UNIVERSITI TEKNOLOGI MARA

VALIDATION OF GUIDED QUESTIONNAIRE AND ITS ACCURACY AS A TOOL TO INITIATE COORDINATED MEDICAL DENTAL CARE ON PERIODONTAL DISEASE IN CHILDREN AND ADOLESCENTS WITH TYPE-1 DIABETES MELLITUS

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Dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor in Paediatric Dentistry

Faculty of Dentistry

May 2023

ABSTRACT

Introduction: The bidirectional association between type 1 diabetes mellitus (T1DM) and inflammatory periodontal disease has been established, however the coordinated care between medical and dental are yet to be established. This thesis focuses on evaluating the GQ validity and accuracy as a tool to initiate coordinated medical dental care on periodontal disease in T1DM children and adolescent. **Objectives**: This study aimed to compare the accuracy of the GQ on self-screening of periodontal vs periodontal examination as initial tool among T1DM patients at the Paediatric Endocrine Clinic, to explore the perceived level of knowledge and perception of T1DM patients and/or parents on PDs and its associating factor(s) and to measure the prevalence of PDs in T1DM children and adolescents and its associating factor(s) at two clinical centres from the periodontal examination. **Methodology**: This cross-sectional study was carried out at Universiti Teknologi MARA and Universiti Malaya. T1DM patients under 18 years old were invited. Structured interviews were carried out to evaluate the participants' self-perceived periodontal health status. Periodontal health parameters, including plaque index (PI), gingival index (GI), probing pocket depth (PPD), basic periodontal examination (BPE), and clinical attachment loss (CAL) were recorded during the clinical examination. Statistical analysis was performed to evaluate the sensitivity of the questionnaire and the relationship between T1DM and periodontal parameters. **Result**: A total of 113 T1DM patients participated in this study but only 109 completed both the interview and clinical examination. The acceptable accuracy of GQ is 68.8. 55 (48.7%) have healthy gingiva, and 54 (47.8%) have gingivitis. PD was found to be statistically significant: 1) in the group age of 13-18 T1DM patients (p-value = 0.048), 2) associated with the duration of T1DM (p-value = 0.018), bleeding symptoms (p value < 0.001). Poor knowledge was observed in parents and/or T1DM patients (p-value=0.007). Despite having a good perception of their periodontal health status, clinical parameters examined revealed otherwise. There is a statistically significant association between periodontal disease and uncontrolled HbA1c (p-value= 0.0018). **Conclusion**: GQ can be used as a self-screening tool, as an initiation of medical dental coordinated pathway and could be used to instil awareness on how to improve the impact of their understanding of disease control.

Keywords: type 1 diabetes mellitus, periodontal disease, children, adolescent

ACKNOWLEDGEMENT

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CHAPTER ONE
INTRODUCTION

1.1   BACKGROUND

Type 1 Diabetes Mellitus (T1DM) is a class of diabetes mellitus (DM) disorder that is commonly diagnosed in children and adolescents (Atkinson, Eisenbarth, & Michels, 2014; Dana Dabelea, 2009). It is considered the third most prevalent childhood chronic disease in the United States after obesity and asthma (Stanescu, Lord, & Lipman, 2012). The highest pooled incidence was registered in the European region at 15.5 per 100,000 children per year (15.5/100,000/year) (95% CI = 13.5–17.5), followed by the American region with an incidence of 11.4/100,000/year (Adeloye *et al.*, 2018). Interestingly, the lowest T1DM incidence was reported in China (0.1/100,000/year) despite having the largest population in the world, which is in contrast to the reported T1DM incidence in Finland among children aged 0 to 14 years old at 57.6/100,000/year (Soltesz, Patterson, & Dahlquist, 2007).

These statistics mark a 350-fold difference compared to the reported incidence in the early 1990s. The significant impact could be due to hereditary and genetically susceptible individuals as a result of environmental factors, as indicated in the aetiology of T1DM, as well as the rapid social change in many countries that influenced the population exposure to putative etiological factors for T1DM (Maahs, West, Lawrence, & Mayer-Davis, 2010; Tom, Ken, & Matthias, 2011). Table 1.1 presents the prevalence of T1DM in several countries.