

## Evaluation of Nurses' Practices toward Pain Management of Leukemic Child under Chemotherapy

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### Abstract

**Background:** Leukemia caused different types of pain due to the disease itself & its progression and the side effect of chemotherapy and other treatment for leukemia, Therefore, most of leukemic children will be at risk for significant pain at some time during the course of their illness.

**Objective(s):** To evaluate nurses' Practices toward pain management of leukemic child in oncology wards who were receiving chemotherapy.

**Methodology:** A descriptive study was conducted in two hospitals on (40) nurses, who provided care for the children with leukemia in oncology wards ; (Children Welfare Teaching Hospital and Child's Central Teaching Hospital) in Baghdad city from October 2010 up to the 27<sup>th</sup> of October 2011 for the purpose of evaluating nurses practices towards pain management for leukemic child. A purposive "non-probability sample" was selected that consisted of (40) nurses working in oncology wards. A questionnaire format was used which consist of (2) parts, the first part includes demographic information of the sample and the second part consists of structured Items (44 Items) concerning nurses' Practices toward pain management for leukemic child. Reliability and validity of questionnaire was estimated through a pilot study and a panel of expert respectively. The data were analyzed by using descriptive statistical measures: frequencies, percentages, and standard deviation, as well as the use of inferential statistical measures: the chi-square test.

**Results:** The results revealed inadequate nurse's Practices about pain management for leukemic child under chemotherapy, as (45.5% outside the comparison of the relative adequacy, 47.7% was less of the extent of the relative efficiency) and this means that most of the practices of nurses in the pain management was low level toward the children with leukemia.

**Recommendations:** Based on the results of research, the study recommends initiating training courses for nurses related to pain management and developing pain assessment tools for assessing child's pain and evaluating the level of pain management procedures

**Keywords:** Chemotherapy; Evaluation; Leukemic Children; Nurses' Practices; Pain Management; Oncology wards.

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### I. Introduction

Leukemia are a group of malignant blood disorders, characterized by an abnormal increase of white blood cells (WBCs), usually at an immature stage, in the bone marrow <sup>(1)</sup>. It is the most common form of childhood cancer, the annual incidence is 3-4 cases per 100,000, It occurs more frequently in boys than in girls after age 1 year, and the peak onset is between 2 and 6 years of age <sup>(2)</sup>. Most forms of leukemia are treated with pharmaceutical medications, typically combined into a multi-drug chemotherapy regimen. Some cases are treated also with radiation therapy. In some cases, a bone marrow transplant is useful <sup>(3)</sup>. Most children with leukemia will be at risk for significant pain at some time during the course of their illness, pain may be the product of the disease itself or the results, Leukemia caused different types of pain that the child suffering from due to the disease progression and the side effect of chemotherapy and other treatment for leukemia <sup>(3)</sup>.

To manage pain appropriately nurse play very important role in managing pain appropriate and to decrease the level of pain so nurses need to have an understanding of each of these components and nurse education should equip them with this knowledge <sup>(4)</sup>. Managing pain appropriately is, therefore, important in both human and economic terms, the best possible management of pain is a moral and ethical obligation for caregivers, yet patients are still suffering unnecessary pain during hospitalization <sup>(5)</sup>. The nurse is an important advocate in helping the child and family to understand the complexities of treatment decisions and manage of the pain, side effect and toxicities of the medication <sup>(5)</sup>. Insufficient knowledge about managing pain in leukemic children has been suggested as one reason nurses do not manage pain effectively however; pediatric nurses' pain management practices continue to fall short of the ideal with children often experiencing moderate to severe unrelieved pain <sup>(6)</sup>. Nurse must be knowledgeable about the basic path physiology of cancer pain and treatment related side effects. The nurse often serves as the coordinator of care, playing a key role in cancer pain management <sup>(6)</sup>.

## II. Methodology

A purposive "non-probability" sample of 40 nurses working in two pediatric hospitals in Baghdad city (Children Welfare Teaching Hospital and Child's Central Teaching Hospital). Data were collected by observational check list method was used to fill out the constructed questionnaire for nurse's practice and their demographic characteristics, the questionnaire format consisted of two parts; the first part is concerned with the socio-demographic characteristics of the nurses which included; age, gender, marital status, level of education, years of employment as a nurse, years of experience in oncology wards and training session in pain management ; the second part is consists of structured Items concerning nurses' practice toward pain management for leukemic child which consist of (2) main sections and composed of (44) Items. The questionnaire was rated on a three points Likert scale (never, sometimes, and always) and was scored as 3 for always, 2 for sometimes, and 1 for never. The validity of the questionnaire determent by panel of the experts and reliability for the constructed questionnaire were determined by pilot study, and the application of alpha correlation coefficient ( $r= 0.84$ ) which was statistically acceptable. Data were analyzed through the application of descriptive statistical analysis (Frequency, Percentage, Mean of score and Standard deviation) and inferential statistic (Chi-square test)<sup>(6-7)</sup>.

## III. Results

**Table 1. Distribution of Nurses by their Characteristics (n=40)**

List	Variables	Frequency	Percentage
1.	Age ( years )		
1.1.	20 - 24	12	30
1.2.	25 - 29	11	27.5
1.3.	30 - 34	10	25
1.4.	35 - 39	6	15
1.5.	45 - 49 and more	1	2.5
	Mean of age = 28.77 year		
2.	Gender		
2.1.	Male	14	35
2.2.	Female	26	65
3.	Level of education		
3.1.	Intermediate Nursing School graduate	1	2.5
3.2.	High Nursing School graduate	5	12.5
3.3.	Institute Nursing graduate	26	65
3.4.	college Nursing graduate	8	20
4.	Marital status		
4.1.	Married 4.1. Illiterate	13	32.5
4.2.	Single	19	47.5
4.3.	Widowed	7	17.5
4.4.	Divorced	1	2.5
5.	Years of Experience in the leukemic wards		
5.1.	1 - 5	28	70
5.2.	6 - 10	4	10
5.3.	11 - 15	6	15
5.4.	16 - 20 and more	2	5
6.	Training Sessions in pain management		
6.1.	Yes	5	12.5
6.2.	No	35	87.5
8.	Number of Training Sessions in the pain management		
8.1.	No	35	87.5
8.2.	Two Training Sessions	4	10
8.3.	Three Training Sessions	1	2.5
9.	Place of Training Sessions for the pain management		
9.1.	No	35	87.5
9.2.	In Iraq	5	12.5
9.3.	Outside Iraq	0	0
10.	Source of information for the pain management		
10.1.	No information	22	55
10.2.	Scientific magazines	10	25
10.3.	Medical magazines	6	15
10.4.	General magazines	2	5
11	Watch movies and electronic movies for the pain management		
11.1.	No	27	67.5
11.2.	Movies and TV	12	30
11.3.	Electronic movies	1	2.5
12	Workshop for pain management for leukemic child		
12.1.	No	26	65
12.2.	Inside the hospital	9	22.5
12.3.	Outside the hospital	5	12.5

This table shows that most of nurses' ages were (20-24) years accounted for (30 %), (65 %) were female, (65%) were graduate from nursing institute, (47.5%) were single, (70 %) have (1-5) years of experience and their employment in the leukemic wards, only (12.5%) from (5) that had training sessions in pain management for leukemic child in Iraq, more than half (52.5%) of the sample had not read any source of information related to the pain management for leukemic child. (25%) of the sample have information related to pain management from scientific magazines and (67.5%) not watching movies and electronic movies for pain management. Only (22.5%) accounted one fourth had participated in workshops for pain management for leukemic child.

**Table 2.** The Mean of Scores and Relative Sufficiency of Nurses' Practices for Pain Management for Leukemic Child.

No.	Items	Never		Sometime		Always		MS	RS	E.
		F	%	F	%	F	%			
1.	Measures that are taken to the children with leukemia	5	12.5	1	42.5	18	45	2.33	77.50	L
1.a	* encourage the child to breathe deeply			7						
1.b	* Used toys and games for entertainment, recreation and fun	3	7.5	3	75	7	17.5	2.10	70.00	L
				0						
1.c	* Encourage the child to listen to music	1	30	2	60	4	10	1.80	60.00	O.C
		2		4						
2.	There are three ways to assess pain in children are:	4	10	1	47.5	17	42.5	2.33	77.50	L
2.a	* confirmed that child has pain			9						
2.b	* Ask the mother if the child is under the pain	5	12.5	2	57.5	12	30	2.17	72.50	L
				3						
2.c	* Examines if the child was crying and monitor Facial expressions	1	35	1	45	8	20	1.85	61.67	O.C
		4		8						
2.d	* Monitor the change child's heart rate , pallor and shortness of breath	1	42.5	1	42.5	6	15	1.73	57.50	O.C
		7		7						
3. 3.a	For minor pain in children	6	15	1	42.5	17	42.5	2.28	75.83	L
	*Use touch and massage on the site of pain			7						
3.b	* Encourage child to watch TV channels and video	6	15	1	42.5	17	42.5	2.28	75.83	L
				7						
3.c	* Encourage child to read, drawing	7	17.5	2	62.5	8	20	2.03	67.50	L
				5						
4. 4.a	Nurse role in case of children suffering from pain after chemotherapy? * Uses heat and cool bags	7	17.5	1	47.5	14	35	2.17	72.50	L
				9						
4. b	* Uses pictures fantasy card	9	22.5	1	35	17	42.5	2.20	73.33	L
				4						
4. c	* Encourage mother to sit with the child and read a book for him	1	40	1	37.5	9	22.5	1.83	60.83	O.C
		6		5						
4.d	* Uses massage and Touch on the site of pain	1	27.5	2	57.5	6	15	1.88	62.50	O.C
		1		3						
5. 5.a	What should be followed to reduce the incidence of pain and cramping? * Trying to remove a child from the causes of pain	9	22.5	1	32.5	18	45	2.23	74.17	L
				3						
5. b	* confirmed by ensuring the effectiveness and safety of pain treatment	6	15	1	45	16	40	2.25	75.00	L
				8						
6	The nurse's daily visit on regular base to assess child's condition and arrangement of treatment as needed	4	10	1	40	20	50	2.40	80.00	M
				6						
7	During the child's vulnerability to psychological crisis the nurse: shaking the child and hug him	4	10	1	32.5	23	57.5	2.48	82.50	M
				3						
8	The nurse assess the state of pain, including pain intensity and changes of pain intensity after the previous dose of the drug and its side effects	1	32.5	1	32.5	14	35	2.03	67.50	L
		3		3						
9	Encourages the child to make breathing exercises to eliminate pain and reduce anxiety to the child	7	17.5	1	40	17	42.5	2.25	75.00	L
				6						
10.	The nurse role during drug administration include:	1	27.5	1	27.5	18	45	2.17	72.50	L
10 a	* maintain the painkilling during drug interaction			1						
10 b	* Assess the effectiveness of drug interactions	1	37.5	1	40	9	22.5	1.85	61.67	O.C
		5		6						
10 c	*Assesses side effects of pharmaceutical interventions.	2	65	9	22.5	5	12.5	1.48	49.17	O.C
		6								
11 a	Nurse role in the assessment of pain to the child include	1	47.5	1	27.5	10	25	1.78	59.17	O.C
	* Sure where the pain			9						
11 b	* Make sure the pain along the area	1	32.5	1	45	9	22.5	1.90	63.33	O.C
		3		8						

*Evaluation of Nurses' Practices toward Pain Management of Leukemic Child under Chemotherapy*

11 c	* Confirmed the severity of pain	1 9	47.5	1 7	42.5	4	10	1.63	54.17	O.C
12	The nurse measured child's vital signs after receiving the first dose of analgesia& opiates drugs	8	20	1 2	30	20	50	2.30	76.67	L
13	Assesses child's suffering pain and records the pain site and respiratory distress and pulse rates during and after giving medication abuse	4	10	1 8	45	18	45	2.35	78.33	M
14	Used Local anesthesia during diagnostic procedures such as withdrawal of spinal fluid or to withdraw of the bone marrow biopsies or skin biopsies	5	12.5	1 8	45	17	42.5	2.30	76.67	L
15. 15a	Use of non-pharmacological treatments such as: - * educates the mother according to child's age the non-pharmacological pain management	8	20	2 3	57.5	9	22.5	2.03	67.50	L
15 b	* Prepare the games and toys and interactive games	1 2	30	2 6	65	2	5	1.75	58.33	O.C
15 c	* Educate the child to do deep breathing exercises and relaxes muscles	2 0	50	1 8	45	2	5	1.55	51.67	O.C
15 d	* Do using photos guided by trained people	3 4	85	5	1.55	1	2.5	1.18	39.17	O.C
16	Measures the side effects of opiates drugs such as constipation, nausea, hallucinations and itching and poor motor and cognitive	1 5	37.5	8	20	17	42.5	2.05	68.33	L
17	Provide Care for the child with mouth sores, especially after chemotherapy and cares for Throat sores	8	20	2 0	17	12	30	2.10	70.00	L
18	Assesses the function of the child's respiratory system during administration of analgesic drugs, sedatives and opiates medication	7	17.5	2 3	57.5	13	32.5	2.23	74.17	L
19	Encourages the child to do a combination of relaxation exercises and fantasies image to reduce the pain	9	22.5	2 3	57.5	8	20	1.98	65.83	O.C
20	Encourage the child to focus on the entertaining events and comfortable during pain attack	1 1	27.5	1 9	47.5	10	25	1.98	65.83	O.C
21	watching cartoons and reading the stories entertaining and fun for the child	1 2	30	1 6	40	12	30	2.00	66.67	O.C
22	Rehabilitate the child to accept the pain before painful procedure or harmful for the treatment of leukemia	1 5	37.5	1 2	30	13	32.5	1.95	65.00	O.C
23	Give doll to the child and allow him to do anything for the doll, during pain especially in case of constant pain	1 1	27.5	2 0	50	9	22.5	1.95	65.00	O.C
24	Maintain the child in comfortable position in the bed such as using pillows under the neck and knee	9	22.5	1 6	40	15	37.5	2.15	71.67	L
25	Holding the child's hand and talk to him during painful procedures that used in treatment of children with leukemia	1 1	27.5	2 1	52.5	8	20	1.93	64.17	O.C

The findings of this table indicated that the evaluation of relative sufficiency was out of comparison on item ( 1c, 2c, 2d, 4c, 4d, 10b, 10c, 11a, 11b, 11c, 11d, 15b, 15c, 15d, 19, 20, 21, 22, 23 and 25 ), while items ( 6 , 7 and 13) was moderate and items ( 1a, 1b, 2a, 2b, 3a, 3b, 3c , 4a , 4b , 5a , 5b ,8, 9, 10a , 12 , 14 , 15a, 16, 17 and 24) was low

**Table 3. Association between Nurses' Age and their Practices Scores**

Age	Poor		Fair		Good		Total		$\chi^2$ obs.	Sig.
	F	%	F	%	F	%	F	%		
20 – 24	1	2.5	4	10	7	17.5	12	30	11.713	N.S
25 – 29 years	5	12.5	1	2.5	5	12.5	11	27.5		
30 -34 years	2	5	5	12.5	3	7.5	10	25		
35 – 39 years	3	7.5	0	0	3	7.5	6	15		
45 -49 years and more	0	0	0	0	1	2.5	1	2.5		
Total	11	27.5	10	25	19	47.5	40	100		
P≤0.05		df = 8		$\chi^2$ crit. = 15.51						

**df= degree of freedom; f= frequency; NS= Non-significant; P= Level of probability; Sig.= significance;  $\chi^2$  crit. = Chi-square critical;  $\chi^2$  obs. = Chi-square observed; %= Percentage**

This table indicates that there is no significant association between nurses' ages of sample and their practices scores

**Table 4. Association between Nurses' Gender and their Practices Scores**

Scores Gender	Poor		Fair		Good		Total		$\chi^2$ obs.	Sig.
	F	%	F	%	F	%	F	%		
Female	7	17.5	8	20	11	27.5	26	65	1.420	N.S
Male	4	10	2	5	8	20	14	35		
Total	11	27.5	10	25	19	47.5	40	100		
P $\leq$ 0.05                      df = 2 $\chi^2$ crit. = 5.99										

df= degree of freedom; f= frequency; NS= Non-significant; P= Level of probability; Sig.= significance;  $\chi^2$  crit. = Chi-square critical;  $\chi^2$  obs. = Chi-square observed; %= Percentage

This table shows that there is no significant association between nurses' gender and their practices scores

**Table 5. Association between Nurses' Marital Status and their Practices Scores**

Scores marital states	Poor		Fair		Good		Total		$\chi^2$ obs.	Sig.
	F	%	F	%	F	%	F	%		
Married	6	15	0	0	7	17.5	13	32.5	10.089	N.S
Single	3	7.5	7	17.5	9	22.5	19	47.5		
Widowed	2	5	2	5	3	7.5	7	17.5		
Divorce	0	0	1	2.5	0	0	1	2.5		
Total	8	20	15	37.5	17	42.5	40	100		
P $\leq$ 0.05                      df = 6 $\chi^2$ crit. = 12.59										

df= degree of freedom; f= frequency; NS= Non-significant; P= Level of probability; Sig.= significance;  $\chi^2$  crit. = Chi-square critical;  $\chi^2$  obs. = Chi-square observed; %= Percentage

This table shows that there is no significant association between nurses' marital status and their practices scores and (17.5 %) of single has good scores.

**Table 6. Association between Nurses' Level of Education and their Practices Scores**

Scores Level of Education	Poor		Fair		Good		Total		$\chi^2$ obs.	Sig.
	F	%	F	%	F	%	F	%		
Nursing primary School graduate	0	0	0	0	1	2.5	1	2.5	15.064	S
Nursing High School graduate.	2	5	0	0	3	7.5	5	12.5		
Nursing Institute graduate.	6	15	9	22.5	11	27.5	26	65		
Nursing college graduate and Other	3	7.5	1	2.5	4	10	8	20		
Total	11	27.5	10	25	19	47.5	40	100		
P $\leq$ 0.05                      df = 6 $\chi^2$ crit. = 12.59										

df= degree of freedom; f= frequency; NS= Non-significant; P= Level of probability; Sig.= significance;  $\chi^2$  crit. = Chi-square critical;  $\chi^2$  obs. = Chi-square observed; %= Percentage

This table shows that there is a significant association between nurses' level of education and their practices scores and these tables reveal the (27.5 %) of the sample graduated from nursing institute and have good scores.

**Table 7. Association between Years of Experience in the Leukemic Wards and Nurses' Practices Scores**

Scores years of Experience in the leukemic wards	Poor		Fair		Good		Total		$\chi^2$ obs.	Sig.
	F	%	F	%	F	%	F	%		
1 – 5 years	7	17.5	7	17.5	14	35	28	70	6.196	N.S
6 – 10 years	2	5	2	5	0	0	4	10		
11 -15 year	2	5	1	2.5	3	7.5	6	15		
16 -20 year	0	0	0	0	2	5	2	5		

21 year and more	0	0	0	0	0	0	0	0		
Total	11	27.5	10	25	19	47.5	40	100		
P≤0.05	df = 6		χ <sup>2</sup> crit. = 12.59							

**df= degree of freedom; f= frequency; NS= Non-significant; P= Level of probability; Sig.= significance; χ<sup>2</sup> crit. = Chi-square critical; χ<sup>2</sup> obs. = Chi-square observed; %= Percentage**

This table shows that there is no significant association between years of experience in the leukemic wards and nurses' practices scores and this table reveals (35 %) of the years of experience in the leukemic wards from (1-5)years has good scores..

**Table 8. Association between Nurses' Training Sessions and their Practices Scores**

Scores	Poor		Fair		Good		Total		χ <sup>2</sup> obs.	Sig.
	F	%	F	%	F	%	F	%		
Training Sessions										
No	9	22.5	9	22.5	17	42.5	35	87.5	6.78	S
Yes	2	5	1	2.5	2	5	5	12.5		
Total	11	27.5	10	25	19	47.5	40	100		
P≤0.05	df = 2		χ <sup>2</sup> crit. = 5.99							

**df= degree of freedom; f= frequency; P= Level of probability; S= Significant; Sig.= significance; χ<sup>2</sup> crit. = Chi-square critical; χ<sup>2</sup> obs. = Chi-square observed; %= Percentage**

This table indicates that there is a significant association between nurses' training sessions and their practices scores and this table also revealed (22.5 %) of the sample has no training sessions and has poor scores.

#### IV. Discussion

The study found that, the low relative sufficiency in (47.7%) of items are related to nurse's practice toward pain management include pharmacological and non-pharmacological intervention for leukemic child(table 2), the finding of this study indicated that no significant association between nurses' gender, age, marital status and years of experience with nurses' practice toward pain management for leukemic child. The findings of this study show there was significant association with level of education and nurse's practice about pain management for leukemic child since higher percentage of nurse's practice was found among nurses collage graduate table(6).

The study results reveal that only (12.5%) of them had opportunity to participate in training courses; this may be due to the policy of the Ministry of Health or policy of the hospitals. This may have influence on the level of nurse's practice because training courses are very important to increase knowledge and practices and help nurses in updating their knowledge, therefore the nurse practice increase when the nurse has highly level of education table (8). These results are in consistence with (Al-Mansory 2005) in Iraq This study revealed that a positive relationship between nurses' practice and their level of education <sup>(8)</sup>. Knowledge deficit and poor attitude towards pain can lead to bad pain management of nurse's practices, and as a consequence unnecessary suffering of children in their care, the findings of this study supported the concern that inadequate knowledge and poor practices exist towards pediatric pain management, the results agree with the finding of the study conducted by (McCaffery & Robinson, 2002) who reported that poor nurses knowledge about pain management led to lack of pain management practices provided for the child with pain attack<sup>(9)</sup>.

This result showed that most of nurses have poor practice toward pain management in pharmacological intervention and non pharmacological intervention related to insufficient structural continues education programs as a result of policy of these hospitals and the policy of Ministry of Health for nursing education, insufficient nursing resources like nursing library, online resources, nursing journals and lack of nursing documentations <sup>(10)</sup>. Manworren (2000) reported that the majority of nurses are not meeting standards of care in the management and documentation of cancer- related pain, and the majority of the nurses in the study did not meet their child's pain goals <sup>(11)</sup>.

The study concludes that the nurse's knowledge toward pharmacological intervention for pain management was poor, and inadequate attitude towards pain can lead to bad pain management practices of nurses, and as a consequence unnecessary suffering of children in their care. Effective care cannot be achieved while the nurse has a knowledge deficit or is influenced by attitudinal barriers.

In conclusion this study found that children's pain is still not managed effectively due to knowledge deficits, incorrect or outdated beliefs about pain and pain management and the decision-making strategies that nurses used.

## V. Recommendations

The study recommends special training programs should be designed and constructed for nurses in this area to reinforce their skill in pain management and promote their experiences, increasing the number of professional nurses' graduate from colleges of nursing to enroll in leukemic wards and provide them with scientific resources in related to pain management, developing pain assessment tools for assessing child's pain and evaluating the level of pain management procedures, establishing new standard checklist suitable for nurses' practices concerning pain management for Leukemic children in Iraq depending on international standard checklist and upon the result of this study.

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