

The National Health and Morbidity Survey (NHMS) 2023: Study protocol for a national population-based survey on non-communicable diseases, the risk factors and healthcare demand in Malaysia



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Introduction



The National Health and Morbidity Survey (NHMS) is a **nationwide survey** conducted regularly to provide comprehensive health data on the population in Malaysia. It has been conducted in 4 yearly cycles since 2011. The first year of each cycle focuses on non-communicable diseases (NCDs) & healthcare demand, with the other years focusing on other priority areas as determined by the Ministry of Health Malaysia.

NCDs are the leading cause of death worldwide. Globally, NCDs kill 41 million people each year, equivalent to 71% of all deaths [1]. NCDs contributed to 67% of premature deaths and over 70% of burden of disease in 2014 in Malaysia[2]. The previous surveys had reported an increasing prevalence of NCDs and NCD risk factors[3].

With the increasing trend of most non-communicable diseases and risk factors and an increasing demand for government healthcare utilisation, it is about time to repeat the national population survey, not only to **assess the trend** of these diseases but also to **monitor** and **evaluate the programmes** conducted by the Ministry of Health in combating these problems within the population in Malaysia.

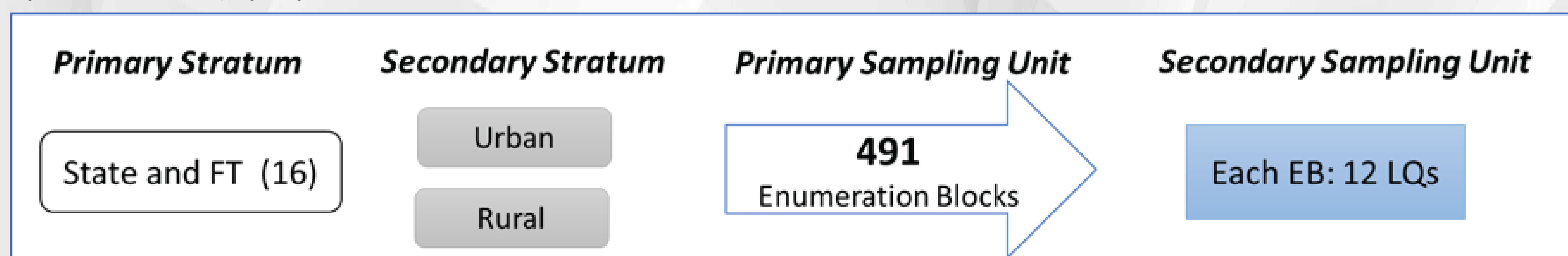
Objective

The NHMS 2023 aims to determine the prevalence of non-communicable diseases (NCD), NCD risk factors, and healthcare demand.

Methods

This is a **cross-sectional** survey. The sample size was calculated using a single proportion formula for estimation of prevalence and adjusted for the total number of the target population based on the estimated 2021 population, design effect and non-response [3-4]. It adopts a **two-stage stratified random sampling** to ensure national representativeness.

Figure 1: NHMS 2023 sampling design



A total of 491 enumeration blocks (EBs) were randomly selected, proportionate to the population size of each stratum. Twelve living quarters (LQs) were randomly chosen from each selected EB.

Ethical Considerations

This study had obtained ethical approval from the Medical Research and Ethics Committee of Ministry of Health Malaysia and was registered in the National Medical Research Registry, NMRR ID-22-00545-XAC.

The data collection period is from July to September 2023.

Questionnaire and Other Survey Materials

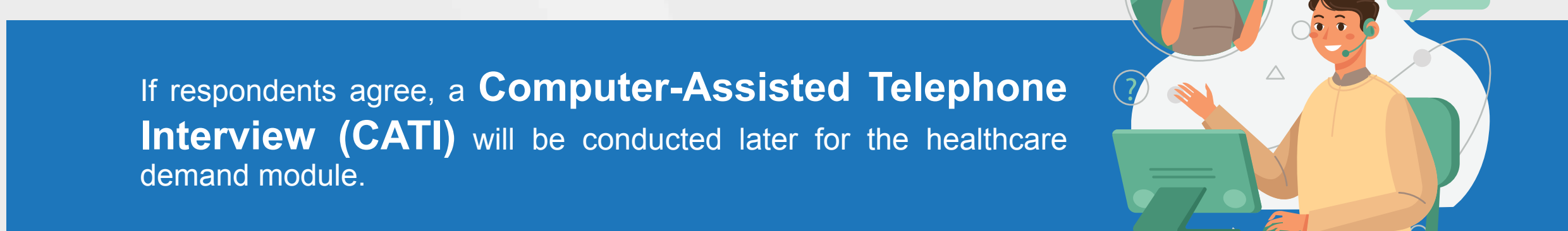
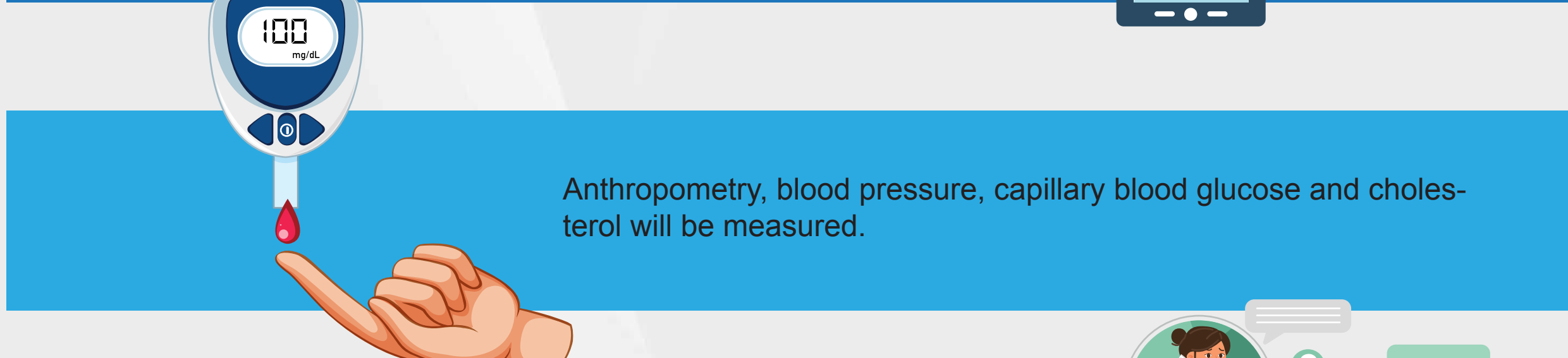
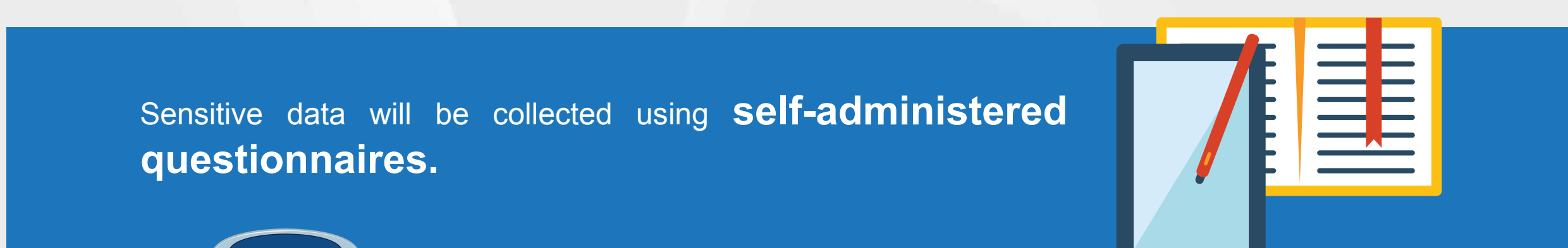


Table 1: Modules in NHMS 2023

No	Modules	Instruments	Target Groups
1	Household	-	All
2	Sociodemography	-	All
3	Diabetes	STEPS	≥18 years
4	Hypertension	STEPS	≥15 years
5	Hypercholesterolaemia	STEPS	≥18 years
6	Physical Activity	GPAQ	≥18 years
7	Smoking and Tobacco Use	Mini GATS	≥15 years
8	Health Screening	-	≥18 years
9	Dietary Practices	STEPS	≥18 years
10	Disability	WG Short Set	≥18 years
11	Asthma (Adults)	ECRHS	≥18 years
12	Asthma (Children)	ISAAC	6-17
13	Nutritional Status (Anthropometry)	-	≥15 years
14	Mental Health (Adults)*	PHQ-9 GHQ-12	≥16 years ≥16 years
15	Mental Health (Children)*	SDQ	5 - 15 years
16	Alcohol*	AUDIT +2 screening questions	≥13 years
17	Healthcare Demand* <ul style="list-style-type: none"> Barriers to get healthcare, patterns of healthcare service utilisation Self-rated health status Medical check-up utilisation, online healthcare services utilisation, informed of sick child diagnosis	-	All ≥13 years ≥18 years

*Self-Administered Questionnaire (SAQ) *Computer Assisted Telephone Interviewing (CATI)

Descriptive and inferential statistics will be analysed using complex sample analysis.

Gaps to be addressed

The research scope has been identified and developed with stakeholder consensus. Thus, the research findings shall be beneficial to the various divisions in the Ministry of Health. It will **aid in their planning of services and resources, and improve upon their existing plans of action for the various services.**

Conclusion

The NHMS employs a rigorous methodology to ensure the collection of high-quality data. The results are expected to inform targeted public health interventions and policies addressing NCDs at the national level, ultimately enhancing the health and well-being of the population in Malaysia.

References

- WHO. Home/Newsroom/Fact sheets/Detail/Noncommunicable diseases Noncommunicable diseases <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases>
- Chandran A, Selva Kumar S, Hairi NN, Low WY, Mustapha FI. Non-communicable Disease Surveillance in Malaysia: An Overview of Existing Systems and Priorities Going Forward. *Front Public Health*. 2021 Jul 6;9:698741. doi: 10.3389/fpubh.2021.698741. PMID: 34295873; PMCID: PMC8290178.
- Institute for Public Health (IPH), National Institutes of Health, Ministry of Health Malaysia. 2020. National Health and Morbidity Survey (NHMS) 2019. Vol. I: NCDs- Non Communicable Diseases: Risk Factors and other Health Problems
- Population quick info Population by age, Malaysia 2021 https://www.dosm.gov.my/v1/index.php?r=column&menu_id=b2RVUmEyZ2Z2YXhaUzUrdnpsaWozdz09