

Impact of Health Education by the In-Patient Diabetes Care Link Nurse Team on Glycemic Control during Hospitalization and After Discharge

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Abstract

Acute chronic diabetes mellitus (DM) complications are recurrent among hospitalized patients, which prolongs hospitalization and hinders treatment. **Objective:** To measure the impact of the In-Patient Care Link Nurse Team (IPCLNT) on improving diabetes care in-hospital and post-discharge. **Methods:** A team of 12 staff nurses from each hospital unit at MAIR Hospital, UAE, was formed. We presented a workshop on various inpatient diabetes care topics to enhance their comprehension of concepts and skills, applying King's theory of goal attainment. Thereafter, they implemented what they learned in a hospital setting. The study used quantitative experimental design measures to look at how much better diabetes care was. It looked at 70 patients from November to March 2023, before the IPCLNT was set up, and another 70 patients from April to August 2023. The first group received structured diabetes education by a certified diabetes educator (CDEN) and conventional in-hospital nursing care. On the other hand, the second group received both structured diabetes education from the CDEN and continuous follow-up during their admission from IPCLNT. Both groups underwent regular HbA1c monitoring after discharge. Results for both groups showed Hospitalized diabetes patients showed improved glycemic control ($p = 0.0055$) and referral to an endocrinologist ($p = 0.0131$) after inpatient care, highlighting the importance of diabetes education and inpatient nursing staff training.

Abbreviations

DM: Diabetes Mellitus

ADA: American Diabetes Association

MCME: Mediclinic Middle East

UAE; United Arab Emirates

HbA1c: Glycated Hemoglobin, Reflects Average Plasma Glucose Over the Previous Eight To 12 Weeks. (ADA 2024)

IPCLNT: The in-patient care link nurse team

Keywords: Health Education, Diabetes Mellitus DM, Hospitalized Patient

Introduction

Background

Globally, the prevalence of diabetes is increasing, and it often coexists with other comorbidities, especially among elderly in-

dividuals who require frequent hospitalization [1]. Currently, someone with diabetes occupies one in six hospital beds, and it is projected that by 2030, this proportion will increase to one in four (ADA 2024). In addition, hospitalized patients had a 6.4%

higher rate of mortality, increased rates of infection, and longer lengths of stay (up to three more days) compared to non-diabetic patients. The death rate for diabetic inpatients went up because of several things, including hypoglycemia and hyperglycemia, multiple co-morbidities (including microvascular and macrovascular complications), complex polypharmacy (including insulin misuse and inappropriate use of intravenous insulin infusion), management errors when switching from the intravenous insulin infusion to regular medication, and infections during surgery [2]. The Joint British Diabetes Society for Patient Care reported that these factors were up to 50% higher than those of the non-diabetic population. In 2017, 260,000 people with diabetes experienced a medication error that could have resulted in serious harm or even death, and 58,000 experienced an episode of severe hypoglycemia (The British Diabetic Association, 2022).

Statement of Problem

A standard of care in the hospital setting supports the quality of care for diabetic inpatients. This standard of care aims to prevent acute complications of diabetes (hypoglycemia and hyperglycemia), make sure that medications are matched up and discharge plans are made, and make it easier for patients to get follow-up appointments and care after they leave the hospital (ADA2024). Thus, failing to meet that standard of continuity of care for the inpatient results in poor diabetes management through hospital admission, delayed treatment, prolonged hospital residency, increased cost, infection, and the risk of death for the patient. Most hospitalized diabetics are sick and stressed due to hospitalization, medical diagnoses, and health issues, making the hospital unsuitable for formal diabetes education. However, diabetes educators must teach basic survival skills, a sustained DM care approach, and self-management skills after hospitalization and home discharge by a specialist nursing team [3]. Only 24% of diabetes educators worked in an inpatient setting, despite the high number of hospitalized patients with diabetes [4].

That reduces or omits the proper diabetic education and care; additionally, patients' fear of re-admission is a result of their loss of trust in the diabetes care they received during hospitalization, leading to an increased level of anxiety. Therefore, it is advisable, in terms of patient improvement care at the hospital, to increase the hospital staff training on diabetes care and support them with the required skills and knowledge for the medical and nursing staff to be ready for the people with diabetes who need specialist input [5]. Furthermore, missing proper nursing care negatively influenced patient perceptions of hospital care [6]. A nurse's knowledge and skill level underpin the best education. Therefore, we must discover resources for the best staff skills. Inpatient diabetic management teams improve glycaemic control, clinical outcomes, and admission days (ADA, 2024).

To provide the best treatment, the hospital must apply the right improvement approach. It's recommended to examine the inpatient system and evaluate the nursing diabetes practice and complications for patients, as well as how often hypoglycaemia and hyperglycaemia occur and how rarely blood ketone tests are done. It is evident that patients are refusing insulin due to traditional needles. Many patients miss out on endocrinologist consultations due to insufficient referrals, medication reconciliation, post-discharge follow-up, and continuity of care. Moreover, many studies aim to improve inpatient diabetes care. However,

only a few of these studies incorporate training and education specifically designed for ward staff nurses to effectively deal with and manage hospitalized diabetic patients. Therefore, this study developed a care-link nurse team program that was boosted by skills and knowledge to set goals together with the patient and actively improve DM care during hospitalization. The study assesses the program's impact on the frequency of hypoglycaemia and hyperglycaemia, the length of hospital stays, the incidence of infections, the type of insulin injection, the frequency of BG tests, referral to an endocrinologist, and the improvement of HbA1c after discharge. And finally, up to my knowledge, this study has not been conducted before in the UAE.

Purpose of the Study

The main objective is to evaluate the impact of forming a diabetic care link nursing team on the improvement of hospitalized diabetic patients care. The secondary objective is to assess how structured diabetes education from a certified diabetes educator affects inpatients' glycemic control after discharge.

Research Questions

At the end of this study, we will answer the following questions:

- 1- What is the positive impact of the DM Care Link nursing team's formation and education on the quality of care for hospitalized diabetes patients?
- 2- What is the impact of diabetes education on the hospitalized patient's post-discharge diabetes care improvement?

Significant of the Study

Both hyperglycaemia and hypoglycaemia harm individuals. Admission hyperglycaemia strongly predicted death in non-ICU patients, particularly when admission and COVID-19 infections were involved. Research has proven that glucose variability in hospitalized patients can lead to increased morbidity and mortality, whereas, effective diabetes management in the hospital includes treatment before admission, elective procedures, a dedicated diabetes service, and a careful transition to outpatient management. This practice cuts down on hospital stays and improves outcomes [7]. Hospitalized patients and their nurses are important because nurses don't know enough about diabetes. How much they think they know is affected by things like their diploma, the lack of diabetes guidelines, and their sense of how competent they are [8].

Theoretical Framework

This study utilized King's systems framework, which is based on the assumption that human beings are the focus of nursing. The goal of nursing is to promote, maintain, and restore health; care for the sick or injured; and care for the dying. 'The components of a system theory are (1) goal, (2) structure, (3) functions, (4) resources, and (5) decision-making.' It further stated that the 'nursing domain involves human beings, families, and communities as a framework within which nurses make transactions in multiple environments with health as a goal' [9]. Person Personal, interpersonal, and social systems form the foundation of a conceptual framework. Differences in perception and inadequate communication exist between nurses and patients, leading to (1) one-sided (nurse-directed) nurse-patient relationships, (2) nurses' lack of concern for patients, and (3) nurses' lack of specific knowledge for practice. It has been argued that we should promote nursing as a science and view the relationship between

nursing and research as a means of advancing scientific knowledge 10.

Literature Review

Hospitals face challenges in educating diabetic patients due to increasing prevalence and high readmission rates. Inpatient diabetes education should focus on survival skills training until more comprehensive outpatient education becomes available [11]. The majority of earlier research emphasizes the significance of appropriate DM teaching while patients are in hospitals. To ensure patient safety and manage diabetes mellitus from hospital admission to release, suggested that the nursing staff find a way to incorporate diabetes survival skills education into the admission process [12]. Said that teaching each patient about diabetes and sending them home with a clear treatment plan were strongly linked to lowering HbA1c levels by 2.8% in hospitalized type 2 diabetics who were not under control by starting an insulin regimen early on [13].

According to the study, the absence of an endocrinologist in a hospital setting led to higher euglycemia, and their presence reduced the mortality rate and hospital length of stay by 1.4% [14].

As another example, said that as part of a hospitalized DM patient's discharge care plan, a certified diabetes educator should teach them about diabetes, focusing on teaching them survival skills and how to take care of their diabetes on their own at home. This is especially important for patients whose diabetes

is not under control, those who are newly diagnosed, and those who use insulin. In the same way, a case-control study found that inpatient diabetes education and follow-up after discharge were significantly linked to a 2.9% (P-value 0.001) drop in HbA1c compared to the group that only got regular education [15]. Correspondingly, the admitted DM patients revealed a deeper understanding of their diabetes and self-care management during hospital stays, which provided education, which had a positive impact on their DM control [16]. On the other hand, evaluated the role of diabetes education in combating the disease and assessed its success [17]. It emphasizes the importance of better diabetes education in reducing diabetic complications, morbidity, and mortality, especially since impaired awareness of hypoglycemia increases the risk of severe hypoglycemia.

Methodology

This study is a cross-sectional, retrospective study, utilizing a quantitative experimental design. According to, the experimental design is a scientific methodology that entails manipulating independent factors and applying them to dependent variables to ascertain their effects [18]. The goal is to get the most accurate results and specific conclusions about a hypothesis while controlling all the factors that could have changed the results.

Variables

1. BMI: "It is calculated by taking a person's weight, in kilograms, divided by their height, in meters squared".

Table 1: Shows the Bmi Cut-Off Point Classification (Weir & Jan, 2019).

Category	Measures
Underweight	under 18.5 kg/m ²
Normal weight	greater than or equal to 18.5 to 24.9 kg/m ²
Overweight	greater than or equal to 25 to 29.9 kg/m ²
Obesity	greater than or equal to 30 kg/m ²

2. Types of diabetes (type 1, type 2) known cases and diagnosed previously by endocrinologists confirmed diagnoses found in the patient file Byanaty or Malaffi review file.

3. Disease duration, type of treatment (insulin, diet only, tablets, or mixed treatment regimen).

4. Comorbidities associated with diabetes were found in the diagnosis charts in the patient file by MAIR consultants.

5. Hypoglycemia recurrence less than 4 mmol/L (< 70 mg/dl) single episode counted. A cut-off points as per the ADA guidelines for inpatient diabetes care 2024 blood target recommendations.

6. Hyperglycemia of more than 13.4 mmol/l (>250) mg/dl for 2 times or more is counted as a cut-off point as per the ADA guidelines for inpatient diabetes care 2024 blood target recommendations.

7. Using a traditional needle for the injection of insulin or a fine pen needle.

8. The rate of getting an infection during a hospital stay. (Feedback of the MAIR hospital infection control team report).

9. The long period of hospitality considered high is more than 3 days.

10. Referral rate to the endocrinologists for consultation and medication reconciliation.

11. Frequency of blood glucose testing and blood/urine ketone tests.

12. The rate of DKA development during hospital stays.

13. HbA1c levels at admission and 3 months post-discharge below 7.5% are considered controlled diabetes, and more than 7.5% are considered uncontrolled diabetes.

Site

Mediclinic Airport Road (MAIR) Hospital, founded in 2008, provides inpatient and outpatient care, including a 24-hour emergency department. This prominent private tertiary hospital in Abu Dhabi has been upgraded to include a Comprehensive Cancer Centre, maternity, NICU, paediatric facilities, a long-term care unit, medical surgical wards, ICU, HDU units and a pharmacy. Licensed for 203 beds.

Population

The study sample collected from different departments of Mediclinic airport road hospital (MAIR) in Abu Dhabi Hospital based on inclusion and exclusion criteria. The study included Patients admitted to hospital, Type 1 and 2 DM, Disease duration greater than six months, National or Ex-pat, Age over 18 years old, Using insulin injection, OHA, or both treatment regi-

mens. We excluded the following patients from the study: those with newly diagnosed diabetes, those in the paediatric age group (< 18 years), and those from long-term care units. We also excluded pregnant women with pre-existing diabetes, gestational diabetes, and postpartum conditions. Additionally, pre-diabetes patients who were admitted for infection were placed in isolation. We excluded dialysis patients and patients receiving IV insulin treatment from the study.

Sampling

This study utilized Purposive sampling is a type of non-probability sampling that relies on the researcher's judgment to choose units to be studied and included in the sample based on things like professional knowledge or ability. Purposive sampling aims to create a sample with the intention of making generalizations to the population of interest, guided by a quantitative research design [19]. We have 140 patients in total. A sample of (n = 70) for both groups was included based on inclusion and exclusion criteria. We determine the sample size of diabetic hospitalized patients using the rule $N = 50 + 8m$, where m stands for independent variables. Larger samples increase power and effect size, reflecting population characteristics. A medium to large effect size of 30 participants per cell is recommended and should lead to about 80% power [20].

Instrument

This study, conducted by a certified diabetes educator, collected a comprehensive patient assessment over a period of five months,

from November 2022 to March 2023. Therefore, 12 staff nurses were organized in March 2023 as the inpatient care link nurse team (IPCLNT) to enhance inpatient DM care, including DM education. A thorough educational program and workshop was arranged by the certified diabetes educator and endocrinologist, covering all required topics, skill demonstrations, knowledge acquisition, and concept understanding. This was done to equip them with the necessary skills to bridge the gap in diabetes management care. Additionally, the IPCLNT implemented King's theory of goal attainment. Next step, the IPCLNT implemented the adopted skills and knowledge based on scientific references, each in his or her department, and shared them with department colleges.

Finally, we evaluated (n=70) patients for the same variables from April 2023 to August 2023. The first five months, patients received structured diabetes education from a certified diabetes educator and conventional inpatient care. In contrast, a certified diabetes educator provided structured diabetes education to the other group, and specialized staff nurses provided continuous diabetes management care. Additionally, they created an inpatient diabetes referral pathway and standardized the blood glucose and blood ketone tests into a controlled document.

The patient consent was not required as all data was collected from the patient's file retrospectively, and all the interventions were done as part of their regular treatments and medical interventions and treatments. Figure 1 illustrates the research process.

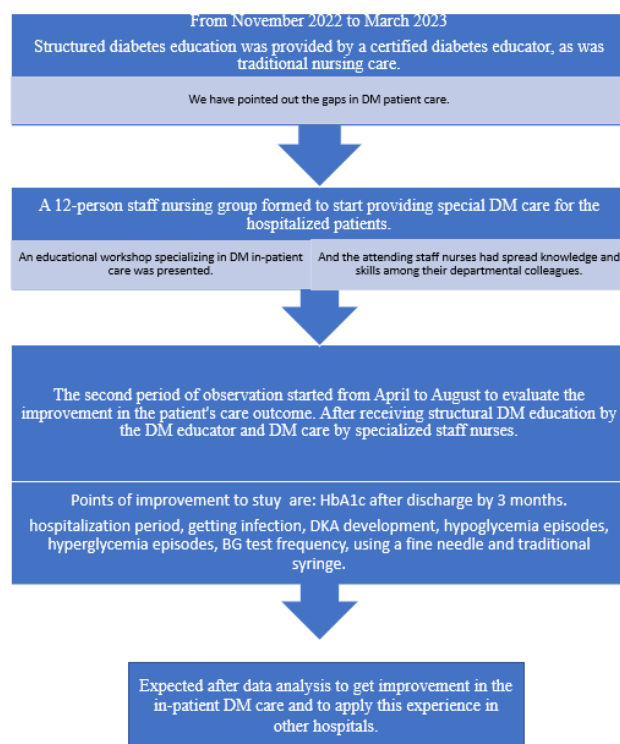


Figure-1: The Data Collection Process

Data Analysis

The study included 140 patients admitted in the hospital with diabetes, divided equally into two groups (Group A and Group B, 70 participants each). Descriptive statistics were calculated for all variables, including demographic characteristics, clinical

indicators, treatment modalities, and outcomes.

Demographic Characteristics

The mean age in Group A was 56.2 years (SD = 15.9) compared to 49.6 years (SD = 16.2) in Group B. The gender distribution

was relatively balanced in both groups, with no statistically significant difference ($\chi^2 = 1.84$, $p = 0.175$). Nationality also showed no significant difference ($\chi^2 = 0.04$, $p = 0.84$).

Clinical Variables and Outcomes

Mean BMI was slightly higher in Group A (32.7 kg/m²) than in Group B (30.0 kg/m²). Initial HbA1c levels averaged 8.15% in Group A and 8.10% in Group B, while post-discharge HbA1c was available for fewer patients and showed a mean of 7.6% in Group A and 7.2% in Group B. T-tests for these numeric variables indicated significant results in group A, $p = 0.0004$ and in group B, $p = 0.024$.

Treatment Modalities and Complications

No significant differences were found between groups in the use of oral hypoglycemic agents (OHA), insulin, or GLP-1 therapies. Similarly, complication rates such as hypoglycemia, hyperglycemia, DKA, and infection did not differ significantly between groups (all $p > 0.05$).

Inferential statistics were conducted using independent samples t-tests for continuous variables and chi-square tests for categorical variables. None of the key categorical indicators demonstrated statistically significant group differences, supporting the baseline comparability of the two cohorts.

A paired t-test was conducted on Group B patients ($n = 35$) who had both initial and post-discharge HbA1c values available. The results showed a statistically significant improvement in glycemic control after receiving nursing care from trained staff:

- Mean Initial HbA1c: 8.07%
- Mean Post-Discharge HbA1c: 7.54%
- $t(34) = 2.357$, $p = 0.024$

Interpretation

This statistically significant decrease ($p < 0.05$) in HbA1c levels indicates that patients in Group B experienced measurable improvement in glycemic control following their inpatient care, which included diabetes education or support from trained staff nurses.

For Group A ($n = 44$), a paired t-test comparing initial and post-discharge HbA1c levels revealed a highly significant improvement in glycemic control:

- Mean Initial HbA1c: 8.49%

- Mean Post-Discharge HbA1c: 7.60%
- $t(43) = 3.874$, $p = 0.0004$

Interpretation

Both Group A and Group B showed statistically significant reductions in HbA1c following inpatient care. However, Group A's improvement was even more significant ($p < 0.001$), suggesting that standard hospital care (possibly involving a diabetes educator or multidisciplinary approach) was also effective.

Here is the comparison of numeric clinical variables between Group A and Group B:

Key Findings:

- BMI was significantly higher in Group A (32.67) than in Group B (29.99) with $p = 0.027$, suggesting a potentially higher metabolic risk in Group A.
- No statistically significant differences were observed in:
- Age ($p = 0.287$)
- DM Duration ($p = 0.251$)
- Initial HbA1c ($p = 0.297$)
- Post-Discharge HbA1c ($p = 0.853$)

Interpretation

- The groups were similar in terms of age, diabetes duration, and glycemic status at admission and discharge.
- The significant difference in BMI may suggest a need to further examine its impact on glycemic response or hospital care outcomes.
- No statistically significant differences were found in:
- Gender distribution ($p = 0.175$)
- Nationality ($p = 0.841$)
- Type of Diabetes ($p = 0.365$)
- Use of Oral Hypoglycemic Agents (OHA) ($p = 0.396$)
- Insulin therapy usage ($p = 0.610$)

Interpretation

Both groups were comparable in terms of categorical characteristics related to patient demographics and diabetes treatment methods. This further validates that any observed differences in HbA1c improvement are less likely due to baseline imbalances and more likely due to the intervention (e.g., trained staff nurses).

The comparative analysis of clinical outcomes between Group A and Group B shows the following:

Key Findings: Here is the table comparing key outcome variables between Group A and Group B:

Variable	Group A Mean	Group B Mean	Test	Statistic	p-Value	Significant
Hypoglycemia	1.785714286	1.957142857	Chi-square	7.714	0.0055	Yes
Hyperglycemia	1.614285714	1.528571429	Chi-square	0.729	0.3932	No
DKA	1.93	1.97	T-test	-1.177	0.2416	No
BG_frequency	3.17	3.4	T-test	-0.53	0.5968	No
Infection	1.914285714	1.942857143	Chi-square	0.108	0.7428	No
Referral_to_endocrinologist	1.757142857	1.542857143	Chi-square	6.154	0.0131	Yes

Interpretation

Hypoglycaemia rates and referral to endocrinology were significantly better in Group B ($p = 0.0055$), ($p = 0.0131$), respectively, suggesting that trained nursing care may have helped prevent low blood glucose events during hospitalization. Other variables like hyperglycemia, DKA, infection and BG testing frequency showed no statistically significant differences between groups.

Interpretation

A multiple linear regression model was employed to identify predictors of post-discharge HbA1c. Independent variables included group assignment, age, BMI, gender, DM duration, and hypoglycemia score. While the paired t-test indicated a significant improvement in Group B, the regression analysis revealed that group assignment did not independently predict HbA1c reduction ($p = 0.851$). None of the variables reached statistical significance in the model, suggesting that glycemic improvement may be multifactorial and not attributable to any single demographic or clinical variable.

Rationale for Statistical Methods

Descriptive Statistics: (means, standard deviations, frequencies) were used to summarize demographic and clinical characteristics.

Independent Samples T-Tests: were used to compare continuous variables between Group A and Group B, assuming approximate normal distribution and unequal variance.

Chi-square Tests: were applied for categorical comparisons between groups to test for independence.

Paired Samples T-Tests: Were conducted within each group to evaluate the impact of inpatient care by comparing initial and post-discharge HbA1c values. This method was appropriate because it assesses the same patients at two time points, accounting for individual variability.

Assumption Checks

- Assumptions of normality were assessed using visual inspection (histograms, Q-Q plots) and supported by central limit theorem given sample sizes ≥ 30 per group.
- Homogeneity of variances was assessed using Levene's Test (automatically adjusted in SPSS using Welch's correction when violated).
- Cell counts for chi-square tests met minimum expected frequency requirements (>5 in at least 80% of cells), validating the use of the test.

Data Integrity

Each group had a balanced sample size ($n=70$), reducing the risk of bias and ensuring adequate power for medium-to-large effect detection. The pre/post design within each group enhanced internal validity by controlling for inter-individual variability.

All data were analyzed using SPSS Statistics for Windows, Version 23.0. Prior to analysis, data were cleaned, and continuous variables were assessed for normality. Missing data were handled by listwise deletion for inferential tests, as missingness was minimal and appeared random. Descriptive statistics summarized patient demographics and clinical variables. Independent samples t-tests and chi-square tests compared baseline characteristics and clinical outcomes between groups. To evaluate the effectiveness of inpatient care, paired t-tests were used within

each group to compare pre- and post-discharge HbA1c. These methods were chosen based on the data type, normality assumptions, and sample size. This supports the observed statistical significance and facilitates clinical interpretation.

Discussion

The admitted diabetic patients need diabetes education as determined by laboratory results showing an HbA1c of more than 7.5% or elevated blood glucose readings taken at the bedside when they are out of target, or as determined by the patient's needs, nurses, and medical team. This patient, who is in need of education, must receive a proper education and his caregiver accordingly during his hospital stay and before discharge, as part of the diagnosis and follow-up plan post-discharge. Research has demonstrated that effective delivery and patient uptake of diabetes self-management and education improve outcomes for patients living with T2DM. Our study focused on the importance of the role of the specialized diabetes educator, or a highly skilled and knowledgeable staff nurse with diabetes management skills who must provide the education necessary to effectively meet the patient's needs. To avoid a long hospital stay, serious diabetes complications, and repeated hospital admissions, as well as lower treatment costs, it was much better to treat people with diabetic ketoacidosis who were admitted to the intensive care unit after staff nurses learned how to care for diabetics, especially in those units [21,22]. Furthermore, delivering comprehensive, customized diabetes treatment and team-based care may increase patient satisfaction, save expenses, reduce re-admission rates, and enhance overall health [23]. Moreover, adolescents with chronic illnesses in the UAE face a gap in health care, hindering their understanding and management of their condition. Therefore, it's crucial to continuously update their knowledge and skills in diabetic care at the bedside, relying on evidence-based information. Furthermore, it is important to have a clinical pathway and guiding policy in bedside care, which include survival skills such as hypoglycemia management, diabetes ketoacidosis, and testing blood glucose. It is also important to follow the same patient's home self-diabetes management in injecting with the advanced insulin pen the patient uses at home and to avoid using the traditional needle, which in this situation threatens the patient with feeling pain and refusing the next injection after that dose. It is crucial to establish a clear referral pathway that enables the patient to reach out and, if necessary, see an endocrinologist for medication reconciliation before discharge. Indeed, the results of these data observations give an umbrella to set a goal for new inpatient DM care.

Reliability and Validity

The researcher and the diabetic team examined all the variables and gathered feedback from the hospital department about their needs and complications. We have reviewed those variables used in the previous research that had the same objectives as our study. All of these boost the validity and accuracy of the study variables of our research [24].

Data collection was standardized using structured clinical records and objective laboratory measures (e.g., HbA1c). The internal validity of the study is supported by the similarity between groups at baseline, minimizing selection bias. Appropriate statistical tests were used based on the level of measurement and sample distribution, and regression modelling controlled for

potential confounders. Construct validity is reinforced by the use of internationally accepted clinical outcomes, and statistical conclusion validity was upheld through assumption testing and significance reporting. While the results are internally consistent, generalizability may be limited to similar inpatient settings.

Ethical consideration

The study started after we got the approval from the Mediclinic Middle East Institutional Review Boards (IRBs), and then we got the approval from the Department of Health in Abu Dhabi (DOH). The patient consent was not required as all data was collected from the patient's file retrospectively, and all the interventions were done as part of their regular treatments and medical interventions and treatments. We executed the research approach ethically and guaranteed accuracy, privacy, confidentiality, and outcomes. The outcomes correspond to the findings. In conclusion, each phase of the research process is governed by ethical principles and compliance with ethical standards [25].

Limitation of the study

The study focused on a category of diabetic adult patients and excluded pregnant women, end stage kidney disease patients, patients who have infections, and children, as this category of patients has different targets, and using HbA1c as an indicator of diabetes control is considered invalid as they have different targets.

Conclusion and Recommendation

Relying on the recommendations of the American Diabetes Association (ADA 2024) for all diabetes patients admitted to the hospital, diabetes self-management education and support should be provided when a need is identified. Education is to provide content focused on “survival skills” that will prepare patients for discharge and enable them to safely manage their diabetes at home until they are able to receive more detailed instructions in the outpatient setting. In addition, inpatient diabetes education should include a discharge plan that ensures continuity of care by providing referrals to outpatient diabetes education and/or providers. This requires the availability of a specialized diabetes educator or specialized staff nurses who can always be available in the ward and updated with the proper knowledge and skills to carry out that mission in order to maintain a high quality of diabetic care in the hospital and post-discharge. Therefore, the availability of a diabetic care link nurse in the hospital in collaboration and coordination with the certified diabetes educator and endocrinologist can help in achieving patient safety and continuity of care in the hospital and post-discharge. This trial was successful, and it is advisable for it to be applicable in all hospital settings. We recommend studying the factors that lead to suboptimal glycemic control during hospitalization, whether they are patient or medical team-related. We also recommend studying the impact of advanced technology applications on glucose monitoring in hospital-side settings and diabetes control during hospital stays [26-37].

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Conflict of Interest

The author(s) have no conflicts of interest to disclose.

References

1. Tomic, D., Shaw, J. E., & Magliano, D. J. (2022). The burden and risks of emerging complications of diabetes mellitus. *Nature Reviews Endocrinology*, 18(9), 525–539. <https://doi.org/10.1038/s41574-022-00680-0>.
2. Pasquel, F. J., Lansang, M. C., Dhatariya, K., & Umpierrez, G. E. (2021). Management of diabetes and hyperglycaemia in the hospital. *The Lancet Diabetes & Endocrinology*, 9(3), 174–188. [https://doi.org/10.1016/S2213-8587\(20\)30381-3](https://doi.org/10.1016/S2213-8587(20)30381-3).
3. Hardee, S. G., Osborne, K. C., Njuguna, N., Allis, D., Brewington, D., Patil, S. P., Hofler, L., & Tanenberg, R. J. (2015). Interdisciplinary diabetes care: A new model for inpatient diabetes education. *Diabetes Spectrum*, 28(4), 276–282. <https://doi.org/10.2337/diaspect.28.4.276>.
4. Rinker, J., Dickinson, J. K., Litchman, M. L., Williams, A. S., Kolb, L. E., Cox, C., & Lipman, R. D. (2018). The 2017 diabetes educator and the diabetes self-management education national practice survey. *The Diabetes Educator*, 44(3), 260–268. <https://doi.org/10.1177/0145721718758199>.
5. Dhatariya, K., Mustafa, O. G., & Rayman, G. (2020). Safe care for people with diabetes in hospital. *Clinical Medicine*, 20(1), 21–25. <https://doi.org/10.7861/clinmed.cme20-1>.
6. Aiken, L. H., Sloane, D. M., Ball, J., Bruyneel, L., Rafferty, A. M., & Griffiths, P. (2021). Patient satisfaction with hospital care and nurses in England: An observational study. *BMJ Open*, 8(1), e019189. <https://doi.org/10.1136/bmjopen-2017-019189>.
7. ElSayed, N. A., Aleppo, G., Aroda, V. R., Bannuru, R. R., Brown, F. M., Bruemmer, D., ... & Gabbay, R. A. (2023). 16. Diabetes care in the hospital: Standards of care in diabetes—2023. *Diabetes Care*, 46(Supplement_1), S267–S278. <https://doi.org/10.2337/dc23-S016>.
8. Albagawi, B., Alkubati, S. A., & Abdul-Ghani, R. (2023). Levels and predictors of nurses' knowledge about diabetes care and management: Disparity between perceived and actual knowledge. *BMC Nursing*, 22(1), 342. <https://doi.org/10.1186/s12912-023-01472-3>.
9. Khowaja, K. (2006). Utilization of King's interacting systems framework and theory of goal attainment with new multidisciplinary model: Clinical pathway. *The Australian Journal of Advanced Nursing*, 24(2), 44–50.
10. Weir, C. B., & Jan, A. (2019). BMI classification percentile and cut off points. *StatPearls*. <https://www.ncbi.nlm.nih.gov/books/NBK541070/>.
11. Nassar, C. M., Montero, A., & Magee, M. F. (2019). Inpatient diabetes education in the real world: An overview of guidelines and delivery models. *Current Diabetes Reports*, 19, Article 131. <https://doi.org/10.1007/s11892-019-1251-5>.
12. Smith, K. M., Baker, K. M., Bardsley, J. K., McCartney, P., & Magee, M. (2019). Redesigning hospital diabetes education: A qualitative evaluation with nursing teams. *Journal of Nursing Care Quality*, 34(2), 151–157. <https://doi.org/10.1097/NCQ.0000000000000351>.
13. Dungan, K., Lyons, S., Manu, K., Kulkarni, M., Ebrahim, K., Grantier, C., Harris, C., Black, D., & Schuster, D. (2014). An individualized inpatient diabetes education and hospital transition program for poorly controlled hospitalized patients with diabetes. *Endocrine Practice*, 20(12), 1265–1273. <https://doi.org/10.4158/EP14029.OR>.
14. Puig, J., Supervia, A., Marquez, M. A., Flores, J., Cano, J. F.,

- & Gutierrez, J. (2007). Diabetes team consultation: Impact on length of stay of diabetic patients admitted to a short-stay unit. *Diabetes Research and Clinical Practice*, 78(2), 211–216. <https://doi.org/10.1016/j.diabres.2007.04.014>.
15. Powers, A., Winder, M., Maurer, M., & Brittain, K. (2020). Impact of inpatient diabetes transitions of care consult on glycemic control. *Patient Education and Counseling*, 103(6), 1255–1257. <https://doi.org/10.1016/j.pec.2019.12.012>.
 16. Riaz, S., Nisar, S., Anwer, W., Palwa, A. R., Saeed, F., & Hussain, M. (2022). Effect of patient understanding of diabetes self-care on glycemic control: A hospital-based cross-sectional analytical study. *Pakistan Armed Forces Medical Journal*, 72(3), 758–762.
 17. Nazar, C. M. J., Bojerenu, M. M., Safdar, M., & Marwat, J. (2016). Effectiveness of diabetes education and awareness of diabetes mellitus in combating diabetes in the United Kingdom: A literature review. *Journal of Nephro pharmacology*, 5(2), 110.
 18. Zubair, A. M. (2023). Experimental research design—Types & process. *Academia Open*. <https://doi.org/10.21070/acopen.9.2023.1795>.
 19. Rai, N., & Thapa, B. (2015). A study on purposive sampling method in research. *Kathmandu School of Law Review*, 5(1), 8–15.
 20. VanVoorhis, C. W., & Morgan, B. L. (2007). Understanding power and rules of thumb for determining sample sizes. *Tutorials in Quantitative Methods for Psychology*, 3(2), 43–50. <https://doi.org/10.20982/tqmp.03.2.p043>.
 21. Alawadi, F., Abusnana, S., Afandi, B., Aldahmani, K. M., Alhajer, O., Aljaberi, K., & Suliman, S. (2020). Emirates Diabetes Society consensus guidelines for the management of type 2 diabetes mellitus—2020. *Dubai Diabetes and Endocrinology Journal*, 26(1), 1–20. <https://doi.org/10.1159/000508454>.
 22. Abd Elkhalek Mekky, E., Ahmed Mohamed Hassan, H., & Ali Ibrahim, R. (2023). Effect of an educational program on the nurses' performance and patients' health outcomes regarding diabetic ketoacidosis. *Journal of Nursing Science Benha University*, 4(1), 488–504.
 23. Association of Diabetes Care and Education Specialists, & Kolb, L. (2021). An effective model of diabetes care and education: The ADCES7 self-care behaviors™. *The Science of Diabetes Self-Management and Care*, 47(1), 30–53. <https://doi.org/10.1177/2635010620975843>.
 24. Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-Based Nursing*, 18(3), 66–67. <https://doi.org/10.1136/eb-2015-102129>.
 25. Hasan, N., Rana, R. U., Chowdhury, S., Dola, A. J., & Rony, M. K. K. (2021). Ethical considerations in research. *Journal of Nursing Research, Patient Safety and Practise (JNRPS)*, 1(1), 1–4.
 26. Al-Yateem, N., Ahmad, A., Subu, M. A., Ahmed, F., Dias, J. M., Hijazi, H., & Saifan, A. R. (2023). Hearing the voices of adolescents: Evaluating the quality of care for young adults with chronic illnesses in the UAE. *Journal of Pediatric Nursing*, 73, 204–210. <https://doi.org/10.1016/j.pedn.2023.03.002>.
 27. American Diabetes Association Professional Practice Committee, & American Diabetes Association Professional Practice Committee. (2022). Diabetes care in the hospital: Standards of medical care in diabetes—2022. *Diabetes Care*, 45(Supplement_1), S244–S253. <https://doi.org/10.2337/dc22-S017>.
 28. American Diabetes Association. (2022). Diabetes care in the hospital: Standards of medical care in diabetes—2022. *Diabetes Care*, 45(Supplement_1), S244–S253. <https://doi.org/10.2337/dc22-S017>.
 29. American Diabetes Association. (2024). Diabetes care in the hospital: Standards of care in diabetes—2024. *Diabetes Care*, 47(Supplement_1), S295–S306. <https://doi.org/10.2337/dc24-S020>.
 30. Dhatriya, K. K., & Joint British Diabetes Societies for Inpatient Care. (2022). The management of diabetic ketoacidosis in adults: An updated guideline from the Joint British Diabetes Society for Inpatient Care. *Diabetic Medicine*, 39(6), e14788. <https://doi.org/10.1111/dme.14788>.
 31. Korytkowski, M. T., Muniyappa, R., Antinori-Lent, K., Donihi, A. C., Drincic, A. T., Hirsch, I. B., Luger, A., McDonnell, M. E., Murad, M. H., Nielsen, C., & Pegg, C. (2022). Management of hyperglycemia in hospitalized adult patients in non-critical care settings: An Endocrine Society clinical practice guideline. *The Journal of Clinical Endocrinology & Metabolism*, 107(8), 2101–2128. <https://doi.org/10.1210/clinem/dgac259>.
 32. Melnyk, B. M., Fineout-Overholt, E., Feinstein, N. F., Li, H., Small, L., Wilcox, L., & Kraus, R. (2004). Nurses' perceived knowledge, beliefs, skills, and needs regarding evidence-based practice: Implications for accelerating the paradigm shift. *Worldviews on Evidence-Based Nursing*, 1(3), 185–193. <https://doi.org/10.1111/j.1524-475X.2004.04024.x>.
 33. Pandya, N., Hames, E., & Sandhu, S. (2020). Challenges and strategies for managing diabetes in the elderly in long-term care settings. *Diabetes Spectrum*, 33(3), 236–245. <https://doi.org/10.2337/ds19-0063>.
 34. Peters, M. (2000). Does constructivist epistemology have a place in nurse education? *Journal of Nursing Education*, 39(4), 166–172.
 35. Plummer, P. (2017). Focus group methodology. Part 1: Design considerations. *International Journal of Therapy and Rehabilitation*, 24(7), 297–301. <https://doi.org/10.12968/ijtr.2017.24.7.297>.
 36. Onwuegbuzie, A. J., Dickinson, W. B., Leech, N. L., & Zoran, A. G. (2009). A qualitative framework for collecting and analyzing data in focus group research. *International Journal of Qualitative Methods*, 8(3), 1–21. <https://doi.org/10.1177/160940690900800301>.
 37. Mediclinic Airport Road Hospital. (2025). About us. <https://www.mediclinic.ae/en/airport-road-hospital/about-us.html>.