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Mother's coping strategies in caring for their children with leukemia in Al-Basrah Province/ Iraq

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***Abstract*---**Background: Leukemia is a cancer of the white blood cells that affects people of all ages. In the spleen, bone marrow, and lymph tissue, immature WBCs (blast cells) proliferate at a rapid rate. The cells are aberrant and unable to combat infection efficiently. As a result of the large number of aberrant cells that grow and are released into the peripheral circulation, they tend to concentrate in bodily tissues and organs, especially when circulation is slow. Objectives: to assess coping strategies among mothers of children with leukemia in Al-Basrah province and find out the association between coping strategies and demographic characteristics. Methodology: A cross-sectional descriptive study consisting of (105) mothers who have children under eighteen years were selected in oncology & hematology clinic and leukemia ward (B) were interviewed at Al.Basrah children specialist hospital from 9 July 2021 to 20 October 2021. Result: the mostly of (89.5%) mother's coping strategies of children with leukemia expressed moderate coping Conclusion: The study concluded that the overall assessment of mother's coping strategies of children with leukemia is moderate coping.

***Keywords*---**coping strategies, leukemia, mothers.

Introduction

Leukemia is the most frequent disease in children, accounting for almost one-third of all cancer diagnoses. It is a neoplastic disease of the spleen, bone marrow, and lymph nodes that affects the blood-forming tissues. In these blood-

forming tissues, normal hematopoiesis takes place. Extracellular protein factors control the proliferation and differentiation of developing cell pathways. This ensures that the necessary proportions of mature blood cell types are formed. Leukemia is a clonal disease caused by genetic abnormalities and hematopoiesis transformation of a single early progenitor myeloid or lymphoid cell (1).

As a result, the type of leukemia that develops is determined by the cell lineage impacted by the mutation. In leukemia, there is an excess of immature WBCs that are unable to function properly. Monoblasts, myeloblasts, and lymphoblasts are examples of immature WBCs known as "blasts." An abnormal number of immature white blood cells reduces the amount of space available in the bone marrow for the formation of other healthy blood cells. The blast cells may then penetrate the bloodstream and the central nervous system (CNS) (2).

Leukemia accounts for around 8% of all human malignancies, with acute leukemia accounting for roughly half of these (3). Acute leukemia, also known as acute lymphoblastic leukemia (ALL) and acute myeloid leukemia (AML), is a malignant condition caused by clonal proliferation of lymphoid and myeloid progenitors in both children and adult (4). Cancer is a serious health problem worldwide in terms of morbidity and mortality, but it is particularly prevalent in underdeveloped countries. In 2015, 8.8 million people died of cancer (about 16 percent of all annual deaths), with 70 percent of these deaths occurring in developing countries (5). The incidence of pediatric cancer in the majority of the world's population ranges from 50 to 200 per million children per year (6).

In developed countries, despite improvements in the 5-year survival rate, cancer is the second greatest cause of mortality in children after accidents (Murphy et al., 2013). Childhood malignancies account for fewer than one percent of all cancers diagnosed each year. In 2017, 10.270 children under the age of 15 will be diagnosed with cancer in the United States, according to the CDC (7). While, Ritwik (8) stated that in the United States, cancer is the second greatest cause of mortality among children between 5 to 14 years old. According to the American Cancer Society, 10,590 children under the age of 15 years were diagnosed with cancer in the United States in 2018.

In Basrah, the total number of children with cancer who were newly diagnosed and recorded between 2012 and 2016 was 723. The total incidence rate was 13.74 per 100,000, with an age-standardized incidence rate (ASIR) of 13.87 per 100,000. Childhood cancer incidence and ASIR peaked in Basrah in 2012 (15.74/100,000 population and 15.87/100,000 population, respectively). Then they dropped to 11.50/100,000 population and 11.59/100,000 population, respectively, in 2013, before progressively rising in the years after that to (14.53/100,000 population and 14.54/100,000 population, respectively) in 2016 (9).

When a family member has cancer, it causes a variety of changes in the family structure. Taking care of a cancer-stricken child is stressful and difficult for everyone involved. This burden causes family members to experience symptoms such as "denial, isolation, loneliness, and fearfulness." Family members may require significant emotional support if they are not prepared to take on all of the

tasks that the new position implies. The family must adjust to a new condition that includes frequent hospitalizations, aggressive treatment for the kid, changes in family connections, and difficult routines that may prevent the child and family from doing daily duties (10).

Coping is defined as a cognitive and behavioral effort to manage demands that are seen to be difficult or exceed an individual's resources. Problem-focused coping and emotion-focused coping are the two styles of coping. The first is concerned with problem solving, whereas the second is concerned with emotional management. Coping with the physical and emotional problems of a cancer diagnosis and treatment can be challenging for all family members, especially caregivers of children. This is especially true for children with cancer, with substantial studies demonstrating the psychosocial effects on patients' parents and siblings (11).

Problem-focused coping and emotion-focused coping are two types of stress management approaches. Problem-focused (or solution-focused) coping strategies, in general, try to eliminate stressors or work with stressors themselves. Emotion-focused coping strategies, on the other hand, help you become less emotionally reactive to the challenges you confront. They alter your perception of these occurrences, causing them to have a different impact on you (12).

Subjects and Methods

Cross-sectional description was approved throughout the present study aimed to assess coping strategies among mothers of children with leukemia in Al-Basrah province from the period 1st October/2020 to1st March/2022. Non Probability "convenient" sample of (105) mothers who have children under eighteen years were selected in oncology & hematology clinic and leukemia ward (B) at Al.Basrah children specialist hospital. Data were obtained through face-to-face interview techniques as means of data collection. The period from 9 July 2021 to 20 October 2021, interviews were achieved with mothers who were attended the setting of the study to complete the questionnaire, permission was arranged from the training and development center in the health directorate and an agreement of participation was obtained from the mothers to the interview. The researcher collected these data in oncology & hematology clinic and leukemia ward (B) at morning and evening, through average time required for each respondent has taken nearly 35 - 45 minutes to complete the questionnaire for assessing coping strategies practiced by mothers for their children with leukemia through the interview. Is measured by ways of coping scale; Folkman and Lazarus developed the scale and it assesses the ways to cope with stressful life situations. The revised scale consist of (66) items questionnaire containing a wide range of thoughts and acts that people use to deal with the internal and/or external demands of specific stressful encounters (13). The responses for these items are rated and scored on 3-level type Likert scale as; always=3, sometime=2 and never=1. Data were analyzed through using the Statistical Package of Social Sciences (SPSS, version 24) performed with descriptive and inferential statistical data analysis approach.

Results

Table (1a): Distribution of mother's demographic data (n=105)

Demographical data	Ranking And Intervals	Frequency	Percentage %
Age of mother/ year	19-26	24	22.9
	27-33	31	29.5
	34-40	36	34.3
	41-47	14	13.3
	Total	105	100.0
	Mean ± (SD)	33.74 ± (7.85)	
Occupation	Unemployed	103	98.1
	Employed	2	1.9
	Total	105	100.0
Marital status	Married	97	92.4
	Divorced	5	4.8
	Widowed	2	1.9
	Separated	1	1.0
	Total	105	100.0
Type of family	Nuclear	67	63.8
	Extended	38	36.2
	Total	105	100.0

Table (1a) the mean age and standard deviation (SD) for mothers in the study was (33.74 ± (7.85)); one third of the mother were 36(34.3%) reported at age (34-40) years; majority percentage of the study mothers 103 (98.1%) were unemployed; vast majority of mother 97 (92.4%) were married and less than two-thirds 67 (63.8%) ware nuclear.

Table 1b: Distribution of Child's Demographical data (N=105)

Demographical data	Ranking And Intervals	Frequency	Percentage%
Child age	Early childhood	70	66.7
	Middle childhood	25	23.8
	Late childhood	10	9.5
	Total	105	100.0
Child gender	Male	65	61.9
	Female	40	38.1
	Total	105	100.0

Table (1b) shows the observed frequencies, percent of children demographical characteristics variables that the child age were represented in early childhood as 70(66.7%) and the lowest as in late childhood 10(9.5%), while more than half of them 65 (61.9%) were male.

Table (1c): Distribution of medical history of child with leukemia

Medical history of child with leukemia		Frequency	%
The medical diagnosis of child	Acute Lymphocytic (ALL)	78	74.3
	Acute Myelogenous (AML)	27	25.7
	Total	105	100.0
Current disease status	New diagnosis (within last 30 days)	10	9.5
	Remission	69	65.7
	Initial Relapse	7	6.7
	Subsequent Relapse	2	1.9
	Progressive disease	12	11.4
	Other	5	4.8
	Total	105	100.0
Current disease treatment	None	12	11.4
	Chemotherapy	92	87.6
	Other	1	1.0
	Total	105	100.0

Table (1c): shows that about three quarters 78 (74.3%) of study children were diagnosed as Acute Lymphocytic (ALL); less than two third 69 (65.7%) were remission and In relation to current disease treatment, the majority of child 92(87.6%) were taking chemotherapy.

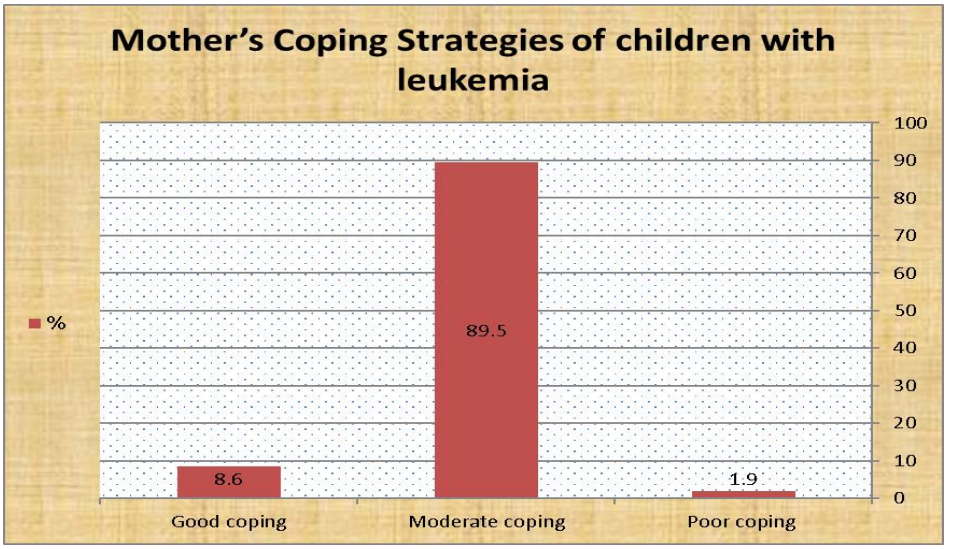

Figure (1): Overall assessment level of mother's Coping Strategies of children with leukemia

Figure (1): show that the mostly of (89.5%) mother's coping strategies of children with leukemia expressed moderate coping.

Table (2): Relationship between mother's coping strategies and their Demographic Characteristics

Characteristics	Rating			Chi-square test
Age of mother	Mother's coping strategies			$\chi^2 obs.=$ 7.086 d.f = 6 p-value = 0.313 Sig.=N.S
	poor coping	moderate coping	good coping	
19-26	0	20	4	
27-33	0	30	1	
34-40	2	31	3	
41-47	0	13	1	
Total	2	94	9	
Occupation	Mother's coping strategies			x2 obs.= 21.748 d.f = 2 p-value = 0.000 Sig.=H.S
	poor coping	moderate coping	good coping	
Unemployed	2	94	7	
Employed	0	0	2	
Total	2	94	9	
Marital status	Mother's coping strategies			X2= 17.955 d.f = 6 p-value = 0.006 Sig.= sig
	poor coping	moderate coping	good coping	
Married	2	89	6	
Divorced	0	2	3	
Widowed	0	2	0	
Separated	0	1	0	
Total	2	94	9	
Type of family	Mother's coping strategies			X2= 2.644 d.f = 2 p-value = 0.267 Sig. =N.S
	poor coping	moderate coping	good coping	
Nuclear	2	61	4	
Extended	0	33	5	
Total	2	94	9	

x2: chi-square, D.F: Degree of freedom, p-value: probability value, Sig: significant at p≤0.05, NS: Not significant at p>0.05, n: sample size

Table (2): This table indicates, at a p-value of >0.05, that there was no significant relationship between Mother's coping strategies and their age groups and type of family but, significant relationship between mother' coping strategies with occupation and marital status at p-value <0.05.

Table (3): Relationship between mother's coping strategies and child demographic Data

Characteristics	Rating			Chi-square test
Child age	Mother's coping strategies			$\chi^2 obs.=$ 10.354 $d.f$ = 4 $p\text{-}value$ = 0.035
	poor coping	moderate coping	good coping	

Early childhood	0	63	7	Sig.= Sig.
Middle childhood	2	23	0	
Late childhood	0	8	2	
Total	2	94	9	
Gender	Mother's coping strategies			χ^2obs.= 2.409 d.f = 2 p-value = *0.30* *Sig.=N.S*
	poor coping	moderate coping	good coping	
Male	2	56	7	
Female	0	38	2	
Total	2	94	9	

"x2: chi-square, D.F: Degree of freedom, p-value: probability value, Sig: significant at p≤0.05, NS: Not significant at p>0.05, n: sample size

Table (3): This table indicates, at a p-value of >0.05, that there was no significant relationship between Mother's coping strategies with child age groups and gender.

Table (4): Relationship between mother's coping strategies and medical history of child with leukemia.

Characteristics	Rating			Chi-square test
The medical diagnosis of child	Mother's coping strategies			$\chi^2 obs.=$ 5.151 $d.f$ = 2 *p-value* = 0.076 Sig.=N.S
	poor coping	moderate coping	good coping	
Acute Lymphocytic (ALL)	2	72	4	
Acute Myelogenous (AML)	0	22	5	
Total	2	94	9	
Current disease status	Mother's coping strategies			$\chi^2 obs.=$ 12.235 $d.f$ = 10 *p-value* = 0.270 Sig.=N.S
	poor coping	moderate coping	good coping	
New diagnosis (within last 30 days)	0	9	1	
Remission	1	63	5	
Initial Relapse	1	6	0	
Subsequent Relapse	0	1	1	
Progressive disease	0	11	1	
Other	0	4	1	
Total	2	94	9	
Current	Mother's coping strategies			$\chi^2 obs.=$ .391

disease treatment	poor coping	moderate coping	good coping	*d.f* = 4 *p-value* = 0.983 Sig. =N.S
None	0	11	1	
Chemotherapy	2	82	8	
Other	0	1	0	
Total	2	94	9	

"x2: chi-square, D.F: Degree of freedom, p-value: probability value, Sig: significant at p≤0.05, NS: Not significant at p>0.05, n: sample size

Table (4): This table demonstration that there was no significant relationship between mother's coping strategies with medical diagnosis of child, current disease status and current disease treatment at p-value >0.05.

Discussion

Table (1a): the outcomes of the research underhand showed that the mean age and standard deviation (SD) for mothers in the study was (33.74 ± (7.85)); one third of the mother were one third reported at age group (34-40) years, most percentage of the study mothers were unemployed, while almost of mother were married, the present study reveal that less than two-thirds ware nuclear. This result is slightly different from Kohlsdorf and Costa Junior, (14) who mentioned in their study that, a mean age of the studied sample was ((Avg=34.25; SD=9.82) but their age group from (20-60) years. This explains that the large proportion of the sample are between the ages of (34 – 40) years. This variation may be due to different criteria of the studied sample according to their availabilities.

The findings of this study agree with the research done by Hamad and Shaker, (15) about caregivers' coping skills for children with acute leukemia at Nanakali hospital in Erbil city shows that the maximum percentage of the participants were jobless (77.8%). The study done by compas et al., (16) about Individual and interpersonal processes of coping and emotional distress in mothers and fathers of children with newly diagnosed cancer were examined in a sample of mothers and fathers of children with recently diagnosed cancer at two hospitals in the Midwestern and Southern United States. The finding of this study revealed that the majority of participants were married.

This result reinforced by a cross-sectional descriptive research directed by Khalaf and Kassem, (17) aims to evaluate mothers' physical complication prevention measures for children with leukemia shows that 89 people (59.3%) live in a nuclear family. Table (1b), the current study discloses that more than two thirds of children as majority were within early childhood, regarding child gender, the study represent that less than two thirds were male.

The result agree with study conducted by Al-Mutlaq et al., (18) aims to describe throughout a ten-year period the patterns of childhood malignancies in Saudi Arabia (1999-2008). The findings from this study indicate that the birth to age 4 years group had the greatest incidence rate in the surveyed years. Conferring to the researcher's viewpoint, the results of the underhand study, which are backed

up by other investigations, this mean that more common incidence of leukemia and risky age within the early childhood.

Another study in USA, agree with present result conducted by Martin et al., (19) about families of children with cancer and HIV disease, family functioning and coping techniques were studied. More over half of the participants in this study were male, according to the data.

Table (1c) showed that the medical diagnosis of child about three quarters of study, children were diagnosed as Acute Lymphocytic (ALL), In relation to current disease treatment; the majority of child were taking chemotherapy. A descriptive study at Nanakali hospital for blood diseases in Erbil city done by Hasan et al., (20) agree with present result shows 62 (77.5%) of the study sample were diagnosed as (ALL).

The results of this study agree with the study done by Mahmoud and Elaziz, (21) in Egypt, the study was included purposive sample of 60 parents in pediatric hospital of Ain Shams University. The finding of this study discovered that 63.3% of them treated by chemotherapy. Figure (1) The present study revealed that the overall assessment of mother's response related to confront coping was demonstrated at (mean=1.96) and according to the study criteria, the mothers expressed moderate coping (n=82; %=78.1).

In India, a study directed by Geetha, (22) about Knowledge about leukemia, stress, and coping techniques among moms of leukemic children receiving treatment at a specific cancer center. Disagreement with the current outcome demonstrated that mothers of leukemic children have stronger coping skills for dealing with leukemia-related stress. Table (2): the results presented that non-significant relationship between mother's coping strategies and age of mother at p-value >0.05. A study among 44 caregivers about In pediatric oncohematology, coping techniques and caregiver anxiety done by Kohlsdorf and Costa Junior, (14) in Brasil disagreement with present results reveal that the association between coping mechanisms, as well as socio-demographic factors including the carers' age .

The present study reveals that there was high significant association among mom's coping strategies and occupation at ($p<0.05$). This outcome agreement with a research prepared by Geetha, (22) in India aimed to correlate demographic factors with coping mechanisms used by moms of children with leukemia. According to the findings, there is a link between the moms' coping mechanisms and their occupation.

In addition, the current study reveals that there was significant association among mom's coping strategies and marital status at (p.value <0.05). The finding disagreement with study done in India by Hassan, et al., (23) about Caregivers of schizophrenia patients' burden and coping strategies. The result represent that there was significant association among mother's coping strategies and marital status.

The result revealed that there was no significant association among mom's coping strategies and type of family status at (p value >0.05). This finding disagreement with a research prepared by Geetha, (22) in India aimed to examine the relationship between demographic factors and the coping mechanisms used by moms of children with leukemia.

Table (3): this table demonstration that there was significant association among mother's coping strategies and child age at p-value <0.05. A study done by Steele et al., (24) regarding the relationship between maternal distress and child emotional and physical distress in children with cancer. The finding disagreement with present result signify that no significant association between coping strategies and age.

Also, the finding represent that there was no significant association among mother's coping strategies and gender at p-value >0.05. In Mississippi, a research conducted by Greening and Stoppelbein, (25) among 172 participants about Depressive, posttraumatic stress, and anxiety symptoms in children with cancer are linked to parental coping styles. The finding of this study agree with present result reveals that no significant associations between coping and gender.

Table (4): this table demonstration that there was no significant association among mother's coping strategies and the medical diagnosis of child at p-value >0.05. In Brazil, a study conducted by Kohlsdorf and Costa Junior, (14) among 44 caregivers aimed to explore the relationships between sociodemographic data, patient clinical condition, anxiety indicators, and caregiver coping strategies during leukemia diagnosis to determine which factors may influence anxiety and coping strategies. The finding of this study agree with present result represent that no significant association between diagnostic type and coping strategies. In addition, the results represent that there was no significant association among mother's coping strategies and current disease status and current disease treatment at p-value >0.05. Similar research were not discovered in the literature review.

Conclusion

The study concludes that the overall assessment of mother's coping strategies of children with leukemia at Al.Basrah Specialist Children's Hospital is moderate coping. A statistically significant association among mother's coping strategies and occupation, marital status and child age at p-value <0.05

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