Results

Results of the study will be presented in the following parts:

PART I: Socio-demographic characteristics of mothers and their children, tables (1: 5), figures (1: 8).

PART II: Mothers' knowledge about childhood cancer and chemotherapy, tables (6:16).

PART III: Mothers' attitude towards care of their children undergoing chemotherapy, table (17).

PART IV: Relation between variables of the study, tables (18:21), figures (9:12).

Part I: - Characteristics of the study sample

Table (1): Distribution of children undergoing chemotherapy according to their socio-demographic characteristics

Characteristics of the children	(N0)=100	(%)
Age in years		
1:>4	**61**	**61**
4:>8	21	21
8:>12	10	10
12-18	8	8
$\overline{X}$ ± S.D = 3.6 ± 1.95		
Gender		
Male	**53**	**53**
Female	47	47
Level of education		
Not yet enrolled	**52**	**52**
Nursery	18	18
Primary	21	21
Preparatory	3	3
Secondary	6	6
Rank of the child		
Only	10	10
First	29	29
Second	**32**	**32**
Last	29	29

As shown in table (1) regarding socio-demographic characteristics of children undergoing chemotherapy it was found that, more than half of children (61%) were in age group of 1:>4 years, while (21%) were in age group 4:>8 years, (10%) in age group 8:>12 years, (8%) in age group 12-≥ 18 years and the mean age of children was (3.6 ±1.95 years).

Regarding sex of children it was found that, (53%) of them were males, while (47%) were females. In relation to their level of education it was found that (48%) were in different levels of education, while more than half of them (52%) were not yet entrolled at the school.

Fig (1): Percentage distribution of children according to their age

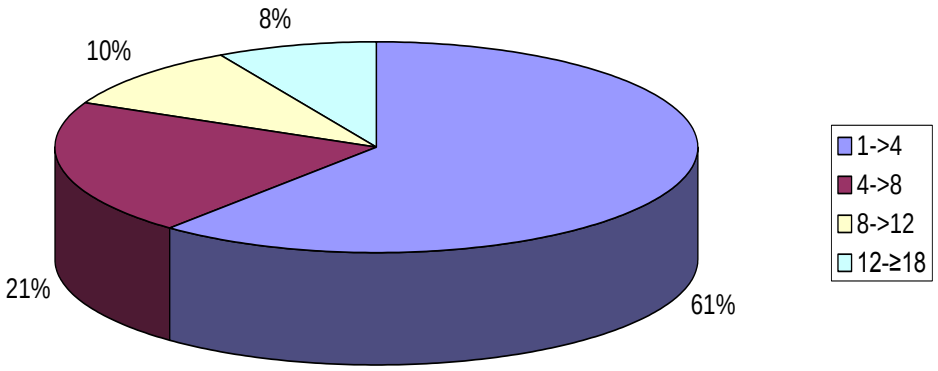

Fig (2): Percentage distribution of children according to their sex

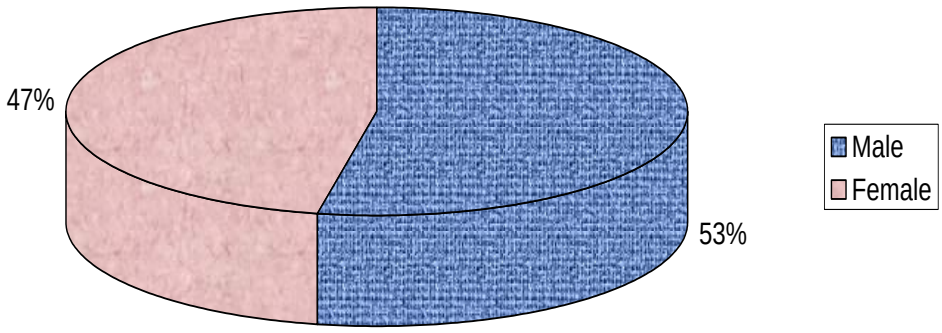

Fig: (3): percentage distribution of children according to their level of education

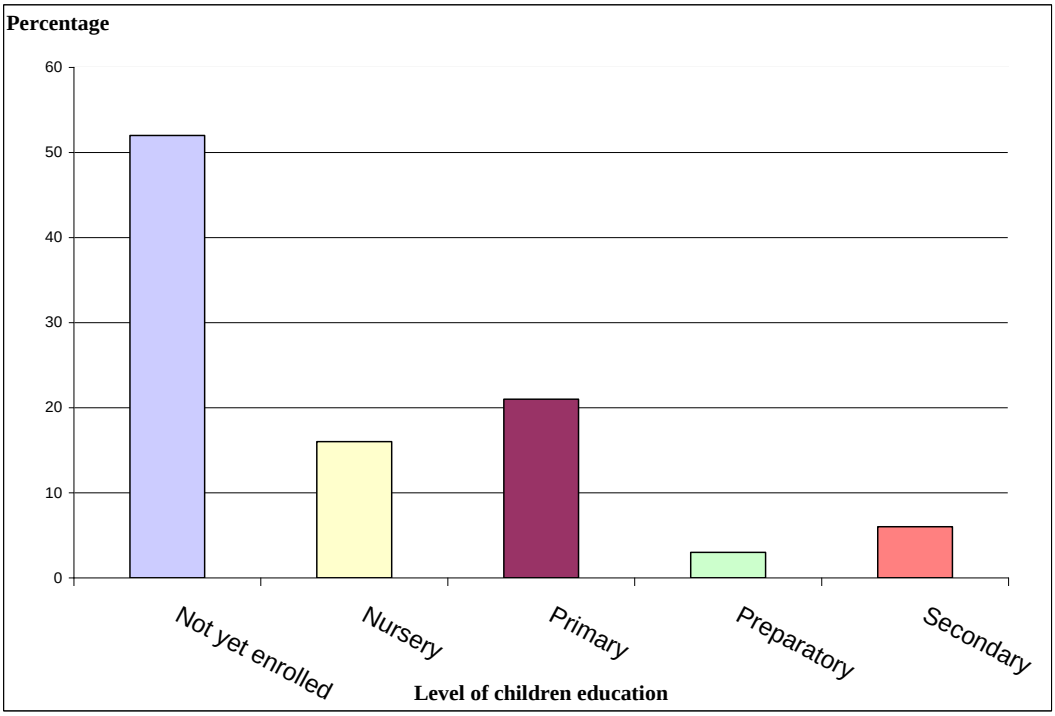

Fig: (4): percentage distribution of children according to rank in the family

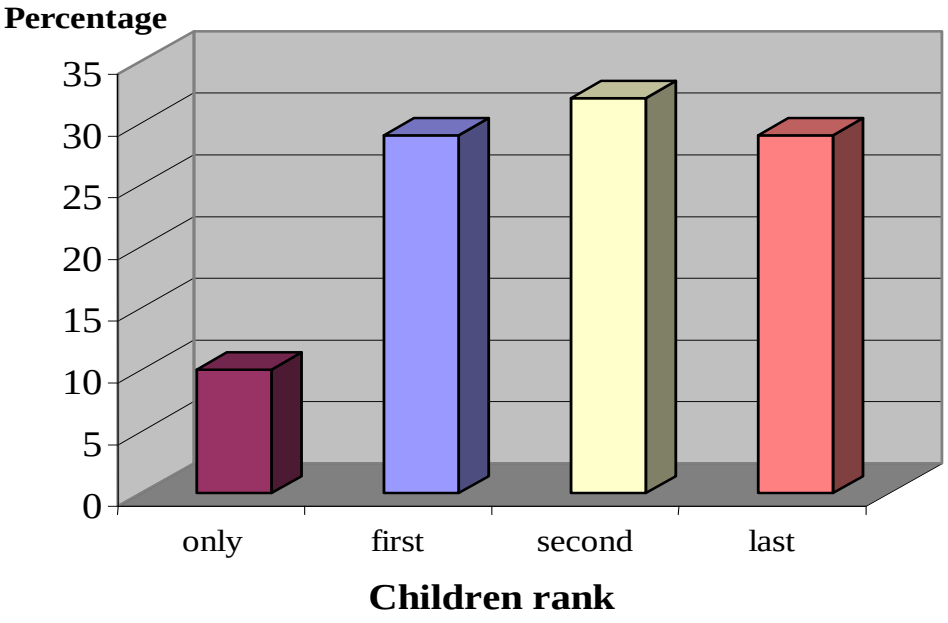

Table (2) Distribution of children undergoing chemotherapy according to their diagnosis

Items	(N0)=100	(%)
Medical diagnosis		
Leukemia	**34**	**34**
Lymphoma	**20**	**20**
Wilm's tumor	**14**	**14**
Neuroblastoma	**10**	**10**
Liver tumor	**5**	**5**
Brain tumor	**4**	**4**
Bone tumor	**4**	**4**
Retinoblastoma	**4**	**4**
Immature tearatoma	**3**	**3**
Skin	**2**	**2**

As regards children's diagnosis it was found that, (34%) were having leukemia, (20%) were having lymphoma, Wilm's tumor (14%), neuroblastoma (10%), liver tumor (5%), brain tumor, bone tumor and retinoblastoma were (4%), immature tearatoma (3%) and skin (2%) of all children.

Fig: (5): Percentage distribution of children according to their medical diagnosis

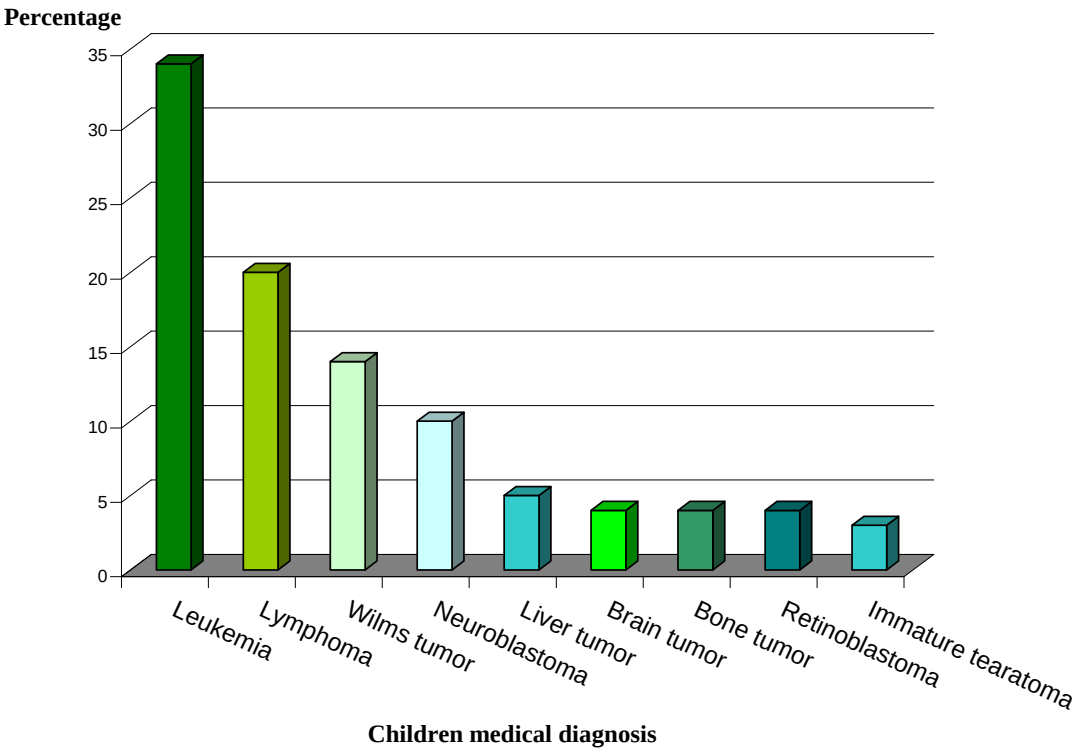

Table (3): Distribution of children mothers according to their socio-demographic characteristics

Items	(N0)	(%)
Age in years		
20 :> 25	25	25
25 :> 30	**45**	**45**
30 :≥35	30	30
$\overline{X}$ ±S.D = 32.9 ±6.9		
Level of education		
Illiterate	18	18
Middle education	28	28
High education	54	54
Occupation		
House wife	**89**	**89**
Working	11	11

As illustrated in table (3) regarding socio-demographic characteristics of mothers it was found that, (45%) of them ranged between 25 : > 30 years of mothers' age. The mean age was 32.9±6.9 years.

In relation to mothers' level of education and occupation it was found that, more than one third (54%) of them were high education, while more than three quarters of them (89%) were housewives.

Fig (6): Percentage distribution of mothers according to their age

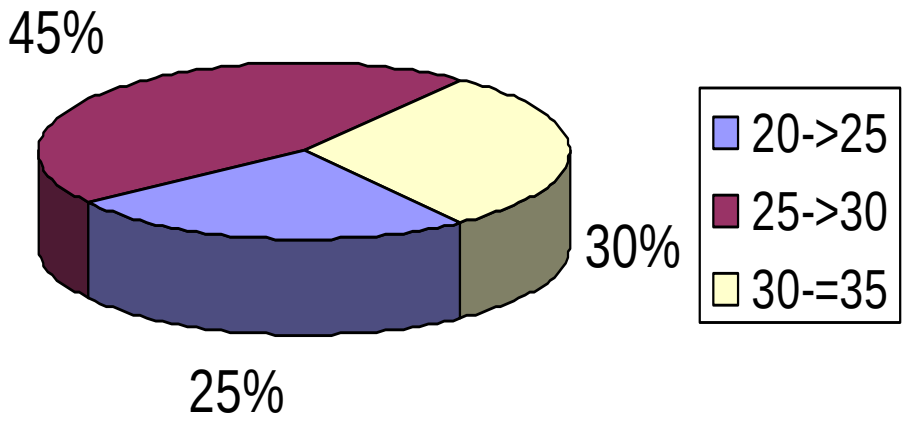

Fig: (7): Percentage distribution of mothers according to their level of education

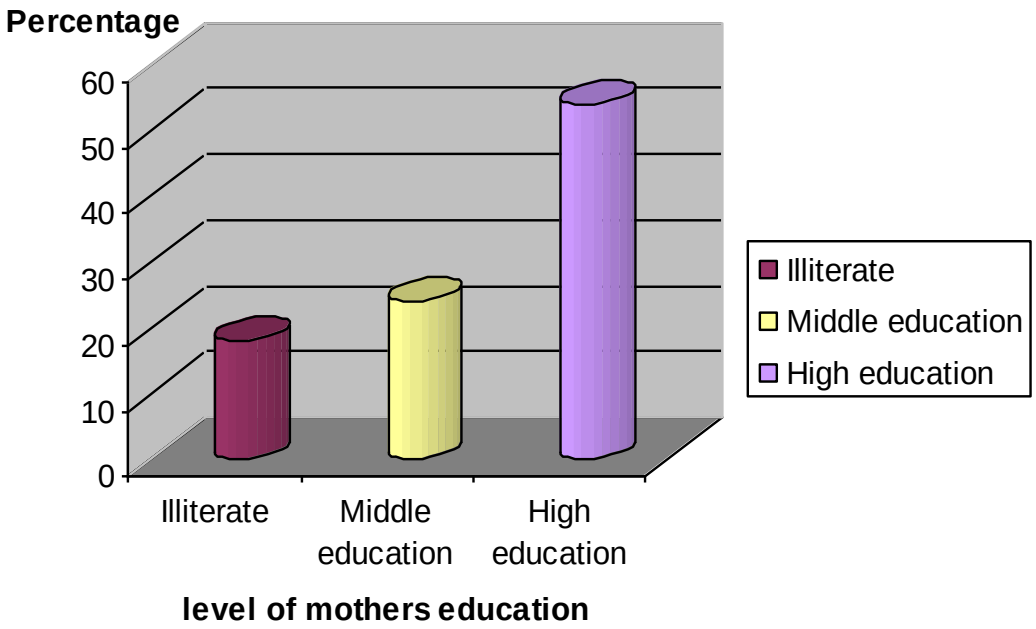

Fig: (8): Percentage distribution of mothers according to their occupation

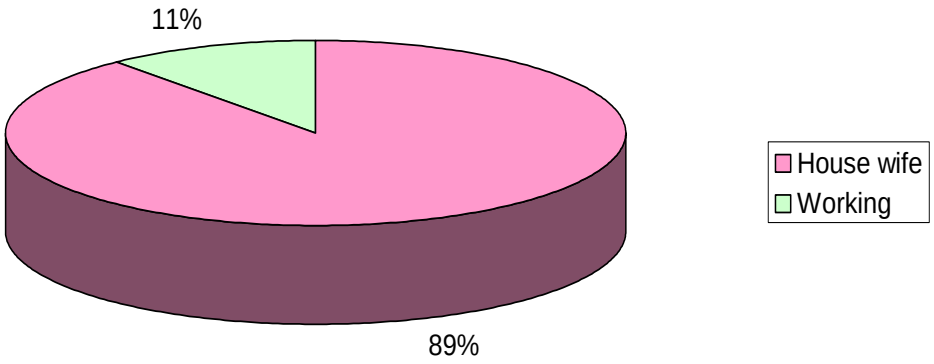

Table (4): Distribution of children according to characteristics of their family

Items	(N0)	(%)
Family size		
3 – 6	**93**	**93**
7 – 10	7	7
Monthly income/LE		
100 - >200	7	7
200 - ≥ 300	**93**	**93**
$\bar{X}$±S.D.= 250 ± 72.80		
Family history of cancer		
Yes	37	37
No	**63**	**63**

As clear in table (4) the family size ranged between 3 to 6 members as reported by (93%) of them. The monthly family income as reported by (93%) of them was between 200:≤300 pounds / month, while more than half of children (63%) reported no family history of cancer.

Table (5): Distribution of children and their mothers according to their environmental characteristics

Items	(N0)	(%)
Residence		
Urban	23	23
Rural	**77**	**77**
Types of home		
Independent	**63**	**63**
Shared	37	37

As observed from table (5) regarding environmental characteristics of children and their mothers, the present study showed that, (77%) of mothers and their children live in rural residence and more than half of them live in an independent home as mentioned by (63%) of them.

Part II: - Mothers knowledge about childhood cancer and chemotherapy

Table (6): Distribution of mothers' according to their knowledge about concept, incidence and types of childhood cancer

Items	(N0)=100	(%)
Concept of cancer	*	
Curable	**45**	**45**
Chronic	**38**	**38**
Controlled	**37**	**37**
Acute	28	28
Infectious	10	10
Common age of childhood cancer	*	
Unknown	19	19
1 :< 5	44	44
5 :< 10	39	39
10 :< 15	38	38
All ages	**56**	**56**
Types of childhood cancer	*	
Leukemia	**61**	**61**
Brain	47	47
Lymphoma	47	47
Wilms tumors	46	46
Skin	44	44
Liver	44	44
Retinoblastoma	43	43
Bone tumor	40	40
Unknown	13	13

N.B: * Total numbers are not mutually exclusive

As regards mothers' knowledge related to the concept of cancer, it was found that, more than one third of the studied mothers reported that, cancer is curable (45%), chronic (38%) and controlled disease (37%). While mothers were asked about the common age of childhood cancer, (56%) of them reported all ages. The most common known type of cancer by the studied mothers was leukemia as reported by (61%) of them.

Table (7): Distribution of mothers according to their knowledge about causes / predisposing factors and manifestations of childhood cancer

Items	(N0)=100	(%)
Predisposing factors/causes in children	*****	
Envy	**37**	**37**
Environmental pollution	**37**	**37**
Low immunity of child	**37**	**37**
Genetic	**37**	**37**
Wrong drugs	33	33
Exposure of child to radiation	27	27
Exposure of mother to radiation during pregnancy	27	27
Infection	26	26
Unknown	23	23
Manifestations of childhood cancer	*	
Sudden weight loss	**56**	**56**
Indigestion or difficulty in swallowing	42	42
Change in bowel or bladder habits	40	40
Unusual bleeding or discharge	36	36
Nagging cough or hoarseness	35	35
Obvious change in skin	34	34
A sore that doesn't heal	32	32
Unknown	11	11

N.B: * Total numbers are not mutually exclusive

As noticed from table (7) regarding predisposing factors/causes of childhood cancer it was found that, more than one third (37%) of mothers stated envy, environmental pollution, low immunity of child and genetic.

In relation to manifestations of childhood cancer, it was found that, more than half of mothers reported (56%) sudden weight loss.

Table (8): Distribution of mothers according to their knowledge about complications of childhood cancer

Items	(N0)=100	(%)
Complications of childhood cancer	*****	
Infertility	**37**	**37**
Metastasis	**37**	**37**
Death	35	35
Unknown	23	23

N.B: * Total numbers are not mutually exclusive

As clear in table (8) in relation to mothers' knowledge about complication of childhood cancer it found that, more than one third of the mothers reported infertility and metastasis (37%).

Table (9-1): Distribution of mothers according to their knowledge about physical impact of cancer on children

Items	(N0)=100	(%)
Physical impact	*	
Impaired body image	**55**	**55**
Pain	**50**	**50**
Repeat medical investigation	**48**	**48**
Growth retardation	44	44
Disfigurement	40	40
Loss of body part	40	40
Anemia	39	39
Decrease immunity	37	37
All of the above	15	15

N.B: * Total numbers are not mutually exclusive

As illustrated in table (9-1) in relation to knowledge of mothers about physical impact of cancer on children, it was found that, more than half of mothers reported impaired body image (55%), pain (50%) and repeat medical investigation (48%).

Table (9-2): Distribution of mothers according to their knowledge about emotional impact of cancer on their children

Items	(N0)=100	(%)
Emotional impact	*	
- Positive		
Increase parental love, security	**80**	**80**
There is no punishment	78	78
All needs are obtained	76	76
All of the above	26	26
- Negative		
Irritability	**61**	**61**
Poor school achievement and attendance	**61**	**61**
Depression	50	50
Aggression	49	49
Isolation	46	46
Stigma	41	41
All of the above	20	20

N.B: * Total numbers are not mutually exclusive

As illustrated in table (9-2) in relation to knowledge of mothers regarding positive emotional impact of cancer on children it was found that, (80%) of mothers reported increase parental love, security. As regarding negative emotional impact of cancer on children, it was found that, more than half of mothers (61%) reported irritability and poor school achievement and attendance.

Table (9-3): Distribution of mothers according to their knowledge about cognitive and neurological impact of cancer on their children

Items	(N0)=100	(%)
Cognitive and neurological impact	*	
Memory impairment	**62**	**62**
Lack of concentration	**62**	**62**
Deficit of attention	55	55
Difficult of fine motor skills	30	30

N.B: * Total numbers are not mutually exclusive

As an observed in table (9-3) regarding mothers' knowledge about cognitive and neurological impact of cancer on children it was found that, more than half of mothers (62%) reported memory impairment and lack of concentration, while (30%) of mothers reported difficult of fine motor skills.

Table (9-4): Distribution of mothers according to their knowledge about social impact of cancer on the family of the affected children

Item	(N0)=100	(%)
Social impact	*	
- Positive		
Over protection	**96**	**96**
Family become positive	**96**	**96**
More coherent family	94	94
All of the above	93	93
- Negative		
Hopelessness	**57**	**57**
Phobia from death	**57**	**57**
Conflict between family member	**57**	**57**
Fear from metastasis	**54**	**54**
Stigmatizes	**54**	**54**
Isolated	50	50
Be negative and run away from responsibility	47	47
All of the above	11	11

N.B: * Total numbers are not mutually exclusive

As shown in table (9-4) regarding knowledge of mothers about positive social impact of cancer on the family, it was found that, (96%) of mothers reported over protection and family becomes positive. In relation to the negative social impact it was found that, more than half of mothers (57%) reported hopelessness, phobia from death and conflict between family members, while (54%) of them stated fear from metastasis and stigmatizes.

Table (9-5): Distribution of mothers according to their knowledge about financial impact of cancer on the family of the affected children

Items	(N0)=100	(%)
Financial impact in form of :	*****	
Cost of transport	**82**	**82**
Cost of treatment and investigation	78	78
Insufficient income	69	69
All of the above	**39**	**39**

N.B: * Total numbers are not mutually exclusive

In relation to financial impact of cancer on the family it was found that, (82%) of mothers stated cost of transport, while more than one third of them reported all of the above.

Table (10): Distribution of mothers according to their knowledge about treatment of cancer in their children

Items	(N0)=100	(%)
Methods of cancer treatment	*	
Chemotherapy	**93**	**93**
Radiotherapy	46	46
Surgical	44	44
Unknown	3	3

N.B: * Total numbers are not mutually exclusive

As shown in table (10) regarding knowledge of mothers about treatment of cancer in children it was found that, chemotherapy was known by (93%) of the studied mothers reported.

Table (11): Distribution of mothers according to their knowledge about definition and purpose of chemotherapy

Items	(N0)=100	(%)
Definition of chemotherapy		
Unknown	**68**	**68**
Known	32	32
Purpose of chemotherapy	*	
Interferes with the proliferation of fast growing malignant cells	**55**	**55**
Cures cancer	**47**	**47**
Kills cancer cells that may have spread to other parts of body	**45**	**45**
Relieve symptoms caused by cancer	43	43
Unknown	17	17

N.B: * Total numbers are not mutually exclusive

As observed in table (11) regarding knowledge of mothers about definition of chemotherapy, it was unknown by (68%) of the studied mothers. As regards purpose of chemotherapy (55%) , (47%) and (45%) of the studied mothers reported that interferes with the proliferation of fast growing malignant cells, cures cancer and kills cancer cells that may have spread to other parts of body.

Table (12): Distribution of mothers according to their knowledge about duration, route and side effects of chemotherapy

Items	(N0)=100	(%)
Duration of treatment with chemotherapy (in months)	*	
Unknown	**28**	**28**
1 : > 3	**27**	**27**
3 : > 6	**25**	**25**
≥ 6	22	22
Route of chemotherapy administration	*	
Intravenous	**89**	**89**
Oral	**48**	**48**
Intrathcal	**47**	**47**
Intramuscular	24	24
Intracavity	19	19
Subcutaneous	16	16
Side effects of chemotherapy	*	
Loss of appetite	**65**	**65**
Alopecia	**64**	**64**
Nausea and vomiting	**64**	**64**
Fever	63	63
Fatigue	56	56
Anemia	54	54
Anaphylactic reaction	37	37
Extravasations	37	37
Bleeding	36	36
Stomatitis	36	36

N.B: * Total numbers are not mutually exclusive

As illustrated in table (12) towards duration of treatment with chemotherapy it was found that mothers stated unknown was (28%), while 1: > 3 months and 3: > 6 months represented (27%) and (25%) of the studied mothers.

As regards the route of chemotherapy administration, most of the mothers (89%) reported that chemotherapy administration via intravenous route, while (48%) and (47%) of them reported oral and intrathecal routes, respectively.

In relation to side effects of chemotherapy, it was found that, more than half of the studied mothers reported loss of appetite (64%) and (65%) of them stated alopecia, nausea and vomiting.

Table (13): Distribution of mothers' knowledge regarding care of physical problems of their children undergoing chemotherapy

Items	Level of mother's knowledge					
	Good		Average		Poor	
	No	%	No	%	No	%
- Fever	14	14	38	38	48	48
- Bleeding	9	9	31	31	60	60
- Anorexia	**16**	**16**	34	34	40	40
- Vomiting	13	13	**40**	**40**	47	47
- Diarrhea	**16**	**16**	32	32	42	42
- Constipation	**16**	**16**	33	33	51	51
- Hair loss	13	13	37	37	50	50
- Joint and bone pain	11	11	32	32	57	57
- Dry of mucous membrane	10	10	27	27	63	63
- Dryness skin	10	10	26	26	**64**	**64**

As shown in table (13) regarding level of mothers' knowledge about care of physical problems of their children undergoing chemotherapy it found that, (16%) of mothers reported good knowledge in care of anorexia, diarrhea and constipation, while (40%) reported average knowledge in care of vomiting and (64%) reported poor knowledge in care of dryness skin.

Table (14): Distribution of mothers' knowledge about care of emotional and scholastic problems of their children undergoing chemotherapy

Items	(No)=100	(%)
Care of emotional problem	*	
Psychological support	**74**	**74**
Reassurance	**69**	**69**
Play with the child	**67**	**67**
Encourage child's normal activity	62	62
Verbalize and discuss feelings	61	61
Be friendly and answer all questions honestly and clearly	59	59
All of the above	29	29
Scholastic	*	
Encourage school reentry after cancer diagnosis	**43**	**43**
Encourage child to participate in ordinary tasks, responsibilities and school activity	**39**	**39**
Provide school with up to date medical information regarding child condition	**36**	**36**
Communicate effectively and regularly with school personnel	35	35
Ensure that child keeps up with school assignment	34	34
Interaction with classmates and peers	33	33
All of the above	23	23

N.B: * Total numbers are not mutually exclusive

As observed from table (14) regarding mothers' knowledge about care of emotional problems it found that (74%), (69%) and (67%) of mothers reported psychological support, reassurance and play repetitively.

In relation to care of scholastic problems, it was found that, one third and more of the studied mothers was encourage school reentry after cancer diagnosis (42%), encourage child to participate in ordinary tasks, responsibilities and school activity (39%) and provide school with up to date medical information regarding child condition (36%).

Table (15): Distribution of mothers' knowledge about preparation of their children before chemotherapy administration

Items	(N0)=100	(%)
Preparation before chemotherapy	*	
hospitalization	**87**	**87**
Psychological support	**78**	**78**
Laboratory tests	**74**	**74**
Wearing comfortable clothes	71	71
Informed consent	57	57
Arrange for child transportation	50	50
Keep child fasting at least two hours before the treatment	25	25
Unknown	4	4
Care during and after chemotherapy	*	
Bed rest	**82**	**82**
Distraction of attention	**65**	**65**
Emotional support	**61**	**61**
Try new hobbies and learn new skills	46	46
Give anti-emetics drugs just after chemotherapy session as doctor orders	45	45
Physical care	45	45
Drinking plenty of fluids	39	39
Exercise regularly	34	34
Eating well	30	30
Unknown	17	17

N.B: * Total numbers are not mutually exclusive

As observed in table (15) regarding mothers knowledge about care of their children it was found that hospitalization, psychological support and laboratory tests represented the preparation required before chemotherapy as reported by (87%), (78%) and (74%) of them respectively. While care of children during and after hospitalization, included bed rest, distraction of attention and emotional support as reported by (82%), (65%) and (61%) of them respectively.

Table (16): Distribution of mothers knowledge about continuity of care at home for their children undergoing chemotherapy

Items	(N0)=100	(%)
Continuity of care at home include	*	
Gentle physical hygiene	**91**	**91**
Safe food	**86**	**86**
Wash hands frequently	**84**	**84**
Giving drugs as prescribed	82	82
Contact the doctor regularly	75	75
Psychological support	74	74
Isolation from any infected person	71	71
Avoid over activity	58	58
Laboratory investigation	52	52
Avoid crowded areas	48	48
Observing the signs of relapsing	47	47
Prevent contact with animal, waste, bird cages and standing water	46	46
Check doctor before immunization	38	38
Balanced diet	38	38
All of the above	9	9

N.B: * Total numbers are not mutually exclusive

As clear in table (16) regarding knowledge of mothers about continuity of care at home it found that, most (91%), (86%) and (84%) of mothers reported gentle physical hygiene, safe food and wash hands frequently, respectively.

Part III: Mothers attitude towards care of their children undergoing chemotherapy

Table (17): Distribution of mothers according their attitude towards care of their children undergoing chemotherapy

Items	(No)=100	(%)
- Positive attitude (92 – 115)	**37**	**37**
- Indifferent attitude (70 – 91)	30	30
- Negative attitude (0 – 69)	**33**	**33**

As illustrated in table (17) as regards mothers' attitude towards care of their children undergoing chemotherapy it was found that one third of mothers (33%) were having negative attitude, compared with (37%) who were having positive attitude towards care of their children undergoing chemotherapy.

PART IV: Relation between variables of the study

Table (18): Relation between mothers' age and their total level of knowledge about care of their children undergoing chemotherapy

Age (years)	Level of mother's knowledge						X^2	P
	good		average		Poor			
	No	%	No	%	No	%		
20-25	7	24.1	10	26.4	8	24.2	5.41	<0.05
25-30	**13**	**44.8**	**19**	**50**	13	39.4		
30-≥35	9	31.1	9	23.6	12	36.4		
Total	29	100	38	100	33	100		

It is evident from table (18) it was found that, there was a statistical significance association (X^2 = 5.41, P<0.05)between mothers' age and their total level of knowledge about care of their children undergoing chemotherapy, where mothers having good and average knowledge were in the age group of 25-30 years.

Fig. (9): Relation between mothers' age and their total level of knowledge about care of their children undergoing chemotherapy

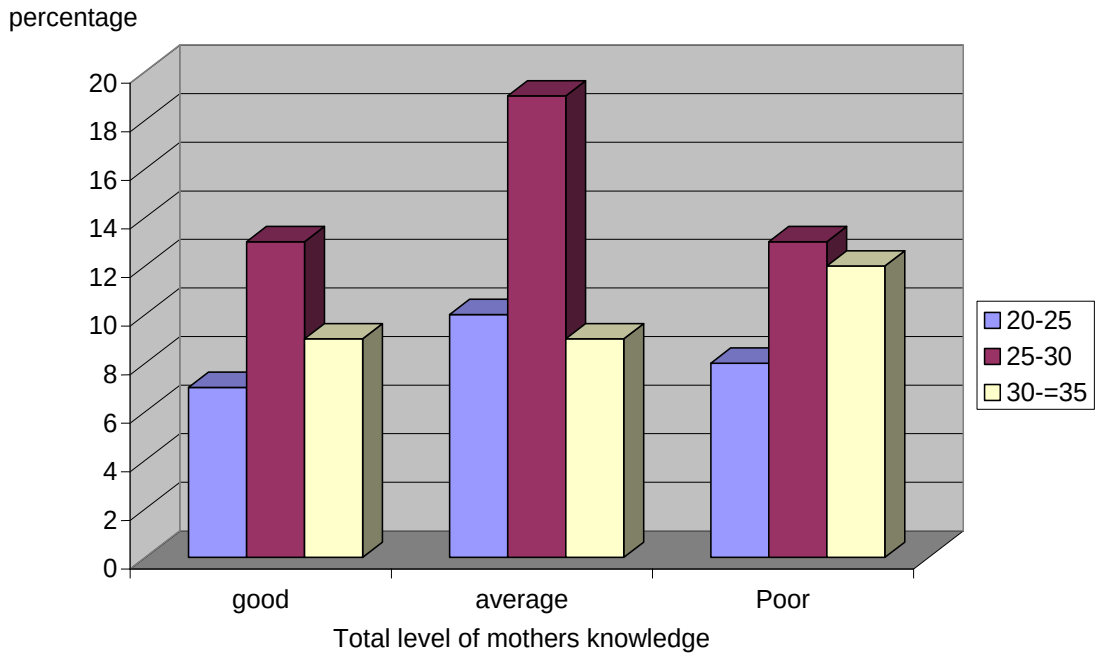

Table (19): Relation between mothers' level of education and their total level of knowledge about care of their children undergoing chemotherapy

Level of education	Level of mother's knowledge						X^2	P
	good		average		Poor			
	No	%	No	%	No	%		
Illiterate	4	12	5	13.4	**15**	**40.4**	30.85	<0.001
Middle education	4	12	5	13.4	13	39.4		
High education	**21**	**71.5**	**28**	**73.2**	5	20.2		
Total	29	100	38	100	33	100		

This table (19) showed that, there was statistical significant association ($\mathbf{X^2}$ =30.85, P < 0.001) between mothers' level of education and their total level of knowledge about care of their children undergoing chemotherapy. Where mothers' high education was associated with good knowledge, in compared with illiterate and middle education of mothers.

Fig: (10): Relation between mothers level of education and their total level of knowledge about care of their children undergoing chemotherapy

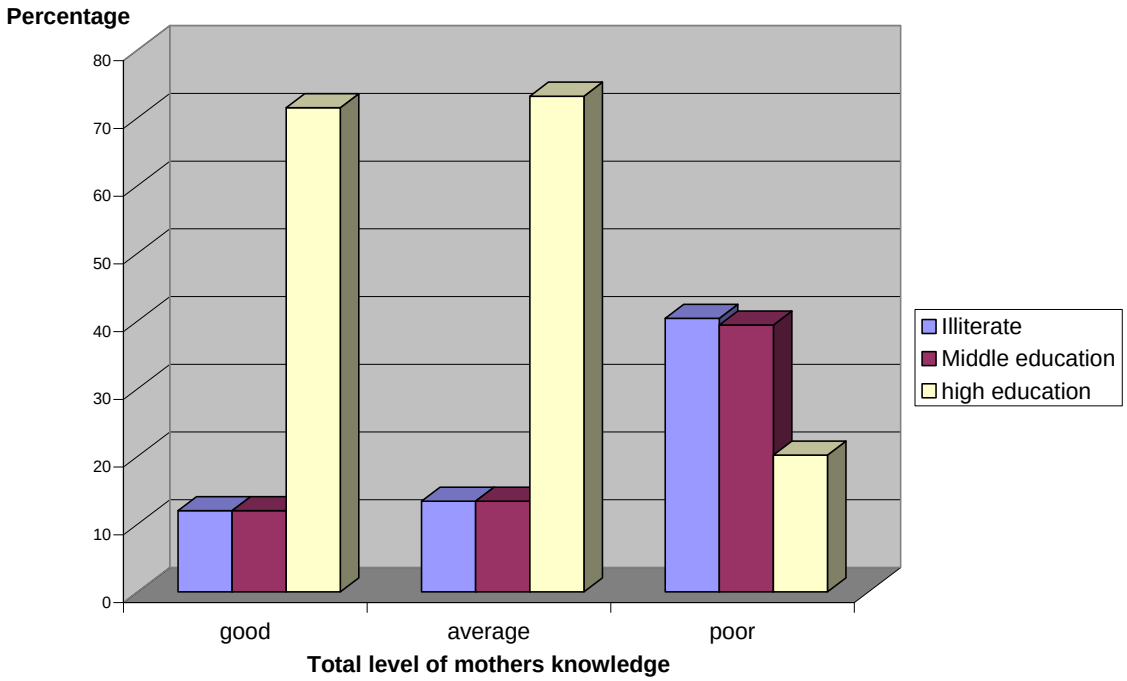

Table (20): Relation between mothers' type of home and their total level of knowledge about care of their children undergoing chemotherapy

Type of home	Level of mother's knowledge						X^2	P
	good		average		Poor			
	No	%	No	%	No	%		
Independent	**20**	**68.9**	29	76.3	14	42.4	9.32	<0.01
Shared	9	31.1	9	23.7	**19**	**57.6**		
Total	29	100	38	100	33	100		

As clear from table (20) it found that, there was statistical significant association ($\mathbf{X^2}$ = 9.32, P<0.01) between mothers' type of home and their total level of knowledge about care of their children undergoing chemotherapy, where mothers having good knowledge were living at independent home, while those having poor knowledge were living at shared home.

Fig (11): Relation between mothers' type of home and their total level of knowledge about care of their children undergoing chemotherapy

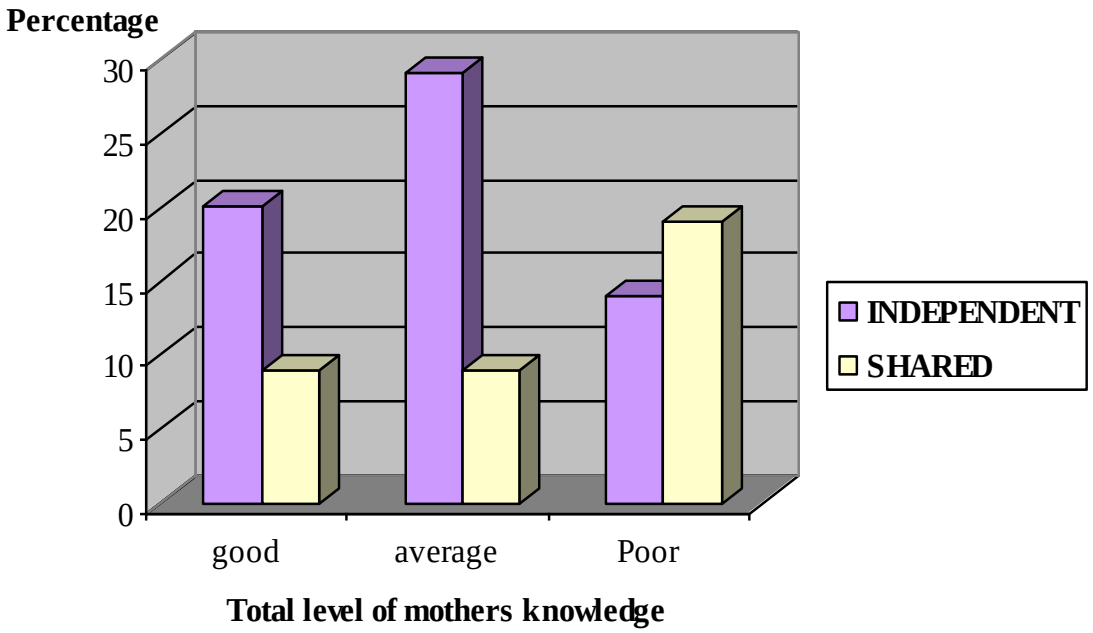

Table (21): Relation between mothers' total level of knowledge and attitude toward care of their children undergoing chemotherapy

Attitude	Level of mother's knowledge						X^2	P
	good		average		Poor			
	No	%	No	%	No	%		
Positive	**16**	**55**	14	36.8	7	21.2	13.16	<0.01
Indifferent	8	27	14	36.8	8	24.2		
Negative	5	18	10	26.4	**18**	**54.6**		
Total	29	100	38	100	33	100		

As clear from table (21) it found that, there was statistical significant association (X^2 = 13.16, P <0.01) between mothers total level of knowledge and their attitude toward care of their children undergoing chemotherapy, where (55%) of mothers who were having good knowledge were having positive attitude, while (54.6%) of mothers who were having poor knowledge were of negative attitude.

Fig (12): Relation between mothers' total level of knowledge and attitude towards care of their children undergoing chemotherapy