Assessment of Knowledge, Attitudes and Preventive Practices of Mothers Towards Diabetic Ketoacidosis (DKA)

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Abstract
It is imperative for mothers to identify diabetes and its complications in order to reduce future complications and to reduce deaths due to lack of treatment or control of complications. Aims of the study: This study was conducted to evaluate of Mothers' attitudes and knowledge for DKA, Material and methods: The current study is a cross-sectional study in the city of Nasiriyah. Samples were collected from Muhammad Al-Mousawi Hospital and Bint Al-Huda Hospital in Nasiriyah city, about 70 samples ,Conclusions: Antenatal examinations may increase knowledge and awareness of mother toward DKA disease
Keywords: Diabetic Ketoacidosis, knowledge , attitude

1. Introduction

One of the life-threatening complications of diabetes is diabetic ketoacidosis (DKA), which results from a relative or absolute deficiency of insulin as well as an excess of "stress hormones" (such as glucagon, adrenaline, or cortisol). This imbalance leads to an imbalance in glucose uptake by cells, increased gluconeogenesis, as well as lipolysis, and ketogenesis(Zahrani etal., 2019) . Diabetic ketoacidosis (DKA) in pediatrics is defined as a blood glucose level over 11 mmol/L, venous pH below 7.3 or serum bicarbonate level below 15 mmol/L, and either the presence of ketonemia (blood β-hydroxybutyrate level ≥ 3 mmol/L) or moderate to high ketonuria.(SophieMcGregor, DanielL.Metzger, Shazhan Amed and RanD.Goldman 2020).

Diabetic ketoacidosis DKA can occur in both type 1 and type 2 diabetes. The initial scale is the same for both disorders. Non-adherence to insulin therapy and inadequate insulin therapy are common causes of diabetic ketoacidosis. Systemic stressors such as myocardial infarction, stroke, infection, pregnancy, pulmonary embolism, and surgery may also lead to DKA in diabetic patients.(Palak Choksi, and Robert W. Lash, 2018). Design of the Study:

A descriptive study method was used to examine maternal health. Traditional knowledge, attitudes, and practices about diabetic ketoacidosis (DKA) in childhood (0-14) years in children's hospitals in Governorate Dhi-Qar from 6 Junary 2022 to 15 February. The research was conducted at the Diabetes and Endocrinology Center, Al-Shahid Muhammad Al-Mousawi Hospital for Children and Bint Al-Huda Teaching Hospital. Sample of Study:The current research sample consist (70) mothers of children from (0-14)years entered the hospital . They are selected by using non probability sampling (convenience sample). Inclusion Criteria

The Study Instrument

The study instrument was designed based on a literature review and previous studies on traditional knowledge, attitudes, and practices of diabetic ketoacidosis (DKA). It is a questionnaire form for the desired research objectives, and it consists of four components. Demographic data form for mothers and their children: This part consists of (9) paragraphs that include: (child's age, child's gender, mother's age, place of residence, type of family, number of children, mother's profession, educational level, social and economic status). Maternal knowledge of diabetic ketoacidosis (DKA): This part is a 42-item questionnaire related to the mother's knowledge about diabetic ketoacidosis (DKA) that she answered (I know, I don't know). Mothers' attitudes about diabetic ketoacidosis (DKA): This part is a questionnaire composed of 6 items related to mother's attitudes about diabetic ketoacidosis (DKA) answered by (agree and disagree).

Mother's traditional practices about diabetic ketoacidosis (DKA): This part is a questionnaire composed of 15 items related to mothers traditional practices about diabetic ketoacidosis (DKA) answered by (agree and disagree). Rating and Scoring of the Study Instrument: The cognitive questionnaire form was scored and rated at two levels of Likert scale (2) points for I know and (1) points because I do not know. Mothers' knowledge levels are ranked based on their answer scores: (1-1.50) = low and (1.51-2) = high. The attitude questionnaire form was scored and rated at two levels of Likert scale, (2) points for agreement and (1) points for disagreement. Scores of responses are categorized according to the following levels of maternal attitudes: (1-1.50) = low and (1.51-2) = high. The traditional practices questionnaire form was scored and rated at two levels of Likert scale, (2) points for agreement and (1) points for disagreement. Scores of responses are categorized according to the following levels of traditional maternal practices:

(1-1.50) = low and (1.51-2) = high.,Validity of the study:The validity of the tool's content was determined by a panel of experts with more than five years of experience in their field in relation to exploration. Reliability of the Study:Estimating and evaluated the reliability of the questionnaire was through computing coefficient alpha (cronbach,s alpha) method, it measured (0.73) which considered positive and significant.

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The normal range of values is between (.00 and 1.00) for perfect positive relationship (Polit, Hungler, 1999)

2. Result

Table (1): Demographic Characteristics			
Variables	Statistics	F	%
Age of Child	0-4	21	30.0
	5-9	25	35.7
	10-14	24	34.3
Gender	Male	36	51.4
	Female	34	48.6
Mather Age	15-25	8	11.4
	26-35	25	35.7
	36-45	28	40.0
	46-55	8	11.4
	56-65	1	1.4
Place of residence	Urban	47	67.1
	Rural	23	32.9
Type of family	Nuclear	42	54.3
	Extended	38	45.7
Children number in family	1-5	47	67.2
	6-10	20	28.5
	11-15	3	4.3
Mothers Occupation	Employee	32	45.7
	Housewife	45	64.3
Mother Educational level	Not read and write	48	68.6
	Primary	17	24.3
	Intermediate and above	16	22.9
	Institute and above	12	17.1
Monthly Income	Sufficient	29	41.4
	Sufficient some extent	25	35.7
	Insufficient	16	22.9

Table (4.1.) shows that 35.7% of children at age (5-9) years, 51.4% of them are male, 40.0% of mothers at age (36-45) years , 67.1% of them are urban resident, 54.3% of them are in Nuclear families, 67.2% of mothers have (1-5) children , 64.3% of the participants were House Wife , 68.6% of the participants were not read and write , and 41.4% of them have sufficient monthly income .

Table (2) Mother's Knowledge Distributions about Diabetic Ketoacidosis (DkA)						
Questions		No.	%	Mean	St. Deviation	result
I have simple information about Diabetic Ketoacidosis (Dka).	Don't know	38	54.3	1.46	0.502	Poor
	I' know	32	45.7			
Causes of Diabetic ketoacidosis (Dka).	Don't know	49	70.0	1.30	0.462	Poor
	I' know	21	30.0			
The family with a genetic factor for diabetes is more likely to develop it.	Don't know	29	41.4	1.59	0.496	Good
	I' know	41	58.6			
Diabetes is related to the pancreas gland (manufacture of insulin).	Don't know	35	50.0	1.50	0.504	Poor
	I' know	35	50.0			
Diabetic ketoacidosis occurs in type 1 and type 2 diabetes.	Don't know	59	84.3	1.16	0.367	Poor
	I' know	11	15.7			
Diabetic ketoacidosis is acute. complication of diabetes.	Don't know	22	31.4	1.69	0.468	Good
	I' know	48	68.6			
Controlling blood sugar levels reduces exposure to diabetic ketoacidosis.	Don't know	30	42.9	1.57	0.498	Good
	I' know	40	57.1			
The electrolyte that is reduced in diabetic ketoacidosis is potassium.	Don't know	62	88.6	1.11	0.320	Poor
	I' know	8	11.4			
Infection is the most common cause of diabetic ketoacidosis, such as urinary tract infection and pneumonia.	Don't know	46	65.7	1.34	0.478	Poor
	I' know	24	34.3			
Intercurrent diseases are one of the causes of diabetic ketoacidosis, such as surgery, trauma and myocardial ischemia.	Don't know	53	75.7	1.24	0.432	Poor
	I' know	17	24.3			
Stress is one of the causes of diabetic ketoacidosis.	Don't know	48	68.6	1.31	0.468	Poor
	I' know	22	31.4			
Failure to comply with insulin therapy.	Don't know	24	34.3	1.66	0.478	Good
	I' know	46	65.7			
Malnutrition is one of the causes of diabetic ketoacidosis.	Don't know	38	54.3	1.46	0.502	Poor
	I' know	32	45.7			
Diabetic diet plays an important role in the treatment and prevention of diabetic ketoacidosis.	Don't know	35	50.0	1.50	0.504	Poor
	I' know	35	50.0			
The food should be varied and contain grains, starches, vegetables, meat, fruits and milk.	Don't know	32	45.7	1.54	0.502	Good
	I' know	38	54.3			
Reduce the intake of foods rich in sugars such as sweets.	Don't know	1	1.4	1.99	0.120	Good
	I' know	69	98.6			
Reduce the intake of foods rich in fat.	Don't know	30	42.9	1.57	0.498	Good
	I' know	40	57.1			
Drink plenty of water and fluids constantly.	Don't know	20	28.6	1.71	0.455	Good
	I' know	50	71.4			
Children are more likely to have diabetic ketoacidosis than adults.	Don't know	54	77.1	1.23	0.423	Poor
	I' know	16	22.9			
Currently, diabetic ketoacidosis is one of the common problems in our country.	Don't know	57	81.4	1.19	0.392	Poor
	I' know	13	18.6			
Weighting mean				1.4557		Poor
St. Deviation				0.26369		

Table (4.2.) shows that the mothers have poor level of knowledge about Diabetic Ketoacidosis (Dka) in children

in all items concerning the concept, causes and risk factors with the mean score is at poor level of assessment.

Table (3) Descriptive Statistics for Mother's Knowledge of the signs and symptom about Diabetic Ketoacidosis (Dka).						
Questions		No.	%	Mean	St. Deviation	results
feeling thirsty.	Don't know	10	14.3	1.86	0.352	Good
	I 'know	60	85.7			
frequent urination.	Don't know	9	12.9	1.87	0.337	Good
	I 'know	61	87.1			
Loss of appetite.	Don't know	29	41.4	1.59	0.496	Good
	I 'know	41	58.6			
Weight loss.	Don't know	27	38.6	1.61	0.490	Good
	I 'know	43	61.4			
Dry mouth, eyes and skin.	Don't know	17	24.3	1.76	0.432	Good
	I 'know	53	75.7			
Pallor.	Don't know	11	15.7	1.84	0.367	Good
	I 'know	59	84.3			
General weakness (feeling tired, tired or dizzy).	Don't know	25	35.7	1.64	0.483	Good
	I 'know	45	64.3			
Feeling nauseous or vomiting.	Don't know	42	60.0	1.40	0.493	Poor
	I 'know	28	40.0			
Abdominal pain.	Don't know	46	65.7	1.34	0.478	Poor
	I 'know	24	34.3			
Shortness of breath or rapid breathing.	Don't know	45	64.3	1.36	0.483	Poor
	I 'know	25	35.7			
irregular heartbeat.	Don't know	50	71.4	1.29	0.455	Poor
	I 'know	20	28.6			
Muscle aches and cramping.	Don't know	37	52.9	1.47	0.503	Poor
	I 'know	33	47.1			
Headache .	Don't know	49	70.0	1.30	0.462	Poor
	I 'know	21	30.0			
Wounds not healing.	Don't know	26	37.1	1.63	0.487	Good
	I 'know	44	62.9			
abnormal drowsiness.	Don't know	40	57.1	1.43	0.498	Poor
	I 'know	30	42.9			
Swelling and paresthesia of the extremities.	Don't know	30	42.9	1.57	0.498	Good
	I 'know	40	57.1			
blurred vision.	Don't know	53	75.7	1.24	0.432	Poor
	I 'know	17	24.3			
high diastolic blood pressure.	Don't know	64	91.4	1.09	0.282	Poor
	I 'know	6	8.6			
Impaired consciousness .	Don't know	54	77.1	1.23	0.423	Poor
	I 'know	16	22.9			
The smell of ketones - the smell of ketones in his breath.	Don't know	37	52.9	1.47	0.503	Poor
	I 'know	33	47.1			
Nocturnal enuresis and secondary enuresis.	Don't know	29	41.4	1.59	0.496	Good
	I 'know	41	58.6			
Confusion and coma.	Don't know	35	50.0	1.50	0.504	Good
	I 'know	35	50.0			
Weighting mean				1.5058		Poor
St. Deviation				0.22348		

The tables above (4.3.) shows that the mothers have poor level of knowledge about Diabetic Ketoacidosis (Dka) signs and symptoms with the mean score is at poor level of assessment.

Table (4) Distributions of Mothers Attitude regarding Diabetic Ketoacidosis (Dka).						
Questions		No.	%	Mean	St. Deviation	Result
Diabetic ketoacidosis is a serious complication of diabetes.	Agree	14	20.0	1.20	0.420	Poor
	Disagree	56	80.0			
Diabetic ketoacidosis leads to serious diseases such as cerebral edema.	Agree	29	41.4	1.41	0.496	Poor
	Disagree	41	58.6			
I think that insulin deficiency in children can be overcome by taking nutritional supplements compared to eating food.	Agree	29	41.4	1.41	0.496	Poor
	Disagree	41	58.6			
Often the undesirable taste of some foods for children is one of the obstacles that prevent them from consuming food sources that do not contain sugars.	Agree	58	82.9	1.83	0.380	Good
	Disagree	12	17.1			
Follow-up of the child continues for life.	Agree	10	14.3	1.14	0.320	Good
	Disagree	60	85.7			
Diabetes is linked to some diseases such as kidney problems, pancreatitis, and wound healing.	Agree	28	40.0	1.40	0.493	Poor
	Disagree	42	60.0			
Weighting mean				1.3983		poor
St. Deviation				0.43416		

This table (4.4.) shows that the respondents have **negative** attitude about Diabetic Ketoacidosis (DKA) among children in all items concerning their point of view about the benefits and behaviors should followed in protecting their children from problems related, with mean score is at **poor** level of assessment.

Table (5) Distributions of Mothers preventive Practices about Diabetic Ketoacidosis (Dka)						
Questions		No.	%	Mean	St. Deviation	Result
The best way to care for a child with DKA is to limit exposure to anything that triggers symptoms.	Agree	64	91.4	1.91	0.281	**Good**
	Disagree	6	8.6			
Follow-up symptoms such as frequent thirst and frequent urination.	Agree	57	81.4	1.81	0.391	**Good**
	Disagree	13	18.6			
Follow-up symptoms such as loss of appetite and weight loss.	Agree	47	67.1	1.67	0.473	**Good**
	Disagree	23	32.9			
Notice dry mouth, eyes and skin.	Agree	39	55.8	1.55	0.494	**Good**
	Disagree	31	44.2			
Notice pallor of the face and general weakness (feeling tired, exhausted or dizziness).	Agree	25	35.7	1.35	0.475	Poor
	Disagree	45	64.3			
Notice the smell of ketones in the same child.	Agree	13	18.5	1.18	0.391	Poor
	Disagree	57	81.5			
Take the child for a periodic examination and according to the specified date in the health center or private clinic.	Agree	16	22.9	1.22	0.422	Poor
	Disagree	54	77.1			
Giving appropriate treatments as directed by the doctor.	Agree	41	58.6	1.58	0.498	**Good**
	Disagree	29	41.4			
Inform relatives, teachers or babysitters about his illness and symptoms for the purpose of immediate intervention.	Agree	31	44.3	1.44	0.500	Poor
	Disagree	39	55.7			
Create a list of medicines and foods that may be risk factors for the affected child.	Agree	34	48.6	1.48	0.503	Poor
	Disagree	36	51.4			
Commitment to managing diabetes through a healthy diet.	Agree	27	38.6	1.38	0.482	Poor
	Disagree	43	61.4			
Commitment to managing diabetes by taking oral diabetes medications and insulin.	Agree	9	12.9	1.12	0.318	Poor
	Disagree	61	87.1			
Use of short-acting insulin with DKA	Agree	16	22.9	1.22	0.422	Poor
	Disagree	54	77.1			
Monitor the child's blood sugar level and record it at least three times a day.	Agree	26	37.1	1.37	0.480	Poor
	Disagree	44	62.9			
When the child is injured, he is transferred to the hospital or private clinic.	Agree	65	92.9	1.92	0.259	**Good**
	Disagree	5	7.1			
Weighting mean				**1.4834**		**Poor**
St. Deviation				0.50340		

Table (4.5.) shows that mothers of children have **Poor** level of preventive practice about Diabetic Ketoacidosis (DKA) among children in all items related their children caring and

Table (6) Association between Mothers Knowledge and their Demographic Characteristics.				
Variables	Statistics	Mean	P-value	Result
Mother Age	15-25	1.4188	0.394	Insignificant
	26-35	1.5100		
	36-45	1.4321		
	46-55	1.3625		
	56-65	1.8000		
Place of residence	Urban	1.5223	0.002	Significant
	Rural	1.3196		
Type of family	Nuclear	1.5355	0.005	Significant
	Extended	1.3609		
Mothers Occupation	Employee	1.5818	0.006	Insignificant
	Housewife	1.3979		
Children number in family	1-5	1.5389	0.001	Significant
	6-10	1.3100		
	11-15	1.2900		
Mother Educational level	Not read and write	1.2382	0.000	Significant
	Primary	1.4500		
	Intermediate and above	1.4625		
	Institute and above	1.6040		
Monthly Income	Sufficient	1.5293	0.002	Insignificant
	Sufficient some extent	1.4923		
	Insufficient	1.2500		

Table (7) Association between Mothers Knowledge of the Signs & Symptoms and their Demographic Characteristics.				
Variables	Statistics	Mean	P-value	Result
Mother Age	15-25	1.3920	0.70	Insignificant
	26-35	1.5200		
	36-45	1.5390		
	46-55	1.4034		
	56-65	1.9545		
Place of residence	Urban	1.5445	0.038	Significant
	Rural	1.4269		
Type of family	Nuclear	1.5801	0.002	Significant
	Extended	1.4176		
Mothers Occupation	Employee	1.5145	0.289	Insignificant
	Housewife	1.5019		
Children number in family	1-5	1.5404	0.188	Insignificant
	6-10	1.4568		
	11-15	1.3909		
Mother Educational level	Not read and write	1.3128	0.000	Significant
	Primary	1.6051		
	Intermediate and above	1.5644		
	Institute and above	1.5455		
Monthly Income	Sufficient	1.5408	0.003	Significant
	Sufficient some extent	1.5629		
	Insufficient	1.3394		

This table (6) shows that there is significant statistical relationship between mothers knowledge about Diabetic Ketoacidosis (DKA) and their level of education , Place of residence, Type of family and Children number in family with Insignificant with mothers age , occupation and monthly income.

This table (7) shows that there is significant statistical relationship between mothers knowledge of the signs and symptoms about Diabetic Ketoacidosis (DKA) and their level of education , Place of residence, Type of family and Monthly Income with Insignificant with mothers age , occupation and Children number in family .

Table (8) Association between Mothers Attitudes and their Demographic Characteristics.				
Variables	Statistics	Mean	P-value	Result
Mother Age	15-25	1.6458	0.806	Insignificant
	26-35	1.6333		
	36-45	1.6071		
	46-55	1.5625		
	56-65	1.8333		
Place of residence	Urban	1.6809	0.001	Significant
	Rural	1.4928		
Type of family	Nuclear	1.6842	0.008	Significant
	Extended	1.5417		
Mothers Occupation	Employee	1.7273	0.006	Significant
	Housewife	1.5694		
Children number in family	1-5	1.6889	0.001	Significant
	6-10	1.4667		
	11-15	1.6000		
Mother Educational level	Not read and write	1.4314	0.000	Significant
	Primary	1.5833		
	Intermediate and above	1.6806		
	Institute and above	1.7400		
Monthly Income	Sufficient	1.6839	0.001	Significant
	Sufficient some extent	1.6538		
	Insufficient	1.4333		

This table (4.8.) shows that there is significant statistical relationship between mothers' attitudes about Diabetic Ketoacidosis (DKA) and their level of education , Place of residence, type of family , occupation and Children number in family and Monthly Income with Insignificant with Mother Age.

Table (9) Association between Mothers preventive Practices and their Demographic Characteristics				
Variables	Statistics	Mean	P-value	Result

Mather Age	15-25	1.6333	0.772	Insignificant
	26-35	1.6747		
	36-45	1.6643		
	46-55	1.6750		
	56-65	2.0000		
Place of residence	Urban	1.7191	0.021	Significant
	Rural	1.5710		
Type of family	Nuclear	1.7333	0.024	Significant
	Extended	1.5958		
Mothers Occupation	Employee	1.7455	0.096	Insignificant
	Housewife	1.6361		
Children number in family	1-5	1.7081	0.255	Insignificant
	6-10	1.6000		
	11-15	1.6133		
Mother Educational level	Not read and write	1.4314	0.000	Significant
	Primary	1.7958		
	Intermediate and above	1.6611		
	Institute and above	1.7573		
Monthly Income	Sufficient	1.7310	0.001	Significant
	Sufficient some extent	1.7256		
	Insufficient	1.4578		

This table (4.9.) shows that there is significant statistical relationship between mothers' Traditional Practices about Diabetic Ketoacidosis (DKA) and their level of education , Place of residence, Type of family and Monthly Income with Insignificant with Mother Age , occupation and Children number in family .

3. Discussion of the Results

The results of current study in table (4.1.) show that the highest percentage (35.7%) of study sample is in the age group (5-9) years and (51.4%) of them are male.

which consistent with a cross-sectional study in Finland. The results show that two third of children at age (1-5) years at percentage (38.0%) with mean (1.38) while children at age (0-4 & 10-14) years at percentage (26.3% 35.7%) with mean (1.26 - 1.35). The results show that (54.2%) of them are male .(Anne Hekkala, Antti Reunanen, Matti Koski, Mikael Knip,Riitta Veijola and for the Finnish Pediatric Diabetes Register , Jul 2010).

As for the mothers age (40.0%) of study sample is in the age group (36-45) years , they were urban resident with percentage (67.1%). Regarding of type of family (54.3%) of them are nuclear family , with the highest percentage (67.2%) of study sample have (1-5) Children in family .

Studies have found that the (64.3%) of the Mothers were House Wife and (68.6%) of them were not read and write . The researcher's point of view is that the educational level and the mother's profession are very important in order to provide the basic needs of the child, especially focusing on their diet and prevention measures at home from many health problems that reflect a decrease in morbidity and mortality.

As the monthly Income (41.4%) of study sample have Sufficient Income which indicate their level of awareness and satisfactions.

Mother's Knowledge Distributions about Diabetic Ketoacidosis (DKA):

According to mothers knowledge about Diabetic Ketoacidosis (DKA) In Table (2 and 3) it was found that mothers have a poor level of knowledge about diabetic ketoacidosis (DKA) in children in all items related to concept, causes, risk factors, signs and symptoms, with mean score and standard deviation (1.4557). ±0.26369) is poorly evaluated.

The study results shows that the majority of that mothers had poor level of information about diabetic (type 1 and type 2 , acute complication , insulin therapy and diabetic diet) . Moreover, found participants had poor knowledge towards Causes of Diabetic ketoacidosis (DKA) , Sufficiency of reduce the intake of foods rich in sugars such as sweets ,Sufficiency of reduce the intake of foods rich in fat, Sufficiency of food contain grains, starches, vegetables, meat, fruits and milk are best started during diabetic and Diabetic ketoacidosis (DKA) .

Diabetic ketoacidosis (DKA) cause hypokalemia, pulmonary edema, acute kidney injury and cerebral edema. Also, about half of the mothers had a poor level of knowledge, and just under half had an acceptable level. There was a deficit in knowledge relating to Causes but most of mothers correctly identified that the family with a genetic factor for diabetes is more likely to develop it . However, third thought Infection is the most common cause of diabetic ketoacidosis, such as urinary tract infection and pneumonia. There was a lack of knowledge of risk factors for ketoacidosis, including poor awareness of poor nutrition and stress being high risk factors.

The study can be intrepted by poor level of knowledge related Diabetic ketoacidosis (DKA) Perhaps due to the absence of the educational role of health care workers in educating and educating mothers about the importance of this controlling blood sugar levels for the avoid Diabetic and Diabetic ketoacidosis (DKA) of child. In addition to the poor educational level of mothers, it negatively affects their knowledge of their children's needs in

general, and diabetic ketoacidosis. (DKA).

The Distributions of Mothers Attitude regarding Diabetic Ketoacidosis (DKA):

Regarding to mothers attitudes about Diabetic Ketoacidosis (DKA) in table (4.4) revealed that mothers have negative attitude about Diabetic Ketoacidosis (DKA) among children Regarding their view of the benefits and behaviors to be followed in protecting their children from related problems, the mean score and standard deviation (1.39 ± 0.43) are at a poor level of assessment. This is in line with the finding of Kavitha et al. , (2015) found that the majority of study participants had a negative attitude toward the risks of diabetic ketoacidosis (DKA).

More than half of mothers agreed they did not know what to do when it came to complications of Diabetic ketoacidosis such leads to serious diseases such as cerebral edema and afurther about three quarters agreed about follow-up of the child must continue for life.

The study found that most of them were with the agreement that undesirable taste of some foods for children is one of the obstacles that prevent them from consuming food sources that do not contain sugars. From all participants . More than two third disagreed that insulin deficiency in children can be overcome by taking nutritional supplements compared to eating food. Over than three quarters of mothers unrelieved that Diabetic Ketoacidosis (DKA) is linked to some diseases such as kidney problems and pancreatitis.

The study can be interrupted that the reason for mothers' negative attitudes to Diabetic Ketoacidosis (DKA) is due to the lack of knowledge about , which reflects positively in mothers' attitudes about Therefore, changing attitudes from the negative side to the positive side needs to increase the knowledge of mothers about it .

The Distributions of Mothers preventive Practices about Diabetic Ketoacidosis (DKA):

Regarding to mothers traditional practice about Diabetic Ketoacidosis (DKA) in table (5) revealed that mothers of children have poor level of traditional practice about Diabetic Ketoacidosis (DKA) among children related their children caring and condition improvement and protection, with mean score & standard deviation (1.48 ± 0.50) is at poor level of assessment. Which is supported by Kavitha et al., (2015) found that majority of the study participants had poor practices towards Diabetic Ketoacidosis (DKA).

The study found that more than half of the participants focus on limit exposure to anything that triggers symptoms. As well as half of the participants continue follow-up symptoms such frequent thirst , frequent urination, loss of appetite and weight loss. Only, most of the mothers disagread to take the child for a periodic examination and according to the specified date in the health center or private clinic.

The study shows that more than two-thirds of mothers are not committed to managing diabetes through a healthy diet and managing diabetes by taking oral diabetes medications and insulin.

The study can be interpreted as the relationship between knowledge, trends and practices is a direct relationship, whereby an increase in knowledge leads to an increase in attitudes and practices. Since the lack of knowledge among mothers about the importance and risks of diabetic ketoacidosis (DKA), as well as ways to prevent and treat it, DKA directly leads to a lack of practices in dealing with the health problem.

Correlation between maternal knowledge and demographic characteristics:

Regarding the relationship between mothers' knowledge and their socio-demographic profiles tables (4.6 & 4.7) he indicated that there is a significant relationship between mothers' knowledge about DKA and their education level. This is supported by Al-Amoudi et al. (2019) who found that there is a significant relationship between the level of knowledge and the level of education.

There is a statistically significant relationship between maternal knowledge about diabetic ketoacidosis (DKA) with place of residence, type of family, number of children in the family and non-significant with maternal age, occupation, and monthly income.

Correlation between maternal attitudes and their demographic characteristics:

Regarding the relationship between mothers' attitudes and their socio-demographic characteristics, Table No. (8) indicated that there is a statistically significant relationship between mothers' attitudes to diabetic ketoacidosis (DKA) and their socio-demographic characteristics (resident, family type, number of children, occupation., education level and income). monthly) and is not significant with maternal age.

The relationship between maternal preventive practices and their demographic characteristics: demographic characteristics in table (4.9) indicated that there is non-significant relationship between mothers traditional practice about Diabetic Ketoacidosis (DKA) with (mother age , occupation and Children number in family). There is significant relationship between mothers traditional practice about Diabetic Ketoacidosis (DKA) with (level of education , Place of residence, type of family and Monthly Income).

4. Conclusion

A relatively high percentage of respondents have a low level of education, they neither read nor write, which is why more than half of the respondents are House Wife; With (67.2%) of them having given birth (1-5) children. Less than third of the mothers' have children aged (5-9) years, as well as half of them are male. Mothers in Dhi Qar governorate had poor levels of knowledge, negative attitudes and poor practices towards diabetic ketoacidosis among their children. There is a significant relationship between mothers' knowledge, attitudes, and preventive practices toward DKA and their education level, not

significant with maternal age.

5. Recommendation

1. Most children with diabetes are students who spend most of their time in school or nursery school, meaning that they are far from the sight of their parents. That's mean the necessity of informing teachers or nannies of his illness and symptoms for the purpose of immediate intervention and creating a list of medicines and foods that may be risk factors for the affected child.
2. The most effective means of preventing DKA is to sustaining insulin regimen through monitor the child's blood sugar level and record it at least three times a day , use oral therapies as directed by the doctor, and subcutaneous insulin therapy .
3. The allocating Educational programs for mothers to develop knowledge, attitudes and preventive practice about children with diabetic ketoacidosis, through health centers

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