Mothers' Performance Regarding Type 1 Diabetes Mellitus and Their Children's Adherence to Self-Care Practices

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ABSTRACT

Background: Children with Type I Diabetes Mellitus (CTIDM) have a distinct emerging life-long multi-treatment requires, which had been an increased ratio over the recent decades, underscores the importance of effective management through assessing mothers' performance represented by good knowledge level and adequate practices which by role affects the adherence level of their CT1DM self-care as a major core for preventing life-long consequences. **Aim:** To assess mothers' knowledge and reported practices regarding type 1 diabetes mellitus and their children's adherence to self-care practices. **Subjects and Method**: A correlational descriptive research design was utilized in this study at endocrinology Department at Pediatric Hospital in Mansoura University. A convenient consecutive sampling technique was used for 54 mother and their children. Three tools were used to gather the required data: Tool (1) mothers' knowledge questionnaire; (2) mothers reported practice questionnaire; (3) children self-care scale. **Results:** The study revealed that 100% of the studied mothers had poor level of total knowledge and inadequate reported practices and 61.1% of children not adhered to self-care, while 22.2 % partially adhered. **Conclusion:** the total mothers' performance was unsatisfied and near two thirds of the children didn't adhere to self-care. Also, there was a statistically significant positive correlation between total mothers' reported practices with their level of knowledge and their children self-care adherence. **Recommendations:** Conducting diabetes-specific educational sessions based on daily real-life needs for both mothers and children related management of type one diabetes mellitus.

Keywords: Children with type 1 Diabetes Mellitus , Mothers' performance, Children self -care

INTRODUCTION

Children with Type 1 Diabetes Mellitus (CT1DM) suffering from a chronic autoimmune condition characterized by the destruction of insulin-producing beta cells in the pancreas, primarily affecting children and adolescents, so effective management for CT1DM requires a comprehensive approach that includes insulin therapy, blood glucose monitoring, dietary regulation, and physical activity, while, in pediatric populations, the responsibility for day-to-day management largely falls on the caregiver, typically the mother, making maternal knowledge and practices vital for optimal disease control. (Palmer et al., 2021; Vinci et al., 2023).

The performance of mothers of CT1DM including both knowledge and practices of regarding diabetes care and daily management aspects are crucial determinants of CT1DM multi-aspects health outcomes, the levels of maternal knowledge about diabetes care aspects are affected directly on glycemic control (GC) improvement, Fewer hospitalizations, and enhanced life quality for affected children. Conversely, gaps in maternal understanding can lead to mismanagement, delay timing related emergent intervention or decision resulting in acute or long-term complications such as hypoglycemia, diabetic ketoacidosis. Repeated episodes of these complications may ultimately result in long-term organ damage. (Lee et al., 2021; Martin & Hayes, 2022).

Moreover, self-care behaviors in CT1DM at school age period are influenced by parental guidance and support within a context of school mates influences at the school environments. Based upon children psychological and social developmental level at age periods started from 9 years can help the transition of diabetes management responsibilities from parents to the child partially to completely till age 15 to 16 years with a must of gradual and well-supported to ensure continuity of care, Mothers' ability to educate, motivate, and supervise their children directly affects the development of effective self-care habits in young patients. The interplay between maternal involvement and the child's autonomy is therefore central to successful diabetes self-management (Johnson et al., 2023; Fernandez et al., 2022).

Additionally, cultural beliefs, socioeconomic status, and access to healthcare services significantly shape mothers' ability to effectively manage their child's diabetes. In low- and middle-income countries, including many regions in the Middle East and North Africa, limited resources, lack of structured diabetes education, and misconceptions about insulin use contribute to poor disease control. Mothers in such contexts often rely on informal sources for information, which may be incomplete or inaccurate, thereby undermining effective diabetes management (Rahman et al., 2020).

In addition, the psychological burden on mothers of CT1DM is substantial and may influence their caregiving performance. Feelings of guilt, anxiety, and chronic stress are common among these caregivers and can hinder their ability to consistently implement diabetes management plans. Support systems, such as family involvement and professional counseling, play a critical role in helping mothers cope with these challenges, thus enabling them to support their child's health more effectively (Ahmed et al., 2021).

Significance of the study

Children with Type 1 diabetes mellitus (CT1DM) represents a growing public health concern, particularly among pediatric populations. In Egypt, the prevalence of T1DM in children and adolescents is estimated to range between 1.9 and 4.0 per 1,000, with incidence rates steadily increasing. This is comparable to other Arab countries such as Saudi Arabia, where the incidence rate reaches approximately 27.5 per 100,000 per year, and remains lower than global rates in countries like Finland, which reports over 60 per 100,000 per year ((El-Ziny et al., 2020; DiMeglio et al., 2022).

This study highlights the role of maternal knowledge and reported practices in shaping diabetes outcomes in type one diabetes milletus (TIDM) children a critical factor that need to be remains explored in specific daily care requirements, as a core step for enhancing caregiver awareness and support which can improve self-care behaviors among children, reduce complications, and contribute to more effective diabetes management in culturally relevant ways. So, this study aimed to assess mothers'

performance (knowledge and reported practices) regarding the care of their children with type 1 diabetes, and how these factors influence the self-care capabilities of the children.

AIM OF THE STUDY

This study aimed to assess mothers' knowledge and reported practices regarding type 1 diabetes mellitus and their children's adherence to self-care practices.

Objectives

1. To describe the level of mothers' knowledge related to care of their children with type one diabetes.
2. To evaluate the reported practices of mothers' related to care of their children with type one diabetes.
3. To determine the level of self-care adherence among the children with T1DM.
4. To explore the relationships among mother's knowledge, reported practices, and the self-care adherence of their children with type one diabetes.

SUBJECTS AND METHOD

Technical Design:

Technical design includes description of the research design, setting, subjects and tools for data collection.

Study design:

A correlational descriptive research design was utilized in this study.

Study Settings:

This study was conducted in the endocrinology department and outpatient Juvenile diabetic clinic at Mansoura Pediatric Hospital at Mansoura University. Outpatient Juvenile diabetic clinic is accessible one day per week at Saturday from 8.00 AM to 2.00 PM.

Study subject:

A convenient Consecutive sampling was used in the study. A total of 54 mothers and their 54 children with Type 1 Diabetes Mellitus were participated based on the inclusion and exclusion criteria. The sample size was calculated by the Epi-info 7 programs using the following parameters:

Population size = 910 (The total number of mothers and children who estimated to attend at previously mentioned setting over a period of three months).

- Expected frequency =50%
- Acceptable error=10%
- Confidence coefficient=95%

The program revealed that the sample size =54 (mother and their CT1DM): Due to the expected non-participating rate (5%); the final sample size was 54 mother and their CT1DM who met the inclusion criteria as following:

Inclusion criteria

The study population included women who are literate and children aged between 9-15 years with confirmed T1DM ≥ **6 months** and didn't diagnose with other chronic disease who attending above mentioned settings.

Tools for collection of data

Three data collection instruments were used:

Tool (I):mothers' knowledge questionnaire about care of their CT1DM:

This tool developed by the researcher in an Arabic language to adapt the participant original language to assess mothers' knowledge about care of their children with type one diabetes. It consisted of two parts: -

Part I: personal characteristics of the studied mothers.

This part included six items that used to collect the basic data for assessing personal characteristics of the studied mothers including: age, marital status, educational level, working condition, economical status, and children number.

Part II: personal and clinical history of the studied children:

This part involved four items for assessing personal characteristics of the children (such as age, gender, educational level, etc.), and five items that used to assess clinical history of the children including diabetic genetic factor, diagnosis date, how diabetes discovered, hospitalization history, and reason for hospitalization.

Part III: mother s' knowledge about caring of their CT1DM:

This part involved nine domains (three multiple choices and Trible Likert scale responses). It used to assess mother's knowledge regarding care of their CT1DM including T1DM identification, investigation values, and hypo and hyperglycemia and knowledge related practice items for daily care. It used to measure the exact knowledge level of mother about care of their CT1DM.

Scoring system: The questions were scored as follows: For multiple-choice: One for a 'correct' answer and zero for a 'incorrect' answer. The questions that involved in the Likert scale were categorized into: do not know was given zero, not sure was given one, and know was given two. The total knowledge score calculated by adding the scores for each correct answer. The higher scores reflected higher levels of knowledge related care of mothers for their CT1DM. It classified into: **< 50 %** represented a poor knowledge level, **≤ 74% - ≥ 50%** represented a fair knowledge level, and **≥ 75%** was considered a good level of knowledge.

Tool II: Mothers' reported practice regarding care of their CT1DM :

This tool developed by the researcher in an Arabic language to adapt the participant original language. The instrument encompassed key domains of daily care

and was structured as a binary (yes/no) self-report questionnaire. It evaluated maternal practices related to routine diabetes management, including insulin administration, blood glucose monitoring, management of hypoglycemia and hyperglycemia, nutritional care, and adherence to follow-up visits and periodic medical check-ups.

Scoring system: The questions were scored as follows: "yes" for done practices and scored by giving one score for each "yes" response, and zero for a ‘no’ response which represented a not done reported practice. the higher scores reflected higher levels of reported practices related care of mothers for their CT1DM. It classified into: ≤ 74% represented inadequate level, and ≥ 75% was considered an adequate reported practice level.

Tool IV: The T1DM Children Self-Care Scale (T1DM SCS):

The Scale was developed by the researcher based upon the eligible self-care items included at the tool created for mothers' performance domains included assessment areas: daily care, nutrition and activity, preventive and follow-up care aspects.

Scoring system: The total children's adherence score was calculated then converted to a percentage and evaluated as the following: the children self-care degree was considered:

- Highly Adhered: if the total percent score ≥ 85%
- Partially Adhered: if the total percent score ≤ 84% -
- Poorly adhered: if the total percent score ≤ 69% ≥ 70%

Operational Design:

The operational design includes preparatory phase, pilot study and field work.

Preparatory phase:

It includes reviewing of related literature, different studies and theoretical knowledge of variant aspects of the problems using pediatric and medical related text

books, research articles, internet, periodicals and magazines about studies related to quality of life for blind students.

Pilot study:

A pilot study was conducted before starting the data collection phase. It was carried out on 10% of the study sample, which included 6 mothers and their CT1DM, from the mid of January 2025 till the end of April 2025 for a period of three months and two weeks. While, the purpose of the pilot study was to test applicability and feasibility of the study tools, and it served to estimate the period of time needed to fill in and accomplish the tools, it also helped to clear out any hinders or problems that might interfere with data collection. Based on the findings of the pilot study, the modifications needed for the tools were done to be applicable and clear.

Field work:

Data collection was carried out at the selected setting, from the beginning of November 2022 until the end of March 2023, for a period of 5 months. After preparing the tools, the study sample was recruited according to the prementioned criteria. This was followed by data collecting. The researcher met the studied mothers who attended the inpatient and outpatient for regular follow-up as the clinic works once weekly (Saturday). The orientation was done about researcher's name, purpose of the study, content of the study tools, and finally obtaining the oral consent to participate in the study. The researcher began to clearly explaining how to fill it out the written pre mentioned tools and distributed the questionnaires sheet in an Arabic language form for the studied mothers to assess their current level of performance including knowledge and reported practices regarding care of their CT1DM, and the self-care scale form distributed for the studied children to assess their adherence level. Confidentiality of all collected information was strictly assured. The time needed to fill each one extended from 15 to 25 minutes, depending on the response of each mother and child. As well, the researcher obtained the telephone number of the studied mothers to communicate with them. The researcher also obtained information about the regular visits of the studied mother from

the outpatient record by assistance of nurse working at outpatient clinic and from the head nurse at inpatient department.

Administrative design

Before starting any step in the study, an official letter was issued from the Dean of the faculty of nursing to the director of the study setting, contacted and informed in requesting cooperation and permission to conduct the study.

Ethical consideration:

Prior to conducting the study, ethical approval was obtained from the Scientific Research Ethics Committee at the Faculty of Nursing, Port Said University. Explain the aim of the study to the director and supervisors in the study setting asking for their permission to do this study. The process of data collection did not disturb the harmony of the work. A consent was obtained from the studied mothers and children. Explain the aim of the study to each participant so they are familiar with the importance of their participation and have the right to withdrawn from the study at any time without a need for any rationalization. The researcher ensured participants that their identities and answers were kept confidential and exclusive for a research purpose.

Statistical Design:

Upon completion of data collection, the data were managed, coded, arranged, entered and analyzed according to the type of each data to answer the research question using Statistical Package for Social Sciences program (SPSS) version 27. Data presentation done by using suitable tables and graphs. Frequency distribution, percentages, mean and standard deviation calculated. The Pearson's correlation coefficient was used to test correlation between variables. Statistically significant was considered at P value ≤ 0.05.

RESULTS

Table 1 Exhibits the distribution of the studied mothers' personal characteristics which reveals that the mean age of the studied mothers was 40.5 ±5.506 years, and related to marital status, 88.8% of studied mothers were married. It is noted that 76% of studied mothers were highly educated and 61% are house wives. Whereas, low economic status level represents 74 % of studied mothers. Regarding children no., 46.4% have four children. On the other hand, 90.8% reported that they didn't receive any training regarding Caring of their T1DM children, and for those who received training previously, 5.5 % received training more than two years ago.

Figure 1 reveals that 61% of the studies mothers not working, whereas, 15% works, and 24% are in work vacation

Table 2 portrays the distribution of personal and medical characteristics of studied children and thus represents that the mean age of studied children was 12 ± 0.7926, and 57.4% are females. In addition, 46.3% in grade six. It is observed that all of the studied children have the genetic factor and were hospitalized before as result of T1DM ketoacidosis. The children who diagnosed from 1- 6 months were 68.6%. Unfortunately, all of the studied children didn't receive any previous training.

Figure 2 reveals 83.3% of the studied children order the last among their siblings, while 16.7% orders the first, and none represents the second or the third.

Table 3, highlights that 100% of the studied mothers had poor level of total knowledge about care of their CT1DM, while none of them scored at either good or fair level.

Table 4, represent that 100% of the studied mothers had an inadequate level of total reported practice regarding care of their CT1DM, while none of them scored at the adequate level.

Figure 3 shows the adherence level of the studied children, as 61.1% of children not adhered to self-care, while 22.2% partially adhered with none scored at adherence level.

Table 5 reveals that, there was a statistically significant positive correlation between total mother' reported practice and knowledge related care of their CT1DM and total score of children self-care adherence at $p \leq 0.05$.

Table (1): Frequency distribution of the studied mothers according to their personal characteristics **(n=54).**

Characteristics	No	%
Age (year)		
30-39	21	38.8
40-49	31	57.5
≥50	2	3.7
Mean± SD	**40.5 ± 5.506**	
Marital status		
Married	48	88.8
Widow	2	3.7
Divorced	4	7.5
Level of education		
Diploma	13	24
High Graduate	41	76
Economic status		
Low	40	74
Moderate	14	26
Children Number (no.)		
Two	8	14.8
Three	13	24
four	25	46.4
five	8	14.8

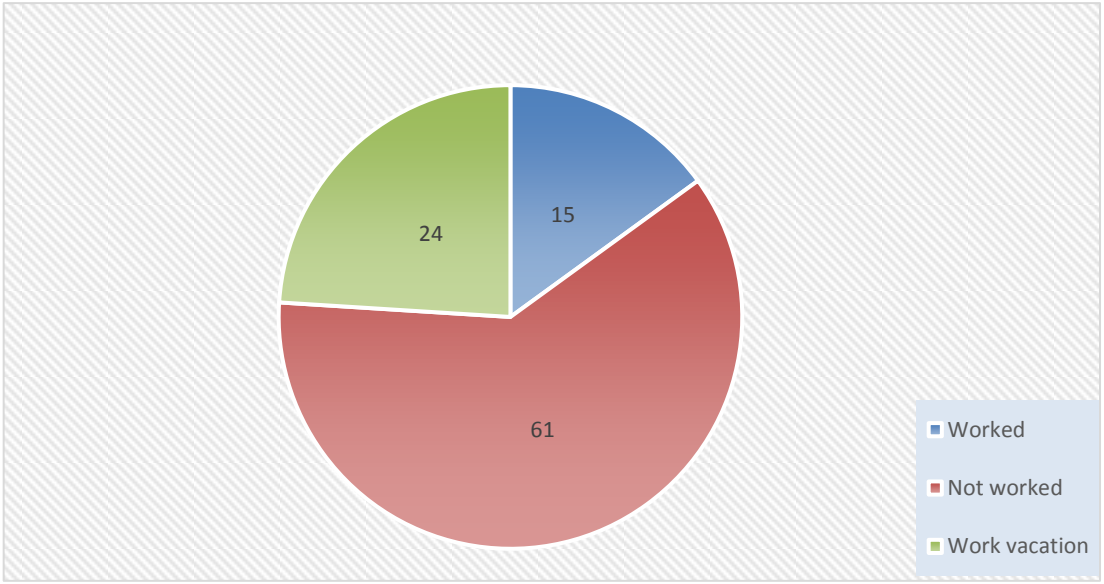

Figure (1): Percentage distribution of total studied mothers according to their work status (n=54)

Table (2): Distribution of personal and medical characteristics of studied children (n=54).

Characteristics	No	%
Age (year)		
9- < 11yrs	20	37
11- <13 yrs	26	48.2
13 - <15 yrs	8	14.8
Mean± SD	**12 ± 0.7926**	
Child Gender		
Male	23	42.6
Female	31	57.4
School Grade		
Four	12	22.2
Five	9	16.7
Six	25	46.3
Preparatory	8	14.8
Genetic Factor		
Yes	54	100
T1DM Discovering through Complications	54	100
Hospitalization History		
Yes	54	100
Hospitalization Reason		
Diabetic Keto Acidosis (DKA)	54	100
Child Diagnosed From		
1-6 months	37	68.6
7-12 months	13	24
more than 1 year	4	7.4

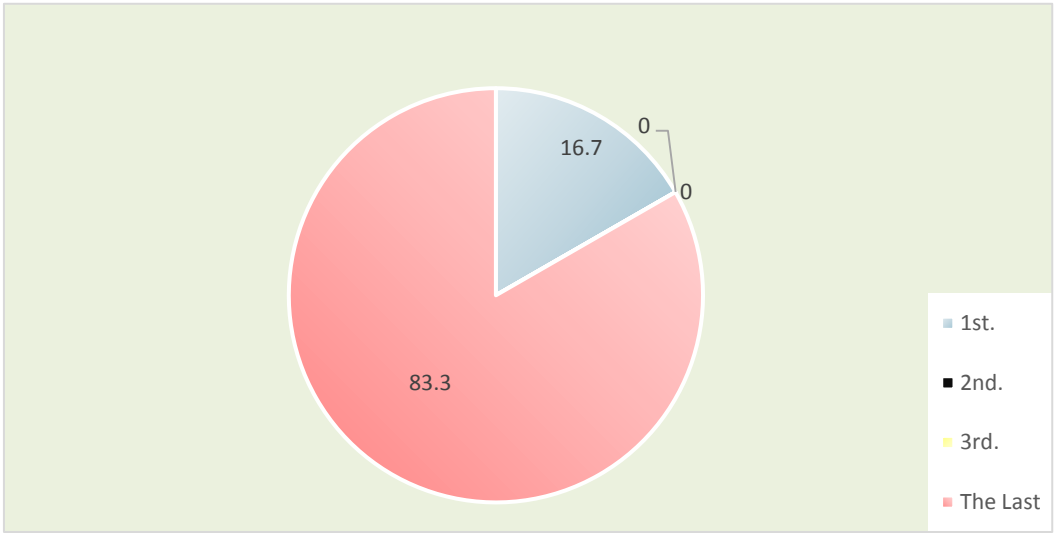

Figure (2): Percentage distribution of total studied children according to their order among siblings (n=54).

Table (3): Frequency distribution of the studied mothers according to their knowledge level related care of their CT1D **(n=54)**

Knowledge Level	NO	%
Good ≥ 75%	0.00	0.00
Fair ≤ 74 - ≥ 60	0.00	0.00
Poor < 60 %	54	100

Table (4): Frequency distribution of the studied mothers according to their reported practice related care of their CT1D **(n=54)**

Reported Practice Level	NO	%
Adequate ≥ 75%	0.00	0.00
Inadequate < 50 %	54	100

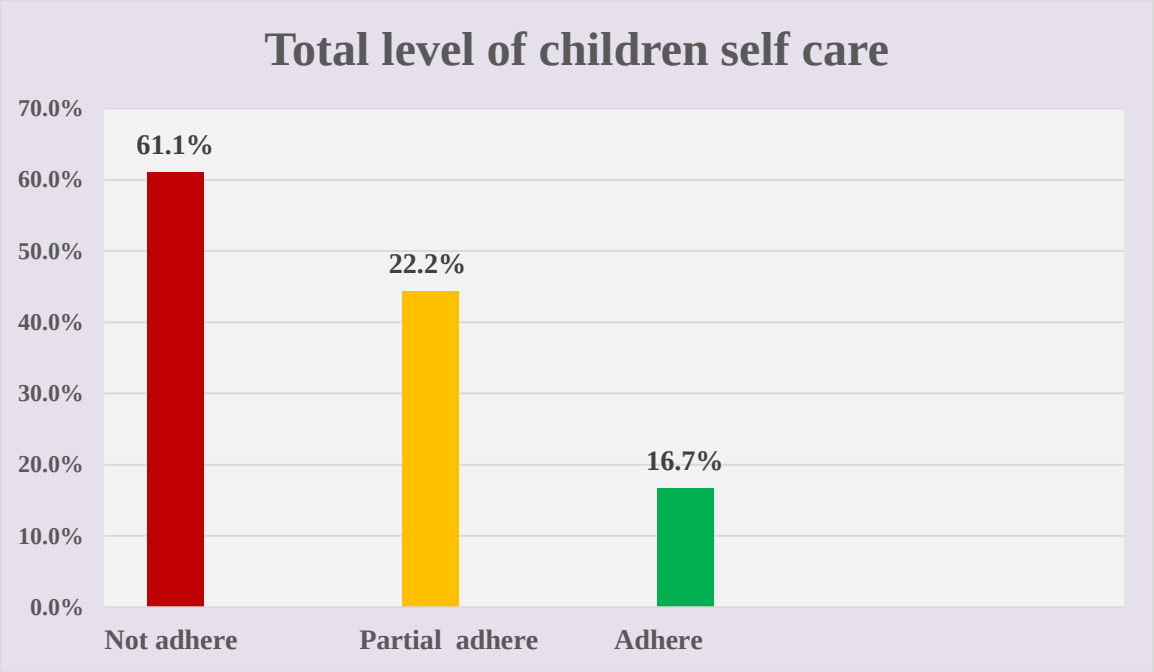

Figure (3): Percentage distribution of total studied children according to their level of total self-care (n=54).

Table (5): Correlation between total score of mothers' reported practice and knowledge related care of their CT1DM and total score of children self-care **(n=54 mother and 54 child)**.

Variables	Total mother' knowledge		Total adherence of children self-care	
	R	p	r	p
Total mother' reported practice	0.412	0.002*	0.545	0.046*

R= correlation coefficient test. P= p-value * significant at p ‹ 0.05.

DISCUSSION

The management of diabetes in children is inherently complex, involving many households supporting systems. In most cases, mothers assume the primary caregiving role and are central to the successful day-to-day management of their children diabetes. Assessing mothers' knowledge and reported practices is a core care for CT1DM, which will highly expected to affect their CTIDM self-care, which considered the backbone of the daily adherence at CTIDM.

Self-Care in CTIDM targeted more glycemic control and can be affected by many detailed daily impacts, a highlight shaded on the glycemic control at CTIDM affected by multi-physiological and psychosocial crucial changes and insulin sensitivity shifts, neurocognitive risks due to DKA, and challenges in self-care and school achievements and social support. Metabolic control notably declines within school children at preadolescent and adolescent, as only ~15% of under‑15 in the UK achieved HbA1c targets (~7.5%) (American Diabetes Association (ADA), 2023).

Additionally, The mothers reaction at time of diagnosis of their children with TIDM, can reveal a dominance of the hypothesis that caregiving responsibilities, often culturally assigned to mothers, interfere with stable life circumstances among families related managing chronic childhood illness, which can result in a challengeable situation for mothers to seek acquire knowledge and needed care practices for enhancing their CT1DM self-care So, this study was conducted to assess the knowledge and reported practices of mother about care of their CT1DM and their children self-care.

The findings of the current study highlight a prominent pattern regarding mothers' work status and their children's diabetes diagnosis. A considerable proportion of mothers were in work vacation as they reported deciding to take work vacation at the time of their children with TIDM diagnosis, reflected by hospitalization rate that scored by all children, who reported that hospitalization occurred once at least specified to the diagnosis date as all children diagnosed and hospitalized after exposure to diabetic ketoacidosis (DKA).

While a significant number had to take leaves with non-paid vacation from work, this can reflect the urgent need for full-time caregiving responsibilities after diagnosis of their children, especially after exposing to a life-threatening condition like ketoacidosis. Additionally, this was given the emotional and practical challenges of managing a newly diagnosed diabetic child and the urgent need for seeking to acquire knowledges and practices required as a main care challenge for detailed daily care to CT1DM. This aligns with WHO, (2020), suggesting that mothers often prioritize caregiving over employment during medical crises.

In addition, the mode of diagnosis played a crucial role in shaping the mothers' reactions. Children diagnosed during a critical episode (e.g., diabetic ketoacidosis) prompted more abrupt maternal responses, including immediate leave from work. Such patterns suggest that the severity and shock of the diagnosis experience can significantly influence mothers' decisions and stress responses and may initially hinder caregivers be acquiring of emergent care knowledge and practices (Jones et al., 2019).

The pattern of work leave taken post-diagnosis suggests that the decision is not merely personal but also situational, influenced by factors such as child age, as this study results showed that more than one third of studied children aged less than eleven and near half were less that thirteen, this reflecting a highly psychological need to support and a partial self-care dependence particularly in high alert interventions like corrective doses of insulin or carbohydrate calculation for managing hypoglycemia or even for ordinary meal.

In accordance, the severity at diagnosis, and availability of healthcare or familial support is crucial with those who diagnosed through DKA accidently detection. These findings are consistent with suggestions that early-stage diagnosis may place higher burdens on families lacking robust social or institutional support (El-Gamal & Hassan, 2021). Furthermore, all studied children were ordered the first or the last among siblings, and the mean age of the studied mothers were 40.5 ± 5.5.

According to the Endocrine Society (2013), first-born children exhibit reduced insulin sensitivity, making them more susceptible to metabolic disorders, including diabetes. Similarly, the Prospective family-based studies to evaluate maternal age and

birth order relation revealed that the risk of type 1 diabetes in childhood increased with strongly correlated to increased maternal age, Furthermore, the risk increased risk for developing diabetes for the first-born children (Bingley, et al., 2000)

A prospective study Titled "Birth order linked to increased risk of diabetes and metabolic disorders", by Ayyavoo., et al. (2013) in New Zealand demonstrated a significant increase in the risk of diabetes with a reduction in insulin sensitivity among first-born children, and the study also linked maternal age to diabetes risk, showed that the maternal age at delivery further amplified the diabetes risk for born children, reflected the risk for the last-born children with increase in risk for each five-year band of maternal age, which interpret the findings of the current study that the last child represented more than eighty percent study concluded that.

The current findings regarding the mothers' knowledge level about care of their CT1DM, revealed that all the studied mothers had a poor knowledge level, this can be related to the current study findings regarding the studied participants, which reveal that the majority had low economic status which stressed by a considerable percentage of studied mothers take work vacation after their children diagnosis, and this reflects the limited accessibility to paid educational programs related caring of CT1DM. In Related reflection, free educative programs in governmental institutions are limited and non-specified to each child as reported by the studied mothers and the professional staff who justify that they are overloaded in the work with limited time for educating every CT1DM and their family.

Actually, this result is mirrored by the current study result regarding the studied mothers reported practice regrading care of their CT1DM, which showed also that none of the studied mothers had adequate reported practice level, this can be reflected by mother's report that they acquire practices related caring of their children from other caregiver's experience which are non-professionals and through social media videos and groups sharing. This can be affiliated to this study results which indicated a statistical positive relationship between knowledge and reported practice of the studied mothers.

This aligns with Alotaibi et al. (2021) and Smith & Patel, 2020, who emphasized that the level of caregivers related knowledge of managing their diabetic

children is crucial in establishing foundational competencies in home-based care referring to the direct impact of caregiver knowledge level among mothers of diabetic children on their practices, highlighting significant gains in parental practices after knowledge enhancement, particularly in areas such as insulin use, blood glucose monitoring, and proper nutrition.

Regarding diabetes-related reported practices and knowledge level, according to Jones et al. (2022) and WHO, (2023), there is a direct correlation between maternal diabetes knowledge and the execution of accurate care practices, and practices such as regular blood glucose testing and insulin dose adjustments associated with hypo and hyperglycemia management are influenced by both acquired knowledge and competent practices to the maternal confidence in caregiving roles. Which have an impact on self-care practices of CT1DM.

Self-care practices for CT1DM at this study results showed that near two thirds of children reported a non-adherence level, while only near sixteen reported adherences to self-care practices. Although primarily the responsibility of the child as they grow, are heavily shaped by parental involvement. , mothers still shaping the crucial role for supporting, caring, educating, and following their CT1DM practices. So, the fact of poor knowledge level and inadequate reported practices of the studied mothers related caring of their CT1DM reflected directly the low adherence level of majority of studied children on the total adherence domains.

Justifying this by the current study results, which indicated a statistical relationship between mothers' reported practices and the children self-care level. These results are echoed by Kim & Lee (2020) and Miller & Wong, (2019), who emphasized that the self-care adherence suggested the level of structured guidance of mothers in knowledge level mirroring the role of family-centered education in sustaining self-care among children with type 1 diabetes demonstrating that the challenges persist, however, especially in transitioning responsibilities as children enter adolescence.

The self-care level of the studied children can also related to the prementioned results discussed at the current study related the order of the child among siblings, The cultural fact of rearing practices and family disciplines used for both the first- and last-born child can interfere with the current study results that revealed that near two thirds of the studied children didn't adhered to self-care practices, as the raring disciplines practiced with the first and last child culturally tended to be looser with overprotection and decreased independent self-care interventions. Which can be interfered with the psychological and developmental frameworks that have proposed that birth order may significantly impact a child's emotional development, stress response, and overall psychological resilience (Berk. 2022).

Additionally, Berk (2022), stated that the youngest child is often reported to receive more parental attention and indulgence, which may hinder the development of independence and emotional coping skills, emphasizing that birth order and parenting style interact to shape a child's behavioral tendencies and stress regulation. Similar to Boyd and Bee (2019) who discussed how youngest siblings are more likely to rely on caregivers and may struggle with self-management tasks in chronic illnesses like diabetes.

These insights supported by the notion that if the caregiver have poor knowledge and practices, some children, particularly those who are youngest or overly indulged, might show reduced adherence to diabetes self-care behaviors. Moreover, parental overprotection, as highlighted in prior research, can unintentionally restrict a child’s autonomy**,** further complicating chronic disease management. Although a direct causal link between birth order and diabetes onset has not been established, these psychological insights provide plausible explanations for variation in children’s ability to cope with and manage diabetes effectively. Understanding family structure (Jones et al. 2022; McKinney &Peterson 2021).

CONCLUSION

Based on the findings of the present study, it can be concluded that all of the studied mothers had poor level of total knowledge about care of their CT1DM and inadequate reported practice levels which conform totally unsatisfactory performance

level and result in nonadherence for their T1DM to self-care representing about two-thirds of children. Finally, there was a statistically significant positive correlation between overall reported practices with total knowledge and their children's self-care adherence.

RECOMMENDATIONS

In the light of the results of the current study, the followingbrecommendations are suggested:

- Implement specific educative programs based on the daily health care needs to improve mother’s knowledge and reported practices regarding caring of their CT1DM.
- Carry out a focused health teaching sessions for children with TIDM related daily self-care needs and aspects.
- Create specified educative programs for CT1DM and their families which will be easily accessible and with banded time by health care professional with clear comprehensive and free Arabic handouts and booklets.
- Adopt workplace policies and regulations that accommodate mothers of children with type one diabetes at schools to relieve financial and time limitations, enhancing a Family-centered care roles which must extend beyond medical facilities and include occupational accommodations and caregiver support.

references

Ahmed, L., Shafiq, M., & Khan, M. (2021). Psychological stress and coping among mothers of children with type 1 diabetes. Clinical Child Psychology and Psychiatry, 26(1), 50–62.

with type 1 diabetes care practices of children-Evaluating self .(Ali, A. J. I. (2013 *mellitus in Northern West Bank: A controlled randomized study utilizing* Najah National University-Master's thesis). An) *care theory-Orem self*

Alotaibi, A., et al. (2021). Impact of structured diabetes education on parents of type 1 diabetic children. *Pediatric Nursing Journal, 47*(2), 114-121.

American Diabetes Association. (2023). Standards of medical care in diabetes 2023. *Diabetes Care, 46*(Supplement1), S1–S160.

Ayyavoo, A., Savage, T., Derraik, J. G., Hofman, P. L., & Cutfield, W. S. (2013). First-born children have reduced insulin sensitivity and higher daytime blood pressure compared to later-born children. *The Journal of Clinical Endocrinology & Metabolism, 98*(3), 1248-1253.

Berk, L. E. (2022). *Development through the lifespan* (7th ed.). Pearson Education.

Bingley, P. J., Douek, I. F., Rogers, C. A., Gale, E. A. M. (2000). Influence of maternal age at delivery and birth order on risk of type 1 diabetes in childhood: prospective population based family study. *BMJ, 327*(7421), 1284–1289. https://doi.org/10.1136/bmj.327.7421.1284

Boyd, D., & Bee, H. (2019). *Lifespan development* (7th ed.). Pearson Education.

DiMeglio, L. A., Evans-Molina, C., & Oram, R. A. (2022). *Type 1 diabetes*. The Lancet, 400(10350), 2399–2412.

El-Gamal, R., & Hassan, A. (2021). Socioeconomic implications of type 1 diabetes in Egyptian households. *Middle East Journal of Family Medicine, 19*(3), 30-37.

El-Ziny, M. A., Salem, N. A., El-Hawary, A. K., Chalaby, N. M., & Elsharkawy, A. A. (2020). Epidemiology of childhood type 1 diabetes mellitus in Nile Delta, Egypt: A retrospective study. *Global Pediatric Health, 7*, 2333794X20963404.

Endocrine Society. (2013). Birth order linked to increased risk of diabetes, metabolic disorders. *Journal of Clinical Endocrinology & Metabolism, 98*(2), 459–467. https://doi.org/10.1210/jc.2012-3531

Fernandez, N., Woods, R., & Salim, A. (2022). Parenting strategies and adherence to diabetes self-care in children: a cross-sectional study. *BMC Pediatrics, 22*(1), 183.

Johnson, K. M., Brown, T. J., & Ali, S. (2023). Transition of care in pediatric diabetes: the role of family dynamics. *Journal of Adolescent Health, 72*(1), 35–42.

Jones, H. C., Thompson, L., & Davis, R. (2019). Parental responses to childhood chronic illness: A qualitative analysis. *Journal of Pediatric Psychology, 44*(5), 540-552.

Jones, M., Brown, H., & Davis, T. (2022). Correlation between caregiver knowledge and diabetes care practice. *Diabetes Educator, 48*(1), 37-45.

Kim, H., & Lee, S. (2020). Family involvement in pediatric diabetes self-care:

Lee, M., Gonzalez, C., & Patel, S. (2021). Parental knowledge and glycemic control in children with type 1 diabetes: a meta-analysis. *Diabetes Research and Clinical Practice, 180*, 109036.

Martin, R. J., & Hayes, L. E. (2022). Maternal impact on pediatric diabetes outcomes: a longitudinal cohort analysis. *Journal of Pediatric Nursing, 65*, 10–17.

McKinney, J., & Peterson, M. (2021). *Pediatric chronic illness and family care*. Mosby Elsevier.

Miller, R., & Wong, D. (2019). Transitioning self-care in adolescents with type 1 diabetes. *Journal of Adolescent Health, 65*(5), 543–549.

Palmer, J. P., Gitelman, S. E., & Gottlieb, P. A. (2021). Advances in the understanding and management of type 1 diabetes. *The Lancet Diabetes & Endocrinology, 9*(6), 360-370.

Rahman, H., AlShammari, R., & Zahrani, S. (2020). Cultural influences on diabetes care among mothers in Arab communities: barriers and recommendations. *International Journal of Diabetes in Developing Countries*, *40*(3), 468–475.

Smith, L., & Patel, R. (2020). Parental education and chronic illness management in children. *Journal of Family Health, 36*(4), 250-257.

Vinci, A., Barrett, E., & Nguyen, M. (2023). Pediatric diabetes management: emerging tools and parental engagement. *Pediatric Diabetes, 24*(2), 150-159.

Virmani A, Boddu SK, Sarda A, Shukla R, Puri S, Chhabra M, et al.: Type 1 diabetes self-care in urban schools in India. J. *Pediatric Endocrinol Diabetes 2021*;1:8-13.

WHO. (2023). Global report on diabetes care and caregiver involvement. Geneva: World Health Organization.

World Health Organization. (2020). Health workforce policy and management in the context of the COVID-19 pandemic response. Geneva: WHO.

أداء الأمهات والرعاية الذاتية لأطفالهن المصابين بداء السكري من النوع الأول الممرضين

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الخلاصة

تعتبر المتطلبات العلاجية للأطفال المصابون بداء السكري من النوع الأول (CTIDM) متطلبات دائمة على مدار عمر هؤلاء الأطفال علاوة على كونها متطلبات تتضمن العديد من مناحي الرعاية الصحية، وقد زاد معدل الإصابات بالسكري من النوع الأول بشكل ملحوظ بالعقود الأخيرة، مما جعل الإدارة الفعالة للسكري مهمة للغاية حيث يعد تقييم أداء الأمهات إحدى الركائز التي تتمثل في وجود مستوى معرفة جيد وممارسات مناسبة لإدارة السكري في الأطفال، وذلك قد يجعلها تؤثر بدورها على مستوى الالتزام برعاية الأطفال لذاتهم حيث تعد الرعاية الذاتية لسكري الأطفال هي المحور الأساسي للوقاية من المضاعفات علي مدى حياة الطفل. الهدف: تقييم معرفة الأمهات والممارسات المبلغ عنها والالتزام بالرعاية الذاتية لأطفالهن المصابين بالسكري من النوع الأول. طرق البحث: تم استخدام تصميم بحث وصفي ارتباطي في هذه الدراسة وتم أخذ العينة من قسم الغدد الصماء في مستشفى الأطفال الجامعي بالمنصورة، تم استخدام العينة المتتالية لملائمة طريقة جمع البيانات لعدد 54 أم وأطفالهن. تم استخدام ثلاث أدوات لجمع البيانات المطلوبة: الأداة (1) استبيان معرفة الأمهات؛ (2) تقارير الأمهات عن الممارسات (3) مقياس الرعاية الذاتية للأطفال المصابين بالسكري من النوع الأول. النتائج: أظهرت الدراسة أن 100% من الأمهات محل الدراسة مستوى المعرفة لديهن ضعيف والممارسات التي قد أبلغن عنها غير كافية، و 61.1% من الأطفال غير ملتزمين بالرعاية الذاتية، بينما 22.2% التزموا جزئيًا. الاستنتاج: كان الأداء الإجمالي للأمهات غير مُرضٍ وما يقرب من ثلثي الأطفال لم يلتزموا بالرعاية الذاتية. أيضًا، كان هناك ارتباط إيجابي ذو دلالة إحصائية بين الممارسات المبلغ عنها للأمهات ومعرفة الأمهات وعناية أطفالهن الذاتية. التوصيات: إجراء برنامج جلسات تعليمية محددة لمرضى السكري بناءً على الاحتياجات اليومية الحقيقية لكل من الأمهات والأطفال المرتبطة بإدارة داء السكري من النوع الأول.

الكلمات المرشدة: الأطفال المصابين بالسكري من النوع الأول، أداء الأمهات، الرعاية الذاتية