83.75	27.10	
	more than8	100.00	.00	100.00	.	68.75	54.13	.	.	
Convenience	less than 5	61.73	27.42	40.00	21.66	56.11	11.55	55.56	15.71	0.613
	5-7	62.96	19.51	66.67	24.22	59.52	19.96	60.00	8.24	
	more than8	72.22	.00	55.56	.	66.67	29.40	.	.	

Table 74: Comparison of parents/ proxy TSQM in respect with family member numbers

		Sum of Squares	Df	Mean Square	F	Sig.
Global Satisfaction	Between Groups	1159.969	2	579.985	1.339	0.272
	Within Groups	20358.472	47	433.159	.	
	Total	21518.441	49	.	.	
Effectiveness	Between Groups	866.825	2	433.412	1.030	0.365
	Within Groups	19777.619	47	420.800	.	
	Total	20644.444	49	.	.	
Side Effects	Between Groups	1541.052	2	770.526	1.321	0.277
	Within Groups	27415.198	47	583.302	.	
	Total	28956.250	49	.	.	
Convenience	Between Groups	886.473	2	443.236	1.189	0.313
	Within Groups	17518.466	47	372.733	.	
	Total	18404.938	49	.	.	

- Sixth comparison was with respect to transportation cost; (with cost range offered as less than 100 NIS, from 100-400 NIS, more than 400 NIS, and transportation by the use of

family own car).

Table 75: Comparison of parents/ proxy PedsQL in respect with cost of transportation and children age groups

		Age groups								
		less than 5		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
physical functioning	less than 100	73.21	16.78	96.88	.	55.21	17.77	65.92	21.69	0.530
	100-400	59.32	25.80	62.85	18.76	66.19	26.44	34.38	.	
	more than 400	51.56	28.73	68.75	34.80	41.41	41.57	28.13	.	
	own car	100.00	.	25.00	22.10	48.44	15.47	81.25	17.68	
Emotional functioning	less than 100	63.33	20.21	75.00	.	51.67	22.55	88.33	20.21	0.752
	100-400	63.13	28.02	75.00	25.98	65.91	28.79	85.00	.	
	more than 400	52.50	38.89	51.67	12.58	58.75	10.31	30.00	.	
	own car	75.00	.	27.50	38.89	45.00	35.36	77.50	17.68	
Social functioning	less than 100	78.33	25.66	100.00	.	63.33	28.43	83.33	15.28	0.583
	100-400	85.00	20.00	66.67	20.21	79.55	15.88	75.00	.	

	more than 400	95.00	7.07	71.67	24.66	86.25	17.02	85.00	.	
	own car	100.00	.	52.50	3.54	67.50	3.54	92.50	10.61	
School functioning	less than 100	61.67	34.03	90.00	.	76.67	5.77	66.67	22.55	0.744
	100-400	82.22	8.55	60.56	38.74	77.50	13.39	60.00	.	
	more than 400	75.00	.	57.50	24.75	80.00	12.91	70.00	.	
	my car	66.67	.	85.00	.	77.50	17.68	50.00	.	
Psychosocial	less than 100	67.78	19.17	88.33	.	63.89	17.35	79.44	3.85	0.707
	100-400	74.44	21.08	67.41	14.49	73.56	16.58	73.33	.	
	more than 400	72.08	13.55	59.44	17.82	75.00	8.05	61.67	.	
	own car	80.56	.	45.42	25.34	63.33	18.86	73.33	9.43	
Totalpeds	less than 100	69.61	15.46	91.30	.	60.87	17.49	74.98	9.29	0.596
	100-400	67.88	18.59	67.58	15.30	70.76	20.03	59.78	.	
	more than 400	63.59	21.19	63.29	23.10	63.70	15.04	50.00	.	
	own car	89.29	.	37.44	25.45	58.15	17.68	76.09	.	

Table 76: Comparison of parents/ proxy PedsQL in respect with cost of transportation

		Sum of Squares	Df	Mean Square	F	Sig.
physical functioning	Between Groups	1677.080	3	559.027	0.769	0.517
	Within Groups	33430.271	46	726.745	.	
	Total	35107.351	49	.	.	
Emotional functioning	Between Groups	2374.829	3	791.610	1.231	0.309
	Within Groups	29587.671	46	643.210	.	
	Total	31962.500	49	.	.	
Social functioning	Between Groups	339.848	3	113.283	0.309	0.819
	Within Groups	16860.652	46	366.536	.	
	Total	17200.500	49	.	.	
School functioning	Between Groups	222.250	3	74.083	0.207	0.891
	Within Groups	13226.531	37	357.474	.	
	Total	13448.780	40	.	.	
Psychosocial	Between Groups	560.606	3	186.869	0.706	0.553
	Within Groups	12170.149	46	264.568	.	
	Total	12730.755	49	.	.	
Totalpeds	Between Groups	642.406	3	214.135	0.667	0.577
	Within Groups	14766.723	46	321.016	.	
	Total	15409.129	49	.	.	

Table 77: Comparison of parents/ proxy TSQM in respect with cost of transportation and children age groups

		Age groups								
		Less than 5		5-7		8-12		13-18		
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Sig.
Global Satisfaction	Less than 100	45.24	28.87	85.71	.	37.30	11.25	78.57	18.90	0.781
	100-400	75.00	16.64	69.05	16.50	58.44	22.99	78.57	.	
	More than 400	64.29	20.20	40.48	10.91	48.21	3.57	64.29	.	
	Own car	64.29	.	67.86	25.25	57.14	.00	85.71	20.20	
Effectiveness	Less than 100	53.70	28.51	55.56	.	42.59	22.45	64.81	16.04	0.999
	100-400	73.61	19.64	62.96	12.83	61.11	24.72	66.67	.	
	More than 400	75.00	27.50	48.15	13.98	55.56	6.42	77.78	.	
	own car	77.78	.	58.33	35.36	66.67	15.71	83.33	23.57	
Side Effects	Less than 100	100.00	.00	100.00	.	54.17	26.02	79.17	36.08	0.987
	100-400	87.50	24.09	100.00	.00	81.25	34.00	100.00	.	
	More than 400	100.00	.00	83.33	28.87	85.94	16.44	81.25	.	
	own car	100.00	.	100.00	.00	84.38	22.10	100.00	.00	
Convenience	Less than 100	66.67	29.40	83.33	.	44.44	11.11	59.26	3.21	0.307
	100-400	60.42	23.28	51.85	11.56	65.15	18.27	44.44	.	

	More than 400	80.56	19.64	29.63	22.45	51.39	12.32	50.00	.	
	own car	44.44	.	63.89	19.64	61.11	15.71	69.44	3.93	

Table 78: Comparison of parents/ proxy TSQM in respect with cost of transportation

TSQM domains		Sum of Squares	Df	Mean Square	F	Sig.
Global Satisfaction	Between Groups	2370.891	3	790.297	1.899	0.143
	Within Groups	19147.550	46	416.251	.	
	Total	21518.441	49	.	.	
Effectiveness	Between Groups	1563.047	3	521.016	1.256	0.301
	Within Groups	19081.397	46	414.813	.	
	Total	20644.444	49	.	.	
Side Effects	Between Groups	1001.669	3	333.890	0.549	0.651
	Within Groups	27954.581	46	607.708	.	
	Total	28956.250	49	.	.	
Convenience	Between Groups	848.961	3	282.987	0.741	0.533
	Within Groups	17555.977	46	381.652	.	
	Total	18404.938	49	.	.	

تقييم نوعية الحياة و الرضا العلاجي للدواء لدى المرضى الفلسطينيين المصابين بالتهاب المفاصل مجهول السبب للاطفال

اعداد: ربى محمود عبد جعافرة

اشراف: الدكتور حسين حلاق

الملخص

يمكن أن تؤثر الأمراض المزمنة على حياة المريض بطريقة سلبية للغاية؛ وتعد دراسة هذه الامراض واعراضها على حياة المريض من الاشياء المهمة والضرورية.

التهاب المفاصل مجهول السبب للاطفال هو أحد الأمراض الالتهابية المزمنة التي تؤثر على المفاصل في جميع أنحاء الجسم , وتؤدي إلى العديد من الأحداث السلبية غير المرغوب فيها.

في فلسطين، لا توجد دراسات حول التهاب المفاصل مجهول السبب أو تأثيرها على الأطفال، ومن هذه النقطة كان الهدف من هذه الدراسة تقييم نوعية حياة الأطفال وكذلك تقييم مدى رضاهم عن العلاج الذي يتلقونه، بالإضافة إلى قياس بعض العوامل الأخرى مع نوعية الحياة والرضا عن العلاج.

تم اجراء هذه الدراسة على مدار فترة 8 أشهر، وخلال هذه الفترة، تم تضمين 50 مريضًا في هذه الدراسة من مستشفيين ومركز متخصص لطب الأطفال في الضفة الغربية, القدس و قطاع غزة تحت إشراف طبيبة أخصائية للروماتيزم.

تم اعطاء الاستبيانات إلى 50 مريض وأولياء أمورهم. واحد من هذه الاستبيانات هو قياس جودة حياة الأطفال ،حيث تم استخدام نموذج PedsQL Generic Core Scales. كان الاستبيان الآخر هو قياس رضا المرضى عن العلاج ، حيث تم استخدام استبيان رضا المرضى عن العلاج (TSQM) الإصدار 1.4.

في هذه الدراسة، لاحظنا درجات كلا من استبيان قياس جودة حياة الأطفال واستبيان قياس رضا المرضى عن العلاج، بالإضافة إلى مقارنتها بالعوامل الأخرى بما في ذلك مكان إقامة المعيشة، والعلاقة الأسرية مع المرضى، بالإضافة إلى مستوى تعليم الوالدين، ونوع المنزل، وعدد أفراد الأسرة، والدخل الشهري للوالدين، حالة عمل الوالدين، وتكلفة النقل، وذلك للكشف عن تأثير التهاب المفاصل مجهول السبب على الوضع الاقتصادي. علاوة على ذلك ، تم فحص مدى الارتباط بين PedsQL و TSQM مع كل نوع فرعي من التهاب المفاصل مجهول السبب . كما تم استكشاف وزن المريض وارتفاعه ومؤشر كتلة الجسم وعلاقتهم مع TSQM و PedsQL.

أشارت النتائج إلى أن جميع المرضى لجميع الأعمار لديهم نوعية الحياة وكذلك درجات رضا العلاج أعلى من المتوسط؛ ولم يكن هناك تأثير كبير إلا مع مجال الرضا العالمي في استبيان رضا المرضى عن العلاج بناءا على نتائج الاهل.

في حالة الفرضية والمقارنات، أظهرت النتائج عدم وجود تأثير كبير باستثناء الحالات التالية:

حالة عمل الوالدين مع مجال الفعالية في استبيان رضا المرضى عن العلاج في حساب الفئات العمرية للأطفال .بالإضافة الى وجود تأثير واضح في حالة عمل الوالدين مع مجال الراحة في استبيان رضا المرضى عن العلاج ، دون حساب الفئات العمرية للأطفال.

عدد أفراد الأسرة مع مجال الوظيفة البدنية في استبيان قياس جودة حياة الأطفال , في حالة عدم حساب الفئات العمرية للأطفال.

في حالة تحليل مدى ارتباط الوزن والطول للأطفال مع استبيان قياس جودة حياة الأطفال و استبيان رضا المرضى عن العلاج ، أظهرت النتائج أن كلا من الوزن والطول لم يكشفا عن أي تأثير كبير على استبيان قياس جودة حياة الأطفال ، ولكن كان هناك تأثير كبير على مجال الرضا العالمي في استبيان رضا المرضى عن العلاج ، وفي حالة وزن الأطفال كان هناك تأثير كبير مع مجال الآثار الجانبية في استبيان رضا المرضى عن العلاج .

بالنسبة لمؤشر كتلة الجسم، كان هناك تأثيرات كبيرة على كل من مجالات استبيان قياس جودة حياة الأطفال واستبيان رضا المرضى عن العلاج، في حالة استبيان قياس جودة حياة الأطفال كان هناك تأثير كبير في الأداء العاطفي ومجالات الأداء النفسي الاجتماعي .اما بالنسبة لاستبيان رضا المرضى عن العلاج، كان هناك تأثير بين مؤشر كتلة الجسم ونطاق الراحة .

وفقًا للمعلومات المستخرجة من سجلات المريض ، كان هناك 4 مرضى يعانون من التهاب القزحية كأحد المضاعفات. بالنسبة للأدوية المستخدمة ، كان الأكثر استخدامًا مع المرضى بريدنيزون ، ميثوتريكسات ، إيبوبروفين ، حمض الفوليك. البيولوجيا مثل infliximab، Etanercept، Abatacept، Tocilizumab ، و Adalimumab.

في الختام ، يتمتع جميع مرضى JIA الخمسين بأعلى من متوسط جودة الحياة ورضا العلاج (كانت الدرجات أعلى من 50) ، حيث تشير الدرجات العليا إلى HRQoL أفضل.

تشير نتائجنا إلى أن أفضل PedsQL كان في الفئة العمرية 13–18 عامًا ، وكان الأسوأ مع الفئة العمرية 5–7 ، وكان TSQM أفضل مع المرضى الذين تتراوح أعمارهم بين 13–18 عامًا. قد تتأثر هذه النتائج لأن عدد المرضى لم يكن بهذا الحجم، لذلك هناك حاجة إلى مزيد من التحقيق حول آثار التهاب المفاصل مجهول السبب في حياة الأطفال.