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The Prevalence of Psychological Stress and Its Associated Factors Among Primary School Teachers in Kuching District

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INTRODUCTION

Primary school teachers was known to be a stressful occupation and the Pandemic Covid – 19 become the added stressor. Uncontrolled prolonged psychological stress affected the health of teachers subsequently reduce productivity and affecting our future leaders (pupils). Unfortunately, there were minimal study done among primary school teachers especially in Borneo Island.

OBJECTIVE

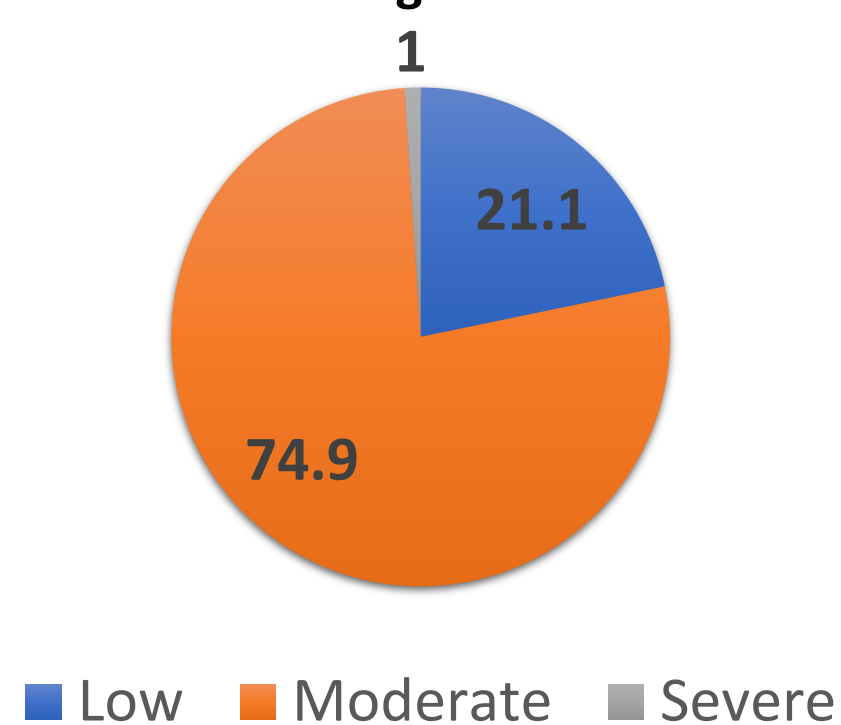
This study aims to determine the prevalence of psychological stress and its associated factors among primary school teachers in Kuching district, Sarawak

MATERIALS & METHODS

- Cross-sectional study (March – May 2021)
- Sample & sampling
 - 289 sample
 - Multi-stage sampling technique
 - stratified sampling (2 rural school, 13 urban school)
 - systematic sampling
- Using self-administered questionnaires that adapted
 - Perceived Stress Score 10 items
 - Teachers Stress Inventory
 - BRIEF-COPE.
- Statistical tool
 - Independent t-test, and One Way ANOVA, Pearson's moment correlation test

RESULTS

Percentage of Psychological Stress Level Among Primary School Teacher in Kuching District



Psychological Stress Level	Psychological Stress Score
Low	0 – 13
Moderate	14 – 26
Severe	27 – 40

Table 1 -3: Sociodemographic & Health Factor, Psychosocial Factor and Coping Strategies Factor Associated to Psychological Stress Among Primary School Teachers

Sociodemographic & Health		
Factors		Mean (SD)
Gender	Male	15.5 (4.71)
	Female	16.9 (4.80)
Race	Malay	16.0 (4.80)
	Other	17.9 (4.60)
Religion	Islam	16.1 (4.83)
	Other	18.2 (4.40)
Physical Activity	Yes	16.0 (4.55)
	No	17.7 (5.08)
Fitness Level	Not active	18.3 (4.89)
	Moderately active	16.9 (4.59)
	Active & Very Active	14.9 (4.89)

p-Value = <0.05 for all result

Psychosocial Factors	Mean (SD)	Pearson's Correlation Coefficient, r
Time management	2.8 (0.63)	0.49
Work related stressor	3.1 (0.76)	0.04
Professional distress	2.4 (0.80)	0.38
Student's discipline	2.6 (0.78)	0.42
Professional investment	2.3 (0.78)	0.40

Coping Strategies Factors	Mean (SD)	Pearson's Correlation Coefficient, r
Religion	7.0 (1.36)	-0.179
Positive reframing	6.3 (1.52)	-0.209
Planning	6.2 (1.50)	-0.221
Venting	4.6 (1.5)	0.222
Self-blame	3.9 (1.50)	0.25
Denial	3.9 (1.49)	0.251
Behavioural disengagement	3.0 (1.29)	0.329
Substance abuse	2.2(0.75)	0.136

DISCUSSION

- ❖ A systematic review conducted by Kasim et al. (2018), the prevalence of occupational stress among a selected working population, namely academicians, police, secondary and primary school teachers, multinational company workers, lab technologist, correctional officer, and male automotive assembly workers, ranged from 6.0 to 71.7 percent.
- ❖ These differences might be due to the different tools and methodology that had been done to assess the psychological stress, different environment eg; Covid - 19, workload, organisational behaviour, and management.
- ❖ Female predominant in stress level can be explained due to the imbalance of the gender in the teacher profession in Malaysia (Samad et al., 2011).
- ❖ Tai et al.(2019), stated that a strong spiritual belief will have a lower degree of stress.
- ❖ Ultimately, a better time management was also associated with the performance of the teachers and subsequently the performance of the student (Khan et al., 2016; Sahito et al., 2016)
- ❖ Psychological stress cannot be avoided, but dealing with or coping with psychological stress will provide a lot of benefit to the teacher's overall health and directly increase student achievement (Herman, Hickmon-Rosa and Reinke, 2018).

CONCLUSION

- Primary school teachers was the most stressful occupation in Malaysia.
- Factors that associated with psychological stress among primary school teachers in Kuching District are female, other races than Malay, other religion other than Malay, teachers who are not active physically, bad time management.
- Positive coping strategies happen to reduce then stress and vice versa
- A systematic interventional program with proper evaluation should be done and focus on the psychosocial and coping strategy of the teachers to ensure a productive workers and high achievement of students.

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SHARP INJURIES AMONG HEALTH CARE WORKERS IN TERENGGANU: AN ANALYSIS FROM 2019-2022

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Introduction:

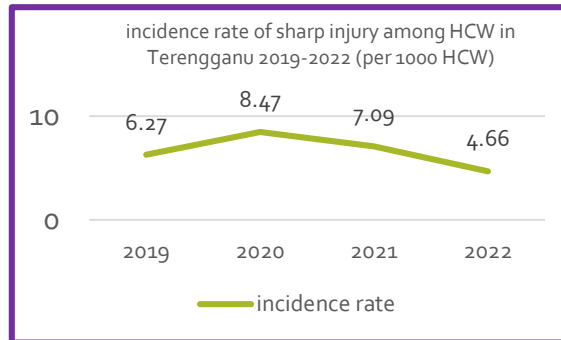
Sharp injury is the most common occupational injury among healthcare workers (HCWs) in Terengganu other than work related COVID-19 infections. HCW with post exposure prophylaxis (PEP) have higher risk of getting bloodborne viral infections than others who are not commenced. The objectives of this study are to determine the incidence of sharp injuries, the sociodemographic characteristics and the risk factors associated with PEP indication.

Methods:

A descriptive study was conducted in Terengganu among healthcare workers based on retrospective record review. The inclusion criteria were HCW employed by KKM to deliver health care services, including trainees, medical students and health facilities support service workers from 1st January 2019 until 30th June 2022. Descriptive statistics and logistical regression were used to determine the incidence, sociodemographic and analyze the risk factors for PEP indication.

Discussion

The higher incidence (2019-2021) compared to national incidence rate (6.0 per 1000 HCW) in 2016 maybe contributed by pandemic COVID-19 year. Young HCWs, female and officers (MO, DO and HO) are contributed more in sharp injury incidence, same as comparison in Melaka and Kelantan state. Majority of them work in hospital and having working experiences less than 10 years. Non-compliances to SOP is the main factors contribute to the incidence of sharp injuries. Post exposure prophylaxis (PEP) was prescribed based on the high-risk criteria. This finding noted that 12.3% of reported cases had started PEP. It was higher than 8.9%, a finding from study in Nigeria. There was significant association between gender with PEP commencement among HCWs in Terengganu (crude OR 2.80; 95% CI: 1.23,6.38; p = 0.014).



Graph 1: Incidence rate of sharp injuries among HCWs in Terengganu from 2019 to 2022 (n=227).

Table 2: PEP indication and causes of sharp injuries among HCW in Terengganu (n=227)

Variables	No (%)
PEP Indicated	
Yes	28 (12.3)
No	199 (87.7)
Causes of sharp injury	
Non-compliance to SOP	116 (51.1)
Carelessness – staff factor	100 (44.1)
patient factor	11 (4.8)

Table 1: Sociodemographics and job characteristics of sharp injuries among HCW in Terengganu (n=227)

Variables	n (%)	Mean (SD)
Age		31.2 (5.78)
Gender		
Male	54, (23.8)	
Female	173, (76.2)	
Job category		
Medical officer	53, (23.3)	
House officer	55, (24.2)	
Dental officer	31, (13.7)	
Staff Nurse	31, (13.7)	
Hospital Support Worker	11, (4.8)	
Others	46, (20.3)	
Place of practices		
Hospitals	167, (73.6)	
Health Clinics	22, (9.7)	
Dental clinics	38, (16.7)	
Working experiences		5.26 (5.46)
< 5 years	121, (53.3)	
5 – 10 years	55, (24.2)	
>10 years	51, (22.5)	

Location of injury

Ward	105 (46.3)
Clinic	49 (21.6)
ED	27 (11.9)
OT	26 (11.5)
Others	20 (8.8)

Table 3: Associated factors of PEP commencement among HCWs in Terengganu using simple logistics regression (n=28)

Variables	Crude (95%CI)	OR	Wald stat	p-value
Gender				
Female	1		6.04	0.014
Male	2.8 (1.23,6.38)			
Job category				
Professional	1		1.24	0.264
Non-professional	1.58 (0.70,3.54)			
Place of practices				
Hospitals	1		2.30	0.129
Health and dental Clinics	0.43 (0.14,1.29)			

Conclusion:

Standard precaution and training should be emphasized among identified job category and department who at high risk of getting sharps injury. Widespread promotion should be strengthened to increase the reporting of the incidence among all the job type, places and severity.

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1. INTRODUCTION

- Psychological resilience is the process with capability to "bounce back" from adversity due to various psychological factors (1).
- Significantly, it greatly impacts one's well-being when dealing with life stressors (2), which can shield from negative outcomes.
- These stressors, if not addressed appropriately may lead to more serious health conditions affecting mental health (3), physical and social (4) among undergraduate students.
- This study aimed to determine the prevalence and socio-ecological predictors of psychological resilience among undergraduate students.

2. METHODOLOGY

- A cross-sectional study was conducted randomly among 361 Malaysian undergraduate students from a public university in Selangor, Malaysia.
- Ten consented faculties were involved and a probability proportional to size method was used
- A validated self-administered questionnaire with questions on individual, interpersonal, organisational, and community characteristics was employed.
- Psychological resilience was measured by Brief Resilience Scale (BRS) (5).
- The data was analysed using the IBM SPSS software version 28.0, with a significance level set at $p < 0.05$.
- The factors associated with psychological resilience were identified using Chi-square and simple logistic regression tests. Eventually, multiple logistic regression was performed to identify the predictors.

3. RESULTS

- The respond rate was 83%.
- The prevalence of psychological resilience among local undergraduate students was illustrated in Table 1.
- Significant associations were found between psychological resilience and self-esteem ($p < 0.001$), self-efficacy ($p < 0.001$), coping style ($p < 0.031$), satisfaction with life ($p < 0.001$), and campus connectedness ($p < 0.023$).
- By multiple logistic regression analysis, predictors of psychological resilience among undergraduate students were high self-efficacy, (AOR 3.2, 95% CI: 1.906-5.522, $p < 0.001$) and high self-esteem (AOR 2.85, 95% CI: 1.406-5.772, $p < 0.004$), (Table 2):

Table 1: Descriptive statistics of the prevalence of psychological resilience among undergraduate students

Characteristics	Median (IQR)	Frequency (%)
Psychological resilience	3 (0.58)	
Low		113 (31.3)
Normal		238 (65.9)
High		10 (2.8)

Table 2 : The predictors of psychological resilience among undergraduate students, (N=361)

Variables	Multiple Logistic Regression					p-value
	Coefficient	Adjusted OR	Standard Error	95% CI Lower	95% CI Upper	
Intercept	0.174	1.191	0.146			0.231
Self-efficacy						
Low	Ref					
High	1.177	3.244	0.271	1.906	5.522	<0.001*
Self-esteem						
Low	Ref					
High	1.047	2.849	0.360	1.406	5.772	0.004*

Notes: *Significant p-value < 0.05. Forward LR was applied. Multicollinearity and interaction terms were checked. Hosmer and Lemeshow test ($p = 0.323$), Classification table (overall percentage 68.7%), Cox and Snell R squared (0.108), Nagelkerke R squared (0.152), ROC=0.7

4. DISCUSSION

- The final model explained the variance of psychological resilience between 10.8%-15%. There may be other variables not included in the model that contribute to psychological resilience.
- The prevalence of low psychological resilience levels was higher compared to previous survey conducted among international students at UPM (1.2%) (6). The difference in socio-cultural may contributed to the inconsistency of the findings (7).
- Self-esteem and psychological resilience demonstrates a reciprocal relationship, wherein individuals with elevated self-esteem are more adept at persevering and bouncing back during challenging circumstances, thereby fostering heightened levels of resilience (8)
- People who have high self-efficacy are more resilient because they have the attitude "I can do this" (9). This explains why those students with high self-efficacy tend to have higher psychological resilience.

5. CONCLUSION

- About one-third of undergraduate students had low psychological resilience levels.
- Self-esteem and self-efficacy emerged as predictors of psychological resilience.
- Thus, appropriate intervention to improve and enhance one's self-efficacy and self-esteem would boost students' psychological resilience.
- It is suggested to study other factors not included in the model in future research.

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INTRODUCTION

Globally, cancer-related deaths reached 10 million in 2020, underscoring the critical need for effective prevention and treatment strategies. Breast cancer, affecting 2.3 million women worldwide in 2020, poses a significant health challenge.¹ In Malaysia, the prevalence of breast cancer varies among different ethnic groups, emphasizing the importance of tailored interventions.² Early detection remains pivotal in improving outcomes, with various treatment options available.³

In Sarawak, Malaysia's largest state, breast cancer is also the most common cancer among women, accounting for 19.5% of all female cancers. However, the incidence of breast cancer varies among different ethnic groups in Sarawak.⁴

OBJECTIVES

This study has a general objective of determining the characteristics of breast cancer cases in Samarahan Division. Specific objectives include assessing trends, socio-demographic characteristics, risk factors, symptoms, stages, and treatment types of breast cancer cases from 2017 to 2023.

METHODOLOGY

An observational cross-sectional study was conducted in Samarahan Division, involving the female population aged 20 and above. The study covered all three districts – Samarahan, Asajaya, and Simunjan. Universal sampling was employed, including all eligible individuals diagnosed with breast cancer. Secondary data from the MCH Unit Samarahan Divisional Health Office facilitated descriptive analysis.

RESULTS

The analysis revealed a notable surge in breast cancer cases in 2022, particularly in Asajaya district (48%). The majority of cases occurred in women aged 40-59 (32%), with Malays experiencing the highest incidence rate (72%). Early menarche, lack of breastfeeding, and positive family history emerged as significant risk factors. Common symptoms included breast lumps (64%), while a considerable proportion of patients were diagnosed at later stages (Stage 2 and Stage 3).

Figure 1. Incidence rate of Breast cancer by Year in Samarahan Division (2017-2023))

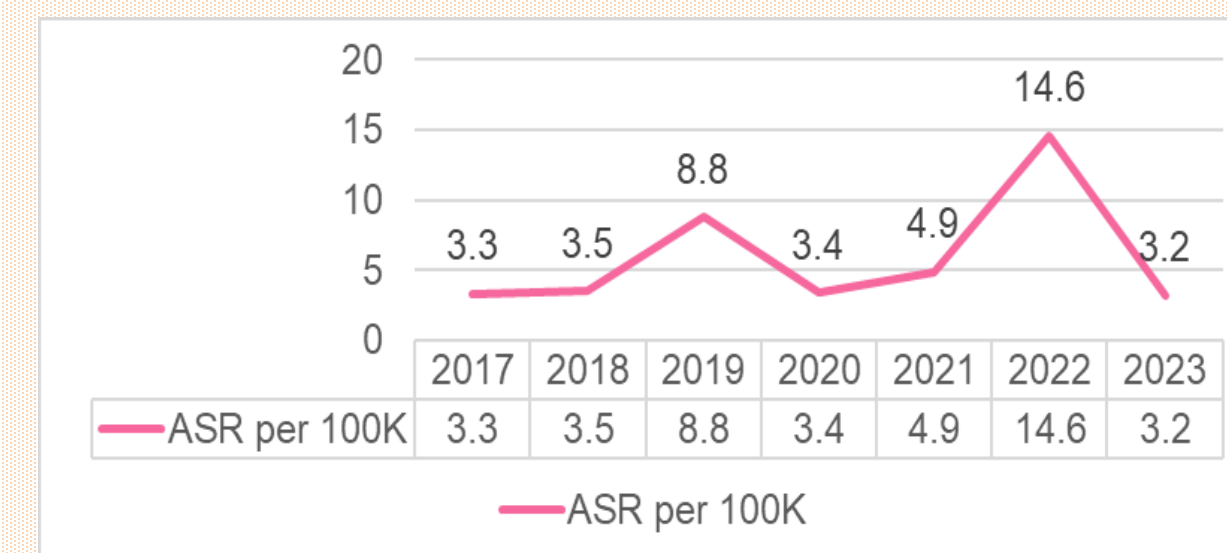


Table 1. Sociodemographic of Breast cancer cases in Samarahan division (2017-2023)

Variable	n	(%)
Districts		
Samarahan	8	32.0
Asajaya	12	48.0
Simunjan	5	20.0
Ethnicity		
Malay	10	40.0
Iban	10	40.0
Chinese	3	12.0
Bidayuh	1	4.0
Others	1	4.0
Age group		
20-29	4	16.0
30-39	0	0
40-49	12	48.0
50-59	0	0
60-69	6	24.0
70-79	8	32.0
80-89	5	20.0

Table 2. Risk Factors of Breast cancer cases in Samarahan division (2017-2023)

Variable	n	(%)
Menarche Status		
12	10	40.0
13	10	40.0
14	3	12.0
15	1	4.0
16	1	4.0
Breastfeeding status		
Yes	4	16.0
Family History		
Yes	12	48.0
BMI		
Normal	6	24.0
Overweight	8	32.0
Obese Class 1	5	20.0
Obese Class 2	1	4.0
Obese Class 3	1	4.0

Table 3. Symptoms of Breast cancer cases in Samarahan division (2017-2023)

Variable	n	(%)
Symptoms		
Breast lump	16	64.0
Nipple discharge	1	4.0
Nipple retraction	1	4.0
Pain / Uncomfortable sensation	9	36.0
Lymphadenopathy	1	4.0

Table 4. Breast cancer cases according to stage and intervention in Samarahan division (2017-2023)

Variable	n	(%)
Stage		
1	7	28.0
2	9	36.0
3	7	28.0
4	0	0
Intervention		
Modern medicine	24	96.0
Alternative	1	4.0

DISCUSSION

Variations in incidence rates, demographic patterns, and risk factors underscore the need for culturally sensitive prevention and treatment programs.⁵ Late-stage diagnoses emphasize the importance of heightened awareness and early detection campaigns, while genetic counseling can address familial risk factors.⁶

Comprehensive recommendations are suggested to improve breast cancer awareness, early detection, and prevention in Samarahan Division:

- Strengthen early detection:
 - Implement staff training for accurate clinical examinations.
 - Launch awareness campaigns targeting high-risk groups & promote regular self-examinations.
- Promote healthy lifestyles:
 - Encourage balanced diets, physical activity, and weight maintenance & integrate lifestyle initiatives into community education programs.
- Early referral for genetic counseling:
 - Recommend genetic counseling for those with a family history of breast cancer.
- Engage local communities:
 - Collaborate with cultural leaders to address stigmas and beliefs. & develop culturally sensitive educational materials in Malay, Iban, and Chinese

CONCLUSION

This study provides critical insights into the breast cancer landscape in Samarahan Division, emphasizing the urgency of targeted interventions. It also advocates for a holistic approach, combining lifestyle promotion, healthcare access improvements, and continuous research efforts for effective breast cancer management.

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Factor Influencing the Decision to Forgo Necessary Health Care among Adult Individuals in Rural Sabah, Malaysia



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INTRODUCTION

Forgone health care, defined as not using health care despite perceiving a need for it and commonly associated with poor health outcomes, especially among people with pre-existing health conditions [1]. Such behaviour may aggravate illnesses, especially in rural Sabah, where health services are scarcer than in urban areas. This study examined the factors influencing foregone care among people with health conditions.

METHODOLOGY

A Face-to-face interviews were conducted between February and May 2019 in 25 villages, and 438 respondents were selected at random based on census's enumeration blocks and living quarters in Nabawan district. The participants were asked about any instances in which they had been informed of health problems by healthcare professionals.

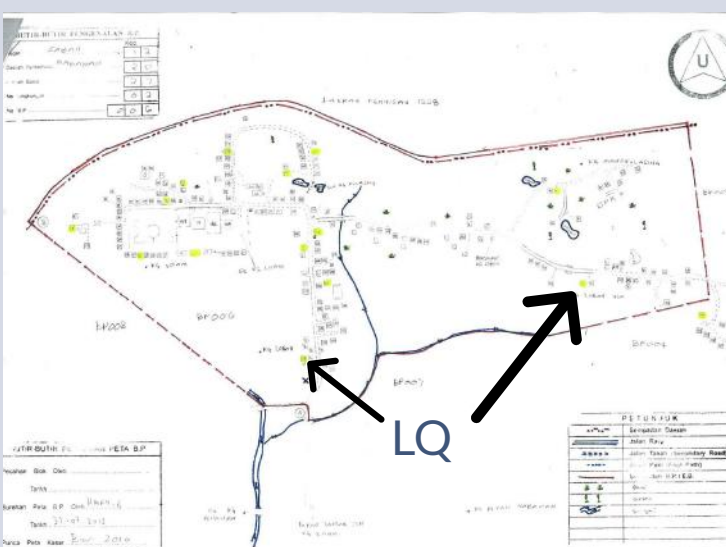


FIGURE 1: Example of a census's Enumeration Block (EB) that contains randomly selected Living Quarters (LQs)

Total EBs = 6
 Total LQs = 96

Sample size determination

1. Accuracy: 5%
2. Confidence Interval of 95%
3. Variance of proportion (Prevalence of population in Sabah seeking treatment or advice from Healthcare providers following illness(es) in the last 2 weeks: 33.2%) [2]
4. Adjustment of the response rate to 80%

Sample: 404 respondents

A sub-population of 99 were used in the univariate analysis & multivariate regression analyses and a multivariate logistics regression model were performed. It was fitted using Receiver operating characteristics (ROC) curve, Hosmer-Lemeshow test and classification table to determine the associated factors of healthcare utilisation among those with ever diagnosed with health problem. Adjusted Odds Ratio (AOR) with 95% confidence interval were determined and p-value of < 0.05 was considered statistically significant. All analyses were conducted using STATA (Stata Corp, College Station, Texas, USA),

RESULTS

TABLE 1. RESPONDENT SOCIODEMOGRAPHIC CHARACTERISTICS

	Frequency	%
Sex		
Male	44	44.4
Female	55	55.6
Age		
18-24	2	2.0
25-54	48	48.5
55-64	26	26.3
65+	23	23.2
Marital Status		
Not married	12	12.1
Married	87	87.9
Ethnicity		
Murut	90	90.9
Others	9	9.1
Education		
Never have schooling	23	23.2
Primary	43	43.4
Secondary	25	25.3
Tertiary	8	8.1
Employment		
Employee	20	20.2
Self employed	50	50.5
Not working	29	29.3
Socioeconomic status		
Poorest	26	26.3
2	19	19.2
3	14	14.1
4	19	19.2
Richest	21	21.2

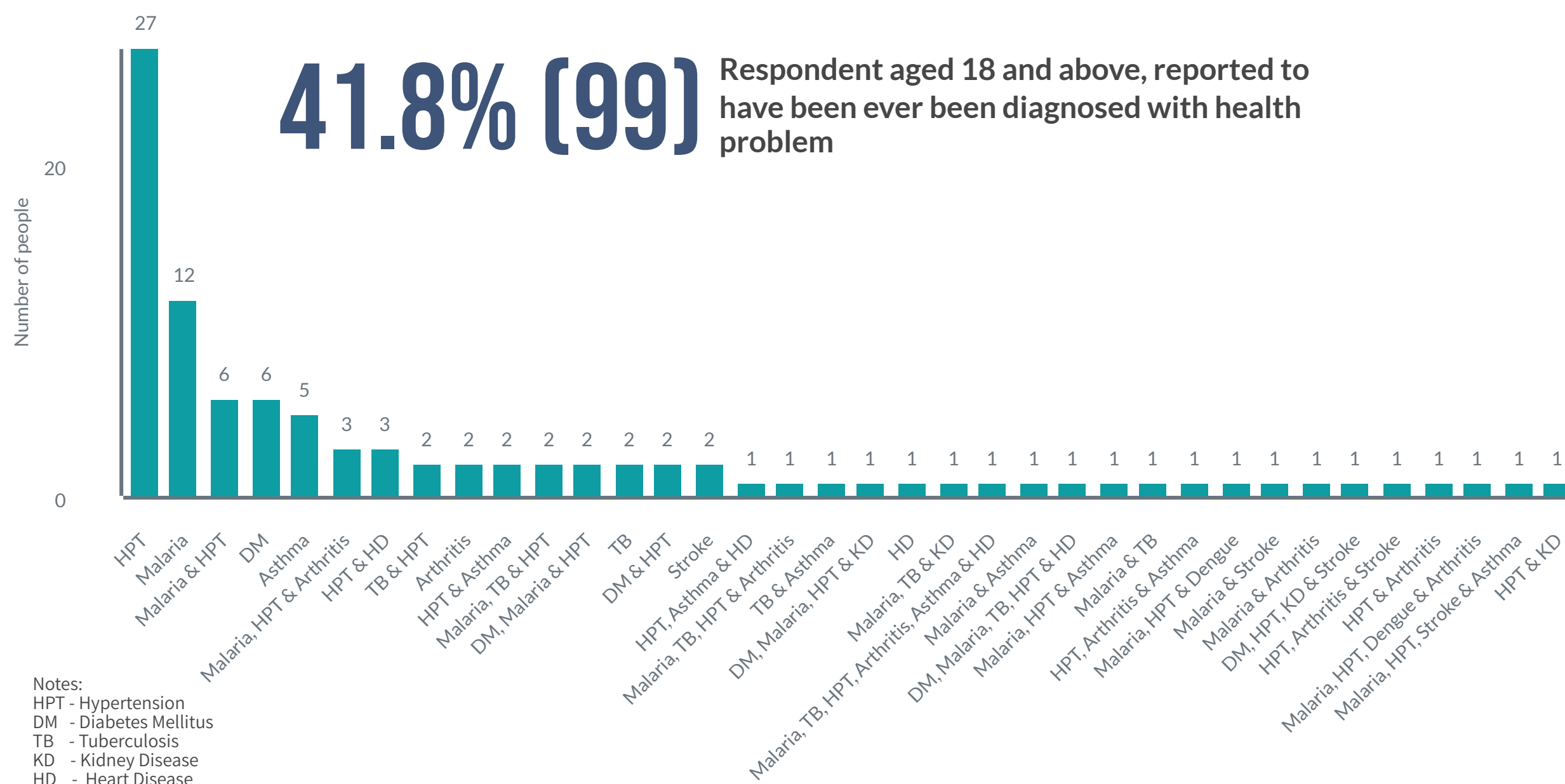
TABLE 2. RESPONDENT HEALTH SEEKING BEHAVIOURS

	Frequency	%
Needed care		
No	18	18.2
Yes	81	81.8
Sought health care when need to		
No	14	17.3
Yes	67	82.7
Reason for not seeking despite care needing care		
Not serious	11	78.6
No transportation	3	21.4
Self-rated health among those need care but did not seek care		
Good	9	64.3
Moderate to very bad	5	35.7

TABLE 3. LOGISTICS REGRESSION ANALYSIS OF NOT SEEKING CARE

	Crude OR (95% CI)	P-value	Adjusted OR (95% CI)	P-value
Sex		0.672		
Male (reference = ref)				
Female	1.29 (0.39-4.27)			
Age		0.343		
18-54 (ref)				
55-64	0.32 (0.06-1.68)			
65+	0.79 (0.21-3.05)			
Marital Status		0.585		
Not married	0.57 (0.07-4.94)			
Married (ref)				
Ethnicity		0.213		
Murut (ref)				
Others	3.56 (0.54-23.59)			
Education		0.103		
Never have schooling	2.19 (0.48-9.87)		2.96 (0.52-16.95)	0.223
Primary (ref)				
Secondary	1.88 (0.37-9.48)		6.51 (0.78-54.45)	0.084
Tertiary	13.13 (1.66-103.67)		37.91 (1.78-807.21)	0.020
Employment		0.928		
Employee	0.83 (0.13-5.26)			
Self employed	1.14 (0.31-4.28)			
Not working (ref)				
Socioeconomic status		0.034		
Poorest (ref)				
2	6.77 (0.68-67.25)		5.82 (0.53-64)	0.150
3	15.71 (1.56-158.21)		25.24 (2.14-297.61)	0.010
4	1.38 (0.08-23.67)		0.89 (0.05-17.27)	0.936
Richest	7.33 (0.67-80.22)		1.64 (0.07-36.43)	0.754

Note:
 1. R-square = 24.6%; Area under ROC curve = 83.05%; Hosmer-Lemeshow test, p-value = 0.9704; classification table = 83.95%.
 LL lower limit; UL upper limit



DISCUSSION

Education and health literacy levels and are key components of making well-informed decisions. However, Sabah has some of the lowest levels of health literacy in the nation [3]. According to different research done in Sabah's rural areas, people had trouble finding and comprehending health information [4], in part because they lacked access to appropriate communication channels like the internet. The likelihood of forgoing health care among people in the medium socioeconomic ranking, however, may be explained by opportunity costs or the price of activities missed because of time spent seeking treatment [5].

CONCLUSION

Socioeconomic status and educational attainment have a significant impact on the likelihood of individuals forgoing necessary healthcare services. In particular, among the rural population, we emphasise the significance of health literacy in order to better address informed decision-making, which may result in adherence and compliance to medical advice, treatment recommendations, and follow-up.

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3RD NATIONAL EPIDEMIOLOGY CONFERENCE 2022

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MAE MALAYSIAN ASSOCIATION OF EPIDEMIOLOGY

PSYCHOLOGICAL FIRST AID: A WAY TO SUPPORT MENTAL HEALTH IN COMMUNITY

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Manjung District Health Office, Sitiawan, Perak Malaysia



Introduction

- Even before the COVID-19 pandemic, the burden of mental health problems was showing an upward trend.[1]
- Post COVID-19 there is drastic increase in depression, anxiety and stress.[2]

Objective

To develop a framework for psychological first aid in the community and a mechanism for early detection of mental health issues.

PFA : humane supportive response to a fellow human being who is suffering and who may need support.[3]

“Everyone can provide PFA”

PFA action principles:

LOOK

- Check for safety
- Check for people with obvious urgent basic needs.
- Check for people with serious distress reaction

LISTEN

- Approach people who may need support.
- Ask about people's needs & concerns.
- Listen to people & help them to feel calm

LINK

- Help people address basic needs & access services.
- Help people cope with problems. Give information.
- Connect people with loved ones & social support

KOSPEN and PFA

- successful volunteer programs in the community in Malaysia.
- Empower Malaysian in self care through training of community members as health volunteers.
- Training KOSPEN volunteer in PFA allow mobilization of societal resources and increases universal health coverage for mental health

Conclusion

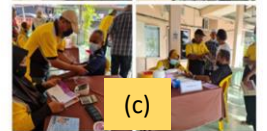
There are structures/programs that are available in governments and communities that could be utilized to improve the mental health services of the country. However, this requires reliable commitment from all the stakeholders involved.



(a)



(b)



(c)

Some of the activities conducted by KOSPEN in communities

- (a) Establishing 10,000 steps walking track
- (b) Demonstration of healthy eating and food portion
- (c) Screening conducted in the community

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THE INFLUENCE OF HOUSEHOLD FACTORS AND CLEANING HABITS ON THE DETECTION OF POLYCHLORINATED BIPHENYLS IN THE PLASMA OF ADULTS WITH METABOLIC SYNDROME AT THE UITM PCM CLINIC



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1 INTRODUCTION

Exposure to PCBs is a health concern as it has been linked to various adverse health effects, including malignancies. Its application in construction materials has exposed the occupant to inhalation exposure.

3 METHODOLOGY

A cross-sectional study was conducted among 129 MetS patients at the UiTM PCM clinic evaluating their subjective judgement of house condition, heating, ventilation, air conditioning, and cleaning habit.

4 RESULTS

The mean age of the respondents was 59.81±0.81years, and 51.2% were female.

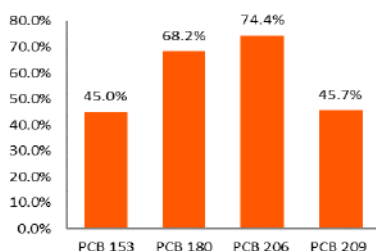


Figure: The profiling of Plasma PCB congeners

5 DISCUSSION

This study demonstrated significant influence of house factors and occupant behaviour on the detection of PCB congeners in the plasma. In addition to primary sources of emission from building material, indoor air exposure to PCB can be influenced by various factors, including ventilation, furniture, and cleaning habits. Living in a contaminated building can contribute significantly to the total body burden of PCB.

6 CONCLUSION

The PCB threat is still prevalent in the population. Reducing indoor PCB levels should be a priority to align with Malaysia's goal to eliminate PCBs.

2 OBJECTIVE

This study aimed to determine the prevalence of selected PCB congeners in the plasma and its association with occupant behavior and house factors.

Table: Determinants of Plasma PCB Congeners

Factors	AOR (95% CI)	p-value
PCB 153		
Cooking stove		
Electric	1	-
Gas	8.065 (1.463, 44.472)	0.017
Indoor smoke		
Yes	3.225 (2.061, 5.825)	0.024
No	1	-
PCB 180		
Main cooling method		
Window	2.713 (0.629, 11.704)	0.181
Fan	3.948 (1.099, 14.183)	0.035
Air-conditioner	1	-
Duration of ceiling fan (hours/day)	1.079 (1.009, 1.154)	0.027
PCB 206		
Building age	1.052 (1.004, 1.102)	0.035
Carpeting		
Yes	3.158 (1.103, 9.041)	0.032
No	1	-
Mopping		
Daily	2.063 (0.383, 11.104)	0.399
Weekly	0.378 (0.207, 0.882)	0.025
Monthly	1	-
PCB 209		
Exhaust fan in kitchen/ bathroom		
Yes	0.407 (0.186, 0.893)	0.025
No	1	-
Mopping		
Daily	2.013 (0.433, 9.373)	0.373
Weekly	0.422 (0.307, 0.698)	0.017
Monthly	1	-

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Alcohol Use and Its Relation with Demographic, Environmental and Psychological Factors among Adolescents in Nabawan, Sabah

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Introduction

Alcohol use is undoubtedly a public health concern and a risk factor for NCDs. Among individuals who were 13 years of age or older, the prevalence of current drinkers was 11.1%, whereby Bumiputera Sabah has the third highest prevalence rate of current drinkers which accounted for 22.1% (National Institutes of Health, 2019). In Sabah specifically, studies concerning alcohol and the factors associated with its consumption among adolescents age group are few. The lack of research could potentially cause hardship in recognizing risky and problematic alcohol use among the young age groups. With statistics showing that Nabawan has the most numbers of Bumiputera (99.6%) mainly of Murut ethnicity, it strengthens the justification to conduct alcohol related study among the Bumiputera Sabah (DOSM, 2022).

OBJECTIVE:

The study aims to determine the prevalence of alcohol use and demographic, environmental and psychological factors associated with alcohol use among adolescents in the district of Nabawan, Sabah.

Methodology

- This was a cross-sectional study conducted in March until April 2023 among Malaysian adolescents aged 10-19 year old in Nabawan, Sabah.
- A total of 244 samples, obtained by stratified proportionate random sampling involving 2 subdistricts and 11 villages.
- A guided self-administered questionnaire consisted of six parts:
 - 16 parts demographic and environment questions
 - 10 parts Perceived Stress Scale
 - 7 parts Generalized Anxiety Disorder Questionnaire
 - 9 parts Patient-Health Questionnaire
 - 10 parts Alcohol Use Disorder Test
- Statistical tool: Multiple logistic regression

Results

Table 1: Prevalence of Alcohol Use among Adolescents in Nabawan, Sabah (N = 244)

Alcohol Use	Prevalence, n (%)	95% CI
Yes	75 (30.7%)	24.92 – 36.48
Low risk	25 (10.2%)	6.14 - 13.99
Hazardous	39 (15.9%)	11.31 – 20.49
Harmful	3 (1.2%)	-0.37 – 2.57
Likelihood of Alcohol Dependence	8 (3.3%)	1.06 – 5.54

AUDIT risk	AUDIT score
Low	1 – 7
Hazardous	8 – 5
Harmful	16 – 19
Likelihood of alcohol dependence	≥ 20

Table 2: Factors associated with Alcohol Use among Adolescents in Nabawan by Simple and Multiple Logistic Regression

Variable	Simple logistic regression		Multiple logistic regression ^a		
	UOR (95% CI)	p-value	AOR (95% CI)	p-value	
Demographic	Age				
	≤17 years old	ref			
	18 years old	3.32 (1.404, 7.833)	0.006	3.93 (1.225, 12.611)	0.021
	19 years old	4.78 (2.144, 10.647)	<0.001	5.38 (1.769, 16.350)	0.003
Environment	Parent alcohol use	No	ref		
		Yes	5.11 (2.514, 10.362)	<0.001	4.11 (1.770, 9.539)
	Peer alcohol use	No	ref		
		Yes	22.97 (8.803, 59.930)	<0.001	11.57 (4.113, 32.515)
	Low monitoring	Yes	ref		
		No	2.89 (1.640, 5.124)	<0.001	2.46 (1.162, 5.201)
Ever discuss serious problems	Never	ref			
	Yes	6.86 (3.630, 12.974)	<0.001	3.86 (1.719, 8.673)	0.001

^a Variable selection using forward (LR) method Hosmer-Lemeshow test (p-value=0.432) and classification matrix (overall correctly classified percentage=83.2%) were applied to check for goodness-of-fit.

Discussion

- Among the Sarawak Dayak adolescents reported a prevalence of 89% alcohol use using the same AUDIT questionnaire (Faiz Gahamat et al., 2023). Concurrently, this study implied that the Bumiputera Sabah and Sarawak adolescents' alcohol use prevalence is much higher than other ethnicities in Malaysia.
- Age is a significant factor frequently found in alcohol use studies (Faiz Gahamat et al., 2023; Htet et al., 2020; Ontaneda Aguilar et al., 2022). As for older age adolescents, it appears that parental supervision is lessened, and growing independence and self-assurance contributed to a higher predisposition to drink alcohol (Granville-Garcia et al., 2014).
- A systematic review found that parental drinking has an impact on adolescents drinking (Rossow et al., 2016). It strengthen the evidence that social cognitive theory, which holds that parents are significant role models, is the most likely source for this link (Berglund et al., 2022).
- Adolescents were more likely than adults to take chances and make risky judgments while they were among their peers (Nakaseko et al., 2020).
- Adolescents who experience high-level monitoring with a focus on obedience and discipline) are more likely to drink alcohol in Europe (Glozah, 2014).
- Contradicting findings of previous studies (Kuendig & Kuntsche, 2006; Niu, 2023; Romadlona et al., 2021) on the factor of ever discussing serious problems with parents. Although speculative, due to the closeness of adolescents with their parents, thus, parents are more open and accepting of their children to consume alcohol.
- Findings of good parental monitoring and ever discuss serious problems with parents associated with high alcohol use could be explained that causality of outcomes by whether good monitoring by parents and ever discussing serious problems with parents were due to consequences of adolescents' alcohol use, or vice versa, considering that this study applied cross-sectional study design.

Conclusion

- This study has shown that there is a relatively high prevalence (30.7%) of current drinkers among adolescents in Nabawan.
- This study also demonstrated that older age (late) adolescents, having parents and peers who consume alcohol, good parental monitoring and ever discussing serious problems are the significant factors associated with alcohol use among adolescents in Nabawan, Sabah.
- School-based policy and prevention programme should adapt to these factors while being suited to local settings. As family environment particularly parent-child relationships, programmes or policies that address family functioning, improve parent-child communication, establish alcohol-specific rules and parental monitoring are crucial in alcohol prevention among adolescents.
- Future research to look into school environment and adolescents in relation to alcohol consumption should be focused. The development of more practical adolescents-friendly alcohol and psychological screening tools to cater to Malaysian would be beneficial for future research as well.

Acknowledgement

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KEMENTERIAN KESIHATAN MALAYSIA
PEJABAT KESIHATAN DAERAH BERA

UNINTENTIONAL NICOTINE INGESTION IN PEDIATRIC POPULATION: A CASE REPORT AND PUBLIC HEALTH IMPLICATIONS

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INTRODUCTION

E-cigarettes are battery-operated devices that used to inhale an aerosol, which typically contains nicotine, flavourings, and other chemicals. With the popularity of e-cigarettes, e-liquid refills have become easily accessible and cases of intoxication due to the ingestion of e-liquid have been reported¹.

Nicotine is highly toxic and rapidly absorbed after either ingestion or inhalation. Small volumes may cause life-threatening toxicity in children. Children younger than 3 years accounted for most (84%) exposures, and ingestion was the most common (93%) way children were exposed to liquid nicotine². The minimum potentially lethal dose is reported to be anything greater than 0.5 mg/kg

METHODOLOGY

This is a case report required thorough field investigation, clinical assessments, toxicology screenings, and device analysis.

CASE REPORT

INITIAL PRESENTATION

A 2 years old, Malay girl presented at Klinik Kesihatan B, Bera, Pahang on 30th May 2023 accompanied by her parents complaining unresponsive and collapsed at home. Child was found by her grandfather coughing and vomiting food content with sweet-smelling odour while playing in her uncle's room without supervision. She was having difficulty in breathing, bluish lips and loss of consciousness. The grandfather noticed there was an e-cigarette device near child.

TREATMENT & MANAGEMENT

On assessment, Glasgow Coma Scale was 3/15 and Cardiopulmonary Resuscitation (CPR) was commenced. Child was intubated and subsequently had Returned of Spontaneous Circulation (ROSC). She was referred to Paediatric Intensive Care Unit in Hospital Sultan Haji Ahmad Shah, Pahang. No abnormality detected on CT brain as well as Chest X-ray and other physical examinations. On Day-1 of admission, child developed two episodes of generalized tonic-clonic seizures which aborted spontaneously. Urine Continine and toxicology were sent to private laboratory. Child was extubated on Day 4 of admission and was hemodynamically stable however having severe neurological impairment. **Urine Continine test come back as Positive.**

RECOVERY & FOLLOW UP

Child was discharged with Occupational Therapist and Physiotherapist referral for neurorehabilitation. **The diagnose was re-establish for "Acute Life-Threatening Event secondary to alleged ingestion of nicotine complicated with seizure".** Child's able to have full recovery through neuro-rehabilitation.

NOTIFICATION & INVESTIGATION

Case reported to Pejabat Kesihatan Daerah Bera NCD Unit by Klinik Kesihatan B on 31st May 2023. Field investigation by Medical Officer and Assistant Environmental Health Officer within 24 hours as per guideline³.

NICOTINE SOURCE & ROUTE OF INGESTION

The investigation team found an e-cigarette brand "A" with Mixed Berry flavour which has been partially used. Child likely ingested nicotine unintentionally, mistaking the device for a familiar pink water bottle. **Laboratory Analysis: Suspected vape sent to Makmal Kesihatan Awam Kebangsaan (MKAK), results positive for Nicotine (23mg/ml), Glycerol (395 mg/ml), Propylene Glycol (413 mg/ml), no leakage.**

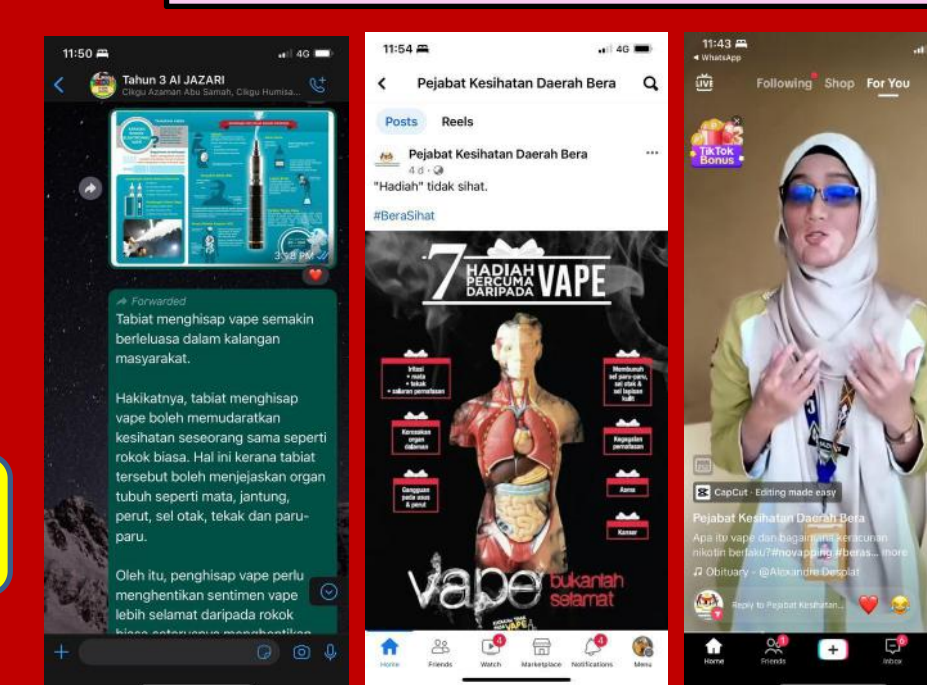
PREVENTION MEASURES



Comparison between e-cigarette device and child's water bottle



Continuous Medical Education (CME) sessions for medical personnel



Webinar and Infographics distributed on social media platforms (Facebook, WhatsApp, Twitter, TikTok)



Talks and community alerts on "Danger of Vaping" at schools, supermarkets and religious institutions.



Targeted enforcement at vape shops, 53 schools and non-smoking areas resulted in 32 notices, RM6200 in compound over three weeks.

DISCUSSION

- The case highlights the high toxicity of nicotine in E-Cigarette products, especially in highly-concentrated e-liquids. The child's ingestion of a relatively small amount of nicotine from the e-cigarette device led to severe symptoms, emphasizing the potent nature of these substances. Children, particularly those under the age of 3, are highly vulnerable to nicotine poisoning⁴. Young children can accidentally ingest nicotine causing severe health impacts on the child leading to life-threatening consequences. The deceptive appearance of the E-Cigarette device, resembling a pink drinking water bottle, and the sweet smell of the 'Mixed Berry' flavor make these products attractive to children. This raises concerns about unintentional ingestion, especially in households with young children.
- The variability in nicotine levels within E-Cigarette products, as observed in this case, adds to the difficulty in assessing the actual amount of nicotine a child might be exposed to. This unpredictability increases the risk of nicotine poisoning in pediatric cases.
- Healthcare professionals need to be well-informed about the symptoms and signs of nicotine intoxication in children. Continuous Medical Education (CME) sessions and reminders during patient consultations play a crucial role in ensuring prompt identification and intervention.
- There is a need for public awareness and education campaigns to inform parents, caregivers, and the community about the dangers of E-Cigarette, especially in households with young children. This includes recognizing the deceptive appearance and enticing flavors that may attract children.
- It is importance to enforce regulations to control the sale and distribution of E-Cigarette products, especially to underage individuals. Targeted enforcement activities, as seen in the case, can serve as a deterrent and contribute to preventing similar incidents.

CONCLUSION

This case emphasizes the urgent need for heightened awareness regarding the dangers of nicotine toxicity in pediatric populations resulting from e-cigarette use. The variable nicotine concentrations within e-cigarette products pose a significant risk, especially in young children prone to unintentional ingestions. The study emphasizes the importance of comprehensive preventive measures, ranging from healthcare professional education to community-wide initiatives, to mitigate the growing threat of nicotine poisoning in children.

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PREVALENCE AND FACTORS ASSOCIATED WITH INTENTION TO ENGAGE IN PREMARITAL SEX AMONG PRE-UNIVERSITY STUDENTS OF A PUBLIC UNIVERSITY IN MALAYSIA

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1.0 INTRODUCTION

Adolescence is marked by exploration, with individuals inclined to experiment with new activities and often engaging in risk-taking behaviors. According to the Lifespan Wisdom Model (Romer et al., 2017), this phase is essential for psychological and neurobiological maturation to prepare adolescents for adult roles and responsibilities.

In Malaysia, premarital sex and unsafe sexual behaviors among adolescents have been a persistent public health concern, leading to unintended pregnancies, abortions, HIV/AIDS, and other STIs. Despite a decline in the prevalence of premarital sex, safe sexual practices have also decreased significantly, with low condom and contraceptive usage rates (Institute for Public Health (IPH), 2017; Institute for Public Health (IPH), 2012). These trends necessitate continued attention to adolescent sexual health.

Considering the importance of intention as a precursor to sexual behavior, understanding factors that influence it is vital to address rising sexual and reproductive health issues among adolescents. Late adolescents, such as pre-university students, are particularly vulnerable due to increased independence. Thus, this study seeks to determine the prevalence and factors associated with the intention to engage in premarital sex among pre-university students in a public university in West Malaysia.

2.0 METHODOLOGY

This cross-sectional study was conducted at the Centre of Foundation Studies, an academic institution situated within a public university located in West Malaysia. This centre provided pre-university programs in agricultural science, equivalent to Foundation in Science, Matriculation Program, and Malaysian Higher School Certificate (STPM), and was open to all Malaysian SPM science stream graduates meeting specified entry requirements. This study included pre-university students, specifically targeting late adolescents.

This study was conducted between October 2022 and July 2023, involving a sampling frame comprising pre-university students who met the inclusion criteria of being Malaysian citizens and having the ability to understand and write in Malay or English, while excluding those who were married or did not consent. A random selection of pre-university students was done and the pre-university student who met the criteria formed the sampling unit for this research. The study encompassed 20 classes with a total of 508 students enrolled in foundation programs, including international entry. The sample size was calculated using two independent proportions formula (Lemeshow et al, 1990) for gender factor based on a study by Muhammad (2017). By anticipating a 20% of non-response rate (Abdullah et al., 2020), the final sample size (n3) is 118 pre-university students were required for this study. Hundred percent response rate was achieved in this study.

The instrument used in this study was adopted from the locally developed and validated Malay version of Youth Sexual Intention Questionnaire (YSI-Q) (Muhammad, et al., 2017). The 20 items on the YSI-Q included the following four primary constructs: permissive attitude, perceived social norms, perceived self-efficacy, and intention to engage in premarital sex.

3.0 RESULT

The prevalence of intention to engage in premarital sex among pre-university students of UPM was illustrated in table 3.1. The results showed that among the 118 respondents, 29 (24.6%) were categorized as having an intention to engage in premarital sex while 89 (75.4%) were categorized as having no intention.

Table 3.2 indicated the findings from multiple logistic regression analysis. Respondents with mothers attained tertiary education and higher have a significantly lower odds of having intention to engage in premarital sex compared to those with secondary education and lower (AOR = 0.003, 95% CI: 0.001-0.011, p = 0.011). Therefore, having tertiary education and higher was a protective factor against intention towards premarital sex. In contrast, having a more permissive attitude was a risk factor for intention. Participants with higher permissive attitudes were more likely to have the intention to engage in premarital sex. For each one-unit increase in permissive attitude, the the odds of having intention increased by approximately 2.476 times (AOR = 2.476, 95% CI: 1.321-4.642, p = 0.005). In addition, respondents who perceived stronger social norms supporting premarital sex were more likely to have intention towards premarital sex. For each one-unit increase in perceived social norms, the odds of having intention increased by approximately 1.486 times (Adjusted OR = 1.486, 95% CI: 1.183 to 1.866, p < 0.001).

Table 3.1: Descriptive statistics of intention to engage in premarital sex among pre-university students (N=118)

Variable	Frequency (%)
Intention	
Yes	29 (24.6)
No	89 (75.4)

Table 3.2: The predictors of intention to engage in premarital sex among pre-university students (N=118)

Variable	Simple Logistic Regression					Multiple Logistic Regression				
	Unadjusted Coefficient	Crude OR	95% CI for Odds ratio		P value	Coefficient	Adjusted OR	95% CI for Odds ratio		P value
			Lower bound	Upper bound				Lower bound	Upper bound	
Intercept						-8.796	0.001			
Mother education level										
Secondary education and lower	Ref					Ref				
Tertiary education and higher	1.606	4.985	1.100	22.579	0.037*	-5.673	0.003	0.001	0.274	0.011*
Permissive attitude	0.759	2.135	1.304	3.498	0.003*	0.907	2.476	1.321	4.642	0.005*
Perceived social norms	0.378	1.460	1.217	1.751	<0.001*	0.396	1.486	1.183	1.866	<0.001*

Note:
Multiple logistic regression, (*)-significance at p<0.05
In the multivariate analysis, the variable from the bivariate analysis with p<0.25 was selected. LR forward method was used. Terms for multicollinearity and interaction were explored. ROC = 0.906 (p<0.001), Hosmer and Lemeshow test (0.307), Cox and Snell R squared (0.310), Nagelkerke R squared (0.465), classification table (overall percentage 81.5%)

4.0 DISCUSSION

The prevalence of having intention to engage in premarital sex among the respondents in this study was 24.6%. This finding contrasted with the lower prevalence rates reported in previous studies conducted by Abdullah et al. (2020) and Muhammad (2017), which reported prevalence rates of 8.5% and 7.1% respectively (Abdullah et al., 2020; Muhammad, 2017). There were several factors that might contribute to the variations in the prevalence. Differences in methodology might contribute to variability in the prevalence reported from this study compared to previous studies. The study population of this study was pre-university students while the other two studies conducted among college students of age 18-22 years old and secondary school students respectively. The age and educational level of the respondents could influence attitudes and behaviours related to premarital sex.

Respondents with mothers attained tertiary education and higher have a significantly lower odds of having intention to engage in premarital sex compared to those with secondary education and lower. Therefore, having tertiary education and higher was a protective factor against intention towards premarital sex. This finding was supported by several studies (Muhammad, 2017; Barman-Adhikari et al., 2014). Prior research by Jaccard (2002) revealed that parents' education is associated with the quality and extent of communication between parents and adolescents regarding sexual topics. Incorporating parental involvement in the sexual education program through workshops or seminars can facilitate open and effective conversations between parents and their children about sensitive topics like premarital sex.

This study found permissive attitude and perceived social norms were a significant predictors of intention to engage in premarital sex. Having a more permissive attitude and perceived social norms were risk factors for intention. Participants with higher permissive attitudes were more likely to have the intention to engage in premarital sex. A comprehensive sexual education program can be designed to address the influence of permissive attitudes and social norms on adolescents' intentions towards premarital sex.

5.0 CONCLUSION

There were 3 factors that have been identified to be significantly associated with intention to engage in premarital sex which include mother education, permissive attitude and perceived social norms. Mother education was protective against intention to engage in premarital sex while permissive attitude and high perceived social norms supporting premarital sex were risk factors for having intention towards premarital sex. Sexual health promotion and education should emphasize on positive parental relationships and improving sexual education programs by addressing permissive attitudes and the impact of social norms towards intention to engage in premarital sex among adolescents. The study findings underscored the importance of comprehensive sexual health education within the education system, especially for pre-university students. Implementing evidence-based, age-appropriate sexual health education programs had been essential to address high-risk behaviors, permissive attitudes, and social norms surrounding premarital sex. By integrating such programs into the curriculum, higher education institutions could promote positive decision-making and equip students with the knowledge and skills needed to make informed choices about their sexual behavior.

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2nd National Epidemiology Conference 2022



KNOWLEDGE AND PERCEPTION ABOUT CLIMATE CHANGE AMONG STUDENTS IN IRAQ: A CROSS-SECTIONAL STUDY

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BACKGROUND

Long-term changes in temperature and weather patterns are referred to as climate change. These fluctuations may be caused by significant volcanic eruptions or variations in the sun's activity. However, human activity has been the primary cause of climate change since the 1800s, mostly due to fossil fuels like coal, oil, and gas combustion. Young people are an essential demographic to include in the fight against climate change, despite its complex topic (Ratinen, 2021).

OBJECTIVES

The current study aims to examine the knowledge level regarding climate change among medical students in Iraq.

Table 1: Socio-demographic characteristics of the respondents

Variables	N		%	
Gender				
Male	103		67.8	
Female	217		32.2	
College				
Medicine	240		75.0	
Dentistry	29		9.0	
Pharmacy	10		3.1	
Nursing	41		12.9	
Stage/Grade				
2 nd	31		9.7	
3 rd	174		54.4	
4 th	115		35.9	
Age	Min	Max	Mean	SD
	19	25	20.87	1.26

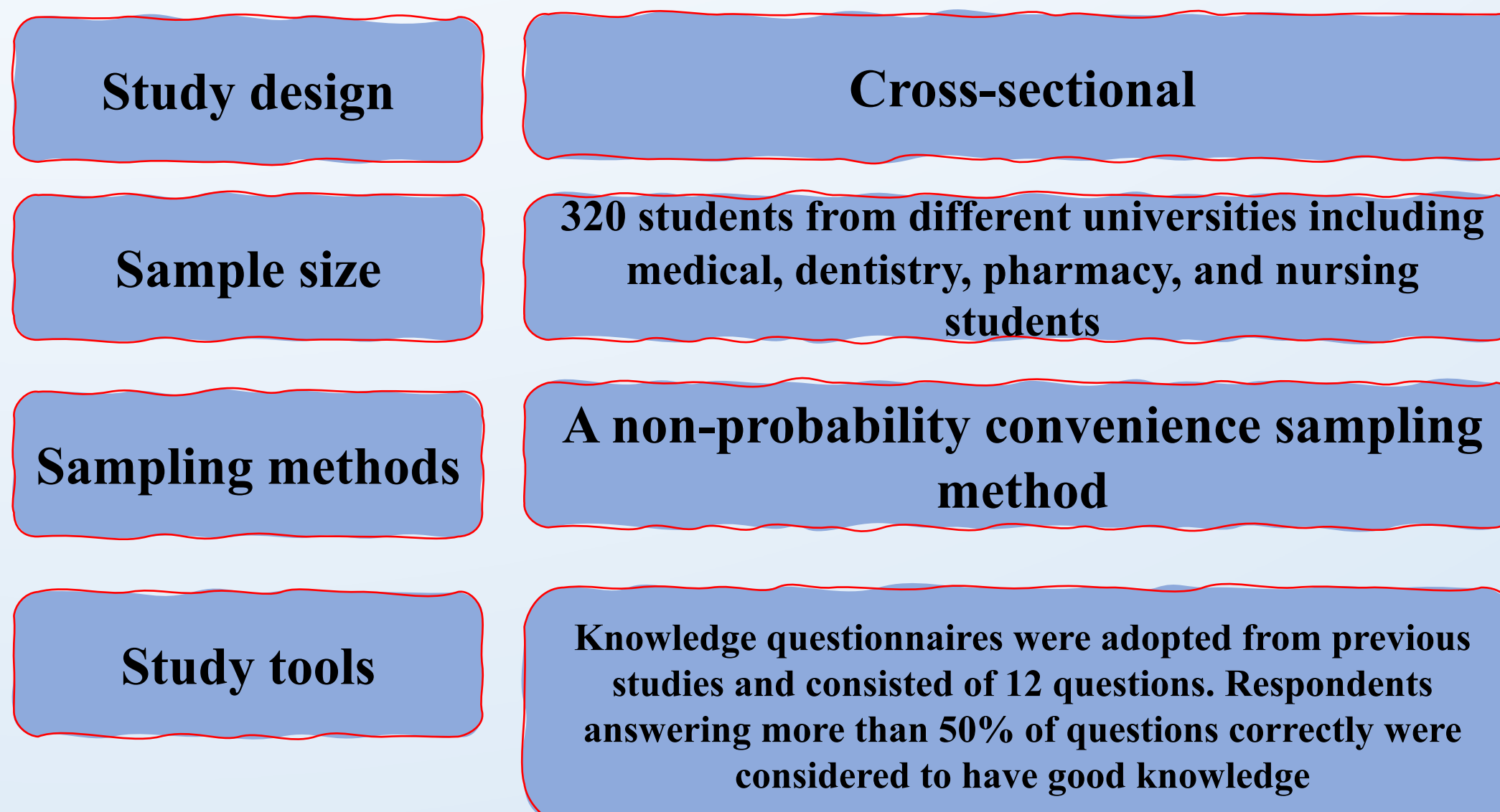
Table 2 Association between socio-demographic factors and knowledge level

Variables	Poor knowledge		Good Knowledge		X ²	P-value
	N	%	N	%		
Gender					2.131	0.144
Male	30	29.1	73	70.9		
Female	47	21.7	170	78.3		
College					11.39 9	0.010*
Medical	66	27.5	174	72.5		
Dentistry	0	0	29	100		
Pharmacy	3	30.0	7	70.0		
Nursing	8	19.5	33	80.5		

DISCUSSION

In our study, students have good knowledge of climate change. This result is inconsistent with results obtained by Spellman et al. (2003), Kellstedt et al. (2008), Hills (2008), Clarke et al. (2009).

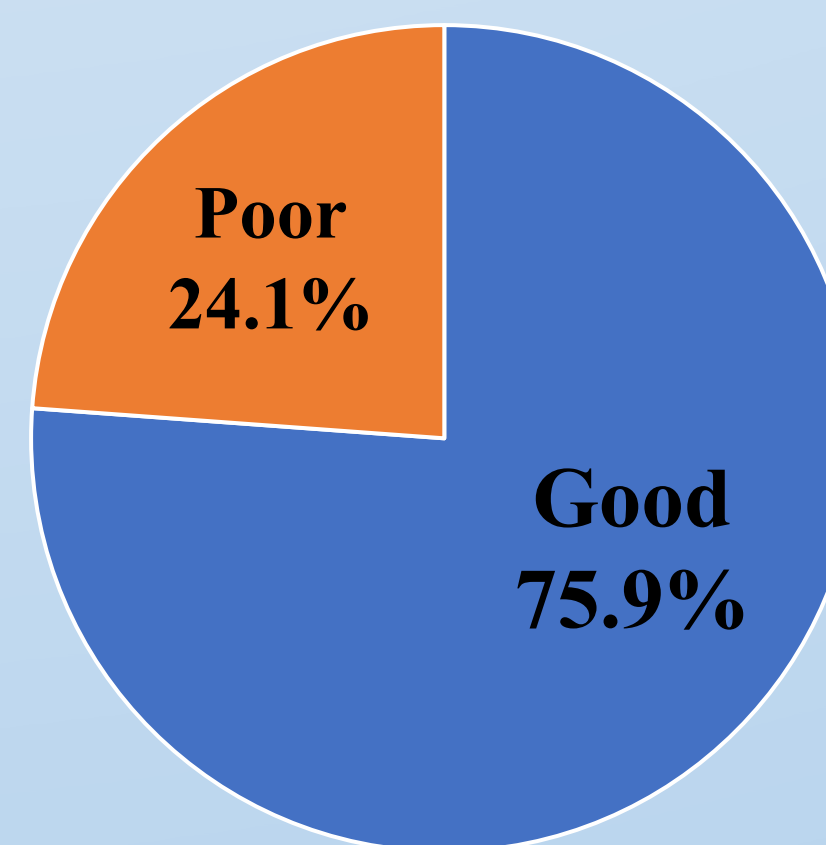
METHODS



RESULTS

In total, 75.9% of the students had good knowledge about climate change. About 98.8% heard of climate change before, mainly from the internet (48.4%). About 17.8% of the respondents knew about global warming during their study. Only 2.2% answered correctly about the average temperature of the earth. The majority agreed that global warming impacts animal and human health (98.4%, 99.4%) respectively. Around 80.3% think that health professionals can contribute to reducing climate change's impact. There was a significant association between course of study and knowledge (p value=0010).

Knowledge Level



CONCLUSION

In conclusion, students have a good knowledge of climate change but more health education and promotion are needed to address specific issues like waste reduction and energy saving.

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Factors Associated with Self-Reported Adverse Symptoms Related to Formaldehyde Exposure Among Students and Lab Assistants in University Laboratories of Kota Kinabalu, Sabah



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Introduction

Formaldehyde is a commonly used chemical in medical and veterinary schools for preserving cadavers and biological specimens, but its potential toxicity in the dissection hall is often overlooked (Tiruneh, 2021). Formaldehyde exposure in university laboratories, primarily from the use of formalin poses significant health risks to staff and students. Understanding the prevalence of adverse symptoms and associated factors is crucial for implementing effective control measures and promoting occupational health.

Objectives

The general objective of this study is to determine the prevalence of self-reported adverse symptoms related to formaldehyde exposure among lab assistants and students in University Malaysia Sabah (UMS) laboratories, and to determine the factors that influence the occurrence of these symptoms.

Conclusion

This study reveals a significant prevalence of overall Formaldehyde-Related Adverse Symptom among staff and students in UMS laboratories primarily linked to formaldehyde exposure from formalin use. Adherence to administrative control (**duration and frequency of exposure**), engineering controls (**exhaust fan**) and the proper use of PPE (**gloves and mask**) can play a crucial role in mitigating the health effects associated with formaldehyde exposure.

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Results

Table 1: Overall Prevalence of Formaldehyde- Related Adverse Symptom

Formaldehyde-related Adverse Symptom	Medical Faculty Lab n (%) n =106	Borneo Marine Science Lab n (%) n = 51	Total n (%) n = 157
YES	38 (35.8)	16 (31.4)	54 (34.4)
NO	68 (64.2)	35 (68.6)	103 (65.6)
Total	106 (100.0)	51 (100.0)	157 (100.0)

Table 2: Association between Sociodemographic factors with Formaldehyde-Related Adverse Symptom

Variables	Odd Ratio	P Value	95% confidence interval
Gender Male=62 Female=95	2.494	0.013	[1.212,5.130]
Age group <29 years old =135 >30 years old =22	1.385	0.489	[0.551,3.482]
Alcohol Consumption No=131 Yes=26	1.236	0.633	[0.518,2.984]
Smoking Status No=144 Yes=13	1.212	0.748	[0.376,3.902]
Allergy History No=103 Yes=54	2.200	0.024	[1.108,4.368]
Pre-existing illness No=117 Yes=40	2.120	0.045	[1.015,4.425]
Job title Staff=26 Students=131	1.218	0.670	[0.492,3.015]
Faculty / Institute Medicine=106 Marine Research=51	1.222	0.581	[0.600,2.492]

Table 3: Association between Hazard Control Practiced and Formaldehyde-Related Adverse Symptom

Variables	Odd Ratio	P Value	95% confidence interval
Frequency of formaldehyde handling and exposure Monthly=67 Fortnightly=47 Weekly=43	3.628 2.475	0.002 0.036	[1.596,8.254] [1.059,5.785]
Average duration for each formaldehyde exposure and handling <1 hour=64 1-2 hours=72 >3 hours=21	2.646 5.231	0.013 0.002	[1.225,5.713] [1.817,15.056]
Fume Hood No=103 Yes=54	0.820	0.578	[0.406,1.653]
Localised ventilation No=86 Yes=71	1.197	0.594	[0.618,2.317]
Biosafety Cabinet No=93 Yes=64	1.260	0.497	[0.647,2.455]
Exhaust Fan No=64 Yes=93	0.499	0.042	[0.255,0.975]
Gloves No=62 Yes=95	0.111	<0.001	[0.052,0.235]
Face Mask No=55 Yes=102	0.071	<0.001	[0.032,0.157]

Methodology

A cross-sectional study was conducted in February to April 2023 through purposive sampling among lab assistants, first-year medical students, fourth-year and master's marine science students (n =157) at the UMS. Participants completed a validated self-reported questionnaire (Ya'acob et al., 2012; Zain et al., 2019), providing information on sociodemographic factors, medical and allergy history, occupational history, formaldehyde exposure source, and hazard control practiced in the laboratory. Symptoms were assessed according to operational definition (Yes for having symptom AND "Yes" it is related to work activity AND "Yes" it become better when off-work). Data were analysed using descriptive statistics and simple logistic regression.

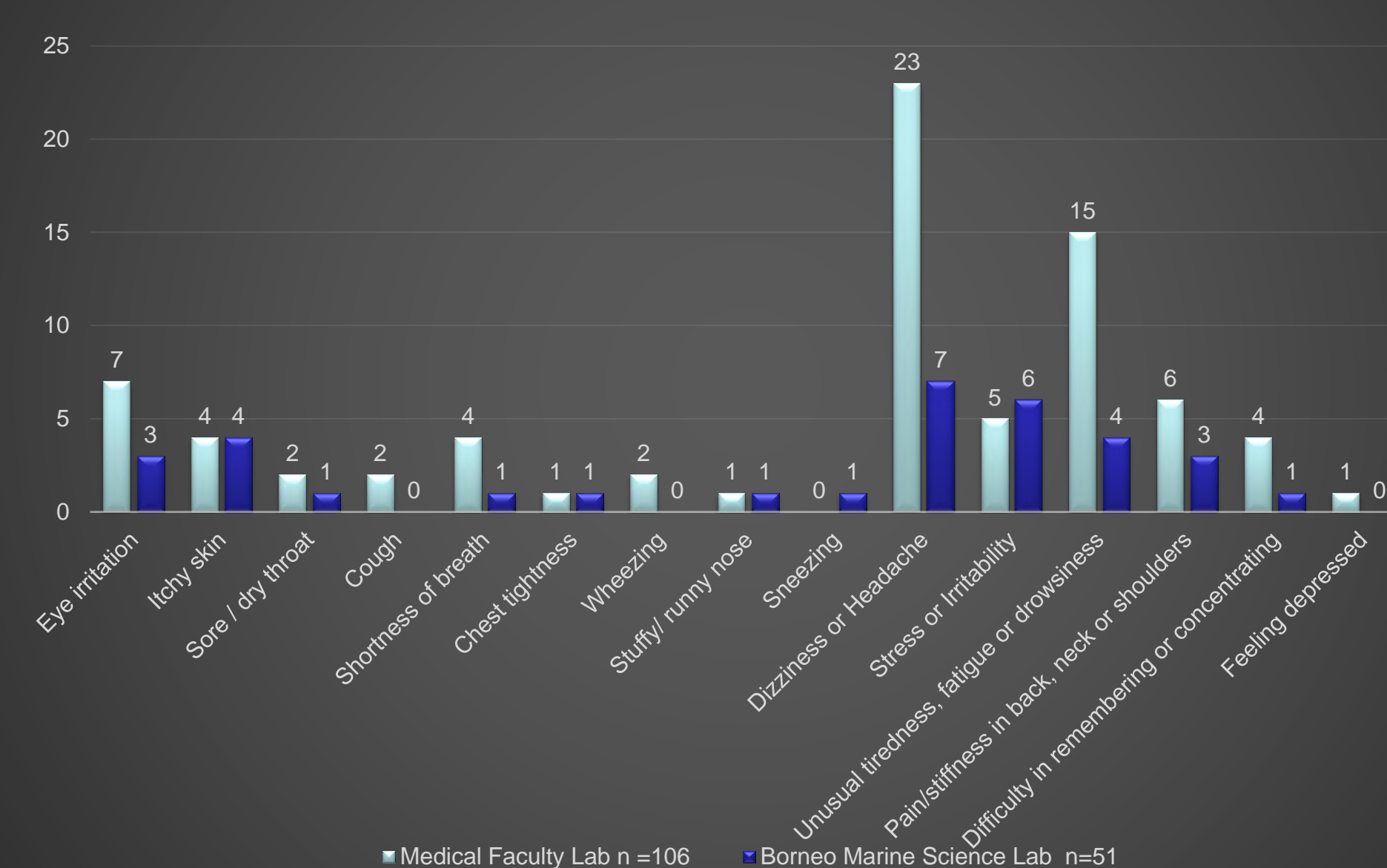
Discussions

Overall prevalence of Formaldehyde –Related Adverse Symptoms in UMS is 34.4%, the highest prevalence was observed related to neuro-psychiatric symptoms, specifically dizziness/headache (19.1%) and unusual tiredness, fatigue, or drowsiness (12.1%), and stress/irritability (7.0%). Compared to other similar studies, the high prevalence of ocular and respiratory symptoms in this study may be due to differences in laboratory settings and embalming procedures.

Females are more likely to develop formaldehyde-related adverse symptoms in this study could be due to their greater frequency of autoimmune and inflammatory diseases, as well as their more prominent B and T cell-mediated immunity and antibody responses (Da Silva, 1999; Whitacre et al., 1999).

Allergic individuals are found more susceptible to toxic substances, including formaldehyde, and may develop symptoms sooner due to their lower sensitivity threshold (γ_{00} & Perzanowski, 2014). Similar to those with preexisting condition such as atopy, eczema and asthma, which can be explain by IgE mediated reaction, which produce histamine resulting in inflammation (Mizuki & Tsuda, 2001)

Bar Chart: Frequency of various symptoms reported by students and lab assistants in Medical Faculty and Borneo Marine Research Institute laboratory





INTRODUCTION

Thalassemia, classified as alpha and beta thalassemia, is a group of inherited blood defects that are the world's most prevalent hemoglobinopathies. Mutations in genes cause reduced levels or malfunctioning proteins or the absence of α and β globin proteins, causing these conditions. Thalassemia, which includes α - and β -thalassemia, is one of Malaysia's most common genetic diseases. According to the Malaysian Thalassemia Registry Report 2018, Sabah showed the most significant number of registered thalassaemia cases in Malaysia, totalling 1814 patients (22.72%)(1).

Genes for alpha and beta-globin proteins are present as a cluster on chromosome 16 and 11, respectively. Globin chain imbalances result in haemolysis and impede erythropoiesis. Although the Thalassemia Prevention and Control Programme has been conducted since 2004 by MOH, the number of new thalassemia cases is still not declining and is expected to incur more costs for the government in the future. The Ministry of Health initiated a nationwide thalassemia school screening programme in early 2016 to complement the current thalassaemia screening programme in the community, involving students from government schools in all states (2).

It was reported that approximately 4.5% of the Malaysian population are beta (β) thalassemia carriers and about 3 – 4% are Haemoglobin E (HbE) carriers. About 250 thalassaemic babies are estimated to be born in Malaysia annually, with Sabah as the state with the highest incidence of Thalassaemia major (3).

METHODOLOGY

Screening program and data collection

We reviewed the results of the thalassemia school screening programme conducted in all secondary schools in Tawau from June 2022 until June 2023, involving 3686 form 4 students from cohort 2021 and 3632 form 4 students from cohort 2022. The students were screened for thalassemia after receiving written informed consent. A measure of 4 ml of blood sample was collected from each student under aseptic condition by clean venepuncture and added to a sterile EDTA tube. Full blood counts were done for preliminary screening, followed by haemoglobin electrophoresis and, if needed, DNA analysis. The summary of laboratory tests performed is as follows:

- Full blood count:** FBC is often the first investigation in a suspected case of thalassemia.
- Haemoglobin electrophoresis:** Hemoglobinopathy (Hb) evaluation assesses the type and relative amounts of haemoglobin present in red blood cells. Haemoglobin A (HbA), composed of both alpha and beta-globin chains, is the type of haemoglobin that typically makes up 95% to 98% of haemoglobin for adults. Haemoglobin A2 (HbA2) usually makes up 2% to 3% of haemoglobin, while haemoglobin F usually makes up less than 2% in adults. Patients with the beta-thalassemia major typically have more significant percentages of HbF and HbA2 and absent or very low HbA. Those with beta-thalassemia minor usually have a mild elevation of HbA2 and a mild decrease of HbA. HbH is a less common form of haemoglobin that may be seen in some cases of alpha thalassemia.
- DNA analysis:** These tests help confirm mutations in the alpha and beta-globin-producing genes. DNA testing is not routine but can help diagnose thalassemia and determine carrier status.

Data analysis

Primary data was collected and tabulated in the designated format in a Microsoft Excel v16.80 spreadsheet. Statistical analysis was performed using IBM SPSS Statistics v29. Categorical variables were described as frequency and percentage.

RESULTS

Socio-Demographic Characteristics of the Subjects

- A total of 3681 form 4 students from cohort 2021 participated in the screening program, and a further 3623 students participated from cohort 2022.
- The participants from both cohorts were predominantly female (51% for cohort 2021 and 53% for cohort 2022).
- Bugis ethnicity comprised 36% of cohort 2021 and 34% of cohort 2022, followed by Bajau ethnicity 16.6 % (cohort 2021) and 15% (cohort 2022).

Descriptive analysis of findings

- This study revealed that the prevalence rate of thalassemia carriers was 2.95% for cohort 2021 and 4.3% for cohort 2022.
- For cohort 2021, the prevalence rate for HbE thalassemia carriers was 1.33%, alpha thalassemia carriers were 0.89%, and beta thalassemia carriers were 0.65%. Meanwhile, for cohort 2022, the prevalence rate for HbE thalassemia carriers was 1.8%, alpha thalassemia carriers were 1.3%, and beta thalassemia carriers were 1.1%.
- Male thalassemia carriers were 42%, while female carriers were 52% for cohort 2021. For cohort 2022, among carriers, 45.5% were male, and 54.5% were female.
- The largest ethnic group diagnosed as carriers was the Bugis ethnic group (28% for cohort 2021 and 23% for cohort 2022).

Table 1: Distribution of Students by Diagnosis (Cohort 2021 & 2022)

Final Diagnosis	Cohort			
	2021		2022	
	n	%	n	%
Alpha-Thalassaemia Carrier	33	0.9	48	1.3
Beta-Thalassaemia Carrier	24	0.7	40	1.1
HbE-Thalassaemia Carrier	49	1.3	67	1.8
Other Thalassaemia Carrier (Delta Beta)	1	0.0	1	0.0
Others (Non-carrier)	3579	97.1	3476	95.7

Table 2a: Distribution of Carriers by Ethnicity (Cohort 2021) [Top 10]

Ethnicity	n	%
Bugis	31	29.0
Bajau	24	22.4
Cina	10	9.3
Tidung	7	6.5
Suluk	6	5.6
Kadazandusun	5	4.7
Melayu	5	4.7
Banjar	4	3.7
Murut	3	2.8
Bisaya	2	1.9

Table 2b: Distribution of Carriers by Ethnicity (Cohort 2022) [Top 10]

Ethnicity	n	%
Bugis	37	23.7
Bajau	34	21.8
Tidung	12	7.7
Cina	9	5.8
Suluk	9	5.8
Banjar	8	5.1
Melayu	7	4.5
Kadazandusun	6	3.8
Jawa	4	2.6
Filipino	4	2.6

Table 1a: Distribution of Carrier by Gender, Cohort 2021 (n=107)

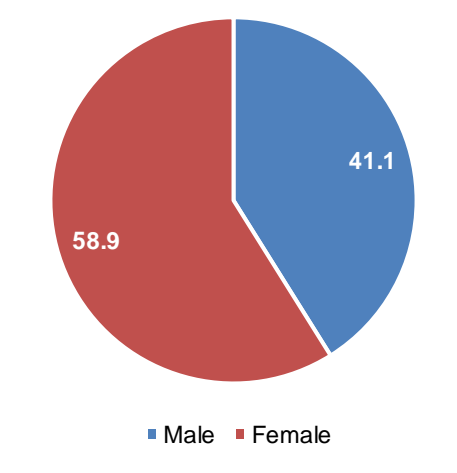
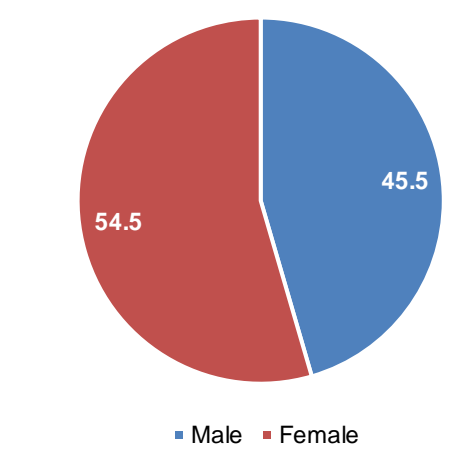


Table 1b: Distribution of Carrier by Gender, Cohort 2022 (n=156)



DISCUSSIONS

The prevalence of thalassemia carriers was 2.95% for cohort 2021 and 4.3% for cohort 2022. According to types, the prevalence of HbE thalassemia carriers was 1.33%, alpha thalassemia carriers were 0.89%, and beta thalassemia carriers were 0.65% in cohort 2021. Similar findings were shown in cohort 2022; the prevalence rate for HbE thalassemia carriers was 1.8%, alpha thalassemia carriers was 1.3%, and beta thalassemia carriers was 1.1%. The prevalence of Thalassaemia carriers among Form Four students in Kedah was 10.91% (4). This is higher than this study as Thalassaemia is regionally specific and may differ between ethnicities in each local population because it can have its own characteristic spectrum of mutations even in a neighbouring geographical area. (Therapy et al., 2018).

The prevalence of thalassemia carriers was higher in other countries. In India and Pakistan, the overall prevalence of beta-thalassemia carriers has been estimated to be between 2.78 and 4% in India, while in Pakistan, 5–7% (5). In China, the prevalence of carriers of alpha thalassaemia (8.53%), beta thalassaemia (2.54%), and both alpha and beta thalassaemia (0.26%) (6). Regionally, the prevalence of β -thalassaemia carriers in Medan city of Sumatra Island was 7%. In comparison, approximately 20% of the Sunda Kecil population and 30% of East Sumba were HbE disorder carriers (7).

The most typical type of thalassemia carrier in both cohorts was HbE thalassemia, findings that are similar to the national level (1) and elsewhere in the eastern parts of the Indian subcontinent, Bangladesh and other Southeast Asian countries, HbE is the most prevalent haemoglobin variant (5). However, locally, beta thalassaemia major constitutes the majority diagnosis in Sabah. This observation is inconsistent with our study due to the relatively low density of the Kadazan-Dusun, Rungus, and Murut populations (KDMR) in Tawau. This observation is consistent with the discovery of the "Filipino deletion" occurring in more than 90% of Sabahan Kadazan-Dusuns with beta thalassaemia syndrome (1).

There is only a slight difference between the percentage of male and female thalassemia carriers. As a recessive autosomal disorder, males and females can inherit the relevant gene mutations equally because they follow an autosomal inheritance pattern with no preference for gender. The slight differences in percentage could have happened because there were more female than male participants for the whole screening (51.5 % for cohort 2021 and 53% for cohort 2022). Thus, the probability of thalassemia carriers in females was higher than in males, as shown in the number of screened students.

We found that most thalassemia carriers were from Bugis ethnicity, compared to others, as there were more participants from Bugis ethnicity for both the 2021 (34%) and 2022 (34%) cohorts. This is simply because the largest ethnic group in Tawau is Bugis, with up to 60% of the district's population having Bugis ancestry.

CONCLUSIONS

Thalassemia carrier state is often asymptomatic. Hence, if they do not commit themselves to thalassemia screening, thalassemia carriers are unaware of their carrier status. Recognising thalassemia carriers will help us optimise the control and prevention programme to reduce the number of thalassemia cases in Tawau, Sabah. This study suggested that a high prevalence of thalassemia occurred in Tawau and requires a perspective to design healthcare policies with better genetic counselling programs for thalassemia.

RECOMMENDATIONS

As the inaugural analysis on thalassemia carriers among Form 4 students in Tawau, Sabah, we recommend introducing a school-based screening thalassaemia program for Form four students as routine practice in view of its high prevalence in the population. Follow-up studies may be necessary to examine the effects of thalassemia on the carriers and findings of the cascade screening of the index cases.

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Epidemiology of Poor Glycaemic Control and Its Risk Factors among Type 2 Diabetes Mellitus Patients in Bagan Datuk, Perak



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Introduction

Diabetes is a progressive disease that evolved into a substantial **public health crisis** and stands as a prominent contributor to global mortality and morbidity¹. The prevalence has been rising rapidly in low-middle-income countries including Malaysia resulting in enduring and severe complications. Therefore, there is a critical need to formulate optimal prevention and control strategies to enhance better glycaemic control among Type 2 Diabetes Mellitus (T2DM) patients.

Objective

This study aimed to **determine the epidemiology of poor glycaemic control and its associated risk factors among T2DM patients** in Bagan Datuk, Perak

Methodology

A **cross-sectional study** was conducted in Bagan Datuk, Perak involving registered T2DM patients from five health clinics. Data were **randomly selected from the Malaysia National Diabetic Registry (NDR)** between January to November 2023. Sociodemographic, behavioural and clinical data were retrieved from the registry. **The cut-off good glycaemic control was set according to the guidelines, $\leq 6.5\%$** . The risk factors associated to the glycaemic control were further assessed using **multiple linear regression analysis**. Analyses were mainly performed using R software.

Result

Of 542 T2DM patients, **65.1% were women and predominantly among Malay**, 59.8% followed by Indian, 29.0% and Chinese, 11.1%. **The mean age was 62.2 (SD: 10.98)** and the mean years of having diabetes was 8.75 (SD: 6.02). **The mean glycated haemoglobin (HbA1c) was poor, 7.95% (SD: 2.08)** while near half of the patients (43.9%) has developed at least a complication; retinopathy, ischaemic heart disease (IHD), cerebrovascular disease, nephropathy or diabetic foot ulcer.

The **multiple linear regression indicated the age, gender, ethnicity and duration of having diabetes are the predictors explained 9.58% of the variation in the level of HbA1c, [F-statistic (7,410) = 7.04, p = <0.001]**

Table 1: The Risk Factor Of Poor Glycemic Control Using Multiple Linear Regression Analysis

Risk factors	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta (β)	t	p-value
Age	-0.01489	0.01716	0.98522	-0.868	0.3860
Gender - Man	-0.41138	0.19437	0.66273	-2.117	0.0349
Ethnicity - Indian	0.69900	0.33219	2.01175	2.104	0.0360
Ethnicity - Malay	0.62403	0.31264	1.8664	1.996	0.0466
Duration of diabetes	-0.03622	0.01756	0.9644	-2.063	0.0398
Hypertension	-0.21327	0.27420	0.8079	-0.778	0.4371

Note. Constant = 11.24172, F-statistic (7,410) = 7.04, p = <0.001, R² = 0.09205

Discussion & Conclusion

Malay and Indian women who are being diagnosed with T2DM in early age potential to have poor glycaemic control compared to the different groups of the same characteristics. This finding will provide right and necessary guidance in identifying T2DM patients at risk of poor glycaemic control for the prompt preventive measures and adherence to the behaviour and clinical management.

Affiliations

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FOOD POISONING OUTBREAK INVESTIGATION AT A PRIMARY SCHOOL IN BAU, SARAWAK

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²Bau District Health Office, Sarawak



Never leave cooked food out for more than 4 hours

BACKGROUND

Food poisoning can happen to all age groups, caused by contaminated food or water due to long holding time and unhygienic practices.

On 25 May 2023, Bau District Health Office received an information regarding the numbers of AGE cases at a primary school. A team was dispatched to verify and take action.

This school have no canteen. Everybody including teachers bring their own food.

OBJECTIVE

- Describe the outbreak
- Identify related factors
- Recommend control measures

METHODOLOGY

Step 1: Case Definition

Any student or staff member who attended teacher's day gathering at a primary school in Bau District and had any symptom of diarrhoea / vomiting / nausea, with / without fever starting from 23 May 2023

Step 2: Case Finding

- Review clinical records
- Interview using customized questionnaires including time of food prepared and consumed

Step 3: Descriptive Analysis

- Descriptive based on time, place and person
- Event timeline and tables

Step 4: Analytical Analysis: 1:1 Age-matched case-control study

- Identify risk factors
- A case defined as case definition, a control is any asymptomatic individual who attended the event
- OR, 95%CI, p-value

RESULT

- Total cases: 41 cases out of 241 total population, with median age of 10 years, ranged from 6 to 43 years)
- Main reported symptoms were diarrhea (100%), vomiting (97.6%), and fever (85.3%); 4% hospitalized
- Overall attack rate = 17%

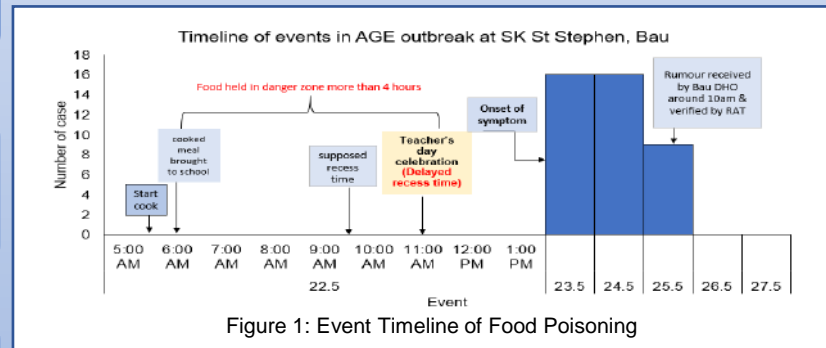


Table 1: Related factors contributing to outbreak

Factors	Odd Ratio	95%CI		p-value
		Lower	Upper	
Prepared Food	11.022	3.946	30.785	<0.001*
Wash hands with soap after toilet	0.242	0.089	0.659	0.005
Wash hands with soap before eat	0.196	0.072	0.535	0.001
Wipe hands on cloth after handwashing	55.8	11.353	274.266	<0.001*

CONCLUSION

The outbreak at this school was probably caused by prepared food got contaminated due to long holding time and unsafe hygiene practices. Health education being provided to prevent similar future occurrence.

RECOMMENDATIONS

- Do not eat food that left at room temperature for more than 4 hours
- Encourage students to bring non-prepared food such as biscuits, bun, cereal or fruits.
- School must compliance with normal recess hour in order to prevent long holding time.
- Encourage school to prepare freezer to store the cooked food and microwave to reheat the food

ACKNOWLEDGMENT

- Sarawak State Health Department
- Bau District Health Office

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INTRODUCTION

- Leprosy is one of the contagious disease¹ is caused by bacterium Mycobacterium leprae, affecting skin, nerves of hands and feet and other organs. Elimination achieved in 2000, but new cases still reported around 250,000 cases in over 120 countries²
- From a global perspective, leprosy recorded a 10.2% increase in incidence in 2021, with 140,594 new cases, compared to 128,405 new cases in 2020. In Malaysia, the situation is different, with a 21.5% decrease in new cases in 2021, totalling only 142 new cases, compared to 181 cases in the previous year. This can be attributed to COVID-19 pandemic, which limited case detection rate. However, in 2022, Malaysia experienced a 15.5% increase in new leprosy cases, with 164 new cases compared to the previous year.³
- The WHO Global Leprosy Strategy 2021-2030 has promoted PEP-SDR for individuals in contact with leprosy patients as one of the strategies in the effort to eliminate leprosy cases by 2030⁴.
- In Pahang, Bera also the third district after Rompin and Pekan to implement Post Exposure Prophylaxis of Single Dose Rifampicin (PEP-SDR).

OBJECTIVE

- The objectives of this program are to detect, identify and treat leprosy among the high risk population and to provide SDR as a preventive treatment.

METHODS

Study design : Cross-sectional study

Study area : Kampung Ibam, Bera

Sampling Method: Universal Sampling

Selection Criteria:

- All Residents residing and registered in Jawatankuasa Kemajuan dan Keselamatan Kampung (JKKK) in 2023.
- Exclusion criteria:
 - ✓ known case of leprosy and under follow up
 - ✓ individual refusal

Data Source:

- Secondary data from the JKKK registration in 2023 and the program detection of leprosy and PEP-SDR for the year 2023

DISCUSSION & RECOMENDATION

- In the Bera district, even though the initial leprosy detection rate was 0.85 cases per 100,000 population, active detection efforts by this program have increased the leprosy detection rate to 5.10 cases per 100,000 population, which still does not meet the national target of <1 case per 100,000 population. This figure can be attributed to constraints in service delivery and treatment, limitations in laboratory confirmation testing, challenges in obtaining medication supplies and follow-up treatment, as well as delays in leprosy diagnosis.
- A total of 56.7% of the population in Kg Ibam received SDR through a blanket approach to the community residing in endemic areas. SDR studies can reduce the risk of leprosy among individuals in close contact. Index cases must provide consent for information to be shared with individuals in contact before SDR is given to them.
- Recommendation:
 - detection can be effectively achieved through the collaboration of government and non-governmental agencies such as JAKOA, District Health Office, Malaysian Leprosy Relief Association (MaLRA), and State Health Department.
 - Case detection and health education can also be carried out for students in endemic areas by the Unit Kesihatan Sekolah (UKS).
 - Health clinics can also perform opportunistic skin screening for patients from endemic areas who visit the health clinics.
 - Health messages can be disseminated through radio broadcasts, social media, and mass media, especially in relevant states.

CONCLUSION

In marginal group, an outreach program stand as the best method for early detection and treatment of leprosy. High detection rate in this program showed that leprosy still a concern in Malaysia particularly in certain areas. Hence, multi-agency collaboration among stakeholders will play a significant role if similar program were to be planned in the future.

RESULTS

Descriptive analysis was used to determine the total number of cases and the percentage of cases in Kampung Ibam, Bera. The overall total number of cases in the study was 320 cases (n=320).

Characteristic	n (%)
Number Examined	
• Active Case Detection (ACD)	288 (90)
• Walk-in	32 (10)
Total Suspected Leprosy Cases	23
Total Slit-skin-smear (SSS)	14
• Result of SSS	3 positives 11 negatives
	- 1 patient tested positive during SSS demo on the briefing day - 1 patient tested positive during ACD day, but the patient located outside screening area - Total number of cases: 5 cases
PEP-SDR	
Total Received SDR	241 (56.7)
Total Not Given SDR	65
Reasons:	
• Refuse verbally	53 (81.54)
• Age <2 years	8 (12.31)
• Kidney/liver disease	4 (6.15)

Table 1: Finding from 2-days LAKAR program and PEP-SDR with 5 cases positives of leprosy



Image: Activities that was done in static station and Active Case Detection (ACD)

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A FIVE-YEAR EPIDEMIOLOGICAL REVIEW OF TUBERCULOSIS IN TAWAU, SABAH.

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1. INTRODUCTION

Located on the island of Borneo, Sabah is a state with high tuberculosis (TB) burden in Malaysia. As a district with a porous land and sea border with the high TB burden countries like Indonesia and Philippines, TB in Tawau, Sabah is of high public health importance.

2. OBJECTIVE

This study intended to describe the epidemiology of TB in Tawau, Sabah to identify risk groups and trends of TB transmission.

3. METHODOLOGY

This is a five-year retrospective study of TB cases that were reported in Tawau, Sabah, between 2018 and 2022. Using information from the district "myTB" notification database, we calculated the case notification rate and discussed about trends, risk groups, and treatment outcomes of TB in Tawau throughout this period.

4. RESULTS

There were 2,584 cases of TB reported in Tawau between 2018 and 2022 (136 cases per 100,000 population). Majority of the cases (86.1%) were identified by passive case detection. Seventy seven percent of non-citizens with pulmonary TB were sputum smear positive at diagnosis, significantly higher than the proportion of Malaysian citizens (65%) who were smear positive at diagnosis ($\chi^2 = 78.94$, $P < 0.001$). When compared to non-citizens (43%) on chest X-rays at diagnosis, Malaysian citizens had a significantly lower probability of having moderate or advanced lesion (30%) ($\chi^2 = 67.27$, $P < 0.001$). Multi-drug resistant (MDR) TB was only 0.5% of the cases. Treatment success was 78% in those with drug-sensitive TB and 53% in cases of MDR-TB.

Factors	Category	Citizenship		X ²	p value
		Malaysian N	Non-Malaysian N		
Sputum at diagnosis	Negative	954	10	78.94	<0.001
	Positive	877	224		
	Not Done	164	30		
Chest X-ray at diagnosis	No lesion	110	27	67.27	<0.001
	Minimal lesion	535	354		
	Moderate lesion	401	448		
	Advanced lesion	46	42		

5. DISCUSSION

This study highlights the gap in detection of TB cases which might lead to late presentations and diagnosis. Understanding the financial, legal and language barriers the non-citizens are facing emphasize the importance of active case detection compared to the current most-used mode of passive case detection.

6. CONCLUSION

We found the evidence of late presentation and diagnosis of TB particularly among the non-citizens. Ensuring universal health coverage and removal of barriers to early diagnosis and treatment should be prioritised in line with the End TB Strategy.

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Prevalence and Factors Associated with Long COVID and Effect of Long COVID on Mental Health of Healthcare Workers in Miri Division, Sarawak



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A. INTRODUCTION

The COVID-19 pandemic has given rise to Long COVID, posing a unique threat to healthcare workers (HCWs)(1). In low to middle-income nations like Malaysia, limited research on Long COVID among HCWs necessitates comprehensive exploration(2). This study defines Long Covid according to the NICE guideline, aligning with WHO and CDC, and is supported by clinical data showing symptoms as early as four weeks (3,4).

B. OBJECTIVE

- 1.To determine the prevalence of Long COVID among HCWs in Miri Division
- 2.To determine factors associated with Long COVID among HCWs in Miri Division.
- 3.To determine the effect of Long COVID on mental health among HCWs in Miri Division.

C. METHODOLOGY

A 10-month cross-sectional study in Miri Division, Sarawak, examined HCWs who tested positive for COVID-19. Universal sampling from healthcare facilities was conducted from November 2022 to August 2023. Data, collected online in June-July 2023, utilized a bilingual questionnaire for Long COVID symptoms and DASS-21 for mental health.

E. ANALYSIS

A total of 165 HCWs participated, with the majority (93.3%) being younger than 50 years old. Male participants accounted for 57% of the sample, and the ethnic distribution included Others (63.0%), Malay (23.0%), Chinese (10.9%), and Indian (3.0%) HCWs. 89.1% of HCWs reported experiencing Long COVID, with fatigue (75.8%), feeling sick (62.4%), cough (72.1%), and difficulty sleeping (40.6%) being commonly reported symptoms among those with Long COVID. Multivariate analysis highlighted the significance of the stage of COVID-19 in association with Long COVID. Furthermore, the study explored the potential association between Long COVID and mental health status such as depression, anxiety, and stress, with results indicating no significant associations.

D. RESULTS

Table 1: Demographics characteristics of the respondents

Characteristics	n (%)
Overall n = 165	
Age (years)	
< 50	154(93.3%)
≥ 50	11(6.7%)
Gender	
Male	94(57%)
Female	71(43%)
Ethnicity	
Malay	38(23.0%)
Chinese	18(10.9%)
Indian	5(3.0%)
Others	104(63.0%)
BMI	
<23	22(13.3%)
≥23	143(86.7%)
Smoking	
Yes	23(13.9%)
No	142(86.1%)
Comorbidities	
Yes	51(30.9%)
No	114(69.1%)
Stage of COVID-19	
Category 1	38(23%)
Category 2	127(77%)
Vaccination Status	
Yes	165(100%)
Care Received	
Non-Hospitalised	163(98.8%)
Hospitalised	2(1.2%)

Table 2: Crude association between Long Covid and Mental Health

Variable	Depression		Odds ratio (95% CI)	p value
	Yes N, %	No N, %		
With Long Covid			0.95	1.000*
Yes	6(4.1%)	141(95.9%)	(0.92-0.99)	
No	0	18 (100%)		

*Fischer exact test

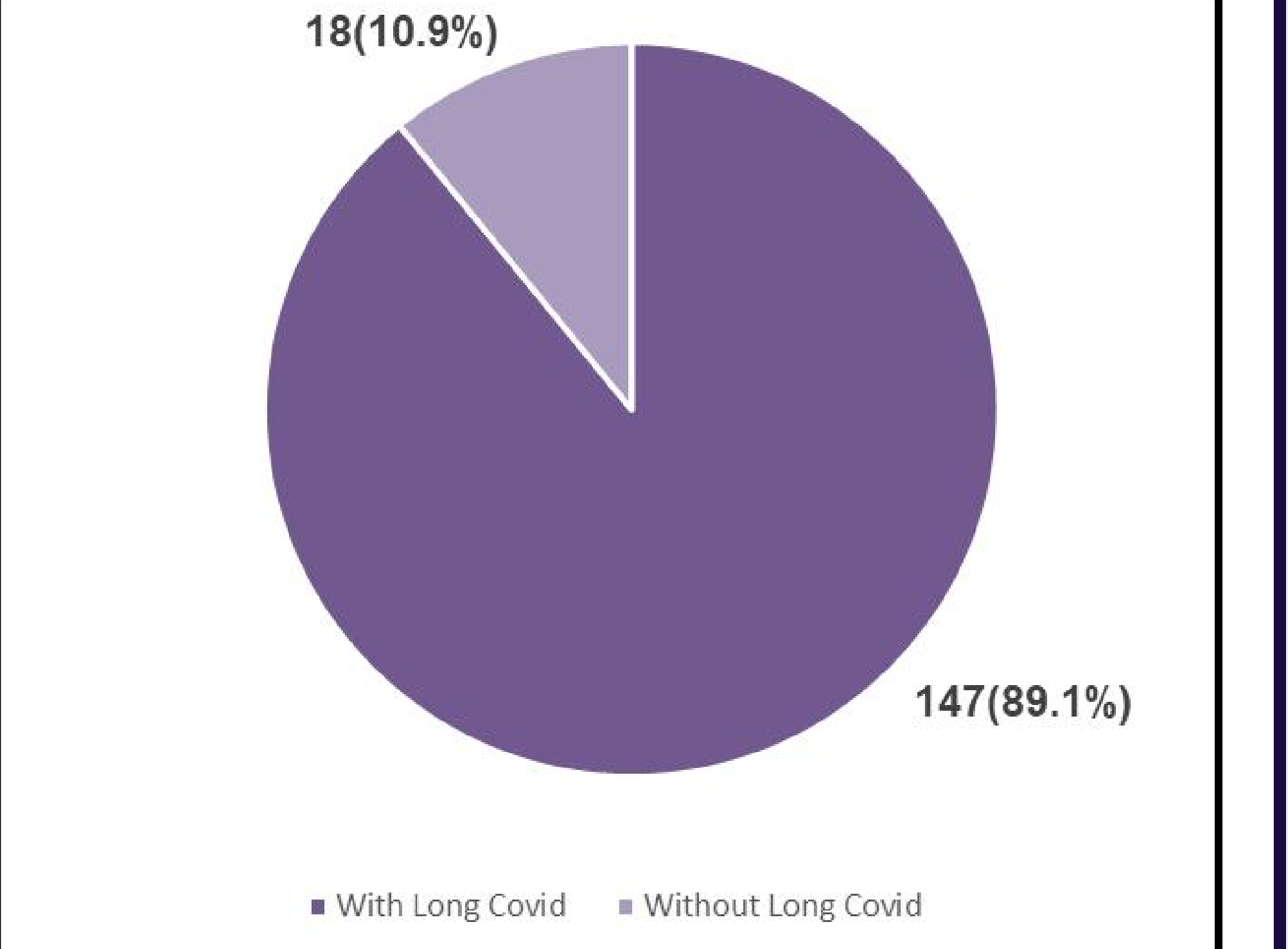


Figure 1: Prevalence of Long COVID among HCWs

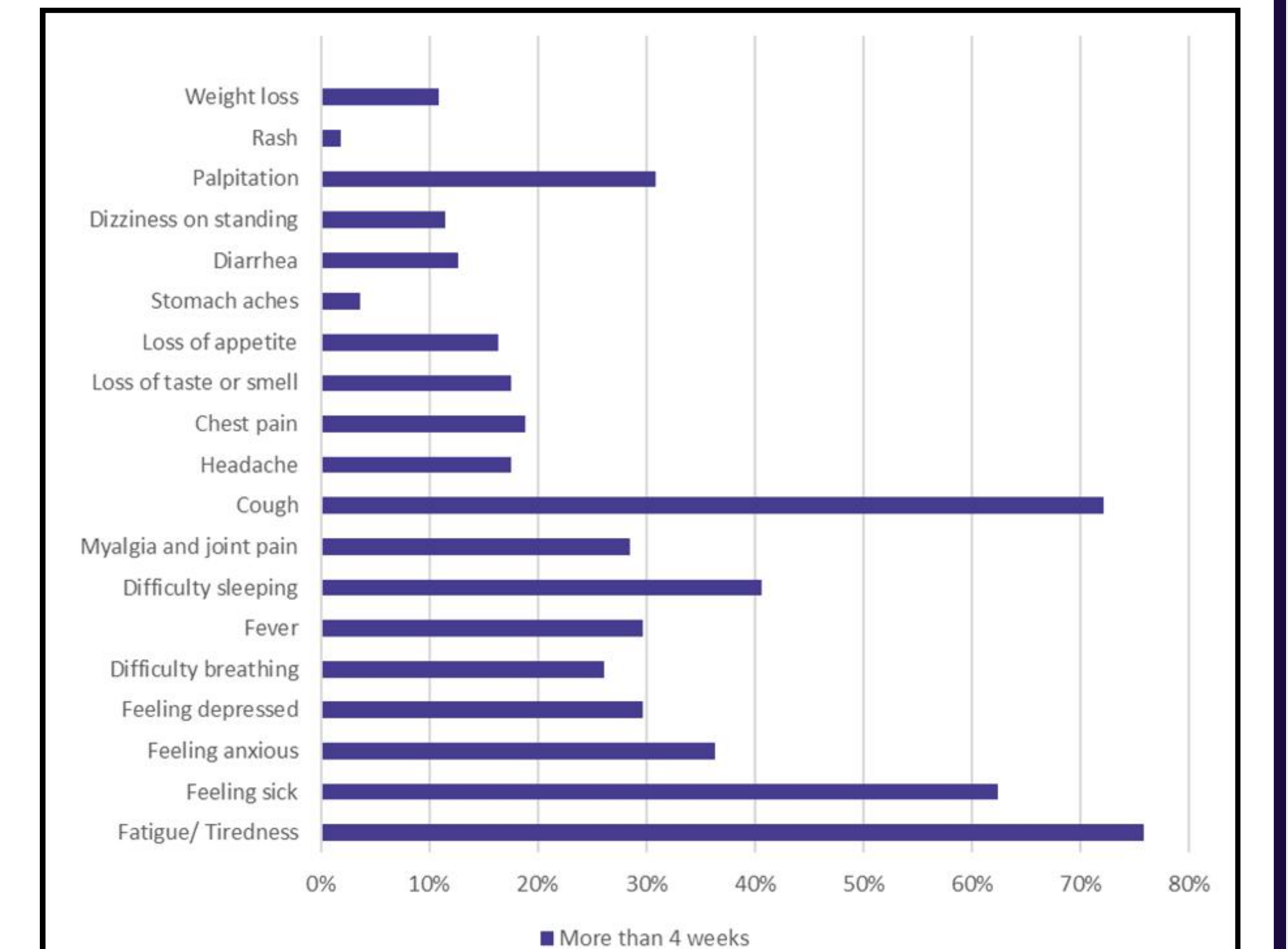


Figure 2: Prevalence of Long COVID symptoms among HCWs

Table 3: Adjusted association between risk factors and Long Covid

Characteristics	aOR	95% CI	df	p-value
Age (years)				
< 50	reference			
≥ 50	0.86	0.41-4.53	1	0.608
Gender				
Male	reference			
Female	1.36	0.41-4.57	1	0.898
BMI				
<23	reference			
≥23	1.42	0.32-6.23	1	0.641
Smoking				
Yes	0.96	0.21-4.39	1	0.961
No	reference			
Comorbidities				
Yes	3.96	0.82-19.01	1	0.085
No	reference			
Stage of COVID-19				
Category 1	reference			
Category 2	5.22	1.85-14.72	1	0.002

F. CONCLUSION

These results contribute to the growing body of knowledge surrounding Long Covid and its effect on the mental health of HCWs, highlighting the need for continued research, support, and awareness within the healthcare community and beyond. Data-driven policy decisions that consider the unique challenges faced by this essential workforce can enhance the overall pandemic response and contribute to maintaining a resilient healthcare system

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A Cross – Sectional Study on Determinants Associated with Dengue Fever Outbreak in Perlis



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Perlis Health State Department, Malaysia

01 INTRODUCTION

- Dengue fever incidence has been increasing after the COVID-19 pandemic.
- The end of restriction movement after pandemic COVID-19 and the cyclic dengue pattern are factors that associated with dengue fever outbreak.



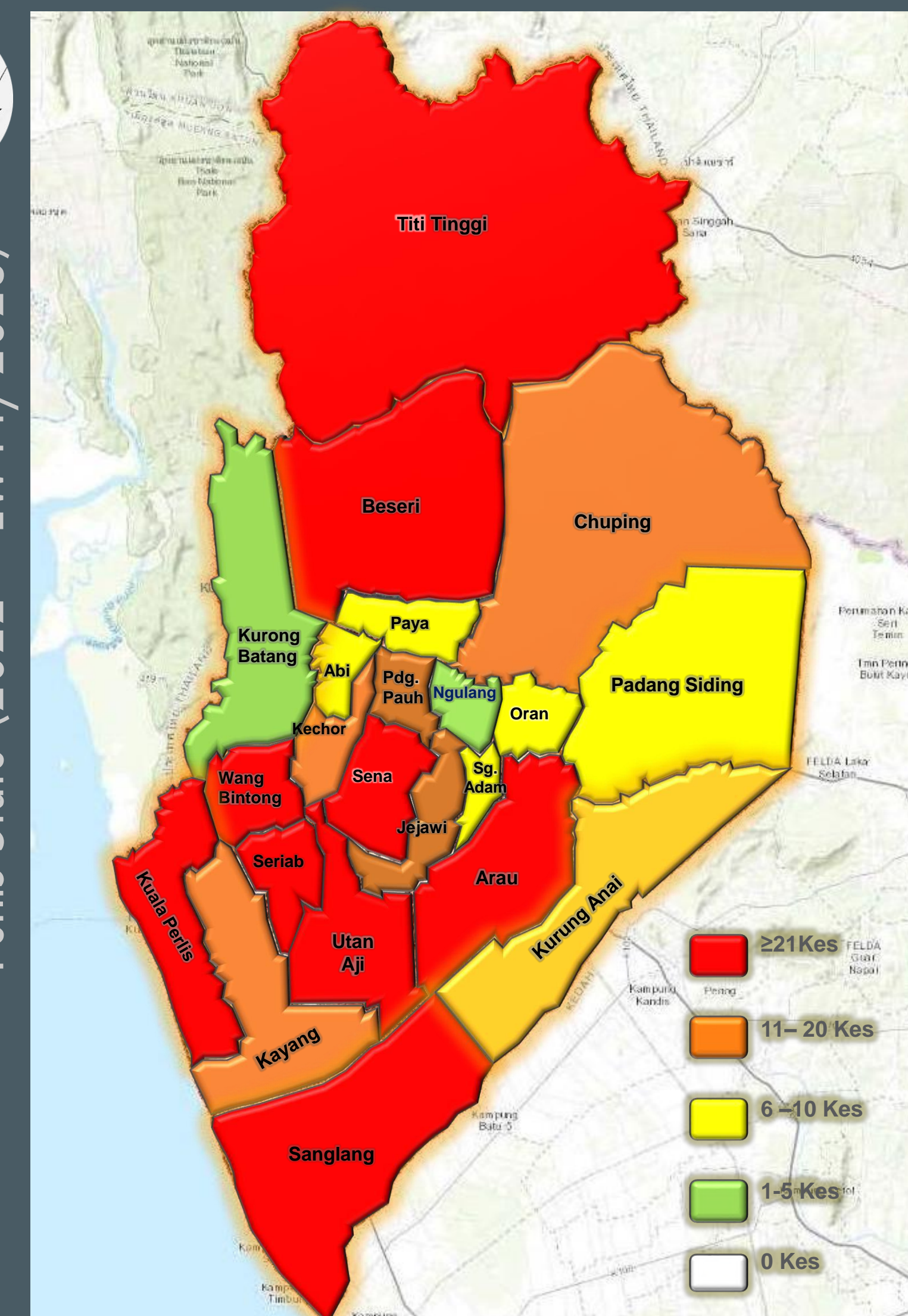
*Vector Unit, Kangar Health District

02 METHODOLOGY

Study Design	A Cross Sectional Study
Study Location	Perlis, Malaysia
Data Source	Surveillance database form eDengue KKM from 2022 – EW44/2023
Case Definition	<p>Suspected A case compatible with clinical description.</p> <p>Confirmed A case compatible with the clinical description and laboratory confirmed (NS1, Serology or PCR)</p> <p>Outbreak Two or more dengue cases within 14 days in 200m radius</p>
Statistical Analysis	Descriptive and univariate analysis using SPSS version 26



Distribution of Dengue Cases in 22 communes in Perlis State (2022 – EW44/2023)



03 RESULTS

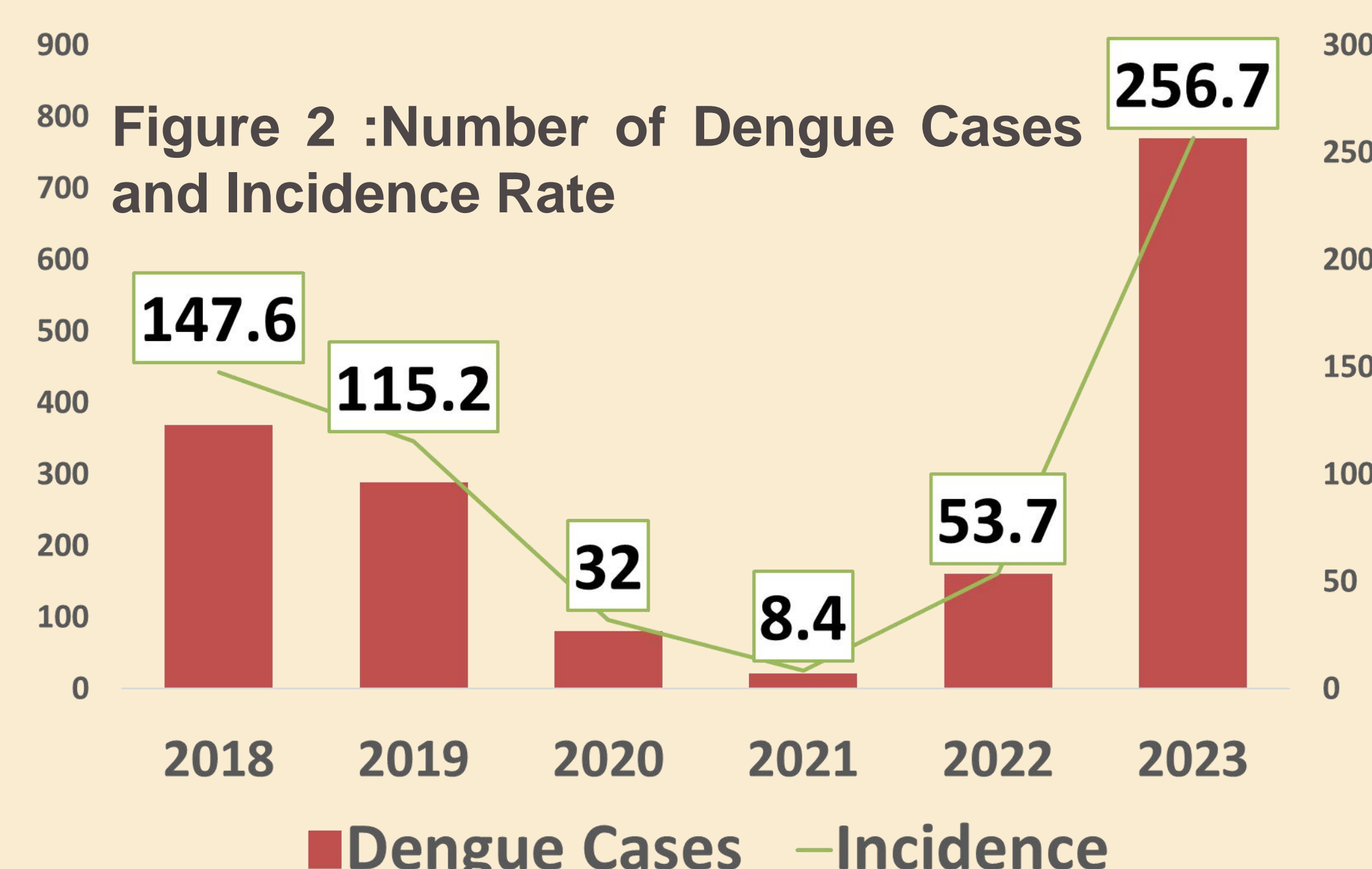
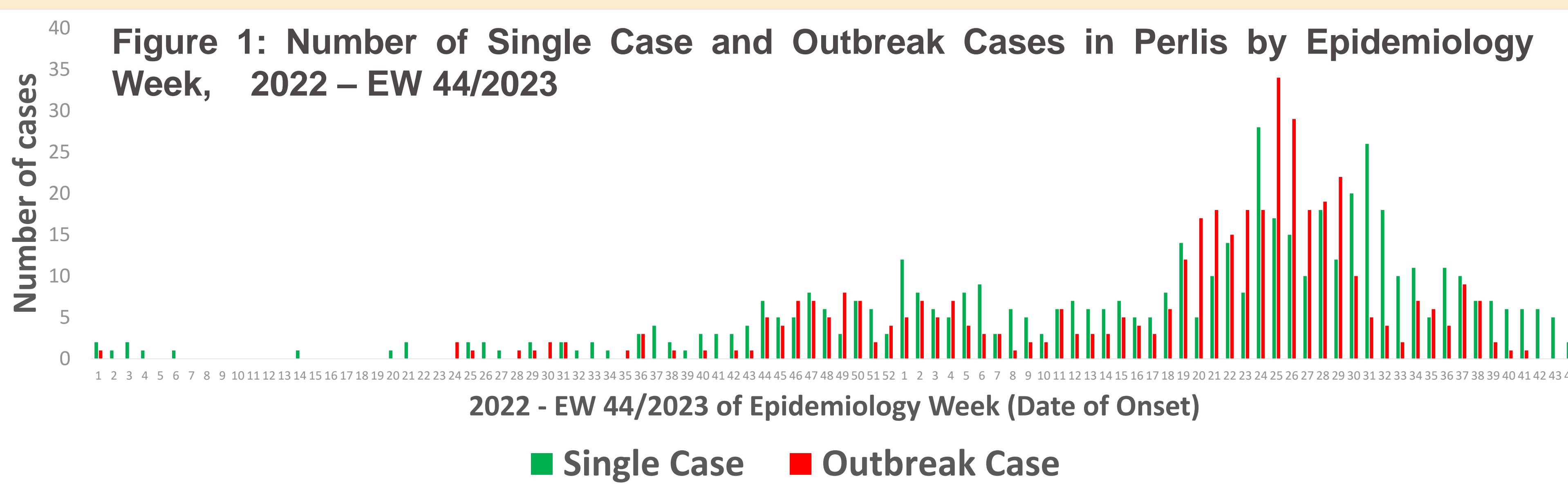


Table 1: Classification of Dengue Cases, 2022 – Nov 2023

Variables	Frequencies (%)
Single case	514 (55)
Single case later progress to an outbreak	92 (10)
Oubreak Cases	325 (35)
Total	913 (100)

Table 2: Timeliness (days) of dengue onset to diagnosis between single case and outbreak cases, 2022 – EW44/2023

	No. of Single Case (n=514)	No. of Outbreak cases (n=417)
Mean onset to diagnosis (days)	2.98	2.65
Interval (days), Median (IQR)	3.00 (2)	2.00 (3)
Z statistics		-3.086
P value*		0.002

*Mann-Whitney U test

Table 3: Factor Contributes to Diagnostic Delay among Dengue Cases, 2022- EW44/2023

Variables	Frequency (%), n=931
No diagnostic delay (within 3 days of onset)	648 (70)
Diagnostic delay (>3 days of onset)	283 (30)

Delay of diagnosis by medical practitioner

-Private	64 (22.6)
-Government	219 (77.4)

04 DISCUSSION

- The findings suggest that when early diagnosis is omitted, the likelihood of disease transmission within the community increases, given that individuals with infections act as a viral reservoir for the Aedes mosquito, the vector responsible for dengue[1].
- Timely identification of dengue is essential for successful implementation of vector control measures. Detecting and treating cases promptly not only diminishes the likelihood of severe illness and fatalities but also plays a crucial role in breaking the transmission cycle by reducing the population of infected mosquitoes in specific areas[2].

05 CONCLUSION & RECOMMENDATION

- Ongoing emphasis should be placed on training in the diagnosis and management of dengue, with a focus on initiating this training early in medical education and maintaining it throughout government service.
- Private practices, particularly general practitioners, should possess rapid diagnostic testing capabilities within their facilities to ensure prompt and accurate diagnoses.
- Creating awareness within the community about dengue cases occurring in their vicinity can serve as an alert, prompting residents to promptly seek medical attention if they experience fever symptoms.

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INTRODUCTION

Rabies is a virulent and lethal ailment primarily transmitted through canine bites.¹ Global alarm rises as human dog bites surge amid escalating stray dog populations and known rabies outbreaks.² In recent years, Sarawak has experienced incidents of rabies transmission, often linked to dog bites, posing a significant public health concern.³

The presence of stray and free-roaming dogs in urban areas has contributed to the risk of rabies exposure, necessitating a comprehensive understanding of the epidemiology and impact of this zoonotic disease.⁴ The lingering, unsolved Sarawak rabies crisis since July 2017 heightens concerns in Samarahan District, demanding urgent intervention.⁵

OBJECTIVES

This study aims to uncover the characteristics of dog bite cases in Samarahan District. Specific objectives involve unraveling trends of dog bite cases, exploring sociodemographic profiles of cases, categorizing dog bite, and gauging the incidence rate of human rabies cases.

METHODOLOGY

A cross-sectional study design was employed, focusing on notified dog bite cases in Samarahan District (EW1 2021- EW40 2023) using I-Bite system and also notification of human rabies cases in Samarahan District from e-Notifikasi. Employing universal sampling, the research integrated surveillance data review and laboratory-based confirmation. Descriptive statistics were utilized for data analysis.

RESULTS

The study uncovered a troubling surge in human rabies cases in Samarahan District with cumulative incidence of 1.47 per 100,000 population. Noteworthy patterns emerged, indicating geographical clustering in specific locales, a predominance of cases among males, age group of 20-39, and a notable involvement of pet mixed strays in dog bite incidents. Identifying risk factors, notably the absence of provocation in many cases, underscores the imperative for comprehensive vaccination strategies.

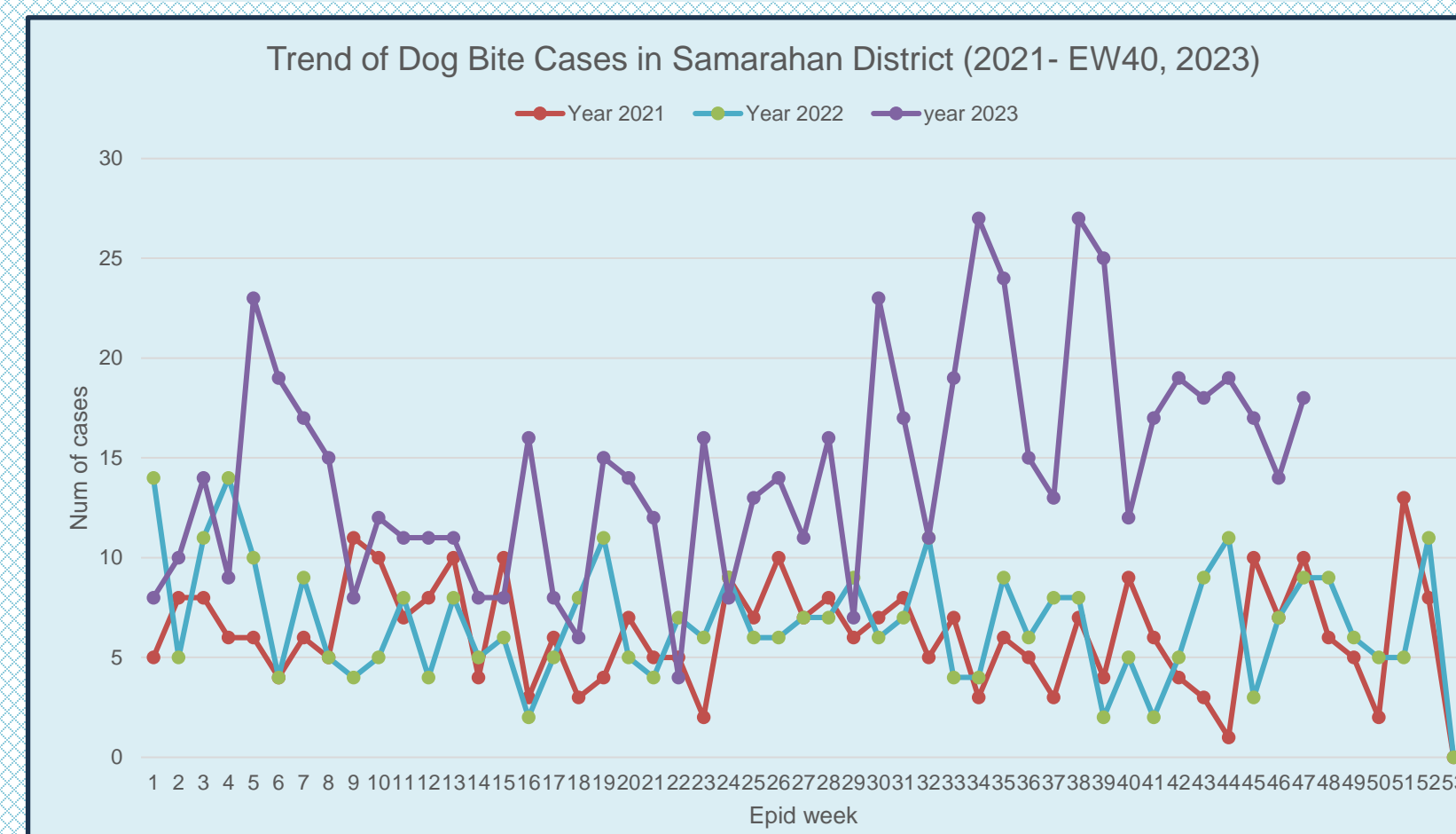


Table 1. Sociodemographic of Dog Bite Cases in Samarahan District (2021-2023)

Variables	n	(%)
Gender	Number of bite cases	Percentage (%)
Male	594	51.56
Female	558	48.44
Ethnicity	Number of bite cases	Percentage (%)
Malay	259	22.48
Iban	309	26.82
Bidayuh	144	12.5
Chinese	364	31.6
Others	76	6.6
Age group	Frequency	Percentage (%)
<20	301	26.13
20-39	415	36.02
40-59	294	25.52
≥60	142	12.33

Table 2. Details of Dog Bite Cases in Samarahan District (2021-2023)

Variables	n	(%)
Animal category	Number of bite cases	Percentage (%)
Pet	537	46.61
Stray	372	32.29
Pet mixed stray	243	21.1
Grade of bites	Frequency	Percentage (%)
1	78	6.77
2	334	29
3	740	64.23
Classification of animal bite	Frequency	Percentage (%)
Provoked	825	71.61
Unprovoked	327	28.39
Human Rabies	Frequency	Cumulative IR
Positive	2	1.47/100,000 population

DISCUSSION

The findings of this study highlight a concerning escalation of human rabies cases in Samarahan District, emphasizing the urgent need for comprehensive intervention strategies. The notable patterns, such as geographical clustering, higher incidence among males aged 20-39, and the involvement of pet mixed strays, provide valuable insights for targeted public health measures. The identified risk factors, particularly the absence of provocation in many cases, underscore the importance of enhancing vaccination strategies, emphasizing the One Health approach.

The Samarahan District study on human dog bites and rabies suggests several recommendations:

- Intensify Vaccination Campaigns
- Community Education and Engagement
- One Health Collaboration
- Enhance Surveillance Systems
- Enhance Stray Animal Management
- Policy Development

CONCLUSION

The escalating human dog bites and human rabies cases in Samarahan District underscore an urgent need for comprehensive intervention. Strategies should include targeted vaccination campaigns, community engagement, and One Health collaboration.

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MELIOIDOSIS IN SANDAKAN: A SITUATIONAL ANALYSIS (2017-2023)

MINISTRY OF HEALTH
MALAYSIA

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INTRODUCTION

Burkholderia pseudomallei, a Gram-negative bacterium that is common in surface water of rice and oil palm paddies, newly planted oil palm fields, drains, gardens, and playgrounds in endemic areas, is what causes melioidosis. The main methods of transmission are consumption of contaminated soil or water, cutaneous inoculation, or inhalation. Type 2 diabetes mellitus (DM) is the most common risk factor, but other risk factors include malignancy, chronic kidney disease, and immunosuppressive medications [1].

Worldwide, melioidosis claimed the lives of 89 000 people each year (95% CI 36 000-227 000) [2]. Although Malaysia has documented over 1,000 cases of melioidosis [3], its incidence is unknown.

In Pahang, where agriculture is the main business, there were 6.1% of adult cases of melioidosis with culture confirmation per 100,000 people from 2000 to 2003 [2]. More Malaysians die from melioidosis each year than from dengue and TB combined. Over 80% of cases of melioidosis go untreated, with mortality rates ranging from 14% to 40% [4].

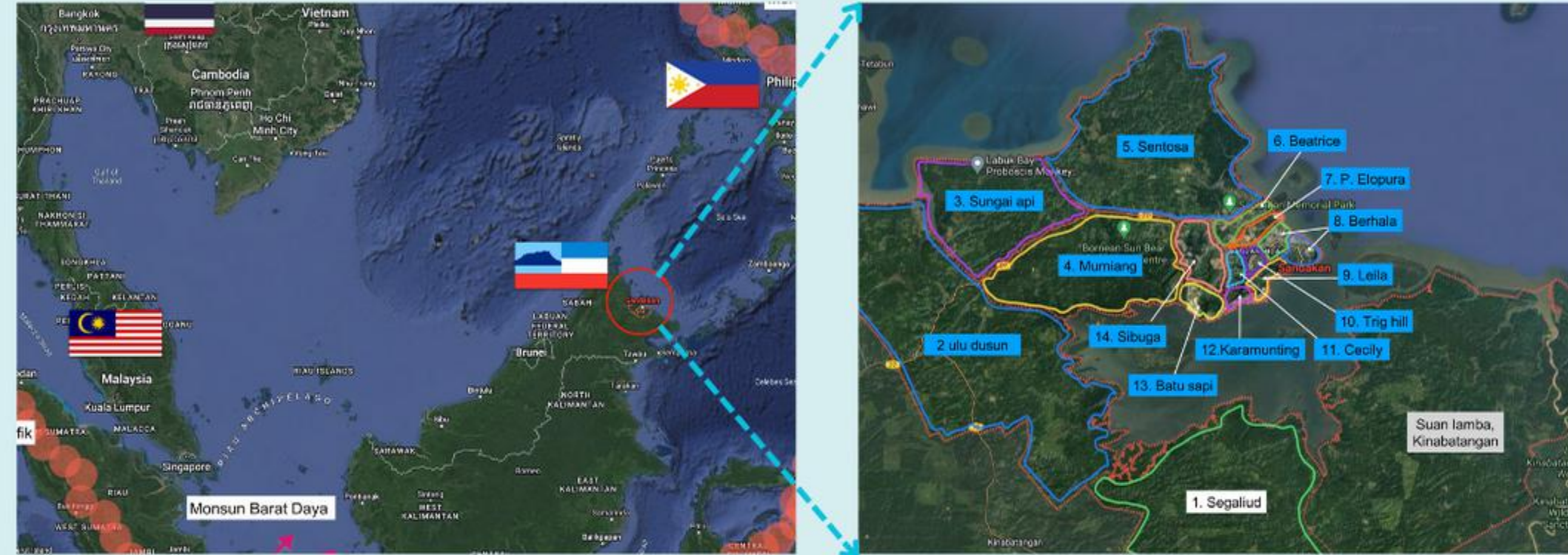
Male gender, older age, occupational exposure, ineffective treatment, and pre-existing comorbid illnesses are risk factors for melioidosis and related mortality in Malaysia [3].

Therefore, the goal of this study was to determine the epidemiology of melioidosis in Sandakan among those diagnosed with the disease from January 2017 to June 2023.

METHODS

Study Area

Sandakan is the second highest population district in Sabah, after Kota Kinabalu. Sandakan is divided into 14 divisions.



Data Collection and Analysis

A descriptive study was done on data recorded in the Sandakan District Health Office Registry from **January 2017 until June 2023**.

All melioidosis patients diagnosed were notified through administrative notifications and subsequently investigated using standardized investigation forms.

Among the variables included in the description include socio-demographic information, underlying medical conditions, clinical presentations, anatomical location, laboratory investigation results, occupational exposures as well as environmental sampling findings.

RESULTS

75 Cases

Nationality	n (%)
Malaysian	63 (84%)
Non Malaysian	13 (16%)

Gender	Cases	Deaths
Male	59 (79.7%)	14 (70%)
Female	16 (27.3%)	6 (30%)

FIG 1. Distribution of cases by nationality and gender.

Age Group	Cases	Deaths
40-49	18	12
50+	42	14

Median : 53 Years Old (Cases)
Median : 41 Years Old (Deaths)

FIG 2. Median age for cases and death.

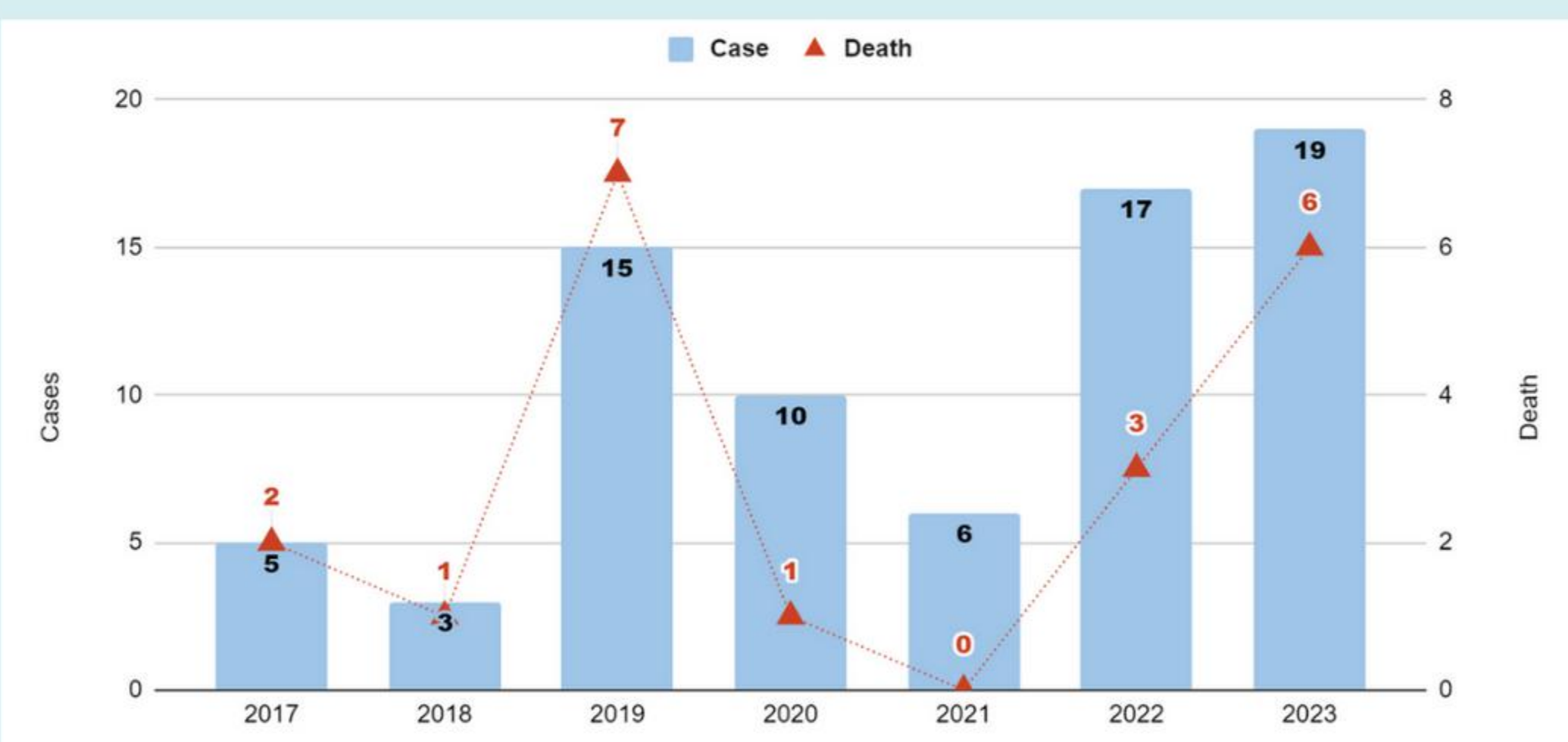


FIG 3. Numbers of Melioidosis cases and deaths in Sandakan.

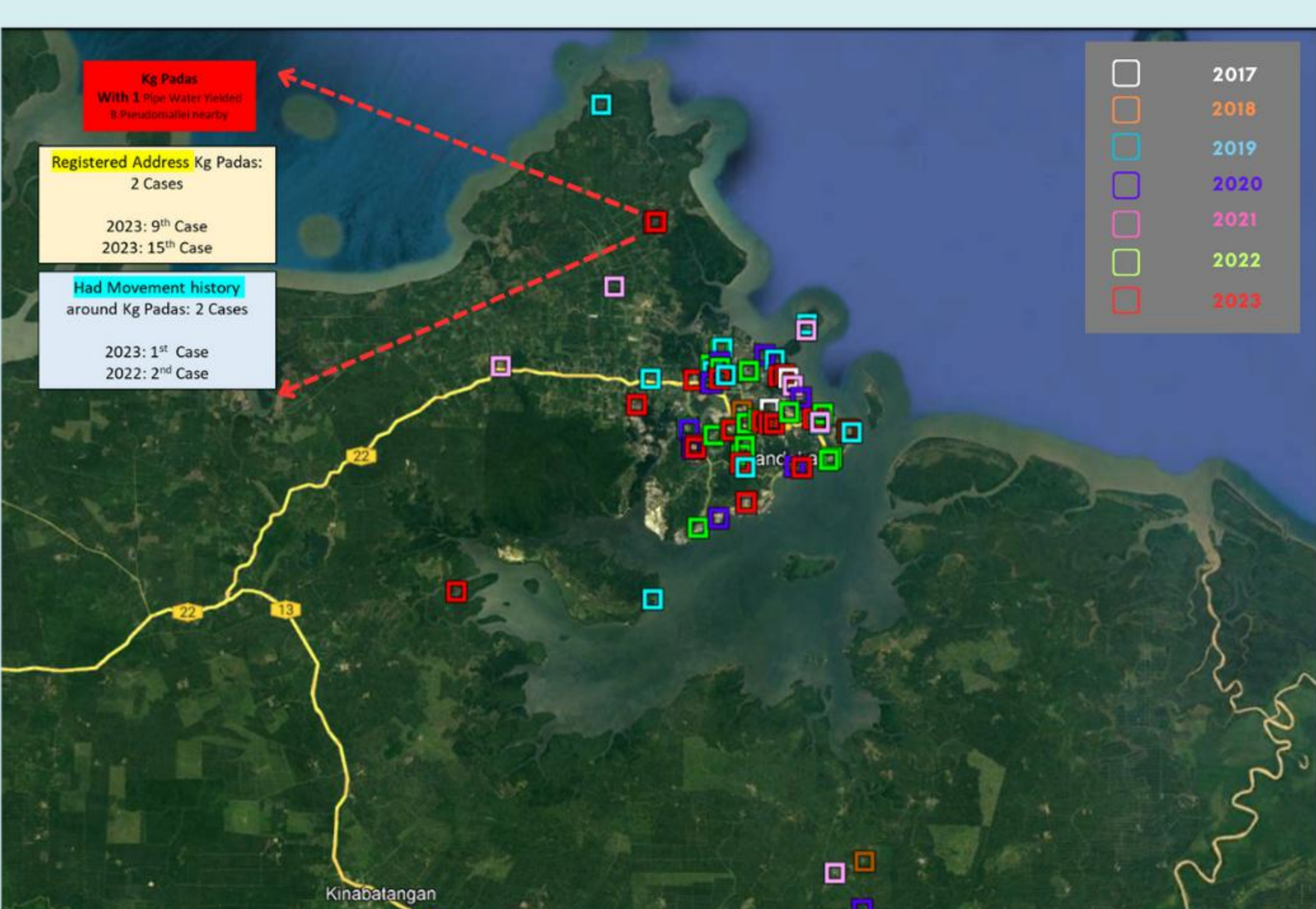


FIG 4. Spot map of Melioidosis cases in Sandakan.

In Jan 2017-June 2023, there were 75 cases of Melioidosis reported in Sandakan with 20 (26.67%) deaths. Cases were registered from 11 division areas of Sandakan with the majority of the cases reported from the areas of Sentosa, Beatrice, and Sibuga.

An increasing trend of incidence rate was seen throughout the years with 0.49/ 10,000 populations in 2023

Comorbid	n (%)
1 Diabetes Mellitus	53 (49.07%)
2 Hypertension	20 (18.42%)
3 Dyslipidemia	9 (8.33%)
4 Chronic Renal Failure	6 (5.56%)
5 Cancer	3 (2.78%)
6 BPH	2 (1.85%)
7 Gout	2 (1.85%)
8 Glaucoma	2 (1.85%)
9 Chronic Lung Disease	2 (1.85%)
10 Allergies	1 (0.93%)

Comorbid	n (%)
11 Brain Abscess	1 (0.93%)
12 PTB	1 (0.93%)
13 Acute Myeloid Leukemia	1 (0.93%)
14 IHD	1 (0.93%)
15 Stroke	1 (0.93%)
16 Inflammatory Bowel Disease	1 (0.93%)
17 SLE	1 (0.93%)
18 B-Thalassemia Major	1 (0.93%)
19 HIV/AIDS	0 (0.00%)
20 Other immunocompromised (steroid)	0 (0.00%)

FIG 5. Cases's comorbidity.

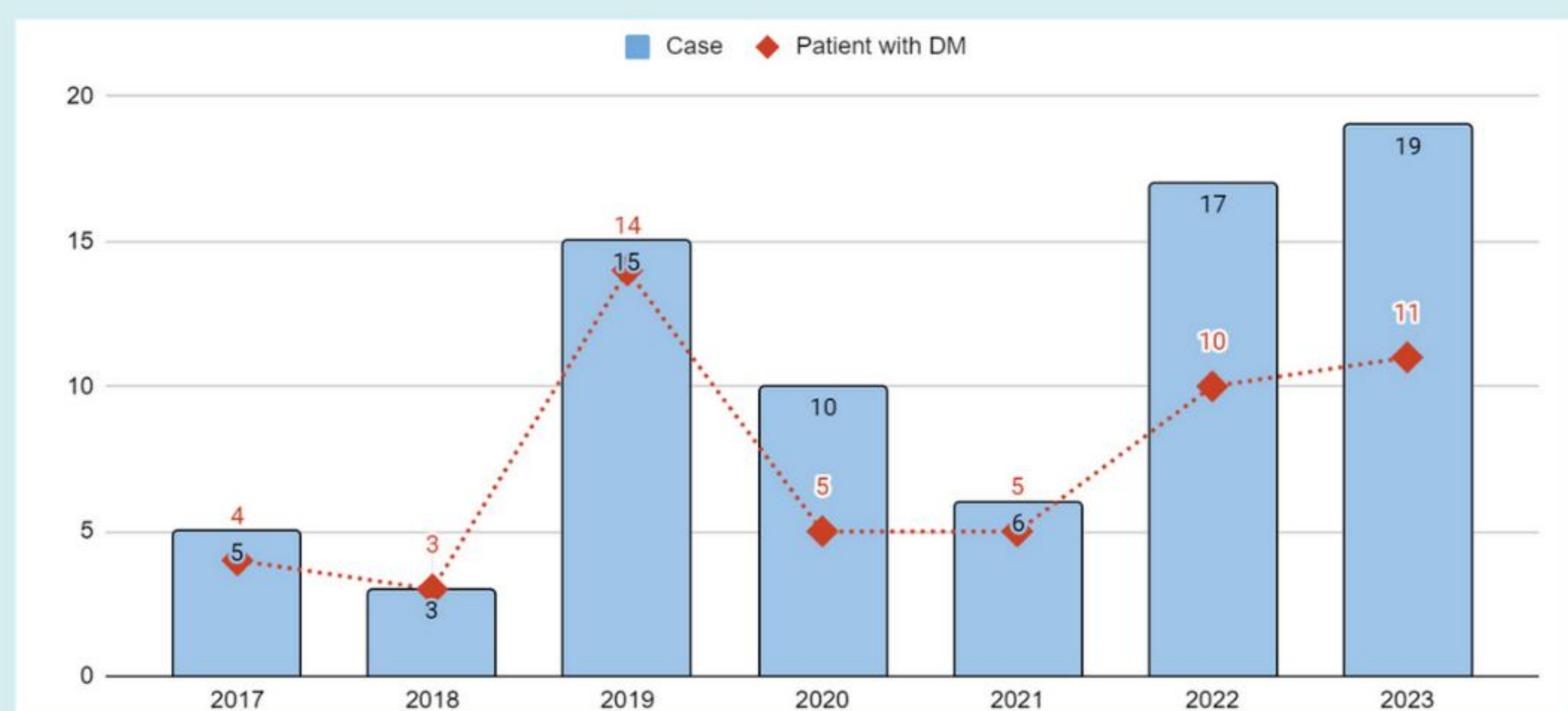


FIG 6. Numbers of Melioidosis cases with Diabetes.



Occupation	n (%)
1 Farming, forestry, and fishing occupation	30 (40.00%)
2 unemployed	14 (18.67%)
3 housewife	8 (10.67%)
4 Sales Occupation	4 (5.44%)
5 Student	3 (4.00%)
6 administrative support occupations, including electrical	2 (2.67%)
7 machine operators, assemblers, and inspectors	2 (2.67%)
8 handlers, equipment cleaners, helpers, labourers	2 (2.67%)
9 not relevant (children)	2 (2.67%)
10 transportation and material moving occupations	1 (1.33%)



16
Hobbies and activities related to farming

46 (61.33%) involved in activities and occupation related to farming/ forestry/ fishing

FIG 7. Case's exposure history to occupation and activities related to farming/ forestry/ fishing.

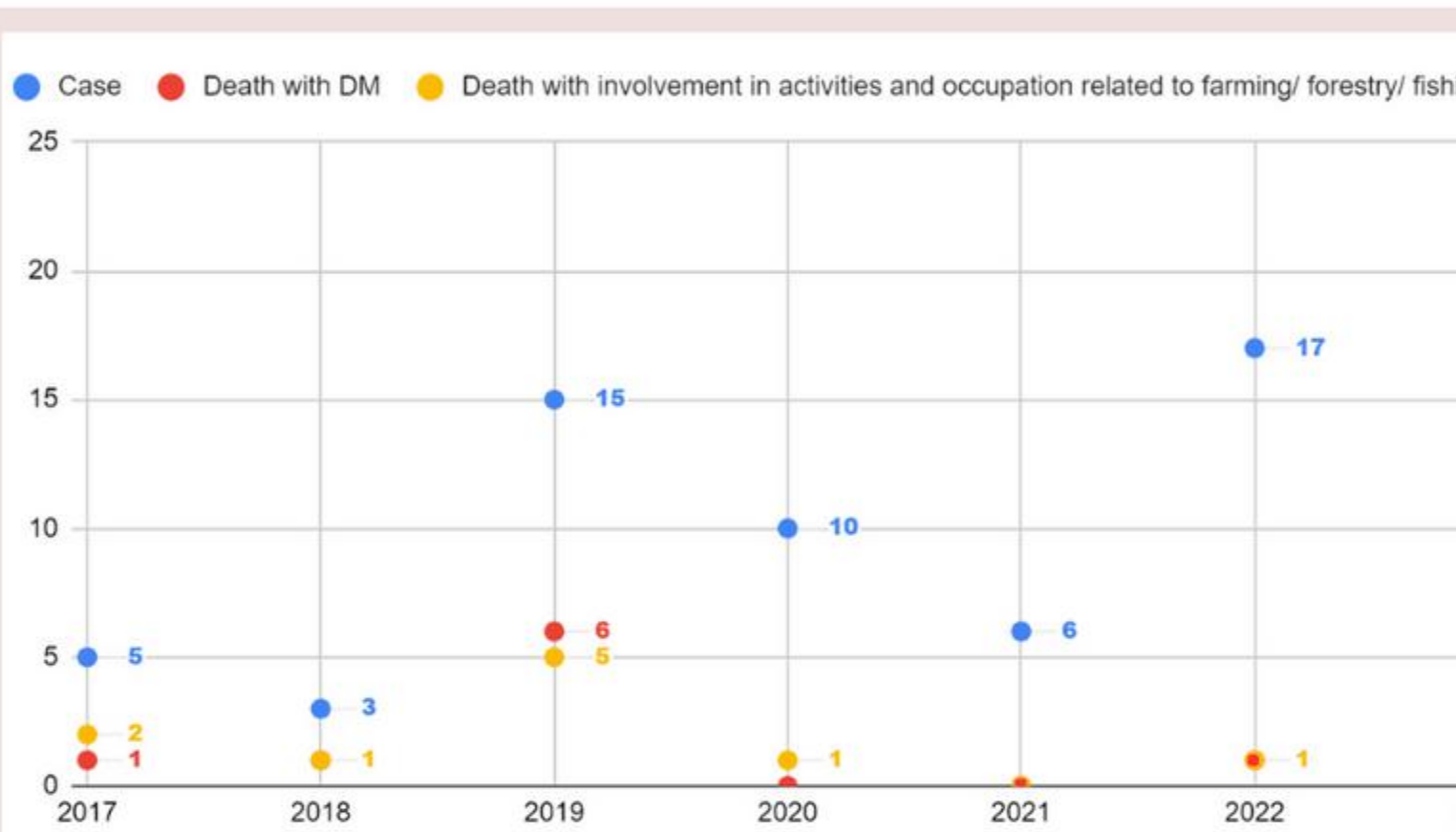


FIG 8. Case's death with underlying Diabetes and exposure history to occupation and activities related to farming/ forestry/ fishing.

13 (65.00%) of death due to Melioidosis had Diabetes and 14 (70.00%) of death due to Melioidosis had exposure history to occupation and activities related to farming / forestry / fishing.

Complaint	n (%)
1 Fever	58 (31.69%)
2 Cough	23 (12.57%)
3 Vomiting	16 (8.74%)
4 Lethargy	14 (7.65%)
5 Swelling	12 (6.56%)
6 Diarrhea	8 (4.37%)
7 Shortness Of Breath	8 (4.37%)
8 Limb Pain	7 (3.83%)
9 Abdominal Pain	7 (3.83%)
10 Loss Of Weight/Appetite	6 (3.28%)
11 Reduce oral intake	4 (2.19%)

FIG 9. Clinical presentation of Melioidosis patients (n=146). Fever and cough were reported as the most common presentation in Melioidosis patients during admission

Final Clinical Diagnosis	n (%)
1 Pneumonia	42 (56.00%)
2 Soft Tissue Abscess	11 (14.67%)
3 Liver Abscess	7 (9.33%)
4 Septic Arthritis	3 (4.00%)
5 AGE / GI Losses	3 (4.00%)
6 Splenic Abscess	2 (2.67%)
7 Others	7 (9.33%)

FIG 10. Number of cases by primary diagnostic group.

Test	n (%)
1 Blood Culture & Sensitivity	65 (86.67%)
2 Pus Culture & Sensitivity	6 (8.00%)
3 Sputum Culture & Sensitivity	2 (2.67%)
4 Fluid (Pericardial) - Aerobic & Anaerobic for Culture & Sensitivity	1 (1.33%)
5 Tissue Culture & Sensitivity	1 (1.33%)

FIG 11. Blood culture & sensitivity from clinical specimen remains the gold standard for diagnosing Melioidosis

Sample taken (n)	Water pipe	Drinking water	River water	Well water	Drain water	Sea Water	Soil
78	78	20	3	3	7	3	172
Positive (n)	2	0	0	0	0	0	0
Positivity Rate (%)	2.56%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

FIG 12. Environmental samples taken.

Challenges yet lie ahead in determining the source of infection. Pipe water (n=2,0.70%) was the only environmental sample taken, which yielded *Burkholderia pseudomallei*

DISCUSSION

- Ageing, diabetes, and jobs or activities in agriculture, forestry, and fishing are all significant risk factors for morbidity and mortality in melioidosis patients in Sandakan.
- In order to lower mortality and morbidity rates, community outreach programs and public health campaigns should concentrate on informing high-risk groups about the significance of appropriate personal protective equipment (PPE) and other preventative measures in addition to early detection of melioidosis.
- Healthcare providers should prioritize the management of diabetes mellitus in at-risk populations to mitigate the risk of melioidosis-related complications and death.



RECOMMENDATION

- To reduce the morbidity and mortality in melioidosis in Sandakan, it's crucial to increase awareness and education about risk factors like age and diabetes. This can be achieved through community outreach, public health campaigns, and instructional materials.
- Regular health examinations, diabetes control, and lifestyle adjustments can help combat infections.
- Proper personal protective equipment while doing activities related to in agriculture, forestry, and fishing, can also reduce exposure to melioidosis-causing microorganism. Increase surveillance activities in water treatment plant also needed to reduce morbidity, hence the mortality from melioidosis.
- In endemic areas, there is a great need for simple, low-cost and rapid diagnostic tools. Future prospective studies will seek to validate the gain in sensitivity and specificity of our multiplex rapid test approach in different melioidosis patient cohorts [7].

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KEMENTERIAN PENDIDIKAN TINGGI

DEVELOPMENT AND VALIDATION OF THE PERCEPTIONS TOWARDS COVID-19 VACCINATION QUESTIONNAIRE AMONG HEALTHCARE WORKERS IN MALAYSIA: THE MALAY VERSION

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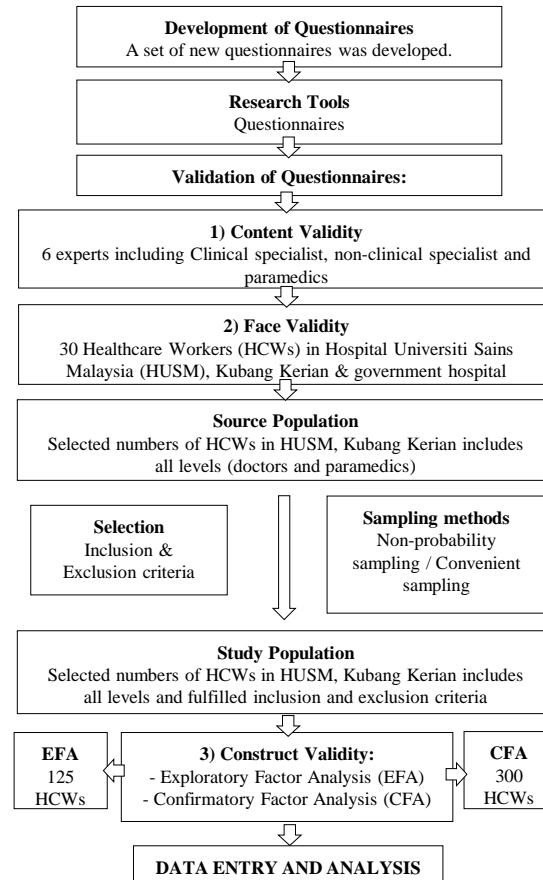
INTRODUCTION

- Strategies to improve acceptance of COVID-19 vaccinations are crucial in preventing the spread of COVID-19 disease.
- Healthcare workers (HCWs) are crucial in facilitating COVID-19 vaccination as they are the primary and reliable providers of vaccine-related information for the population.
- Nevertheless, there are a few reliable instruments available for gauging their views on this issue.

OBJECTIVE

This study aims to develop and validate the Perceptions towards COVID-19 Vaccination (PC19-V) questionnaire among HCWs in Malaysia.

METHODOLOGY



RESULTS

Factor Loadings and Communalities of the Final EFA Results:

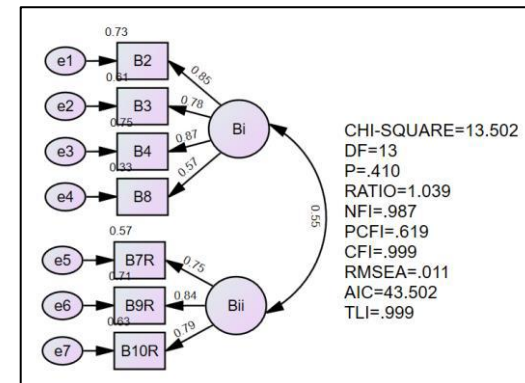
Item	Pattern Matrix ^a		Communalities
	Factor 1	Factor 2	
B2	.820*		.743
B3	.710*	.191	.722
B4	.846*		.731
B7R		.750*	.549
B8	.717*	-.143	.398
B9R	.128	.654*	.555
B10R	-.102	.913*	.720

Note. Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

*High factor loading



Final PC19-V Model for healthcare workers.

CONCLUSION

- PC19-V questionnaire is a valid and reliable tool for measuring perceptions of COVID-19 vaccination among HCWs.
- Further study are needed to know the exact perceptions of HCWs in Malaysia towards COVID-19 vaccination.

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3rd National Epidemiology Conference 2023



Predictors of Mortality In Patients With Melioidosis in Kota Kinabalu: A 5-Year Retrospective Study



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INTRODUCTION

Melioidosis is an emerging infectious disease predominantly observed in developing nations, with a higher prevalence in Southeast Asia and Northern Australia (Birnie et al., 2020). Despite improvements in treatment methods, the case fatality rate remains substantial, ranging from one-third to around half of the patients (33-54%) in four out of five case series conducted in Malaysia (Nathan et al., 2018).

AIM

Limited information is available regarding the characterization of melioidosis and the factors influencing mortality in the community especially in Kota Kinabalu. This study aims to fill this knowledge gap by investigating and identifying predictors of mortality in patients diagnosed with culture-positive melioidosis.

METHOD

- This is a retrospective, descriptive study.
- The study population consists of the melioidosis patients notified to Kota Kinabalu Health Office from 2018 until 2022.
- The inclusion criteria were all melioidosis patients diagnosed from 1st January 2018 until 31st December 2022 and notified to Kota Kinabalu Health Office.
- The notification with incomplete information and case with a change of diagnosis were not included in this study.

RESULTS

Table 1: Characteristics of melioidosis patients [n (%)]

Variables	Survived (n=102)	Died (n=46)	χ^2	p-value
Type of melioidosis distribution			2.225	0.136
Non-bacteremic	9 (8.8)	1 (2.2)		
Bacteremic	93 (91.2)	45 (97.8)		
Comorbidity				
Malignancy	2 (2.0)	3 (6.5)	2.020	0.155
Heart disease	5 (4.9)	4 (8.7)	0.799	0.371
Tuberculosis	1 (1.0)	1 (2.2)	0.339	0.561
Dyslipidemia	13 (12.7)	3 (6.5)	1.273	0.259
Diabetes mellitus	64 (62.7)	17 (37.0)	8.510	0.004
Hypertension	35 (34.3)	10 (21.7)	2.369	0.124
Chronic kidney disease	5 (4.9)	4 (8.7)	0.799	0.371
Clinical presentation				
Pneumonia	6 (5.9)	5 (10.9)	1.146	0.284
Diarrhea	12 (11.8)	6 (13.0)	0.049	0.826
Nausea	11 (10.8)	0	5.359	0.021
Vomiting	21 (20.6)	6 (13.0)	1.210	0.271
Lethargy	39 (38.2)	20 (43.5)	0.364	0.547
Abdominal pain	16 (15.7)	2 (4.3)	3.815	0.051
Fever	85 (83.3)	33 (71.7)	2.637	0.104
Cough	28 (27.5)	9 (19.6)	1.051	0.305
Loss of appetite	41 (40.2)	15 (32.6)	0.776	0.378
Shortness of breath	22 (21.6)	19 (41.3)	6.165	0.013

+ Data is shown as mean \pm standard deviation and analyzed using an independent t-test.

χ^2 = Differences between groups analyzed by the Pearson Chi-square test.

Percentages were calculated based on the total subjects (no.) for each disease group.

Comorbidity: data was presented for those with the disease only; the comparison of data was made based on those with and without the disease.

Clinical presentation: data was presented for those with the disease only; the comparison of data was made based on those with and without the disease.

Table 2: Multivariate analysis of predictors of mortality in melioidosis

Variable	Multiple Logistic Regression Adjusted OR (95% CI)	p-value
Comorbidity		
Diabetes mellitus		
No	1.00	
Yes	0.335 (0.160 – 0.703)	0.004*
Clinical presentation		
Shortness of breath		
No	1.00	
Yes	2.683 (1.227 – 5.869)	0.013*

Hosmer-Lemeshow test (P = 0.482), classification table (overall correctly classified percentage = 69.6%), and area under the curve (67.9%) were applied to check the model fitness.

Multicollinearity and interaction did not exist in the final model.

DISCUSSION

- From January 2018 to December 2022, a total of 46 individuals (31.1%) who had melioidosis, passed away. Among the group, the majority of patients (138 out of 148, or 93.2%) had confirmed cultures indicating the presence of the disease.
- In this study, it was observed that diabetic patients had a 67% reduced odds of mortality compared to non-diabetic patients. Diabetes mellitus accounted for the highest percentage of comorbidities affecting both survived and deceased melioidosis patients. A total of 81 (54.7%) patients were found to have diabetes mellitus. Interestingly, a higher percentage of melioidosis patients with diabetes mellitus survived (62.7% vs. 37.0%), resulting in an adjusted odd ratio (aOR) of 0.335.
- The study findings were consistent with research conducted in Thailand, which also indicated a protective effect of diabetes against mortality from melioidosis, with an odds ratio of 0.57 (Hantrakun et al., 2019). The reduced mortality rate observed in individuals with diabetes mellitus might be attributed to the potential anti-inflammatory effect of glyburide, a medication commonly used to manage diabetes (Koh et al., 2011).
- In this study, the mortality rate for bacteremic melioidosis patients was 97.8%, a figure consistent with the high mortality rates reported in many studies involving bacteremic cases (Deris et al., 2010)(Jose et al., 2019).

CONCLUSION

- Melioidosis is not uncommon in Sabah, especially in the Kota Kinabalu area.
- Patients with bacteremic melioidosis should receive targeted precautions, including close monitoring and prompt, appropriate treatment during their hospital admission.
- Moreover, proper management should also be emphasized for patients without diabetes but who have other health issues, to ensure they receive adequate treatment and care.
- Furthermore, as the health office did not capture data on blood investigations and antibacterial therapy, it is advisable to explore the relationship between these clinical factors and mortality among melioidosis patients.

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COMPLETENESS AND TIMELINESS OF THE ONLINE DISEASE SURVEILLANCE SYSTEM IN TAWAU, MALAYSIAN BORNEO: A QUINQUENNIAL ANALYSIS

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INTRODUCTION

Public health requires reliable and effective disease surveillance for early epidemic and trend detection. The CDCIS Notification System was Malaysia's first online notification system in 2006 which integrates cutting-edge technology into infectious illness notification. This electronic technology speeds up notice processing to the District Health Office. Surveillance systems must be complete and timely. Despite the lack of infectious disease surveillance literature in Malaysia, this study aim to evaluate the timeliness and completeness of the Communicable Disease Control Information System (CDCIS) in Tawau District from 2018 to 2022.

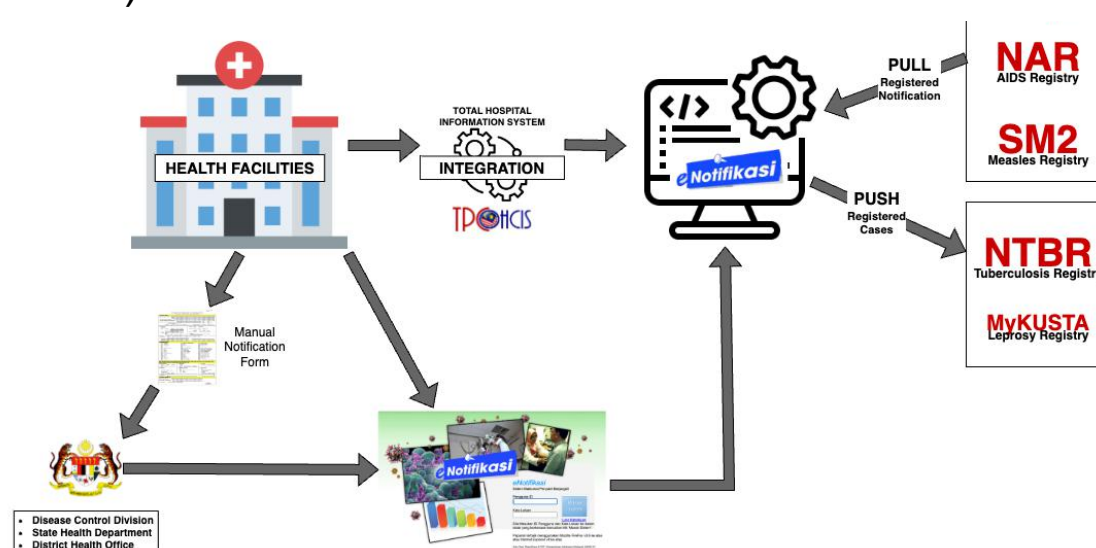


Figure 1: Data flow of the CDCIS eNotifikasi

METHODOLOGY

Dataset	16,519 infectious disease notifications reported by all medical facilities in Tawau from January 2018 to December 2022.
Source of Data	Retrieved from CDCIS: eNotifikasi System
Sampling Method	Purposive sampling
Exclusion Criteria	Discarded notifications due to: duplications, failure to meet case definition criteria, and transferred from other district
Analysis	IBM's SPSS v29.0.1.0 (171)
Variable Definitions	
Completeness	Percentage of "non-blank" surveillance form responses (2)
Essential Information	Contact number, address of residence, place of works/ employer details (if the patient was employed) and date of onset of symptoms (3)
Timeliness	
Submitted on-time	Within 24-hours (Group 1 Diseases) Within 7 days (Group 2 Diseases)
Notification Time	Time from diagnosis to notification
Diagnostic Delay Time	Time from symptom onset to diagnosis (4)
Group of Diseases	(refer Table 1)
Group 1	Diseases which require immediate notification (within 24 hrs)
Group 2	Diseases which do not require immediate notification (within 7 days)

RESULTS

Table 1: Classification of diseases by groups

Diseases Group	
Group 1	Group 2
Cholera	Dysentery
COVID-19	Gonorrhoea
Dengue/ DHF	HIV/ AIDS
Diphtheria	Leprosy
Food Poisoning	Leptospirosis
HFMD	Malaria
Measles	Pertussis
	Syphilis
	Tetanus
	Tuberculosis
	Typhoid/ Paratyphoid
	Typhus
	Viral Encephalitis
	Viral Hepatitis

Table 2: Completeness of essential information by diseases

Diseases	Completeness of Essential Information							
	Address		Contact Number		Date of Symptoms Onset		Place of Works	
	n	%	n	%	n	%	n	%
Group 1								
Cholera	37	100.0	37	100.0	37	100.0	7	21.2
COVID-19	4707	100.0	4707	100.0	4706	100.0	1335	34.5
Dengue/ DHF	3079	100.0	3079	100.0	2835	92.1	1313	51.6
Diphtheria	2	100.0	2	100.0	2	100.0	0	0.0
Food Poisoning	1262	100.0	1262	100.0	1262	100.0	389	42.8
HFMD	2785	100.0	2785	100.0	2785	100.0	672	38.3
Measles	111	100.0	111	100.0	93	83.8	14	13.3
Group 2								
Dysentery	2	100.0	2	100.0	2	100.0	0	0.0
Gonorrhoea	277	100.0	277	100.0	277	100.0	114	69.5
HIV/ AIDS	184	100.0	184	100.0	88	47.8	64	59.8
Leprosy	36	100.0	36	100.0	2	5.6	18	100.0
Leptospirosis	44	100.0	44	100.0	44	100.0	13	33.3
Malaria	498	100.0	498	100.0	498	100.0	49	9.8
Pertussis	34	100.0	34	100.0	34	100.0	0	0.0
Syphilis	122	100.0	122	100.0	122	100.0	50	68.5
Tetanus	19	100.0	19	100.0	19	100.0	6	40.0
Tuberculosis	2494	100.0	2494	100.0	282	11.3	474	51.1
Typhoid/ Paratyphoid	24	100.0	24	100.0	24	100.0	6	26.1
Typhus	2	100.0	2	100.0	2	100.0	1	100.0
Viral Encephalitis	2	100.0	2	100.0	2	100.0	1	50.0
Viral Hepatitis	798	100.0	798	100.0	794	99.5	225	36.3

Table 3: Overall notification completeness by reporting health facilities

Types of Health Facilities	Overall Completeness (%)	
	Median	IQR
Government Hospitals	77.8	(73.1 - 81.5)
Government Health Clinics	73.1	(64.8 - 79.6)
Private General Practitioners	73.1	(68.5 - 79.6)
District Health Offices	69.2	(64.8 - 71.2)

Table 5: Results of measure of timeliness

Diseases	Measure of Timeliness						
	Notified within time limit		Notification time		Diagnostic Delay Time		
	n	%	95%CI	Median	IQR	Median	IQR
Group 1 (to be notified within 24 hours)							
Cholera	26	70.3	(54.4, 83.1)	1	(0 - 3)	4	(3 - 6)
COVID-19	4212	89.5	(88.6, 90.3)	0	(0 - 0)	0	(0 - 1)
Dengue/ DHF	3053	99.2	(98.8, 99.4)	0	(0 - 0)	3	(2 - 4)
Diphtheria	2	100.0	-	0	(0 - 0)	27	(2 - 52)
Food Poisoning	1178	93.3	(91.9, 94.6)	0	(0 - 1)	1	(0 - 4)
HFMD	2632	94.5	(93.6, 95.3)	0	(0 - 0)	1	(0 - 2)
Measles	108	97.3	(93.0, 99.2)	0	(0 - 0)	2	(1 - 4)
Group 2 (to be notified within 7 days)							
Dysentery	2	100.0	-	1	(0 - 1)	22	(11 - 32)
Gonorrhoea	276	99.6	(98.3, 100)	0	(0 - 0)	2	(1 - 5)
HIV/ AIDS	170	92.4	(87.9, 95.6)	0	(0 - 2)	9	(1 - 19)
Leprosy	34	94.4	(83.4, 98.8)	0	(0 - 0)	31	(0 - 61)
Leptospirosis	40	90.9	(79.8, 96.9)	0	(0 - 1)	9	(1.5 - 14)
Malaria	488	98.0	(96.5, 99.0)	1	(0 - 2)	5	(3 - 7)
Pertussis	31	91.2	(78.3, 97.5)	1	(0 - 3)	7	(4 - 10)
Syphilis	113	92.6	(87.0, 96.3)	0	(0 - 1)	18	(3 - 167)
Tetanus	19	100.0	-	1	(0 - 2)	2	(1 - 6)
Tuberculosis	2454	98.4	(97.8, 98.8)	0	(0 - 0)	3	(0 - 30)
Typhoid/ Paratyphoid	23	95.8	(82.1, 99.5)	1	(0 - 2)	15	(9.5 - 19)
Typhus	1	50.0	(6.1, 93.9)	10	(4 - 16)	12	(2 - 22)
Viral Encephalitis	2	100.0	-	1	(0 - 2)	23	(21 - 25)
Viral Hepatitis	729	91.4	(89.3, 93.2)	0	(0 - 2)	-	-

Completeness

- Onset of symptoms was documented in 97.8% of cases (Group 1), with a lower frequency (48.3%) in Group 2.
- Both groups' addresses and contact numbers were documented in all (100%) notifications.
- Place of work was documented only in 40% of notifications (Table 2).
- Government hospitals recorded the highest overall percentage of completeness [Mdn=77.8%, (IQR=73.1 - 81.5)] (Table 3).

Timeliness

- 93.6% of cases from Group 1 were notified of the time limit (24 hours), and a higher percentage of on-time notification (within seven days) for Group 2 (96.6%).
- Cholera (Group 1) recorded the lowest percentage of on-time notification [70.3%; 95%CI (54.4, 83.1)].
- The longest diagnostic delay time was recorded for Leprosy (Group 2) with a median of 31 days (IQR=0 - 61).
- Diphtheria (Group 1) also recorded a relatively long diagnostic delay [Mdn=27 days, (IQR=2 - 52)].
- All other Group 1 diseases had lower median diagnostic delay time (0 - 4 days) (Table 5).

DISCUSSION

- The rapid identification of patients with infectious diseases and the subsequent epidemiological investigations, and control measures, heavily rely on the quality of reported case data. (5)
- It is essential to consider that 71.0% of the cases are employed or associated with institutions, i.e. students, having additional information about place of work is necessary to conduct effective infection control.
- It is imperative to establish a criterion of acquiring 100% of essential information for diseases, such as tuberculosis, rabies, and vaccine-preventable diseases.
- Certain cases necessitated supplementary data, such as vaccination records and documentation of recent travel, information which are significant considering the high occurrence rates of aforementioned disease in neighbouring countries such as The Philippines and Indonesia. (6-9)

The notification time for diseases that required immediate notification was not found to meet the standards of 24-hour notice; The delays are attributed to the relative rarity, acuteness and difficulty of disease diagnosis, administrative differences between healthcare facilities, and changes in incidence over time. (10) The delay may also be due to the clinical workflow of public health reporting. (11) Culture confirmation is rarely accessible in peripheral healthcare facilities resulting in delays in diagnosis, leading to delays in notification for cholera. (12) diagnostic delay time generally adequate for most diseases, except diphtheria [Mdn=27 days, (IQR=2 - 52)], which may be due to the gradual progression of the disease, followed by late onset of toxin effect, making the diagnosis by clinicians more difficult at first presentation. (13)

CONCLUSION & RECOMMENDATIONS

- The CDCIS in Tawau has an overall effective performance in terms of timeliness, albeit with some variability observed across different disease groups.
- Three primary approaches have the potential to enhance the system's overall timeliness.
 - The primary sources of delays stem from diagnostic delays, which necessitate enhancements through the promotion of public education and the improvement of clinical guidelines.
 - Furthermore, it is imperative to promote increased expediency in reporting medical professionals to the District Health Office.
 - Finally, standardising the prescribed time limit to 24 hours across all diseases will facilitate the establishment of more straightforward protocols, thereby mitigating unnecessary reporting delays.
- Methodologically, systematic monitoring and evaluation of the systems at national and subnational levels included other surveillance systems' attributes such as flexibility, sensitivity, acceptability, etc. (2) will provide more information to assist in developing strategies for improvement.

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Tuberculosis Infection Among Diabetic Patients in Kota Tinggi District and Its Determinants: A Case-Control Study

MAE MALAYSIAN ASSOCIATION OF EPIDEMIOLOGY

3rd National Epidemiology Conference 2023

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INTRODUCTION

- Tuberculosis (TB) is one of the public health concerns that has received the world's attention.
- The World Health Organization estimated that up to 15% of tuberculosis globally is related to diabetes mellitus (1)

OBJECTIVE

This study aimed to determine the sociodemographic characteristics and associated factors for tuberculosis infection among diabetic patients in Kota Tinggi, Johor.

METHODOLOGY

- Study design : Case-control study
- Cases : Diabetes patients and confirmed tuberculosis diagnosed from 2015 to 2022 registered in the National Tuberculosis Registry (NTBR)
- Controls : Diabetes patients identified from the National Diabetes Registry without TB
- Sample size : 105 cases and 105 controls (matched based on the clinic in which they were registered at a ratio of 1:1)
- Data collection: using proforma forms
- Data analysis : SPSS version 26

RESULT

Table 1: Factors associated with Tuberculosis among diabetic patients in Kota Tinggi District

Variable	Total n=210	Cases n=105	Control n=105	Crude OR (95% CI)	P value	Adjusted OR (95% CI)	P value
Age in years, mean (SD)	61.58 (11.4)	60.35 (12.8)	62.81 (9.7)	0.981 (0.957,1.005)	0.119		
Gender							
Male	115 (54.8)	69 (65.7)	46 (43.8)	2.458 (1.407,4.294)	0.002*	2.627 (1.436,4.806)	0.002*
Female (Ref)	95 (45.2)	36 (34.3)	59 (56.2)	1		1	
Duration of DM (years)							
DM≥5 years	152 (72.4)	87 (82.9)	65 (61.9)	2.974 (1.565,5.654)	0.001*	2.851 (1.414,5.749)	0.001*
DM< 5 years (Ref)	58 (27.6)	18 (17.1)	40 (38.1)	1		1	
HbA1c (% mean (SD))	8.18 (2.2)	8.71 (2.4)	7.66 (1.8)	1.271 (1.106,1.460)	0.001*	1.295 (1.114,1.505)	0.001*
Nephropathy							
Yes	57 (27.1)	37 (35.2)	20 (19.0)	2.312 (1.231,4.344)	0.009*	2.181 (1.097,4.336)	0.026*
No (Ref)	153 (72.9)	68 (64.8)	85 (81.0)	1		1	
Retinopathy							
Yes	22 (10.5)	10 (9.5)	12 (11.4)	0.816 (0.336,1.980)	0.653		
No (Ref)	188 (89.5)	95 (90.5)	93 (88.6)	1			
Ischaemic heart disease							
Yes	12 (5.7)	7 (6.7)	5 (4.8)	1.429 (0.439,4.654)	0.554		
No (Ref)	198 (94.3)	98 (93.3)	100 (95.2)	1			
Hypertension							
Yes	140 (66.7)	66 (62.9)	74 (70.5)	0.709 (0.398,1.262)	0.242		
No (Ref)	70 (33.3)	39 (37.1)	31 (29.5)	1			
Dyslipidemia							
Yes	134 (63.8)	70 (66.7)	64 (61.0)	1.281 (0.729,2.253)	1.281		
No (Ref)	76 (36.2)	35 (33.3)	41 (39.0)	1			
Smoking							
Yes	28 (13.3)	20 (19.0)	8 (7.6)	2.853 (1.195,6.810)	0.018*		
No (Ref)	182 (86.7)	85 (81.0)	97 (92.4)	1			

Multiple logistic regression
 No multicollinearity and no interaction.
 Hosmer-Lemeshow test: p-value=0.892

DISCUSSION

- Our study revealed significant determinants to tuberculosis were male, prolong duration of diabetes mellitus, elevated HbA1c and presence of nephropathy.
- This gender disparity due to variations in social positions, risky behaviours, and activities (2,3).
- Long-term diabetes can impair the innate and adaptive immune responses needed to combat the spread of tuberculosis (4).
- Glycemic control influences the capacity of the host to control the infection by altering immune response, and had increased susceptibility to pathogens (5).
- Systematic review that showed the risk of developing active TB among patients who had end stage renal failure was 3.6 times higher risk compared to their counterparts (6).

CONCLUSION

This study indicates that the duration of diabetes, glycemic control (HbA1c), presence of nephropathy, and patient gender should be considered while conducting routine tuberculosis screening in diabetic patients.

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Identification Of High-Risk Areas for Tuberculosis Infection in Perlis: A Spatial Decision Support System on Assisting Tuberculosis Case Detection at Primary Care

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INTRODUCTION

- Tuberculosis (TB) remains a global public health concern, and its incidence varies across different regions.
- In Malaysia, efforts to control and prevent TB infection have been ongoing, with implementation of various strategies and programs to address the spread of the disease. Despite progress in recent years, challenges such as the late case detection, emergence of drug-resistant strains and the association of TB with co-infections continue to pose obstacles to effective management.
- Issue related to TB in Perlis: Lower number of newly diagnosed TB cases and higher mortality rate of TB cases compared to the target set at the national level.

OBJECTIVE

- To assist healthcare providers to identify high risk population in detecting TB infection, thus improving case detection at early stage, and reducing the incidence of severe TB infection and death in the future.

MATERIALS & METHODS

- This study produces spatial information of tuberculosis cases in Perlis. The production of this output was conducted using registered TB cases in Perlis in the National Tuberculosis Registry from year 2019 until year 2023 (up to epidemiologic week 43) via R software version 4.3.2.
- The coordinate of the cases was obtained from their registered address, and the distribution of coordinates were mapped. The cases with missing important data such as home address were excluded.
- The spatial intensity of the cases was estimated using kernel density estimation via 'spatstat' package and visualized using 'tmap' and 'leaflet' packages. The material was generated after the analysis in R software is rendered into html format.

RESULTS

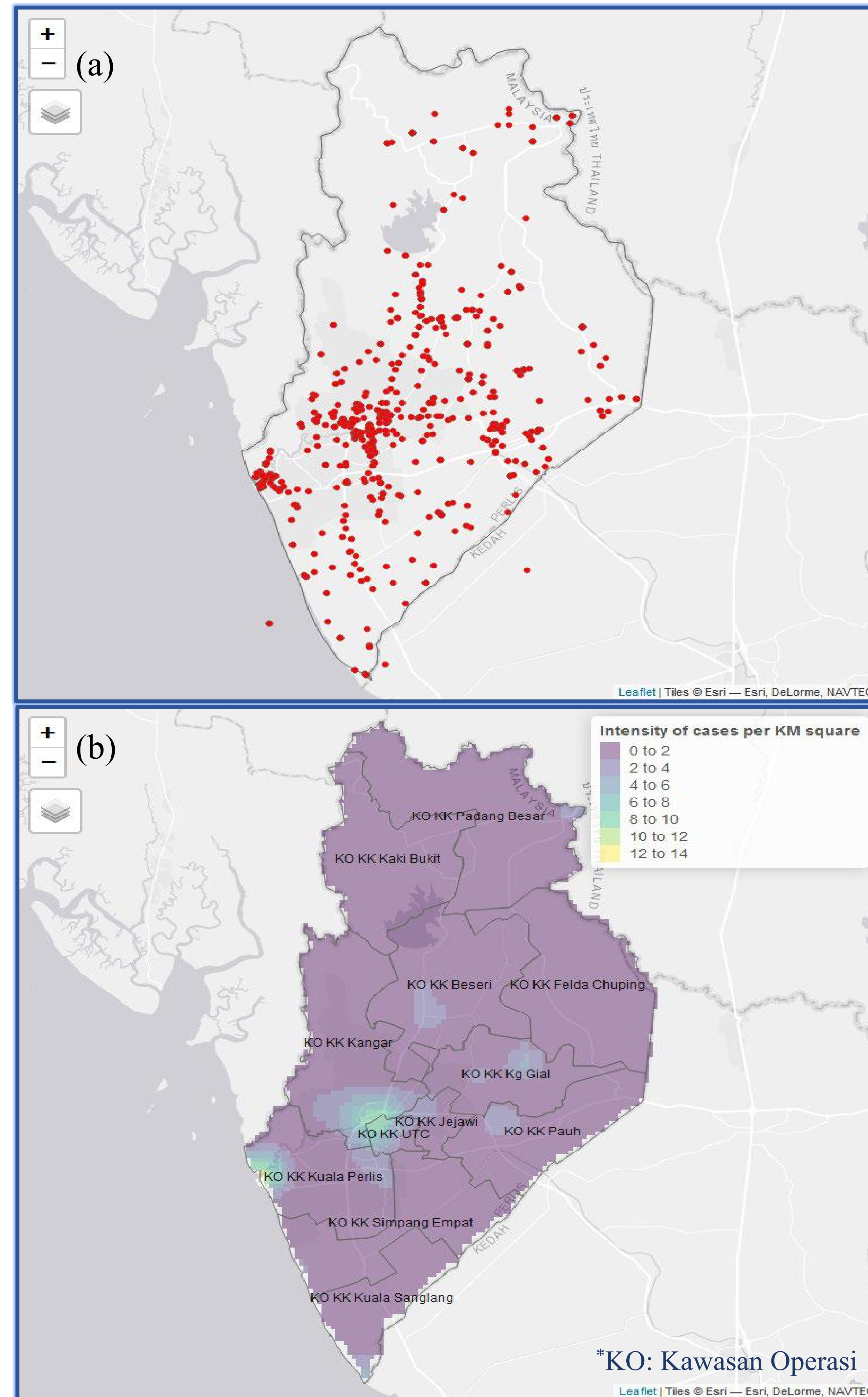


Figure 1: Overview of the spatial information produced in this study; the distribution of TB's cases in Perlis (n=666) (a), and its spatial intensity (b).

The material for this spatial information can be visualized and interacted using the QR code here (For an optimal viewing experience, the file needs to be downloaded first.):



DISCUSSION

- This spatial information enables the healthcare provider to identify the areas with higher burden of TB cases through an interactive map.
- It guides the user in implementing targeted interventions and case detection strategies in the area with higher TB occurrence across a geographical area, thus improving the yield of smear positive TB cases.
- In terms of disease surveillance, the healthcare provider can identify hotspots, aid in assessing the risk of transmission of TB at local setting, monitor the spread of the disease, and help them to allocate resources more effectively at primary care level.

CONCLUSION & RECOMMENDATION

- Currently, this output has been deployed to all health clinics in Perlis to support their decision making to improve the case detection and control of TB infection in their targeted population.
- The effectiveness of spatial information of TB cases is expected to be evaluated next year, after this output is integrated into TB case detection activities.
- To sustain the accuracy of the result, the output must be re-analyzed every year to adjust for the latest distribution of TB cases.

ACKNOWLEDGEMENT

- The authors would like to thank Perlis District Health Office for the data provision.

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The Field Validation of a New Brugia Rapid Test (BT+) for the Detection of Lymphatic Filariasis in Malaysia: A Study Protocol

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INTRODUCTION

Lymphatic filariasis (LF) is a vector-borne disease caused by the parasitic nematodes *Wuchereria bancrofti*, *Brugia malayi*, and *Brugia timori*. A sensitive point-of-care rapid test is essential for LF surveillance to monitor infection and recrudescence and interrupt disease transmission in endemic localities [1,2]. Currently, the Brugia Rapid test (BRT) is used for detecting LF in Malaysia [3,4]. This study aims to validate and assess the performance of a new rapid test (BT+) for the same purpose.

METHODOLOGY

- Study design: Cross sectional study design
- Study Site(s): 8 (eight) LF endemic localities in Beluran and Pitas, Sabah Malaysia. (Fig 1)
- The study is registered with MOH: NMRR-23-01957-TQZ and already obtained ethics approval from the Medical Research Ethics Committee, MOH.

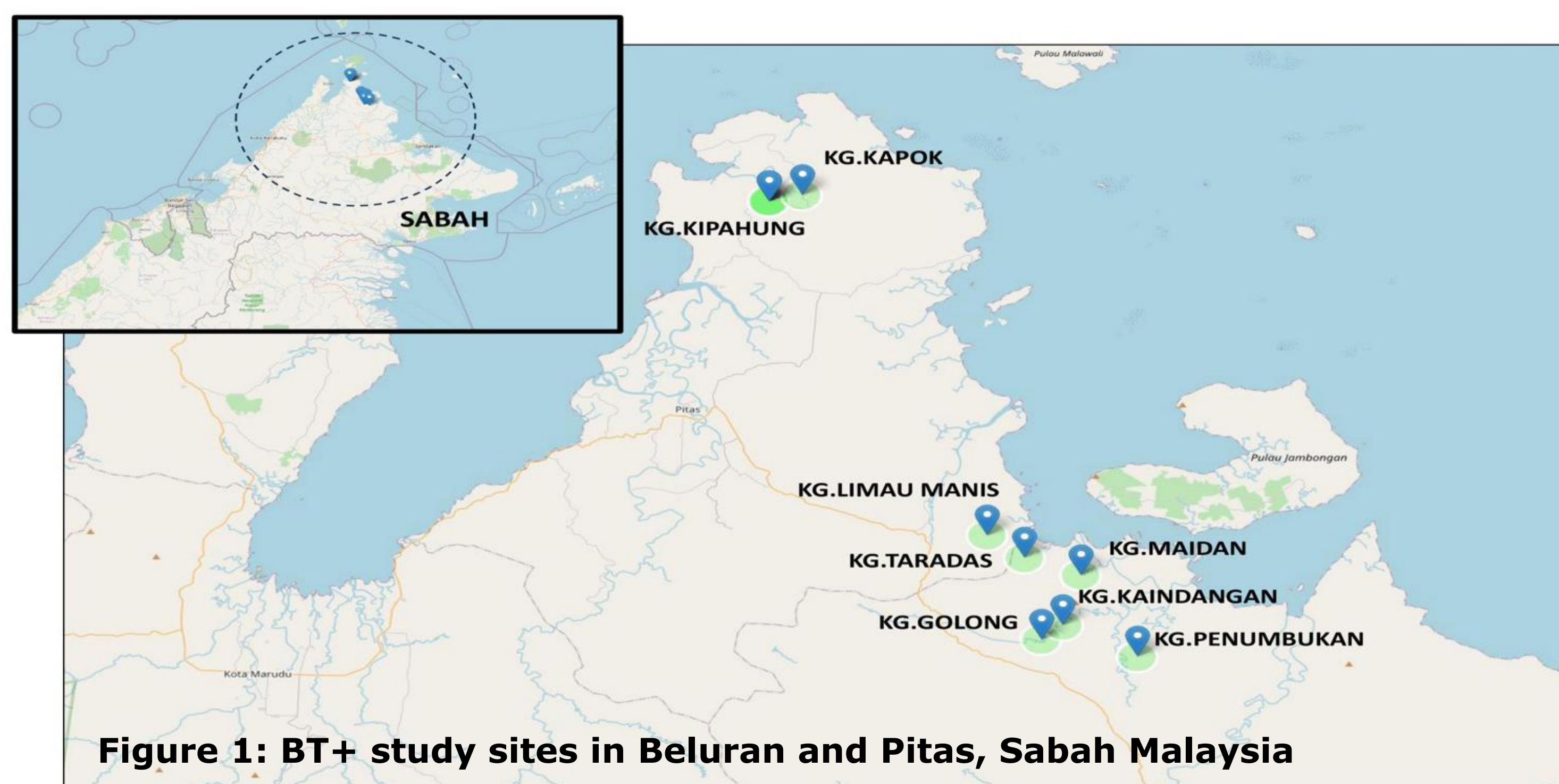


Figure 1: BT+ study sites in Beluran and Pitas, Sabah Malaysia

RESULT/ DATA ANALYSIS PLAN

- The study will recruit 1,125 respondents with 30% attrition rate.

Quantitative data analysis:

- BT+ diagnostic SN will be calculated and compared with BRT, using the results of real-time PCR and/or TBS as reference.
- Kappa statistics will be used to determine the agreement between BT+ and BRT.
- Antibody seroprevalence will be compared between the two rapid tests.

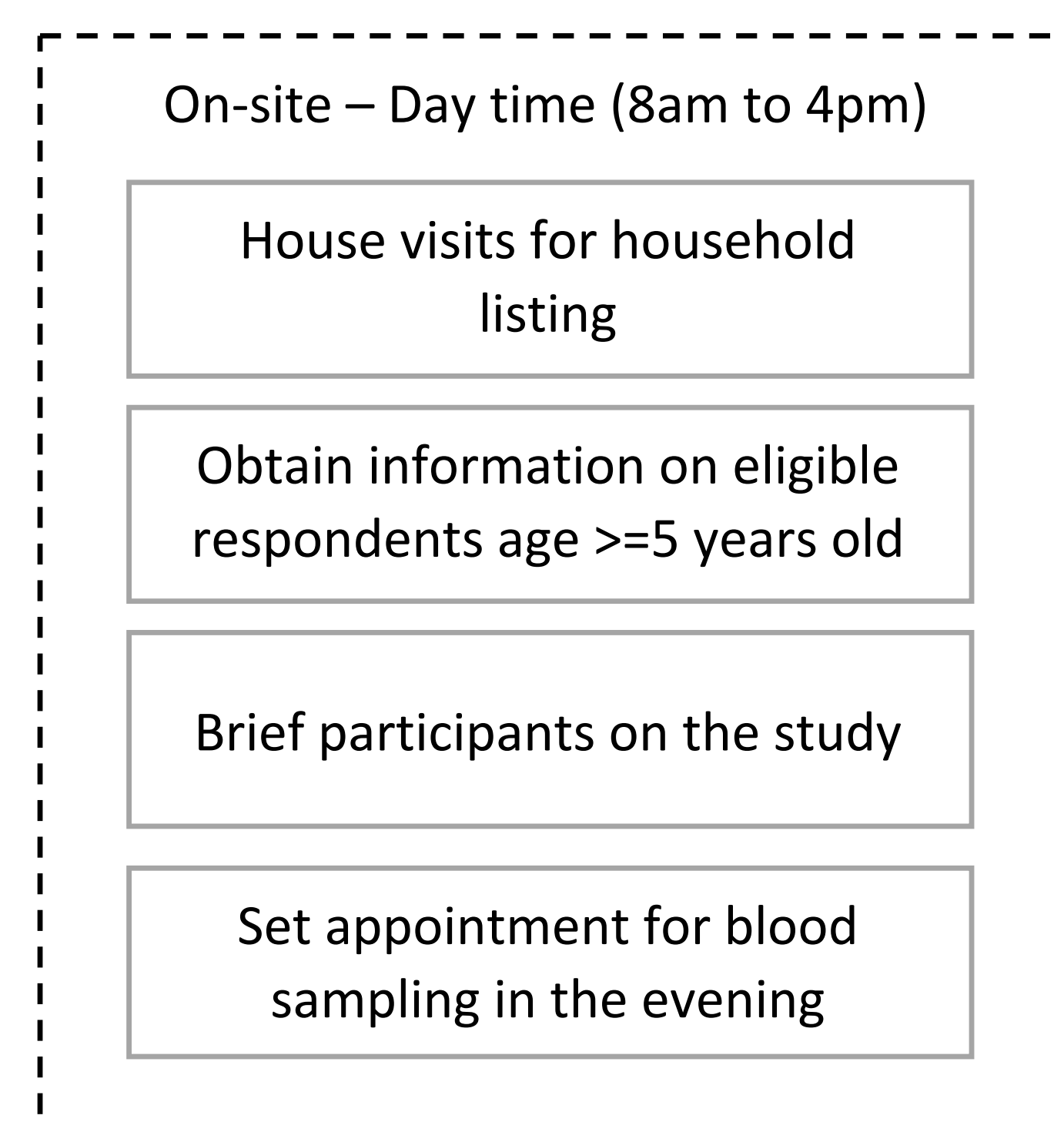
Qualitative data analysis:

- On-site test performance of BT+ on selected individuals using the Likert Scale that measures on ease of performing the test and interpreting the results.
- Compare the test and control line intensities of BT+ at 20, 30 and 60 minutes after the last step (after adding 3 buffer drops).

REFERENCE TEST

- For diagnostic sensitivity determination, the positive reference test is positivity by NBS AND/OR real-time PCR.
- Positive sample: **Either** TBS OR/AND real-time PCR is considered positive.
- Negative sample: **Both** TBS AND real-time PCR is considered negative

Data Collection Method:



Inclusion criteria:

- Individuals residing in the selected localities for at least six months.
- Individuals who are at least five years old. For the minors, parental guidance consent is required.

Exclusion criteria:

- Pregnant woman.
- Breastfeeding mother.
 - Immunocompromised or medically unfit individuals, e.g., cancer patients on treatment, patients with renal failure.

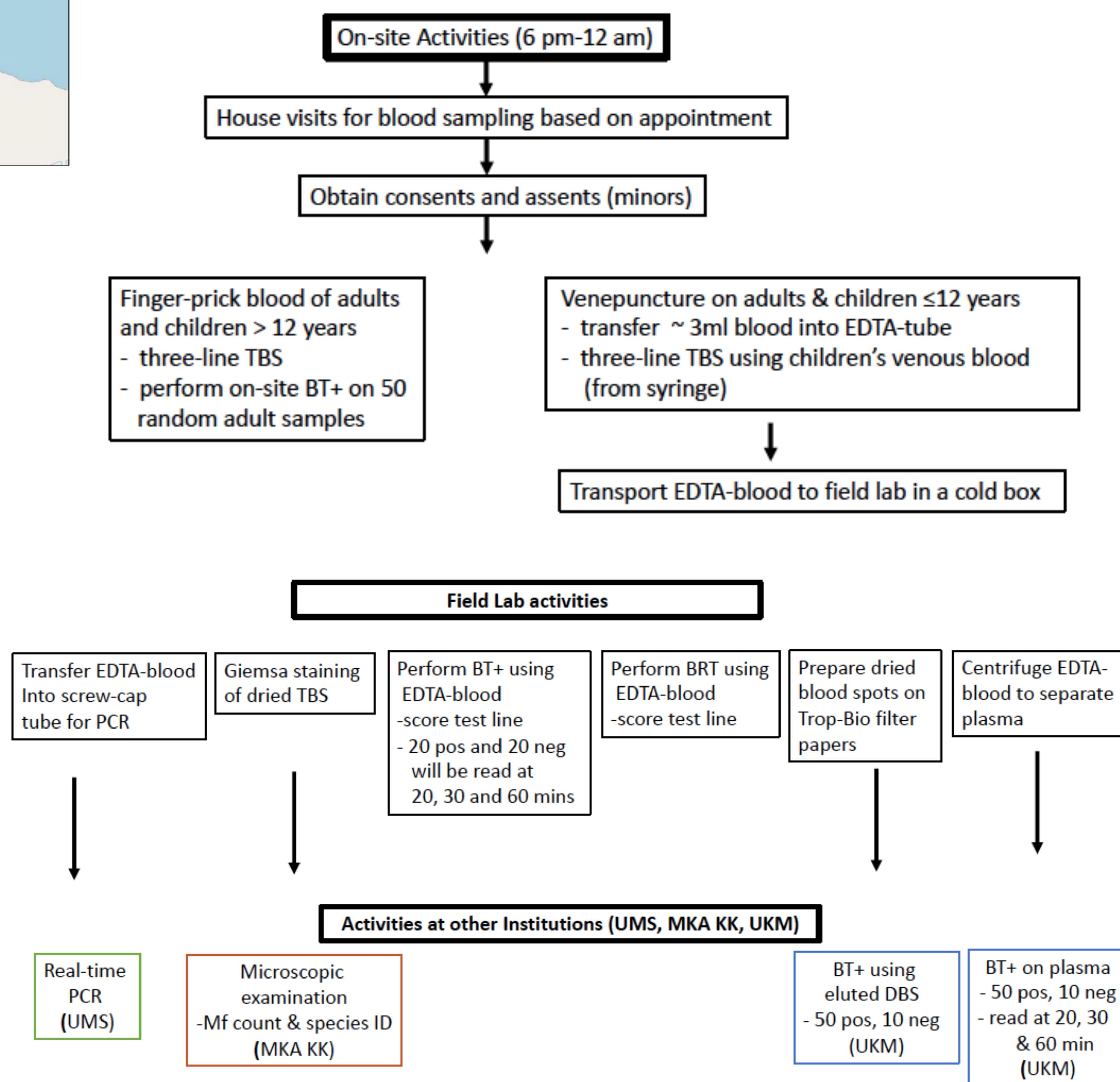


Figure 2: Field data collection and Lab activities for the BT+ study

CONCLUSION

Findings from this study can be used as evidence for future use of BT+ in the national LFEP control program.

LIST OF ABBREVIATIONS

BRT	Brugia Rapid test
BT+	Brugia Test plus
DBS	Dried Blood Spot
LFEP	Lymphatic Filariasis Elimination Program
LF	Lymphatic Filariasis
NBS	Night Blood Smear
RDT	Rapid Diagnostic Test
SN	Sensitivity
TBS	Thick Blood Smear

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INTRODUCTION

This study reviews the usage of Giant Lethal Sticky Ovitrap (GLSO) to control Aedes mosquitoes, which spread dengue fever in tropical Malaysia, particularly in Tawau District in Sabah. Dengue outbreaks have plagued Tawau in recent years. The study will assess GLOs' Aedes mosquito-reduction effects in dengue hotspots.

METHODOLOGY

Site of study

Our study focused on implementing GLSOs in PPR Taman Sri Apas, Tawau. The area was chosen due to the previously high incidence and multiple outbreaks. Between February and July 2023, 30 GLSOs were strategically placed across the PPR for 24 weeks.

Preparation of the Giant Lethal Sticky Ovitrap (GLSOs)

- We developed our GLSOs by using modified used tyres (size 13" – 14"), transparent plastic film, sticky aerosol spray glue, water and temephos (Abate® 1.1G).
- The interior surface of the tyre was lined with transparent plastic film and was sprayed using sticky aerosol spray glue, and temephos-treated seasoned tap water filled two-thirds of the tyre (Figure 1). Oviposition attractants such as dried banana leaves and hay were infused into the water as bait. (1)
- Permission was obtained from the inhabitants before placing the GLSOs. The indoor ovitraps were put in low (<2m high) dark corners, i.e. under the staircases, whereas the outdoor ovitraps were set in low and hidden places outside the buildings.
- The distance between the overlaps was determined by the availability of viable locations for their placement. (2)



Figure 1: Schematic drawing of GLSO Figure 2: Process of assembling the GLSO Figure 3: Placement of the GLSO

Mosquito oviposition and sampling, counts and identification

- These traps were left for two weeks before undergoing biweekly inspections, removing adhesive strips for subsequent counting, identifying specimens in the laboratory, and replacing new adhesive strips.
- The transparent plastic films were left dried at room temperature for at least 24 hours before being examined under a dissecting microscope.

Data analysis

- The first data analysis examined Aedes' breeding distribution using vector indices such as the Ovitrap Positivity Index (OPI), Area Density Index (ADI), and Egg Density Index (EDI).
- The second part examined the number of dengue cases and outbreak records retrieved from the eDengue system and GLSO costs compared to thermal fogging activities before and after deployment.

RESULTS

Table 1: Ovitrap indices, PPR Taman Sri Apas, Week 1 to Week 24

Cycle No.	Week	No. of Ovitrap Positive/ Installed	Ovitrap Positivity Index, OPI (%)	Ae. aegypti	Ae. albopictus	Aedes spp.	Area Density Index (ADI) for Ae. albopictus	No. of Eggs	Egg Density Index, EDI
1	W1 - W2	17/30	56.7%	10	27	37	1.6		
2	W3 - W4	23/30	76.7%	7	49	56	2.1		
3	W5 - W6	18/30	60.0%	4	46	50	2.6	32	1.78
4	W7 - W8	20/30	66.7%	5	30	35	1.5		
5	W9 - W10	21/30	70.0%	4	29	33	1.4		
6	W11 - W12	16/30	53.3%	7	17	24	1.1	37	2.31
7	W13 - W14	19/30	63.3%	7	36	43	1.9		
8	W15 - W16	16/30	53.3%	12	34	46	2.1		
9	W17 - W18	20/30	66.7%	8	28	36	1.4		
10	W19 - W20	16/30	53.3%	4	25	29	1.6	8	0.50
11	W21 - W22	14/30	46.7%	5	37	42	2.6		
12	W23 - W24	16/30	53.3%	7	40	47	2.5		

Table 2: Breakdown and expenditure for vector control activities in PPR Taman Sri Apas, pre-and post-GLSO deployment

Parameters/ Items	Before GLSO Implementation	After GLSO Implementation	Differences (%)	Savings (RM)
Number of Thermal Fogging Activities Performed	16	5	68.75%	
Average Volume of Pesticide used per activity (in mL)	840	840		
Average Volume of Solvent (Diesel) used per activity (in L)	48	48		
Average Number of Fogging Machine used per activity	6	6		
Average Number of Fogging Machine Charge per activity	12	12		
Average Amount of Petrol used per activity (in L)	6	6		
Average Number of Pembantu Kesihatan Awam (PKA) involved per activity	3	3		
Average Number of Hours per activity	4	4		
Average Diesel Price (per L in RM)	RM 2.15	RM 2.15		
Average Petrol Price (per L in RM)	RM 2.05	RM 2.05		
Pesticide (Gokilaht®-S 5EC) Price (per Bottle of 1000 mL)	RM 80.00	RM 80.00		
Average Overtime (OT) Rate for PKA (per hour in RM)	RM 20.20	RM 20.20		

Usage	Before GLSO Implementation	After GLSO Implementation	Differences (%)	Savings (RM)
Total Volume of Pesticide used (in mL)	13,440	4,200	68.75%	
Total Number of Pesticide used (Bottle)	13.44	4.2	68.75%	
Total Volume of Solvent (Diesel) used (in L)	768	240	68.75%	
Total Volume of Petrol used (in L)	96	30	68.75%	
Total Expenditure				
Pesticide (Gokilaht®-S 5EC)	RM 1,075.20	RM 336.00	68.75%	RM 739.20
Solvent (Diesel)	RM 1,651.20	RM 516.00	68.75%	RM 1,135.20
Petrol	RM 196.80	RM 61.50	68.75%	RM 135.30
Overtime Allowance	RM 3,878.40	RM 1,212.00	68.75%	RM 2,666.40
TOTAL SAVINGS FROM THERMAL FOGGING ACTIVITIES				RM4,676.10

Table 3: Expenditure for consumables used for GLSO

Items	Item Price (per unit)	Quantity needed (Per Cycle)	Total Cycle	Total Price
Sticky Aerosol Spray Glue (Neopeace Sticky Glue - 250mL)	RM 55.00	5	12	RM3,300.00
Temephos (Abate® 1.1G 10g)	RM 1.00	6	12	RM 72.00
Transparent Plastic Film (Rim)	RM 40.00	1	12	RM 480.00
Used Tyres (size 13" - 14")	RM -	30	12	RM -
TOTAL EXPENDITURE FOR GLSO				RM3,852.00

Table 4: Net savings from GLSO implementation in PPR Taman Sri Apas

Activities	Before GLSO Implementation	After GLSO Implementation
Thermal Fogging	RM 6,801.60	RM 2,125.50
GLSOs	RM -	RM 3,852.00
TOTAL EXPENDITURE (Thermal Fogging + GLSO)	RM 6,801.60	RM 5,977.50
NET SAVINGS		RM (824.10)

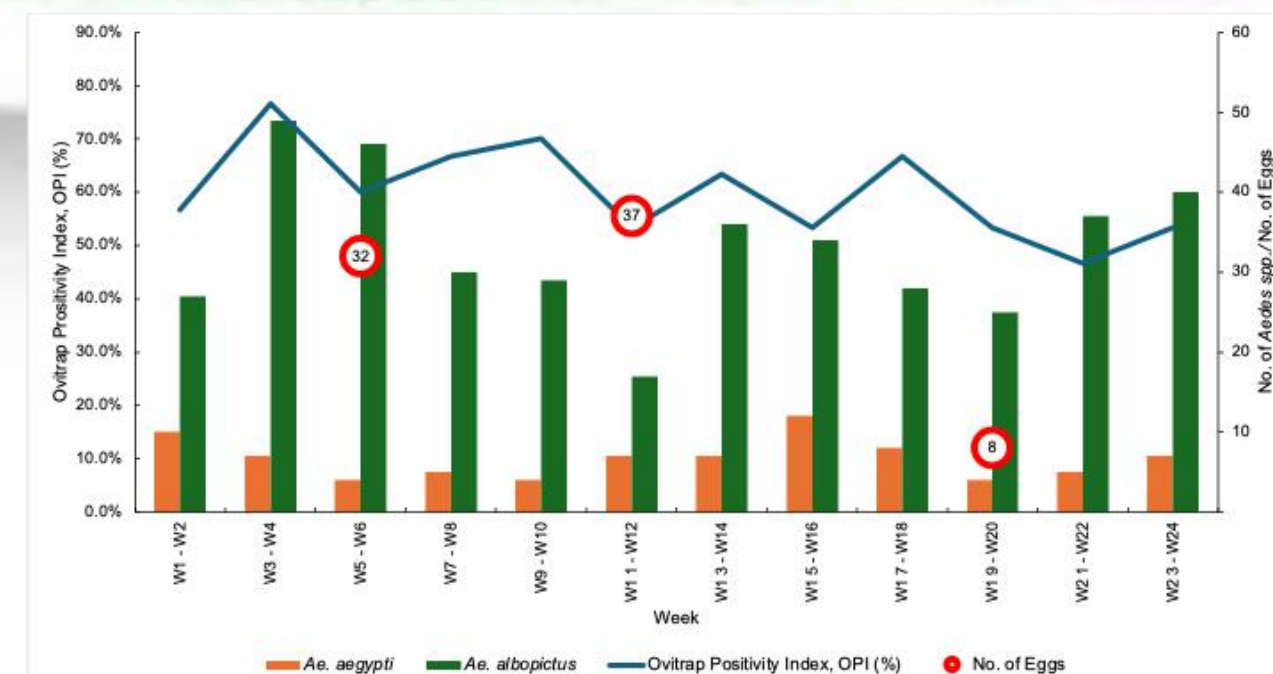


Figure 4: Number of Aedes spp., Ovitrap Positivity Index (OPI) and number of eggs, PPR Taman Sri Apas, Tawau, Week 1 to Week 24

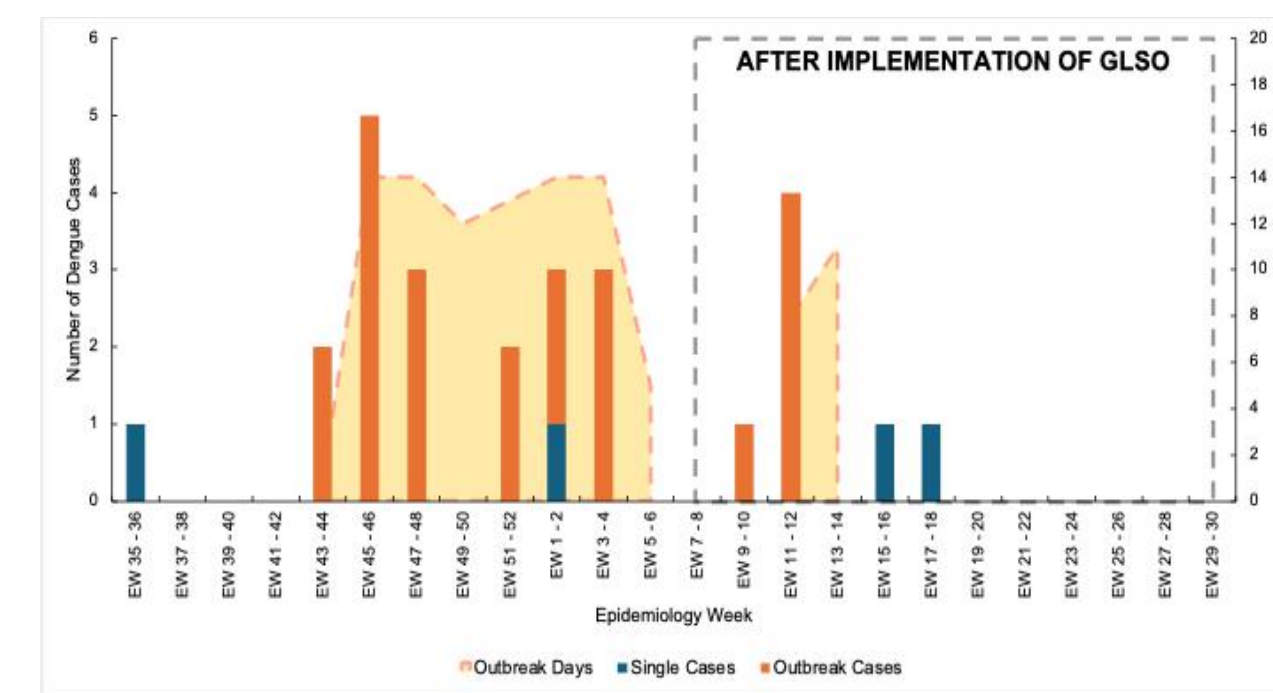


Figure 5: Number of local dengue cases and cumulative outbreak days before and after GLSO implementation, PPR Taman Sri Apas, Epid-week 35/2022 to Epid-week 30/2023

Distribution of mosquito, eggs (Ovitrap indices) and local dengue cases

- Over 24 weeks, the biweekly Ovitrap Positivity Index (OPI) ranged from 46.7% to 76.7% (Figure 4). There were 77 eggs collected and distributed unevenly across the study period.
- Table 1 presents the bi-weekly values for OPI and EDI. The Area Density Index (ADI) for Ae. albopictus ranged from 1.1 to 2.6.
- The total number of days with dengue outbreaks was dramatically reduced from 87 days to 19 days following the deployment of GLSOs (Figure 5).
- There were seven local dengue cases, compared to 19 cases recorded within the same period pre-GLSO, a reduction of 63.15%.
- The local dengue incidence rate dropped from 422.2 to 155.5 cases per 100,000 population.

Expenditure for control activities

- Records retrieved from eDengue v2 (Online Dengue Surveillance System) show only five thermal fogging activities were conducted in PPR Taman Sri Apas throughout implementation of GLSO, compared to 16 activities needed within the same period before GLSO.
- The usage of pesticides, diesel and petrol was down by 68.75%, and an estimated RM4,676.10 can be saved from thermal fogging activities (Table 2).
- A net savings of RM824.10 can be achieved considering the expenses for consumables used for the GLSO (Table 4).

DISCUSSION

- Over 24 weeks, the biweekly Ovitrap Positivity Index (OPI) ranged from 46.7% to 76.7% (Figure 1). Our findings are comparable to another study elsewhere involving similar types of locality (housing) in Peninsular Malaysia. (3)
- The Area Density Index (ADI) for Ae. albopictus in PPR Taman Sri Apas ranged from 1.1 (Level 1) to 2.6 (Level 3).
- The ADI reached Level 3 in week 5 – 6 and 21 – 24, which indicates Ae. albopictus is abundant in positive ovitraps. Specific preventive and control measures, i.e., private pest control and community larviciding employment, must be initiated. (4)
- The deployment of GLSOs in PPR Taman Sri Apas proved to be effective in reducing the cumulative days of outbreak from 87 to 19 and a reduction of 63.15% in the number of new cases.
- Integrated control programs incorporating alternative tools, such as gravid ovitraps (lethal ovitraps and sticky ovitraps), have been proven effective in monitoring and reducing vector populations and dengue virus transmission. (5-7)
- However, we could not see the real influence of our GLSOs in reducing the vector populations in the studied area as we needed historical/ baseline data. Furthermore, this study did not examine other human or external environmental factors such as climate, temperature, humidity and housing conditions.
- Following the deployment of GLSO, the decrease in new cases led to a corresponding reduction in the necessity for conventional control measures such as thermal fogging in the area.
- The Government could save a significant amount of money by decreasing the consumption of consumables, such as pesticides and solvents. Nevertheless, our calculations were predicated on the prevailing retail pricing, and the actual costs may vary due to the disparity observed between the market price and the government's procurement process. (8)

CONCLUSION & RECOMMENDATIONS

We achieved a substantial reduction in dengue cases, as well as cumulative outbreak days in PPR Taman Sri Apas, by deploying our GLOSs. We expect that with some improvements to the device, it may serve as a reliable tool for vector control and surveillance. The low cost and its ability to be used for extended periods without maintenance could permit long-term, larger-scale deployment of GLSOs.

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THE CLONAL OUTBREAK OF MELIOIDOSIS FROM CONTAMINATED WATER: THE AFTERMATH OF MASSIVE CONSTRUCTION WORK

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Background/ Purpose

- Melioidosis is a serious tropical infectious disease endemic to Southeast Asia, caused by the gram-negative bacillus *Burkholderia pseudomallei*, found in soil and surface water and acquired through inoculation, inhalation and ingestion
- In Malaysia, the states with active agriculture activities reported a higher incidence, however, the true incidence was unknown as Melioidosis was not categorized as a mandatory notification ¹
- In Sarawak, the average annual incidence of adult melioidosis was **12.3 per 100,000 people**, with the incidence among children younger than 15 years was **4.1 per 100,000 children** ²

Objectives

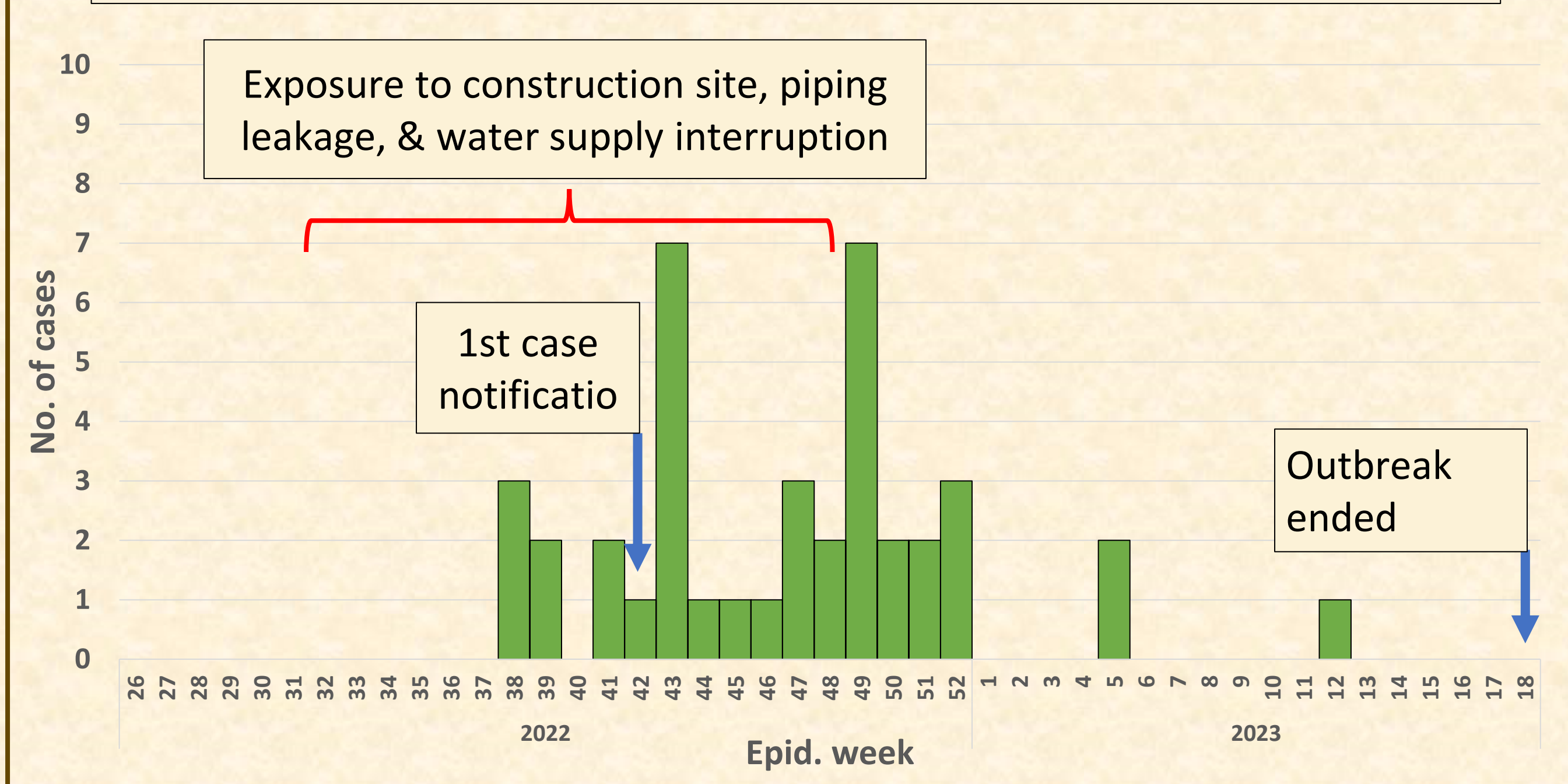
- To describe the melioidosis outbreak in the Samarahan district
- To identify the risk factors associated with the melioidosis outbreak in the Samarahan district
- To identify the source of the melioidosis outbreak in the Samarahan district

Methods

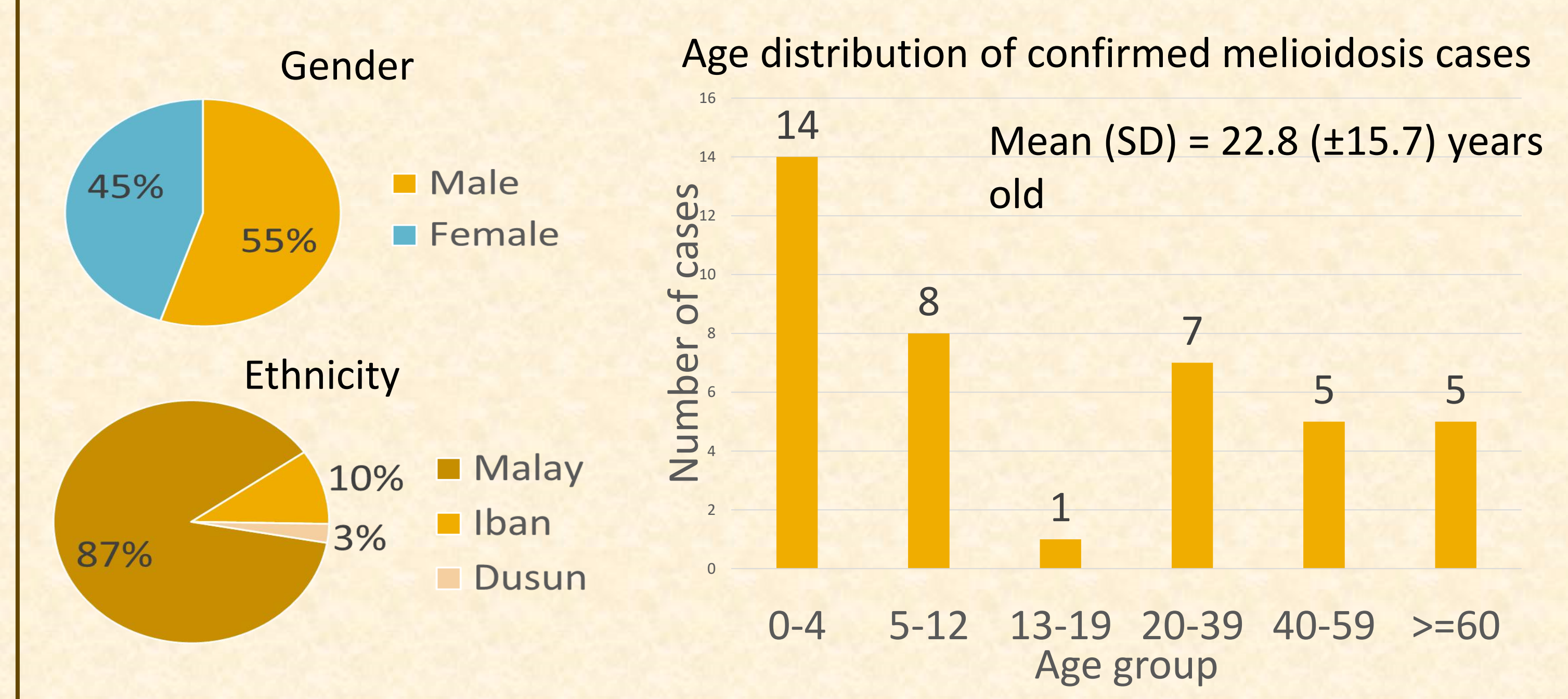
- Cross-sectional study on melioidosis cases registered in Samarahan district from 1st September 2022 to 31st May 2023
- Sampling method
 - Data was obtained from the cases line listing from the notification
 - Universal sampling – all confirmed melioidosis cases (cultured-confirmed & IFAT ≥1:80 were included
 - Asymptomatic cases were excluded

Results

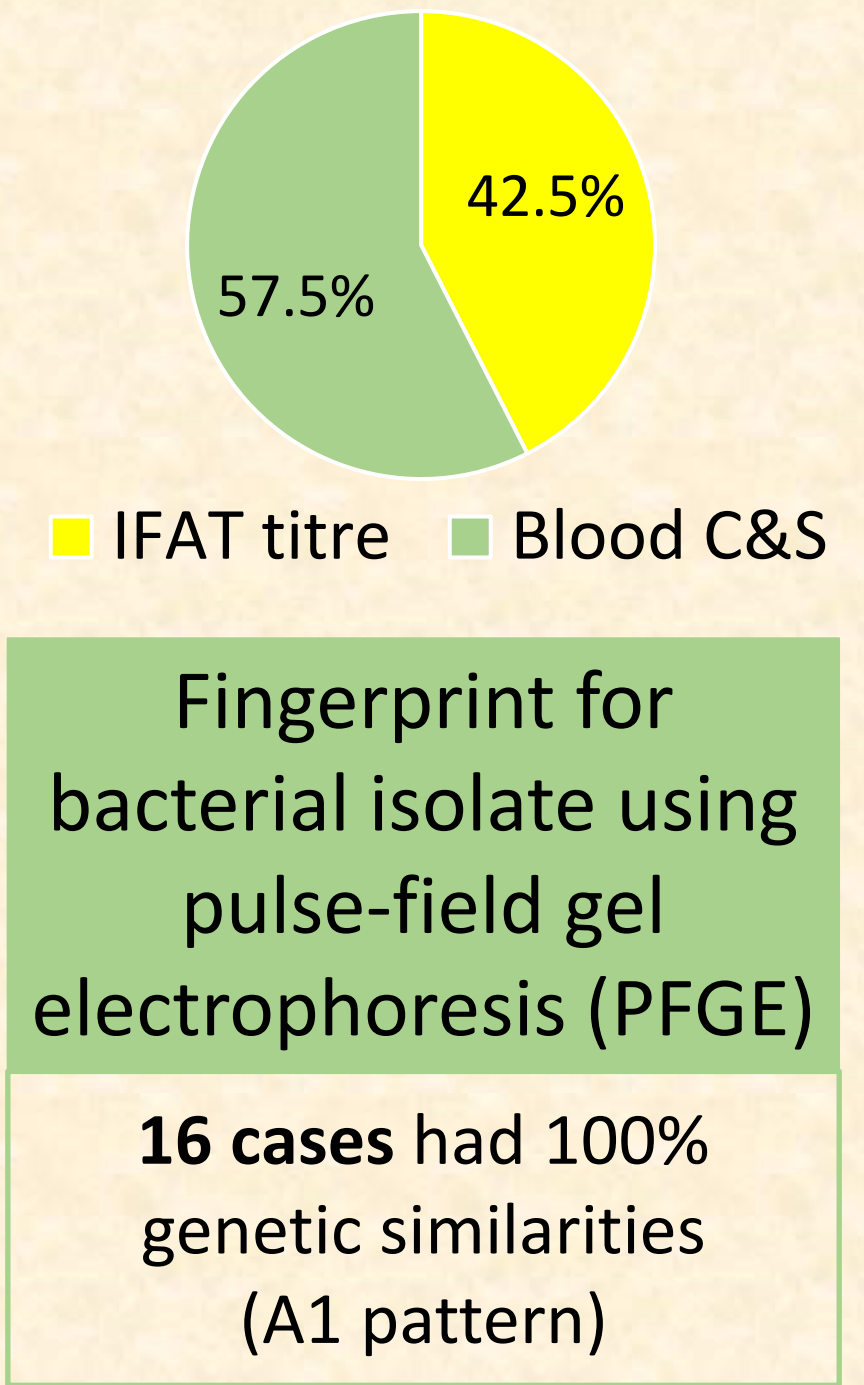
Epid. curve of melioidosis cases based on epid. week, n=40



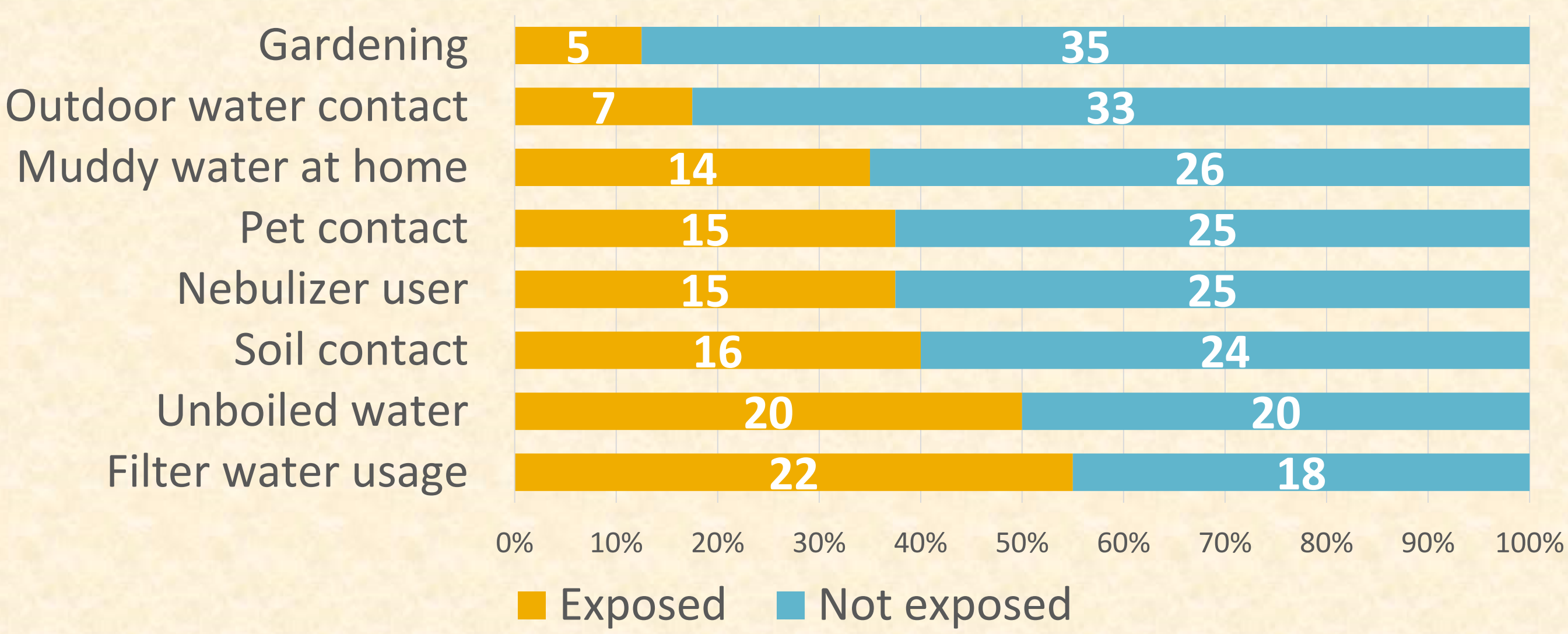
Sociodemographic characteristics of cases, n=40



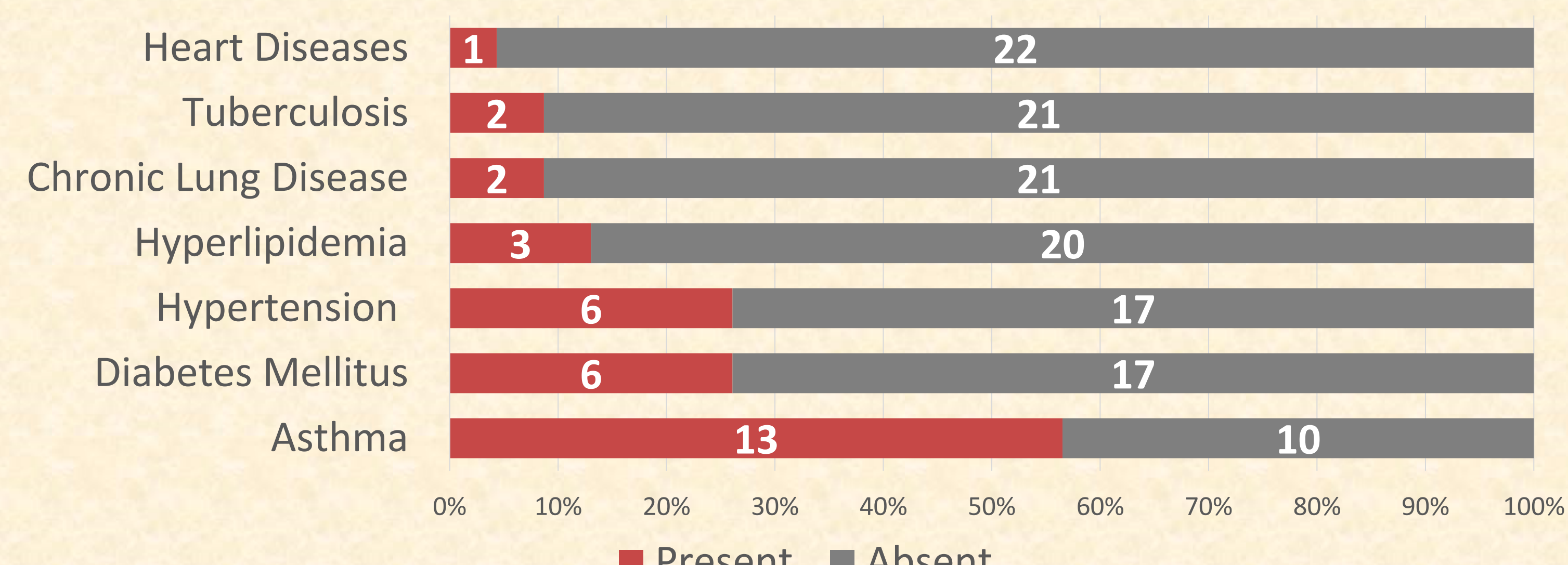
Confirmatory diagnosis



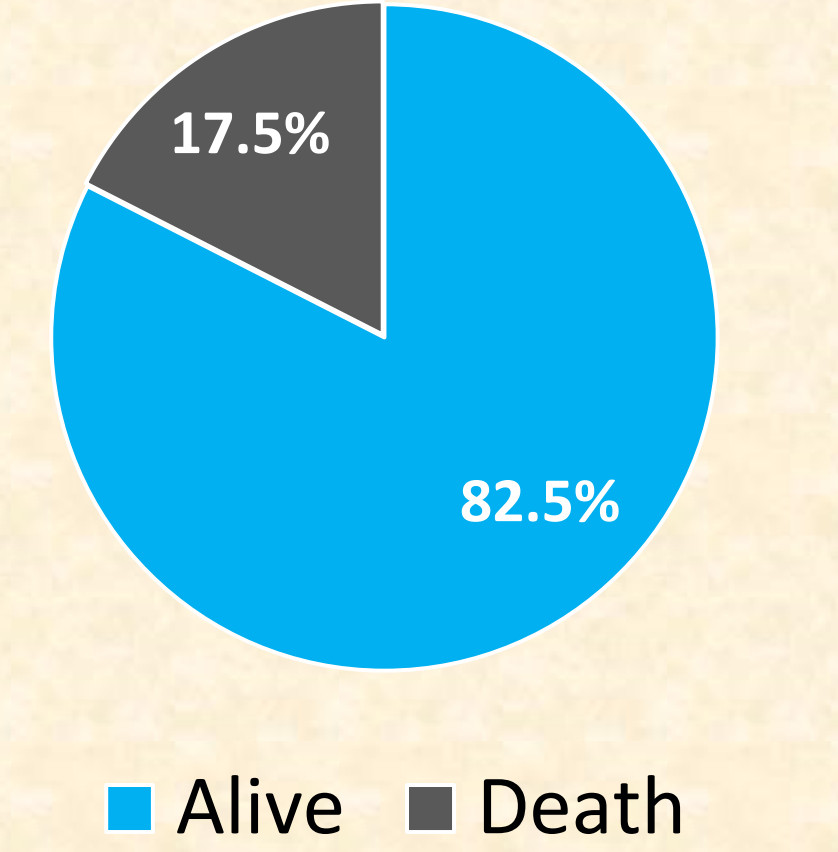
Risk factor exposure among the cases, n=40



Pre-existing co-morbidity among the cases, n=23



Status of cases, n=40



Environmental sampling results

Location	Number of samples					Result (PCR)	
	Soil	Water	Swab	Filter	Total	Positive	Negative
House of cases	114	145	0	0	259	2 (Soil)	257
Public Areas	14	4	0	0	18	2 (Soil)	16
Tab water pipe (KWB)	52	13	0	0	65	1 (Soil)	64
Water selling machine	0	22	10	7	39	0	39
Batu Kitang Treatment Plant	0	11	0	0	11	0	11
Entingan Water reservoir	0	1	0	0	1	0	1
Health clinic	0	2	14	0	16	0	16
Total	180	198	24	7	409	5	404

Discussion

- Children <12 years old were most affected (57.5%) however the mortality rates are higher in older patients aged >60 years old which is 25.0 per 100,000 population. The increase in age has led to worsening disease events, prognosis and outcomes due to the presence of predisposing factors that may become life-threatening co-morbid illnesses. ³
- The majority of cases were among high-risk groups and had co-morbid such as asthma, DM and hypertension. The association with diabetes mellitus is particularly strong and may increase the relative risk of infection by up to 20-fold. ⁴
- It appears that the work repair for pipeline leakages and pipeline projects were consistently associated with the onset of cases, with 26.7% of cases experiencing muddy water supply and 36.7% of cases experiencing interrupted water supply before the onset of symptoms. Otherwise, no obvious epidemiological link can be established. Besides, less occupation-related exposure. ⁵

Conclusion

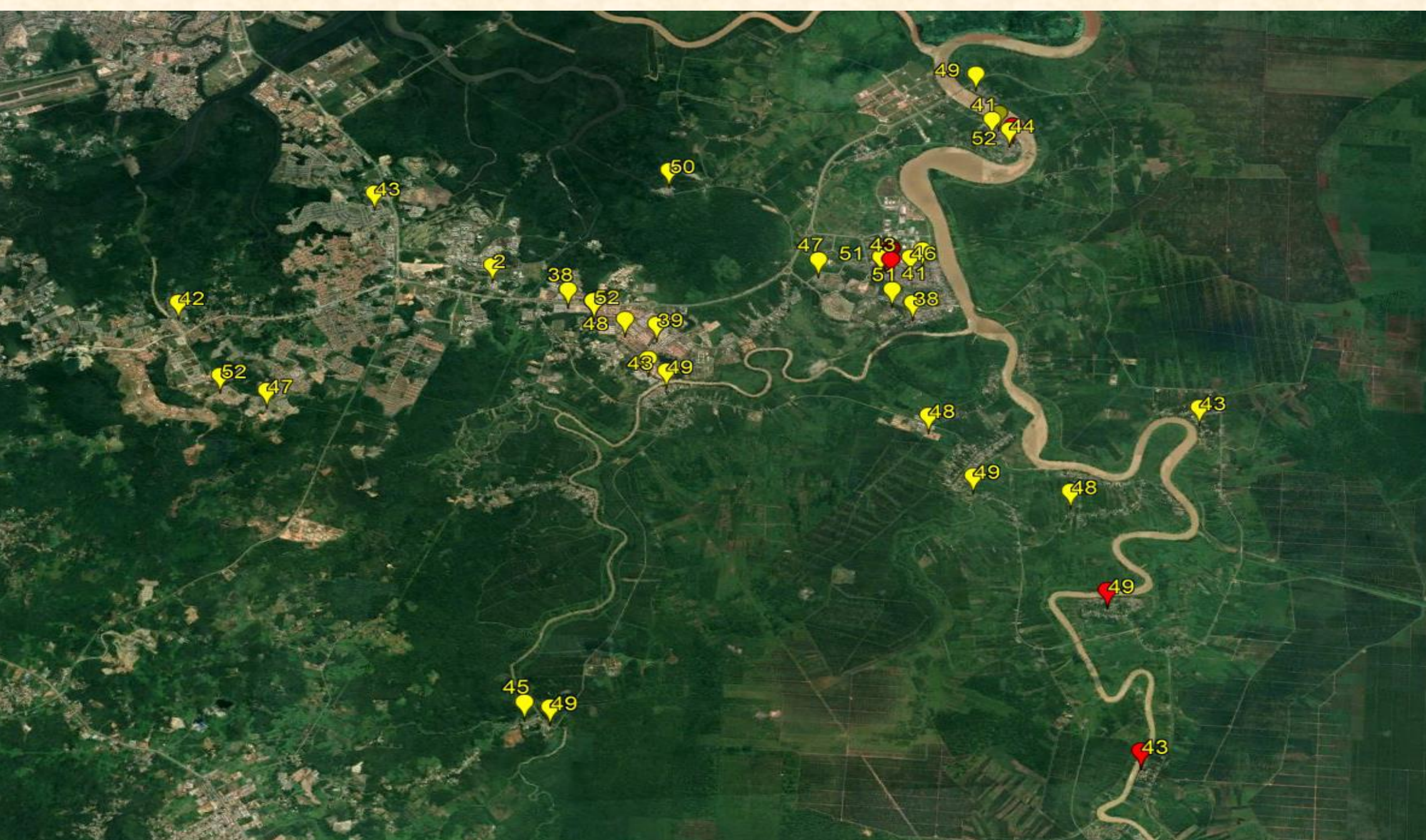
The possible source of infection of melioidosis outbreak was a common source of water contamination. Environmental sampling showed possible cross-contamination found in the positive soil sample occurred, in addition to exposure to construction sites, piping leakage, and interrupted water supply from August to November 2022. Therefore, the melioidosis endemicity status in the Samarahan district should not be overlooked

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 Ethics approval from Medical Research and Ethics Committee (MREC): NMRR ID 23-02020-1A2

Distribution of confirmed melioidosis cases in Samarahan district



CHARACTERISTICS AND EPIDEMIOLOGY OF MELIOIDOSIS IN PENANG STATE: A RETROSEPTIVE 5 YEAR REVIEW

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INTRODUCTION

- Melioidosis is a tropical infection caused by the soil bacterium *Burkholderia Pseudomallei* ⁽¹⁾
- Globally, more than 35,000 human Melioidosis cases have been reported since 1911⁽²⁾
- Melioidosis commonly occurs in patients with diabetes mellitus, who increase the occurrence of Melioidosis in a population ^(1,2)
- Melioidosis, an under-diagnosis and under-reporting disease, had been a major issue and global burden worldwide.
- Reports from Malaysia showed the incidence rate of melioidosis in Sabah, Pahang and Kedah states were 2.57, 6.1 and 16.35 per 100,000 populations per year respectively⁽¹⁾
- There is insufficient data on the incidence rate in state of Penang as this is not a notifiable disease.



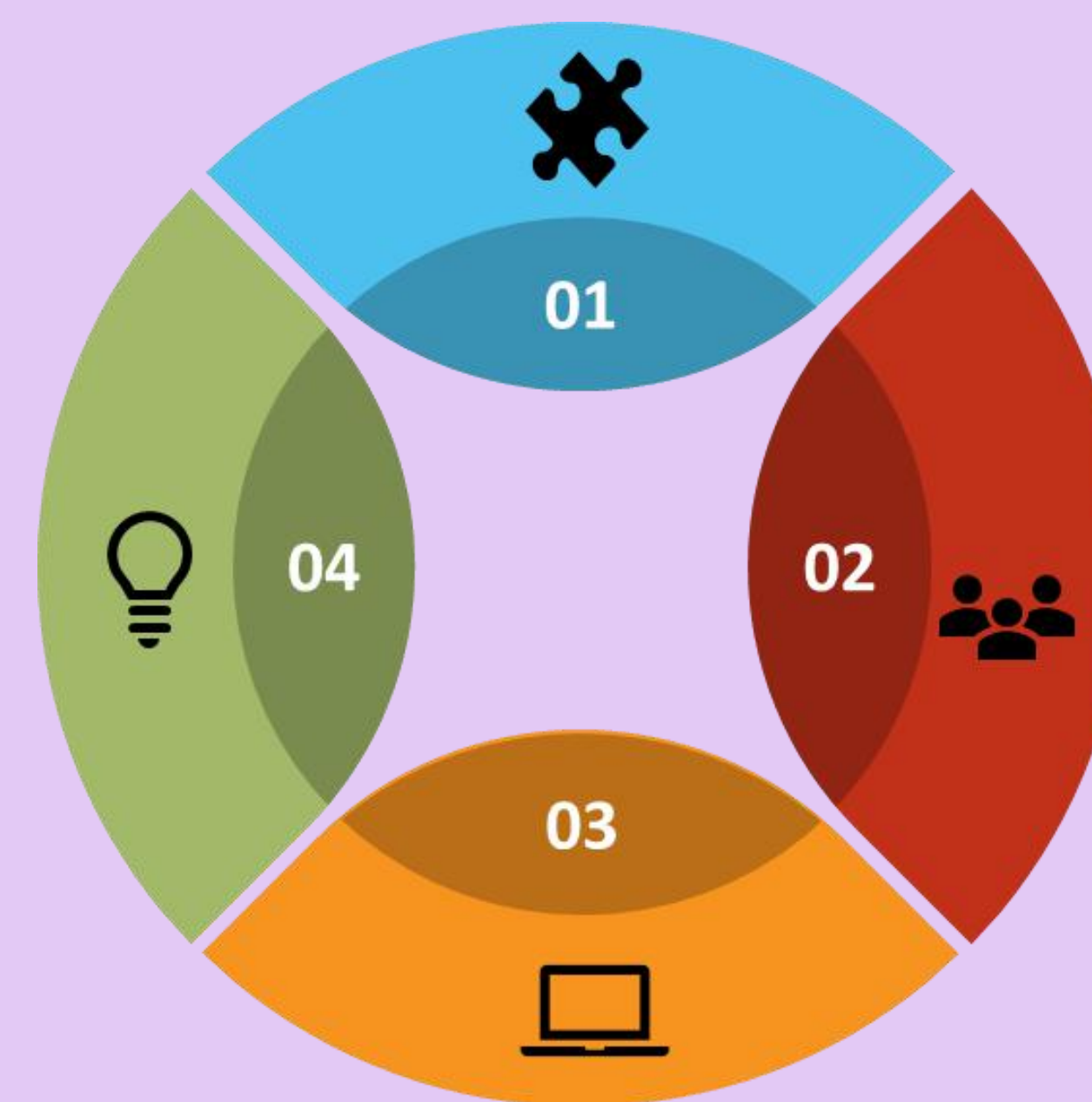
OBJECTIVES

- To determine the annual incidence rate of Melioidosis cases in Penang.
- To determine the sociodemographic and clinical characteristics of Melioidosis cases in Penang.
- To determine the factors associated with critical ill patient (ICU vs. non-ICU admission) of Melioidosis cases in Penang during study period.

METHODOLOGY

Study Design

A 5-years Retrospective Study



Instrument

Cultured-confirmed cases of Melioidosis extracted from the Penang Health State Department data from January 2019 till epidemiology week 44 (4th November 2023)

Study Population

A cultured-confirmed for Melioidosis from year 2019 till epidemiological week 44 of 2023 (4th November 2023) in five districts in Penang.

Analysis

- Used IBM SPSS Version 29
- Data was tabulated for descriptive statistics
- Reported in frequency & percentage (categorical data) and mean & SD (numerical data)
- Multiple logistic regression was used to ascertain predictors
- Incidence rate was calculated

RESULTS & DISCUSSIONS

Figure 1 below showed there were a total of 67 Melioidosis cases registered in Penang during study period. There is increase of annual incidence rate observed from 2021 till 2023; the highest was 1.27 per 100,000 population in 2023.

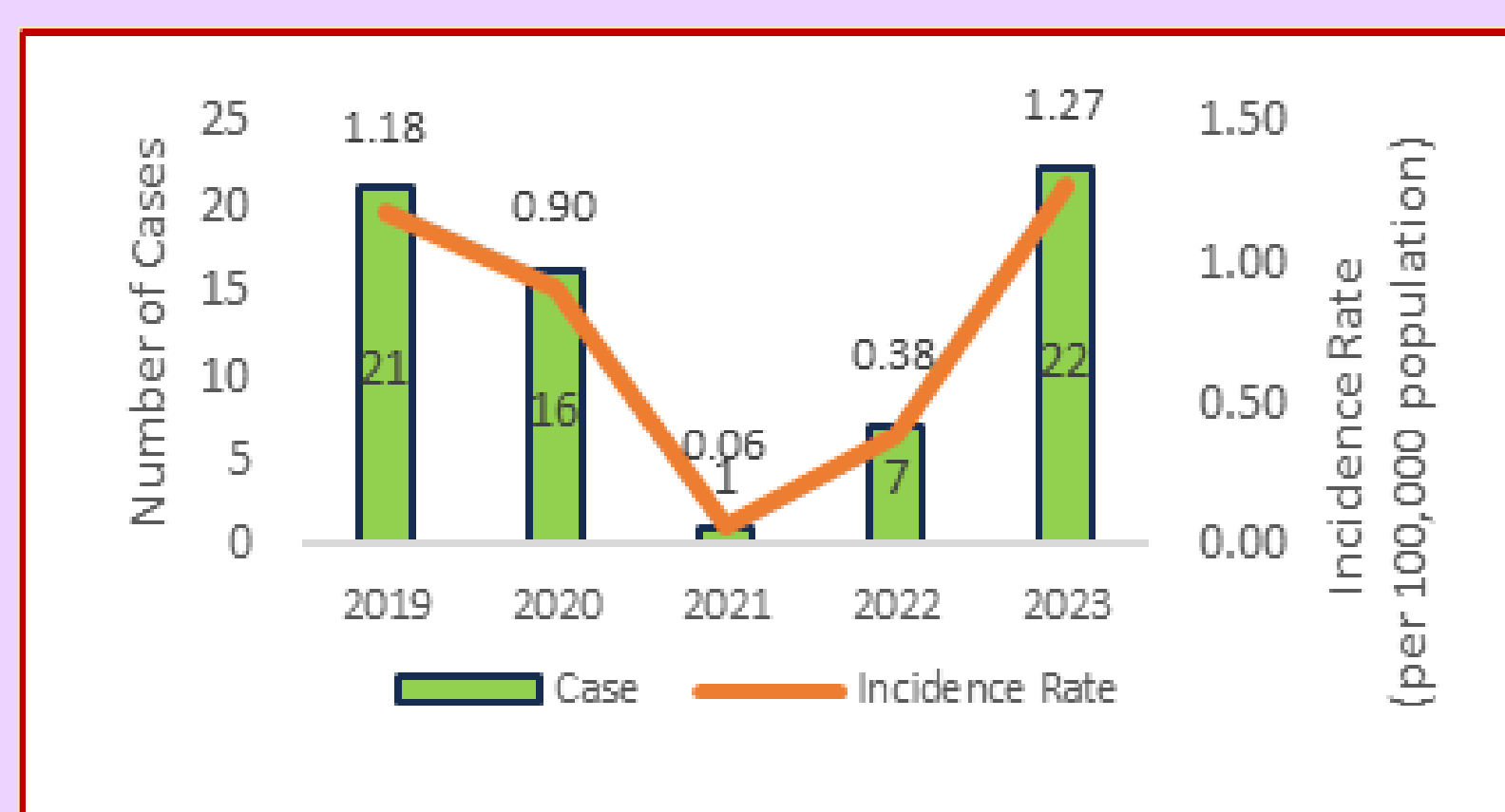


Table 1 : Sociodemographic of Melioidosis cases in Penang (n=67)

Variables	n	%
Age		
0-14 years old	0	0.0
15-24 years old	3	4.5
25-54 years old	38	56.7
55-64 years old	13	19.4
65 years old & above	13	19.4
Gender		
Male	55	82.1
Female	12	17.9
Ethnicity		
Chinese	3	4.5
Indian	11	16.4
Others	6	9.0
Malay	47	70.1
Nationality		
None Malaysian	6	9.0
Malaysian	61	91.0
District		
Barat Daya	6	9.0
Timur Laut	9	13.4
Seberang Perai Tengah	10	14.9
Seberang Perai Selatan	16	23.9
Seberang Perai Utara	26	38.8

Table 2: Risk factors and clinical characteristics of Melioidosis cases in Penang (n=67).

Variables	n	%	Mean (SD)
Occupation Sector			
None Agriculture & Farming	42	62.7	
Agriculture & Farming	25	37.3	
Source of Infection			
Unknown Source	38	56.7	
Sport & Recreation Activities	2	3.0	
House Environment	15	22.4	
Work Risk	12	17.9	
Environment Risk			
No	35	52.2	
Yes	32	47.8	
Initial Presentation			
Acute Pulmonary Infection	23	34.3	
Local Infection	12	17.9	
Acute Blood Stream/Disseminated Infection	32	47.8	
Admission Institution			
Private	4	6.0	
Government	63	94.0	
Admission Ward			
None-ICU	43	64.2	
ICU	24	35.8	
Outcome			
Alive	56	83.6	
Died	11	16.4	
Comorbidity			
No	9	13.4	
Yes	58	86.6	
Diabetes Mellitus			
No	15	22.4	
Yes	52	77.6	
Number of Days from Onset to Diagnosis			10.1 (8.5)

Table 3 : Multiple logistic regression of predictors associated with critical ill patient of Melioidosis cases in Penang

Variables	Coefficient	SE	OR	Adjusted OR	95% CI	p-value
Intercept	-4.671					
Gender						
Female	Ref					
Male	1.946	0.896	3.129	7.001	1.208, 40.559	0.030*
Outcome						
Alive	Ref					
Death	2.285	0.977	6.667	9.828	1.447, 66.732	0.019*

Note: (*) significant p-value < 0.05
 Hosmer and Lemeshow test: p-value 0.981; Classification table: 76.1%; Adjusted for Comorbidity, Diabetes Mellitus, Initial Presentation, Environment Risk and Occupation Sector



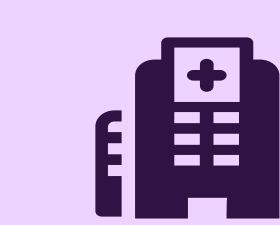
• The incidence of melioidosis recorded for Penang (highest 1.27 per 100,000 population) is much lower than the rates recorded in other states in Malaysia and sites within the Southeast Asian region ^(3,4)



• Malay was reported as the highest ethnicity (70.1%), male predominant (82.1%) and majority of cases aged 25-54 years old acquiring melioidosis infection, parallel with other finding ⁽⁵⁾



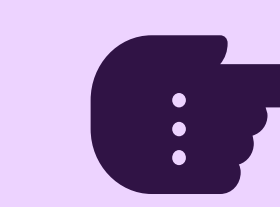
• This result reflects the importance of occupational exposure, since activities related to higher contact with soil accounted for 37.3% which is agricultural and farming.



• The initial clinical presentation of Melioidosis cases in Penang was Acute Blood Stream/Disseminated Infection (47.8%) and it took an average of 11 days from symptom onset to diagnosis of Melioidosis.



• The crude mortality rate among the study population was 16.4%



• The importance of diabetes as the most associated concomitant disease risk factor for melioidosis is similarly well documented ⁽²⁻⁵⁾



• For predictors, being male increased risk of critical ill patient by 7 time compared to female. Also, death is 10 times higher for critical ill patient.

PUBLIC HEALTH SIGNIFICANCE & RECOMMENDATIONS

- Promoting awareness regarding melioidosis among physician, healthcare personnel and general public is vital through health promotion, education, and/or training focusing on disease symptoms and risk factors to expediate diagnosis and management of Melioidosis.
- An improved diagnostic method that is more rapid, robust and quick is required to facilitate initiating early treatment for patient.
- Melioidosis should be classified as a notifiable disease by CDC Act, and a national melioidosis registry should be established to ensure well-curated incidence data is available.
- A robust study regarding Melioidosis cases in Malaysia involving all states should be done in the future. This would need better funding, collaboration and optimum duration to ensure useful quality data and analysis

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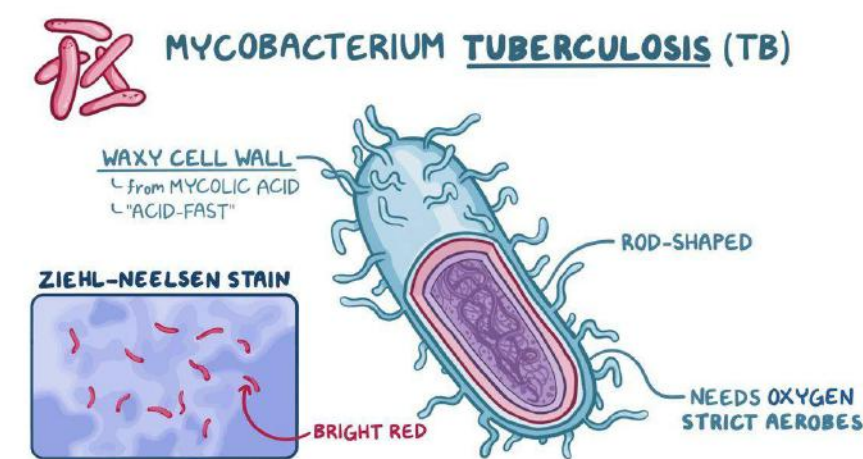
Factors Associated with Treatment Success among Tuberculosis Cases in Kluang Johor: A Registry-based Study for the year 2018-2022

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INTRODUCTION

Tuberculosis is an infectious disease caused by mycobacterium Tuberculosis bacteria with 1.3 million death in 2022.¹ In 2019 the estimate for TB Mortality rate is 4 cases per 100000 population per year.² The aim of this study is to examine the determinants of success TB treatment among TB cases in Kluang Johor from 2018 to 2022.



METHODOLOGY

Sociodemographic and clinical data from the national TB registry, registered under Kluang district health office from January 1, 2018, to December 31, 2022, were retrieved and analysed. Descriptive analysis, univariate analysis (using Chi-Square test), and multiple logistic regression analysis were conducted to identify determinants of successful TB treatment. The successful (favourable) TB treatment was defined as the sum of cured patients and those who completed the treatment. The unsuccessful (non-favourable) treatment was defined as the sum of treatment failed, died, and default.



RESULTS

A total of 812 TB cases were included in the study. The study indicated that female TB patient, (OR 1.84, 95% CI: 1.03-3.29), newly diagnosed TB cases (OR 2.69, 95% CI: 1.48-4.87), TB cases diagnosed at health clinic (OR 1.90, 95% CI: 1.24-2.91), Positive RVD status (OR 0.319, 95% CI: 0.182-0.548), Unknown RVD status (OR 0.459, 95% CI: 0.190-1.11), and non-MDR TB status (OR 8.26, 95% CI: 1.80 – 37.8) are the factors significantly associated with the success of treatment among TB cases in Kluang Johor.



Table 1.1 Sociodemographic characteristic and treatment related factors among non-favourable and favourable TB treatment outcome in Kluang (n = 812)

Sociodemographic characteristic	Non-Favourable Outcomen(%)	Favourable Outcomen (%)	p-value(Chi-Square)	
Status merokok	Tidak	77(18.3)	343(81.7)	<0.001
	Ya	130(33.2)	262(66.8)	
Tempat diagnosa	Hospital Kerajaan	143(31.8)	307(68.2)	<0.001
	Klinik Kesihatan	56(18.3)	250(81.7)	
	Fasiliti Swasta	8(14.3)	48(85.7)	
Lokasi TB	EXTRAPT	25(26.0)	71(74.0)	0.895
	PTB	182(25.4)	534(74.6)	
Kategori kes	Baru	179(76.0)	568(76.0)	<0.001
	Berulang/GR/KSTR	28(43.1)	37(56.9)	
Status CXR semasa diagnosa	Tiada perubahan	21(18.4)	93(81.6)	0.033
	Sederhana	77(83.9)	252(76.6)	
	Teruk	92(28.4)	232(71.6)	
RVD Status	Sangat Teruk	17(37.8)	28(62.2)	<0.001
	Negatif	166(22.4)	576(77.6)	
	Positif	38(57.6)	28(42.4)	
MDRTB status	Tidak Dibuat	3(75.0)	1(25.0)	<0.001
	Tidak	199(24.9)	601(75.1)	
Status Lewat Diagnosa	Ya	8(66.7)	4(33.3)	<0.001
	Tidak	168(21.7)	605(78.3)	
	Ya	39(100)	0(0.00)	

Table 1.2 Adjusted odds ratio for associations between sociodemographic and treatment related factors and successful treatment among TB patients in Kluang (n = 812)

Variables	B(SE)	Wald (df)	Adjusted OR(95% CI)	p-value
Jantina				
Male			1(ref)	
Female	-0.614(0.294)	4.357(1)	1.84 (1.03-3.29)	0.037
Kategori kes				
Berulang			1(ref)	
Baru	0.991(0.303)	10.725(1)	2.69(1.48-4.87)	0.001
Tempat diagnosa				
Hospital			1(ref)	
Swasta	0.538(0.424)	1.61(1)	1.71(0.74-3.93)	0.205
Klinik Kesihatan	0.645(0.216)	8.91(1)	1.90(1.24-2.91)	0.003
RVD status				
Negatif			1(ref)	
Positif	-1.151(0.281)	16.81(1)	0.319(0.182-0.548)	<0.001
Tidak diketahui	-0.778(0.450)	2.987(1)	0.459(0.190-1.11)	0.056
Status MDR TB				
Yes			1(ref)	
No	2.113(0.775)	7.422(1)	8.26(1.80-37.8)	0.006

DISCUSSION

The WHO recommends tuberculosis program should achieve at least 90% treatment success rate and 85% cure rate.³ Kluang TB registry shown increase number of cases through out the year. Results shown factor associated with treatment success in TB patient which can be used in planning next step to improve treatment success rate in Kluang, Johor.



CONCLUSION

Overall, for the year 2018 to 2022, Kluang did not achieved the target of 90% success rate for TB treatment. The success of TB treatment can be increased by early TB detection through intensified TB contact tracing activities.

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3rd National Epidemiology Conference 2023

Beyond Antibiotic Resistance: A Descriptive Study On Extended-spectrum Beta-lactamase (ESBL)-Producing Bacteria Among Urinary Tract Infection (UTI) Outpatients in Kelantan, Malaysia

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INTRODUCTION

Antimicrobial resistance (AMR) is a growing threat to human health globally. The major mechanism of AMR is the production of Extended-Spectrum Beta-Lactamase (ESBL) enzymes, which confer resistance to penicillins, cephalosporins, and monobactams, leaving limited therapeutic options for AMR infections. This study focused on determining the prevalence of ESBL-producing bacteria among UTI outpatients in Kelantan state.

METHODOLOGY

From 2017 to 2022, a total of 53,964 urine specimens from 61 healthcare facilities in Kelantan were transported under cold-chain conditions (2–8°C) to Kota Bharu's Public Health Laboratory. The samples were cultured on Cystine Lactose Electrolyte Deficient (CLED) and MacConkey No. 3 agar and incubated under aerobic conditions for 18-24 hours. Significant colonies underwent identification, antibiotic susceptibility, and ESBL confirmatory testing.

RESULTS

Table 1 & Chart 1: Positivity Rate and Predominant Uropathogens isolated from 61 primary health care clinics in Kelantan in the year 2017-2022

Year	Total urine sample received (=n)	Total Positive samples(=n)	Positivity Rate(=%)
2017	10353	1364	10.5
2018	10803	1075	10.0
2019	11905	11229	10.2
2020	7572	811	10.4
2021	6017	650	10.8
2022	7314	852	11.7
Total	53964	5981	11.1

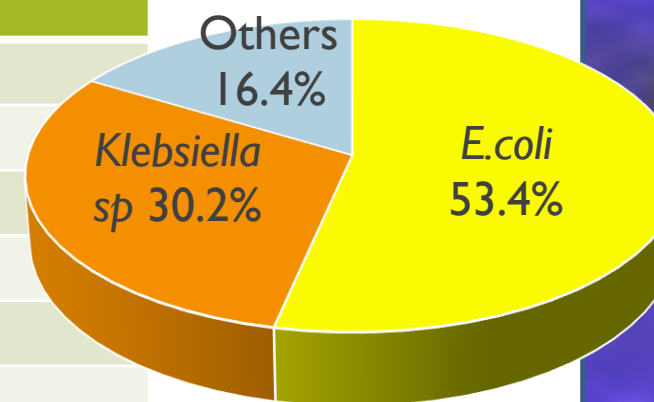


Chart 2: Trend of Prevalence of ESBL-producing E.coli and ESBL-producing Klebsiella sp from 2017-2022

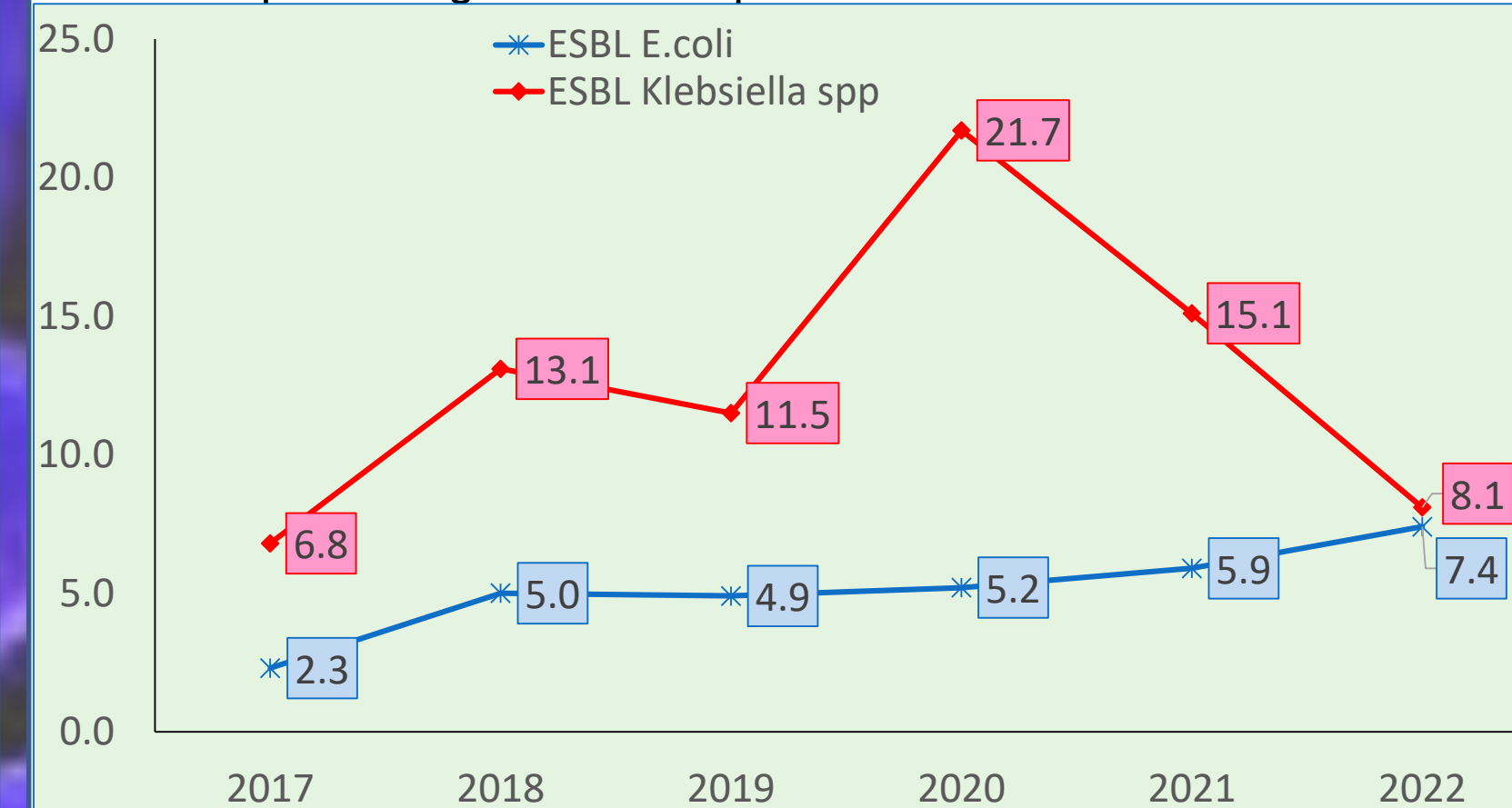
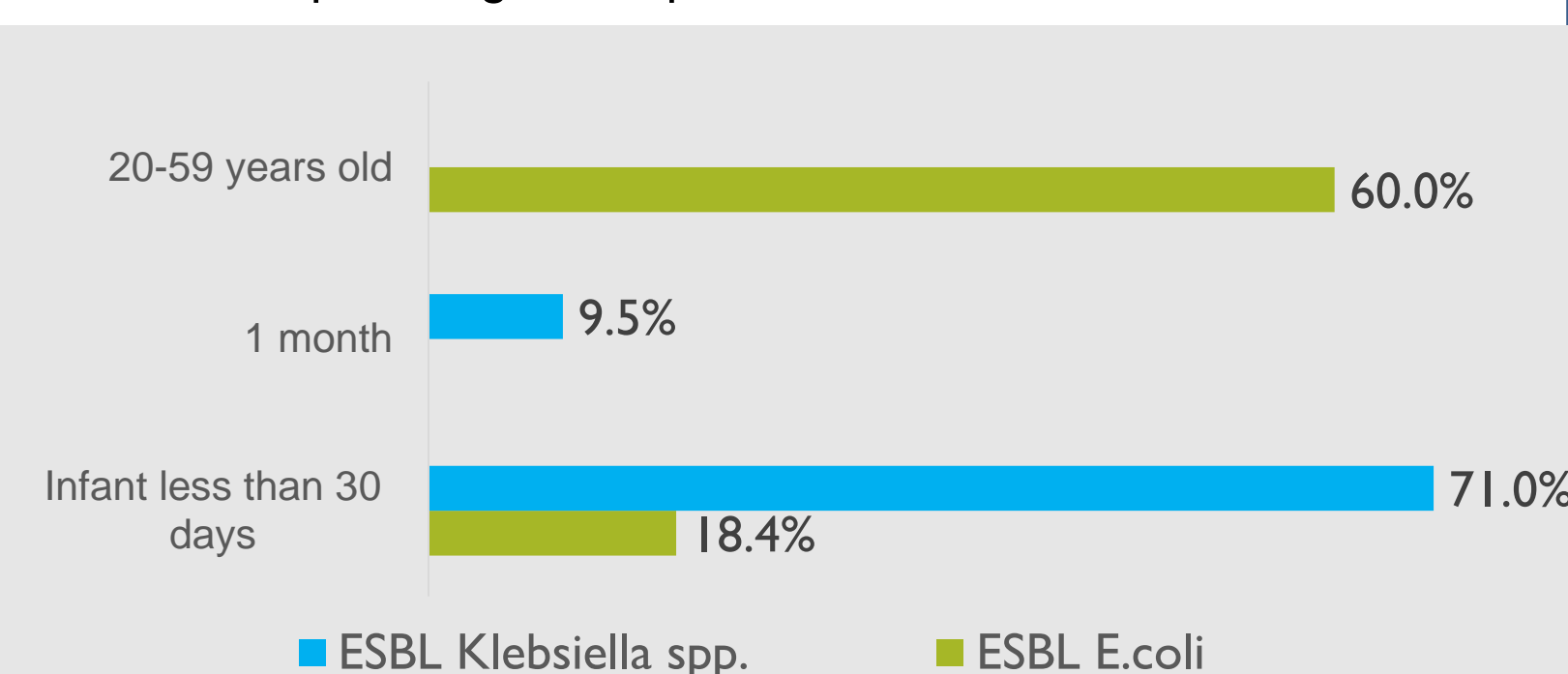


Chart 3: Distribution of ESBL-Producing Bacteria Among the Most Susceptible Age Groups



DISCUSSION

The laboratory findings revealed that 5.1% of UTI outpatients were isolated ESBL-producing *E. coli*, and 12.7% were ESBL-producing *Klebsiella sp*. Age distribution revealed that 60.0% of ESBL-producing *E. coli* cases occurred in individuals aged 20-59, and 18.4% in infants under 30 days. The highest prevalence of ESBL *Klebsiella sp* was isolated in infants under 30 days (71.0%) and 1-month-old (9.5%).

CONCLUSION

1. The prevalence rate of ESBL-*E. coli* and ESBL *Klebsiella sp* among UTI outpatients attending 61 primary health care clinics in Kelantan was 17.8%.
2. These findings highlight a concerning prevalence of ESBL-producing bacteria, among individuals aged 20-59 and infants.
3. Therefore, it is essential to implement a National AMR Surveillance Program for urine samples received from the community to comprehensively understand and track AMR evolutions, aiming to curb the establishment of multi-drug resistant strains in the community.

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3rd National Epidemiology Conference 2023



Animal bite risk assessment in Sri Aman, Sarawak during epidemiology weeks 1 to 38, 2023:

An applied epidemiological study

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1. INTRODUCTION

Animal bites, often underestimated in public health. They result in physical injuries and zoonotic disease transmission, posing significant healthcare challenges. This study aims to analyze risk factors in Sri Aman, Sarawak.

2. METHODOLOGY

A multifaceted methodology was employed to compile data in I-bite system records to gather extensive details on incident specifics, including animal types and case demographics. Comprehensive analysis was conducted using Statistical Package for the Social Sciences (SPSS version 26).

3. RESULTS

Diagram 1 : Percentage type of animal in animal bite case

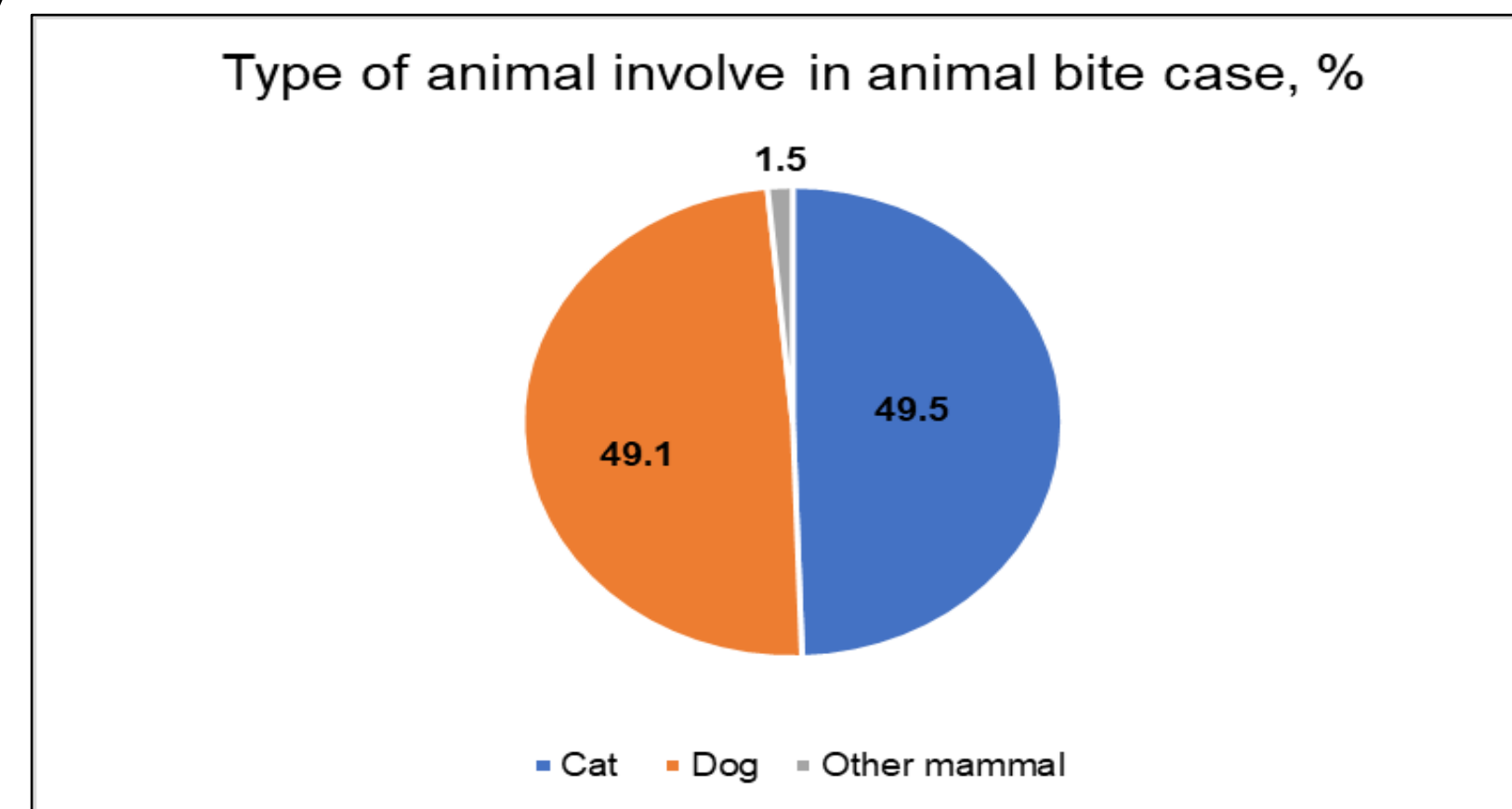


Diagram 2 : Percentage of ethnicity in animal bite case

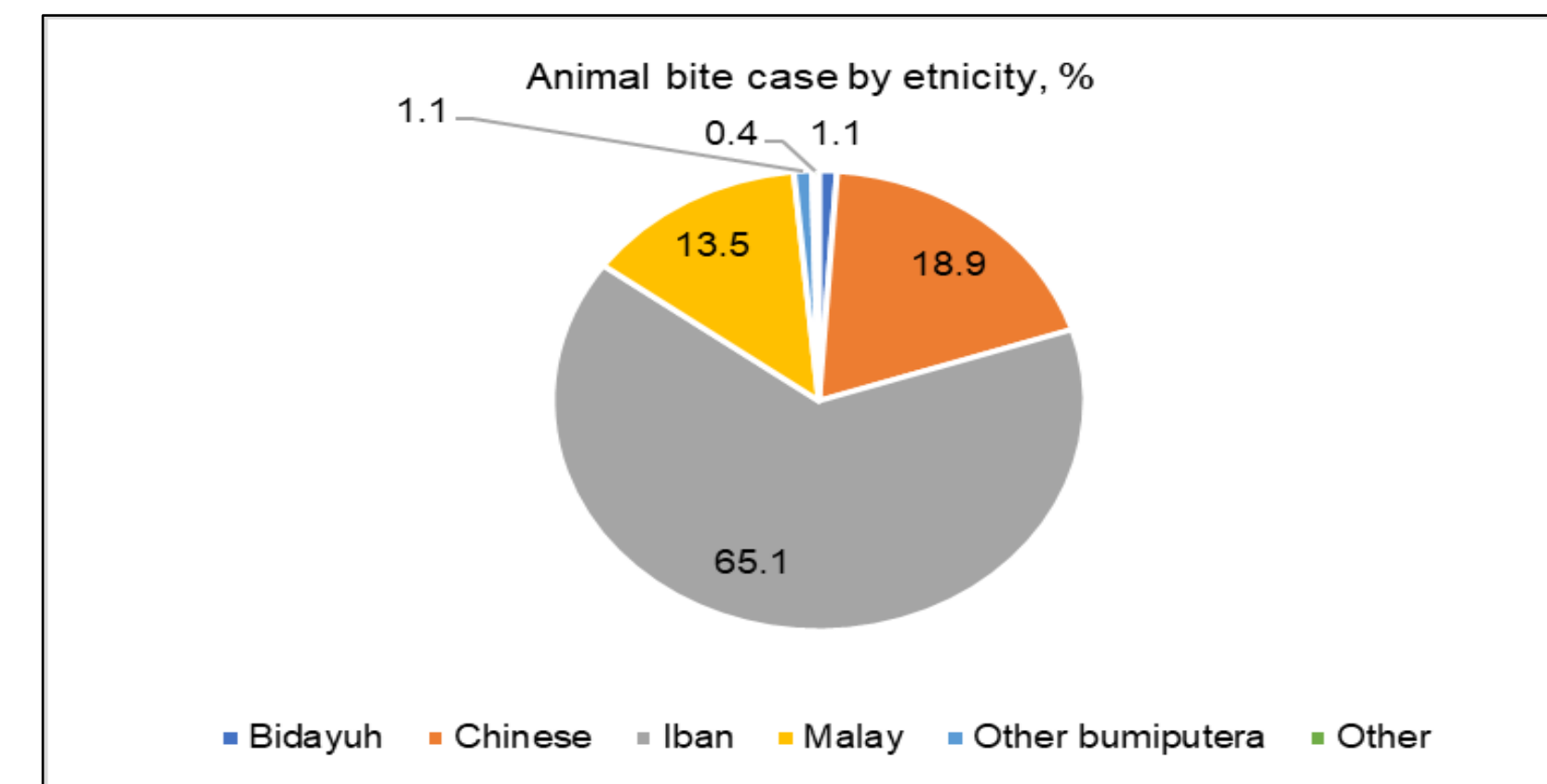


Diagram 3 : Age specific attack rate in animal bite in Sri Aman for period Epid week 1 until 38 in Sri Aman, Sarawak

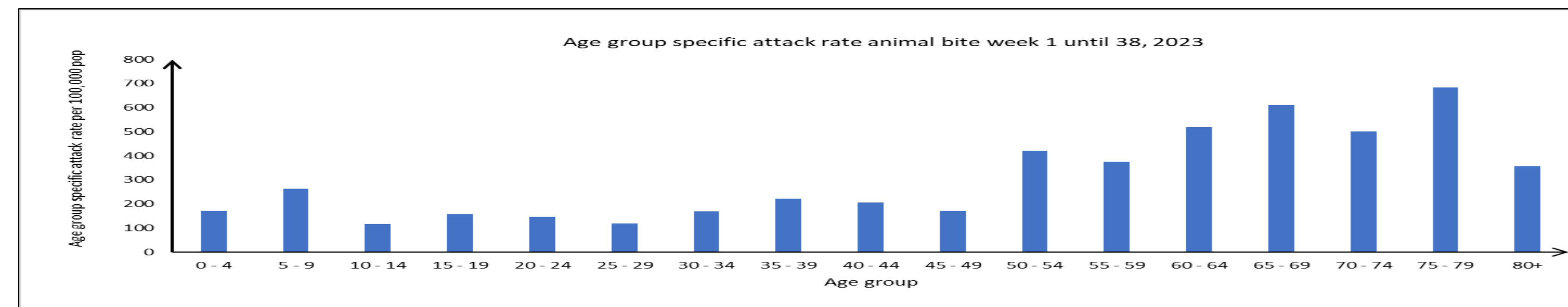


Table 1 : Correlation between ethnicity and animal type with animal bite case

Variable	χ^2	df	p-value
Ethnicity and Animal Type	32.89	1	< 0.001

Table 2: One-Way Analysis of Variance of Age and animal bite case

Source	df	SS	MS	F	P
Between groups	2	9265.26	4632.63	9.23	<0.01
Within groups	272	136598.91	502.2		
Total	274	145864.17			

4. DISCUSSION

- Older age group are more susceptible to infection resulting from animal bite due to weaken immune system and the low in reflexes to defend against animal attack, Schalamon et.al (2006) ; Moran et.al (2015).
- Different ethnic or cultural groups may have distinct attitudes and practices concerning animal interactions due to agricultural practices or living in rural areas, Franklin et al. (2006).

5. CONCLUSION

Awareness and precautions are vital for safeguarding older individuals from animal bite infections, highlighting the need for tailored strategies within diverse ethnic in communities

6. REFERENCES

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INTRODUCTION

The alarming resurgence of pertussis infections worldwide, including in Malaysia, is cause for concern. Even though vaccination is effective, pertussis remains endemic in Malaysia, especially Sabah, where cases have increased post-pandemic. Little is known about the local risk factors and dynamics of the disease. Thus, the main aim of our study was to determine the risk factors associated with pertussis infection among children in Tawau and to describe the clinical presentation of the cases while exploring the spatial distribution of pertussis in Tawau.

METHODOLOGY

Study sites and data collection

- The Tawau Area in southeast of Sabah State, Malaysian Borneo (Figure 1).
- Area covering 5873 km², with around 419,187 population in 7 constituencies: Balung, Apas, Sri Tanjung, Kukusan, Tanjung Batu, Merotai and Sebatik. (1)
- The pertussis vaccine coverage (2022): 83.3% for the primary dose and 25.8% for the booster dose. (2)



Figure 1: Site of study, Tawau Area map

- Type of study:** Case-control study
- Source of data:** eNotifikasi-reported pertussis cases and their investigation forms
- Time-frame:** January 1, 2017, to September 2, 2023
- Sampling method:** purposive sampling
- Cases:** lab-confirmed pertussis cases
- Controls:** negative (discarded) cases.
- Exclusion:** incompletely investigated patients.

Instruments and data analysis

- Investigation form:** Standard pertussis investigation form by the MoH.
- Statistical analysis:** IBM's Statistical Package for the Social Sciences (SPSS) version 29.0.1.0 (171).
- Statistical test:** chi-square test, and multivariable analysis by stepwise logistic regression with significance level of $p < 0.05$, and calculation of odds ratios (OR)
- Spatial autocorrelation:** using GeoDa v.1.20.0.36 analysis by Local Moran's I statistic
- Visualisation:** generated using QGIS v.3.26.0.

RESULTS

Table 1: Descriptive analysis of all subjects

Variables		Control				Outcome			
		n	%	Mean	SD	n	%	Mean	SD
Nationality Status	Malaysian	61	76.3			27	44.3		
	Non-Malaysian	19	23.8			34	55.7		
Age (in Months)	≥5 Months	26	32.5	6.6	9.8	22	36.1	8.3	15.3
	0 - 1 Months	15	18.8			10	16.4		
Age Group	2 Months	13	16.3			15	24.6		
	3 - 4 Months	26	32.5			14	23.0		
Gender	Female	38	47.5			39	63.9		
	Male	42	52.5			22	36.1		
Duration of Symptoms Before Seeking Treatment	Paroxysmal Cough	62	77.5	7.0	10.3	10	16.4	7.9	8.2
	Inspiratory Whoop	18	22.5			51	83.6		
Post-tussive Vomiting	No	74	92.5			45	73.8		
	Yes	6	7.5			16	26.2		
Cyanosis	No	56	70.0			33	54.1		
	Yes	24	30.0			28	45.9		
Apnea	No	76	95.0			40	65.6		
	Yes	4	5.0			21	34.4		
Presence of Complications	No	73	91.3			54	88.5		
	Yes	7	8.8			7	11.5		
Pneumonia	No	70	87.5			51	83.6		
	Yes	10	12.5			10	16.4		
Seizure	No	70	87.5			54	88.5		
	Yes	10	12.5			7	11.5		
Age Appropriate Immunization?	No	80	100.0			58	95.1		
	Yes	0	0.0			3	4.9		
Numbers of DTaP Dose Received	Non-Eligible	49	61.3			37	60.7		
	Yes	23	28.8			16	26.2		
Source of Infection	Yes	8	10.0			8	13.1		
	No	69	86.3			47	77.0		
Childcare Centre	1	3	3.8			10	16.4		
	2	4	5.0			3	4.9		
Household	3	2	2.5			1	1.6		
	4	2	2.5			0	0.0		
Oversea Travel	0	0	0.0			1	1.6		
	1	0	0.0			1	1.6		
Undetermined	0	0.0			2	3.3			
	80	100.0			57	93.4			

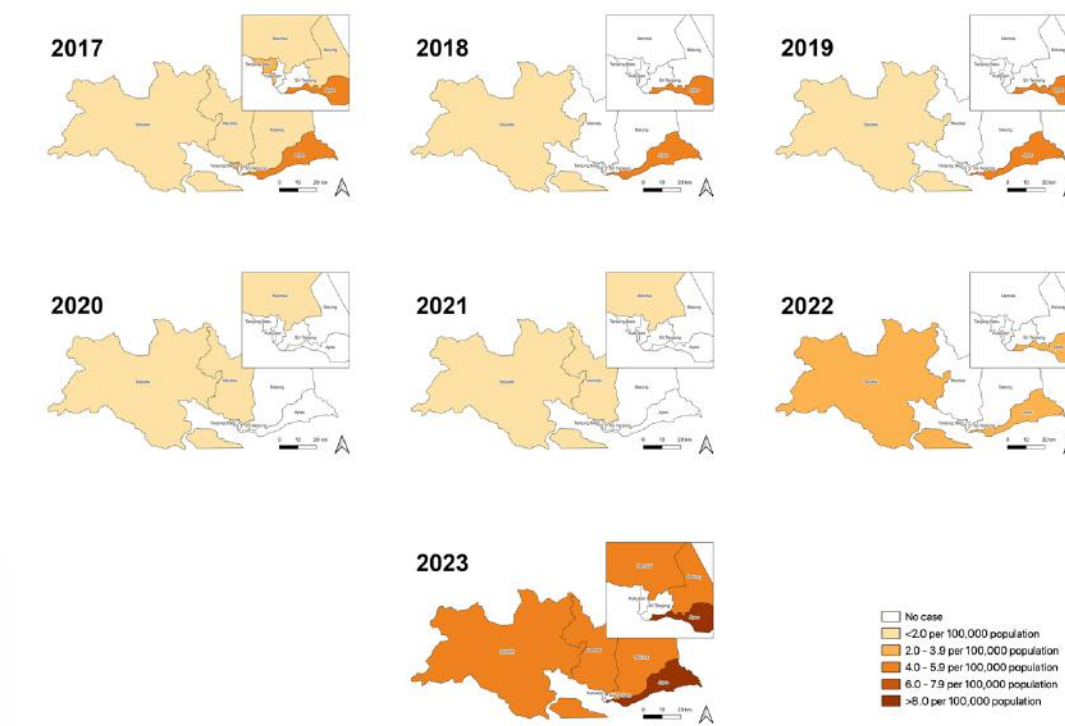


Figure 2: Incidence of pertussis by constituency, 2017 - 2023

Descriptive analysis (Table 1)

- 61 lab-confirmed pertussis cases reported from 2017 – 2023, with annual incidences ranging from 0.48 to 4.77 per 100,000 population (Figure 1).
- Non-Malaysians constitute 55.7% (34) of the cases.
- Majority of cases were female (63.9%) with male-to-female ratio was 1:1.8
- Most cases aged ≥5 months (36.1%), with mean age of 8.3 months (SD=15.3).
- The average days of symptoms were 7.9 days (SD=8.2).
- Only 4.9% of cases received age-appropriate immunization

Bivariate (Table 2) and Multivariate analysis (Table 3)

- Nationality status, the presence of paroxysmal cough, inspiratory whoop, post-tussive vomiting, and cyanosis were significant factors.
- Non-Malaysian children had 4.04 greater odds of being infected with pertussis
- Multivariate analysis showed that non-Malaysian children with paroxysmal cough and cyanosis had higher odds of pertussis (aOR 4.807; 95%CI 1.806, 12.796)

Table 3: Multivariable analysis of pertussis risk factors

Variables	Adjusted Model				
	Adjusted OR	95%CI	B	df	p-value
Nationality Status	Malaysian	1			
	Non-Malaysian	4.807	(1.806, 12.796)	1.570	1
Paroxysmal Cough	No	1			
	Yes	13.372	(4.792, 37.314)	2.593	1
Inspiratory Whoop	No	1			
	Yes	3.365	(0.8, 14.161)	1.213	1
Post-tussive Vomiting	No	1			
	Yes	0.439	(0.135, 1.428)	0.824	1
Cyanosis	No	1			
	Yes	8.111	(1.891, 37.79)	2.093	1

Table 2: Association of risk factors with pertussis infection

Variables	Crude OR	95%CI	χ ²	df	P-value
Nationality Status	Malaysian	1			
	Non-Malaysian	4.043	(1.965, 8.317)	15.095	1
Gender	Female	1			
	Male	0.510	(0.258, 1.01)	3.771	1
Age Group	≥3 Months	1			
	<3 Months	1.290	(0.649, 2.563)	0.528	1
Cough Duration	<14 Days	1			
	≥14 Days	1.805	(0.632, 5.157)	1.240	1
Paroxysmal Cough	No	1			
	Yes	17.567	(7.454, 41.398)	51.717	1
Inspiratory Whoop	No	1			
	Yes	4.385	(1.599, 12.025)	9.220	1
Post-tussive Vomiting	No	1			
	Yes	1.980	(0.989, 3.965)	3.759	1
Cyanosis	No	1			
	Yes	9.975	(3.204, 31.056)	20.545	1
Apnoea	No	1			
	Yes	1.352	(0.448, 4.082)	0.287	1
Presence of Complications	No	1			
	Yes	1.373	(0.532, 3.542)	0.431	1
History of DTaP Immunization	Yes	1			
	No	0.958	(0.377, 2.434)	0.008	1
Age Appropriate Immunization	Yes	1			
	No	0.736	(0.26, 2.087)	0.334	1
Parents' Job Group	Non-Social Tasks	1			
	Social Tasks	0.750	(0.304, 1.851)	0.391	1

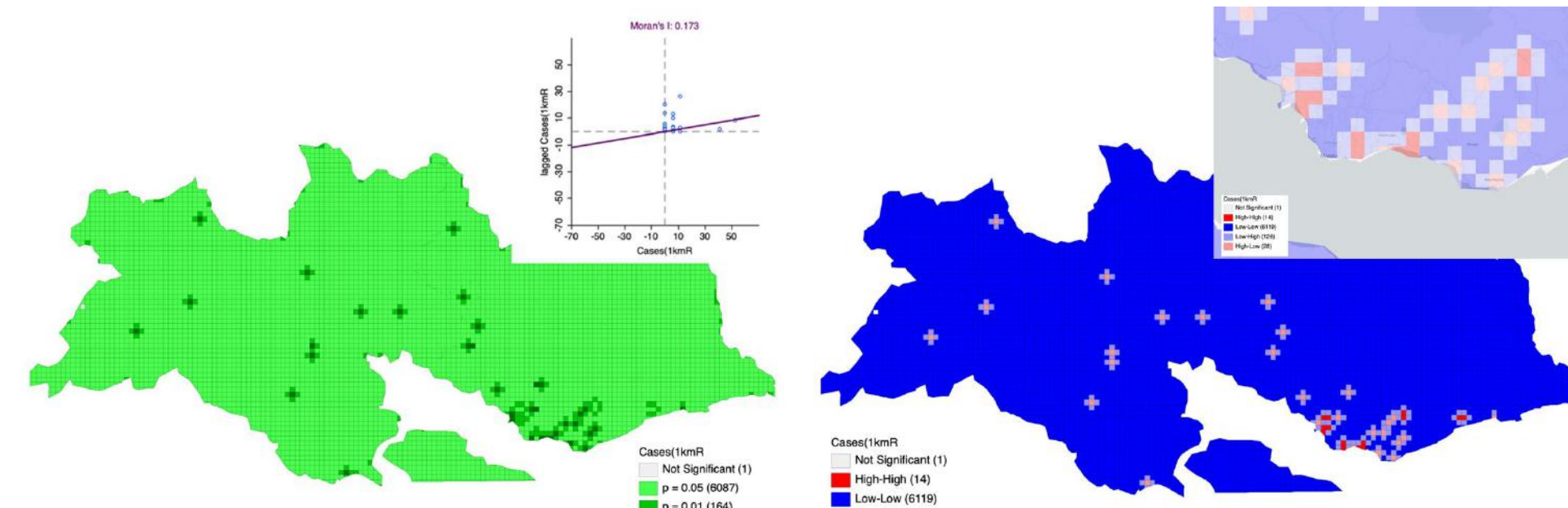


Figure 3: LISA significance map & Moran's scatterplot

Spatial analysis

- Apas recorded highest annual pertussis rate in all years except 2021 and 2022. (Figure 2).
- Local Moran I statistics show that high-high (HH) clusters were primarily concentrated in the Apas constituency, particularly involving areas of illegal squatters (Figure 4).
- The Moran's I value was 0.173, which indicates mild positive spatial autocorrelation, suggesting some degree of clustering (Figure 3).

DISCUSSION

- Our pertussis cases more likely to be of non-Malaysian citizenship (aOR 4.807; 95%CI 1.806, 12.796), similar with other study. (3) This may be related to lack of vaccination access in this population.
- Pertussis often affects 100% of non-immune household contacts (4), as immunization coverage among non-citizens is relatively low.
- The average length of cough among the cases [(7.9 days (SD=8.2))] was found to be less than the established clinical criteria for pertussis, which is 14 days. (5, 6)
- The CDC has updated the clinical criteria for pertussis in newborns include the presence other symptoms with cough of any duration. (6)
- Factors which are often associated with pertussis, such as age group < 3 months and absence of immunization against pertussis (7), were found to be insignificant in our study due to the differences in the size and characteristics of the studied population.
- Multivariate and spatial analysis showed pertussis risk for non-Malaysians. Pertussis hotspots were mostly in the Apas constituency's coastal area, where immigrant-majority squatter settlements are

- concentrated due to lower vaccination access and compliance in this population (3) evidenced by primary and booster DTaP coverage in the area was only 89.2% and 31.4%, respectively. (2)
- Based on the R₀ information, the herd immunity threshold for the prevalence of protected individuals for pertussis is around 90–94%, with critical vaccination coverage ranging from 95 to 99%. (8)
- This study has some limitations: 1) minimal sample size and the evaluation of risk factors, and 2) we investigated only the parameters documented in the standard pertussis investigation forms.
- Health authorities and governments can learn about infectious disease patterns, high-risk areas and spatial clusters, and trends over time using spatial analysis.
- These findings can improve disease monitoring, build early warning systems, and better target preventative efforts to reduce illness impact, morbidity and mortality. (9, 10)

CONCLUSION & RECOMMENDATIONS

- Pertussis is strongly linked to non-Malaysians, especially those with paroxysmal cough and cyanosis.
- The pertussis epidemic in Tawau is spatially clustered, with a concentration in immigrant-majority illegal squatter areas.
- Herd immunity and epidemic control are often hindered by deliberately excluding undocumented communities.
- A more effective strategy must be devised to improve the accessibility of undocumented migrants to immunisation.
- Further studies with a different design and an adequately large sample size are necessary to evaluate the pertussis burden in Tawau.
- Pertussis epidemic prevention and sanitation resources should be distributed according to their temporal and territorial distribution, and significant epidemic prevention scopes should be segmented to perform focused preventive actions.

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SPATIOTEMPORAL PATTERN OF HFMD TRANSMISSION IN KOTA BHARU, KELANTAN JANUARY 2018 - OCTOBER 2023



KEMENTERIAN KESIHATAN MALAYSIA
PEJABAT KESIHATAN DAERAH KOTA BHARU

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INTRODUCTION

Hand, Foot, and Mouth Disease (HFMD), an endemic disease with pandemic potential, required an understanding of its local patterns.

Through spatial autocorrelation and hotspot analysis, a better understanding of spatial distribution of HFMD cases could be obtained, which was vital for effective public health planning, intervention strategies, and outbreak control.

OBJECTIVE

To assess the spatial patterns of HFMD in Kota Bharu, Kelantan, from January 2018 to October 2023.

METHODS

A cross-sectional study employed HFMD data and census tract data to map the disease's incidence at the subdistrict level using R software 4.2.3.

By using spdep package in R software, we tested for spatial autocorrelation using Moran's I statistic, further decomposed into Local Indicator of Spatial Autocorrelation (LISA) for local hotspot detection.

3rd National Epidemiology Conference 2023



RESULTS

In Kota Bharu district, HFMD infection incidence increased in 2022, followed by 2023, with the highest cases reported in year 2022 (n = 3206). Spatial autocorrelation showed clustering in all studied years (Global Moran's I 0.11 to 0.47, p-values<0.05).

High-high (H-H) hotspots were concentrated in the northern Kota Bharu in subdistrict Panji, Kubang Kerian, and Kota Bharu. While low-low (L-L) areas, were consistent in the east, particularly in Banggu, Limbat, Kota and Peringat. Some L-L areas shifted to high-low (H-L) areas, especially in Badang and Ketereh, indicating rising HFMD risk.

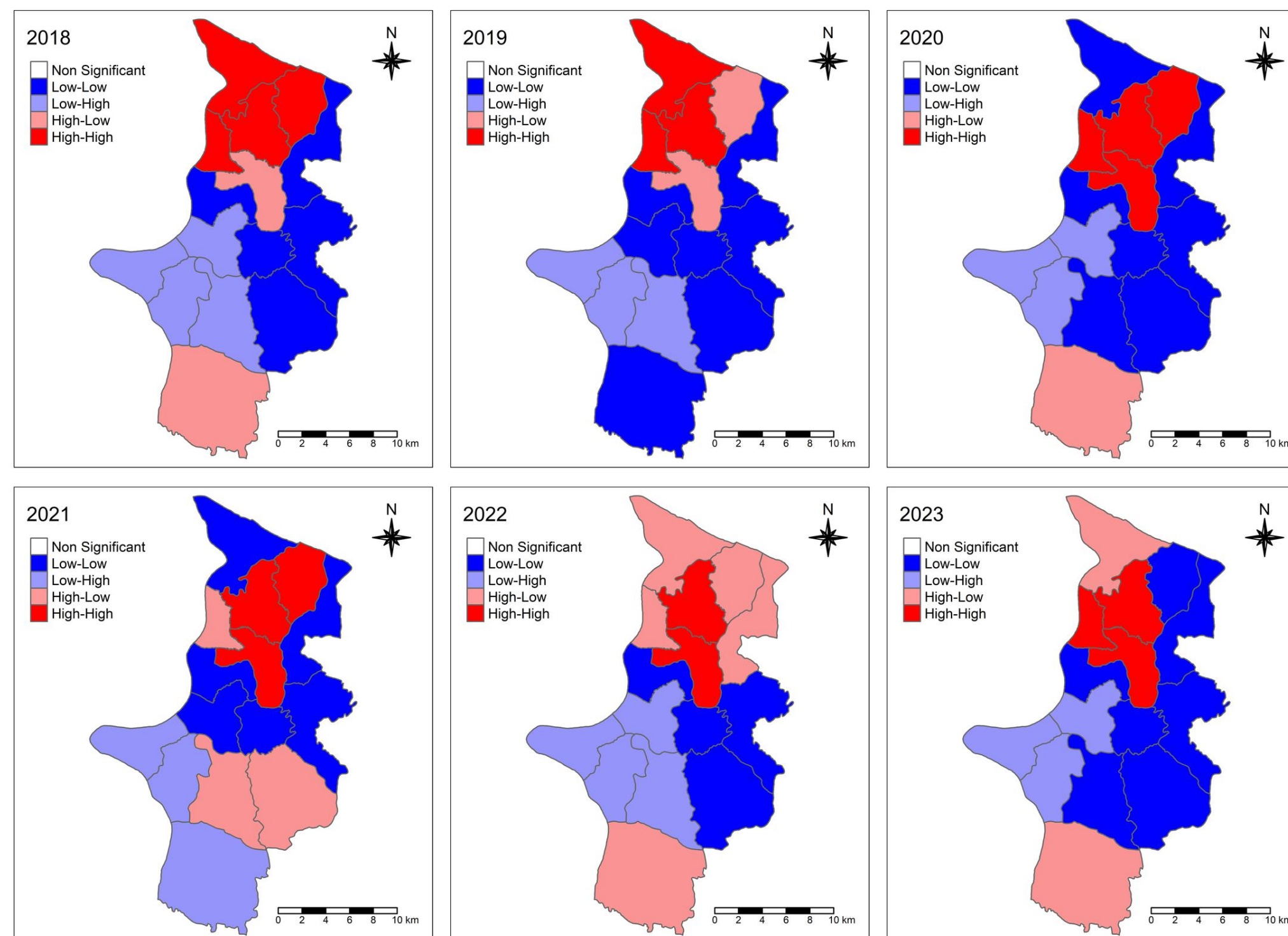


Figure 1: Map of Local Indicator of Spatial Autocorrelation (LISA) Analysis of HFMD In Kota Bharu, Kelantan at Subdistrict Level

DISCUSSION

This study informed targeted interventions for HFMD in Kota Bharu, emphasizing preventive actions in Panji, Kubang Kerian, and Kota Bharu. Special attention was needed for H-L areas like Badang and Ketereh, which had the potential to transition to H-H areas.

The limitation of this study is dependent on reporting cases based on the individuals' residence rather than the actual location of potential infection in the surveillance system. This reliance could impact the accuracy and representativeness of the spatial analysis conducted.

CONCLUSION

This study reveals a growing number of HFMD cases in Kota Bharu, district of Kelantan, with notable hotspots in specific subdistricts. A shift from low-risk to high-risk areas suggests an increased likelihood of HFMD clustering, possibly due to population dynamics and movement. The focus on subdistrict polygons provides precise insights for targeted interventions and effective disease control.

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THEORY OF PLANNED BEHAVIOUR CONSTRUCTS: RELIABILITY AND VALIDITY FOR ASSESSING SEXUAL INTENTION AMONG ADOLESCENT BOYS

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INTRODUCTION

The newly devised Sexual Intention Questionnaire for Adolescent Boys (SIQ-AB) was adopted from the Youth Sexual Intention Questionnaire (YSI-Q), based on the Theory of Planned Behaviour constructs. This instrument aimed to assess the Influence of sexual intention, self-efficacy, social norms and permissive attitude.

OBJECTIVE

This study determines the reliability and validity of the SIQ-AB

METHODOLOGY

Participants

352 adolescent boys (EFA n=126, CFA n=126), aged 13 to 17 years old from two secondary schools in Kuching, Sarawak. The present study was approved by the UNIMAS Medical Ethics Committee and the NMRR, MOE. Written informed consent was obtained from all participants and their guardians.

Measures

The SIQ-AB includes 20 items that measure the effect of permissive attitude, social norms, self-efficacy towards sexual intention. The responses ranged from 1 (strongly disagree) to 4 (strongly agree). The total score for this scale ranges from 20 to 80.

- *Sexual intention* - 5 items. The responses ranged from 5 to 20. The higher score indicates a higher intention to have sex.
- *Self-efficacy* - 5 items. The responses ranged from 4 to 16. The higher score indicates a higher perception of self-efficacy on performing sexual activity.
- *Social norms* - 6 items. The responses ranged from 6 to 24. The higher score indicates a higher perception of social norms on premarital sex.
- *Permissive attitude* - 5 items. The responses ranged from 5 to 20. The higher score indicates a higher permissive attitude towards premarital sex.

Procedures

Panel Experts – The researchers invited three panel experts consisting of Family Health experts and a sexual and reproductive health educator to review whether the 20 items of SIQ-AB are representative of all aspects of the construct. The SIQ-AB was emailed to them with a review form. Content validity was assessed by using Lawshe's formula to calculate the Content Validity Ratio (CVR).

Adolescent Boys – School principals were approached and research information was given to selected classes. Adolescent boys who agreed to participate provided their parent's informed consent.

Statistical Analysis

- *Content Validity Ratio (CVR)* was calculated based on Lawshe's formula.
- *Exploratory Factor Analysis (EFA)* analyzed 19 items from four TPB constructs (sexual intention: 5 items, self-efficacy: 5 items, social norm: 5 items and attitude: 4 items).
- *Confirmatory Factor Analysis (CFA)* - indicators of goodness-of-fit were used to assess the model's overall fit. Based on factor loadings, which should be at least 0.5 and ideally 0.7 or higher, the indicator of path estimations is calculated. This study selected seven fit statistics tests from three categorization indices. The non-significant chi-square (χ^2). A good model fit is defined as a goodness-of-fit index (GFI) over 0.90. An appropriate model fit is one with an RMSEA index value of less than .10 and up to .80. The CFA utilized the comparative fit index (CFI) and normed for index (NFI)
- *Convergent Validity* - Convergent validity was accepted if the AVE value achieved a threshold of at least 0.50. Meanwhile, composite reliability (CR) has been achieved if the CR value is at least 0.60
- *Internal Reliability (Cronbach's alpha)* - With Cronbach Alpha values greater than .70, internal reliability for the entire latent construct and all domains was deemed adequate.
- *Discriminant Validity* - Discriminant validity is demonstrated between two reflective constructs if the HTMT value is less than 0.90.

RESULTS & FINDINGS

Content Validity & Face Validity

In this study, 19 out of 20 items obtained an "essential" rating from all the experts (CVR value of ≤ 0.99). For improved comprehension, five panels had their medical jargon terms replaced, and one item was eliminated.

Exploratory Factor Analysis

The KMO was 0.855 and Bartlett's test of sphericity $\chi^2 (171) = 1388.74, p < 0.001$. It is identified four components and accounted for 65.7% of the variation. The Scree Plot indicates that all 19 items are divided into four components with Eigenvalues below 1.0. At this level, one item was removed.

Confirmatory Factor Analysis

The CFA further confirmed the construct, convergent and composite validity of the SIQ-AB with $\chi^2 = 199.0, df = 129, p < 0.001, \chi^2/df = 1.54, CFI = 0.98$ and $TLI = 0.98$ and $RMSEA = 0.06$. Three items deleted due to low communality and low factor loadings.

Convergent Validity & Composite Reliability

The AVE and CR results for each domain in this questionnaire have indicated that this questionnaire has fully achieved the requirement for convergent validity and composite validity.

Table 1 AVE and CVR for each component in the model

DOMAIN	ITEM	FACTOR LOADING	CR	AVE
Sexual Intention	C1	0.86	0.93	0.77
	C3	0.89		
	C5	0.91		
	C4	0.85		
Self-efficacy	F1	0.93	0.88	0.64
	F2	0.93		
	F3	0.71		
	F4	0.58		
Social Norm	E5	0.83	0.83	0.54
	D1	0.65		
	D4	0.63		
Permissive Attitude	E4	0.83	0.80	0.57
	E2	0.69		
	E6	0.75		

AVE indicates Average Variance Extracted, CR indicates Composite Reliability

Internal Reliability

The final Cronbach Alpha for these 15 items was 0.89.

Table 2 Internal Reliability for each domain

COMPONENT	EFA, n=126		CFA, n=126	
	Number of items	Cronbach Alpha	Number of items	Cronbach Alpha
Sexual Intention	5	0.92	4	0.89
Self-efficacy	4	0.83	4	0.81
Social Norms	5	0.78	3	0.70
Permissive Attitude	5	0.76	4	0.73
Overall	19	0.91	15	0.89

Discriminant Validity

According to the results, the Heterotrait-Monotrait (HTMT) ratios of self-efficacy, social norm and attitude with sexual intention are acceptable at 0.53, 0.83 and 0.70. the ratio of attitude and social norm with self-efficacy also acceptable. Meanwhile, attitude toward social norm is acceptable under the cut-off point of 0.90.

DISCUSSION

- The newly devised Sexual Intention questionnaire (SIQ-AB), which focuses on adolescent boys population aged between 13 and 17 years is comparably reliable to the YSI-Q questionnaire.
- YSI-Q assesses sexual intention among older youth, aged 18 years and above, and on multiple genders. SIQ-AB is considerably appropriate for use in a conservative population like Malaysia.
- Internal consistency for the four-factor model (sexual intention, self-efficacy, social norm, and attitude) and 15 items were acceptable. Intentions are also hypothesized to be predicted by self-efficacy, attitudes, and subjective norms (Ajzen, 1985).
- This showed that the SIQ-Ab questionnaire based on the Theory of Planned Behaviour constructs is able to measure sexual intention among adolescent boys in Malaysia.

CONCLUSION

The present study confirmed the reliability and validity of the SIQ-AB 15-item version after the deletion of four items (with low and cross-factor loadings). The SIQ-AB scales are expected to contribute to the assessment of sexual intention among adolescent age groups. This is especially significant as early sexual activity may occur among adolescents.

ACKNOWLEDGEMENT

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CHARACTERISTICS AND DETERMINANTS OF UNSUCCESSFUL TB TREATMENT OUTCOME AMONG TUBERCULOSIS (TB) PATIENTS IN KUALA NERUS DISTRICT: A REGISTRY-BASED STUDY OF THE YEARS 2016-2022



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INTRODUCTION

- Tuberculosis (TB) remains a disease of public health importance in Malaysia, where an estimated 7.9 per 100000 population died due to TB in 2022.
- The rate of successful TB outcomes in Malaysia was 80.7%, lower compared to the targeted WHO rate at 90%.
- Unsuccessful TB treatment outcomes (died, loss to follow-up, treatment failure and outcome not evaluated) halts the progression of the End TB Strategy by 2030.
- This study aimed to determine factors associated with unsuccessful TB treatment outcomes among patients in Kuala Nerus district.

METHODOLOGY

A retrospective cohort study among all registered TB patients in the National Tuberculosis Registry (NTBR) database in Kuala Nerus District.

Independent variables:

- Sociodemographic profiles
- Clinical profiles

Outcomes:

- Unsuccessful TB outcome
- Successful TB outcome

Statistical analysis:

- Logistic regression analysis

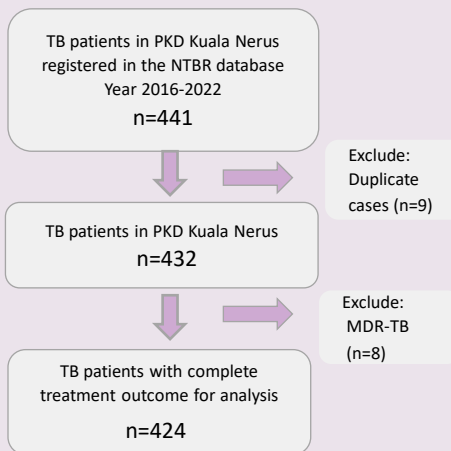


Figure 1: Data processing flow

RESULT

Total respondents are **424**.

Majority are:

- Male (66.0%)
- Age 42.3 years old ± 18.2
- Malaysian (97.4%)
- Malay ethnicity (96.0%)
- Rural population (84.6%)
- Secondary school education (62.5%)

Sociodemographic

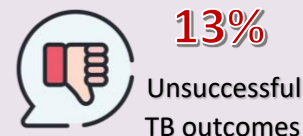
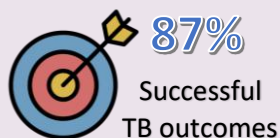


Table 1: Determinants of unsuccessful TB treatment outcomes

Variable	B	SE	Wald(df)	AOR	95%CI	P*
Age	0.75	0.01	17.18(1)	2.11	1.35-3.25	<0.001
Nationality						
Malaysian	ref					
Non-Malaysian	2.27	0.85	8.76	9.71	1.83-51.58	0.008
HIV status						
Negative	ref					
Positive	3.05	0.45	42.75(1)	21.14	8.72-51.23	<0.001
Smoking status						
Non-smoker	ref					
Smoker	0.75	0.34	4.09(1)	2.12	1.09-4.15	0.027

*Test used: Multiple Logistic Regression Analysis (Backward LR method), with significant value at $P < 0.05$
 B Constant=-5.03, AUC=0.83 (95% CI 0.77-0.89), p-value <0.001, std error=0.031, Nagelkerke $R^2=0.32$, Hosmer and Lemeshow goodness of fit test $\chi^2=10.89$ and $p=0.746$, Overall correctly classified percentage=89.6%

DISCUSSION & CONCLUSION

- Demographic factors (**increasing age and foreign nationality**), **human immunodeficiency virus (HIV) co-infection** and **smoking behaviour** are important determinants for the unsuccessful TB treatment outcomes.
- Targeted intervention based on identified risk factors is imperative to achieve the **90% successful TB treatment outcome rate recommended by the WHO**.
- Continued emphasis should be directed towards the **preventable risk factors** (smoking behaviour and HIV co-infection) through:
 - Joint TB-tobacco intervention.
 - Joint TB-HIV management.

ACKNOWLEDGEMENT

- The authors would like to thank the Director-General of Health Malaysia for the permission to present this poster.
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INTRODUCTION

Colorectal Cancer (CRC) is a significant public health concern in Asia, with a rising prevalence. This research explores key factors behind colorectal cancer in Asian populations, emphasizing on the contributing factors and its demographic profile

OBJECTIVE

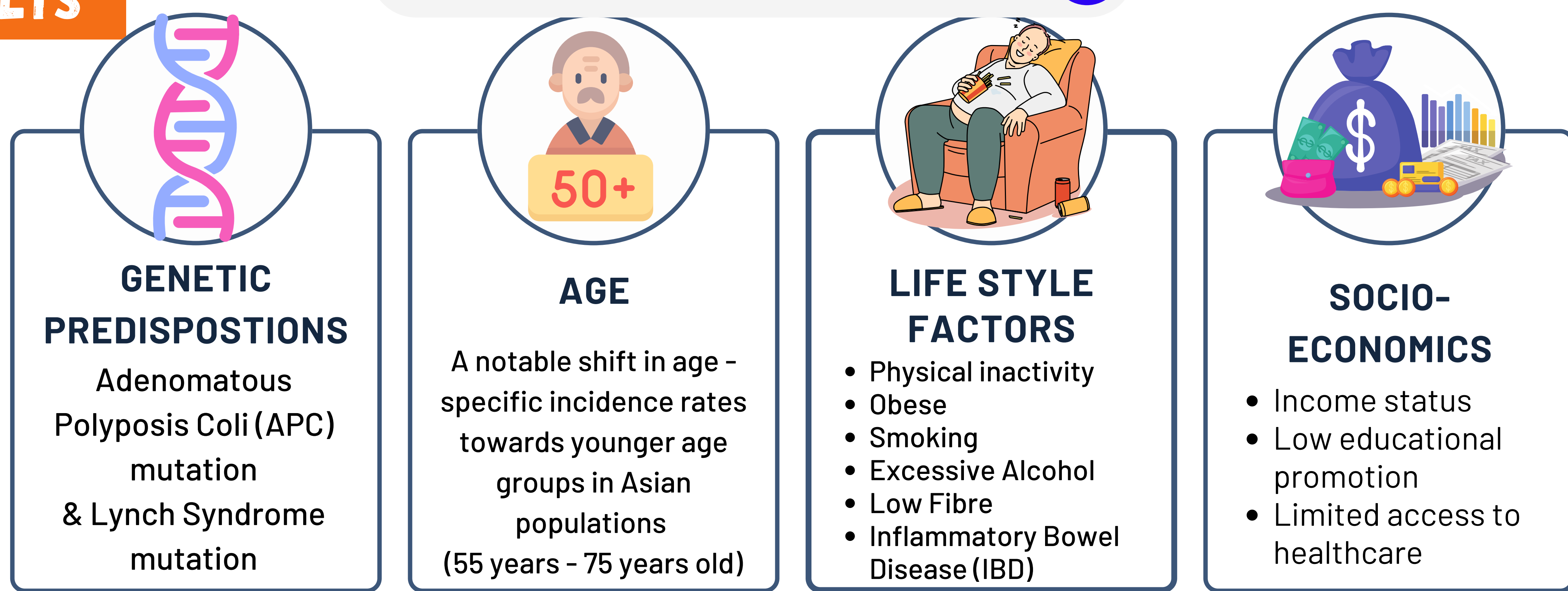
This study aimed at investigating the contributing factors of CRC in Asian populations.

METHODOLOGY

This narrative review comprehensively explores the pivotal factors driving colorectal cancer (CRC) in Asian populations, drawing insights from 10 meticulously selected studies out of 50 identified through PubMed and Google Scholar (2013–2023).

RESULTS

CONTRIBUTING FACTORS



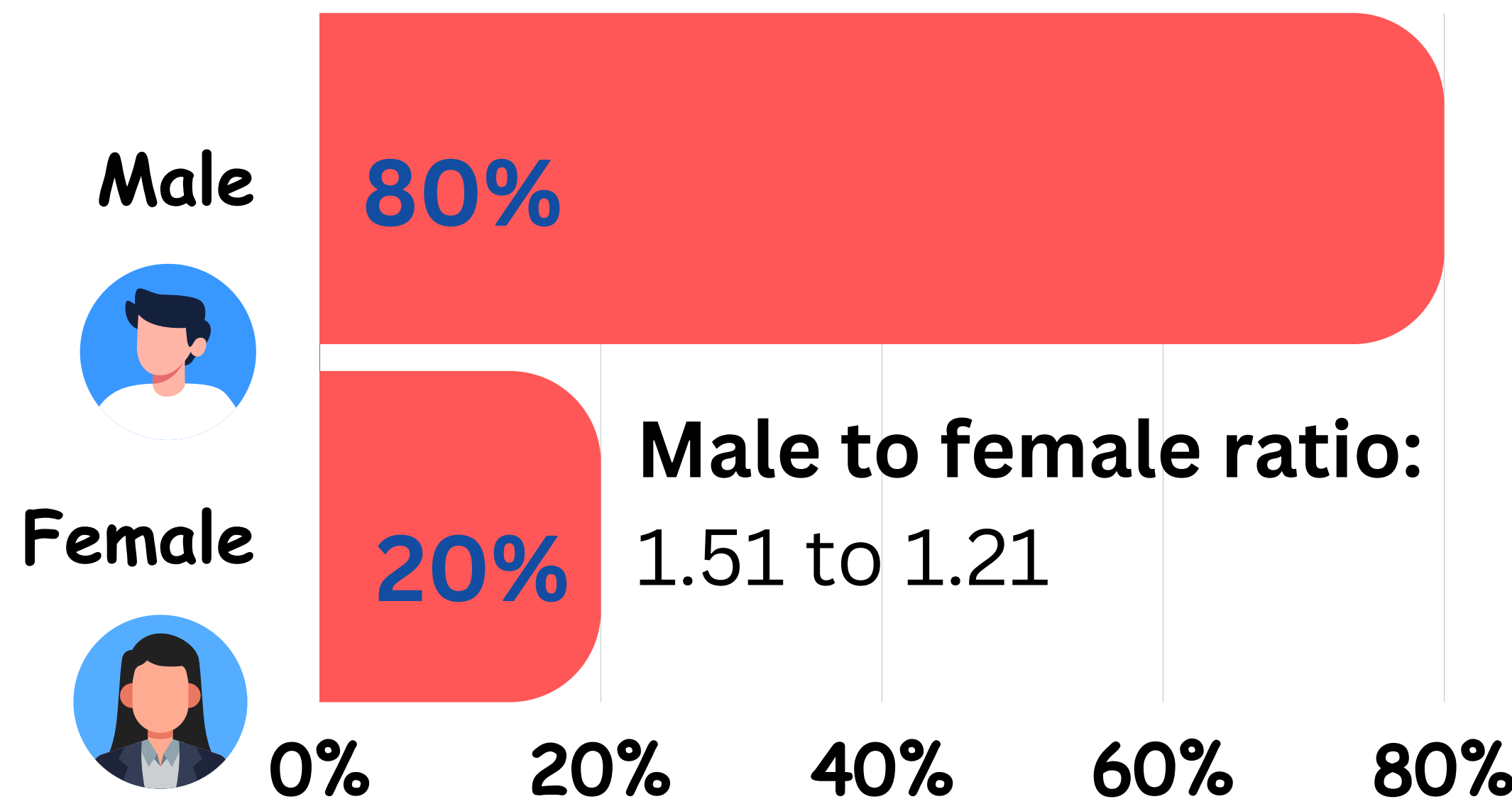
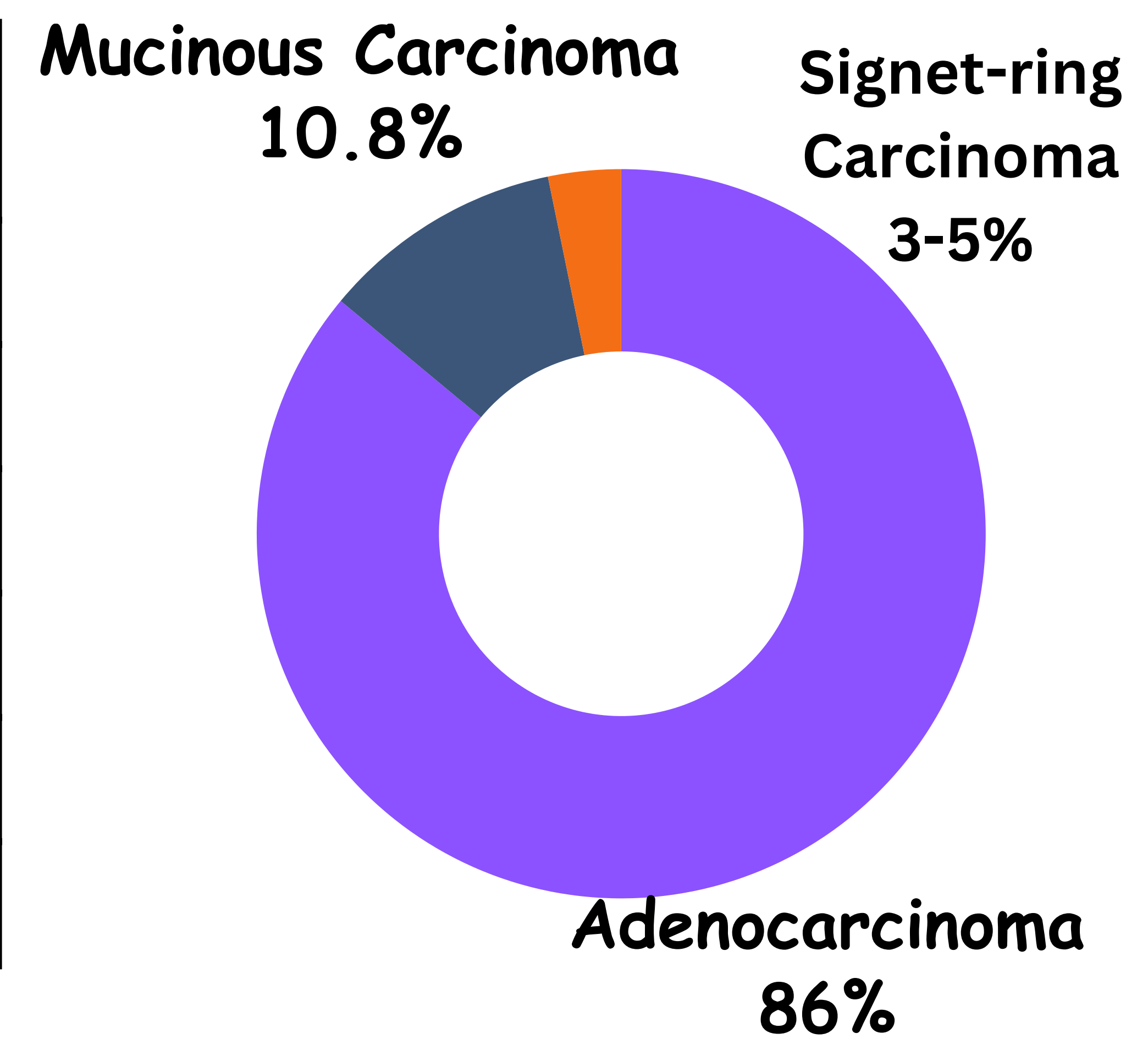
ANALYSIS

CRC in Asia is influenced by four main factors. The findings underscored that the majority of cases were Adenocarcinoma, predominantly left-sided tumors, often diagnosed at stage II and III. There is a male predominance, with a median age of 55-65 years. Tailored interventions are crucial for effectively addressing the challenges posed by CRC in the Asian context

TOP 6 CRC EPIDEMIOLOGY IN ASIAN

Country	Incidence Rate	Mortality Rate	Relapse Rate
Japan	28.30%	16.20%	20-30%
China	24.70%	18%	20-30%
South Korea	23.00%	17.40%	20-30%
Malaysia	21.30%	10.20%	20-30%
India	16.30%	12.20%	20-30%
Indonesia	12.80%	9.00%	20-30%

HISTOLOGICAL SUB-TYPES



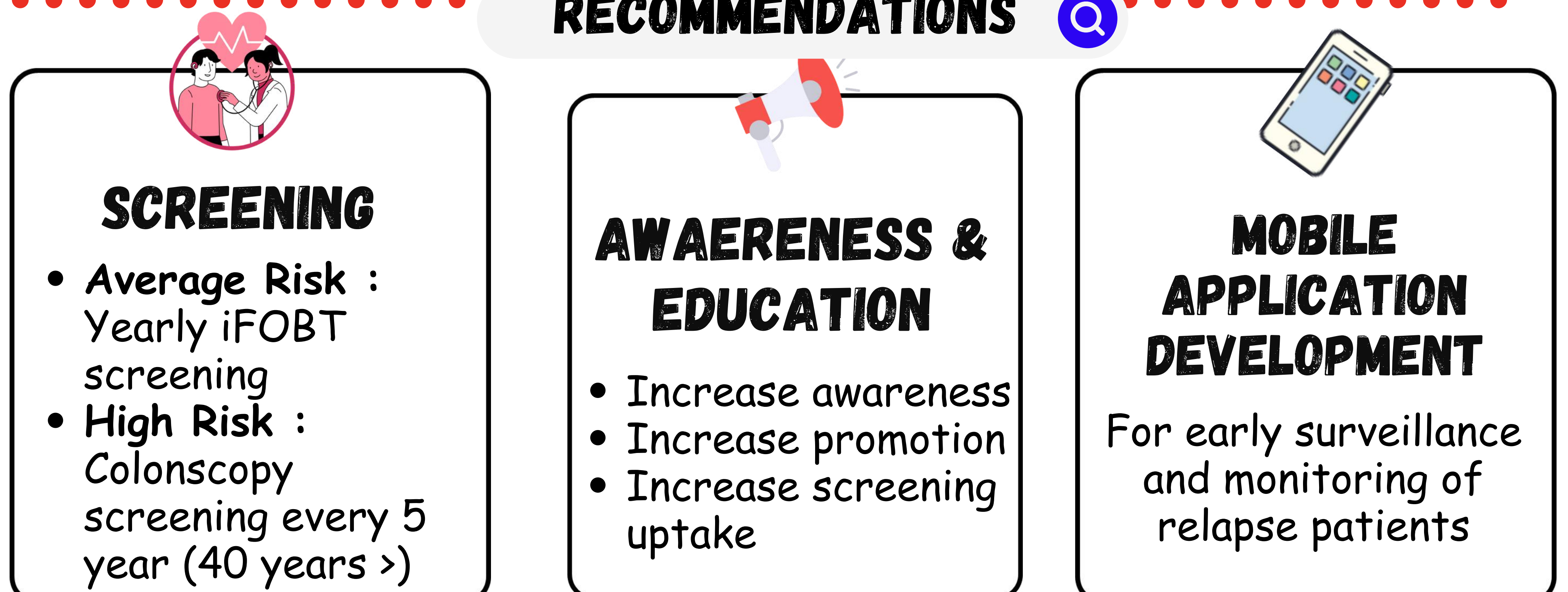
Age Median : 55 - 65 years old

Tumor site	Left Colon (42.3%)
Staging	Stage II and III (30-40%)

CONCLUSION

In conclusion, understanding the demographics and key factors of CRC in the Asian populations is crucial to enhance the outcomes and efficiently manage CRC. Early-stage detection and initiatives are necessary to increase screening, raise awareness, and leverage digital tools for the surveillance and monitoring of relapse cases.

RECOMMENDATIONS





SITUATIONAL ANALYSIS OF TUBERCULOSIS (TB) CASES IN SEBERANG PERAI TENGAH DISTRICT, PENANG, 2018-2022

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Introduction

- The increasing number of TB poses a great challenge to control and reduce TB transmission in Malaysia. Sociodemographic factors such as age, gender, race, country of origin, employment status, healthcare worker status, residency, HIV status, Diabetes status and Smoking status played an important role that affecting development of TB cases and site of tuberculosis

Study Objective

- To assess the trend of TB cases from pre-pandemic year (2018) till endemic year (2022)
- to analyse the association between sociodemographic and site of tuberculosis (pulmonary tuberculosis and extrapulmonary tuberculosis).

Methodology

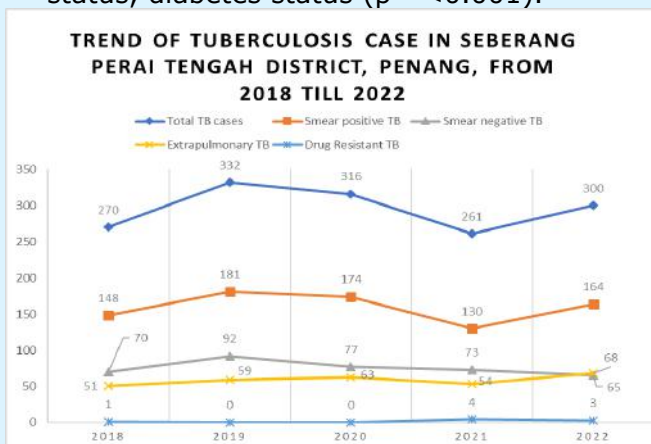
- Data selection: Using Seberang Perai Tengah district in Penang, Malaysia as a locality study, number of TB cases including sociodemographic factors, risk factors and site of tuberculosis (pulmonary and extrapulmonary tuberculosis) variables across five years period (2018-2022) were extracted from the Malaysia Tuberculosis registry (MyTB). The trend of TB cases in those 5 year period was analysed and compared with other countries.

Figure 1: Trend of Tuberculosis case in Seberang Perai Tengah district, Penang from 2018 till 2022

- Study variables: Sociodemographic variables was classified into age, gender, race, country of origin, employment status, healthcare worker status, residency, diabetes status, HIV status and smoking status. For diagnostic, the variables taken are site of tuberculosis (Pulmonary TB and EPTB)
- Data analysis: Descriptive analysis of sociodemographic, risk factor and diagnostic variable was undertaken using IBM SPSS Statistics (version 27).
- The Medical Research and Ethics Committee (MREC), Ministry of Health Malaysia (MOH) has provided ethical approval for this study.

Results

A total of 1487 TB cases identified and collected across these 5 years period. Figure 1 showed the trend was fluctuated from 2018 till 2022. Table 2 showed the results from chi-square analysis on sociodemographic factors associated with the site of tuberculosis. Analysis indicated that significant factors are age ($p < 0.001$), race ($p < 0.005$) and HIV status, smoking status, diabetes status ($p < 0.001$).



VARIABLES		SITE OF TUBERCULOSIS				χ ²	p-value
		PULMONARY TB		EPTB			
		n=1182	n(%)	n=296	n(%)		
AGE	<15	10	0.80%	6	2.00%	19.808	<0.001
	15-45	582	49.20%	183	61.80%		
	>45	590	49.90%	107	36.10%		
GENDER	MALE	783	66.20%	183	61.80%	2.042	0.153
	FEMALE	399	33.80%	113	38.20%		
RACE	MALAY	561	47.50%	128	43.20%	12.636	0.005
	CHINESE	381	32.20%	82	27.70%		
	INDIAN	114	9.60%	34	11.50%		
	OTHERS	126	10.70%	52	17.60%		
COUNTRY OF ORIGIN	MALAYSIA	1063	89.90%	249	84.10%	10.675	0.058
	INDONESIA	39	3.30%	13	4.40%		
	MYANMAR	44	3.70%	15	5.10%		
	NEPAL	11	0.90%	6	2.00%		
	BANGLADESH	8	0.70%	7	2.40%		
	OTHERS	17	1.40%	6	2.00%		
EMPLOYMENT STATUS	EMPLOYED	581	49.20%	142	48.00%	0.132	0.716
	UNEMPLOYED	601	50.80%	154	52.00%		
HEALTHCARE WORKER STATUS	HEALTHCARE WORKER	24	2.00%	6	2.00%	0	0.997
	NON HEALTHCARE WORKER	1158	98.00%	290	98.00%		
RESIDENCY	RURAL	362	30.60%	76	25.70%	2.782	0.095
	URBAN	820	69.40%	220	74.30%		
HIV STATUS	NEGATIVE	1129	95.50%	269	90.90%	19.336	<0.001
	POSITIVE	35	3.00%	25	8.40%		
	NOT DONE	18	1.50%	2	0.70%		
SMOKING STATUS	NON SMOKER	814	68.90%	239	80.70%	16.299	<0.001
	SMOKER	368	31.10%	57	19.30%		
DIABETES STATUS	NON DIABETES	850	71.90%	250	84.50%	19.58	<0.001
	DIABETES	332	28.10%	46	15.50%		

Table 2: Associated factors with site of tuberculosis in Seberang Perai Tengah district, Penang, from 2018 till 2022 (n=1478) using Pearson's Chi Square.

Discussions

- The trend showed COVID-19 pandemic affected essential TB services which caused less TB notifications and registrations. Once entering endemic phase, TB cases rose up which proved all health system able to operate normally including TB services.
- Age group (15-45 years old) developed most number of EPTB cases compared to other age group. This was consistent with previous study done in our country in 2004 which showed 25 to 34 years age group developed more number of EPTB cases.
- Healthy and non smoker group affected most number in both Pulmonary TB and EPTB cases in study. Globally, it were consistent except in African region, the HIV patient developed most of PTB and EPTB case due to African has the highest HIV people compared to other regions (53%)

Conclusion

This study concluded that various sociodemographic characteristics such as age and racial factor as well as risk factors such as diabetes status and HIV status were associated with development of tuberculosis and site of tuberculosis developed

Keywords

Tuberculosis, sociodemographic, trend, risk factor

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Overview of Conjunctivitis Outbreaks in Wilayah Persekutuan Kuala Lumpur and Putrajaya (WPKL & P) from Epidemiological Week (EW) 1 to 44 Year 2023

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INTRODUCTION

Conjunctivitis is the inflammation of the conjunctiva. It can be infectious or non-infectious in etiologies. Infectious conjunctivitis are caused by viruses or bacteria. In 2023, several countries in Asia such as Vietnam, India and Pakistan reported increased cases of conjunctivitis.¹ Malaysia reported 210 conjunctivitis outbreaks this year, which is a 238% rise as compared to 2022.² Conjunctivitis is highly contagious and may carry potentially debilitating morbidities. Several public health impacts of conjunctivitis include increased healthcare costs, improper treatment, and population missing from work or school.

OBJECTIVE

This study aims to describe the characteristics of conjunctivitis outbreaks reported in WPKL & P till EW 44 Year 2023.

METHOD

A descriptive analysis was performed on the data collected from the outbreak reports by the district health offices (DHO). We included all verified conjunctivitis outbreaks reported by the DHO in WPKL & P from EW 1 to 44 Year 2023.

RESULTS

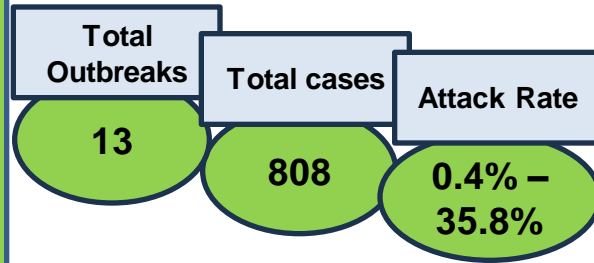


FIGURE 1: TREND OF CONJUNCTIVITIS OUTBREAKS REPORTED IN WPKL & P FROM EW 1 – 44 YEAR 2023

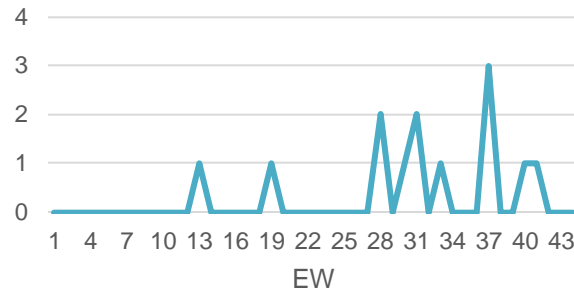


FIGURE 2: DISTRICT HEALTH OFFICES REPORTED CONJUNCTIVITIS OUTBREAKS IN WPKL & P FROM EW 1 – 44 YEAR 2023

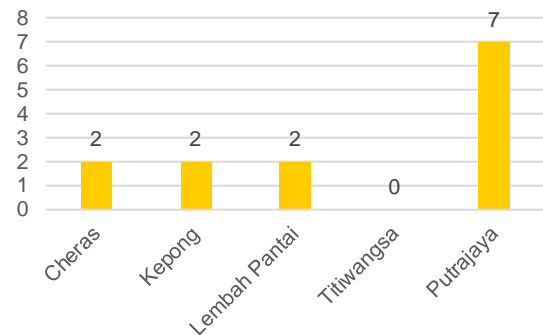


FIGURE 3: SYMPTOMS OF CONJUNCTIVITIS OUTBREAKS REPORTED IN WPKL & P FROM EW 1 – 44 YEAR 2023

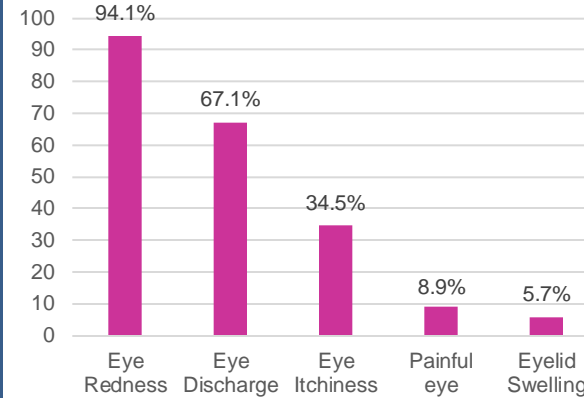


FIGURE 4: LOCALITIES REPORTED CONJUNCTIVITIS OUTBREAKS IN WPKL & P FROM EW 1 – 44 YEAR 2023

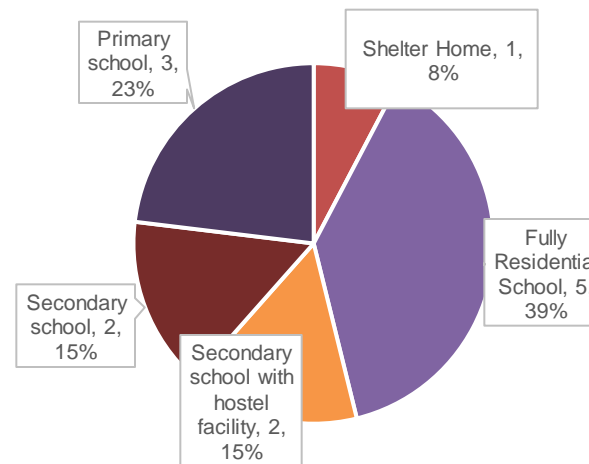
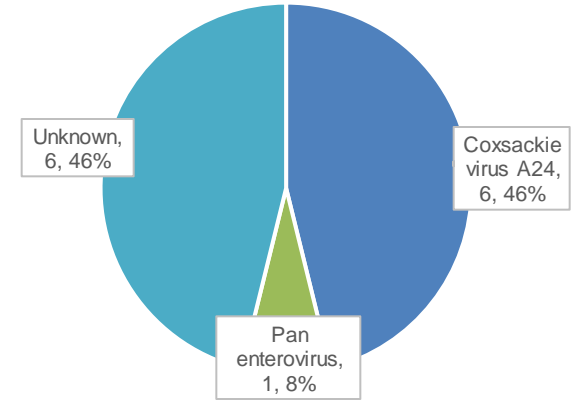


FIGURE 5: CAUSES OF CONJUNCTIVITIS OUTBREAKS REPORTED IN WPKL & P FROM EW 1 – 44 YEAR 2023



CONCLUSION & RECOMMENDATIONS

Conjunctivitis is highly contagious among the school-aged population with an increasing trend among boarding school pupils. The pathogen identified in these outbreaks caused by Coxsackie A24 is a concern. Health education and control measures should be emphasized in schools to prevent future outbreaks.

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WORLD OLDEST DISEASE, LEPROSY - ACTIVE CASE DETECTION (ACD) IN KAMPUNG ORANG ASLI PASIR INTAN, KOTA TINGGI DISTRICT, JOHOR

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Act Now.
End Leprosy.



INTRODUCTION

Leprosy is a chronic infectious disease that affects skin, peripheral nerves, eyes and mucosa of upper airways.

Over 200, 000 new cases are notified each year globally and to date, Malaysia recorded an increase in new Leprosy cases in 2022 at 15.5% (164 cases) as compared to 2021.

Kampung Orang Asli Pasir Intan is one of the village situated in Kota Tinggi district in Johor, and it is estimated about 200 indigenous people from 50 families living in this village.

In this abstract, we would like to share the obstacles that we experience during Active Case Detection (ACD) in Kampung Orang Asli Pasir Intan, Kota Tinggi, Johor.

METHODOLOGY

The index case: HS, a 13-years old Orang Asli, a resident in this village, was diagnosed with Multibacillary Leprosy in 30th August 2023

TB and Leprosy Unit from Kota Tinggi District Health Office has organized ACD to screen and actively detect Leprosy cases among community in Kampung Orang Asli Pasir Intan.

Screening was done by door-to-door approach, with medical officers performing complete physical examination.

Individuals with suspected hypopigmented skin lesions was referred for slit skin smear. Prophylaxis treatment of Single Dose Rifampicin (SDR) were given.

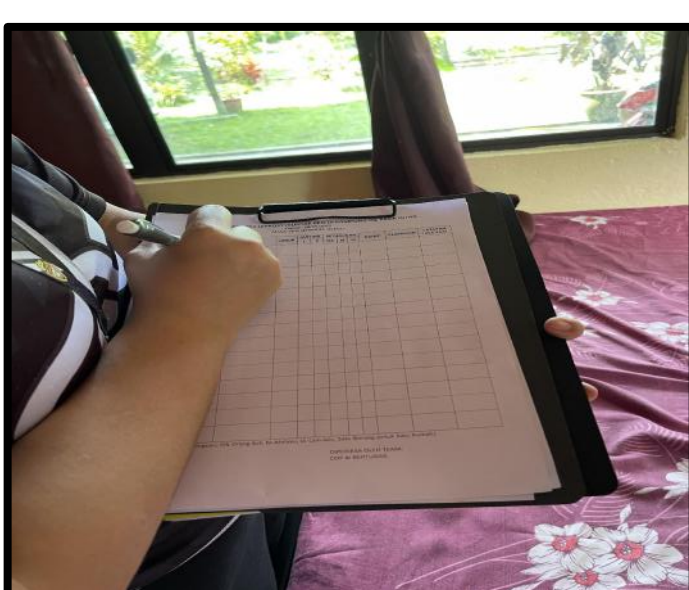
Early diagnosis and multidrug therapy (MDT) initiation is important to prevent physical deformity and disability.



ACD Team from PKD Kota Tinggi.



Medical Officer documenting examination done to close contacts.



Health Inspector listing contacts in the house.

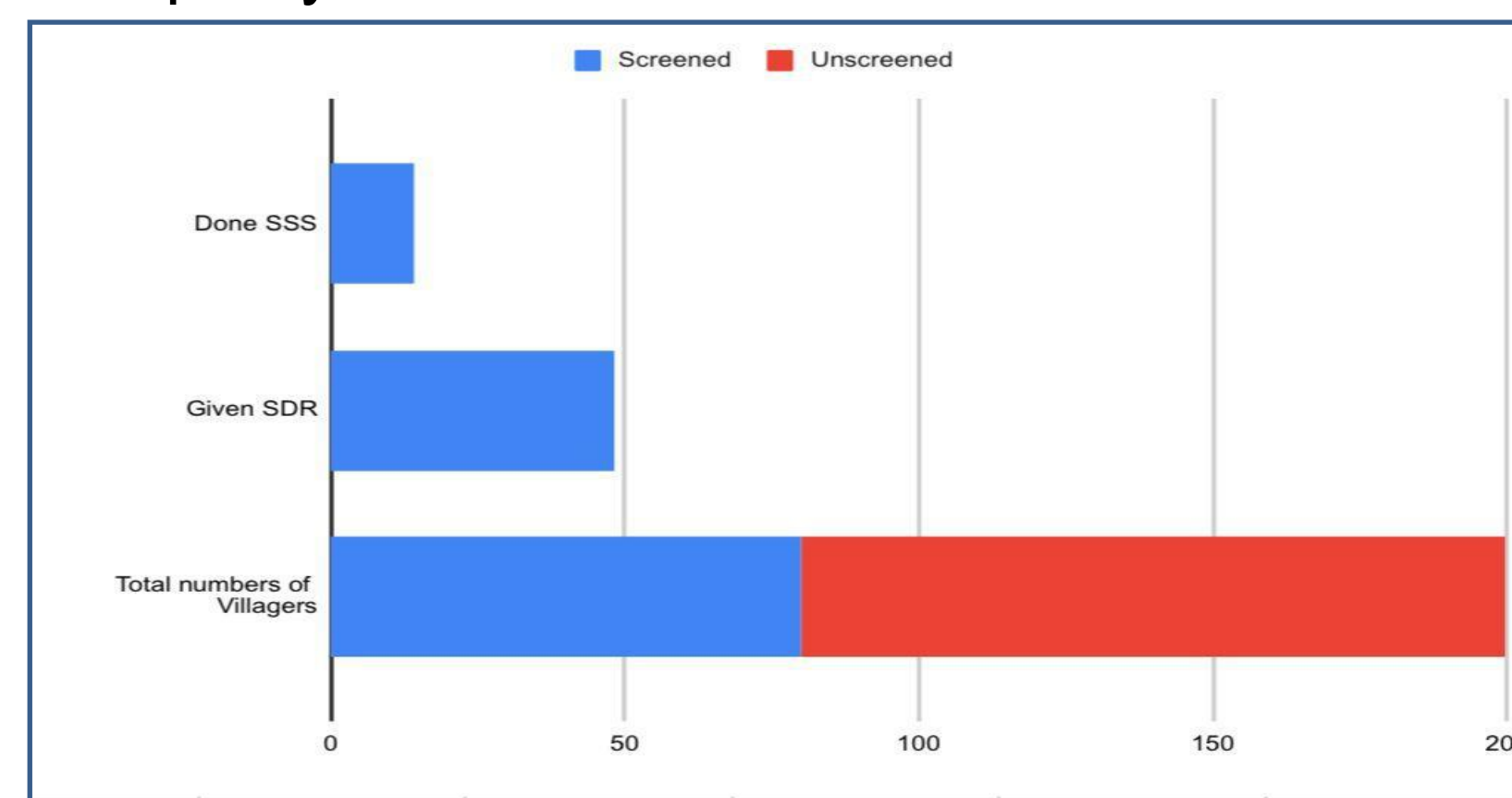


Slit skin smear done by family medicine specialist.

RESULTS

80 out of 200 Orang Asli were screened during ACD. Among these, 14 people were referred for slit skin smear and 48 people are given SDR.

11 close contacts were referred to Dermatology Clinic, Hospital Sultan Ismail and one was diagnosed with Multibacillary Leprosy.



The graph shows the number of Orang Asli that was screened during the Active case detection (ACD) had done Slit skin smear (SSS) and was given Single Dose Rifampicin (SDR)

DISCUSSION

- 1) Poor understanding of villagers on importance of screening for leprosy. Many fled from the village or hide in own houses.
- 2) The whereabouts of villagers are difficult to determine as some are working odd jobs or not available during ACD.
- 3) Lack of clinical expertise to perform slit skin smear test.

CONCLUSION

Active case detection and provision of Single Dose Rifampicin is important to stop transmission of leprosy in high risk community.

However, mutual trust with community should be enhanced to ensure public health program can be carried out effectively.

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3. Kementerian Kesihatan Malaysia. Manual Pengurusan Kusta Kebangsaan. Edisi 3. 2023, 85-88



ACD Team at Balai Raya Kampung Orang Asli Pasir Intan

3rd National Epidemiology Conference 2023



Photo 1

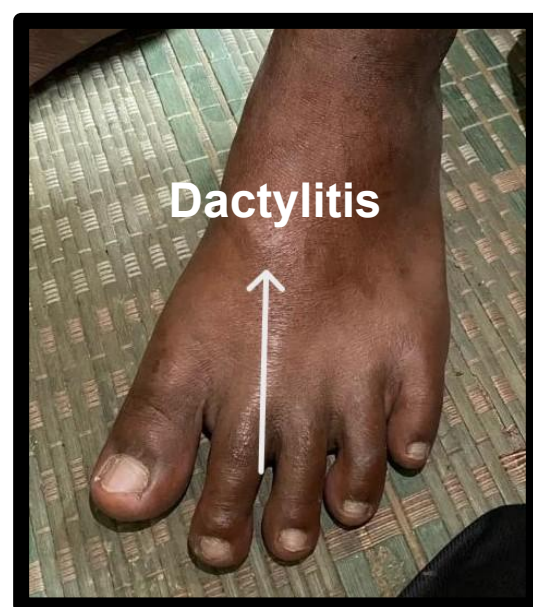


Photo 2

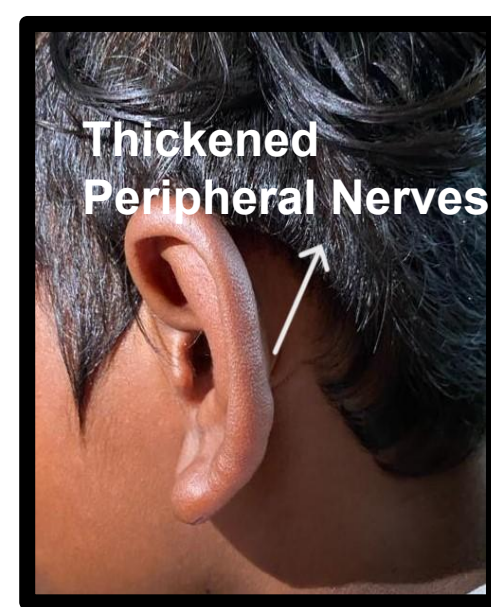


Photo 3

Photo 1, Photo 2, and Photo 3 showed the clinical manifestation of leprosy.

INTRODUCTION

- Hand, Foot, and Mouth Disease (HFMD) emerges as a significant public health concern, known for its contagious nature and its tendency to cause large outbreak and a predilection for affecting young children. It has become endemic in Sarawak, Malaysia, with the state maintaining the highest recorded cases of HFMD since the initial outbreak in 1997, surpassing other regions in Malaysia

OBJECTIVES

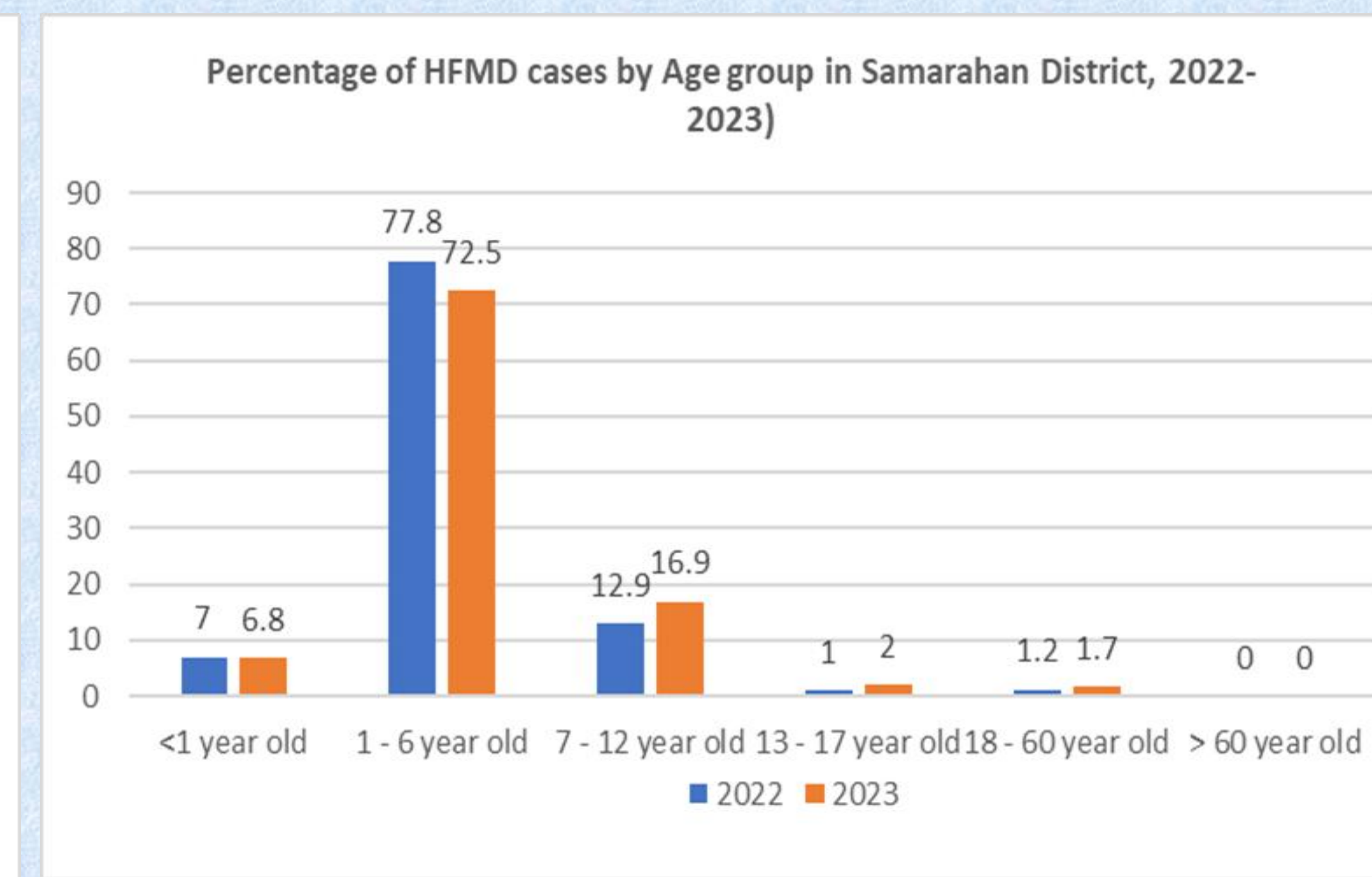
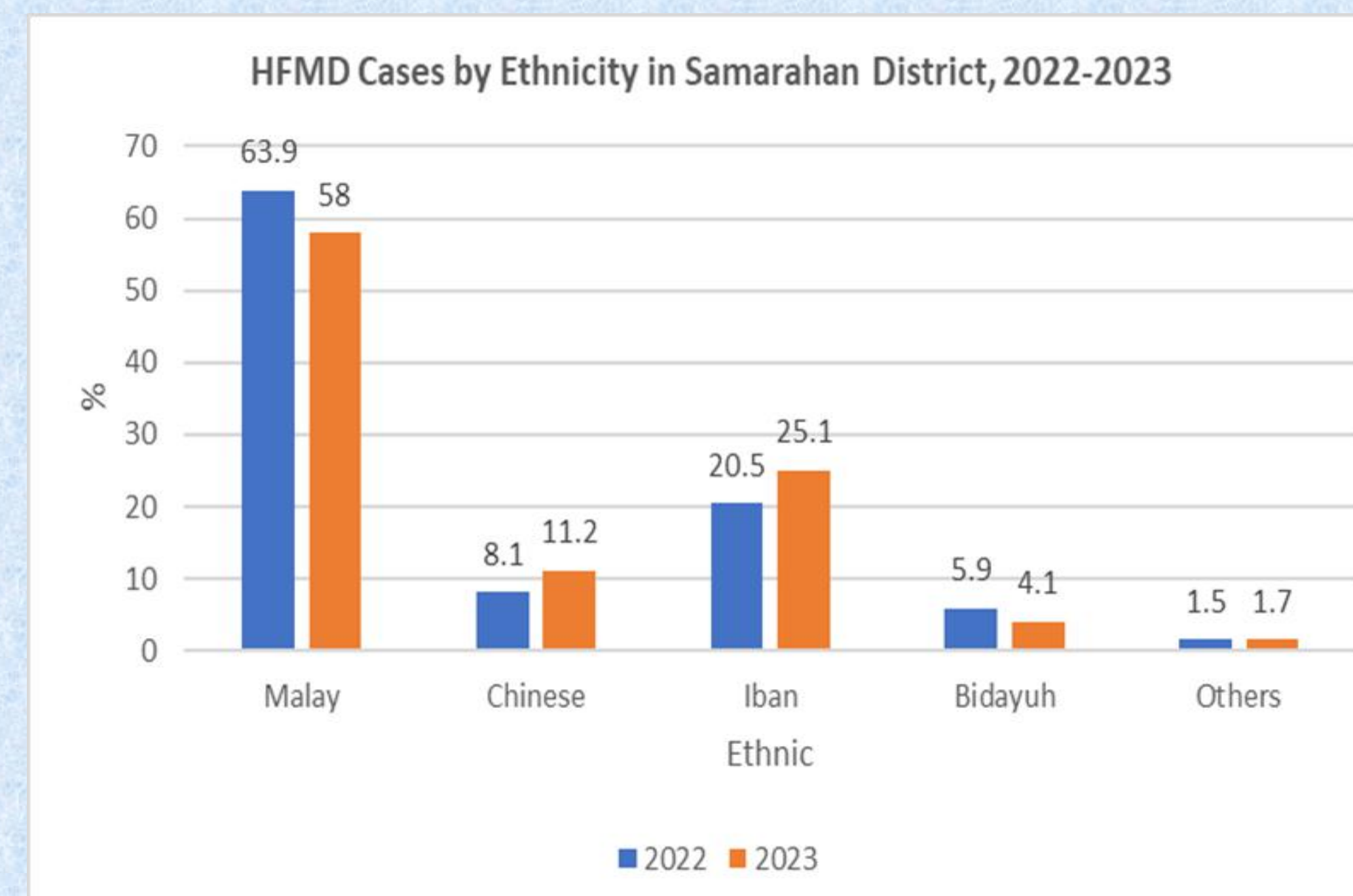
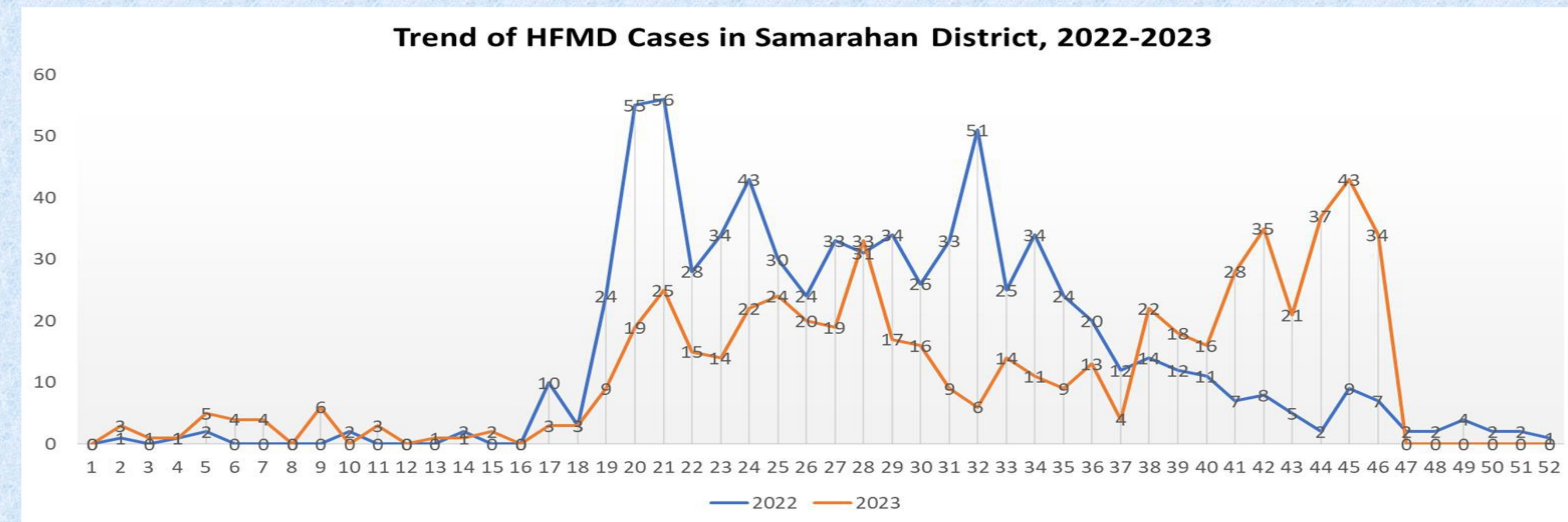
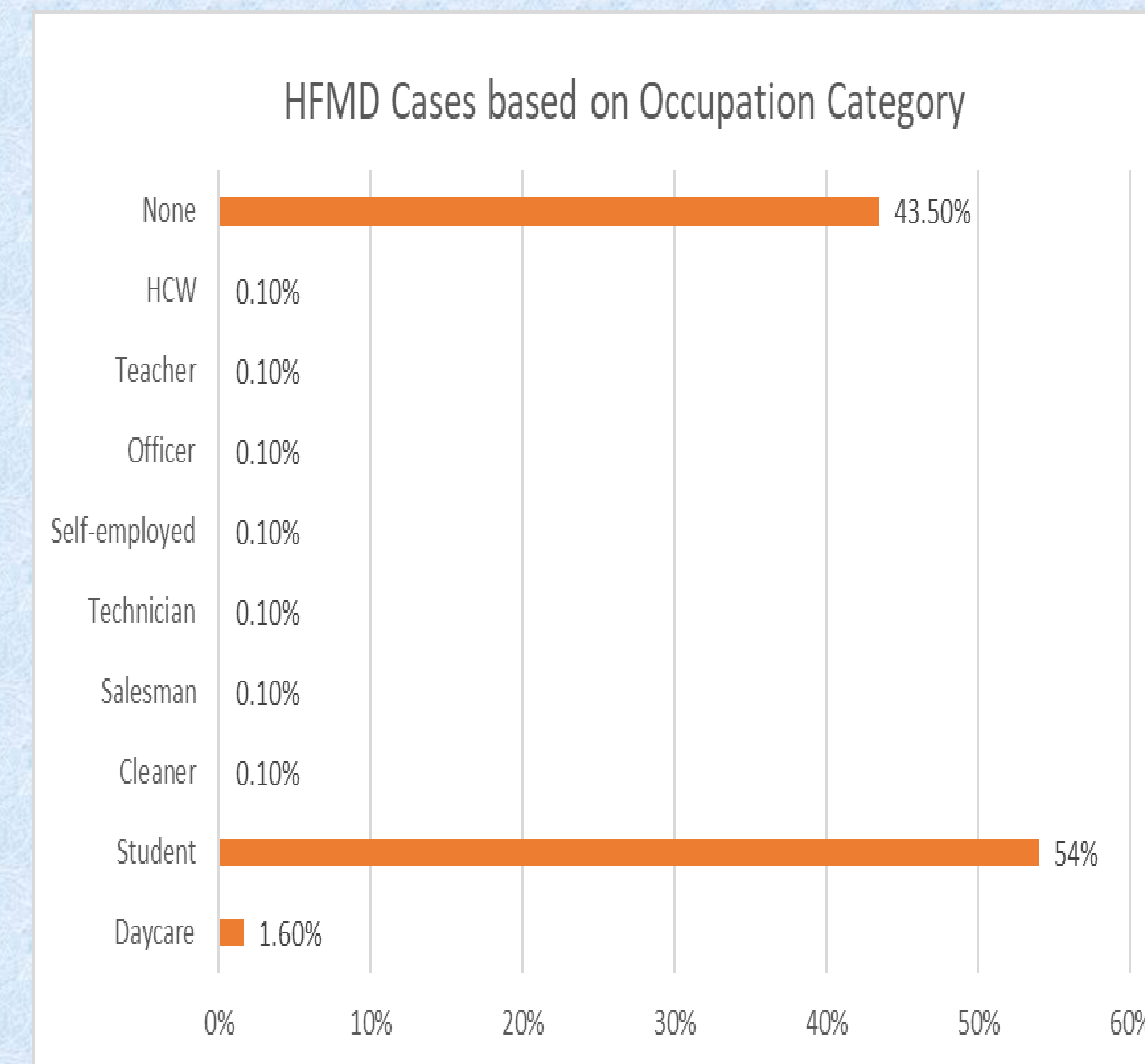
- The primary objectives of this research are to unravel the epidemiological patterns of HFMD in Samarahan District, specifically examining trends in reported cases, exploring sociodemographic characteristics, and identifying potential risk factors contributing to the transmission of HFMD.

METHODOLOGY

- A cross-sectional study approach is employed, utilizing data from the Masterlist of HFMD notifications in Samarahan District from year 2022 to 2023 to ensure comprehensive coverage.
- The analysis primarily relies on descriptive statistical methods, presenting findings in terms of frequency and percentage distributions.

RESULTS

- There were a total of 1316 HFMD cases notified in Samarahan District from EW1 2022 until EW46 2023 with an incidence rate of 566.76 – 697.41 new cases per 100,000 population.
- The study also reveals fluctuating trends in HFMD cases, increasing around March and peaked by mid-May to June.
- Disparities are observed among ethnic groups with highest percentage in Malays (n=806, 58.0-63.9%), male gender (n=727, 53.4-57.5%), pre-schooled age categories (n=993, 72.5-77.8%) and students (n=711, 54%).



DISCUSSION

- The study shows that the number of HFMD cases varies over time, with some notable peaks indicating potential seasonal fluctuations or localized epidemics at particular times.
- This trend may also be explained by two significant festivities, the Harvest Festival and Eid al-Fitr held in Sarawak in the middle of May and June which involving communal gatherings where the transmission of viruses can occur more easily due to increased interactions among people.
- Recent data shows that the number of HFMD cases is on the rise, peaking in September - October 2023 indicating evolving nature of the disease. According to an expert study review by Bian et al. (2021), Coxsackievirus A6 (CA6) is now an emerging pathogen that contributes to HFMD outbreaks and is a significant obstacle to HFMD prevention and control. Understanding the specific strains causing outbreaks can help tailor these interventions more effectively.
- Higher incidence rate of HFMD in the Malay ethnic group possibly due to their potentially better awareness of the disease and its associated factors. (Rajamoorthy et al. 2022). Cultural and social factors often play a significant role in health awareness and practices within specific communities.
- Highest frequency of HFMD occurs among young children, especially those in the 1–6-year age group and within settings like day care centers, nursery schools, and kindergartens. The nature of the virus being transmitted through direct physical contact or via water droplets makes these environments particularly susceptible to outbreaks.

CONCLUSION

- The findings underscore the necessity for vigilant surveillance to monitor and manage HFMD effectively in Samarahan District. Additionally, the study provides insights into the significance of culturally sensitive campaigns and the implementation of targeted preventive measures, especially in occupations with higher risk profiles.

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