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ORIGINAL ARTICLE

Sociodemographic Determinants of Good Hygience Practices Among the Indigenous Primary Caregivers of Under Three Children in Malaysia

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ABSTRACT

Introduction: Poor hygiene practice is an important factor that lead to morbidity and mortality among young children which are common among the indigenous population due to the lack of access to health services and their unique beliefs and practices. This study aimed to identify the socio-demographic determinants of hygiene practices among the indigenous (known as *Orang Asli* in Malaysia) primary caregivers of children under the age of three in Malaysia. **Methods:** A cross-sectional study was conducted among 166 primary caregivers of *Orang Asli* children of below three years old in Kuala Langat District. Data was collected using a validated and pre-tested questionnaire via face-to-face interviews with individual respondents. The questionnaire consisted of two main sections: sociodemographics and hygiene practice. **Results:** A majority of the *Orang Asli* primary caregivers had good hygiene practices (78.9%). The number of children under five years old living at home was significantly associated with hygiene practice and it was the only significant determinant or predictor of good hygiene practice among the *Orang Asli* primary caregivers. **Conclusion:** The number of children under five years old living at home is an important factor to ensure good hygiene practices among the primary caregivers of *Orang Asli* children. This factor need to be taken into consideration in monitoring children health status by the health staff by emphasizing the importance of hygiene practice in the prevention of infectious diseases and malnutrition among *Orang Asli* children.

Keywords: Child, Hygiene practices, Caregivers, Indigenous people, Child care

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INTRODUCTION

Childhood mortality and morbidity is a global public health issue. Most mortality in children under the age of five is due to conditions that are preventable and can be treated with access to simple or affordable intervention. It was estimated that almost 5.4 million of children under the age of five died of preventable or treatable causes (1). In general, children's health problems are closely related to exposure to biologically contaminated water, poor sanitation, indoor smoke, rampant disease vectors, chemical hazards, as well as injuries and accident which are ranked to be among the highest environmental burden of diseases worldwide (2). Poor personal and environmental hygiene may result in poor nutrition and frequent bouts of illness among young children.

Hygiene is generally defined as the conditions and practices that help to maintain health and prevent the spread of diseases (3). Hygiene practice is one of the five components listed under childcare practice by the primary caregiver which is essential to determine the nutritional status of the children (4). A primary caregiver refers to an adult who assumes the most responsibility in caring for the health and well-being of a child (5). According to Engle, hygiene practice by the primary caregivers include hand washing, bathing and cleaning a child, cleaning the house and children's play area, adequate disposal of child's waste, use of sanitary facilities, and making water safe as well as choosing safe water (7). Poor hygiene practice among the primary caregivers may affect the children's health outcomes which is significantly associated with the risk of malnutrition and frequent bouts of illness among young children due to higher risk of infectious diseases that may consequently create a vicious cycle (7-12)

Childhood malnutrition persists as a major health problem among indigenous groups in most affected countries such as Brazil and Australia (13-14). Furthermore, the indigenous people have higher mortality and hospital admission rate as compared with the non-indigenous counterpart (15-16). They experience higher burden of infectious diseases and malnutrition and their symptoms are more likely to be severe or more frequently fatal

(17). Several studies reported that poor living conditions and poor hygiene underlie much of the high burden of infections experienced by the indigenous children (17-18).

In Malaysia, the indigenous people are known as '*Orang Asli*' meaning 'original people' in Malay. Similar to other indigenous group, the indigenous children in Malaysia are more likely to be affected with malnutrition problem as compared to the general population (19). Several studies revealed that poor hygiene practice and unhygienic living condition are the key factors contributing towards risk of infection such as soil transmitted helminth (STH) infection and parasitic infection among the indigenous children (9,20-22)

Various factors have been linked towards the practice of hygiene especially among the primary caregivers of children. Studies have shown that sociodemographic factors such as maternal/caregiver's age, level of education, and household monthly income play an important role in determining hygiene practice (23-26). However, little information was available in exploring the hygiene practice and its association among the primary caregivers of indigenous children in Malaysia. Hence, this study aimed to explore the sociodemographic determinants of hygiene practices among the primary caregivers of indigenous children in Malaysia.

MATERIALS AND METHODS

A cross-sectional study was conducted among the primary caregivers of *Orang Asli* children of under three years old in Kuala Langat District, Selangor. Kuala Langat District was chosen as the study location as it has the highest number of *Orang Asli* population in Selangor, estimated at about 5,153 people (19). Of this number, it is estimated that 436 children are less than five years old. The study was held at health clinics under the Kuala Langat District Health Office which has ten health clinics. However, only five clinics are mainly attended by *Orang Asli* population: *Klinik Kesihatan Tanjung Sepat, Klinik Kesihatan Telok Panglima Garang, Klinik Kesihatan Telok Datok, Klinik Kesihatan Changgang*, and *Klinik Kesihatan Jenjarom*.

To be eligible for the study, the primary caregivers must satisfy these criteria: i) age is above 18 years, ii) able to understand the Malay Language, and iii) has at least one *Orang Asli* children aged between six months to three years. Children of such age is chosen because they are considered to be fully dependent on their caregivers in providing them food, sanitation cleanliness, and hygiene maintenance (9). The sampling was conducted based on the list of *Orang Asli* children aged between six months to three years attending health clinics in Kuala Langat District and an additional list given by each *Orang Asli* village head (if the names of the *Orang Asli* children were not in the health clinic list). Universal sampling was employed to include all eligible respondents in the villages under the care of the five health clinics.

Sample size estimation was conducted using two sample population proportions and inflated by the design effect to achieve the same precision and power, which yield 184 participants as the required sample size (27-28). Out of the 184 participants, 166 respondents consented to participate in the study. The data was collected using a validated and pre-tested questionnaire developed by the researcher. The questionnaire was pre-tested among 50 *Orang Asli* respondents from different population of a different location and tested for reliability analysis for hygiene practice items with the Cronbach Alpha 0.95 value. Data was collected through face-to-face interviews between the individual respondent, the researcher, and the trained enumerators. Data was collected during mobile clinics services provided every Friday at each *Orang Asli* village or during home visits if the participants were unable to attend clinic the appointment or be assisted by at least one *Orang Asli* representative from each village. Respondents were required to provide information on their sociodemographic characteristics such as age, sex, level of education, marital status, type of tribes, household monthly salary, household size, number of child aged below five at home, child's age, and child's sex in the questionnaire. Meanwhile, for hygiene practice section, questions were mainly focused on their daily hygiene practices which include proper storage and use of clean water supply, sanitation, and waste disposal behaviour (personal, food, and environmental). There were 10 questions in this section with answers using the Likert Scale of 5 (almost always), 4 (often), 3 (sometimes), 2 (seldom) and 1 (never). For each positive statement, respondents were given maximum 5 mark and minimum 1 mark based on the Likert scale. Maximum score was 50 marks and minimum score was 10 marks. Hygiene practice was categorised according to the mean value of the hygiene score (Mean=43.05 ± 4.41, ≈ 40). Thus, hygiene practice was categorised as good hygiene practice (≥ 40) and poor hygiene practice (< 40).

Data entry and statistical analysis was performed using IBM Statistical Package for Social Science (SPSS) version 23.0. Descriptive statistics were used for continuous variable in the form of mean and standard deviation. Categorical data were reported in frequencies and percentage. Pearson's chi-squared test was used for bivariate analysis to compare the association between sociodemographic characteristics and hygiene practice of the respondents. Multiple logistic regression (MLR) was used for inferential analysis to determine the predictors for good hygiene practice. All variables were analysed using the forward method to determine the most number of variables significantly associated with the dependent variable and good Nagelkerke, R value.

The statistical significance level was set at $p < 0.05$.

RESULTS

Background characteristics of the respondents

All respondents were female and mothers to a child and as the primary caregivers, they were of the age 28.06 (± 6.90) years. The majority of the respondents were married, were from the Temuan tribe, had primary level as the highest level of education, had household monthly salary of above RM800, had household size of above six, had at least one child aged under five years living at home, a child aged 24-36 months, and male children (Table I).

Association between the sociodemographic factors and hygiene practice

The variable, the number of children aged under five years living at home, is the only factor that is significantly associated with hygiene practice (Table II). Among the caregivers having three or more children under the age of five years, a majority (60%) had poor hygiene practice compared to good hygiene practice (40%).

Table I: Characteristics of respondents (N=166)

Characteristics	n	%
Age of primary caregiver (year)	Mean (SD): 28.06 ± 6.90)	
<20	15	9.0
≥20	151	91.0
Sex of primary caregiver		
Female	166	100
Male	0	0
Marital status		
Married	152	91.6
Unmarried	14	8.4
Type of tribes		
Temuan	96	57.8
Mahmeri	71	42.2
Level of education		
None	10	6.0
Primary	78	47.0
Secondary	75	45.2
STPM/Certificate/Diploma	3	1.8
Household monthly salary (RM)[a]		
<880	82	49.4
≥880	84	50.6
Household size		
2-3	15	9.0
4-5	65	39.2
≥6	86	51.8
Number of child under 5 living at home		
1	116	69.9
2	40	24.1
≥3	10	6.0
Child's age (months)		
6-11	24	14.5
12-17	39	23.5
18-23	36	21.7
24-36	67	40.4
Child's sex		
Female	79	47.6
Male	87	52.4
Hygiene practice (mean 43.05 ± 4.41)		
Poor (< 40)	35	21.1
Good (≥ 40)	131	78.9

[a] Based on poverty level set by Economic Planning Unit, Prime Minister's Department

Table II: Relationship between sociodemographic factors and hygiene practice among primary caregivers (N=166)

Variable	Hygiene practice		X^2	df	p
	Good n (%)	Poor n (%)			
Age of primary caregiver (year)					
<20	4(17.4)	19(82.6)	0.219	1	0.439
≥20	112(78.3)	31(21.7)			
Marital status					
Married	117(77.0)	35(23.0)	4.085	1	0.078
Unmarried	14(100.0)	0(0.0)			
Type of tribes					
Temuan	76(79.2)	20(20.8)	0.009	1	0.926
Mahmeri	55(78.6)	15(21.4)			
Level of education					
None	10(100.0)	0(0.0)	3.917	3	0.266
Primary	63(80.8)	15(19.2)			
Secondary	56(74.7)	19(25.3)			
STPM/Sijil/Diploma	2(66.7)	33.3(1)			
Household monthly salary (RM)					
<800	68(82.9)	14(17.1)	1.567	1	0.144
≥800	63(75.0)	21(25.0)			
Household size					
2-3	11(73.3)	4(26.7)	0.379	2	0.849
4-5	51(78.5)	14(21.5)			
≥6	69(80.2)	17(19.8)			
Number of child under 5 living at home					
1	94(81.0)	22(19.0)	9.724	2	0.008*
2	33(82.5)	7(17.5)			
≥3	4(40.0)	6(60.0)			
Child's age (months)					
6-11	19(79.2)	5(20.8)	0.604	3	0.897
12-17	32(82.1)	7(17.9)			
18-23	29(80.6)	7(19.4)			
24-36	51(76.1)	16(23.9)			
Child's sex					
Male	72(82.8)	15(17.2)	1.623	1	0.254
Female	59(25.3)	20(25.3)			

*Significance at p<0.05

Determinants of hygiene practice

From multiple logistic regression (MLR) analysis using the forward method, only one significant predictor was found as the determinant towards hygiene practice: the primary caregivers having more than 3 children under the age of five at home (Table III). Based on the Adjusted Odds Ratio (AOR) value, primary caregivers having more than three children at home is 0.2 less likely to have good hygiene practice than those with only one child under the age of five at home.

Table III Predictive model for hygiene practice (N=166)

Variable	β	SE	Wald	AOR	95%CI		p
					Upper	Lower	
Number of child under 5 living at home							
1				1			
2	0.098	0.479	0.042	1.103	0.432	2.820	0.837
≥3	-2.026	0.688	7.300	0.156	0.041	0.600	0.007*
Constant	1.452	0.237	37.600	4.273			0.001*

*Significance at p<0.05

DISCUSSION

A majority of the participants were aged more than 20 years old, married, and all were the children's own mothers. They were mostly housewives and spent most of their time with their children at home. Most of the participants had an average household monthly income in rural area of less than RM880 which is below the poverty level as set by the Economic Planning Unit (EPU) of The Prime Minister's Department, Malaysia (29). This is in line with the Malaysia Millenium Development Goals (MDG) Report which revealed that fifty percent of the *Orang Asli* households in existence live below the poverty line, a percentage that is higher than the national poverty level of 0.4% (30). Their lack of income might be due to the community's participation in small scale agriculture, forestry, and fishing industry which accounts for about 25% of of their population while more than 20% are employed as service workers and 15 % are self-employed (31).

The low economic status among the *Orang Asli* population can be partly explained by their lack of human capital. This study revealed that the majority of the participants have only primary level education. It was reported that less than half of the students who completed their education from preschool until year six managed to complete their secondary education (32). This problems have led to the increase in the number of the indigenous students to drop out of school, causing them to live in poverty.

The finding of this study revealed high proportion of good hygiene practices among the *Orang Asli* primary caregivers of children under the age of five. Almost all participants had their hands washed with soap after using the toilet and cleaning their children, before and after feeding their child, after using the toilet for defecation, and after properly disposing of their child's diaper. Similar finding was reported by Chaudari et al. who revealed that the majority of mothers with children under five years of age had good hygiene practice whereby they washed their hands with soap after defecating and handling their child's stool (33). However, an opposite finding was reported among the caregivers in Tonle Sap Lake, Cambodia regarding their hygiene practice in preventing diarrhoea among children under the age of five, whereby almost 95% of the participants had poor hygiene practice (34). This current finding of the study contradicted with the finding in a study conducted among *Orang Asli* population in Sepang and Kuala Langat district; based on an observational checklist, it was found that a majority of the participants had poor domestic hygiene and none had soap in the toilet (9).

The number of small children (under age five) had been found to be significantly associated with hygiene practice and is the only significant determinant or predictor of good hygiene practice among the *Orang Asli* primary caregivers participating in this study. Similar findings have been reported in several other studies. A study on good hygiene practice specifically on safe child faeces disposal practices in Ethiopia found that households with higher number of children under 5 years of age have lower odds of safe child faeces disposal (23). The significant role played by the number of young children was also reported in another study on child care hygiene practices among women migrating from rural to urban areas of Bangladesh which reported that having fewer children of under five years old will reduce the burden and time spent for child care on the mothers or caregivers and therefore will have more time to practice better or good hygiene behaviour (35). However, correct knowledge on child care is also crucial in order to practice effective hygiene practice among the mothers or caregivers of small children.

High hygiene score reported among the majority of primary caregivers can probably be due to the use of a guided self-administered questionnaire which can be referred to as self-claimed. This means that the researcher are relying on the participant's honesty. Although the questionnaire has been validated, the participants can still be dishonest with the answer or they may also answer it according to the social desire. In this context, the participants could be over-reporting good behaviour as they want to adhere to socially acceptable responses so that they are viewed in a favourable light. In this study, the researcher found that hygiene practice including personal, domestic, and environmental hygiene were not properly performed as claimed by the participants during visits at their houses. An opposite finding was reported in a study conducted among the *Orang Asli* in Sepang and Kuala Langat district; using an observational checklist, it was found that a majority of the participants had poor domestic hygiene and none had soap in the toilet (Shashikala et al., 2005). Therefore, a combination of self-report and observational checklist on hygiene need to be considered in determining the actual hygiene practice among participants to compare between self-claimed and real situation on the desired outcome.

CONCLUSION

Despite experiencing several disadvantages on being the indigenous people, the majority of the *Orang Asli* primary

caregivers have good hygiene practices. Considering the persistent problem of higher malnutrition and infectious diseases among the indigenous children as compared to non-indigenous children, the importance of good hygiene practice need to be emphasized, especially among the mothers or primary caregivers who have more than one children aged below five under their care. Further exploration on other factors that contribute towards hygiene practice among the primary caregivers of *Orang Asli* children using bigger sample size inclusive of various tribes are warranted for future research. Improvement of good hygiene practice among primary caregivers of *Orang Asli* children is essential to uplift the health status of *Orang Asli* children by reducing their morbidity and mortality.

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REFERENCES

1. World Health Organization. Newborns: Reducing mortality. 2019. [cited 2019 July 27]. Available from: https://www.who.int/en/news-room/fact-sheets/detail/newborns-reducing-mortality.
2. World Health Organization Africa. Healthy environments for Children. Initiating an Alliance for Action.2002 [cited 2018 May 23]. Available from https://apps.who.int/iris/bitstream/handle/10665/67382/WHO_SDE_PHE_02.06.pdf.
3. World Health Organization. Regional office of Africa.Hygiene.Overview.2017 [cited 2017 June 9]. Available from https://www.afro.who.int/health-topics/hygiene.
4. Engle P, Lhotskб L. Assessment, Analysis, and Action to Improve Care For Nutrition. New York: UNICEF. 1997.
5. United States Legal. Legal definition. Primary caretaker law and legal definition;2019.
6. Engle, P. The role of caring practices and resources for care in child survival, growth, and development: South and Southeast Asia;1999.
7. Muoki MA, Tumuti DS, Rombo D. Nutrition and public hygiene among children under five years of age in Mukuru slums of Makadara Division, Nairobi. East African medical journal. 2008;85(8):386-97.
8. Mannan SR, Rahman MA. Exploring the link between food-hygiene practices and diarrhoea among the children of garments worker mothers in Dhaka. Anwer Khan Modern Medical College Journal. 2010;1(2):4-11.
9. Shashikala S, Kandiah M, Zalilah MS, Khor GL. Nutritional status of 1-3-year-old children and maternal care behaviours in the Orang Asli of Malaysia. South African Journal of Clinical Nutrition. 2005;18(2):173-80.
10. Takanashi K, Chonan Y, Quyen DT, Khan NC, Poudel KC, Jimba M. Survey of food-hygiene practices at home and childhood diarrhoea in Hanoi, Viet Nam. Journal of health, population, and nutrition. 2009;27(5):602.
11. Rah JH, Cronin AA, Badgaiyan B, Aguayo VM, Coates S, Ahmed S. Household sanitation and personal hygiene practices are associated with child stunting in rural India: a cross-sectional analysis of surveys. BMJ open. 2015;5(2):e005180.
12. Dalila MN, Azmawati N, Rozita H, Rusuli MC, Hafizah MN, Nurhaiza N. Woman hygiene practice in Malaysia: a quantitative study. International Business Management. 2017;100(3):624-7.
13. Diaz A, Arana A, Vargas-Machuca R, Antiporta D. Health and nutrition of indigenous and nonindigenous children in the Peruvian Amazon/Situacion de salud y nutricion de ninos indigenas y ninos no indigenas de la Amazonia peruana. Revista Panamericana de Salud Pъblica. 2015 Jul;38(1):49-57.
14. Rivera JA, Monterrubio EA, Gonzбlez-Cossнo T, Garcнa-Feregrino R, Garcнa-Guerra A, Serъlveda-Amor J. Nutritional status of indigenous children younger than five years of age in Mexico: results of a national probabilistic survey. salud pъblica de mйxico. 2003;45:466-76.
15. Australian Institute of Healthcare and Welfare Australia's Health 2018 (Cat. No. AUS 221; Australia's Health Series No. 16). Chapter 6.-3 Indigenous child mortality and expectancy; 2018.
16. Cardoso, A. M., Coimbra Jr, C. E., & Werneck, G. L. Risk factors for hospital admission due to acute lower respiratory tract infection in Guarani indigenous children in southern Brazil: a population-based case-control study. Tropical Medicine & International Health.2013;18(5); 596-607.
17. Gracey M, King M. Indigenous health part 1: determinants and disease patterns. The Lancet. 2009;374(9683):65-75.
18. McDonald, E., & Bailie, R.Hygiene improvement: essential to improving child health in remote Aboriginal communities. Journal of Paediatrics and Child Health.2010;46(9), 491-496.
19. Department of *Orang Asli* Development.Taburan Penduduk Orang Asli di Daerah Selangor;2010.
20. Al-Delaimy AK, Al-Mekhlafi HM, Nasr NA, Sady H, Atroosh WM, Nashiry M, Anuar TS, Moktar N, Lim YA, Mahmud R. Epidemiology of intestinal polyparasitism among Orang Asli school children in rural Malaysia. PLoS neglected tropical diseases. 2014;8(8), e3074.
21. Nasr NA, Al-Mekhlafi HM, Ahmed A, Roslan MA, Bulgiba A. Towards an effective control programme of soil-transmitted helminth infections among Orang Asli in rural Malaysia. Part 2:

Knowledge, attitude, and practices. Parasites & vectors. 2013;;6(1):28.
22. Nisha M., Kumarasamy V., Amby S., Davamani F. & Mak J.W .Factor associated with intestinal parasite infections in a resettles indigenous community in Malaysia. International journal of tropical disease. 2016;12(3): 1-7.
23. Azage M, Haile D. Factors associated with safe child feces disposal practices in Ethiopia: evidence from demographic and health survey. Archives of Public Health. 2015 Dec;73(1):40.
24. Dodicho T. Knowledge and Practice of Mothers/ Caregivers on Home Management of Diarrhea in Under Five Children in Mareka District, Southern Ethiopia. Journal of Health, Medicine and Nursing. 2016: 27:71-81
25. Pai MS. A descriptive study to assess the knowledge and practice regarding water, sanitation and hygiene among women in selected villages of udupi district. Nitte University Journal of Health Science. 2016;6(1):21.
26. Scott BE, Lawson DW, Curtis V. Hard to handle: understanding mothers' handwashing behaviour in Ghana. Health Policy and Planning. 2007;22(4):216-24.
27. Lemeshow, S., Hosmer, D. W., Klar, J., Lwanga, S. K., & World Health Organization. Adequacy of sample size in health studies. Living in the Peruvian Amazon. PLoS Negl Trop Dis.1990;8(12): e3369.
28. Aday, L.A. and Cornelius, L.Designing and conducting health surveys: a comprehensive guide. John Wiley & Sons;2006.
29. Ministry of Rural Development .Data asas KPLB. Suku Pertama 2018;2018.
30. Department of Statistics. Report of Household Income and Basic AmenitiesSurvey 2016; 2017.
31. Economic Planning Unit. Elevating B40 Households Towards a Middle-Class Society;2015.
32. Ministry of Education Malaysia. Malaysian education blueprint 2013-2025. Annual report 2017.Chapter 3;Equity;2018;23.
33. Chaudhary, P., Basu, S., Dzeyie, A.K., Gulla, S., Khade, S., Patel, A., Phukan, D., Dikid, T., Kumar, A. and Shrivastava, A.Knowledge, Attitude and Practice of Mothers regarding Diarrhoeal Illness in Children under Five Years of Age: A Cross Sectional Study in an Urban Slum of Delhi, India. The J Communicable Diseases, 2014;46(3), pp.13-21.
34. Merali HS, Morgan MS, Boonshuyar C. Diarrheal knowledge and preventative behaviors among the caregivers of children under 5 years of age on the Tonle Sap Lake, Cambodia. Research and reports in tropical medicine. 2018;9:35.
35. Begum HA, Moneesha SS, Sayem AM. Child care hygiene practices of women migrating from rural to urban areas of Bangladesh. Asia Pacific Journal of Public Health. 2013;25(4):345-55.