

## Effect of Psychosocial Status of Children under Regular Hemodialysis on Their Quality Of Life

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### Abstract

**Background:** Chronic kidney disease (CKD) in children is a progressive and intractable condition that may severely impair the child's growth, development, social interactions and quality of life. **Aim of the study** was to assess the effect of psychosocial status of children under regular hemodialysis on their quality of life. **Subject & Method: Research design** A descriptive design was used. **Setting:** data collected from renal dialysis unit at Zagazig University Hospital (El-sallam section). **Subject:** A sample of 60 children with chronic kidney disease and under regular hemodialysis. **Tools of data collections: Four tools were used. The first tool** was a structured interview questionnaire and included characteristic of studied children their parents as well as medical history of the studied children. **The second tool** was life style assessment scale. **The third tool** was modified child behavior checklist. **The fourth tool** was pediatric quality of life inventory (PedsQL™ 4.0Generic core scale). **Results: The result of the present study** revealed that 53.3% of children's ages were from 11 to 14 years with mean age of  $10 \pm 2.7$  years. 56.7% were female. It was founded that 66.6% had fair total psychosocial score and 86.7% had fair total behavior score as well as 61.7% of children had bad QOL score. **Conclusion: The study concluded** that there was statistically highly significant relation between total psychosocial and total child QOL score ( $p < 0.001$ ). **Recommendations: The study recommended** that provide cooperation of parents, pediatric nephrologists, nurses, psychologist, and school teachers to improve the psychosocial health of children under dialysis.

**Key words:** children, chronic kidney disease, quality of life, hemodialysis.

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### Introduction

Chronic kidney disease (CKD) is a major health problem worldwide with increasing incidence and prevalence that is threatening to bring on the onset of a real 'epidemic'. Independent of the initial cause, CKD is a clinical syndrome characterized by a gradual

The causes of CKD in children vary by age those from birth to early teens usually have cystic, hereditary, or congenital disease. From 15-19 years, the cause of CKD is most often glomerulonephritis. Chronic kidney disease also lead to numerous health problems, such as anemia, cardiac complications, bone loss, and death<sup>(2)</sup>

The best way to diagnose CKD are through clearance of serum creatinine which are relative to the body surface area was calculated by the

loss of kidney function over time. In particular, the kidney disease: Improving Global Outcomes (KDIGO) guidelines have defined CKD as abnormalities of kidney structure or function, present for more than 3 months, with implications to health<sup>(1)</sup>

Schwartz formula:  $K = \frac{\text{Size (cm)}^2}{\text{plasma creatinine (mg/dL)}}$ . The constant K was equal to 36.5 irrespective of sex and age of the child outside of prematurity. Blood creatinine was measured by the enzymatic method. In general, chronic renal failure (CRF) is light for a glomerular filtration rate (GFR) between 60 and 89 mL/min/1.73 m<sup>2</sup>, moderate between 30 and 59 mL/min/1.73 m<sup>2</sup>, severe between 15 and 29 mL/min /1.73 m<sup>2</sup> and terminal for a GFR of less than 15mL/min/1.73 m<sup>2</sup>(3).

Hemodialysis (HD) is a choice of treatment of CKF which involves purifying the blood of a child having nonfunctioning kidneys of waste products; it offers a higher rate of molecular transfer than peritoneal dialysis and other continuous renal replacement therapies and this qualifies it to be the most effective artificial renal support. Although HD is not a curative measure, it alleviates many serious and sometimes lethal adverse outcomes of CKD. Children undergoing HD have a higher hospitalization rate than the general population which, in turn, trigger another set of problems such as anemia, CKD mineral bone disease, vascular access-related complications, and hypertension. Chronic complications involving HD access include thrombosis, infection, ischemic steal syndrome, aneurysms, venous hypertension, hematomas, heart failure, and prolonged bleeding and result in frequent interventions together with increased morbidity and mortality. In addition, access interventions are often expensive, challenging and may require specialized surgical expertise<sup>(4)</sup>

End stage renal disease (ESRD) is a debilitating illness with significant limitations in physical and psychosocial well-being and is associated with poor QoL. Children undergoing chronic hemodialysis (CHD) frequently have underlying medical conditions such as: cardiovascular, lung, electrolyte and bone disorders as well as neuropathy, anemia, depression and anxiety. Moreover, it is known, that dialysis increases the child's perception of fatigue, reduces mobility, affects sleep, daily activities and work capacity. Incapacitation of (CHD) children often results in social isolation and self-isolation from society – a condition known as “social death”<sup>(5)</sup>.

Children with ESRD undergo a number of lifestyle, dietary, and fluid restrictions in order to accommodate their illness. These lifestyle restrictions significantly impact on social functioning with children performing a balancing act to ensure maintenance of vitamin, iron, and protein levels. Such restrictions can impact on patients' illness beliefs, sense of personal control leading to anxiety and depression,

inhibiting coping, and adjustment. Additional stressors associated with ESRD include biochemical imbalance, physiological changes, neurological disturbances, cognitive impairment, and sexual dysfunction. All can potentially play a role in depression<sup>(6)</sup>.

Quality of life is an important criterion that illustrates the effectiveness of health care, health level, and well-being. It is a multidimensional concept that includes ability, function, health, well-being, and psychological state, which is defined by the World Health Organization (WHO) as values, goals, standards, and individual interests. There is a relationship between diseases and quality of life. Quality of life can have a direct impact on physical performance, emotional, and physical problems, fatigue, mental health, social performance, physical pain, and general health. Therefore, knowledge about chronic diseases, especially chronic kidney diseases (CKD) is very important in the evolution of children health problems<sup>(7)</sup>

### **Significance of the study**

Quality of life (QOL) has been conceptualized as a multidimensional and subjective construct that reflects an individual's subjective assessment of several domains of his or her life, including physical, social, and psychological functioning. Children with (ESRD) under regular hemodialysis suffer from various psychological health hazards that result either from complications of the illness itself, vascular access, medications, or various types of dialysis. So it is very important to know and assess the effect of psychosocial status of children under regular hemodialysis on their quality of life

### **Aim of the Study**

#### **This study aims to:**

Evaluate the effect of psychosocial status of children under regular hemodialysis on their quality of life.

#### **Research Questions:**

Is psychosocial status of children under regular hemodialysis effect their quality of life?

## Subject and Methods

### Research design:

A descriptive design was used in this study.

### Study Setting

The study was conducted at Renal Dialysis Unit at unit at Zagazig University Hospitals

### Study Subjects:

The subjects of this study were conducted on purposive sample of 60 children whom available in renal dialysis unit that attended to the previous setting throughout a period of data collection and agreed to participate in the study that fulfilled the following criteria:

- Sex: both sexes. Age: 6-14 years
- All children with end stage renal disease and treated by regular maintenance hemodialysis.

### Tools of data collection:

Four tools were used to collect necessary data:

#### Tool I: Structured interview questionnaire:

Structured interview questionnaire was developed by researcher and consists of three parts:

- **Part A:** Personal characteristics of studied children as: age, sex, birth order, level of education, residence and living conditions
- **Part B:** Characteristics of child's family as parent's age, level of education, occupation as well as family income.
- **Part C:** Medical history of renal disease, data of starting dialysis, number of dialysis session /week, time need for dialysis session, common complaints before and after regular hemodialysis sessions

#### Tool II: Life Style Assessment Scale:

Life style assessment scale adopted from El-gamasy<sup>(8)</sup>. It measures psychosocial status

of children with ESRD under regular hemodialysis, a single center experience. The scale consists of 37 items including the following:

#### Part I: Physical status:

**A- Daily physical activities (14 items)**

**B- School achievement (two items)**

**C- Activities at home and school (two items)**

#### Part II: Psychosocial status:

**A- Psychological conditions as regard dialysis (five items)**

**B- Satisfaction and self-actualization (four items)**

**C- Spiritual attitude and satisfaction (three items)**

**D- Social relations (seven items)**

#### Scoring system

#### Scoring system for life style assessment scale.

The questions were answered by 3= always, 2= sometimes and 1= never. The score was interpreted as bad < 50%, fair ≥ 50% - <75% and good >75%.

#### Tool III: The Child Behavior Checklist:

The child behavior checklist was developed by the researcher guided by Achenbach and Rescorla<sup>(9)</sup>. It was completed by the parent to assess general symptomatology, mood and anxiety symptoms of their children within the past six months. The checklist consists of 29 items.

#### Scoring system

#### Scoring system for child behavior checklist

The questions were answered by 0= not true, 1= sometimes true, 2= very true. The score was interpreted as good < 50%, fair ≥ 50% - <75% and bad >75%

#### Tool IV: Pediatric quality of life inventory (PedsQL™ 4.0Generic core scale) by Varni et al

Pediatric quality of life scale version 4.0 (peds QL) was adopted from Varni et al<sup>(10)</sup>. The Peds QL™ Measurement Model is a modular approach to measure health-related quality of

life in healthy children and adolescents and those with acute and chronic health condition the peds QL™ measurement model integrates seamlessly both generic core scales and disease-specific modules into one measurement system there are four domains in each report (physical functioning ,emotional functioning, social functioning and school functioning ) The peds version 4.0 consists of 23 items including the following:

- 1- Physical functioning (eight items)
- 2- Emotional functioning (five items)
- 3- Social functioning(five items)
- 4- School functioning (five items)

#### **Scoring system**

#### **Scoring system for assessment of the quality of life (Varni et al):**

The peds QI™ 4.0 Generic Core Scale is comprised of parallel child self-report and parent proxy-report formats and assesses parents perception of their child's HRQOL scores range from 0 to 100 points recall time was one month and a 5- points response scale was used form 0 (never a problem ) to 4 (almost always a problem ) . The scores of each item were then reversed and linearly transformed into a 0-100 scale (0=100, 1=75, 2 = 50, 3=25, and 4 =0 ), with higher peds QOL scores indicating a better QOL. Parameters studied were QOL total score, QOL in social ,emotional , physical , and school domain.

#### **Content Validity & Reliability**

the tools were tested for content validity by three experts (one professor of pediatric nephrologist , faculty of medicine, one professor of pediatric nursing and one professor of community and geriatric nursing , faculty of nursing ).The recommended modifications were done and final form was ready to use.

**Reliability** of tools was done by using Cronbach's Alpha test reliability coefficient to measure the internal consistency for the final scales. The reliability of life style assessment scale was greater than 0.70 and the reliability of child behavior checklist was 0.73.

#### **Pilot study**

It was carried on 10 % of the children (6 Child) of chronic kidney disease to test clarity and applicability of the tools. It was included in the total sample since no modifications were done in the tools.

#### **Field work:**

Data were collected within a period of six months from beginning of September 2018 to the end of February 2019 . The data were collected at Four days per week (Saturday, Sunday, Tuesday and Thursday ) from 9:00 am to 1:00 pm. Each child was interviewed individually, the researcher started with introducing herself and explaining the aim of the study for the selected child and obtaining their oral consent assured that data collected was confidential and would be used only to achieve the purpose of the study. The questionnaires were read, explained and choices were recorded by the researcher. The time consumed to answer each sheet ranged from 30-45 minutes.

#### **Ethical considerations & Administrative design:**

The research approval was obtained from ethical committee before starting study. The researcher maintained an anonymity and confidentiality of the subject .The inclusion of subjects in the study was totally voluntary. The aim of this study was explained to every child before participation and oral consent was obtained from parent. Children were notified that they can withdraw at any stage of the research; also they were assured that the information obtained during the study will be confidential and used for the research purpose only. An official permission was obtained by submission of formal letter issued from the Dean of Faculty of Nursing, Zagazig university to the responsible authorities of Pediatric Hemodialysis Unit at zagazig university hospital ( El-sallam Section) to obtain their permission for data collection.

#### **Statistical analysis**

Data entry and statistical analysis were done by the SPSS version 20. Data were presented by frequency table with

percentages for qualitative variables and means and standard deviations for quantitative variables. The chi-square test was used to find the significant association between the demographic and clinical data and the outcome measures. Multiple linear regressions (step-wise) were also used to characterize the relationship between children's demographic and clinical details with the outcome measures. Cronbach alpha coefficient was calculated to assess the reliability of the scales through their internal consistency. (level of significance; significant at  $P < 0.05$  and highly significance at  $P > 0.01$ ).

## Results

**Table (1)** shows characteristics of the studied children. It was found that 53.3% of children's ages were from 11 to 14 years with mean age of  $10 \pm 2.7$  years. Also, 56.7% were female compared to 43.3% were male. Those who ranked the first birth order constituted 26.7%, the second 35%. It was revealed from the same table that 53.3% were from rural area compared to 46.7% were from urban. 58.3% of the studied children were in primary stage and 23.3% were in preparatory stage.

**Table (2)** shows the medical history of the studied hemodialysis children. It was revealed that the onset of diagnosis was from four to six years in 53.3% of children. Number of years from the first dialysis was less than two years in 45% of children. Regarding dialysis session was 88.3% 3 times per week. As well as, 35% and 30% finished session in 4hrs and 3hrs respectively. As children took blood transfusion and iron after dialysis was 76.7%.

It was revealed from the same table that the main complications of hemodialysis were hypo or hypertension (56.7%), arrhythmia (56.7%), muscle cramps (58.3%) and HCV or HBV (43.3%). Also, the common physiological complaints of studied children were growth retardation which constitute (86.7%), anemia (81.7%), muscle weakness (68.3%), over weight (60%) and dizziness was (58.3%).

**Table (3)** shows complications and care of fistula among the studied hemodialysis children. It was found that the main complications of fistula were thrombosis (58.3%), swelling of fistula (71.7%), toxemia (58.3%) and infection (33.3%). About cleaning of the fistula, it was done with betadine in 58.3% of children, Cleaning of fistula once per day in 71.7% and with help of others in 65%. It was illustrated from the same table that the studied children followed precautions for protection of fistula, such as 75% avoid heavy lifting on this side, 53.3% avoid tight clothing on it, 45% avoid taking blood pressure on this side and 45% avoid aspirate sample on this side.

**Table (4)** clarifies total psychosocial conditions. About psychological conditions as regard dialysis, 21.7% had fair score compared to 76.7% had bad score. Also, 50% had bad score related to satisfaction and self-actualization compared to 36.7% had fair score. As regards Spiritual attitude and satisfaction, 48.3% had fair score compared to 43.3% had good score. Also, 68.3% had fair score related to social relation compared to 26.7% had bad score.

**Table (5)** shows behavior of the studied hemodialysis children. It was found that 41.7%, 50% and 60% had fair scores related to acting too young for his/her age, concentration and attention for long and finishing things respectively. About getting mind off certain thoughts, arguing a lot and clinging to adults or too dependent, were represented by 60%, 45% and 43% which had fair scores respectively. Also, 40% and 48.3% had fair scores related to complaining of loneliness and being confused respectively.

As regards obedience at school, 46.7% had good score. While, 50% had fair score related to school work. Regarding destroying his/her own things, feeling no one loves him/her, getting along with other kids and getting hurt a lot, were represented by 55%, 51.7%, 58.3% and 53.3% which had fair scores respectively.

However, 61.7%, 51.7%, 45% and 50% had bad scores related to feeling worthless, being nervous, having nervous movements, lacking energy respectively. In relation to biting fingernails, lying or cheating, being too shy or timid and depression, 40%, 48.3%, 58.3% and 46.7 had fair scores respectively. About sudden changes in mood or feelings and being easily jealous, 68.3% and 50% had bad scores respectively. While, 73.3%, 58.3% and 66.7% had fair scores related to demanding a lot of attention, crying a lot and acting without thinking. As regards destroying things belonging to his/her family or others and wishing to be of opposite sex, 46.7% and 51.7% had good scores respectively.

**Table (6)** clarifies the total QOL scores of the studied hemodialysis children. As regard total QOL, 38.3% and 61.7% had fair and bad scores respectively according to child's report compared to 38.3% and 58% in parent's report. Regarding physical QOL, 30% and 66.6% had fair and bad scores respectively according to child's report compared to 26.7% and 55% in parent's report. In relation to emotional QOL, 28.3% and 53.3% had fair and bad scores respectively according to child's report compared to 18.3% and 75% in parent's report.

As regard social QOL, 51.6% and 30.0% had fair and bad scores respectively according to child's report compared to 30 % and 36.7% in parent's report and only 18.3% and 33.3 had good score respectively according to child's and parent report. About school QOL, 61.7% and 35% of children had very bad and bad scores compared to 56.7% and 33.3% in parent's report.

**Table (7)** shows the relation between psychosocial status and QOL. The results showed that there was statistically highly significant relation between total psychosocial and total child QOL score ( $p < 0.001$ ). Also, there was statistically significant relation between total behavioral score and total child QOL score ( $p < 0.04$ ).

## Discussion

The result of present study revealed that approximately half of studied children treated with hemodialysis since 2 years ago, dialysis session repeated 3 times per week in Two-thirds of studied children for 3-4 hours per each session, this result attributed to the standard care schedule. Mothers were the most person come with them for session this attributed to children so young and need more sense of secure. These result are in agreement with Mydenska et al<sup>(11)</sup> who explained that the most of children mothers didn't work as she devoted their time to care and stay with his ill children and transporting to dialysis center. Also, Zadeh and Casino<sup>(12)</sup> who reported that three-weekly hemodialysis (HD) regimen is considered the 'standard of care' for both imitation and maintenance of this therapy.

In the present work there was many physical problems and complications as nausea, vomiting and abdominal colic. Half of them had dizziness and two third had muscle weakness. The most had growth retardation and overweight, this attributed to accumulation of waste product and inability of kidney to excrete urine and impaired of growth hormone. These results are in compatible with Lotfy et al<sup>(13)</sup> which reported that majority of his studied children had short stature as a result of malaise, dietary restrictions, fatigue, inflammation, infection and hospitalization, which could improve with GH treatment.

Elgamasy and Mawlana<sup>(14)</sup> reported that ninety-two percent of patients had cardiovascular risk factors. Diagnosis of cardiac disease was reported in about a quarter of all studied patients. In this study cardiovascular diseases are the most common complication in CKD, arrhythmia and hypo/ hypertension found in more than half of studied children these finding attributed to dialysis disequilibrium syndrome, rapid session and intake of antihypertensive medication or low dialysate sodium.

In the present study it was found that anemia was present in more than two third of studied children and the same of them took blood transfusion. children were at high risk for

hepatitis c virus (HCV) which actually found in less half of studied children. Attributed to lack of personal hygiene, long and repeated hospitalization, infection as well as invasive procedures . These result were in accordance with Alkhan (15) who reported that the prevalence of (HCV) vary from country to country, in Egypt the prevalence of hepatitis C in hemodialysis patient ranges from 52.3 % to 82%.

Regarding sleeping pattern, Darwisha &Abdel-Nabi <sup>(16)</sup> whom found that there the most of children with CKD undergoing dialysis had sleep disturbance . this result were harmonized with the present study which founded that more than two-thirds of children had sleep-related problems, whether it is difficult to sleep or disturbances during sleep, usually between 6-8 hours totally or intermittent and the most sleep with their mothers this attributed to sick children need a lot of care and attention and need to feel safe due to their young age and their fear of having dialysis fistula, so they often resort to sleep next to their mothers.

### **School achievement**

Children under regular hemodialysis had history of frequent absenteeism from school. In the present study more than three quarter of these children doesn't go school regularly , more than two third had bad school performance and two third of these children cannot participate in any of the school activities . This result attributed to dialysis session which schedule three times per week, lower average neurocognitive, fatigue of children, interactions of complex medication routines, lower IQ ,poor concentration, sleep disturbance and weakness of muscles . These finding goes in the same line with the Chen `et al <sup>(17)</sup>, who were founded nearly the same result. Also, Moser et al <sup>(18)</sup> reported that children with ESRD had significantly delayed neurocognitive, psychomotor development , lower IQ and academic achievement compared with population norms.

### **Spiritual attitudes**

In the present study more than two-thirds of the children were persistent in performing their religious duties, half of them had satisfaction with God's jurisdiction and the most of them believe that their illness is not a punishment from God. This result attributed to children believes that patience and prayer are the best way to face any problems in life and Islam encourages every Muslim to seek proper treatment because every disease has its remedy. Despite the young age of these children, this action provides them with positive energy and psychological comfort towards their illness.

This result were in accordance with Bayhakki et al <sup>(19)</sup> who explained that the disease not considered a punishment of Allah in Islamic countries and it is a way to increase patience. Islam encourages every Muslim to seek proper treatment because every disease has its remedy; Islam is concerned with not only physical aspect, but also psychological aspect of Muslim. In contrast with our result Abou El Hana <sup>(20)</sup> Founded that the most of his studied children didn't go to mosque or church, hadn't spiritual satisfaction and studied children felt that the disease as a punishment of Allah.

### **Psychological status and satisfaction**

In the present study, approximately all children in this study experience fear, anxiety, depression and sadness sensation regarding hemodialysis sessions except ten percent of them became accustomed to the sessions as a permanent part of their lives. This is attributed to had a chronic disease during childhood deliberate a large risk of developing a psychiatric disorder and chronic renal disease is not an exemption; it is a significant stressor with a psychological and social impact on the children and their family as well as they watch some of their colleagues die while sitting dialysis. This result was in agreement with Abdel Salam et al (21) stated explained that the prevalence of depression and anxiety was highest in his patients (all patients) and clarify the importance of early diagnosed these signs and management to prevent afflictive events

such as suicidal attacks, malnutrition, and absenteeism from dialysis.

Silva et al <sup>(22)</sup> highlighted on the body self-image that affected with presence of fistula leading to low self-esteem and attract the look of the other, this result were in consistent with the present study which there were about two third of studied children hiding their disease from others and more of this result feeling of shamefulness of presented fistula. This attributed to presence of fistula make children feel frustrated is the physical change in their bodies, children feel very embarrassed as well as their young age, which leads to concealing their disease and places of fistula connections to their bodies, especially girls hiding fistula under sleeves of her clothes.

Furthermore, half of the children of the present study were dissatisfied with themselves, attributed to illness conditions, losing their confidence in themselves, losing the beauty of their bodies. About more than two thirds of children were dissatisfied with the others view of them and their disgust and fear with fistula, attributed to physical changing of their bodies. These children do not have general future plans through the present study, half of these children consider their disease a major obstacle to achieving their dreams and ambitions, this attributed to feeling of difference and isolation themselves from others as well as their health problems and invasive procedures they faced. This finding was in line with Elgamasy & Eldeeb <sup>(8)</sup> whose result were nearly with the present study and the majority of his studied children have lacked spiritual satisfaction.

### **Social relationship**

More than two thirds of children in the present study had a good supportive relationship with their parents and siblings, compared to the third of them who do not had a good relationship, attributed to they encounter a lot of fear and protection, and they consider this as a restriction of their movement and freedoms, while the greater part of them understands this overprotection from parents

due to their health conditions, mothers improve their social support through love to face disease stressors. This result was in same with Mydeńska et al <sup>(11)</sup> reported that children are not self-reliant and they dependent on their caregivers.

As a result of the majority of children not attending school and their absence rates were high. Their relationship with their teachers is somewhat superficial and poor. Due to the violence and bullying of some healthy children towards sick children, more than half of the children of the study do not have a good relationship with other children of their age, although about a third of the studied children are met with psychological and social support from their friends and feel kindness of their peers. This finding was supported by Clavé et al <sup>(23)</sup> reported that school absenteeism leads to isolation amongst friends and can affect psychological well-being so they unable to keep in relation with other peers.

Elgamasy & Eldeeb <sup>(8)</sup> reported that children in his study were getting in relation with other children whom had same disease in order to compensate for their incompatibility with other healthy children and to be able to keep on treatment, this result were same with the present study. Attributed to lack of self-confidence, noticeable change in body shape, presence of fistula and jealousy, all of which are reasons that compel children to isolation, so about half of the children of the present study prefer to stay away from others and not go out to visit any of the relatives, so more half of studied children escaped to form relationships with other children in the same health conditions .This is because they feel confident among themselves and that they are one family.

### **Behavioral conditions**

In the present study children suffer from different behavior as acting too young ,arguing a lot ,change of mood, loneliness, jealousy, and depression. This because of disease burden there is different forms of common perception that children with chronic diseases have higher incidence of psychiatric symptoms and suicidal

behaviors. This result was in accordance with Xiao et al<sup>(24)</sup> reported that females in his study carried higher risk of feeling depressed and attempted suicide and there were risk behaviors in children with CKD (sexual behaviors, substance and alcohol use, bullying, conflicts and depression).

Regarding social QoL, the total result had fair social QoL for child and parent report. Given that children feel some deficiency, low self-confidence and almost different from others and somewhat inclined to isolation, a third of the present study children are suffering from a lack of their quality of life, but about half of them practice their relationships almost naturally as a result of the support of those around them, whether the family, friends and society. These was supported by Jesus et al<sup>(25)</sup> explain that lower psychological domain scores due to emotional stressors, lower levels of satisfaction in their lives. Physical limitations, Change in body shape and social isolation.

Regarding emotional QOL, Children subject to dialysis usually have mixed feelings between fear and anxiety, problems of sleeping, sadness and frustration, and their inner feeling that they are useless and that they are a burden on their families and their community, which explains the lack of a psychological and sensory lifestyle. In the present study more than half of studied children have bad QoL in children report compared to only nineteen percent have fair QoL in<sup>(26)</sup> who finding the prevalence rate of psychiatric disorders in his studied patients was more half. Representing in adjustment disorder, depression, anxiety and

neurocognitive disorders and there were significant lowering in QoL in emotional functioning in children under hemodialysis.

### Conclusion

Based up on the finding of the present study it could be concluded that the children with chronic kidney disease and under regular hemodialysis had serious impact on their psychosocial development and behavior changes. Also, studied children had low physical, emotional and school QOL score and slightly fair social QOL score. There was highly significant relation between total psychosocial, total behavioral and total child QOL score.

### Recommendation

- Teaching the children and families the nature of the disease and its treatment plan and the obligation to take medications was essential.
- Dietary counseling and nutritional education should be emphasized to help the child and his family to understand the needed requirements.
- Encourage children spiritual activity to improve self-satisfaction was important.
- Preparation of dialysis centers to suit the children's age of amusement and entertainment to improve the psychological state and make the session time easy and enjoyable.
- Provide cooperation of pediatric nephrologists, social specialists, psychotherapy specialists and nurses to conduct child rehabilitation sessions to reintegrate them into society and increase self-acceptance and their confidence.

**Table (1): Characteristics of the Studied Children. (No=60)**

| Child characteristics | No                             | (%)                           |      |
|-----------------------|--------------------------------|-------------------------------|------|
| 1- Age in years       | 6-10                           | 28                            | 46.7 |
|                       | 11-14                          | 32                            | 53.3 |
|                       | <b>Mean <math>\pm</math>SD</b> | <b>10 <math>\pm</math>2.7</b> |      |
| 2- Sex                | Male                           | 26                            | 43.3 |
|                       | Female                         | 34                            | 56.7 |
| 3- Birth order        | The first                      | 16                            | 26.7 |
|                       | The second                     | 21                            | 35.0 |
|                       | The Third                      | 16                            | 26.7 |
|                       | More                           | 7                             | 11.7 |
| 4-Residence           | Urban                          | 28                            | 46.7 |
|                       | Rural                          | 32                            | 53.3 |
| 5- Educational Level  | Kg                             | 11                            | 18.3 |
|                       | Primary                        | 35                            | 58.3 |
|                       | Preparator y                   | 14                            | 23.3 |
| 6- Living with        | Family                         | 50                            | 83.3 |
|                       | Father only                    | 2                             | 3.3  |
|                       | Mother only                    | 8                             | 13.3 |

SD: standard deviation

**Table (2): Medical History of the Studied Children**

| Medical history  | No. (60)                    | Percent (%) |      |
|--|-----------------------------|-------------|------|
| 1- Onset of diagnosis                                    | <b>&lt;2years</b>           | 15          | 25.0 |
|  | <b>2-4 years</b>            | 13          | 21.7 |
|  | <b>4-6years</b>             | 32          | 53.3 |
| 2- Number of years from the first dialysis               | <b>&lt;2years</b>           | 27          | 45.0 |
|  | <b>2-4 years</b>            | 14          | 23.3 |
|  | <b>4-6years</b>             | 19          | 31.7 |
| 3- Number of dialysis session /week                      | <b>2 times</b>              | 7           | 11.7 |
|  | <b>3 times</b>              | 53          | 88.3 |
| 4- Duration of session                                   | <b>2.5 hrs</b>              | 4           | 6.7  |
|  | <b>3 hr</b>                 | 18          | 30.0 |
|  | <b>3.5 hrs</b>              | 17          | 28.3 |
|  | <b>4 hrs</b>                | 21          | 35.0 |
| 5- Who come with you                                     | <b>Mother</b>               | 44          | 73.3 |
|  | <b>Father</b>               | 9           | 15.0 |
|  | <b>Relatives</b>            | 7           | 11.7 |
| 6- Taking blood transfusion                              | <b>Yes</b>                  | 46          | 76.7 |
|  | <b>No</b>                   | 14          | 23.3 |
| 7- Iron intake after dialysis                            | <b>Yes</b>                  | 46          | 76.7 |
|  | <b>No</b>                   | 14          | 23.3 |
| 8- Instructions given by medical team                    | <b>Yes</b>                  | 34          | 56.7 |
|  | <b>No</b>                   | 26          | 43.3 |
| 9- Complications of hemodialysis*                        | <b>Hypo or hypertension</b> | 34          | 56.7 |
|  | <b>Arrhythmia</b>           | 34          | 56.7 |
|  | <b>Muscle cramps</b>        | 35          | 58.3 |
|  | <b>HCV or HBV</b>           | 26          | 43.3 |
| 10- Common Physiological complaints of studied children* | <b>Growth retardation</b>   | 52          | 86.7 |
|  | <b>Anemia</b>               | 49          | 81.7 |
|  | <b>Muscle weakness</b>      | 41          | 68.3 |
|  | <b>Over Weight</b>          | 36          | 60.0 |
|  | <b>Dizziness</b>            | 35          | 58.3 |
|  | <b>Abdominal colic</b>      | 19          | 31.7 |
|  | <b>Nausea</b>               | 19          | 31.7 |
|  | <b>Vomiting</b>             | 19          | 31.7 |

\*: More than one answer

**Table (3): Complications and Care of fistula among the studied hemodialysis children**

| Items                                    |   | No.<br>(60) | Percent (%) |
|--|---|-------------|-------------|
| 1- Complications                         | <b>Thrombosis</b>                               | 35          | 58.3        |
|  | <b>Swelling of fistula</b>                      | 43          | 71.7        |
|  | <b>Toxemia</b>                                  | 35          | 58.3        |
|  | <b>Infection</b>                                | 20          | 33.3        |
|  |   |             |             |
| 2- Cleaning of the fistula with          | <b>Betadine</b>                                 | 35          | 58.3        |
|  | <b>Water</b>                                    | 23          | 38.3        |
|  | <b>Alcohol</b>                                  | 2           | 3.3         |
|  |   |             |             |
| 3- Times of cleaning                     | <b>One\ Day</b>                                 | 43          | 71.7        |
|  | <b>Two\Day</b>                                  | 11          | 18.3        |
|  | <b>Three \Day</b>                               | 6           | 10.0        |
| 4-Care of the fistula                    | <b>With help</b>                                | 39          | 65.0        |
|  | <b>Without help</b>                             | 21          | 35.0        |
| 5- Precautions for protection of fistula | <b>Avoid heavy lifting on this side</b>         | 45          | 75.0        |
|  | <b>Avoid tight clothing on it</b>               | 32          | 53.3        |
|  | <b>Avoid taking blood pressure on this side</b> | 27          | 45.0        |
|  | <b>Avoid aspirate sample on this side</b>       | 27          | 45.0        |

**Table (4): Total scores of life style of the studied hemodialysis children (n=60)**

| Items                                       | Good    |      | Fair    |      | Bad     |      | Mean ±SD |
|---|---------|------|---------|------|---------|------|----------|
|   | N<br>o. | %    | N<br>o. | %    | N<br>o. | %    |          |
| Total psychosocial score                    | 0       | 0.0  | 40      | 66.7 | 20      | 33.3 | 1.7±0.5  |
| Psychological conditions as regard dialysis | 1       | 1.7  | 13      | 21.7 | 46      | 76.7 | 1.3±0.5  |
| Satisfaction and self-actualization         | 8       | 13.3 | 22      | 36.7 | 30      | 50.0 | 1.60±0.7 |
| Spiritual attitude and satisfaction         | 26      | 43.3 | 29      | 48.3 | 5       | 8.3  | 2.6±0.7  |
| Social relation as regard hemodialysis      | 3       | 5.0  | 41      | 68.3 | 16      | 26.7 | 1.8±0.5  |

**Table (5): Behavior of the studied hemodialysis children (n=60)**

| Behavior of the studied children                        | Good |      | Fair |      | Bad |      |
|---|------|------|------|------|-----|------|
|   | No.  | %    | No.  | %    | No. | %    |
| Acting too young for his/her age                        | 16   | 26.7 | 25   | 41.7 | 19  | 31.7 |
| Concentration and attention                             | 7    | 11.7 | 30   | 50.0 | 23  | 38.3 |
| Finishing things  | 2    | 3.3  | 36   | 60.0 | 22  | 36.7 |
| Getting mind off certain thoughts                       | 16   | 26.7 | 36   | 60.0 | 8   | 13.3 |
| Arguing a lot   | 6    | 10.0 | 27   | 45.0 | 27  | 45.0 |
| Clinging to adults or too dependent                     | 10   | 16.7 | 26   | 43.3 | 24  | 40.0 |
| Complaining of loneliness                               | 14   | 23.3 | 24   | 40.0 | 22  | 36.7 |
| Being confused  | 4    | 6.7  | 29   | 48.3 | 27  | 45.0 |
| Obedience at school                                     | 28   | 46.7 | 21   | 35.0 | 11  | 18.3 |
| School work   | 22   | 36.7 | 30   | 50.0 | 8   | 13.3 |
| Destroying his/her own things                           | 25   | 41.7 | 33   | 55.0 | 2   | 3.3  |
| Destroying things belonging to his/her family or others | 28   | 46.7 | 25   | 41.7 | 7   | 11.7 |
| Feeling no one loves him/her                            | 13   | 21.7 | 31   | 51.7 | 16  | 26.7 |
| Getting along with other kids                           | 17   | 28.3 | 35   | 58.3 | 8   | 13.3 |
| Feeling worthless                                       | 6    | 10.0 | 17   | 28.3 | 37  | 61.7 |
| Getting hurt a lot, accident-prone                      | 21   | 35.0 | 32   | 53.3 | 7   | 11.7 |
| Biting fingernails                                      | 23   | 38.3 | 24   | 40.0 | 13  | 21.7 |
| Being nervous, high strung, or tense                    | 2    | 3.3  | 27   | 45.0 | 31  | 51.7 |
| Having nervous movements or twitching                   | 7    | 11.7 | 26   | 43.3 | 27  | 45.0 |
| Lying or cheating                                       | 22   | 36.7 | 29   | 48.3 | 9   | 15.0 |
| Being Too shy or timid                                  | 8    | 13.3 | 35   | 58.3 | 17  | 28.3 |
| lacking energy  | 6    | 10.0 | 24   | 40.0 | 30  | 50.0 |
| Depression  | 5    | 8.3  | 28   | 46.7 | 27  | 45.0 |
| Sudden changes in mood or feelings                      | 8    | 13.3 | 11   | 18.3 | 41  | 68.3 |
| Demanding a lot of attention                            | 13   | 21.7 | 44   | 73.3 | 3   | 5.0  |
| Wishing to be of opposite sex                           | 31   | 51.7 | 14   | 23.3 | 15  | 25.0 |
| Crying a lot  | 5    | 8.3  | 35   | 58.3 | 20  | 33.3 |
| Acting without thinking                                 | 5    | 8.3  | 40   | 66.7 | 15  | 25.0 |
| Being easily jealous                                    | 6    | 10.0 | 24   | 40.0 | 30  | 50.0 |

**Table (6) :The total QOL scores of the studied children**

| Child report  | Very good (100%) |     | Good (99.9-75%) |      | Fair (74.9-50%) |      | Bad (49.9-25%) |      | Very bad (24.9-0%) |      | Mean ±SD  |
|---------------|------------------|-----|-----------------|------|-----------------|------|----------------|------|--------------------|------|-----------|
|               | No.              | %   | No.             | %    | No.             | %    | No.            | %    | No.                | %    |           |
| Physical      | 0                | 0.0 | 2               | 3.3  | 18              | 30.0 | 40             | 66.6 | 0                  | 0.0  | 3.63±0.6  |
| Emotional     | 0                | 0.0 | 7               | 11.7 | 17              | 28.3 | 32             | 53.3 | 4                  | 6.7  | 3.55±0.79 |
| Social        | 0                | 0.0 | 11              | 18.3 | 31              | 51.6 | 18             | 30.0 | 0                  | 0.0  | 2.7±0.6   |
| School        | 0                | 0.0 | 0               | 0.0  | 2               | 3.3  | 21             | 35.0 | 37                 | 61.7 | 4.6±0.56  |
| Total QOL     | 0                | 0.0 | 0               | 0.0  | 23              | 38.3 | 37             | 61.7 | 0                  | 0.0  | 3.6±0.5   |
| Parent report |                  |     |                 |      |                 |      |                |      |                    |      |           |
| Physical      | 0                | 0.0 | 1               | 1.7  | 16              | 26.7 | 33             | 55.0 | 10                 | 16.7 | 3.9±0.7   |
| Emotional     | 2                | 3.3 | 0               | 0.0  | 11              | 18.3 | 45             | 75.0 | 2                  | 3.3  | 3.8±0.67  |
| Social        | 0                | 0.0 | 20              | 33.3 | 18              | 30.0 | 22             | 36.7 | 0                  | 0.0  | 2.4±0.8   |
| School        | 0                | 0.0 | 0               | 0.0  | 6               | 10.0 | 20             | 33.3 | 34                 | 56.7 | 4.5±0.67  |
| Total QOL     | 0                | 0.0 | 0               | 0.0  | 23              | 38.3 | 35             | 58.0 | 2                  | 3.3  | 3.7±0.5   |

**Table (7) : Relation between total psychosocial, total behavioral and total child QOL scores.**

| Item                        | Total child QOL score |         | $\chi^2$ | P-value       |            |   |
|-----------------------------|-----------------------|---------|----------|---------------|------------|---|
|                             | Fair (n=23)           |         |          |               | Bad (n=37) |   |
|                             | No                    | %       |          |               | No         | % |
| 1- Total psychosocial score | <b>Fair(n=40)</b>     | 22 55.0 | 18 45.0  | 14.1 <0.001** |            |   |
|                             | <b>Bad(n=20)</b>      | 1 5.0   | 19 95.0  |               |            |   |
| 2- Total behavioral score   | <b>Good(n=1)</b>      | 1 100.0 | 0 0.0    | 6.3 0.04*     |            |   |
|                             | <b>Fair(n=52)</b>     | 22 42.3 | 30 57.7  |               |            |   |
|                             | <b>Bad(n=7)</b>       | 0 0.0   | 7 100.0  |               |            |   |

\*\*Highly significant (P<0.001)

\*: significant (P<0.05)

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