

ORIGINAL ARTICLE

SOCIODEMOGRAPHIC FACTORS, KNOWLEDGE, AND ATTITUDES AS PREDICTORS OF ORAL HEALTH QUALITY OF LIFE: A CROSS-SECTIONAL STUDY OF INDONESIAN MIGRANT WORKERS IN KUALA LUMPUR

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ABSTRACT

Indonesia has a significant population of migrant workers in Malaysia, many of whom face health challenges. Yet, few studies have addressed the oral health-related quality of life (OHRQoL) of this population. This study aims to investigate the relationship between sociodemographic factors, oral health knowledge, attitudes, behaviors, and OHRQoL among Indonesian migrant workers (IMWs) in Kuala Lumpur. A cross-sectional study was conducted from August to September 2024. Involving 164 IMWs Participants were selected using convenience sampling based on criteria such as working in the domestic sector for at least one year, and being 18 years or older. Data were collected through a questionnaire assessing sociodemographics, oral health knowledge, attitudes, behaviors, and OHRQoL using the OHIP-14 (Oral Health Impact Profile-14). The questionnaire was distributed via Google Forms and in paper-based formats. Statistical analysis included Chi-Square tests and logistic regression to examine associations between variables and OHRQoL. Of the respondents, 57.9% reported low OHIP scores. Older age > (> 47 years), lower educational levels, and a greater number of family dependents were associated with poorer OHRQoL (higher OHIP scores). Conversely, respondents with good oral health knowledge had significantly better OHRQoL (higher OHIP scores), while those experiencing oral health problems reported poorer OHRQoL. The majority of IMWs in this study had low OHRQoL. Key factors influencing this were age, educational level, number of family dependents, oral health knowledge and the presence of oral health problems. Improving oral health knowledge and addressing these factors through targeted interventions could significantly enhance the OHRQoL of this population

Keywords: Immigrant Workers, Health-Related Quality of Life, Knowledge, Attitudes, Practice

INTRODUCTION

According to the 2020 World Migration Report, an estimated 204 million people migrate internationally for work. Indonesia, as one of the major contributors in Southeast Asian had 37 million citizens working abroad in 2019. By 2022, an estimated 1.67 million Indonesians were expected to be employed in Malaysia alone. Unfortunately, Indonesian Migrant Workers (IMWs) often face numerous challenges, including labour rights violation, unfair treatment, poor working conditions, and a variety of social and health issues.¹

Health knowledge is essential for participation in health-related activities. Numerous studies have reported that better oral health knowledge is beneficial for preventing dental diseases and improving oral health status.² The knowledge-attitude-behavior model is often used to explain changes in health-related behaviors. According to this theory, good knowledge fosters positive attitudes, which in turn drive healthy behaviors.^{3,4,5} Furthermore, these attitudes and behaviors are critical factors in maintaining good

oral health, as demonstrated in various studies linking oral health knowledge, attitudes, and practices to improved oral health outcomes.⁴

Oral health-related quality of life (OHRQoL) is a measure that assesses how oral health impact a person's overall quality of life. It reflects an individual's subjective perception of their oral condition, as well as its effects on physical, psychological, and social aspects of life. OHRQoL may also help evaluate the relationship between oral health and general health from the individual's perspectives.⁴ Studies have shown that knowledge and behaviour are significant predictors of OHRQoL.⁶ Research further indicates that poor OHRQoL is often linked to unfavourable socioeconomic, sociodemographic, oral health and behaviour factors.^{7,8,9}

Several studies on IMWs have explored topics such as education, wages, legal issues, and healthcare utilization.^{1,10,11} Research on female migrant workers in Malaysia revealed that the majority—two-thirds—of Indonesian migrant women viewed access to reproductive health services in the country positively. However, the remaining one-

third encountered difficulties in obtaining these services, primarily due to limited time, issues related to immigration status, and a lack of awareness about the need for support.¹² However, research specifically on the oral health of IMWs remains limited.

Findings from oral examinations in the 2023 Indonesian Health Survey indicated that the prevalence of dental caries remained notably high, reaching 82.8%.¹³ This highlights the importance of conducting a comprehensive study on the oral health of Indonesian migrant workers, given their exposure to different environments and policy contexts. The outcomes of such research are anticipated to serve as a foundation for preventive strategies aimed at preserving the oral health of this population. This research seeks to evaluate the sociodemographic characteristics, knowledge, attitudes, and oral health behaviors of Indonesian migrant workers in the domestic sector, as well as their association with OHRQoL. The underlying hypothesis posits that these factors have an impact on OHRQoL.

METHODS

Ethical Aspects and Study Design

This cross-sectional study was conducted from August to September 2024. The research sample is drawn from the IMW population in Kuala Lumpur, with participants meeting the following criteria: working in the domestic sector, employed for at least one year, aged 18 or older, and willing to participate in the research. An exclusion criterion was those living outside Klang Valley. The focus on domestic workers because they represent a significant proportion of the total migrant workforce and are supported by an established organization. Based on a 2017 World Bank report, which are identified this group as the largest segment of Indonesian migrant workers in Malaysia, accounting for 32% of the total.¹²

The sample size was calculated using G power 3.1.9.4, with a t-test power of 95%, and an assumed effect size of 0.3 (considering the mean difference between low and high quality-of-life scores as significant), resulting in 134 required participants. To account for a 20% attrition rate due to incomplete or unusable questionnaire forms and to avoid attrition bias, a target of 160 participants was set.

Measurements

Data were collected through convenience sampling. Sample recruitment process through Indonesian domestic workers organizations in Malaysia. Organization administrators helped distribute the questionnaire on their social media groups and provided questionnaires during their regular member meetings. This action will reduce sampling bias and self-selection bias. This study received ethical approval from the Health

Research Ethics Commission of the Faculty of Medicine, Universitas Brawijaya (with number No. 189/EC/KEPK/06/2024).

Participants completed a questionnaire that informed consent, sociodemographic questions, and the OHIP-14, along with questions on oral health knowledge, attitudes, and behaviours. Instrument OHIP-14 was used to assess participant's oral health-related quality of life. The questionnaire was distributed via Google Forms on social media and in paper-based forms. On Google forms, the email feature was activated to ensure that respondents could only submit the questionnaire once. For the paper-based format, reviewed each submission to ensure all questions were completed before proceeding to data analysis.

In this study, OHRQoL was measured using OHIP-14, a widely used quality of life instrument that has been adapted for use in the Indonesian language.⁹ OHIP-14 and knowledge, attitude, and behavior items have been validated in previous studies, namely cross-adaptation of the questionnaire into Indonesian in adults. The results showed good reliability and validity in Indonesian.^{15,16} Socio-demographic data collected included gender, age, education level, monthly income, working period, marital status, number of dependents, and dental health insurance status.^{7,8,9}

Oral health knowledge was assessed using four Likert scale questions (4=strongly agree, 3=partly agree, 2=partly disagree, and 1=strongly disagree) covering the importance of toothbrushing, using fluoride toothpaste and xylitol products, and limiting sweet foods. The total score to these four questions ranged from 4 to 16 with higher scores indicating greater knowledge. Attitudes were measured using 12 Likert-scale questions about the importance of toothbrushing behaviour in supporting daily activities (4=strongly agree, 3=partly agree, 2=partly disagree, and 1=strongly disagree). The scores range from 12 to 48, where higher scores indicate more positive attitudes. Oral health behaviours were assessed by asking about the frequency and duration of toothbrushing, and whether respondents currently had any oral health problems. Likert scale for knowledge and attitude questionnaire has been used in previous studies. In this study, a modification was made, namely the highest score was used for positive answers.¹⁷ The OHIP-14 questionnaire consisted of 14 questions covering aspects such as articulation difficulties, chewing problems, emotional stress, and self-confidence, with response options ranging from 1 (very often) to 5 (never). Total scores ranged from 14 to 70, with higher scores reflecting better quality of life.

Statistical Analysis

Data were analyzed using SPSS version 28.0 (IBM, Armonk, New York). Certain variables, including

age, knowledge, and attitude, are categorized using cut-off points derived from their median values18 namely age (≤ 47 low, > 47 high) knowledge score (≤ 14 low, > 14 high), attitude score (≤ 47 low, > 47 high) and OHIP-14 score (≤ 62 low, > 62 high). In data analysis, OHIP-P 14 is the dependent variable, and socio-demographic, knowledge, attitudes and behaviours are the independent variable. The Chi-Square test is an appropriate statistical method for analyzing variables measured on a categorical scale. In this context, it is employed to assess whether there are significant differences between the independent and dependent variables, both of which are categorical. Logistic regression with the "Enter" method was applied to determine which variables contributed significantly to the OHIP-14 level. Other variables, with a p-value > 0.25 in the Chi-Square were included in the regression model.

RESULTS

A total of 164 IMWs participated in this study. The majority were women (89%) and none had dental health insurance. Table 1 shows sociodemographic characteristics, oral health knowledge and behaviour data in relation to OHIP-14 scores. Most respondents had low OHIP-14 (57.9%). The largest number of respondents were under 47 years old (56.7%) and respondents with age > 47 years 59.2% had low OHIP-14. Participants with senior high school education were the most represented, while all respondents with higher education reported high OHIP-14 scores. More than half of the respondents had three or more family members, and most of these individuals had low OHIP scores. Additionally, 68.8% of married respondents reported low OHIP-14 scores In terms of oral health knowledge, most respondents had low knowledge, but 54.3% of those with good oral health knowledge had high OHIP-14 scores. Among those who reported experiencing oral disorders, 67.9% had low OHIP-14 scores.

Table 1. Sociodemographic characteristics, oral health knowledge and behaviour in relation to OHIP-14 scores

Variable		Total n (percentage)	OHIP-14 scores		p-value
			Low	High	
			n (percentage)		
Age (years)	≤ 47	93 (56.7%)	44 (47.3%)	49 (52.7%)	0.002*
	> 47	71 (43.3%)	51 (71.8%)	20 (28.2%)	
Sex	Male	17 (10.4)	8 (47.1%)	9 (52.9%)	0.338
	Female	147 (89.6)	87 (59.2%)	60 (40.8%)	
Education level	Elementary	50 (30.5%)	30 (60%)	20 (40%)	< 0.001*
	Junior high school	46 (28%)	28 (60.9%)	18 (39.1%)	
	Senior high school	55 (33.5%)	37 (67.3%)	18 (32.7%)	
	Collage	13 (7.9%)	0	13 (100%)	
Monthly income	RM 1000 - 2000	135 (82.3%)	82 (60.7%)	53 (39.3%)	0.115
	RM > 2000	29 (17.7%)	13 (44.8%)	16 (55.2%)	
Family member	Non	10 (6.1%)	2 (20%)	8 (80%)	0.004*
	1	12 (7.3%)	4 (33.3%)	8 (66.7%)	
	2	43 (26.2%)	22 (51.2%)	21 (48.8%)	
	3	51 (31.1%)	38 (74.5%)	13 (25.5%)	
	> 3	48 (29.3%)	29 (60.4%)	19 (39.6%)	
Marital status	Single	20 (12.2%)	10 (50%)	10 (50%)	0.029*
	Married	77 (47%)	53 (68.8%)	24 (31.2%)	
	Divorce	67 (40.9%)	32 (47.8%)	35 ((52.2%)	
Working period	≤ 13 years	84 (51.2%)	46 (54.8%)	38 (45.2%)	0.400
	>13 years	80 (48.8%)	49 (61.3%)	31 (38.8%)	
Oral health knowledge	Low	94 (57.3%)	63 (67%)	31 (33%)	0.006*
	High	70 (42.7%)	32 (45.7%)	38 (54.3%)	
Oral health attitude	Low	61 (37.2%)	40 (65.6%)	21 (34.4%)	0.127
	High	103 (62.8%)	55 (53.4%)	48 (46.6%)	
Moment of brushing	Morning/noon/night	16 (9.8%)	13 (81.3%)	3 (18.8%)	0.081
	Morning and noon	24 (14.6%)	11 (45.8%)	13 (54.2%)	
	Morning and night	124 (75.6%)	71 (57.3%)	53 (42.7%)	
Duration of brushing	< 1 minute	14 (8.5%)	6 (42.9%)	8 (57.1%)	0.599
	1 minute	50 (30.5)	28 (56%)	22 (44%)	
	2 - 3 minutes	61 (37.2%)	38 (62.3%)	23 (37.7%)	
	> 3 minutes	39 (23.8%)	23 (59%)	16 (41%)	
Oral health problem	Yes	81 (49.4%)	58 (71.6%)	23 (28.4%)	<0.001*
	No	83 (50.6%)	37 (44.6%)	46 (55.4%)	
Dental health insurance	Yes	0	-	-	-
	No	164	95 (57.9%)	69 (42.1)	
TOTAL		164	95 (57.9%)	69 (42.1)	

*Chi-square test, significant $p \leq 0.05$

Table 2 presents the results of the logistic regression of sociodemographic, knowledge, attitude and behaviour variables on OHIP-14 scores. The variables that significantly impacted OHIP-14 scores were age, oral health knowledge and the presence of oral health problems. IMWs with one family member 36.6 times more likely to have high OHIP-14 scores (AOR=0.36.675; 95%CI, 2.709-496.498). Those who were single had a 12.3% chance of having a high OHIP score (AOR=0.123; 95CI, 0.019-0.804). IMWs with high

oral health knowledge high were 7.8 times more likely to have high OHIP-14 scores (AOR=7.826; 95%CI, 2.430-25.203). Additionally, IMWs without oral health problems were 3.3 times more likely to have high OHIP scores (AOR=3.387; 95%CI, 1.293-8.875). The Hosmer and Lemeshow test produced a p-value greater than 0.05 ($p=0.075$), indicating a good model fit. The Nagelkerke R Square value of 0.515 suggests that 51.1% of the variation in OHIP-14 scores can be explained by the variables included in the model.

Table 2. Logistic regression of sociodemographic characteristics, oral health knowledge, attitude and behaviour in relation to OHIP-14 scores

Variable		p-value	OR	95% CI	
				Lower	Upper
Age (years)	≤ 47	0.736	1.215	0.392	3.772
	> 47	Reference	-	-	-
Education	Elementary	Reference	-	-	-
	Junior high school	0.238	2.261	0.583	8.770
	Senior high school	0.474	0.596	0.144	2.459
	Collage	0.996	0	0	.
Monthly income	RM 1000 - 2000	Reference	-	-	-
	RM > 2000	0.994	1.006	0.232	4.355
Family member	Non	0.507	2.263	0.203	25.252
	1	0.007*	36.675	2.709	496.498
	2	0.670	1.328	0.360	4.894
	3	0.630	1.431	0.333	6.154
	> 3	Reference	-	-	-
Marital status	Single	0.029*	0.123	0.019	0.804
	Married	0.176	0.286	0.046	1.756
	Divorce	Reference	-	-	-
Oral health knowledge	Low	Reference	-	-	-
	High	<0.001*	7.826	2.430	25.203
Oral health attitude	Low	Reference	-	-	-
	High	0.801	1.132	0.433	2.958
Moment of brushing	Morning/noon/night	Reference	-	-	-
	Morning and noon	0.997	0	0	-
	Morning and night	0.997	0	0	-
Duration of brushing	< 1 minute	Reference	-	-	-
	1 minute	0.104	0.206	0.031	1.382
	2 - 3 minutes	0.325	0.467	0.102	2.127
	> 3 minutes	0.340	0.421	0.071	2.487
Oral health problem	Yes	Reference	-	-	-
	No	0.013*	3.387	1.293	8.875

*Logistic regression, significant $p \leq 0.05$

DISCUSSION

This study aims to capture the oral health-related quality of life of IMWs in Malaysia's domestic sector, using instrument OHIP-14, while also identifying variables contributing to it. Indonesian migrant workers comprise the largest group in the domestic sector, accounting for 32%¹⁴ of the total workers. Despite various challenges faced by

these IMWs, there is a dearth of information on their oral health. The 2023 Indonesian Health Survey revealed concerning statistics on oral health status: more than three quarters of the population reported caries, 56.9% experienced oral health issues, and as high as 91.2% indicated that their quality of life was adversely affected by oral problems.¹³ Given that IMWs in Malaysia not included in this survey, it is crucial to conduct a

dedicated study to address their oral health needs, ensuring that they receive the same attention and rights as all Indonesian citizens.

This study found that IMWs in Malaysia have a low oral health-related quality of life (OHRQoL), with several significant predictors identified, including age, marital status, number of family members, and oral health knowledge. A sizeable proportion (42.1%) reported low OHIP-14 scores, indicating a lower perceived quality of life related to oral health. These findings emphasise the urgent need for targeted interventions to improve the oral health of this vulnerable population.

The shift towards a biopsychosocial model of health has increased the recognition of OHRQoL as an integral aspect of overall health-related quality of life.^{19,20} The results of OHRQoL measurements can reflect the impact of abnormalities in the oral on quality of life.²¹ Oral diseases impose significant health and economic burdens and are associated with a considerable decline in quality of life.²² Oral conditions such as caries, periodontal disease, oral cancer or growth disorders such as tooth anomalies, malocclusion and many more can severely impact an individual's well-being.²³

Oral health-related quality of life is influenced not only by oral health conditions but also by various factors including sociodemographics, knowledge, attitudes, oral health behaviors, and self-efficacy.²⁴ Although the literature presents mixed conclusions regarding these relationships²¹, our current study found that those aged > 47 years have a lower quality of life. People in the older adult phase are more susceptible to various complications of the disease, especially chronic diseases.²⁵ Oral disorders are one of the most common complaints in this population group.²⁶ The majority of findings in Canada and the United States show a low quality of life related to dental and oral hygiene in the elderly.²⁵ The current study also found that of those who experience oral disorders, 71.6% of them have low OHRQoL suggesting that older IMWs with oral problems may be significantly 3.3 times affected in terms of quality of life. With other words respondents who do not have oral health problems are a protective factor for a good quality of life. Current regulations from the Indonesian Embassy in Malaysia set a maximum age limit of 45 years for IMWs, yet there is no defined "retirement" age.²⁷ Establishing such a limit is essential, as it relates to the physical and health conditions of aging workers and the need for protective measures from the state.

The study highlighted a concerning lack of oral health knowledge among respondents, which was found to be a significant predictor of OHIP-14 scores (AOR=7.826). This finding is in line with several studies that proper oral health knowledge accompanied by appropriate oral health

behaviour can have an impact on improving OHRQoL.²⁶ Notably, while oral health knowledge was strongly correlated with OHRQoL, oral health behaviors did not demonstrate a significant impact in our analysis, diverging from other studies that established a clearer link between behaviors and quality of life.

Improving health knowledge among IMWs can be achieved through various initiatives, including pre-departure education and collaboration between IMW organizations and dental faculties in Indonesia. Such partnerships can facilitate community service programs, supporting the Ministry of Education and Culture's efforts to promote education outside traditional settings.²⁸ This initiative could be coordinated by the Education Attachés at the Indonesian Embassy in various countries hosting IMWs.

Regarding family conditions, we found that respondents who were married had lower OHRQoL than single or divorced. Single status was found to be a factor that influenced the high OHRQoL of respondents. Also, those who had small dependent family members had 36 times high of OHRQoL. So far, studies on the effect of family size on OHRQoL have not been widely found.²⁹ Studies on families that were found were related to good family function and strong family relationships as important predictors of children's well-being and quality of life.³⁰ Regarding the results of our study, we argue that the relationship between the number of dependents in the family and OHRQoL is the economic burden experienced by the respondents. Although the results of the regression analysis did not show a significant effect between monthly income and OHIP-14. The economic strain of supporting larger families may limit access to dental care, impacting oral health status and overall quality of life. This insight is particularly relevant given that many IMWs work abroad to provide financial support to their families.¹⁴

Referring to the website <https://www.numbeo.com/cost-of-living/in/Kuala-Lumpur> the cost of living in Kuala Lumpur for a single person reaches RM 2000 (Ringgit Malaysia).³¹ While most respondents earn a monthly income between RM1000-2000. So if the number of families supported is large, it will be an economic burden. Information from <http://www.myhealth.gov.my/en/dental-charges/> the minimum cost for dental services is RM20.³² Regarding the financing of dental health services, the author suggests the involvement of the Indonesian Social Security Administering Body - Health (BPJS) to provide health insurance to migrant workers which includes dental services, as is currently the case in Indonesia. All respondents stated that they did not have dental health insurance.³³ Dental health insurance can certainly ease the economic burden of IMWs if they need dental treatment. This insurance also

encourages BPJS to make promotive and preventive programs.

This study has several limitations that should be acknowledged. The lack of intraoral examinations means that the assessment of oral health status relied solely on self-reported data, which may introduce bias as participants might underreport or overreport their oral health issues. Furthermore, the convenience sampling method used limits the generalizability of the findings to the broader population of Indonesian migrant workers in Malaysia. Future research should seek to include more diverse samples and incorporate clinical assessments for a more accurate representation of oral health status. Additionally, exploring the oral health experiences of migrant workers in various employment sectors could shed light on sector-specific challenges and inform tailored interventions.

CONCLUSIONS

Numerous Indonesian migrant workers in Malaysia face a diminished quality of life in relation to oral health, with key contributing factors including age, level of education, marital status, number of family dependents, oral health knowledge and their oral health problem. These insights can inform future research and policy initiatives aimed at improving the oral health and quality of life of IMWs.

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