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IMPACT OF HEALTH EDUCATIONAL PROGRAM UPON CAREGIVERS' KNOWLEDGE AND PRACTICES FOR PSYCHOSOCIAL PROBLEMS OF ACUTE LEUKEMIA ADOLESCENT PATIENTS

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ABSTRACT

Leukemic patients express of psychosocial impact of cancer and its treatment, the caregivers can provide psychosocial care at home. The study aims to improve the psychosocial problems among adolescent leukemic patients. A quasi experimental study was carried out in Nanakali Hospital for Blood Disease, Erbil city, Kurdistan region, Iraq , from the period of 1st October 2010 to 1st of October 2011. Seventy caregivers (35 controls and 35 cases) and their adolescent's acute leukemia patients were participated in the study. Most caregivers were patient's mother; the Mean and SD of caregivers' age were between 41.7±9.176 for control group and 40 ± 8.15 for study group, illiterate from rural areas and living with low socioeconomic status (SES). The mean age of the adolescents was14.94±2.950 in control group and 14.83±3.535 of study group most of them were males, and complain of acute lymphocytic leukemia (ALL) in control and study groups respectively. The study reveals highly significant proportions between caregiver's knowledge and practices at *p*-value 0.001, 0.028, 0.003 and 0.012 in study groups respectively. It has been found that there are highly significant differences between pre and post-tests (1 and 2) at *p*-value 0.002, 0.016, 0.012 and 0.002 respectively. Health educational program had positive impact on caregivers; knowledge and practice and found that some aspects of psychosocial problems such as worry, body image, communication and interpersonal relationship of study group were improved. The study recommended nurses should consider utilizing such program to improve psychosocial problems among leukemic patients'.

Keywords: Caregivers, Psychosocial problems, Leukemic Adolescent

INTRODUCTION

Acute leukemia is defined as a neoplastic disease that involves the blood forming tissues of the bone marrow, lymph nodes, and spleen (Tomlinson, Kline, 2005). It is responsible for at least one third of deaths in children and teenagers (Maloney *et al.*, 2009).World health organization (WHO) estimates that each year around ten million people are diagnosed with cancer around the world. These figures will have to be doubled by the year 2020 (Bener *et al.*, 2007). Depending on statistics obtained from Nanakali Hospital for blood diseases 2011, In Erbil city more than 3900 cancer patients were registered.

Cancer has impact of illness or treatment on quality of life aspects which include physical, psychological, social, and functional aspects (Hauser & Walsh, 2008). Patients experience many diverse fears, fears from metastasis: anxiety from chemotherapy or radiation therapy. In general, loss of confidence, feelings of fragility and insecurity, feeling of being a burden to others and sexuality issues are all psychosocial complications of cancer (O'Connor, 2006). Cancer patients become isolated from their social environment because of changing therapy cycles and different treatment locations; this causes significant social and economic damages (McHarg *et al.*, 2010). Numerous studies have shown that cancer patients encounter some of the negative psychosocial impacts of cancer and its treatment (Shankar.*et al.*, 2005).

At home a caregiver is the main provider of psychosocial support for the patient (Toseland, 2004). Home caregivers can provide cancer drugs, pain killer, proper nutrition, and provide emotional and social support (McMillan, 2011). Survivorship educational programs may empower childhood cancer survivors towards health behaviors and lifestyles as well as regular participation in treatment care, which, may prevent or reduce risks of late, effects (O'Connor, 2006). Health education is primarily at preventative level and aims to increase knowledge thus enabling informed choice in addressing issues that affect health and well-being (Woods *et al.*, 2006).The study aimed to determine the efficacy of health educational program upon caregivers' knowledge and practices, and to identify the impact knowledge and practices of caregivers on adolescent leukemia patient's psychosocial problems.

METHODOLOGY

This is quasi-experimental (Quantitative) study. The study was carried out in Nanakali Hospital for Blood Diseases. The study period extended from 1st of October / 2010 to 10th of October / 2011. A non-probability (purposive) sample of 70 (caregivers and their adolescents' pairs) were prepared 35 as (a study group) and 35 as (a control group). Ten of (caregivers and their adolescents' pairs were dropped out from the both groups, 5 from each group). Reliable questionnaire to assess psychosocial aspects of acute leukemic adolescent patients was constructed and consists of part one that includes the demographic informations, it consists of age, sex, residency area, type of leukemia and socio-economic status (SES), part two related to psychosocial problem has three likert scales 1 for never, 2 for sometimes and 3 for always. A pilot study was conducted on 12 caregivers and their adolescents. Pre-test was tacked before implementation of health educational program and both post-tests 1 and 2 were tacked after two weeks and two months respectively after implementation of health educational program. Direct interview techniques were used with some people who kindly accepted to participate in the study. Data were analyzed using the statistical package for social science (SPSS, version 17), descriptive frequency, ANOVA and paired t-test was used to analysis the data and to determine the effectiveness of the program. *P*-value equal of less than 0.005 was considered a significant.

RESULTS

Table 1: Demographic Characteristics of Caregivers

Variables	Control group n=35	Study group n=35
	No. (%)	No. (%)
a. The person responsible for caring		
Mother	23 (65.7)	25 (71.4)
Father	4 (11.4)	3 (8.6)
Both parents	3 (8.6)	2(5.7)
Sister	2(5.7)	-- (--)
Brother	2 (5.7)	3(8.6)
Aunt	1(2.9)	2(5.7)
b. Age of caregivers/years		
19-25	3 (8.6)	2 (5.7)
26-32	1 (2.9)	5 (14.3)
33-39	13 (37.1)	4 (11.4)
40 and above	18 (51.4)	24 (68.6)
Mean age ± SD	**41.7±9.176**	**40± 8.15**
c. Level of education		
Illiterate	17 (48.6)	15 (42.9)
Can read and write	10 (28.6)	12 (34.3)
Primary school graduate	3 (8.6)	4 (11.4)
Secondary school graduate	-(--)	1 (2.9)
Preparatory school graduate	3 (8.6)	1 (2.9)
Institute and collage graduate	2(5.6)	2*(5.6)*
d. Residency areas		
Urban	10 (28.6)	14(40)
Rural	25 (71.4)	21(60)
e. Socio-economic status (SES)		
Low	25 (71.4)	26 (74.3)
Middle	10 (28.6)	7 (20)
High	-(--)	2 (5.7)

Table 1 shows that most of the caregivers (65.7%, 23 and 71.4%, 25) were mothers (table 1.a); (51.4%, 18 and 68.9% , 24) of caregiver's age were above 40 years old (table 1.b); the highest percentages (48.6%, 17 and 42.9%, 15) were illiterate.

Table 2: Demographic Characteristics of Acute Leukemic Adolescent.

Variables	Control group n=35	Study group n=35
	No. (%)	No. (%)
a. Adolescent's period		
Preadolescent	13 (37.14)	11(31.43)
Middle adolescent	11 (31.43)	10 (28.57)
Post (late) adolescent	11 (31.43)	14 (40)
Meanage ± SD	**14.94 ± 2.950**	**14.83 ± 3.535**
b. Gender of adolescent		
Male	22 (62.86)	24 (68.57)
Female	13 (37.14)	11 (31.43)
c. Type of Acute leukemia		
Acute lymphocytic leukemia (ALL)	25(71.44)	27(77.1)
Acute Myeloid leukemia (AML)	10 (28.56)	8 (22.9)

Table 2 reveled that most (71.4, 25, and 60%, 21) were coming from rural areas (table 1.d) and (71.4%, 25 and 74.3%, 26) were living with low socio-economic status in the control and study groups respectively. The study found that the mean of adolescent's age were (14.94 and 14.83), (62.86%, 22 and 68.57%, 24) of adolescent were males, most of them complain from type acute lymphocytic leukemia (ALL) in control and study groups respectively.

3. Caregiver's Knowledge and Practices

Table 3.1: The comparative differences between caregivers' knowledge and practices with the control group at pre and post-tests (1 and 2)

Group	**Control groups**									
	Pre – test		**Post – test 1**		***P*-value**	**Pre – test**		**Post-test 2**		***P*-value**
Variables	MS	t.	MS	**t.**		MS	t.	MS	t.	
Knowledge	22.89	-0.810	23.60	-0.809	0.421	22.89	-0.810	23.67	-0.882	0.381
Practice	23.60	-1.261	27.83	-1.254	0.422	23.60	-1.261	27.90	-1.314	0.191

The result indicates that there is no significant difference between the study and control groups at pre- and post-tests (1 and 2) (table 3.1).

Table 3.2: The comparative differences between caregivers' knowledge and practices with the study group at pre and post-tests (1 and 2)

Group	Study groups									
	Pre – test		Post – test 1		*P*-value	Pre – test		Post-test 2		*P*-value
Variables	MS	t.	MS	t.		MS	t.	MS	t.	
Knowledge	22.37	-10.810	33.17	10.341	0.001	22.37	-10.810	32.70	-9.077	0.003
Practice	26.63	-11.149	40.03	-10.638	0.028	26.63	-11.149	38.13	-8.882	0.021

After intervention of health educational program, the result shows that there are highly significant differences between pre-test and post-tests (1 and 2) related to caregivers' knowledge and practices at *p*-value (.001, 028, 003 and .012) in study groups respectively (table 3.2).

4. Psychological Aspects:

Table 4.1: The comparative difference between the psychological aspects in the control group of pre and post-tests (1 and 2)

Groups	Control group									
	Pre-test		Post-test 1			Pre-test		Post-test 2		
Psychological aspects	MS	t.	MS	t.	*P*-value.	MS	t.	MS	t.	*P*-value.
Procedural anxiety	11.09	-1.06	11.33	-1.070	0.293	11.09	-1.06	11.33	-1.061	0.293
Worry	8.26	-0.452	8.37	- 0.460	0.653	8.26	-0.452	8.30	-0.178	0.859
Body image	8.00	-0.246	8.10	- 0.247	0.807	8.00	-0.246	8.17	-0.418	0.678

Table 4.1 The result revels that there is no significant difference between at pre and post-tests (1 and 2) related to psychological aspects in the control group

Table 4.2: The comparative differences between the psychological aspects in the study group in pre and post-tests (1 and 2)

Groups	Study groups									
	Pre-test		Post-test 1			Pre-test		Post-test 2		
Psychological aspects	MS	t.	MS	t.	*P*-value.	MS	t.	MS	t.	*P*-value.
Procedural anxiety	11.20	-0.281	11.27	-0.283	0.780	11.20	-0.281	10.83	1.344	0.178
Worry	8.17	4.008	6.97	3.874	0.014	8.17	4.008	8.30	1.867	0.063
Body image	7.74	2.323	6.97	2.308	0.019	7.74	2.323	7.13	-1.739	0.083

Table 4.2 There is no significant difference between pre and post-tests (1), while there is a highly significant difference between pre and post-tests (2) at *p*-value (0.014 and 0.019) in study groups respectively, and there is no significant difference at post-tests (2) related to psychological problem in the study group.

5. Social Aspects

Table 5.1 The comparative differences between the social aspects in the control group of pre and post-tests (1 and 2)

Groups	Control group									
	Pre-test		Post-test 1			Pre-test		Post-test 2		
Social aspects	MS	t.	MS	t.	*P*-value.	MS	t.	MS	t.	*P*-value.
Communication	7.94	0.107	7.90	0.107	0.915	7.94	0.107	7.94	1.507	0.137
Interpersonal relationship	7.91	-0.055	7.93	-0.055	0.956	7.91	-0.055	7.91	0.565	0.570

There is no significant difference between social aspects at pre and post-tests (1 and 2) in control group (table 5.1).

Table 5.2: The comparative difference between the social aspects in the study group in pre and post-tests (1 and 2)

Group	Study groups									
Social aspects	Pre – test		Post – test 1		*P*-value	Pre – test		Post-test 2		*P*-value
	MS	t.	MS	t.		MS	t.	MS	t.	
Communication	8.11	4.200	6.63	4.096	0.001	8.11	4.200	7.03	2.523	0.011
Interpersonal relationship	8.06	3.827	7.03	3.735	0.008	8.06	3.827	7.07	3.146	0.002

But the result found that there are highly significant differences between social aspects in pre and post-tests (1 and 2) of the study group at *p*-value (0.001, 0.008, 0.011, and 0.002) respectively (table 5.2).

Table 6: The comparative differences between psychosocial aspect in the study group at pre and post-tests (1 and 2)

Group	Study groups									
Psychosocial	Pre – test		Post – test 1		*P*-value	Pre – test		Post-test 2		*P*-value
	MS	t.	MS	t.		MS	t.	MS	t.	
Psychosocial	27.11	20.56	20.56	3.090	0.002	27.11	20.56	20.91	2.294	0.012
Social	16.17	13.67	10.15	4.867	0.016	16.17	13.67	16.10	3.294	0.002

In general, there is a highly significant difference between the psychosocial aspects in pre and post-tests (1 and 2) at *p*-value (0.002, 0.016, 0.012 and 0.002) in study groups respectively (table 6).

DISCUSSION

The results show that most of the caregivers in both groups were the mothers of the patients (Table1a). This result is in agreement with a study done by Aziz who conducted a health education program on mothers in Baghdad - Iraq and found that the majority (76% and 78%) of caregivers in the control and study groups respectively were mothers, and it is supported by a study who found that (65.7%) of Brazilian acute leukemic caregivers were mothers of the patients (Scarpelli *et al.*, 2008). The mean age was (41.7±9.176 and 40±8.15) years old in the control and study groups respectively (Table 1b). This result is in agreement with a studies done by Chang, Hwang in 2008 and Han and her colleagues in 2011 who found that most of the mothers' age were (40 years or older) and represented (54% and 66%) in the control and study groups respectively. The highest percentages of caregivers were illiterate (Table 2c). This result is supported by a quasi-experimental study who found that the highest percentage (40%) of participants were illiterate in the both control and study groups (Chang *et.al.*, 2008). Most of the caregivers were coming from rural areas (Table1d). This result is in agreement with a study who found that (79.3%) of acute leukemic children were coming to the hospital from outside of the capital Beijing (China) (Chang *et al.*, 2008), and in a disagreement by another study who found that the majority of mothers of acute leukemic children were coming from urban areas (Al-Jauissy, 2010).

The study found that the majority of caregivers in the control and study groups respectively were living with low SES (Table 1e). This result is in agreement with a study in Baghdad – Iraq and who found that (77.4% and 66.7%) of acute leukemic patients in the control and study groups respectively were from low SES (Aziz, 2002; Al-Barakatand *et al.*, 2010).

The study reveals that the mean age of adolescent leukemic patients were (14.94± 2.950, and 14.83±3.535) years old in the study and control groups respectively (Table 2a). This result is in agreement with a study they found that the mean age of adolescent leukemic patients is (12.9±1.6 and 13.57±1.75) years old (Us Vasalo *et al.*, 2008). Most of the adolescent leukemic patients in the study and control group were males (Table 2b). This result is in agreement with a study who conducted on Brazilian patients with acute leukemia, in Iraq, Baghdad and found that the (65.8%) of adolescents were males (Aziz, 2002; Saeui et al., 2009). Most of them were having type ALL in the control and study groups respectively (Table2c). This result is in agreement with a study in Jordan who found that the majority (89.7%) of patients had had ALL, and (10.3%) were having AML type (Al-Jauissy, 2010).

The results indicated that there were no significant differences between pre and post-tests (1 and 2) regarding knowledge and practices of caregivers in the control group (Tables 3.1). This result indicates that the caregivers of leukemic adolescent had lack knowledge and poor practices towards patient care before the implementation of the health educational program. This result is in agreement with a study in Bagdad (Iraq) and found that there is no significant difference between the control and study groups, and there are no significant differences between pre and post-tests in the control group (Aziz, 2002).

After the implementation of the health education program, the present study found that there is a significance difference between pre and post-tests (1 and 2) in the study group regarding to the caregivers' knowledge and practices, but improved in their knowledge and practices in the post-tests (1 and 2) (Tables 3.2). This result is in agreement with a quasi-experimental study done, the results revealed statistically significant differences between pre and post-tests at *p*-value (0.001) after 4th weeks of intervention. In another study, it has been found that there were highly significant differences between pre and post-tests at *p*-value (0.001) after implementation of program; (Hashemi *et al.*, 2010; Russell with *et al.*, 2006).

The present study found that there is no statistically significant difference between pre and post-tests (1 and 2) of the control group concerning psychological problems (Table 4.1). This result is supported by another study (Scarpelli *et al*., 2008; Russell *et al.*, 2006).They found that the acute leukemic patients complained seriously of procedural anxiety, worry, and body image at *p*-value (0.01, 0.01 to 0.05) respectively. After the implementation of the health education program for caregivers, the result of the present study shows that there is no significant difference between (procedural anxiety), but there were significant differences between (worry, and body image) in pre and post-tests (1), while there were no significant differences between pre and post-tests (2) related to (procedural anxiety, worry, and body image) in the psychological aspects (Table 4.2), after implementation of psychosocial intervention program. This result is agreed with a study done in Canada found improvement of hospice outcomes (McMillan *et al.*, 2011). The finding of this intervention shows that the participants improved only body-image at *p*-value (0.005).

The present study found that there were no statistically significant differences between pre-test and post-tests (1 and 2) in control group (Table 5.1). This result is in agreement with a study who stated that the leukemic patients had low communication and *social problems at p-value (0.01) respectively (Woods et al.*, 2006; Huizinget *et al.*, 2005). On the other hand, after the implementation of the health educational program for caregivers, the study showed that there were significant differences between pre and post-tests (1 and 2) of the study group represented by (communication, and interpersonal relationship) (Table 5). This result is supported by another study (Barrera *et al.*, 2009) who conducted a social skill quasi-experimental intervention study. The analyses revealed that the significant improvement was found after the intervention was based on parents' reports of self-control at ($p<0.05$), social skills ($p<0.05$).

In contrast, after the implementation of the health education program for caregivers in the study group, the results reveal that there were significant differences between pre and post-tests (1 and 2) (Table 6) related to psychological, and social aspects. The result is in agreement with a quasi- experimental intervention. It was found that there were highly significant differences between pre and post-tests in the study group concerning general health at (p=0.01), psychological at (p=0.001), and social problems at (p=0.001) after the health educational intervention (Chang & Hwang, 2008).

CONCLUSION

The study found that the caregivers' knowledge and practice were improved after implementation of health educational program. The psychosocial problems of acute leukemia patients were reduced, therefore, the study recommended that the nurses should consider such program for caregivers and leukemic patients.

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