

**ASSESSMENT OF DIABETES CARE MANAGEMENT IN PRIMARY CLINICS:
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ABSTRACT

Objective: In Iraq, the prevalence of diabetes mellitus is rapidly increasing. Given the significance of preventing diabetic complications, effective diabetes control is paramount. The primary objective of this study was to assess diabetes care in primary clinics within Iraq, utilizing the guidelines established by the American Diabetes Association (ADA). **Methods:** This study perform in Nineveh city in Iraq conducted a retrospective research study. A total of 200 patients were randomly selected from primary care clinic records. An evaluation checklist was developed based on the treatment guidelines outlined by the American Diabetes Association (ADA), which included assessments of the patient's medical history, physical examination, laboratory results, and referrals. **Results:** The results revealed that elements meeting the ADA targets for overall care in Nineveh city were as follows: medical history (44.9%), physical examination (59.6%), laboratory evaluation (36.3%), and referrals (19.3%). Other subelement indicators such as referral to diabetes self-management education clinics (10%), dental examination (2%), regular monitoring of HbA1c (33.5%), and blood pressure determination (100%) were documented with adherence to ADA standards. **Conclusions:** The effectiveness of the management plan depends on the diabetes management criteria. The majority of the components that were looked at don't fully adhere to the ADA standard. Sustained observation and introspection are advised.

KEYWORDS: American Diabetes Association standards, diabetic patients, laboratory evaluation, medical history, physical examination, referrals.

INTRODUCTION

A chronic metabolic disorder known as diabetes mellitus (DM) is characterized by hyperglycemia, primarily resulting from insulin deficiency, leading to either Type 1 or Type 2 diabetes. Previous research indicates a significantly higher prevalence of diabetes among Americans over 65 compared to those between 20 and 24 years old. Over the past two decades, Iraq has experienced rapid development, leading to increased urbanization and subsequent lifestyle changes among its population. Consequently, these lifestyle shifts have contributed to a surge in diabetes prevalence. While diabetes was not considered a significant health concern in Iraq in the late 1970s, this perception has dramatically shifted in the last 20 years, with the country now experiencing a notable increase in diabetes prevalence. The American Diabetes Association's (ADA) 1997 guidelines regarding diabetes categorization, diagnosis, and screening have played a pivotal role in altering the disease's epidemiology. (Alberti et al., 1998).

Diabetic patients are more susceptible to long-term complications, many of which can be mitigated through adherence to various components of ADA management recommendations. Reports emphasize the necessity of a multidisciplinary team for effectively integrating diabetes care management into long-term care facilities. Given the sharp rise in diabetes prevalence in Iraq, it is imperative to evaluate screening practices for diabetes-related healthcare concerns in primary care clinics (PCCs). Consequently, the objective of this study was to assess the extent to which diabetic patients attending PCCs in Iraq met the targets outlined in the ADA guidelines. (Centers for Disease Control and Prevention, 2014).

METHODS

In Iraq, a retrospective analysis of laboratory systems and medical data was carried out between November 2022 and May 2023. The College of Medicine's Ethical Committee at mosul granted ethical approval. A total of 200 patients with diabetes were chosen at random from the primary care clinic (PCC) database in [Name of

Hospital/Clinic]. Patients over the age of eighteen who had been diagnosed with diabetes for more than three years and had at least two years of follow-up at the designated hospital or clinic met the inclusion criteria. Patients with exocrine pancreas injury, drug- or chemical-induced diabetes, gestational diabetes, and secondary diabetes due to genetic abnormalities of beta-cell activity and insulin resistance were excluded. A random selection of participants was made from the most recent database of PCCs.

A checklist focusing on medical history, physical examination, current treatment plans, laboratory examinations, and referrals to other clinics was created in order to assess the standard care given to patients in PCCs. The checklist was based on the standards of care for diabetes that were established by the American Diabetes Association (ADA) in 2010. Using SPSS software, data analysis was done, and conclusions were compiled to calculate frequencies, means, and percentages.

RESULTS

200 patients who fit the inclusion criteria had their medical records examined. The degree to which the primary care clinics (PCCs) followed the guidelines set out by the American Diabetes Association (ADA) is shown in Table 1. The various components of the ADA standards varied significantly from one another. Only 6.0% of the characteristics associated with the onset of diabetes were found to be improperly noted in the

patient's medical records. In a similar vein, other components included poor documentation for patient education regarding data consumption (16.5%), frequency, severity, and etiology of diabetic ketoacidosis (1.5%), psychosocial issues (3.5%), dental disease (1.0%), thyroid palpation (2.0%), and skin inspection (4.5%).

Nonetheless, a few indications showed adherence to ADA guidelines: pharmaceutical treatment (100%), weight history (92.0%), glucose monitoring findings (90.0%), and blood pressure determination (100%). The medical history (44.9%), physical examination (59.6%), laboratory assessment (36.3%), and referrals (19.3%) components all showed overall conformity with ADA treatment standards [Figure 1]. These results imply that the clinic's handling of diabetes treatment does not entirely adhere to ADA guidelines.

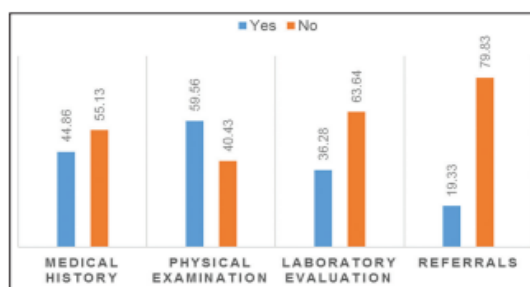


Figure 1: Overall mean percentage of American Diabetes Association standards.

Table 1: Medical History and Diabetes Education History.

Assessment	Yes (α)	No (β)	Total
Medical history			
Age of onset	128 (64.0%)	72 (36.0%)	200
Characteristics of onset of diabetes	12 (6.0%)	188 (94.0%)	200
Eating patterns, physical activity habits, and nutritional status	117 (58.5%)	83 (41.5%)	200
Weight history	184 (92.0%)	16 (0.8%)	200
Growth development in children and adolescents	1 (0.5%)	199 (99.5%)	200
Diabetes education history			
Medication treatment	200 (100.0%)	0 (0.0%)	200
Meal planning	156 (78.0%)	44 (22.0%)	200
Physical activity plan	143 (71.5%)	57 (28.5%)	200
Glucose monitor	182 (91.0%)	18 (0.9%)	200
Result of glucose monitor	180 (90.0%)	20 (10.0%)	200
Patient education about using data	33 (16.5%)	167 (83.5%)	200
Review of previous treatment regimens and response to therapy	142 (71.0%)	58 (29.0%)	200
DKA frequency, severity, and cause	3 (1.5%)	197 (98.5%)	200

Table 2: Hypoglycemic Episodes and History of Diabetes-Related Complications.

Assessment	Yes (α)	No (β)	Total
Hypoglycemic episodes			
Hypoglycemia awareness	29 (14.5%)	171 (85.5%)	200
Any severe hypoglycemia: Frequency and cause	17 (8.5%)	183 (91.5%)	200
History of diabetes-related complications			
Microvascular	79 (39.5%)	121 (60.5%)	200
Macrovascular	90 (45.0%)	110 (55.0%)	200
Others			

Psychosocial problems	7 (3.5%)	193 (96.5%)	200
Dental disease	2 (1.0%)	198 (99.0%)	200

Table 3: Physical Examination and Laboratory Evaluation.

Assessment	Yes (α)	No (β)	Total
Physical examination			
Height	176 (88.0%)	24 (12.0%)	200
Weight	200 (100%)	0 (0.0%)	200
BMI	188 (94.0%)	12 (6.0%)	200
Blood pressure determination	200 (100%)	0 (0.0%)	200
Fundoscopy examination	80 (40.0%)	120 (60.0%)	200
Thyroid palpation	4 (2.0%)	196 (98.0%)	200
Skin examination	9 (4.5%)	191 (95.5%)	200
Comprehensive foot examination	96 (48.0%)	104 (52.0%)	200
Laboratory evaluation			
A1C, if results not available within past 2-3 months	67 (33.5%)	133 (66.5%)	200
If not performed/available within past year	25 (12.5%)	175 (87.5%)	200
Fasting lipid profile	135 (67.5%)	65 (32.5%)	200
Liver function tests	99 (49.5%)	101 (50.5%)	200
Test for urine albumin excretion with spot urine albumin/creatinine ratio	35 (17.5%)	164 (82.0%)	200

Table 4: Referrals.

Assessment	Yes (α)	No (β)	Total
Referrals			
Annual dilated eye examination	126 (63.0%)	74 (37.0%)	200
Family planning for women of reproductive age	26 (13.0%)	174 (87.0%)	200
Registered dietitian for MNT	53 (26.5%)	147 (73.5%)	200
DSME	20 (10.0%)	180 (90.0%)	200
Dental examination	4 (2.0%)	196 (98.0%)	200
Mental health professional, if needed	13 (6.5%)	187 (93.5%)	200

DISCUSSION

In line with worldwide trends, Iraq has seen an increase in the prevalence of diabetes throughout the last 20 years. The current study set out to evaluate the extent to which primary clinics adhered to the American Diabetes Association's (ADA) standards of care for diabetes, specifically with relation to medical history, physical examination, laboratory evaluation, and referrals. In order to perform this evaluation, 200 patients' medical records from primary care clinics (PCCs) were examined. ADA standards checklists were developed in order to aid in this assessment. These checklists offer valuable information on the different aspects of diabetes care and allow for a thorough review of the treatment given to individuals with diabetes. (Elhadd et al., 2007).

The current study found that almost half of the diabetes patients were not receiving care that complied with the medical criteria set forth by the American Diabetes Association (ADA). This result is consistent with local research showing that people with diabetes did not meet the majority of ADA criteria. (Funnell et al., 2007).

A better percentage of compliance with ADA standards of care was indicated by documentation above 50% in terms of medical history items such as age of onset, eating patterns, weight history, medication therapy, meal

planning, physical activity plan, and glucose monitoring. This implies that these constituents hold significant importance in assessing the state and gravity of diabetes. Furthermore, 100% of drug treatments were documented, demonstrating the necessity of intricate treatment plans in spite of significant macro and microvascular problems. (Haas et al., 2014).

There is still opportunity for improvement since prior research revealed that aspirin medication adherence to ADA guidelines was 51.4% and that statin and ACE inhibitor medication adherence was 54.7%. In addition, it is critical to record prior treatment plans and therapy response (71.0% in this study) in order to determine the proper diseases causing illness based on patient complaints. (American Diabetes Association, 2010).

The limited awareness of hypoglycemia (14.5%) may be a sign of subpar patient compliance or care. Hypoglycemic unawareness is a significant risk factor, although patients can recover awareness within three weeks if hypoglycemia is meticulously avoided. This suggests that temporarily boosting glycemic goals is important to restore awareness. (Albaker et al., 2013).

Compliance with ADA guidelines for physical examination components, such as height, weight, BMI,

and blood pressure, was higher than 95.0%. Unfortunately, only 40% of cases had fundoscopic examinations, which are crucial for the early diagnosis of retinopathy. This indicates a lack of implementation of suggested screening techniques. (Al Harbi *et al.*, 2015).

Additionally, subpar foot exams (48.0%) and thyroid palpations (2%) were carried out. These findings could be explained by inadequate recordkeeping or the belief that these tests are more pertinent to Type 1 diabetes. However, in order to stop more complications and enhance overall diabetes control, prompt detection and treatment of complications like retinopathy and foot issues are essential. (Kharal *et al.*, 2010).

The American Diabetes Association (ADA) guidelines for care were only 36.3% of the time when diabetes patients were investigated in lab settings. This is a very low compliance rate. In particular, only 33.2% of patients had HbA1c checks within three months, compared to a greater compliance rate of 99.0% for check-ups that took place every six months. These results are in line with other research that found variable compliance rates, such as 94.4% for biennial HbA1c testing and 85.0% in rural areas. (Amiel, 2009).

Periodic HbA1c testing is essential for managing diabetes and can greatly enhance treatment results by lowering microvascular problems and enabling strict blood glucose control. (Coon and Zulkowski, 2002).

In 67.5% of the cases in this investigation, fasting lipid profiles, such as HDL, LDL, and triglyceride levels, were documented. This rate differs when compared to other research, but it still emphasizes how crucial it is to keep an eye on lipid profiles in diabetes patients in order to properly treat cardiovascular risk factors. (Stuckey *et al.*, 2007).

Fifty percent of diabetic patients had liver function tests recorded, which may indicate the existence of other comorbid illnesses requiring more than one test. But only 17.5% of patients had urine albumin excretion tests performed, which suggests that, in contrast to earlier research, there was less adherence to ADA objectives. (Norris *et al.*, 2002).

Compared to previous studies of a comparable nature, the study's findings showed that 60.0% of patients met the ADA requirements for serum creatinine tests. Furthermore, only 13.5% of patients had TSH tests, which may be explained by the belief that these tests are only necessary for individuals with Type 1 diabetes. (Deakin *et al.*, 2005).

Due to comorbidities, referrals are crucial for diabetic patients; yet, only 19.3% of referrals were recorded in compliance with ADA guidelines. Additionally, only a small proportion of patients were referred for family planning (13.0%), dental tests (2.0%), eye exams

(63.0%), nutritionist consultations (26.5%), and mental health assessments (6.5%). This could be a sign of a patient's forgetfulness or lack of compliance with diabetes therapy. (UK Prospective Diabetes Study (UKPDS) Group, 1998).

Among the study's shortcomings is the sample size, which is restricted to university hospitals, which can affect how broadly the findings can be applied. Furthermore, medical records did not contain information on referrals to hospitals for ophthalmic cases or foot exams, which suggests that diabetes care management standards adherence needs more research, particularly in rural primary care settings. (Al-Khaldi *et al.*, 2002).

CONCLUSION

This study emphasizes how inadequate diabetes care is in primary care clinics (PCCs), where the American Diabetes Association's (ADA) standards of care are not routinely followed. Healthcare practitioners should give priority to implementing clinical programs and educational activities that aim to improve adherence to ADA guidelines in order to address this issue.

In addition, it is critical that healthcare providers employed by PCCs with diabetic clinics have training on how to accurately record clinical operations in compliance with ADA standards of care. The effectiveness of treatment plans depends on the implementation of effective diabetes management standards. To guarantee continued improvement in the caliber of care and adherence to recommendations, it is advised that patients engage in constant monitoring and self-evaluation.

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