



Factors Associated with Knowledge and Attitude Related to Oral Health Among Older People Living in the Community, Malaysia



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ABSTRACT

Aims The prevalence of comorbidities among older individuals often leads to the neglect of oral health in this population. Therefore, this study aims to investigate the relationship between socio-demographic factors, knowledge, and attitudes related to oral health among older individuals.

Instrument & Methods A cross-sectional study was conducted, involving 359 individuals aged 60 and above in the community setting of Kuantan, Pahang, Malaysia. Data collection was carried out using a questionnaire distributed through social media platforms. The questionnaire comprised four sections: socio-demographics, self-perceived oral health status, knowledge, and attitudes. Data analysis was performed using SPSS 26.

Findings The mean total knowledge score was moderately good (17.42±5.74), and the mean total attitude score was positive (36.20±6.06). Educational level (p=0.01) and frequency of dental visits (p=0.02) were significantly associated with knowledge. Similarly, marital status (p=0.01), educational level (p=0.001), and frequency of dental visits (p=0.01) showed significant associations with attitude. We also identified a positive correlation between knowledge and attitudes related to oral health among older individuals (r=0.38, p=0.001).

Conclusion Among older individuals living in the community, knowledge of oral health was moderately good, and attitudes toward oral health were positive. Future oral health promotion efforts should specifically target individuals who are divorced or widowed, have lower educational levels, and have not visited dental clinics.

Keywords Attitude; Knowledge; Oral Health; Aged

CITATION LINKS

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Introduction

Irrespective of age, there is currently a growing global awareness of the importance of oral health, as it can profoundly affect overall well-being and quality of life [1]. Oral health encompasses the well-being of teeth, gums, and the entire oral-facial system, which enables various functions like tasting, communication, touch, smiling, smelling, chewing, swallowing, and expressing emotions through facial expressions, all with confidence and comfort [2]. Among the age groups where oral health is particularly pertinent are older individuals. Oral care tends to be one of the most overlooked aspects of daily life for older people living in communities [3]. Older individuals often experience challenges in maintaining good oral health, which become more pronounced due to changes in their mental and physical well-being as they age [4]. Additionally, older people with difficulties in chewing frequently suffer from poor oral health, which can be linked to frailty [5].

A lack of family support and limited access to dental healthcare services due to financial constraints are two common factors that can compromise the oral health of older individuals [6]. Furthermore, cultural and social norms play significant roles in determining the oral health status of older individuals. For example, the high incidence of oral cancer among elderly members of the Indian community in Malaysia has been associated with the cultural tradition of betel nut chewing [7].

Poor oral health has a detrimental impact on the daily activities and quality of life of older individuals [8, 9]. The absence of teeth limits crucial oral functions, affecting their ability to eat, chew food, and engage in social interactions. This limitation prompts older individuals to restrict their dietary choices and food types, potentially leading to nutritional deficiencies [8, 10]. Such nutritional imbalances can result in a lower quality of life, as they are associated with increased susceptibility to diseases and decreased satisfaction during their golden years [10]. Additionally, the discomfort arising from oral health issues hinders social interactions, affecting the older population's ability to engage with others [11].

Malaysia, being a multi-ethnic nation, has witnessed an increase in life expectancy and a decrease in fertility rates [11]. The number of individuals aged 60 years and older in Malaysia has risen from 2.22 million in 2019 to 2.32 million in 2020 [12]. This upward demographic trend necessitates healthcare providers' assistance and guidance to ensure that the older population maintains good oral health. The latest National Oral Health Plan (NOHP) for Malaysia spanning from 2011 to 2020 aimed to enhance oral health outcomes for the entire Malaysian population [13]. However, despite the implementation of the NOHP, the National Health and Morbidity Survey of

2018 reported that a significant proportion of older individuals claimed to have poor oral health, reaching 28.8% [14]. In 2019, 74.2% of older individuals in the district of Kuala Pilah, Malaysia, reported having a negative perception of their oral health [15]. The prevalence of poor oral health among older Malaysians remains alarmingly high, necessitating immediate action from healthcare providers.

In developed nations, the prevalence of edentulous, or total tooth loss, has decreased by 50%-60% in the last 20 years [6]; nevertheless, in developing countries, its prevalence remains high. In Malaysia, the prevalence of edentulous among older people was 62.3% [16]. Consequently, in order to ascertain the knowledge and attitude gap regarding oral health, the degree of knowledge and attitude connected to oral health should be evaluated. Understanding oral health issues better gives one a sense of control over their dental health, which is why oral health knowledge is deemed essential for improving oral health [17]. Attitude toward oral health can be defined as self-evaluation of one's dental health, awareness of the value of maintaining good oral health, and the preference for attending routine oral health examinations [18]. Older people living in the community have poor knowledge [19, 20] and negative attitudes [21] related to oral health. Negative attitudes toward oral health that are based on personal perception have a substantial impact on oral health in older people. For instance, the majority of older people are aware that dentures can be used to replace missing teeth, yet they disregard the need for oral care [21].

Sufficient oral health knowledge can create a positive mindset and beneficial behaviors toward oral health [21]. The knowledge, attitude, and practice (KAP) theory posits that evaluating knowledge and attitude is crucial, as an improvement in knowledge can lead to a positive change in attitude, ultimately fostering positive behavior [22].

Most previous studies on oral health in Malaysia have primarily focused on elderly residents in nursing homes. Consequently, there is a dearth of research on this topic concerning older Malaysians living in the community [23].

Research conducted among elderly nursing home residents revealed subpar oral health, which adversely affected their nutritional well-being and overall quality of life. This was attributed to a lack of awareness about oral health maintenance, resulting in a negative attitude toward oral health [23]. It remains uncertain whether similar findings would emerge among older individuals in the community, given that prior studies have mainly concentrated on nursing home settings. Hence, the present study aims to assess the level of knowledge and attitudes regarding oral health among older individuals residing in the community.

Instrument and Methods

Sample and Setting

This cross-sectional study was carried out among the older population residing in Kuantan, Pahang, Malaysia from April to May 2021. A convenience sampling method was used to recruit the participants by targeting older people from social media platforms living in Kuantan. The inclusion criterion was people aged 60 years old and above. The exclusion criterion was those with illnesses affecting their judgment, such as psychotic disease, Alzheimer's disease, and Parkinson's disease. The sample size was calculated based on the total population of older people in Kuantan, which was 35,900 during the study, and calculated using the Raosoft software sample size calculator, which was estimated to be 359. A 95% confidence level and a 5% error level were established.

Data Collection and Research Instrument

An online questionnaire was distributed to participants recruited from various social media platforms such as Facebook, WhatsApp, Twitter, and Telegram. The online questionnaire included a clear explanation of the research topic to ensure that the participants belonged to the targeted population. In cases where participants were unable to complete the questionnaires on their own or had difficulty understanding the questions, caregivers assisted them in the process.

The questionnaire consisted of four sections, including Part A, Part B, Part C, and Part D. Part A collected sociodemographic information, including age, gender, race, marital status, educational level, and frequency of dental appointments. Part B, comprising five questions, assessed participants' self-perceived oral health status, covering their perceptions of oral health, dental issues, denture use, and ability to bite and chew [19]. Part C and Part D focused on evaluating the knowledge and attitude of older individuals regarding oral health [11]. Part C comprised 15 knowledge-based items with response options "true," "false," and "don't know." Scores for each item were summed to calculate an overall score ranging from 0 to 30, with a higher score indicating better knowledge about oral health. Part D consisted of 12 items assessing attitudes, using a 5-Likert scale ranging from 'strongly disagree' (score 0), 'somewhat disagree' (score 1), 'neutral' (score 2), 'somewhat agree' (score 3), to 'strongly agree' (score 4). Total scores were obtained by summing the scores of each item, resulting in a range of 0 to 60, with a higher score indicating a more positive attitude toward the oral health of older individuals.

To ensure that the questionnaire was comprehensible to older participants, a pre-testing study involving 33 participants was conducted. The Cronbach's alpha index was 0.98 for Part C and 0.84 for Part D, indicating high internal consistency and reliability.

Statistical Analysis

The statistical analysis was conducted using SPSS 26.0 software. Descriptive analyses were applied to the socio-demographic data and self-perceived oral health status. Spearman's correlation test was utilized to examine associations between numerical socio-demographic variables, knowledge, and attitude, as well as the association between knowledge and attitude. Mann-Whitney U test and Kruskal-Wallis test were employed to analyze categorical socio-demographic variables in relation to knowledge and attitude. In cases where the Kruskal-Wallis test yielded significant results, post hoc comparisons were performed using the Bonferroni test. The threshold for statistical significance was set at $p < 0.05$.

Findings

Socio-Demographic Background

Table 1 shows the socio-demographic profile of the participants. The mean age was 66.92 ± 5.78 years, with the majority falling within the young-old age group (69.9%), while only 3.3% were classified as the oldest-old age group. Females constituted the majority of participants (57.6%). The ethnic distribution showed that most participants were Malays (83.65%), followed by Chinese (12.8%), and Indians (3.6%). In terms of marital status, 63.5% of participants were married. Regarding educational level, 53.2% had completed secondary school, followed by primary school (18.1%), university education (15.1%), and no formal education (13.6%). It was observed that 46.5% of participants had not visited a dental service in the past year, 33.4% visited once a year, 17.8% visited twice a year, and 2.3% visited the dental service more than three times a year.

Table 1. Sociodemographic characteristics of the subjects (n=359)

Parameter	No.(%)
Age (year)	
60-69	251(70.0)
70-79	96(26.7)
≥80	12(3.3)
Gender	
Male	153(42.6)
Female	206(57.4)
Race	
Malay	300(83.6)
Chinese	46(12.8)
Indian	13(3.6)
Marital status	
Single	9(2.5)
Married	228(63.5)
Divorced/Widow	122(34.0)
Level of education	
No formal education	49(13.6)
Primary education	65(18.1)
Secondary education	191(53.2)
Academic	54(15.1)
Frequency of dental visits	
None	167(46.5)
Once a year	120(33.4)
Twice a year	64(17.8)
More than 3 times a year	8(2.3)

Self-Perceived Oral Health Status

Table 2 presents the self-perceived oral health status of the participants. The majority of participants reported having moderately good teeth (53.2%). Specifically, 44.0% of participants had lost some of their teeth, 25.6% had lost all or nearly all of their teeth, 19.2% had all of their teeth with some having undergone treatment or replacement, and 11.1% had all of their natural teeth. Most participants (52.4%) did not experience common dental problems such as untreated cavities, loose teeth, receding gums, or frequent dental abscesses. Additionally, 52.1% of participants reported wearing dentures. Among the 359 participants, 42.1% claimed they could chew hard food with ease, 39.6% reported some difficulty, 12.3% indicated severe difficulties, and 6.1% mentioned being unable to do so.

Knowledge and Attitude Related to Oral Health

The total knowledge score among older people was moderately good, with a mean score of 17.42±5.74, ranging from a minimum of 0 to a maximum of 28. For example, 81.1% of participants agreed that dental examinations were just as vital as medical examinations and 73.0% believed that if an older person's teeth are not kept clean, they may eventually fall out. However, there was a misconception observed, as 74.4% of participants provided the correct answer to the statement "As people get old, they naturally have loose teeth."

The total scores for attitude among older people were positive, with a mean score of 36.20±6.06, ranging from a minimum of 24 to a maximum of 48. For example, 91.3% of the participants exhibited a positive attitude, strongly agreeing or agreeing with the statement, 'maintaining good oral hygiene can prevent oral infections and diseases.' Similarly, 91.1% of the participants strongly agreed or agreed that they brush their teeth twice a day.

Association between Sociodemographic Background and Knowledge and Attitude Related to Oral Health

Table 3 displays the association between sociodemographic backgrounds and knowledge and attitude. Significant associations were observed between knowledge and educational level (p=0.01) as well as the frequency of dental visits (p=0.02). Furthermore, there were significant associations between attitudes and marital status (p=0.01), educational levels (p=0.001), and the frequency of dental visits (p=0.01). Post hoc analysis (Bonferroni test) revealed that participants without formal education had significantly lower total knowledge scores compared to those with primary education (p=0.01) and secondary education (p=0.01). Participants who underwent dental check-ups twice a year reported significantly higher total scores for both knowledge (p=0.01) and attitude (p=0.001) than those who had not visited dental clinics in a year. Regarding marital status, married participants had significantly higher total attitude scores than those who were divorced or widowed (p=0.01). Additionally, participants with tertiary education had significantly higher total attitude scores compared to those without formal education (p=0.001) and those with primary school education (p=0.001).

The participants who went for a dental check twice a year reported significantly higher total scores of knowledge (p=0.01) and attitude (p=0.001) than those who had not visited dental clinics in a year. For marital status, the participants who were married had significantly higher total scores of attitudes than those who were divorced or widowed (p=0.01). The participants with tertiary education had significantly higher total scores of attitudes as compared to those without formal education (p=0.001) and primary school education (p=0.001).

Table 2. Self-perceived oral health status (n=359)

Parameter	No.(%)
State of your teeth	
Very good	14(3.9)
Good	110(30.6)
Moderately good	191(53.2)
Poor	38(10.6)
Very poor	6(1.7)
The presence of teeth	
Do you have all of your own teeth?	40(11.1)
Do you have all of your own teeth, some of which have been treated or replaced?	69(19.2)
Are you missing your teeth?	158(44.0)
Are you missing all or most of your teeth?	92(25.6)
If you have not lost all your teeth, do you have any of the following tooth problems?*	
Untreated cavities	96(26.7)
Loose teeth or receding gums	104(29.0)
Frequent dental abscesses	5(1.4)
None of the above	188(52.4)
Do you wear dentures?	
Yes	187(52.1)
No	172(47.9)
Can you bite and chew hard foods, such as a crisp apple (with your dentures if worn)?	
Yes, easily	151(42.1)
Yes, with some difficulty	142(39.6)
Yes, with much difficulty	44(12.3)
No, I can't	22(6.1)

*(Because of several possible responses, the sum of the percentages was>100)

Table 3. Association between sociodemographic background and knowledge and attitude related to oral health

Parameter	Total knowledge score		Total attitude score	
	Median(IQR)	p-value	Median(IQR)	p-value
Age		0.89		0.90
Gender		0.93		0.89
Male	18.00(7)		35.00(29)	
Female	19.00(7)		19.00(29)	
Race		0.16		0.87
Malay	18.0(7)		35.00(7)	
Chinese	18.50(10)		34.00(11)	
Indian	20.00(7)		39.00(13)	
Marital Status		0.50		0.01*
Single	16.00(8)		33.00(6)	
Married	18.00(6)		36.00(12)	
Divorce/Widow/widower	19.00(8)		34.00(5)	
Education Level		0.01*		0.001*
No formal education	15.00(8)		34.00(6)	
Primary education	19.00(6)		33.00(7)	
Secondary education	19.00(7)		35.00(11)	
Tertiary education	17.50(13)		36.50(8)	
Frequency of dental visits		0.02*		0.01*
None	17.00(9)		34.00(8)	
Once a year	19.00(7)		36.00(10)	
Twice a year	20.00(7)		36.00(11)	
More than 3 times a year	17.00(1)		35.00(4)	

*Statistically significant at $p < 0.05$.

Association between Knowledge and Attitude Related to Oral Health

Regarding oral health, there was a weak positive correlation between knowledge and attitude ($r=0.38$, $p=0.00$).

Discussion

The aim of this study was to explore the attitudes and knowledge of older individuals regarding oral health, as well as identify associated factors. The participants demonstrated a moderately good level of knowledge about oral health. Interestingly, this finding differed from previous studies, which reported that older people in community settings generally had poor knowledge about oral health [19, 20].

This variation may be attributed to the fact that a significant percentage (36.5%) of the participants in this study held bachelor's degrees, whereas a previous study had only 15% of participants with such qualifications [19].

Consequently, they may have been more proactive in seeking oral health-related information. Despite their relatively good knowledge, some misconceptions about oral health persisted, with 74.4% of participants believing that tooth loss is a natural consequence of aging. This misunderstanding could be linked to the fact that over half of the participants (52.1%) wore dentures due to edentulism. The misconception that poor oral health is an inherent part of the aging process might discourage older individuals from caring for their teeth [11].

Additionally, the participants in this study exhibited a positive attitude towards oral health. This outcome was consistent with a previous study that found a similarly positive outlook among older individuals in Hong Kong, regardless of various study locations [19].

In the present study, knowledge and attitudes showed a significant correlation with both the frequency of dental visits and the level of education. Individuals with higher levels of education were more inclined to utilize various sources to acquire information about oral diseases and preventive measures, underscoring the pivotal role of education in shaping how older individuals approach oral care and prevention. Despite the extensive and government-subsidized public healthcare system in Malaysia, the majority of older people, regardless of their ethnicity, have not visited a dentist in the past two years [11]. Notably, those who did attend dental check-ups twice a year exhibited superior knowledge and attitudes compared to those who refrained from dental visits for a year. Regular dental visits provided more opportunities for interaction with professionals such as dentists and dental nurses, leading to the acquisition of accurate and reliable information about oral health, consequently fostering a more positive attitude.

Further analysis unveiled that married participants exhibited a more favorable attitude toward oral health in comparison to those who were divorced or widowed. Older individuals who receive support and encouragement from their spouses are more likely to prioritize their oral health and avail themselves of oral health treatments. Spousal involvement can encompass accompanying, reminding, and counseling older adults regarding dental care [24]. Family engagement, particularly the support of a spouse, significantly influences oral health status and the utilization of dental services [21]. This implies that changes in personal relationships, such as divorce or separation, may have adverse effects on oral care. The findings of this study establish a positive correlation between attitudes and knowledge

regarding oral health. This correlation aligns with the KAP theory, which posits that enhanced knowledge about oral health fosters positive attitudes toward it [21]. It can be inferred that older individuals are more motivated and accountable for maintaining or improving their oral health when they possess a deeper understanding of oral health [25]. However, it is imperative to ensure that older people receive information from reliable and accessible sources to mitigate misconceptions related to oral health [11, 22]. This precaution is vital in preventing potential misconceptions that could adversely affect oral health outcomes among older individuals.

The present study employed a cross-sectional study design, and thus there might be no causative relationship between some factors and knowledge and attitude toward oral health among older people. Moreover, the findings could not be generalized to overall older populations as the study was limited to older people in the Kuantan community and assessed a small representative sample of Chinese and Indians. Another limitation was that the participants' oral health status was assessed using the self-reported instrument. To the best of the authors' knowledge, there is limited local data available concerning older people's perceptions of their own oral health. Therefore, this study may contribute to the body of knowledge on community oral health. Since the current investigation was carried out in quarantine during the COVID-19 pandemic, data collection was conducted via an online questionnaire. Research bias might happen as older people might have difficulty using smartphones and social media and they might request others to answer the questionnaire on their behalf. Future studies may consider using different research designs, such as longitudinal research design to observe how older people's attitudes and knowledge regarding oral health change as they age. A case study or qualitative investigation could be useful in gaining a deeper understanding of older adults' attitudes and knowledge regarding oral health. Future studies should target older people in rural and urban areas so that the result can be generalized to older populations in Malaysia. It can be suggested that using all possible media such as pamphlets and websites, more effective coverage in the field of oral and dental health promotion is necessary, especially for the elderly who are divorced or widowed with low education and visiting dental clinics.

Conclusion

Generally, the knowledge of oral health in the studied population is moderately good and the attitude toward oral health is positive. Older people with tertiary education and those who visit dental clinics twice a year have better knowledge and attitudes related to oral health. Those who were married also have a positive attitude related to oral health.

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Ethical Permissions: Ethical approval was attained from the International Islamic University of Malaysia Research Ethics Committee (IREC) (IREC 2021-KON/52). Consent was obtained from the participants and their confidentiality was ensured.

Conflicts of Interests: There are no conflicts of interests.

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