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Determination of Daily Living Activities of School Age Children with Sickle Cell Anemia in Al Nasiriya City

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ABSTRACT

Objective: The study aim to Assess Daily Living Activities Domains. And find out the relationships between daily living activities domains and their demographic characteristics (age, gender, parent's level of education, parent's occupation and economic status) of School Age Children with sickle Cell Anemia in Al Nasiriya Centre for Hereditary Blood Diseases Quantitative design (a descriptive study) of one hundred children was selected. All the patients for both sexes diagnosed as having sickle cell anemia, for the period from 11th. November 2018 through to 12th February 2019. The collection of data is performed out of the utilization of developed questionnaire and by means of structured interview technique with the subjects who were individually interviewed by the using of Arabic version of the questionnaire in Al Nasiriya Centre for Hereditary Blood Diseases. The results of the study indicate more than third 31% of age is 6-7 years, more than half 51 % in1-2days is male, there is18% child isn't in school, child in first class is 24.4%, absence number from school is 40% and most of them have a moderate level activities of daily living 65.0%.

Keywords: *Daily living activity; Sickle cell anemia; School age children*

Introduction

The World Health Organization has classified sickle cell disease as a major public health priority, given the severe impact of the disease on patients, their families, and the community. Therefore, In 2006, the World Health Organization (WHO) recognized sickle cell disease as a global public health problem [1]. Sickle cell is a life-threatening blood disorder that is characterized by red blood cells that assume an abnormal, rigid sickle shape. Sickled cells can stop or slow blood flow to parts of the body, causing less oxygen to reach different areas, resulting in a pain crisis and other complications [2]. In the United States, over 80,000 people have sickle cell anemia. Each year about 1,000 babies are born in America with sickle cell disease. It is estimated that 3.5 million Americans carry sickle cell trait [3]. Sickle cell anemia as hereditary diseases effect on any organ or system of the human body. Lifelong problem, in sickle cell anemia the red blood become (sickle like shapes). The sickle-shaped cells become clogged in small blood vessels, causing obstruction of the microcirculation, which in turn results in damage to and destruction of various tissues [(4)]. Prevalence of Sickle Cell Anemia (SCA) is common hematologic problem in Basrah in Southern Iraq around 6.48% of population are carriers for the sickle cell gene [5]. Most affected births occur in Asia, Africa, Mediterranean, Caribbean, Arabian, and Indian [6]. The disease comes to Iraq due to migration or as a result of population movement it spread to different areas of the world. SCA is inherited disorder that means the children who get abnormal hemoglobin genes from parents, in the Basrah governorate because of its high carrier rate due to the frequency of consanguineous marriages high rate is 56. 4%. Therefore, the SCA appear [7]. In children, especially the school age group, normally very active with sickle cell anemia (SCA) is more limited general health and physical functioning, more limitations in their academic functioning and social activities attributed to their physical health, and more behavior and emotional problems[(8).] Daily living activities that important part of an individual's quality of life, that means things normally do on a daily basis, including any daily activity perform

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for self-care. These are activities that are absolutely necessary for someone to live independently such as of daily living activities, personal hygiene, school activities dressing, eating, sleeping, transferring, social activities and play [9]. When body does not have an adequate number of red blood cells present due to damage, destruction red blood cells (RBCs), anemia occurs, fatigue that causes low activities, because insufficient oxygen levels will sap energy[1].

Methodology

Quantitative design (a descriptive study) of one hundred children was selected. All the patients for both sexes diagnosed as having sickle cell anemia, for the period from 11th. November 2018 through to 12th February 2019. The collection of data is performed out of the utilization of developed questionnaire and by means of structured interview technique with the subjects who were individually interviewed by the using of Arabic version of the questionnaire in Al Nasiriya Centre for Hereditary Blood Diseases.

An assessment tool was adopted and developed by the investigator design for the purpose of the study. Questionnaire format that used of one hundred child was designed and constructed by the researcher depending on

1. Translates the scales (Katz ADL, Lawton ADL and Bristol ADL) from English to Arabic and select appropriate to measure the variables underlying the present study.
2. Extensive review of available literature and studies related to the concept of daily living activities and sickle cell anemia.
3. Meeting with parent and children having sickle cell anemia were carried out and opened questions used related to their disease and how it effects on their daily living activities.

Data was collected through using a questionnaire modeled and made up of three parts, the first part included children's demographic data and parent's demographic data with socio-economic status of children's family, the second part included clinical data and clinical manifestations of children and three part daily living activities of school age children with sickle cell anemia domains.

Results and Discusion

Table 1 shows (51%) of the children are males, their age is 6-7 years old(31%) and the mean and standard division of age is 8.90 (2.067), children in school are(82%), in first class(24.4%) while third class is (23.1%), mean and standard division of absence number from school is 2.73 (3.149) of high percent 40 of 1-2 days, and the socioeconomic status of children's family is (71%) middle. Table 2 shows the mean age of onset is 2.92 ± 2.058, the age onset for most of children is 1-2 years (*n=57;* 57.0%), the mean of ill brothers is 0.93 ± 0.832, less than half of families have one ill child (*n=45;* 45.0%), the mean of blood transfusion is 0.6 ± 0.72, most of children have no blood transfusion (*n=52;* 52.0%), two third of them have one blood transfusion (*n=40;* 40.0%), the mean of hospital admission is 0.99 ± 0.75, most of children have hospitalized once (*n=58;* 58.0%), the mostly reported clinical manifestations are pallor (*n=82;* 82.0%), fatigue (*n=78;* 78.0%), loss of appetite (*n=77;* 77.0%), joint pain (*n=73;* 73.0%), more than two fifth of families visit health clinic, and visit hospitals when clinical manifestation appear on child (*n=41;* 41.0%) for each of them. Table 3 shows that more than half of participants have a moderate level activities and motors (transferring) (*n=55;* 55.0%), two fifth of them have a moderate level school activities (*n=40;* 40.0%), more than half of them have a moderate level play activities (*n=53;* 53.0%), the majority of them have a poor personal hygiene (*n=72;* 72.0%), more than half of them have a moderate level dressing activities (*n=51;* 51.0%), the vast majority of them have a poor level eating and drinking activities (*n=95;* 95.0%), more than half of them have a moderate level sleep (*n=53;* 53.0%), more than half of them have a moderate level social activities (*n=56;* 56.0%), and most of them have a moderate level activities of daily living (*n=65;* 65.0%). Table 4 shows age of onset negatively correlates with child's activities of daily living (*r= -0.206; P<0.*05), while child's absence number, number of blood transfusion and hospital admission positively correlate with child's activities of daily living(*r= 0.574; P<0.05*),(*r= 0.361; P<0.05*), (*r=0.257; P<0.05*) respectively.

The children with days of school absence with sickle cell anemia. This study finding the mean 2.73(3.149) with high frequency of school days absences were (1-2) days. These findings agree and supported with results obtained from study done by Day and Chismark[(11)]. They

reported children who have a school absence have a high incidence of (1-2) days, which indicates to sickle cell anemia table (1). Table (2) also shows significant relationship between age onset(diagnosis) and daily living activities (r=-0.206; $P < 0.05$) this finding agree with results obtain from study done by Animasahun et al [12] children with sickle cell anemia (70%) were first diagnosed above one year of age at the onset of children's illness. The researcher thinks that there is association between age diagnosis and daily living activities. Diagnosis is often made when child show up with clinical manifestations through visit health clinic or hospital. The relationship between number of blood transfusions and daily living activities with sickle cell anemia, table (4) shown (*r=0.361; P<0.05*) of children, the finding shows that mean 0.6(0.72) and the majority of non-blood transfusion was 52%, these findings agreed and supported with results obtained from study done by Arceci[13]. Who reported of blood transfusion of sickle cell anemia can occur in more than 30% of patients usually administered every 3–4 weeks. Also shown there is significant relationship between number of hospital admission in children and daily living activities (*r=0.257; P<0.05*), the study indicates to more than half of sample 58(58%) were have once of hospital admissions, this finding agree with results obtain from study done by Ezenwosu et al [14]. the study result indicate that the most of the hospital admission were 55 (61.1%) of 90 children with sickle cell anemia in age school. This finding disagree with results obtain from study done by Ali et al [15] they reported with children were less than 12 years with sickle cell anemia, that result mentioned to 43(16%) of children have once of hospital admissions. Also shown there is more than fourth five of sample 82% is pallor, this result less than the report indicate to 51.8% of patients complained of pallor in children with sickle cell anemia in Nigeria with results obtain from study done by Juwah et al [16]. Also more than third quarter of sample 78%, 77% are fatigue and loss of appetite, fatigue is consider a key symptom of anemia this report agree and supported by the results obtained from study done by Ameringer and Smith[17]. Also the study shows 73% of joint pain children with sickle cell anemia (SCA), this result similar report and supported with study done by Yusuf et al[18] who reported indicate to the most common reason for the hospital or specially center visits is joint pain symptom (67%) from patient with sickle cell anemia. Throughout the course of the present study table(3),the study results showed the effected of the daily living activities by 8 indictors under three levels scales of good, moderate and poor. The transferring activities, school activities, play activities, dressing activities, sleeping activities and social activities all those domains the sickle cell anemia(SCA) effect on it moderate effect, but the effect sickle cell anemia(SCA) on personal hygiene.

Table 1: Distribution of the Study Sample by their children's demographic Characteristics

List	Variable		F	%
1.	Age(year): Mean (SD) = 8.90 (2.067)	6-7	31	31.0
		8-9	30	30.0
		10-11	24	24.0
		12	15	15.0
2.	Gender	Male	51	51.0
		Female	49	49.0
3.	Is child in school	Yes	82	82.0
		No	18	18.0
4.	Class (n= 82) (child's education level)	First	20	24.4
		Second	10	12.2
		Third	19	23.1
		Fourth	14	17.1
		Fifth	10	12.2
		Sixth	9	11.0
5.	Absence number: Mean (SD) = 2.73 (3.149)	None	19	19.0
		1-2 days	40	40.0
		3-4 days	26	26.0
		5-6 days	3	3.0
		7-8 days	9	9.0
		≥ 9 days	3	3.0
6.	Socioeconomic status	High	9	9.0
		Middle	71	71.0
		Low	20	20.0

Table 2: Distribution of the Study Sample by their children's Clinical data and complications of children

List	Variable		Frequency	Percent
1	Age onset: Mean (SD) = 2.92 (2.058)	1-2 years	57	57.0
		3-4 years	22	22.
		5-6 years	15	15.0
		≥ 7 years	6	6.0

Conted…

2	Number of Ill Brothers: Mean (SD) = 0.93 (0.832)	None	33	33.0
		1	45	45.0
		2	19	19.0
		3	2	2.0
		≥ 4	1	1.0
3	Number of Blood Transfusion: Mean (SD) = 0.6 (0.72)	None	52	52.0
		1	40	40.0
		2	4	4.0
		≥ 3	4	4.0
	Number of Hospital Admission: Mean (SD) = 0.99 (0.75)	None	24	24.0
		1	58	58.0
		2	13	13.0
		≥ 3	5	3.0
	Clinical manifestations	Chest Infection	46	46.0
		Joint Pain	73	73.0
		Jaundice	24	24.0
		Pallor	82	82.0
		Fatigue	78	78.0
		Loss of Appetite	77	77.0
		Splenomegaly	28	28.0
		Heart Disorder	18	18.0
		Leg Ulcer	7	7.0
	Family role when clinical manifestations appear on child	Visit health clinic	41	41.0
		Visit the hospital	41	41.0
		Stay in home	3	3.0
		Other	15	15.0

Table 3: Assessment Participant's Daily Living Activities Level. It's Association with Sickle Cell Anemia

List	Level	Rate	P	M	G	Total
1	Activities and motor (transferring)	Frequency	13	55	32	100
		Percent	13.0	55.0	32.0	100.0
2	School Activities	Frequency	37	40	23	100
		Percent	37.0	40.0	23.0	100.0
3	Play Activities	Frequency	11	53	36	100
		Percent	11.0	53.0	36.0	100.0
4	Personal Hygiene	Frequency	72	27	1	100
		Percent	72.0	27.0	1.0	100.0
5	Dressing Activities	Frequency	15	51	34	100
		Percent	15.0	51.0	34.0	100.0
6	Eating and Drinking Activities	Frequency	95	5	0	100
		Percent	95.0	5.0	0	100.0
7	Sleep Activities	Frequency	24	53	23	100
		Percent	24.0	53.0	23.0	100.0

Conted…

8	Social Activities	Frequency	18	56	26	100
		Percent	18.0	56.0	26.0	100.0
9	Daily Living Activities	Frequency	21	65	14	100
		Percent	21.0	65.0	14.0	100.0

Table 4: Association between Participants' children's-demographic Characteristics and Their Activities of Daily Living

	Age	**Class**	**School absent**	**Age onset of illness**	**No: brother illness**	**No: blood transfusion**	**Hospital admission**	**Daily living activities**
Age	1	.744**	.202*	.295**	.078	.032	.135	-.022
Class	.744**	1	.310**	.291**	.176	-.231*	-.162	.034
School absent	.202*	.310**	1	.039	.155	.189	.126	.574**
Age onset of illness	.295**	.291**	.039	1	-.121	-.040	-.091	-.206*
NO: brother illness	.078	.176	.155	-.121	1	-.061	.031	.167
No: blood transfusion	.032	-.231*	.189	-.040	-.061	1	.542**	.361**
Hospital admission	.135	-.162	.126	-.091	.031	.542**	1	.257**
Daily living activities	-.022	.034	.574**	-.206*	.167	.361**	.257**	1

Conclusion

The study shows significant relationship between ages of onset negatively correlates with child's activities of daily living. While child's class, child's absence number and number of blood transfusion positively correlate with child's activities of daily living.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Nursing, University of Basrah, Iraq and all experiments were carried out in accordance with approved guidelines.

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