

# What is the Impact of Formalized Diabetic Education on Modified DKQ-R Scores of Patients in a Rural Primary Care Office?

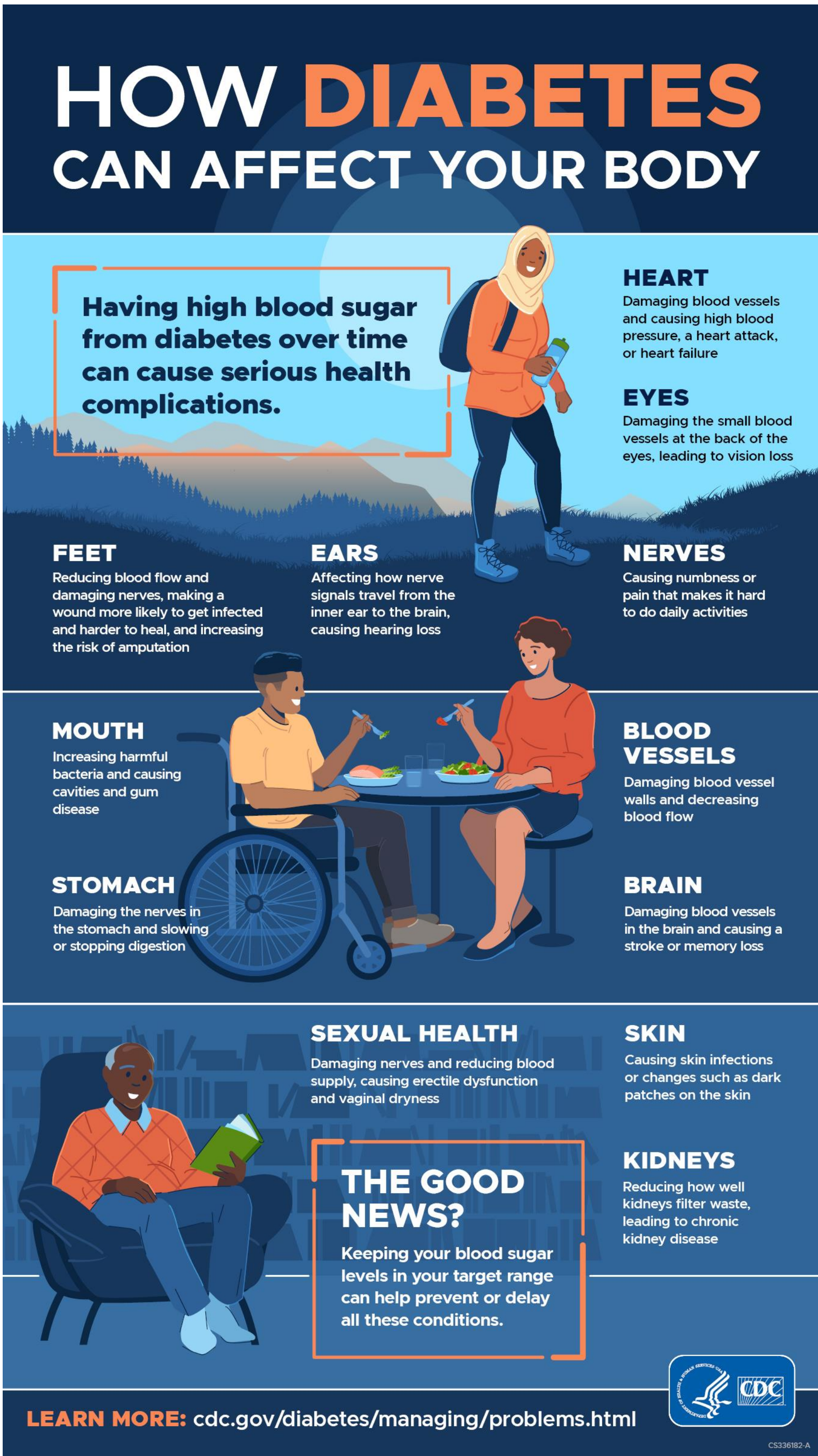
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## OVERVIEW

- 37.3 million people in the US have diabetes
  - That accounts for about 11.3% of the US population
- 9.5% of North Carolina’s population has been diagnosed with diabetes
  - An additional 9.8% have been notified that they have prediabetes
- 19% of the population in Jackson County has diabetes
  - The county saw a 7% increase in the prevalence of diabetes in three-years
- The JCCHA and Healthy People 2030 both mention diabetes in their identified health priorities
- Greater attention to education, health promotion, and disease prevention can help to achieve the goals set by JCCHA and Healthy People 2030

(CDC, 2022a; CDC, 2022b; JCDPH, 2021)



## INTRODUCTION

- The prevalence of diabetes continues to rise across the United States (US). Type two diabetes is more prevalent, affecting 90-95% of people diagnosed with diabetes. According to the CDC, type two diabetes occurs when the body is less sensitive to its own insulin and doesn’t use it as well to control the body’s blood sugar. There is an increasing prevalence of diabetes within Jackson County as well as nationwide.

(CDC, 2022a; JCDPH, 2021)



## PICOT

“In a rural primary care office in Western North Carolina, does formalized diabetic education provided at an appointment, increase DKQ-R scores in patients with type two diabetes?”

## OBJECTIVES

The objective is to increase post-intervention modified DKQ-r scores. By achieving this objective, we are increasing knowledge and awareness surrounding diabetes, the complications, and how it can impact their body.

## METHODS

### Study Design:

- Interventional before-after (pre-post) study.

### Participant inclusion criteria:

- ≥ 18 yrs. old
- Diagnosis of type two diabetes
- English speaking

### Participant Demographic Overview:

- 76.6% > 60 yrs. of age
- 70% female
- 20% duration of diabetes < three yrs.
- 83.3% high school diploma or GED

### Intervention Implementation:

- Patients with type two diabetes were identified and provided with a pre-intervention modified DKQ-R
- Formalized diabetes education was provided
- Patients were also provided with a visual handout
- Post-intervention modified DKQ-R was administered via telephone at least two weeks after intervention

### Data Collection:

- Occurred from August 2024 – October 2024
- Total sample size was 30 participants
- Data was analyzed using SPSS V 28



## RESULTS

Study consisted of 30 participants all of which had a diagnosis of type two diabetes. Cochran’s Alpha, the reliability coefficient for pre-intervention data was 0.279, showing an unacceptable reliability for the modified DKQ-R. Post-intervention data reliability coefficient was essentially unchanged at 0.280, showing unacceptable reliability for the modified DKQ-R.

Modified DKQ-R	Cochran’s Alpha	Interpretation
Pre- intervention	0.279	unreliable
Post-intervention	0.280	unreliable

While the reliability of the questionnaire was shown to be unacceptable due to modification prior to administration. There was a positive improvement in post-intervention scores which are important to discuss.

Modified DKQ-R	T-test p-value	Interpretation
General Information	0.08	Statistically significant
Dietary Habits	<0.001	Statistically significant
Prevention	0.021	Statistically significant
Blood Glucose Levels	0.006	Statistically significant
Complications	<0.001	Statistically significant

The unacceptable reliability can be attributed to the modification of the DKQ-R. Prior studies showed DKQ reliability coefficient to be 0.78 (Dawson et al., 2017 & Marsh et al., 2022), and DKQ-R reliability coefficient of 0.80 (Zuñiga et al., 2023). The improvement in modified DKQ-R scores can be attributed to the intervention as we see a positive change in responses during the follow-up period.

## CONCLUSIONS

- Most diabetic patients receive their care in the primary care setting
- Diabetes education provided in the primary care setting is crucial for reducing the burden of this increasingly prevalent condition
- The study showed that by providing formalized diabetes education during a routine office visit knowledge surrounding diabetes and complications of diabetes improved
- There was statistically significant improvement in all categories of the questionnaire.  
(Formosa & Muscat, 2016)

## RECOMMENDATIONS

- Due to the modification of the DKQ-R rendering it unreliable we understand and recommend that further research is necessary to confirm our findings
- Using an unmodified DKQ-R and a larger sample size can provide reliable, as well as generalizable data.
- We recommend that formalized diabetes education continue to be provided during a routine office visit.

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A full list of references can be provided upon request