

Assessment of Parental Caring for Children with Cancer on Their Quality of Life (An Assessment Study)

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Abstract

Background: Cancer is a name given to large group of disease characterized by uncontrolled and un-regulated growth of cells. **Aim:** The study aimed to asses parental caring for children with cancer on their quality of life. **Design:** A descriptive design was used. **Setting:** This study was conducted at both the Out-Patient clinic and In-Patient pediatric departments at National Cancer Institute, affiliated to Cairo University. **Subject:** A purposive sample including 150 children with inclusion criteria were suffering from cancer, both gender, aged from one year to less than or equal age 18 years, start session of chemptherapy, radiotherapy **Tools:** two tools used: I) A structured interviewing questionnaire sheet: to assess parent's knowledge and practices regarding to their children with cancer and II) quality of life scale to assess children health with cancer related quality of life. **Results:** revealed that, more than half of parents had poor knowledge about cancer disease; there was statistically highly significant relation between parents' total knowledge regarding cacer disease and level of quality of life in their children **Conclusion:** the study concluded that, parents needs for the guideline to support theme in care for children having cancer on their quality of life. **Recommendations:** the study recommended that: implementation educational programs for parents having children with cancer to keep them update with knowledge and practices for care of their children of parents having children with cancer.

Key words: Cancer, Children, Parents, Quality of Life.

Introduction:

The diagnosis of cancer in children and adolescents is a life-altering event for them and their families. Although advances in treatment have increased the overall 5 years' survival rate for childhood cancers to approximately 80%, cancer is still the second leading cause of death following accidents in children aged from eight to eighteen years old. The types of cancers that develop in children and adolescents differ from those developed in adults (*Granek et al., 2014*).

The incidence of cancer in children that more than 175.000 every year, and the mortality rate is approximately 96.000 every year. In United States 100.000 child and teens were diagnosed with cancer and 1.300 deaths from cancer among children from one year to

fourteen years old. In developed countries, the morality rate from cancer approximately 25% of cases. Furthermore, in low setting, resources the mortality is approximately 80% in the world's poorest countries. In general, the incidence of pediatric cancer is higher in industrializes countries than in developing countries, but patterns differ by cancer type (*National Cancer Institute, 2016*).

One boy in 300 boys and one girl in 333 girls are developing cancer before the age of eighteen years old. The most common malignancy among infants is neuroblastoma, whereas leukemia predominates among 1-4 years old children and central nervous tumors among 5-9 years old children. After the age of 10 years, lymphomas, carcinomas, germ-cell tumors and bone tumors become more frequent

and embryonic tumors (retinoblastoma, nephroblastoma, hepatoblastoma) become very uncommon (*Kushi et al., 2012*).

A minor part of childhood cancers is caused by genetic factors, but the etiology of most childhood cancers remains unknown. Childhood cancers differ markedly from adult cancers in their nature, distribution and prognosis. Carcinomas are most common cancers, whereas hematological malignancies and tumors of the Central Nervous System (CNS) account for the majority of childhood cancers (*Jayasekara et al., 2016*).

Childhood cancer has extensive consequences and places a heavy physical and psychological burden on the child and its family. Rapid diagnosis helps ensure appropriate and timely therapy and optimizes the chances of cure. Given the severity of childhood cancer and the importance of timely diagnosis, remarkably little is known about how and when these children enter the healthcare system (*Granek et al., 2014*).

A fundamental problem in early cancer diagnosis is that representing common, transient and harmless conditions, the presenting symptoms of childhood cancer tend to be unspecific and vague. The most common presenting symptoms are fever, headache, vomiting, pallor and fatigue, bone pain, limping, weight loss, bleeding or the presence of a mass/lump (*Hooke et al., 2013*).

Parents should have given detailed information about the diagnosis and treatment, in addition to the short and long term effects of treatment. Parents must understand the treatment to feel right about investigation and procedure. Furthermore, parents would have to sign treatment consent forms and make important decisions about what would be best for their using child all information given by the primary oncology nurse (*Ljubojevic & Skerlev, 2014*).

The quality of life of children treated for cancer has become a major focus in the field of pediatric oncology. There is no consensus on the definition of the quality of life. Definitions

range from describing the quality of life impact of a person's health on his or her ability to lead a fulfilling life to those with a holistic emphasis - social, emotional, and physical well-being (*Han&, Bredart et al., 2013*).

Pediatric nurse has an important role toward the psychosocial problems of children with cancer. Providing support to the children and their families, promoting positive self-concept, promoting coping through the cancer continuum and advocating for complete care to improve quality of life for children with cancer (*Farjou et al., 2014*).

Significance of the study:

In Egypt, childhood cancer represents a dangerous health problem from birth to adolescence which affects children and their families. According to the statistical department in National cancer institute (NCI) at 2016, there was 2166 child admitted to NCI with different types of cancer (NCI, 2017) (*Elhfnawy, 2013*).

Moreover, through clinical experiences it was observed that children with cancer suffered from many complications physically, emotionally and socially during care. Needs and expectations of parent's care for children with cancer have been under estimated from oncology nurse and will affect the physical, psychological, and /or social well-being of children and their families. So determining the needs and expectations of parent's care will hopefully help to develop supportive strategy for caring of parents and children with cancer. This study would contribute to better understanding of parents of cancer child needs and expectations from nurses.

Aim of the work:

The study aimed to assess parental caring for children with cancer on their quality of life through:

- Assessment of the characteristic of children with cancer and their parents.

- Assessment level of knowledge and reported practice of parents about cancer disease and its management.

- Assessment of quality of life among children with cancer

Subjects and methods:

This is a descriptive study aimed to assess parental caring for children with cancer on their quality of life.

I- Technical design:

The technical design for this study included research design, research setting, subjects and tools of data collection.

Research Design:

A descriptive design was used for this study.

Research Setting:

This study was conducted at both the Out-patient clinic and In-patient pediatric departments at National Cancer Institute, affiliated to Cairo University.

Research Subjects:

A purposive sample including (150) children with inclusion criteria were suffering from cancer, both gender, age from one year to less than or equal age 18 years, start session of chemotherapy, radiotherapy and free from other chronic illness.

Tools for data collection:

Tool (1) A structure interview questionnaire: (Appendix II)

It was developed by the researcher after reviewing relevant references and was written in a simple Arabic language to suit the understanding level of studied parents. It consisted of the three parts: -

Part I: it concerned with the characteristics of the studied children such as: (child's age, gender, ranking in the family residence and duration of the disease, present health status and duration of illness and frequency of hospital admission). Also, it included data about the studied parents such as: (Age, level of education, occupation and family socioeconomic standard).

Part II: Assessment the knowledge of the parents about cancer (definition, causes, signs, symptoms, management and complication).

Part III: Parents' reported practices related to care of their children with cancer during chemotherapy and its complication as (Alopecia, vomiting, anorexia, oral mucositis, fever and low immunity).

Questions were in the form of open and closed ended multiple choices, each questionnaire sheet was filled on spot individually.

Scoring system

Scoring system was developed by the researcher to obtain the outcome of parents' knowledge, according to the answers obtained from parents, zero degree was given to each incorrect answer, one degree was given to each correct but incomplete answer and two degrees were given to each correct and complete answer. Accordingly, their knowledge & practices were categorized into either poor score < 50%, average score between 50 < 75% and good level of knowledge and practices score >75%.

Tool (2): Quality of life inventory scale: (Varni, et al. 2013): (Appendix III)

Quality of life scale consists of seven items in each report (physical, social, psychological, school functioning and general wellbeing) scores are ranged from (0-4) with zero representing never has problem, with (1) representing almost never has problem and with (2) representing sometimes has problem and equal, with (3) representing often has a problem and equal, with (4) representing almost always has a problem.

The item of seven scales (physical, functioning, emotional functioning, social functioning, school functioning and communication) on there pediatrics quality of life scale, for ease of interpretability, items are reserved scored and transformed to 0-100 scale. So, higher scores indicate better quality of life. To reverse score, transform the 0-4 scale to 0-100 as follows. 0=100, 1=75% , 2=50% , 3=25%.

The quality of life for children with cancer was classified according to their response into: high >75% moderate from 50 to 75% and low <50%

II. Operational Design:

Preparatory Phase:

A review of past and current national, regional and international related literature converging various aspects of the research problem to get acquainted with the research problem and to develop studied, magazines, text box, and websites tools.

Pilot Study:

A pilot study was conducted out involving 10% of the expected study sample (15 children suffering from cancer and their parents) to test the validity of the constracted tools clarity of the included questions and availability of study sample. The results of the data obtained from the pilot study helped in modifications of the tools. All the children involved in the pilot study were excluded from the study sample.

Ethical Consideration:

The reserch approval was obtained from the Ethical Reserch Committee at Faculty of Nursing of Ain Shams University before recruit the study. The researcher clarified the aim and procedures of the study before starting the actual work. The researcher assured maintaining anonymity and confidentiality of subject's data. Parent's and their children were

Results:

informed that they were allowed to choose to participate or not in the study and can withdraw from study at any time.

Content validity:

Tools validity was checked through distribution of the tools to five experts in the pediatric nursing field, content validity was assessed to determine whether the tool covers the appropriate and necessary content, as well as its relevance to the aim of the study, clarity, and its simplicity the suggested modification was done (rephrasing of som statement, omission and addition of certain items). Then the final form was stated. Reliability was done tested statistically (0.89).

4-Fieldwork

The actual field work was carried out from the first week of January up to the end of June (2018). The researcher explained the purpose of study to the parents and their children before starting the interview were each parent and their children were interviewed individually. The researcher was available in the study setting four days / week at morning shift 2/days in outpatient and 2/days in inpatient (8 am to 1 pm).

III. Administrative Design:

An official permission to carry out the study was obtained from administrator of National Cancer Institute through issued letter from the Dean of Faculty of Nursing/ Ain Shams University to conduct the study.

IV- Statistical Design:

Data were revised, coded, tabulated and analyzed using number and percentage distribution and carried out in the computer. Proper statistical tests were used to determine whether there was a significant statistical difference statistical techniques were used. When $P < 0.05$, there is statistically significant difference, $P > 0.05$, there is no statistically significant difference.

Table (1) As regards the characteristics of studied children, this table shows that, more than one third (34.0%) of studied children were

ranged between 8-12 years old with mean \pm SD 8.2 \pm 1.6. while, more than half (58.0%) of them were males, two thirds (64.7%) of them were lived in urban area & in addition to 41.3% of them were ranked as the first child in the family.

Table (2): concerning the psychological problem of the studied children this table presents that, less than half (44%) of them were irritable, more than one third (34.6%) of them were nervous, while 30% & 12% of them were depression & crying respectively. Also, 1.3% was complying from other psychological problem

Table (3): As regards the characteristics of the studied parents, this table shows that, less than half (45.3%) of the studied parents were in age group between 25 < 35 years old with mean age \pm SD 37.1 \pm 2.9, more than half of them (52%) were read and write. Approximately three quarter (74.7%) of them were not working.

Table (4): concerning the family history of the studied children this table shows that, less than three quarters (72.6%) of the studied children had negative family history for cancer. While, more than half (58.5%) of them with positive history for the disease related to their fathers. Also, the majority of the studied children (84.7%) of were detected accidentally.

Table (5): as regards parents' knowledge according to the definition of cancer & risk factors, this table illustrates that, more than half (55.3%) of parents had poor knowledge about definition of the disease, and less than half (40%) of them did not know about risk factors for the disease while, the environmental factors was mentioned by 31.3% of parents as a risk factors for cancer disease.

Table (6) As regards parents' knowledge according to signs & symptoms as observes from this table, less than half 43.3%, of them mention fever, while, arthritis, colic were mentioned 1.3%, 1.3%, respectively.

Table (7): Concerning the parents' knowledge about methods of treatment of cancer, as observes from this table that, near to three quarters (73.3%) of them knew the treatment is chemotherapy less than half (44.1 %) & of them mention two methods used for treatments cancer while (48.7%) of them mention diagnosis is laboratory test.

Table (8) in relation to parents' knowledge regarding the aim of treatment by chemotherapy and radiotherapy it is observes from this table that, approximately (60.6%) & (40.6%) of them knew the correct answer but incomplete about the aim chemotherapy and radiotherapy respectively. As regards to complication of chemo- and radiotherapy was found the majority (84.6%, 80%, 87.3%, 83.3% and 81.3%) of them mentioned that, stomatitis, nausea and vomiting, Anorexia, fever & alopecia were the complication of chemotherapy and radiotherapy respectively.

Table (9) in relation to parents' reported practices for managing their children during nausea and vomiting this table clarifies that, 63.3% of them gave antiemetic for vomiting, while 8.6% of them avoided oral intake, and 6.6% did not know the care during vomiting. Concerning management the diarrhea, it was found 70.6% & 52% of parents mentioned that antidiarrheal medication was given and increased the fluid intake respectively while only 5.3% of them did not know care during diarrhea.

Table (1): Number and Percentage Distribution of the Studied Children According to their Characteristics (n=150)

Child characteristics	No	%
Age/ years:		
1 < 4	42	28.0
4 < 8	40	26.7
8 < 12	51	34.0
12 ≤ 18	17	11.3
Mean ± SD	(8.2±1.6)	
Gender:		
Male	87	58.0
Female	63	42.0
Resident:		
Urban	88	58.7
Rural	62	41.3
Child's Ranking :		
First	62	41.3
Second	52	34.7
Third	18	12.0
Fourth and more	18	12.0

Table (2): Number and Percentage distribution of the studied children regarding to their psychological problem. (n=150)

Items	No	%
Psychological problem:		
Nervous	52	34.6
Depression	45	30.0
Crying	18	12.0
Irritability	66	44.0
Others	2	1.3

Table (3): Number and percentage distribution of the accompanying parents according to their characteristics (n=150)

Characteristics	Parents	
	No	%
Age in year:		
25 < 35	68	45.3
35 < 45	60	40.0
≥ 45 years	22	14.7
Mean ± SD	(37.1±2.9)	
Educational level:		
Illiterate	42	28.0
Read and write	78	52.0
High education	30	20.0
Occupation:		
Working	38	25.3
Did not working	112	74.7

Table (4): Percentage distribution of the studied children according to their family history (n=150).

Items	No	%
Family history of cancer		
Yes	41	27.4
No	109	72.6
If Yes (n=41)	15	36.6
Mother	24	58.5
Father	2	4.9
Relatives		
Detection:		
Accidentally	127	84.7
Medically	23	15.3

Table (5): Number and Percentage distribution of the studied parents according to their knowledge about definition & risk factors of cancer (no=150)

Parents' knowledge	No	%
Definition of Cancer		
Correct	22	14.7
Correct but incomplete	45	30.0
Don't know	83	55.3
Risk factors:		
Environmental factors	47	31.3
Family history	30	20.0
Medication given during pregnancy	9	6.0
Exposure to radiation	2	1.3
Congenital anomalies	2	1.3
Age	60	40.0
Don't know		

Table (6): Number and Percentage distribution of the studied parents according to their knowledge about signs&symptoms of cancer (n=150)

Parents' knowledge	No	%
Signs & symptoms of cancer:		
Fever	65	43.3
Enlarged lymph node	47	31.3
Vomiting	21	14.0
Inflamed oral mucous membrane	36	24.0
Headache	32	21.3
Arthritis	2	1.3
Anorexia & loss of weight	34	22.6
Colic and abdominal pain	2	1.3
Don't know	3	2.0

The number is not mutually exclusive

Table (7): Number and Percentage distribution of the studied parents' knowledge regarding treatment and drugs methods limitation during treatments of cancer (n=150)

Parents' knowledge	No	%
Treatment of cancer:		
Chemotherapy	110	73.3
Surgical	52	34.6
Radiotherapy	85	56.7
Don't know	1	0.6
Treatment methods used:		
One method	32	21.3
Two methods	66	44.1
Three methods	50	33.3
Don't know	2	1.3
Diagnosis:		
Laboratory test	75	48.7
MRI	43	28.7
CT	18	12.0
Don't know	14	9.3

The number is not mutually exclusive

Table (8): Number and Percentage distribution of the studied parents' knowledge about the treatment by chemotherapy and its complications (n=150)

Items	No	%
Aim of the chemotherapy:		
Correct and complete	16	10.7
Correct but incomplete	91	60.6
Don't know	43	28.7
Aim of radiotherapy:		
Correct and complete	37	24.7
Correct but incomplete	61	40.6
Don't know	52	34.7
Complication of chemotherapy & radiotherapy:		
Stomatitis	127	84.6
Nausea and vomiting	120	80.0
Anorexia	131	87.3
Fever	125	83.3
Diarrhea	102	74.6
Low immunity	112	74.6
Constipation	73	48.6
Alopecia	122	81.3
Don't know	3	2.0

The number is not mutually exclusive

Table (9): Number and Distribution of the studied parents reported practices for their childrens care during (nausea, vomiting, and diarrhea) (no=150)

Items	No	%
Nausea & vomiting:		
Antiemetic	95	63.3
Semisolid food	41	27.3
Decrease fluid intake	24	16
Give juice	19	12.6
Avoid oral drink	13	8.6
Oral hygiene	11	7.3
Don't know	10	6.6
Diarrhea :		
Antidiarrheal	106	70.6
Increase fluid intake	78	52.0
Semisolid food	52	34.6
Rehydration solution	38	25.0
Admitted to hospital	15	10.0
Don't know	8	5.3

The number is not mutually exclusive

Discussion:

Cancer and its treatment can destruct childrens psychological, cognitive, emotional and physical growth which threat their health and quality of life. There is a little information regarding QoL in Egyptian childhood. Therefore, it is important to explore their quality of life in order to provide valuable information on the parent's perception that may prevent or decrease the negative effect of cancer (Litzelman et al., 2012).

The current study is descriptive study aimed to assess parental caring of children with cancer on their quality of life.

As regards the characteristics of the studied children (Table1) this finding clarified that, more than one third of the studied children aged between 8-12 years old with mean age 8.2 ± 1.6 years, more than half of them were males, and lived in urban area, less than half of them were ranked as the first child. This result could be attributed to exposure of the children to pollution in industreareal area and presence contaminated food.

This study finding was supported by the study of Almomani, (2015) who studied "Health-Related quality of life in children with cancer" University of Tennessee Health Science Center, mentioned that cancer is the most common in children, with the averge age bout 5

to 18 years. Boys have a slightly higher risk of cancer than girls. As regards to rank of the studied children, it was found that cancer was likely to be in the first children representing less than half of them. This finding was agreed with El-Sawy, (2013) who studied knowledge and home practices of caregivers having children with Leukemia at National Cancer Institute Cairo University who reported that half of the children with cancer ranked between first and second children.

As regards to the studied children regarding to their family members, this figure indicated that, near to three quarters of the studied children had less than five members. This finding was supported by Bevier et al., (2011) who studied the influence of family size and birth order on risk of cancer, who mentioned that family size and birth order has been shown to have an effect on the risk of cancer.

Concerning family history table (2) the result of the present study indicated that nearly to three quarters of the studied children had negative family history for the cancer. While, more than half of them had positive family history for the disease related to their fathers. Also, the majority of the studied children were detected accidentally. From the researcher point of view this result due to the prevalence of the cancer are increased in male than female. On the other hand, this finding was consistence with El Nahas, (2016) who studied a child

diagnosed with cancer: raising the challenges encountered at the Pediatric Oncology in Egypt, who mentioned that nearly to three quarters of the studied children had negative family history for cancer

As regards the characteristics of the studied children, (psychological problems) this finding clarified that, less than half of them were irritable, while more than one third were nervous, depression and crying respectively. This study was agreed with the result of **Depression Health Center reports, (2016)**, it was mentioned that, if the child has oncology diseases that affect on his psychometric assessment in terms of always crying and associated anxiety and depression. From the researcher point of view when child separated from his family, feeling of fear, pain, depression and irritable when isolated from his family all of these due to culture of country.

As regards the characteristics of the studied parents, table (4) showed that, less than half of them were in age ranged between 25 to less than 35 years, with mean age 37.1 ± 2.9 , more than half of them can read and write, in addition to the majority of parents had not work. This study was supported by the study of **El-Sawy, (2013)**, who mentioned that more than half of the studied sample were from the age 35 to 45 and attached with their children inside the hospital. Concerning parent's education **Anna (2016)**, studied the pediatric cancer survivorship: research and clinical care. Society of clinical oncology who mentioned that, most parents of children with cancer not well educated.

As regards the responsibility of child care, this finding showed that, the greatest majority of the parents were mothers. From the researcher point of view illustrated that, the mother is the first person who contact with the child and according to our society the mother is the main caregiver, core of house and responsible for all family members especially her children. This result was agreement with **Alves et al., (2016)** who studied that, The Experience of parents of children with cancer in treatment failure conditions; who mentioned that, the mother plays a more active role in the disease process because they feel more

confident in care for the child when they are responsible for accompanying the consults. In addition, the fathers are responsible for the family income, consequently abstaining from accompanying the child to the doctor and the hospital because they cannot stay away from work.

As regards parents' knowledge according to definition of cancer and risk factors, this finding illustrated that more than half of them did not know the meaning of cancer and less than half of them also, did not know about the risk factors for the disease while, the environmental factors was mentioned by nearly to one third of parents **Bener et al., (2009)**, who examined the parental knowledge and activities in A Highly Endogamous. Who mentioned that the majority of studied parents had unsatisfactory knowledge regarding risk factors of their children diseases. The researcher believe that, hereditary factors were not the main factor cause cancer disease in children.

Concerning the parents' knowledge according to signs and symptoms as observed fever, enlarged lymph node, vomiting, inflamed oral mucosa, headache, arthritis, anorexia and colic were from the common signs and symptoms of cancer. This study finding was in agree with the study of National cancer data base by **Jian, et al., (2016)**, at American cancer society (ACS) and found three quarter of all malignant cancer children in the United State for more information regarding the classification and signs & symptoms caregivers' knowledge regarding cancer.

According to the parents' knowledge regarding treatment of cancer it is observed in this study result, near to three quarters of them had mentioned that the treatment is chemotherapy and near to half of them knew that, treatment divided into three methods surgical, chemotherapy and radiotherapy. Also, near to half of them reported the laboratory tests are the most common investigation. This finding was agreement of **Mohamed, (2009)** who studied "Quality of life in newly diagnosed children suffer from Cancer", Ain Sham University who reported that, the most frequent cancers among children were leukemia and

nearly all of the studied children treated by chemotherapy.

In relation to parents' knowledge regards to aim of chemotherapy & radiotherapy and its complication. It is observed in this study that, near to two thirds of studied parents knew correct but incomplete answer regarding the aim of chemotherapy and radiotherapy, also the majority of them mentioned that, Stomatitis, Nausea and vomiting, Anorexia, fever and alopecia are the complication of chemotherapy and radiotherapy respectively

These study findings were highly supported by the study of **Radwan, (2013)** who study "Factors affecting quality of life of cancer children" who mentioned that many studied illustrated the common complication. Detailing late effects between management and outcome.

Regarding the parents' reported practices for nausea, vomiting and diarrhea, it was obvious that more than two thirds of parents mentioned antiemetic medication and near to three quarters of parents mentioned that, antidiarrheal medication and the rest of them did not know the care of their children. This study finding was disagree by the study of **Stephens, et al., (2014)**, who observed improvement of studied knowledge regarding medication administration for each complication.

As regarding the parents' practices for manage their children during constipation, anorexia and stomatitis, the current study results cleared that, half of them manage the constipation by increase the fluid intake while near to one third of them were managed anorexia by give small frequent diet and managed the stomatitis by oral wash by gargle respectively. This study supported by **Elena et al., (2016)**, who mentioned that, nutrition is a supportive care that improved the tolerance of chemotherapy, increased quality of life and decreased risk of infection in children during chemotherapy.

Concerning the parents' reported practices for managing their children during low immunity and fever this finding showed that more than two thirds know the important of

hand washing followed by increase the vitamin in food, wear mask, isolate from infected persons and eating in home respectively and the majority of the need to medical consultation in hyperthermia. This study was in accordance with the study of **Malogowkin et al., (2014)** who study incidence and outcome with late cancer. mentioned that most of the study sample applied the correct practices during care of their children with fever such as applying tap water compress, antipyretic & apply water shower.

In relation to parents' reported practices for managing their children during alopecia and skin care the current study clarified that, more than half of them using hair cover for their children with alopecia. While more than third of them mentioned that using cotton clothes for skin care of the children. This study was supported by **Pagon, (2017)** who mentioned in Tumor overview about adaptation for complication of chemotherapy as alopecia and reported that artificial hair for female children very effective in body image.

In relation to parents' reported practices for indications of hand washing this table clarified that, less than half of parents mentioned hand washing before and after feeding, more than third mentioned that children washed their hands after using toilet. Also, wash hands before prepare the food, after touch anything & before administration of medication. From the researcher point of view illustrated that due to increase awareness of parents about hand washing is very important to prevent spread of infection.

As regards to the total knowledge of parents, this table showed that more than half of them had poor knowledge about cancer disease; more than one third of them had an average knowledge. While, the majority of them had poor practices, and only one fifth of them an average level of practices. This results supported by **Turkman, (2015)** who study QOL of children undergoing chemotherapy, mentioned that the majority of the mothers of the children had unsatisfactory total level of practices regarding their children with cancer.

As regards to the studied children regarding to their physical well-being domain of QOL. More than half of the studied children often and always felt difficulty in carry heavy things and they had been very and extremely difficulty to do daily routine activity. This finding was agreed with **Kestler et al. (2012)**, who studied Review of Symptom Experiences in Children and Adolescents with Cancer, Cancer Nursing who discovered that, pain from cancer-related procedures and fatigue were the most frequently identified symptoms, followed closely by nausea and vomiting; associated with decreased QOL in children with cancer. Also this study finding was supported by **Donnan et al. (2015)**, who examined educational Challenges for Children and Adolescents with Cancer, mentioned that more than half of the studied children were having difficulties with attention, mobility, hearing and fine motor skills.

Moreover, this finding was in the same line with **Kirchhoff et al. (2011)**, who stated that, childhood cancer survivors are at risk for poor employment outcomes due to physical problems such as neurocognitive deficits.

As regards to the studied children regarding to their psychological well-being domain of QOL. This table indicated that, two thirds of the studied children have been very and extremely felt afraid of the future, from secondary tumors, they have felt very and moderate fear from deterioration & they thinking about death. This finding supported with **Li et al. (2010)**, who studied the impact of cancer on children's physical emotional, and psychosocial well-being, cancer nursing who mentioned that the children scored considerably high state anxiety on admission, and more than half of the participants presented some depressive symptoms during their stay in the hospital. Moreover, nearly all children expressed different degrees of sadness and worry.

Also, this finding in the same line with **Kazak et al. (2015)**, who studied Psychosocial Assessment as a Standard of Care in Pediatric Cancer, who mentioned that there is strong and highly consistent research evidence that children experience increased distress, poorer

quality of life, and difficulties in psychosocial functioning immediately and in the months after the diagnosis of cancer. This study finding was supported by the study of **Hildenbr&Marsac, (2011)**, who examine Strategies Employed by Children and Their Parents to Manage Cancer-Related Stressors During Treatment and mentioned that the majority of the children with cancer reported feeling scared or nervous, feelings of uncertainty, fear of death and thinking about being sick

As regards to the studied children according to their social well-being domain of QOL., almost two thirds of the studied children were always stay alone most of the time, had sometimes difficult to do daily activity, and playing with other children. This finding was supported by **Hildenbrand, et al. (2011)**, who mentioned that, most of the studied children with cancer isolated from normal activities as play and school and lack contact with friends such isolation from peers can be the hardest part of cancer treatment. Also this finding is in line with **Li et al. (2010)**, who stated that childhood cancer result in weakened social bonding after treatment.

As regards to the studied children regarding to their school environment domain of QOL. indicated that, more than one third of the studied children were sometimes forget things and absent from school, while one third of them had always difficult to do homework and decreased educational level. This finding in line with **French et al. (2013)** who studied, School Attendance in Childhood Cancer Survivors and Their Siblings, The Journal of Pediatrics; who mentioned that children with cancer have a decline in school performance, attention problems which adversely affects their quality of life; and absenteeism in survivors was significantly associated with a low pediatric quality of life. Also this finding in the same line with **Eilertsen et al. (2011)**, who study Quality of life in children and adolescents surviving cancer who stated that children surviving cancer had poorer academic performance than their peers, in particular in children with brain tumors. This finding in line with **Pini, et al, (2012)**, who mentioned that the diagnosis of cancer and subsequent treatment mean significant absences

from regular schooling for teenagers with absences during the first year after diagnosis averaging 40 to 60 days and attendance can continue to be irregular for up to 3 years after diagnosis.

As regards to the studied children regarding to their appearance domain of QOL. This result indicated that, one third of the studied children were sometimes had good general appearance, thinking about deformities after surgery and shame from body shape. This finding was supported by the study of **Sundberg, et al. (2009)**, who studied Positive and Negative Consequences of Childhood Cancer Influencing the Lives of Young Adults, reported that, women with cancer more often than men reported negative psychological impact and a changed body appearance.

As regards to the studied subject regarding to their interaction & communication domain of QOL. This result showed that, more than one third the studied children were has sometimes difficult to explain feeling, asking doctor and explain disease to others. This study supported by the study of **Zebrack & Landier (2011)**, who study impact of cancer on quality of life for post-treatment survivors of childhood cancer, mentioned that childhood cancer survivors' perceptions of the impact of cancer are related to quality of life (QOL) and psychological distress.

The study results illustrated that, more than half of the studied children had poor physical, psychological, social & appearance domain of quality of life. The finding showed that, almost two thirds of the studied children had poor school environment, interaction & communication. This result is supported by **Hamner et al. (2015)**, who stated that the studied children with cancer have worse HRQOL in three domains: emotional, physical, and social.

Also this study supported by the study of **Eilertsen, et al. (2012)** who study QOL in children and adolescents surviving cancer, mentioned that parents generally report a poorer QOL for their children surviving cancer and a greater number of QOL domains.

Regarding to the relation between quality of life of the studied children with cancer and their age, this finding showed that, there was statistical relation between age of the studied children with cancer and their quality of life. This result was in line with **Almomani, (2015)** who reported that age was a significant predictor of HRQOL in children with acute lymphoblastic leukemia at age 5-12 years. Also this finding was supported by the study of **Halvorsen et al. (2017)**, who examined Health-related quality of life and psychological distress in young adult survivors of childhood cancer and their association with demographic factors, mentioned that age is significantly predicted HRQOL and distress.

Table (20): Regarding to the relation between family history of the studied children and their quality of life the finding showed that, there are statistical significant differences. This finding is corresponding with **Sung et al. (2009)**, who mentioned that, the chronic conditions may be heritable and thus may be causative in the child with cancer's poor QOL.

Regarding to the relation between diagnosis of cancer, and quality of life of the studied children, there was statistical significant between diagnosis of cancer, and quality of life of the studied children. This result is supported by **Ghadery, (2014)**, who mentioned that cancer diagnosis and its treatment may cause severe late effects among survivors that could appear, later in life.

Moreover, there was no statistical significant relation between duration of illness of the studied children with cancer and their quality of life. This finding was supported by the study of **Rosenberg, (2017)**, who reported that the time since progression of cancer wasn't associated with HRQOL.

Regarding to the relation between parents' knowledge and practices regarding to care of their children suffering from cancer, this finding revealed that, there was a statistical significant between parents' knowledge and practices regarding to care of their children suffering from cancer ($P < 0.05$). This result was supported by **Fouad, (2013)** who reported that

family caregiver's knowledge had an impact on their practices which help them in practicing healthy behaviors regarding their children with leukemia. From the researcher point of view, the most parents having inadequate knowledge about disease, which affects on the level of care for children.

Conclusion:

Based on the results of the present study:

Quality of life for children suffering from cancer disease was effected negatively in all domains especially by caring given by parents the level of knowledge were ranged from poor to average level, the majority of studied parents, therefore according to the research question there is a need for the guideline to support them in care for children having cancer on their quality of life.

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