- ***Basic Research***

Impact of Counseling on Quality of Life and Treatment Adherence for Acute Lymphoblastic Leukemia Children.

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Abstract

Aim: is to assess the impact of counseling on quality of life (QoL) and treatment adherence. **Research designs**: A quasi experimental research design. Settings: The study was conducted at the pediatric unit in National Cancer Institute affiliated to Cairo University. Subjects: A purposeful sample included (30) children newly diagnosed with "Acute Lymphoblastic Leukemia" in the initial diagnosis period and received chemotherapy treatment at the first day of induction phases their age start from 6 to18 years, and they been accompanying with their mothers and admitted to the previously mentioned setting. **Tools**: data collected was a structured interviewing questionnaire, Kids Screen-Scale to assess quality of life, pre and post counseling and Medication Adherence Scales to assess treatment adherence post counseling**. Results**: The study results revealed that there are a highly statistically significant difference on quality of life of children pre and post counseling, as well as children had high adherence to treatment post counseling. **Conclusion**: The counseling had a positive effect on children adherence to Acute Lymphoblastic Leukemia treatment, which lead to promote the quality of life. Recommendation: **Recommendations**: The study recommended the application of the counseling session for all Acute Lymphoblastic Leukemia children and their mothers to improve their adherence to treatment to promote their quality of life.

Keywords: Counseling, Adherence, Quality of Life. Children, Acute Lymphocyte Leukemia and Mothers

Introduction

Leukemia is a part cancer that starts in blood forming cells in the bone marrow. There is more than one type of leukemia, each type is named based on how fast it grows and type of blood cell in which it begins. Leukemia cells usually invade the blood fairly quickly then spread to other parts of the body, including the lymph nodes, liver, spleen, central nervous system (brain and spinal cord), and testicles in males (**American Cancer Society [ACS], 2018).**

Acute lymphocytic leukemia (ALL) is a cancer that starts from the early version of white blood cells called lymphocytes in the bone marrow. ALL have fatal if children aren't treated. the treatment requires that the child passes through three phases induction, consolidation and maintenance; each phase needed to specific time to elevate the effect of the drugs , which eventually a good relationship between parent and health care team **(ACS, 2018).**

Counseling is a process, organized in a series of steps, which aims to help people adapt to better with situations they are facing. This involves helping the individual to understand their emotions and feelings and to help them make positive choices and decisions. Counseling is an approach for assisting people to reduce initial distress resulting from a difficult situation, and to encourage short and long-term adaptive functioning **(American Counseling Association [ACA], 2014).**

Quality of life (QOL) for children diagnosed with cancer decreases due to surgical interventions, radiotherapy, chemotherapy, prolonged hospitalization, side effects of treatments, being isolated from the society, physical and emotional problems, changes in the child's position and absence of role within the family and society, disruption of school life, lack of support systems and coping methods, Early and effective treatment is essential for a successful cancer treatment and high quality of life **(Bektas et al., 2016).**

Adherence is an interaction process between patient and medical team which focus on patients' cognitive-motivation, active, intentional and responsible of self care to maintain health in close collaboration with healthcare personnel **(Groen et al., 2015).**

Medication adherence is defined as the extent to which patients take their prescribed medications as recommended by their health care provider, Non adherence is associated with increased health care utilization including higher rates of physician visits, hospitalization and longer average length of time spent in hospital **(Hall A. et al., 2016).**

Pediatric oncology nurses are paramount members of the oncology team, such that using an evidence based approach to reduce the burden of cancer and meet the needs of patients and families, at all levels also nurses continue to play critical roles in the care of children with cancer **(Branowicki et al., 2015).**

Significance of the study:

Implementing proper knowledge and information to patients and their parents about the disease, mean which treatment through counseling is necessity to promote quality of life (QOL) of the pediatric patient and, also adherence to therapy to avoid relapse which is more difficult to treat than the primary disease.

Aim of the Study: The study aims to assess the impact of counseling on QOL and treatment adherence for ALL children.

Research hypothesis

Counseling affect child adherence to ALL treatment which promote the QOL.

Subjects and Methods:

Research Design :A quasi-experimental design was used in conducting the study.

Research Settings: This study was conducted in inpatient and outpatient pediatric oncology units at National Cancer Institute [NCI] affiliated to Cairo University.

Subjects: A purposive sample includes (30) children newly diagnosed within the initial diagnosis period and received chemotherapy treatment at the first day of induction phase, aged from 6 to18 years and their accompanied mother admitted to NCI – Cairo University.

Tools of Data Collection:

I- <u>Structured Interviewing Questionnaire</u>:

It is developed by the researcher after reviewing related literature, and is written in Arabic Language. It is composed of the following two parts:

- **First part**: It concerns with characteristics of children namely the child's age, sex, rank, level of education and residence**.**
- **Second part:** It concerned with the children knowledge regarding to ALL and its management i.e. Definition, causes, risk factors, clinical manifestation, diagnosis, complications, care and treatment regimen) pre and post counseling.

Scoring system:

According to the respond of children for the questions about their knowledge the answers was categorized as satisfactory knowledge if grades have score>60% while unsatisfactory if grades have score>60.

II. KIDSCREEN Scale: It was adopted from kids Screen Group Europe (2006) to assess Quality of Life pre and post counseling. It has ten dimensions related to health-related quality of life (HRQOL).

Physical well-being (5 items): This explores the level of physical activity, energy and fitness of the child or adolescent, Psychological well-being (6 items): This examines the psychological well-being of the child/adolescent, including positive emotions and satisfaction with life, Moods and emotions (7 items): This covers how much the child/adolescent experiences depressive moods and emotions, and stressful feelings, Self-perception (5 items): This explores whether respondents perceive their bodily appearance positively or negatively; body image is explored by questions concerning satisfaction with looks as well as with clothes and other personal accessories, Autonomy (5 items): This looks at the respondent's opportunities to create social and leisure time ,Parent relations and home life (6 items): This examines relationships with parents and the atmosphere at home, Social support and peers (6 items): This examines the nature of the respondent's relationships with other children/adolescents, School environment (6 items): This explores the perceptions of the child/adolescent about their cognitive capacity, learning and concentration, and their feelings at school ,Social acceptance (3 items): This covers the aspect of feeling rejected by peers in school and Financial resources (3 items): This assesses respondents' perceptions of their financial resources.

Scoring system:

According to the answer for the questions from the child response about HRQOL dimensions (Not at all, Slightly, Moderately, Usually, Extremely) will categorize related to total mean score for each item of HRQOL dimensions.

III. Morisky Medication Adherence Scales MMAS-8 (Morisky et al., 1986):

It was adopted to assess treatment on post counseling adherence of children.

Do you sometimes forget to take your pills? , Sometimes miss taking their medications over the past two weeks? ,You have stopped taking your medicine without telling your doctor because you felt worse when you took it?, When you travel or leave home, do you sometimes forget to bring your medication?, Did you take all your medicine yesterday?, When you feel symptoms under control, do you sometimes

stop taking your medicine?, Do you ever feel hassled about sticking to your treatment plan? and Do you have difficulty remembering to take all your medicine?

Scoring system:

According to the answer for the questions from the children Items response are rated on a five -point scale from (Never, Once in a while, sometimes, Usually, All the time).

The medication adherence was

High Adherence: score (o)

Medium Adherence: score (1-2)

Low Adherence: score (3-8)

Validity &reliability

The tools test was performed to assess validity and reliability of the study by five expertise in pediatric nursing field through test applicability, feasibility and clarity of the study tool for further required modifications.

Ethical Consideration:

Aim, nature and expected outcomes of the research were explained to the study subjects before their inclusion. The study subjects were informed that, the study is harmless, and all the gathered data was used for research purpose only. An informed consent was obtained from each subject to participate in the study. Anonymity and confidentiality were secured and ensured that they have the right to withdraw from the study.

Field Work: The researcher attended the study settings for 3 days/week; the researcher was available from 9 am to 5 pm in each one of the previously mention settings over 2.5 years. The time of the sessions ranged from 30-90 minutes according to the objectives of the lecture. The total number of sessions related practice were 4 phases. different teaching methodology were used as lectures, group discussion and. Evaluation of the knowledge for studied children carried out using the same pretest format as a post test.

The counseling sessions:

First Phase (assessment phase): Assess knowledge of the newly children diagnosed with ALL about ALL disease, chemotherapy treatment regimen and QOL at the first admission inpatient clinical area of pediatric oncology at the first day of induction chemotherapy treatment.

Second Phase (planning phase):This phase included analysis of the pre-counseling test findings and identification of the actual children needs toward ALL disease and treatment regimen accordingly, the guide intervention (Hand out) was designed by the researcher under supervision of researcher supervisors, using simple Arabic language and different illustrated knowledge and figures related to ALL and treatment regimen in order to facilitate subjects' understanding.

Third Phase (Implementation):Counseling was started for the newly children diagnosed with ALL to satisfy the actual needs of study children for explain knowledge of ALL disease i.e. Definition, causes, risk factors, clinical manifestation, diagnosis, complications, care and treatment regimen of chemotherapy i.e. treatment phases, clinical manifestation of side effects and how to manage it and precautions for medication taken, handling. in the initial period of chemotherapy treatment at the first day of induction phase have 46 week of chemotherapy treatment in the inpatient area extended to contentious implementation of consolidation phase have 8 week of chemotherapy also in the inpatient area and Maintenance phase lasts for up to two years girls have 120 weeks and up to three year for boys have 146 weeks of chemotherapy treatment in sitting of outpatient chemotherapy area.

Fourth Phase (Evaluation): Evaluation was carried out immediately after the implementation of counseling sessions in the end of third phases of chemotherapy treatment by using the same pre assessment questionnaire format for ALL disease and treatment knowledge and QOL in post. Treatment adherence post counseling only and its effect on quality of life in post counseling.

Results

Table (1): Shows that the mean age of the studied children was 10.80 ± 2.8that and 66.7% male and 33.3% female. In regarding to children educational level, it was found that primary 56.7% ,26.7% prep, 16.7%, secondary, regarding to children ranking 3 0.0% first , 56.7% second , 10.0% third , 6 3.3% forth , regarding to children residence 46.7% rural and 53.3% urban of the studied sample.

Table (2) Shows that there was high statistical significance difference in total mean score knowledge children's regarding to their knowledge to lymphoblastic leukemia disease process as the mean pre counseling was 4.63±1.34 and post counseling implementation the mean was 8.84± 1.46 at P Value < 0.0000.

Table (3) Shows that there was high statistical significance difference in total mean score knowledge children's regarding to their knowledge to lymphoblastic leukemia treatment regimen as the mean pre counseling was 10.78±55. 62 and post counseling implementation the mean was 47.47± 3.96 at P Value < 0.00000.

Figure (1): This figure show that there was high statistical significance difference among the mean of total scale score children's knowledge related to lymphoblastic leukemia disease process and treatment regimen pre counseling was 15.42 and post counseling implementation 56.32 from total 60% p value < 0.00000.

Table (4) Shows that there was high statistical significance difference in total mean score children quality of life domains pre and post counseling implementation as the mean pre counseling was 105.13±22.73 and post counseling implementation the mean was 225.47± 8.90 at P Value < 0.00000.

Figure (2): This figure show that the change of the mean of total quality of life dimensions from pre and post counseling implementation was pre 11.27 and post 32.10 of mood and emotions from total score 35, pre 9.80 and post 14.10 of self perception from total score 15.

Figure (3): This figure show that the change of the mean of total scale quality of life for acute lymphoblastic leukemia children pre105.13 counseling was and post counseling implementation 225.47 from total 250.

Table (5): This table shows that there was high medication adherence 90% for No 27 children, Medium medication adherence 10% for No 3 children and low 0% medication adherence.

Table (1): Distribution of the studied children according to their Socio-demographic characteristics (N =30).

Age in year	**No**	**100%**
6 :<12	**21**	**70.0%**
12:18	**9**	**30.0%**
Mean ± SD	**10.80±2.8**	
Gender		
Male	**20**	**66.7%**
Female	**10**	**33.3%**
Educational level		
Primary	**17**	**56.7%**
Prep	**8**	**26.7%**
Secondary	**5**	**16.7%**
Children ranking		
First	**9**	**30.0%**
Second	**17**	**56.7%**
Third	**3**	**10.0%**
Forth	**1**	**3.3%**
Residence		
Rural	**14**	**46.7%**
urban	**16**	**53.3%**

Table (2): Distribution of the studied children's knowledge regarding to acute lymphoblastic leukemia disease process pre and post counseling implementation (N =30).

items	Pre counseling		Post counseling		T-Test	P Value
	Mean	SD	Mean	SD		
Meaning of blood cancer (2).	1.03	0.18	1.60	0.38	7.35	<0.00000
Site of ALL disease (2).	1.12	0.36	1.97	0.18	11.43	<0.00000
Causes and risk factors of ALL disease (2).	0.78	0.25	1.75	0.31	13.13	<0.00000
Signs and Symptoms of ALL disease (2).	0.75	0.25	1.70	0.31	12.96	<0.00000
Diagnosis of ALL disease (2)	0.95	0.30	1.82	0.28	11.53	<0.00000
Total (10).	4.63	1.34	8.84	1.46	56.4	<0.00000

Table (3): Distribution of the studied children's knowledge regarding to acute lymphoblastic leukemia treatment regimen pre and post counseling implementation (N =30).

items	Pre counseling		Post counseling		T-Test	PValue
	Mean	SD	Mean	SD		
Aim of treatment (6).	1.07	0.25	6.00	0.00	106.50	<0.00000
Type of treatment (6).	1.57	1.55	6.00	0.00	15.70	<0.00000
Number of treatment phases (6).	1.13	0.51	6.00	0.00	52.53	<0.00000
Time needed for treatment (6).	1.10	0.40	4.40	1.52	11.48	<0.00000
healing Rat (6).	1.08	0.46	6.00	0.00	59.00	<0.00000
Methods of drug administration's (5).	1.03	0.18	4.55	0.85	22.04	<0.00000
Side effects of medications (5).	1.00	0.00	4.83	0.65	32.42	<0.00000
Type of nutrition (5).	1.32	1.04	4.82	0.59	16.03	<0.00000
vaccination Dosages (5).	1.48	0.74	4.87	0.35	22.77	<0.00000
Total (50)	10.78	55.62	47.47	3.96	808.4	<0.00000

Fig (1): Relation between total score Children's knowledge related to acute lymphoblastic leukemia disease process and treatment regimen pre and post counseling implementation.

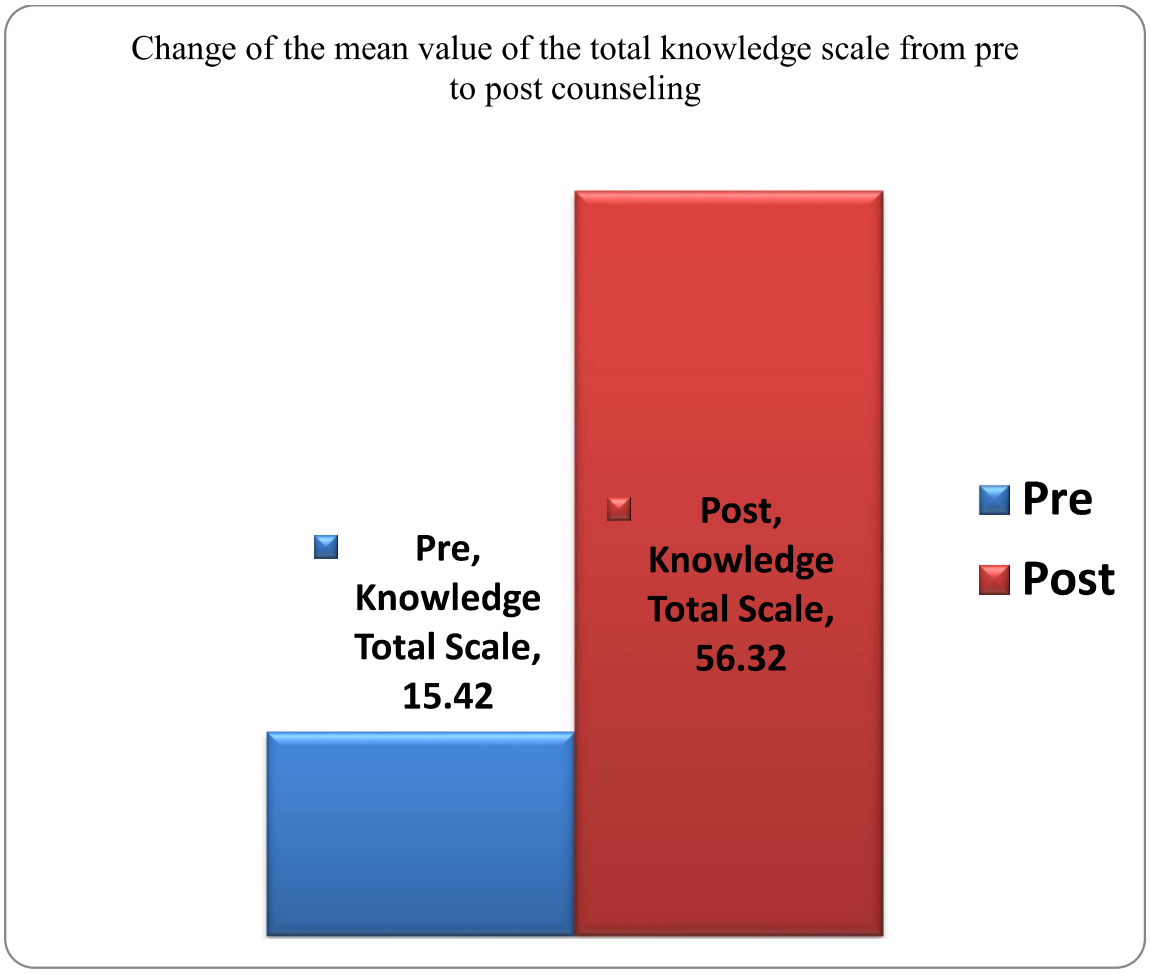

Table (4): Distribution of the studied children regarding to quality-of-life domains pre and post counseling implementation.

items	Pre counseling		Post counseling		T-Test	PValue
	Mean	SD	Mean	SD		
physical well –being dimension (25)	**7.93**	**3.24**	**21.20**	**2.86**	**16.83**	**<0.00000**
psychological well –being dimension (30)	**10.23**	**4.67**	**25.53**	**4.67**	**12.70**	**<0.00000**
Moods and Emotions dimension (35)	**11.77**	**7.03**	**32.10**	**4.07**	**13.72**	**<0.00000**
Self-perception dimension (25)	**9.80**	**4.21**	**14.10**	**1.49**	**5.28**	**<0.00000**
Autonomy dimension (25)	**10.67**	**3.15**	**20.97**	**3.79**	**11.44**	**<0.00000**
Parent Relations and Home Life dimension (30)	**16.23**	**5.20**	**30.00**	**0.00**	**14.51**	**<0.00000**
Social Support and Peers dimension (30)	**9.20**	**3.67**	**30.00**	**0.00**	**31.03**	**<0.00000**
School Environment dimension (30)	**11.97**	**5.12**	**28.17**	**2.26**	**15.86**	**<0.00000**
Social Acceptance/Bullying dimension (15)	**9.57**	**1.57**	**11.20**	**0.61**	**5.31**	**<0.00000**
Financial Resources dimension (15)	**7.77**	**2.40**	**12.20**	**0.76**	**9.64**	**<0.00000**
Total scale of Quality of Life (260)	**105.13**	**22.73**	**225.47**	**8.90**	**27.00**	**<0.00000**

Fig (2): Effect of counseling of means score quality of life dimensions for acute lymphoblastic leukemia children pre and post counseling implementation.

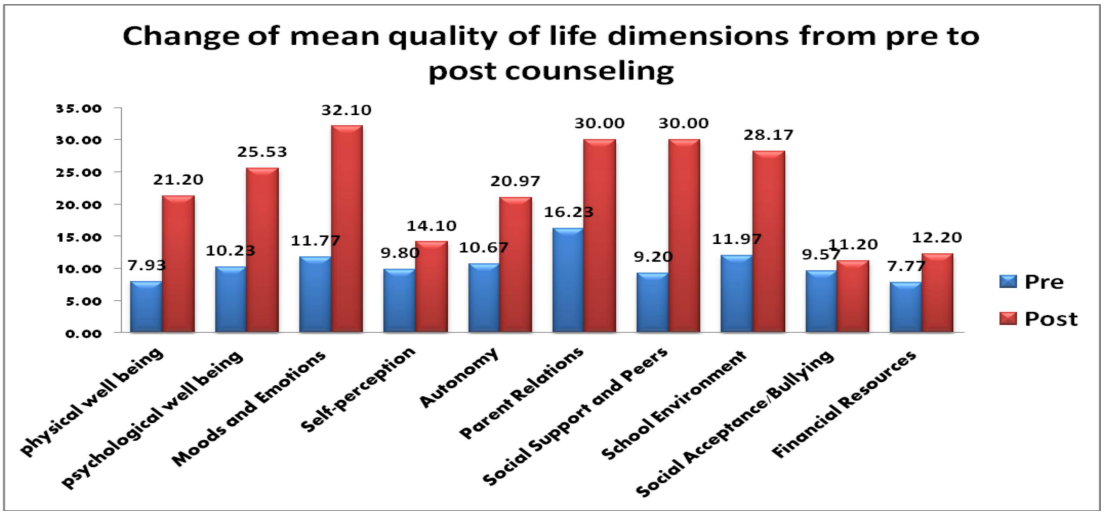

Fig (3): Distribution of total mean score of total scale quality of life dimensions for acute lymphoblastic leukemia children pre and post counseling.

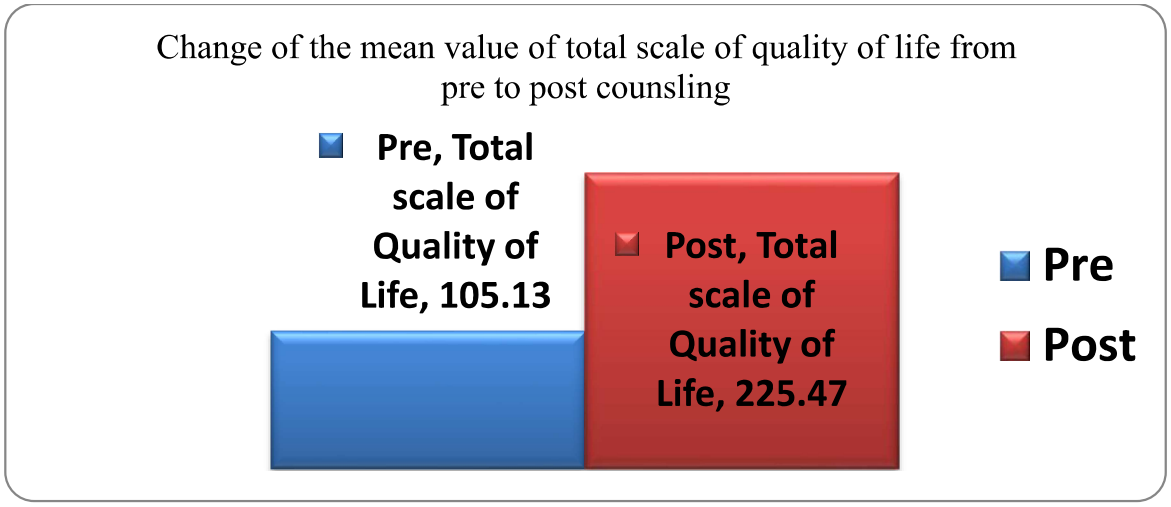

Table (5): Distribution of the studied children according to their medication adherence (N =30).

Item	Never	Occasionally	Sometimes	Usually	All the Time
Do you sometimes forget to take your pills?	27	3	0	0	0
Do you Sometimes miss taking medications over the past two weeks?	27	3	0	0	0
You have stopped taking medication without telling your doctor because you felt worse when you took it?	27	3	0	0	0
When you travel or leave home, do you sometimes forget to bring your medication?	27	3	0	0	0
Did you take all your medication yesterday?	0	0	0	3	27
When you feel symptoms under control, do you sometimes stop taking your medicine?	27	3	0	0	0
Do you ever feel hassled about sticking to your treatment plan?	27	3	0	0	0
Do you have difficulty remembering to take all your medication?	27	3	0	0	0
High Adherence: score (o) T. No 27 (90%) Medium Adherence: score (1-2) T. No 3 (27%) Low Adherence: score (3-8) T. No 0 (0%)					

DISCUSSION

The results of the present study comparing them with related studies, recent literature, as well as representing the researcher's opinion in the present results.

Comprehensive counseling in pediatric oncology care is educating children and families about the diagnosis and treatment process, management, side effect of treatment and supportive care empowering them to make informed decisions, become active partners in the treatment process and promote all domains of the quality of life of cancer children (Kudubes et al., 2014).

Pediatric oncology nurses are critical members of the oncology team, collaborating with colleagues and using an evidence based approach to reduce the burden of cancer and meet the needs of children and families, play important roles in the care of children with cancer as new diagnostic and treatment techniques become available through persistence, vigilance, dedication, development and modification of practice standards that promote safe and effective pediatric cancer care (Orkin et al., 2015).

Pediatric oncology nurses integrate information about the treatment , education ,counseling , psychosocial support, health advocacy , coordination of services and referrals for cancer risk management ,assessing the patient, identifying problems requiring nursing intervention, planning and implementing a nursing plan of care, evaluating the child’s progress and shape that development and modification of practice standards to promote safe and effective outcomes in pediatric cancer care (Branowicki et al., 2015).

Therefore, the present study is a quasi-experimental study aimed to assess the impact of counseling on QoL and treatment adherence for ALL children.

The number of children was selected according to the previously determined criteria of new diagnosis children with ALL admitted to pediatric oncology unite in NCI, total of 30 children age ranged from six to eighteen years old.

The result of present study finding revealed that the children with ALL had an age represent more than half from six to twelve years and less than half above twelve years to eighteen years. This result supported by **Lustosa et al., (2015),** in research titled of "Acute lymphoblastic leukemia in children and adolescents; prognostic factors and analysis of survival" who found that more than half children diagnosed with ALL from one year to eight year and less than half above eight year.

The result of present study finding revealed that the male children with ALL represent more than half compared with female children who account less than half this result supported by **Lustosa et al., (2015),**in research titled of "Acute lymphoblastic leukemia in children and adolescents; prognostic factors and analysis of survival" who found that the incidence of ALL for male female.

The finding of this study showed that the highest percentage of children those represent more than half belonging to primary school were twenty six point seven hundred percent in prep school and sixteen point seven hundred percentage in secondary school this result highly supported by **Bektas et al., (2016),** in research titled "Developing the scale for quality of life in Pediatric oncology patients aged 13:18 adolescent" who found that the incidence rate of children from thirteen to eighteen less than half compared with school age children as well as supported by **Bektas and Kudubes (2105),** in research titled "Developing a scale for quality of life in pediatric oncology patients aged 7-12 children and parent forms" who show that the incidence of ALL in children more than half in the age of seven to twelve years.

The result of present study agreement with **Abd El Latif et al., (2014),** in research titled "Stressor and coping styles of school age children having acute lymphocyte leukemia and their mothers" who found that more than half children diagnose with ALL age from six to twelve years in the total children admission in 57357 children hospital Egypt from age of one year to nineteen years.

The present result of study finding revealed that more than half of the studied children their ranking is the second child in his family this similar to **Abd El Latif et al., (2014),** in research titled "Stressor and coping styles of school age children having acute lymphocyte leukemia and their mothers".

The current study result found that more than half children residence from rural. This finding was accordance with **Mohammed (2014),** in research titled **"**Annual meeting and exposition of lymphoid malignancies**"** who found that children living on a farm or in a rural were twice as likely to develop risk for ALL compared with children lived in a city.

The present result of study revealed that the most of children's mother has age above the thirty years, secondary school educational levels certificate. This finding supported with **Nair et al., (2017),** in research titled **"**Parents' knowledge and attitude regarding their child's cancer and effectiveness of initial disease counseling in pediatric oncology patients**"** who found that all mothers included in this study had at least primary education, confirming the high female literacy rate have contributed to the better health awareness and demonstrate reasonably good levels of cancer knowledge as they course through their child's treatment and increasing mothers age comes emotional maturity and life experience have more receptive attitude and better coping skills . Added a good amount of relevant information in initial counseling about cancer and its various aspects of treatment can be imparted in simple language even to parents with school-level education help their psychosocial response in a positive manner, more confident , co-operative toward staff , more receptive attitude and better coping skills.

The result of present study revealed that unsatisfactory knowledge of children having ALL pre counseling the total mean score less than sixty hundred percent regarding to lymphoblastic leukemia disease process for Meaning of blood cancer, site of ALL disease, causes and risk factors of ALL disease, signs and symptoms of ALL disease and diagnosis of ALL disease and chemotherapy treatment regimen including aim of treatment, type of treatment, number of treatment phases, time needed for treatment, rate of healing, methods of drug administrations, Side effects of medications and how to manage it ,type of prevention nutrition and dosage of vaccination .This result highly supported with **Abd El Latif et al., (2014)**who found that children having ALL knowledge about the treatment , the concept of the diseases , sing and symptom still lack of knowledge as well as children mother unaware with the disease or its causes.

Regard findings the results of the present study revealed that was a highly statistical significance difference in total mean score children knowledge pre and post counseling implementation regarding to lymphoblastic leukemia disease

process for meaning of blood cancer, site of ALL disease, causes and risk factors of ALL disease, signs and symptoms of ALL disease and diagnosis of ALL disease and chemotherapy treatment regimen including aim of treatment, type of treatment, number of treatment phases, time needed for treatment, rate of healing, methods of drug administrations, Side effects of medications and how to manage it ,type of prevention nutrition and dosage of vaccination .

This could be due to the fact that comprehensive counseling sessions for the child had positive effect on improving children knowledge concerning lymphoblastic leukemia disease process for Meaning of blood cancer, site of ALL disease, causes and risk factors of ALL disease, signs and symptoms of ALL disease and diagnosis of ALL disease and chemotherapy treatment regimen including aim of treatment, type of treatment, number of treatment phases, time needed for treatment, rate of healing, methods of drug administrations, Side effects of medications and how to manage it ,type of prevention nutrition and dosage of vaccination.

The present study finding agreement with **Nair et al., (2017),** in research titled **"**Parents' knowledge and Attitude Regarding Their Child's Cancer and effectiveness of Initial Disease Counseling in Pediatric Oncology Patients**"** as well as similar with **Elena (2014),** who found in the study titled **"**Nutritional counseling in survivors of childhood cancer: An essential component of survivorship care**"** that anticipate nutritional counseling in survivors of childhood cancer and essential treatment-related late effects and result in reduced morbidities, improved quality of life, and reduced burden on the health care system and highly supported by **Carmen et al.,(2013),**who reported in research titled **"**Innovative model of counseling and guidance for cancer patients and persons at risk, in order to improve the quality of oncology services**"** who found that the counseling and guidance for cancer patients to encourage patient and getting the confidence for acceptance and involvement in the therapeutic process.

Quality of life for children with cancer affected by many problems such as physical and emotional problems ,problems in spouse and family relationships, changes in body image, difficulties in adapting to these changes, changes in social support systems, psychological problems, disruption of school life , loneliness, isolation, financial difficulties and fatigue is one of the most common complaints

which distracts child from daily activities, fear of death and recurrence of the disease Resulting in an impaired quality of life

The result of current study revealed that was a highly statistical significance difference in total mean score pre and post counseling implementation regards children quality dimension of life for physical well –being dimension ,psychological well –being dimension ,moods and emotions dimension ,self-perception dimension ,autonomy dimension ,parent relations and home life dimension ,school environment dimension ,social support and peers dimension, social acceptance/bullying dimension and financial resources dimension .

The researcher found that QoL dimension mean scores pre counseling are lower in children having ALL at pre induction phases chemotherapy treatment related to problems with fatigue ,pain and other detrimental effects of disease on physical and psychological wellbeing ,mood ,self-perception , autonomy and parent relations as well as difficulties with social peer support and child acceptant and school environment also financial resources problems related to raise the cost of treatment.

The results of present study highly agreed with **Eman et al.,(2017),** in research titled of **"**Factors affecting quality of Life in Patients with Pediatric Leukemia during Induction Chemotherapy**"** she found that QOL scores are lower in children receiving treatment for ALL compared to children with ALL 12 months off therapy and lower compared to healthy children .These findings are also concordant with qualitative studies of children receiving treatment for ALL that have noted problems with fatigue, detrimental effects of disease and treatment on physical activities as well as difficulties with social interactions. The second objective was to describe predictors of poor QOL during treatment for leukemic patients. As well as supported with **Michel et al., (2015),** in the study titled **"**Hematological cancer and quality of life: A systematic literature review**"** who show that in the general findings the hematological disease has negatively affects overall QoL. Compared with the general population, fatigue, pain or vitality were the more exposed aspects of QoL, which were specifically deteriorated during an advanced stage of hematological cancer. Compared with the general population, hematological patients had an adverse general health. These results confirm other findings concerning cancer populations.

The researcher found that there was a highly change in improving for total mean score QoL dimension post counseling implementation related to positive effect of counseling in guidance of health education for prescribed oncology healthcare services, communicate information with child about ALL disease , treatment phases also side effect and who to manage it . These changes prescribed as the child have physical and psychological wellbeing; improve child cognitive functioning in autonomy, mood, emotions and self-perceptions. Better parent and home relations also social and school environment integrating.

This result of the current study similar with **Pakpour et al., (2016),** in research titled **"**Association of health-related Quality of Life with resilience among children with cancer that the findings demonstrated that high resilience**"** who found in the study was positively associated with high quality of life in all dimensions as well as supported with **Maria, (2015),** in research titled **"**Quality of life in cancer patients- a nursing perspective**"** who found non-invasive interventions such counseling, psychotherapeutic, psychosocial and educational interventions have play a role in improving patients' quality of life.

The current study results revealed that the effect of counseling structured teaching to patients receiving chemotherapy treatment for cancer treatment on medication adherence for acute lymphoblastic leukemia children regarding to comprehensive information to the aim of treatment, type of treatment, number of treatment phases, Time needed for treatment, rat of healing, methods of drug administrations, side effects of medications and how to manage it and safe treatment handling post counseling there was twenty seven hundred percent of children have high adherence, Medium medication adherence for three hundred percent of children and no low medication adherence.

The researcher comprehends these finding concluded that counseling sessions on treatment agent had positive effect on improving the child's responsibility for ensuring treatment adherence in different phases of chemotherapy treatment.

This result of the present study supported by **Lisa (2018),** who found in the study titled **"**Counseling Patients on oral Chemotherapy Studies**"** have shown that routine counseling discussions on treatment help to improve adherence rates to treatment plan for chronic medications, as it emphasizes to the patient that

adherence are important. Also current study was highly supported by **jill et al.,(2017),**in research titled in "Pharmacists and Pediatric Medication Adherence: Bridging the gap" who found that Almost sixty hundred percent of parents who were not counseled made errors in medicine administration compared to twenty five hundred percent who were counseled and added that Education is essential for the child and the caregivers who are involved with the child. It is important for all family members to understand the basics of the child's disease state as well as the treatment plan in order to encourage and Increased responsibility for ensuring the child's adherence.

This result of the study agreed with **Kav and Tokdemir (2017),** in research titled "The effect of structured education to patients receiving oral agents for cancer treatment on medication adherence and self-efficacy" who showed that individual education with the medication oral agent teaching tool and follow up for patients receiving oral agents for cancer treatment increased patient medication adherence self-efficacy and added that the patient understanding of treatment agents for cancer treatment is essential to promote patient safety and adherence to the prescribed regimen.

This result of the present study similarly to the findings had been reported by **Kavookjian and Wittayanukorn (2015),** who found in the research titled "Interventions for adherence with oral chemotherapy in hematological malignancies: A systematic review" the studies reported a statistically significace difference in adherence between control and intervention group that adherence rate ranged from forty four hundred percent to ninety six hundred percent .

This results of the study agreed with **Al -Hajje et al., (2015)**, who reported that study titled "Factors affecting medication adherence in Lebanese patients with chronic diseases "a good physician-patient relationship and proper counseling by the physician had a significant effect in increasing the level of adherence in chronically ill patients that the patient should be ‘engaged’ in the treatment plan rather than just ‘counseled’ about their drugs and added counseling has a direct effect on patients’ knowledge as it was found to decrease the risk of non-adherence.

Conclusion:

In the light of the present study findings, it concluded that the counseling had a positive effect on children adherence to Acute Lymphoblastic Leukemia treatment which lead to promote the children quality of life dimensions as Physical well-being, Psychological well-being, Moods and emotions, Self-perception, Autonomy, Parent relations and home life , Social support and peers, School environment , Social acceptance, school and Financial resources.

Recommendations:

Application of counseling education session for all Acute Lymphoblastic Leukemia children and their mothers for disease and treatment **will i**mprove the children and their mothers knowledge toward ALL disease and treatment to maximize treatment adherence and promote the quality of life through**.**

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الملخص العربي

أثر المشورة على جودة الحياة والالتزام بالعلاج لأطفال سرطان الدم الليمفاوي الحاد

مقدمه: يشير سرطان الدم الليمفاوى الحاد الي سرطان خلايا الدم البيضاء بالنخاع العظمى، حيث ينتج عدد كبير من خلايا الدم البيضاء غير الناضجة في نخاع العظام. و حيث أنها لا تستطيع أداء دورها المنوط بهم فى حماية الجسم ضد المرض. يعتبر مرض اللوكيميا اليمفاوية الحادة اعلى معدل حدوث فى الذكور70% عن الأناث 30%،يقل النسبة مرحلة الطفولة ما قبل السنتين ويظهر بمعدل اعلى فى سن من 2-5 سنوات ويقل فى مرحلة البلوغ . كما يعد مرض Leukemia is most treatable and curable if caught in the earliest stages of the disease.اللوكيميا اليمفاوية الحادة للأطفال من الامراض الاكثر علاجاً حيث تتزايد معدلات الشفاء منه بنسب كبيره إذا تم اكتشافه في المراحل المبكرة للمرض مما يساعد على تحسين جودة الحياة للأطفال.

الهدف : تقييم تأثير المشورة على جودة الحياة والألتزام بالعلاج لأطفال سرطان الدم الليمفاوي الحاد من خلال: أ) تقييم معلومات الطفل بسرطان الدم اللمفاوى الحاد من حيث تعريف المرض و الأسباب والعلامات والأعراض وإجراءات التشخيص والمضاعفات و نظام العلاج قبل وبعد المشورة. ب) تقييم جودة الحياة لأطفال سرطان الدم اللمفاوى الحاد قبل وبعد المشورة.ج) تقييم التزام اطفال سرطان الدم اللمفاوى الحاد بالعلاج بعد المشورة.

طريقه البحث:وقد اجريت هذه الدراسة على مرضى بسرطان الأطفال بالمعهد القومى للاورام بجامعة القاهرة . شملت الدراسة(30) طفلاً من مرضى السرطان اللمفاوى الحاد عن عمراً يتراوح بين 6 الى 18 سنة تم تشخيصهم حديثاً بسرطان الدم اللمفاوى الحاد من بداية دخولهم بالمعهد القومى للأورام بجامعة القاهرة فى المرحلة الأولى للتشخيص المبدئى واليوم الأول من المرحلة الأولى للعلاج الكيماوى. **ادوات جمع البيانات** : الجزء الأول: استبيان المقابلات: تم تصميمه من قبل الباحث باللغة العربية البسيطة لجمع البيانات الأساسيه للطفل والأم .الجزء الثاني: استبيان لتقيم معلومات الطفل والأم بسرطان الدم اللمفاوى الحاد من حيث تعريف المرض و الأسباب والعلامات والأعراض وإجراءات التشخيص والمضاعفات و نظام العلاج.الجزء الثالث : مقياس جودة الحياة قبل وبعد المشورة لتقيم جودة الحياة من خلال 10 ابعاد ، الجزءالرابع: استبيان الألتزام بالعلاج لتقيم الألتزام بالعلاج وذلك بعد المشورة.

النتائج: اظهرت النتائج ان متوسط الاعمارهم 2.8±10.80, ان 66.7% من الأطفال من الذكور وان 33.3% منهم من الأناث بالأضافة الى ان 66.7% يعد بالمدرسة الأبتدائية و56.7% منهم يعد الطفل الثانى بالعائلة , ان 53% منهم يعيشون فى المناطق الريفية.

اوضحت النتائج ان66.7% من الأمهات تتراوح اعمارهم ما بين 30> سنة وان33.3% من 30< سنة متوسط اعمارهم 47946. ± 1.3333بالأضافة الى ان 53% من الأمهات حاصلين على تعليم قبل الجامعى , ان 50% منهم يعملون و50% منهم لايعملون. وجود فروق ذات دلالة إحصائية عالية فى معلومات الأطفال وامهاتهم عن مرض سرطان الدم اليمفاوى الحاد وطرق العلاج قبل وبعد المشورة. كما اظهرت النتائج وجود فروق ذات دلالة إحصائية عالية فى جودة الحياة لأطفال سرطان الدم اليمفاوى الحاد قبل وبعد المشورة .اظهرت النتائج ان 27% من الأطفال ملتزمين بالعلاج بدرجة عالية 90% , 10% منهم ملتزمين بالعلاج بدرجة متوسطة بعد عمل جلسات الماشورة اثناء (مرحلة الخلو) المرحلةالأولى للعلاج الكيماوى

الخلاصة : استنتج أن المشورة لها تأثير ايجابى على التزام الأطفال لعلاج سرطان الدم الليمفاوى الحاد وتحسين جودة الحياة لديهم .التوصيات :تطبيق جلسات المشورة لجميع اطفال سرطان الدم الليمفاوى الحاد وأمهاتهم لتحسين الألتزام بالعلاج ورفع مستوى جودة الحياة .