

# Dental Health and Attitudes in Young Adults Aged 18-25 years with Diabetes mellitus



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## BACKGROUND

Chronic inflammation associated with gum disease has been shown to increase the risk of developing cardiovascular disease, yet gum disease is largely preventable with optimal personal dental hygiene and regular dental examinations. Poorly controlled Type 1 Diabetes Mellitus (T1DM) has been reported to be associated with poor gum health and poor diabetes control may exacerbate gum disease. It is recommended that individuals with diabetes mellitus (DM) should have at least six monthly dental health checks. Self-efficacy in both oral hygiene and T1DM management is related to lifestyle habits typically established during adolescence, however, to date there are few published data in this age group. Five years ago a multidisciplinary Young Adult Diabetes Service was established at Sunshine Hospital. The clinic is currently attended by around 80 young people aged 15 – 25 years mostly with T1DM. We would recommend that dental health and oral health attitudes should also ideally be assessed in this clinic setting, although currently the clinic does not have the expertise nor resources available to do this.

## AIMS & OBJECTIVES

1. To assess oral health as measured by assessment of gum health (using CPI) in a group of young adults with diabetes mellitus (DM).
2. To investigate the dental health indices, specifically, dental caries in young adults with diabetes mellitus (DM) and their susceptibility to disease
3. To assess the dental attitudes and behaviours of participants with diabetes mellitus using a dental health questionnaire.

## METHODS

Ethics approval was obtained from The University of Melbourne and WH ethics (HREC/17/WH/178). Patients between 18 and 25 years old with T1DM who attended YADS from April to July in 2018 were recruited. Participants also attended their routine Diabetes clinic visit at which HbA1C (measure of long term glycaemic control), blood pressure, height, weight and BMI calculated were documented. Gum disease was assessed using the community periodontal index (CPI) system and teeth decay was assessed applying a modified International Caries Detection and Assessment System (ICDAS) due to lack of access to dry teeth. A short questionnaire was also completed by participants to assess dental health attitudes.

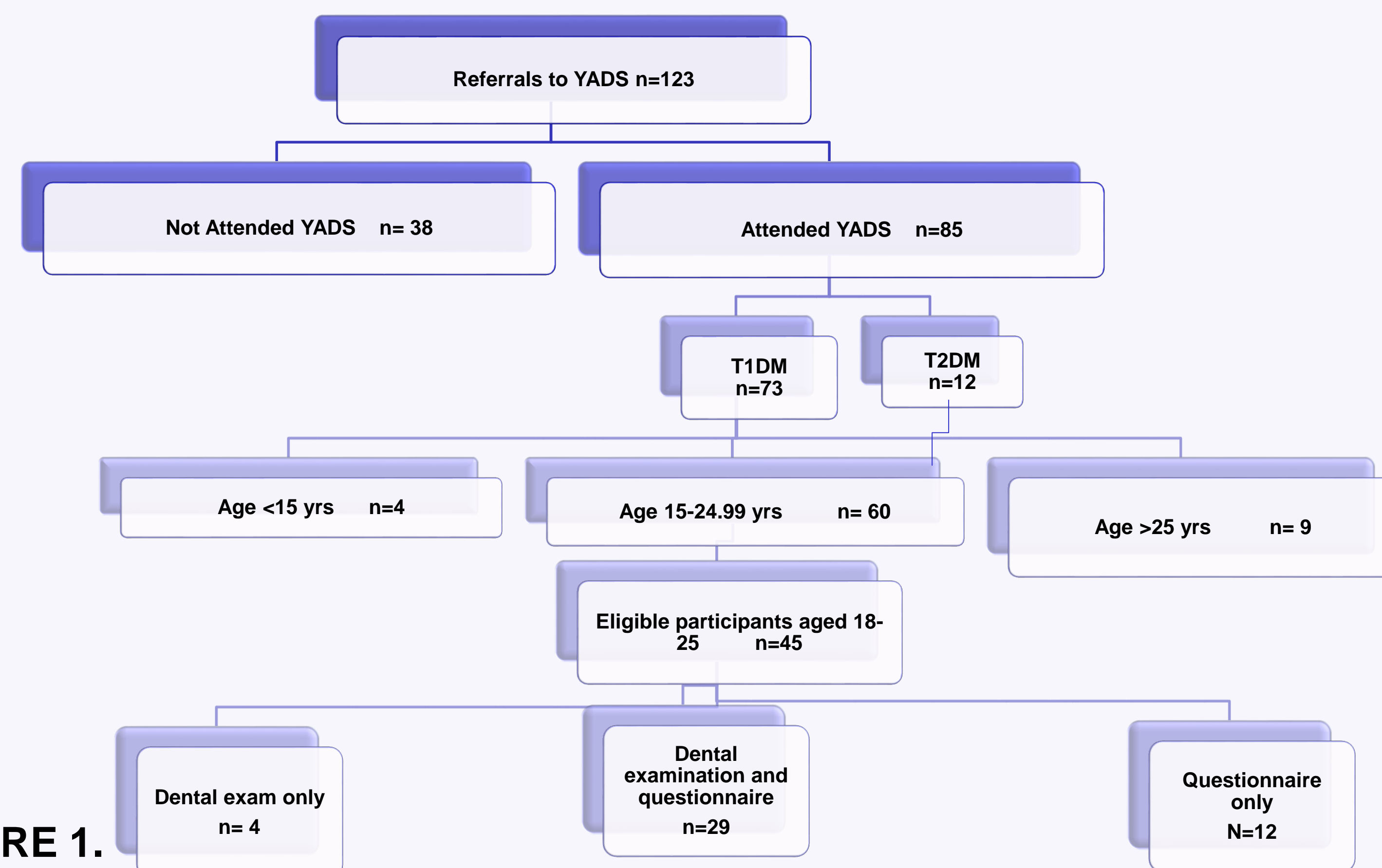


FIGURE 1.

## RESULTS

| DEMOGRAPHICS <sup>9</sup>  | Number (%) or mean [SD] or median {IQR} |
|----------------------------|---|
| Interim total:             | n=35                                    |
| Male                       | 22 (62.9)                               |
| Female                     | 13 (37.1)                               |
| Age (years)                | Mean 20.57 [2.08] Range 18-24           |
| HbA1c (%)                  | 8.44 [1.88] Range 5.5- >14.0            |
| Above target HbA1c (>7.5%) | 23 (65.7)                               |
| Duration of T1DM Diagnosis | Mean 8.85 [5.32] Range 1-20             |
| <1 year                    | 2 (5.71)                                |
| 1-5years                   | 8 (22.86)                               |
| 6-10 years                 | 8 (22.86)                               |
| 11-15 years                | 5 (14.29)                               |
| 15->20 years               | 6 (17.14)                               |
| BMI (kg/m <sup>2</sup> )   | 25.72 [4.82] Range 17.2-35.53           |
| Underweight (<18.5)        | 1 (2.86)                                |
| Normal (18.5 to 24.9)      | 17 (48.57)                              |
| Overweight (25 to 29.9)    | 9 (25.71)                               |
| Obese (>30)                | 8 (22.86)                               |
| Systolic Blood Pressure    | 127.03 [13.40] Range 105-163            |
| Hypertension (>130mmHg)    | 12 (34.29) 141.75 Range131-163          |
| Diastolic Blood Pressure   | 79.31 [10.18] Range 61-112              |
| Smoker                     | 7 (20)                                  |

## CONCLUSIONS

Our findings indicate a large proportion of young people with DM also have poor gum health, an additional cardiovascular risk. Engagement of this vulnerable age-group, even in a developmentally appropriate medical setting, is recognised as challenging. We recommend a consistent multidisciplinary approach across community general practice and tertiary hospital settings with agreed, shared therapeutic targets, to improve the future cardiovascular health of all young people with T1DM. Furthermore many of the participants cited cost of dental care as a major barrier. Based on our findings, we recommend that optimum oral health care be made available to young people in particular and across all ages of those with diabetes mellitus generally, both in community and hospital based settings.

### Dental Health and Attitudes data from questionnaire

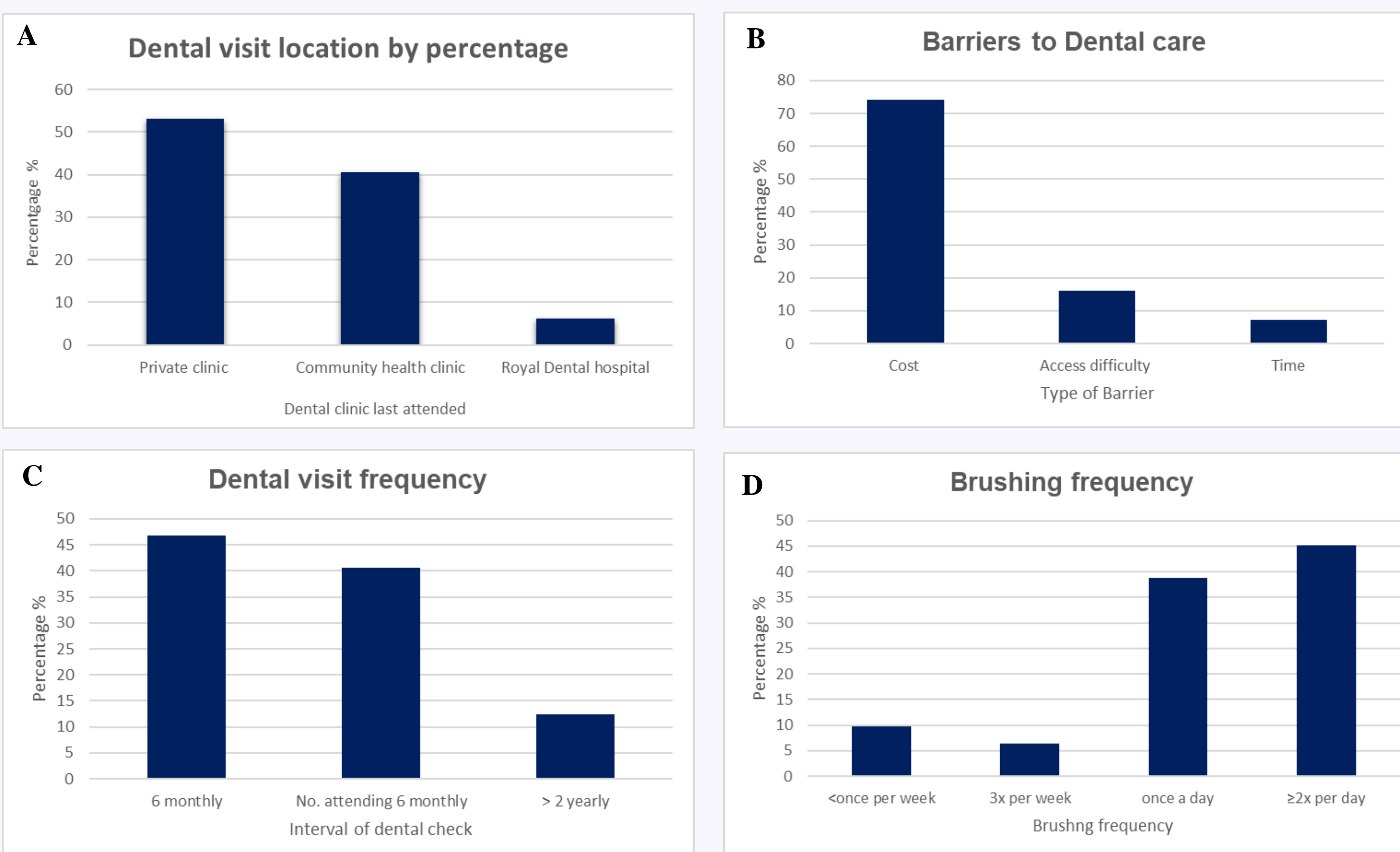


Figure 2: The data displayed conveys dental health and attitude data obtained from YADS participants (n=35) to date. A) Displays where participants seek dental care and the percentage in each category. B) Conveys the identified barriers to Dental care in this population by percentage. C) Demonstrates the frequency of Dental visits (years) in the cohort by percentage in each category. D) Represents by percentage the tooth brushing frequency amongst participants.

### Community Periodontal Index (CPI) data

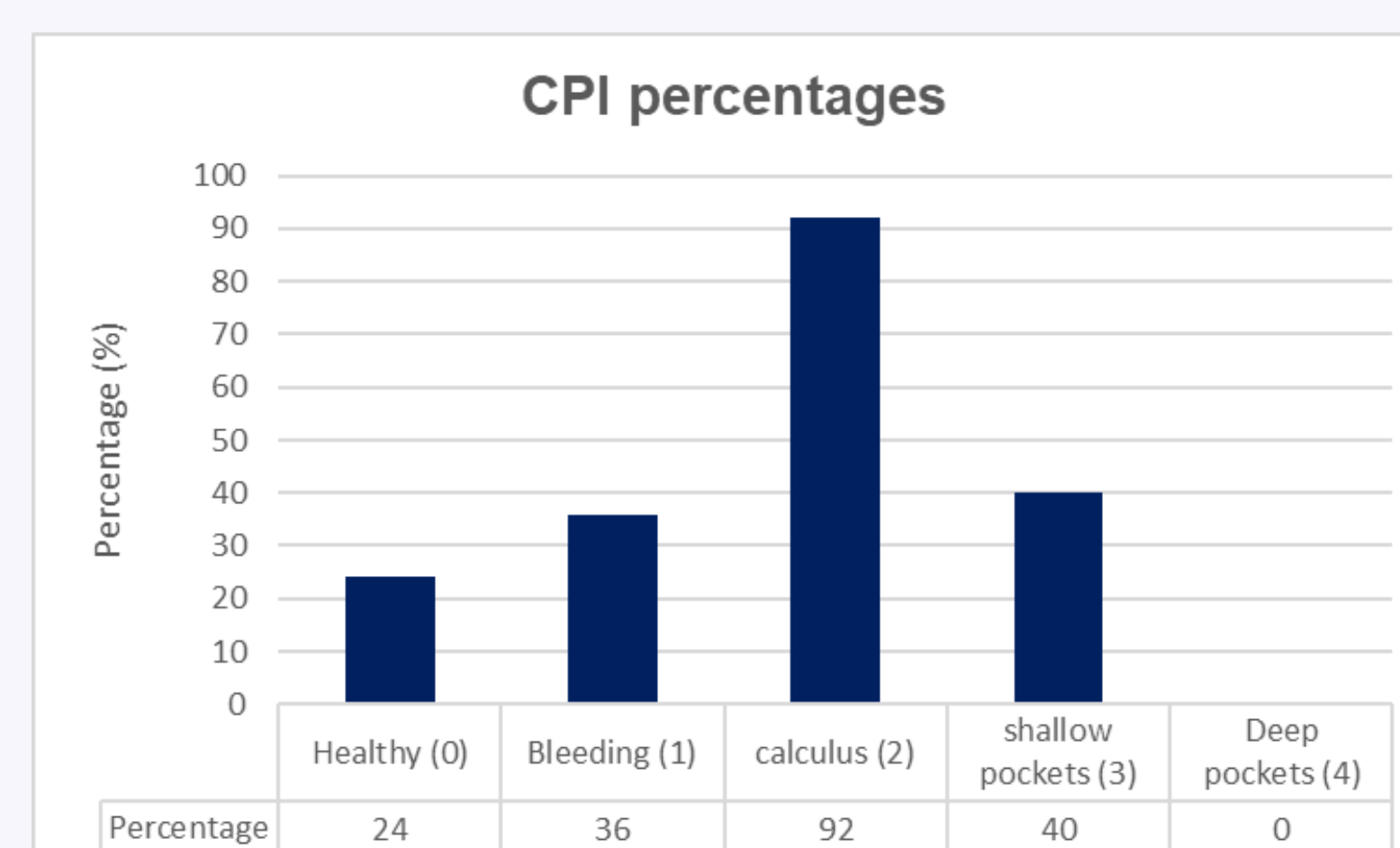


Figure 3: CPI data represents the percentage of participants (n=30) that had their teeth graded into each of the five categories. Significant markers of periodontal disease as seen in this DM cohort. However, a multivariable analysis has not been undertaken to correlate CPI outcomes to DM control (HbA1C scores).

Note: ICDAS data has not been analysed to this date.

## REFERENCES

1. Darby, I., Phan, L., & Post, M. (2012). Periodontal health of dental clients in a community health setting. Australian Dental Journal, 57(4), 486-492.

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