



Research Article

## Oral health knowledge, attitude, and practice of adults attending Mataniko Dental Clinic in the Central Honiara, Solomon islands

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### ABSTRACT

**Objectives:** This study was carried out to develop a suitable oral health promotion program to determine the knowledge, attitude, and practice among patients visiting the Mataniko Dental Clinic (MDC), Honiara City.

**Materials and Methods:** A cross-sectional study was conducted among 1050 patients aged 18–45 who attended MDC, Honiara City, from July 2021 to September 2021. A 26-item questionnaire was used to evaluate their oral health knowledge, attitude, and practice. The questionnaire includes patient's demographic information, knowledge, attitudes, and behavioral practice.

**Results:** Oral health-related knowledge among the study participants was high. However, only one in five (24%) never visited a dentist. More than half (58%) of the participants visited the dental clinic because of toothache. Over two in three (63%) participants received professional advice. Four in five (83%) participants had toothpaste; however, only 33% brushed their teeth twice a day. Interestingly, more than half (58%) of the participants were unsure of the toothpaste used to brush their teeth.

**Conclusion:** While the level of knowledge was high, this was not translated into their dental healthcare attitude and practice. Therefore, an oral health promotion program is needed to motivate and promote the importance of dental health and the participant's well-being.

**Keywords:** Oral, Knowledge, Attitude, Practice, Solomon Islands

### INTRODUCTION

Dental health is a worldwide concern for both children and adults. However, dental problems may not be treated adequately, mainly because of insufficient resources to meet the need or the limited resources that are not easily accessible to most people who need them.<sup>[1,2]</sup>

While most oral diseases are preventable, studies have shown that poor oral beliefs and practices impact better oral health outcomes.<sup>[3-7]</sup> Furthermore, economic barriers, uninsured, and availability of dental service providers were identified as potential determinants of oral health and dental care service utilization among children and young adults.<sup>[8]</sup> A study among Pacific Island people in New Zealand suggested, early tooth brushing interventions should target young children and their caregivers, particularly socioeconomically disadvantaged

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mothers.<sup>[9]</sup> Another study by Conn, Sa'uLilo,<sup>[5]</sup> conducted among seasonal workers from Vanuatu, reported a high level of awareness about poor oral health in their communities and noted the importance of sharing oral health messages through community-led programs. Dental caries is also signs of broader health and social care issues such as poor nutrition and obesity.<sup>[6,7,10]</sup> Oral diseases linked to behavior, and dental caries and periodontal disease decreased with improved oral hygiene and reduced consumption of sugar products.<sup>[11]</sup>

The Solomon Islands is a developing country consisting of nearly 1000 islands that make up a landmass of approximately 30,400 square kilometers within a sea area of roughly 1.5-million-kilometer square. The country's six major islands are Choiseul, New Georgia, Isabel, Guadalcanal, Malaita, and Makira. Honiara in Guadalcanal province hosts the capital city of the Solomon Islands. It consists of the three primary races: Melanesia, Micronesia, Polynesia, and a small minority group of Chinese and European. Internal migration is considerably high, with Honiara in Guadalcanal Province being the targeted destination because of its potential for better employment and education opportunities. The total population of Honiara is 130,167, which is ~ 18% of the country's population. Honiara consists of three constituencies: East, Central, and West Honiara.<sup>[12,13]</sup> Mataniko Dental Clinic (MDC) is located in central Honiara. The MDC 2020 annual report shows that 11,090 patients were seen and treated. Of this number, 78% were adult patients, and 22% were children 15 years and below. About 70% of the extraction was due to dental caries. Of the restorations done, only 36% are filled with amalgam, glass ionomer cement, and composite resin, some are temporary dressings, and others are endodontic stabilization dressings.<sup>[13]</sup>

In the Solomon Islands, like many Pacific Island countries in Oceania, there are limited data on patient's oral health knowledge, attitudes, and practices. Therefore, this study aimed to assess the patient's oral health knowledge, attitudes, and practices to support school oral health promotion programs in Honiara.

## MATERIALS AND METHODS

A quantitative, descriptive, and cross-sectional study was carried out at the MDC among persons aged 18 years and older attending the general outpatient department from July to September 2021. A non-probability convenience sampling method was used to collect the sample size of 1050 living in Honiara city, Solomon Islands.

In addition, 26 well-structured and closed-ended questionnaire was utilized to interview adult patients 18 years old and above who sought dental treatment at

MDC General Out-Patient Department. The first section was about demographic data, including age, sex, religion, race, marital status, educational level, and employment status. The second section had seven questions about oral knowledge; in the third section, attitudes-based questions (five) toward dental health were evaluated, and in the final section, six practice-based questions assessed the practice of oral hygiene. An internal consistency reliability test was conducted on the questionnaire, with a Cronbach's

**Table 1:** Demographic characteristics of the survey participants.

Variable	Number	Percentage
Age		
18–25 years old	352	33.5
26–35 years old	288	27.4
36–45 years old	248	23.6
46–55 years old	121	11.5
56–65 years old	33	3.1
66–75 years old	8	0.8
Gender		
Male	373	35.5
Female	677	64.5
Education status		
No formal education	32	3.0
Do not complete primary school	88	8.4
Complete primary school	149	14.2
Do not complete secondary school	261	24.9
Complete Secondary school	173	16.5
Tertiary	312	29.7
Vocational	35	3.3
Occupation		
Student	247	23.5
Unemployed	109	10.4
Homemaker	183	17.4
Self-employed	147	14.0
Government employee	142	13.5
Private sector employee	192	18.3
Non-government organization	19	1.8
Retired	11	1.0
Religion		
Roman Catholic	88	8.4
Anglican	156	14.9
Wesley United	62	5.9
Evangelic Fellowship	327	31.1
Jehovah Witness	38	3.6
SDA	332	31.6
Others	47	4.5
Race		
Melanesian	993	94.6
Polynesian	40	3.8
Micronesian	14	1.3
Others	3	0.3
Address		
Honiara	903	86
Guadalcanal	141	13.4
Central Islands	6	0.6

alpha value of 0.79. Informed consent was taken before participating in the study. We obtained approval for the study from the Solomon Islands Health Research and Ethics Review Board (NRE. № 001/21).

All the filled questionnaires are collected at the end of each day and the data are entered directly and stored in SPSS version 21 (IBM Corporation, Armonk, NY, USA) daily. We carried out simple descriptive statistics such as frequency distribution and percentage. In addition, Chi-square tests for association were conducted between the study variables and selected demographic variables (age and gender). A statistical significance was considered at  $P < 0.05$  at a 95% confidence interval.

### RESULTS

In 3 months of the data collection, 2602 patients attended the MDC outpatient clinic. The sample size of 1050 represents 40% of the total patient seen during the data collection phase. Females recorded 64.5%, while their male counterparts recorded 35.5%. More than half (60.9%) of the participants in the study were aged 18–35 years. Concerning their education, 29.7% completed tertiary education, 16.5% completed high school, and 24.9% reported not completing high school [Table 1].

Oral health-care knowledge was very high, ranging from 93% to 96% [Table 2]. About 96% of the participants in the study knew that brushing is essential, and foods and drinks containing sugar and sweets can cause dental caries. In addition, nearly 9 in 10 (94%) participants knew poor oral health could cause gum disease. Similarly, 94% reported that dental caries and gum disease can be prevented by brushing, flossing, and avoiding sugar.

**Table 2:** Knowledge about dental health.

Variable	Number (Yes)	Percentage
Do you know that brushing our teeth and gum is very important to keep our teeth away from dental decay?	1006	95.8
Rinsing our mouth with water after meals to remove food debris trapped between our teeth is very important?	1002	95.4
Foods and drinks that contain sugar and are sweet can cause dental decay?	1009	96.1
Poor oral health cause gum disease that resulted in swollen gum, bleeding gum and bad breath?	984	93.7
It is possible to prevent oral diseases like dental decay and gum disease by brushing, flossing, and avoiding sugar?	984	93.7

Regarding oral care, [Table 3] shows that 23.8% of participants reported as 1<sup>st</sup>-time visitors to the dental clinic. More than 1 in 4 (22.0%) visited a dental clinic in the past 0–6 months

**Table 3:** Frequency distribution of attitudes toward dental health.

Variable	Number	Percentage
Do you know that caring for our mouth is as important as caring for other parts of the body?	1020 (Yes)	97.1
it is important to brush your teeth in the morning after breakfast and the last thing before you sleep?	1015 (Yes)	96.7
When was your last visit?		
First dental visit	250	23.8
0–6 months ago	231	22.0
1–2 years old	206	19.6
2–3 years ago	95	9.0
3–5 years ago	95	9.0
More than 5 years ago	173	16.5
The main reason to visit the dental clinic		
General Check-up	33	3.1
Want cleaning	22	2.1
Want filling	174	16.6
Want removal of tooth	206	19.6
Toothache	608	57.9
Seek dental health advice	7	0.7
Did you ever receive any professional advice on oral healthcare in a dental office?		
Yes	384	36.6
No	665	63.3

**Table 4:** Frequency distribution of practice toward dental health.

Variable	Number	Percentage
Has a toothbrush	873	83.1
Type of toothbrush		
Soft	224	21.3
Medium	309	29.4
Hard	56	5.3
Not sure	285	27.1
Do you brush your teeth?		
Yes	861	82.0
No	12	1.1
Frequency of brushing		
Once	166	15.8
Twice	348	33.1
Thrice	77	7.3
Sometimes	270	25.7
Use toothpaste to brush teeth		
Yes	848	80.8
No	13	1.2
Type of toothpaste used		
Fluoride	236	22.5
Non-fluoride	5	0.5
Not sure	607	57.8

of the study, while 16.5% visited a dental clinic more than 5 years ago. Toothache topped the reason for the visit to the dental clinic with 57.9%. In addition, 19.6% wanted tooth extraction for various reasons, 3.1% came to do oral health checkups, and 0.7% of participants presented at the clinic to seek advice. Furthermore, 63.3% of the participants revealed that they never received professional advice from the service providers in any dental clinic they attended for the past treatments. In comparison, 36.6% admitted, they received professional advice from oral healthcare professionals [Table 3].

A majority (83.1%) of participants own a toothbrush. Nearly one in three (29.4%) had a medium toothbrush, while 21.3% claimed they owned a soft toothbrush, and 27.7% were unsure what type of toothbrush they held. Only 33.7% of participants claimed to brush twice daily, while 15.8% brush once, 7.3% brush thrice per day, and a good percentage of 25.7% only brush sometimes. More than eight in 10 (80.8%) of participants claimed to use toothpaste when brushing their teeth; however, 57.8% did not know which type of toothpaste they used, and 22.2% used fluoride toothpaste [Table 4].

[Table 5] shows the Chi-square test of independence conducted between demographic variables and selected knowledge, practice, and attitude questions. The study participants aged 18–24 years, vocational/tertiary educated, employed, and married were likelier to have a first dental

clinic visit ( $P < 0.05$ ). Furthermore, their main reason for visiting was toothache and extraction ( $P < 0.05$ ). Females, vocational/tertiary educated, and employed were more knowledgeable about the importance of brushing teeth, sugary foods, and caring for the mouth [ $P < 0.05$ ; Table 5]. Owning a toothbrush was statistically significant with females ( $P < 0.001$ ), vocational/tertiary educated ( $P < 0.001$ ), and employed ( $P = 0.002$ ). Educational level was the only factor significantly associated with fluoride toothpaste use compared to other factors.

## DISCUSSION

Good oral health knowledge, attitude, and practice are paramount to good oral health and controlling oral health diseases at an individual level. The overall oral health knowledge of adults in Honiara city was generally good. About nine in 10 (95.8%) of the participants in the study knew that brushing their teeth and gum was very important to keep their teeth from dental decay, similar to findings in other studies.<sup>[1,2,5]</sup> However, they were least knowledgeable about the importance of good oral health hygiene and preventive practices. Significant differences were seen among female responses regarding the importance of good oral health and caring for our mouth as an essential body part. Hence, females have good knowledge about good oral health in the present study. Similarly, this study's findings indicated

**Table 5:** Associations with selected knowledge, practice, attitudes, and demographic variables.

Question	Age group	Gender	Education	Employment status	Marital status
	<i>P</i> -value	<i>P</i> -value	<i>P</i> -value	<i>P</i> -value	<i>P</i> -value
Brushing our teeth and gum is very important to keep our teeth away from dental decay?	0.647	0.397	<b>&lt;0.000</b>	<b>0.002</b>	0.309
Rinsing our mouth with water after meals to remove food debris trapped between our teeth is very important?	0.373	0.211	0.804	<b>0.036</b>	0.372
Foods and drinks that contain sugar and are sweet can cause dental decay?	0.642	0.418	<b>&lt;0.001</b>	0.192	0.817
Do you know that poor oral health cause gum disease that resulted in swollen gum, bleeding gum and bad breath?	0.278	0.680	0.211	0.986	0.234
It is possible to prevent oral disease like dental decay and gum disease by brushing, flossing and avoiding sugar?	0.392	<b>0.025</b>	<b>0.026</b>	<b>0.037</b>	0.934
Caring for our mouth is as important as caring for other parts of the body?	0.765	<b>0.014</b>	<b>0.023</b>	0.461	0.930
It is important to brush your teeth in the morning after breakfast and the last thing before you sleep?	0.423	0.574	<b>0.001</b>	0.910	<b>0.001</b>
When was your last visit?	<b>&lt;0.001</b>	0.123	<b>0.021</b>	<b>0.004</b>	<b>&lt;0.001</b>
The main reason to visit the dental clinic	<b>0.001</b>	0.367	<b>&lt;0.001</b>	<b>0.002</b>	<b>&lt;0.001</b>
Have you ever received professional advice on oral healthcare in a dental office?	0.441	0.648	<b>0.008</b>	0.073	0.697
Has a toothbrush	0.788	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>0.002</b>	0.481
Do you brush your teeth?	0.788	0.532	0.079	0.577	0.773
Use toothpaste to brush your teeth	0.715	0.857	<b>&lt;0.001</b>	0.074	0.610

Bold values indicate association is statistically significant ( $P < 0.05$ ).

that the participants who completed vocational/tertiary education were better in oral health knowledge is consistent with the literature.<sup>[14,15]</sup>

In oral behavior and practice, the participants in the study seem to be well aware of the importance of good oral hygiene practices, but this was not reflected in their oral hygiene practices. For example, only 33.1% of the participants brushed their teeth twice daily as the universally accepted recommendation for maintaining good oral and periodontal health.<sup>[16,17]</sup> Furthermore, only 3% of the participants visited the clinic for a general checkup, while 58% sought dental care because of toothache. These findings agree with other studies, which suggested that caries were detected in later stages of their progress among study participants.<sup>[18]</sup> Thus, it is crucial to visit a dentist every 6 months for a checkup.<sup>[11]</sup> Although 80.8% of the participants used toothpaste to brush their teeth, only 22.5% used fluoride toothpaste. This finding indicates a great need for more awareness in schools and communities about the importance of fluoride as the most effective prevention of dental caries.<sup>[19,20]</sup>

### Limitation

This study has several limitations. First, the cross-sectional study makes it impossible to do correlation to establish inferential causality. Second, the convenient sampling and the self-reported nature of the study may cause potential bias in the responses.

### CONCLUSION

This study established that the oral knowledge, attitude, and practice (KAP) of adults attending MDC in the central Honiara are varied. The level of knowledge was high; nevertheless, this was not translated into their dental healthcare attitude and practice. Therefore, an oral health promotion program is needed to motivate and promote the importance of dental health and the well-being of the participants. In the future, there is a need for an oral health KAP study in the broader community in Honiara city. This is to grasp the entire oral health KAP of the city's general population for appropriate planning, implementation, monitoring, and evaluation.

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### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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### Conflicts of interest

There are no conflicts of interest.

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