



UWI
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FACULTY OF
MEDICAL SCIENCES

DIETARY DIVERSITY OF INDIVIDUALS WITH TYPE 2 DIABETES AND FOOT ULCERATION IN TRINIDAD AND TOBAGO

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MT. HOPE NUTRITIONAL ALLIES

Save one foot one bite at a time.

Introduction

- Diabetic Foot Ulceration (DFU) is a common consequence of uncontrolled Diabetes Mellitus (DM). DFU has a global prevalence of 6.3%¹ and a prevalence of 0.6%² in the Caribbean with a recurrence of 52.0%.³
- DFU results in many negative effects on patient's quality of life, energy levels, productivity, physical functioning and mental state.⁴
- Nutritional intervention plays a key role in DFU healing and prognosis, however, dietary intake and nutritional status in patients with Type 2 DM and DFU in the Caribbean is relatively unexplored.
- Dietary diversity is an indication of the variation of consumed food groups. A higher Dietary Diversity Score (DDS) indicates a more diverse diet. Minimum Dietary Diversity Score (MDDS) is a DDS > 5 and determines whether a minimum dietary requirement is being met. These two indications will be useful in assessing dietary intake in both the DFU and Non-DFU groups and determining any differences which may hinder the healing of diabetic foot ulcers.

Objectives

1. To assess dietary diversity in adults with diabetic foot ulceration (DFU) in Trinidad and Tobago.
2. To compare dietary diversity in DFU and diabetics without DFU (Non-DFU).
3. To explore associations between dietary diversity with DFU, and between dietary diversity with clinical and laboratory variables.

Methodology

1. Study Design: Observational, cross-sectional survey.

2. Study Population: adult (aged ≥ 18 years) adult residents of Trinidad and Tobago diagnosed with Type 2 Diabetes Mellitus (with or without foot ulcers).

3. Data Collection:
- Dietary Diversity Questionnaire
- Sociodemographic Data
- Anthropometric Data
- Clinical/ Lab Data

4. Data Analysis: Descriptive Statistics (E.g. frequencies, percentages, means, SD) and Chi-squared tests of association were performed using SPSS v 28.0.

5. Ethical Approval: Granted by the Campus Research Ethics Committee UWI St. Augustine, and the NCRHA. Study approval was sought and obtained from the Diabetes Association of Trinidad and Tobago.

Results

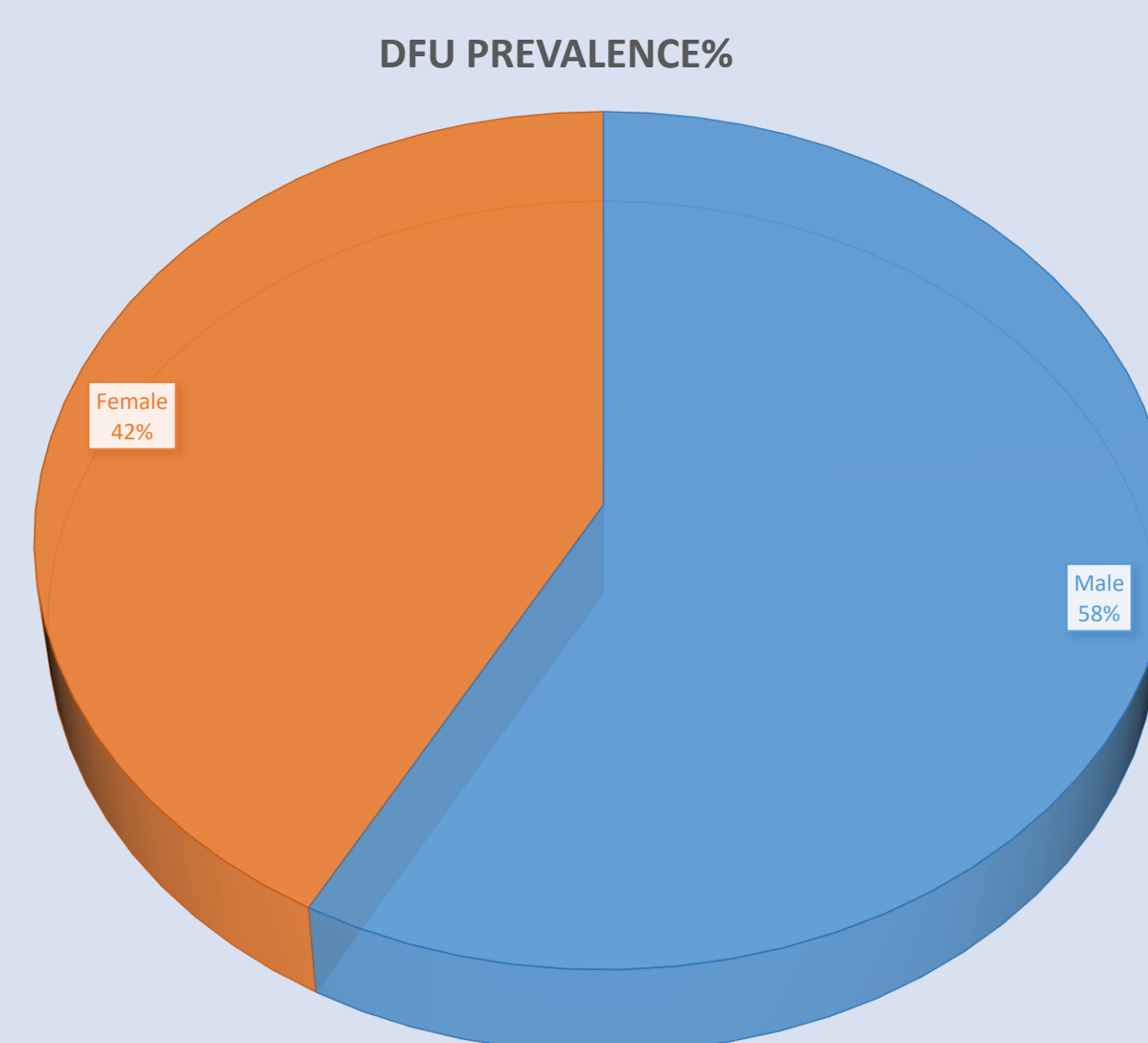


Figure 1: DFU prevalence between Males and Females.

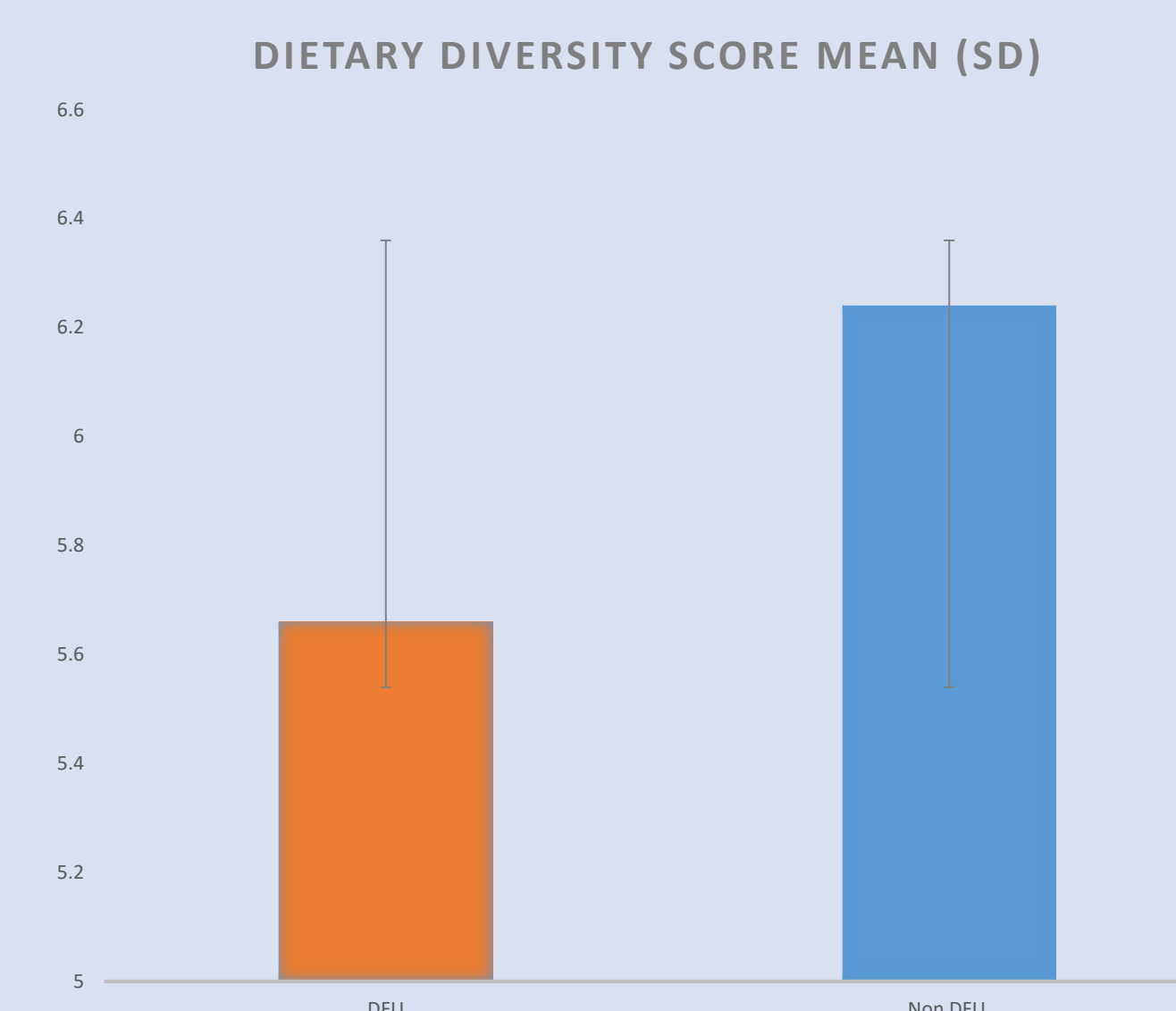


Figure 2: Dietary Diversity Score (Mean $\pm$ SD) in participants with Diabetic foot ulcers (DFU) and without foot ulcers (Non-DFU).

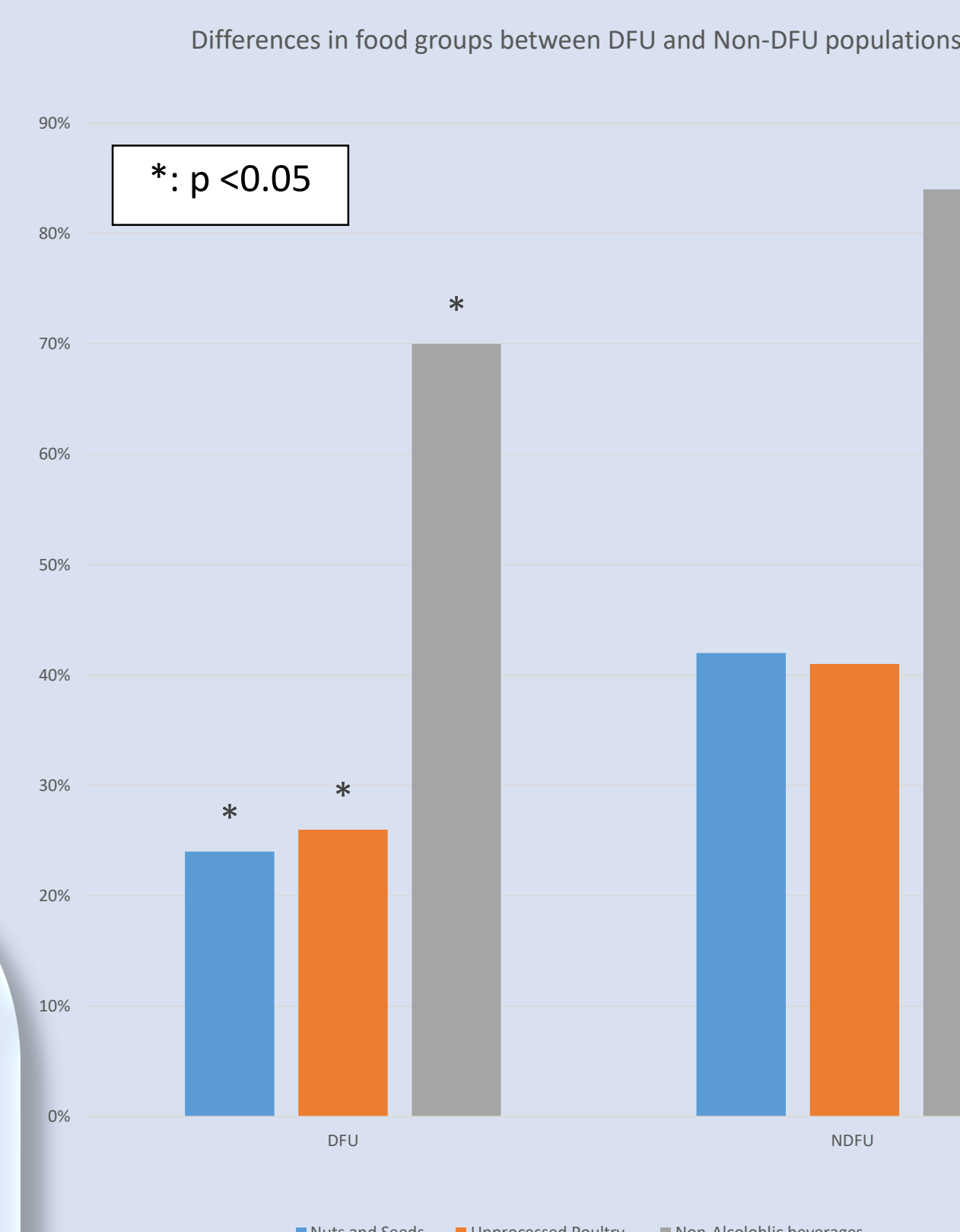


Figure 3: Consumption of three food groups: Nuts and Seeds, Unprocessed Poultry and Non-alcoholic beverages in DFU and Non-DFU participants.

	Minimum Dietary Diversity % within the MDD Classification		
Variable	Not Achieved	Achieved	p-values
Education			0.046
Primary	51.6	28.8	
Secondary	35.5	49.4	
Tertiary	12.9	21.8	
Alcohol			0.009
Never	55.6	29.0	
Ever-past	25.0	35.5	
Present	19.4	35.5	

Figure 4: Associations between Education and Alcohol and the achievement of Minimum Dietary Diversity.

Discussion

- The difference in males than females with DFU in this study is in keeping previously cited literature which outlined that men have a higher risk for lower limb amputations, a leading consequence of DFU.⁵
- DFU participants had a lower Mean Dietary Diversity Score compared to the Non-DFU participants however, more than 80% of participants in each group achieved Minimum Dietary Diversity. Lower DDS suggests the lack of food groups that may sufficiently contribute to the metabolic demands of proper wound healing.
- Lower consumption of Nuts and Seeds, Unprocessed Poultry and Non-alcoholic beverages are seen in the DFU group. Protein is the primary macronutrient in Unprocessed Poultry and Nuts and Seeds, therefore, lack of these food groups can delay or hinder wound healing.
- Positive associations between higher education levels (Secondary and Tertiary) and the achievement of Minimum Dietary diversity, consistent with study previously cited.⁶ Higher education levels influences buying power and availability. Alcohol was also positively associated with MDD, this was not consistent with previously solicited literature.

Conclusion

This study has shown that participants with DFU had a lower mean dietary diversity score than Non-DFU participants. Consumption of three food groups were lower in the DFU group. Achievement of minimum dietary diversity was positively associated with education level and alcohol consumption. Further research is essential to identify specific nutritional deficiencies and develop tailored strategies, offering a potential avenue to alleviate the burden of diabetic foot complications.

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