ACHSM Asia-Pacific Journal of Health Management

RESEARCH ARTICLE

EQUITY IN THE UTILIZATION OF PRIMARY HEALTH CARE SERVICES AMONG THE THAI POPULATION

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ABSTRACT

BACKGROUND:

Equity in primary health care (PHC) utilization is a central principle of Thailand's Universal Health Coverage (UHC) policy. Despite near-universal insurance coverage, disparities in health care utilization may still arise from demographic, socioeconomic, and health system factors.

OBJECTIVES:

This study aimed to 1) describe the characteristics of the Thai population; 2) examine differences in health needs across demographic and regional factors; 3) identify determinants of illness as a proxy for primary health care utilization; and 4) assess equity in PHC access.

METHODS:

Secondary data from the Health and Welfare Survey 2023 were analyzed using descriptive statistics, Chi-square tests, and complex samples logistic regression. Illness during the past month was used as a proxy indicator for health care needs and potential utilization. Both crude odds ratios (COR) and adjusted odds ratios (AOR) with 95% confidence intervals (CI) were estimated.

RESULTS:

A total of 69,078 individuals were included in the analysis, of whom 13.3% reported illness during the past month. Bivariate analysis showed significant associations between illness and sex, age, education, health insurance, and region ($p < 0.001$). In multivariable analysis, age (AOR=1.29, 95% CI: 1.23–1.36), sex (AOR=1.02, 95% CI: 1.02–1.02), education (AOR=0.92, 95% CI: 0.91–0.93), and health insurance (AOR=1.12, 95% CI: 1.06–1.19) remained significant predictors (all $p < 0.001$), while region was not statistically significant after adjustment (AOR=1.00, 95% CI: 0.98–1.02, p=0.819).

CONCLUSIONS:

Thailand's Universal Health Coverage policy has contributed to improving equity in primary health care utilization. Although regional differences were not statistically significant after adjustment, demographic and socioeconomic characteristics continued to influence health care needs. These findings suggest that achieving sustainable health equity requires strengthening primary care capacity, workforce competency, service quality, and continuous monitoring of contextual disparities beyond insurance coverage alone.

KEYWORDS

equity; primary health care; universal health coverage; health and welfare survey; Thailand; health inequality

INTRODUCTION

Primary health care (PHC) is a fundamental component of health systems, playing a crucial role in disease prevention, health promotion, and ensuring equitable access to healthcare services [1]. In Thailand, the implementation of the Universal Coverage Scheme (UCS) has significantly improved access to health services and reduced financial barriers, contributing to better health outcomes across the population [2,3]. However, despite these achievements, inequalities in healthcare utilization remain evident across different socioeconomic groups and geographic regions [4,5].

Structural characteristics of the health system, including the distribution of healthcare workforce and service availability, play a significant role in shaping access to care [6]. Thailand's UCS has achieved coverage of more than 99% of the population, making it one of the most successful universal health coverage models among middle-income countries [3]. The system emphasizes primary care delivery through community-based services, helping to reduce financial burden and improve access [7]. Nevertheless, structural barriers such as transportation, awareness of entitlements, and service quality continue to contribute to disparities in actual utilization [8].

Equity in healthcare systems is commonly defined in terms of horizontal and vertical equity [9, 10]. In many countries, disparities in access to primary healthcare persist across income, education, and geographic lines, leading to unequal health outcomes [11]. Individual characteristics such as age, gender, and education have been consistently associated with healthcare-seeking behavior [12-14]. These factors influence not only perceived health needs but also access to and utilization of healthcare services.

In addition, methodological and statistical approaches are essential in examining equity in healthcare utilization. Proper study design, adequate statistical power, and appropriate analytical techniques are required to ensure valid and reliable findings [15, 16, 17]. Furthermore, recent evidence in Thailand has shown that socioeconomic inequalities in health outcomes still persist despite universal coverage, particularly among vulnerable populations such as older adults [18].

Beyond individual determinants, recent evidence highlights the importance of system-level factors, including organizational capacity and workforce development, in improving healthcare service performance [19]. Strengthening both infrastructure and human resources is essential to ensure effective service delivery and long-term sustainability of health systems.

Beyond individual determinants, recent evidence highlights the importance of system-level factors, including organizational capacity and workforce development, in improving healthcare service performance [19]. Empirical evidence from private hospitals in Northeastern Thailand demonstrated that registered nurses' cross-cultural competence, self-directed career and learning skills, critical thinking and problem-solving, and collaboration, teamwork, and leadership were significant predictors of perceived organizational effectiveness [20]. These findings suggest that strengthening health systems requires parallel investment in workforce competencies and organizational learning capacity, not only in physical infrastructure.

In Thailand, ongoing decentralization of primary healthcare services has introduced additional challenges related to workforce capacity, governance, and resource allocation [21]. Without adequate support mechanisms, such reforms may increase system vulnerability and widen disparities in access to care.

At the same time, evidence from a recent provincial panel study of all 77 provinces in Thailand showed that, although the Universal Coverage Scheme substantially reduces direct financial barriers, satisfaction among older adults was influenced by contextual factors such as bed occupancy, physician availability, population density, and provincial

economic conditions [22]. These findings indicate that insurance entitlement alone does not guarantee equitable service capacity, responsiveness, and patient experience across provinces.

Moreover, digital inequality and health literacy have emerged as important determinants of healthcare utilization. Access to digital health information and the ability to interpret such information influence health behaviors and decision-making processes [23]. Limited access to digital resources may disproportionately affect vulnerable populations, particularly older adults. In addition, healthcare personnel's competency in using digital health technologies has become a critical factor influencing service quality and equity, especially in underserved areas [24].

Given these considerations, understanding the determinants of healthcare utilization is essential for informing policy and improving equity in health systems. Therefore, this study aims to examine factors associated with the utilization of primary healthcare services among the Thai population using nationally representative data.

METHODS

STUDY DESIGN

This study employed a quantitative cross-sectional design using secondary data from the Health and Welfare Survey 2023 conducted by the National Statistical Office of Thailand (NSO) [25]. The dataset is a nationally representative household survey that collects information on health status, health service utilization, health insurance coverage, and socioeconomic characteristics. The use of secondary data is appropriate for examining population-level health outcomes and service utilization patterns efficiently and systematically [15].

STUDY POPULATION AND SAMPLE

The target population comprised Thai residents living in households included in the Health and Welfare Survey 2023. The study sample consisted of individuals who completed the individual-level questionnaire.
Inclusion criteria were:
1) being listed as a household member in the NSO sampling frame; and
2) having complete data for key variables, including sex, age, illness during the past month, health insurance scheme, and region of residence.

Individuals with missing data in key variables were excluded using listwise deletion. After applying these criteria, a total of 69,078 individuals remained in the final analytical sample. Population weights provided by the National Statistical Office were applied to ensure national representativeness [25].

DATA SOURCE AND SAMPLING DESIGN

The Health and Welfare Survey 2023 employed a two-stage stratified sampling design. In the first stage, stratification was conducted by geographic region or province. In the second stage, primary sampling units (PSUs) were selected within each stratum. Within selected households, individuals were randomly selected to complete the individual questionnaire. The dataset includes sampling weights to ensure national representativeness. All analyses accounted for the complex survey design to produce valid population-level estimates and standard errors [15]

DEFINITION OF VARIABLES

The dependent variable was illness during the past month, derived from the survey question asking whether the respondent had been ill or felt unwell. Responses were re-coded into a binary variable: 1 = ill and 0 = not ill. This variable was used as a proxy indicator of health need and potential healthcare utilization [9]. Although this measure does not represent actual service utilization, previous studies have used similar indicators to examine inequities in healthcare access [8].

Independent variables included demographic and socioeconomic characteristics such as age, sex, education level, health insurance scheme, and region of residence. These variables have been widely recognized as determinants of healthcare utilization.

Control variables included occupation, industry category, and population weights, which were incorporated to improve model accuracy and representativeness.

MISSING DATA HANDLING

Missing data were assessed and found to account for less than 5% of the total sample, which is generally considered acceptable for statistical analysis [16]. Cases with missing values were excluded using listwise deletion.

WEIGHTING

To ensure population representativeness, population weights were applied in all analyses. Weighting is essential in survey data analysis to obtain unbiased estimates of population parameters.

STATISTICAL ANALYSIS

Descriptive statistics were used to summarize participant characteristics. Bivariate analysis using chi-square tests was conducted to examine associations between illness and independent variables.

Binary logistic regression analysis was performed to identify factors associated with illness. Both crude odds ratios (COR) and adjusted odds ratios (AOR) with 95% confidence intervals (CI) were reported. CORs were obtained from univariate models, while AORs were derived from multivariable logistic regression models including all independent variables.

The logistic regression model was expressed as follows:

$$\log(\frac{P}{1-P}) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_p X_p$$

where P represents the probability of illness, β_0 is the intercept, β_i–β_k are regression coefficients, and X_i–X_k represent independent variables included in the model.

To account for the complex survey design, complex samples logistic regression was applied. The model incorporated sampling weights, strata, and primary sampling units. This approach is consistent with standard practices for analyzing nationally representative survey data [9].

Sensitivity analysis was conducted to compare results between weighted and unweighted models. The consistency of findings confirmed the robustness of the analytical approach.

SOFTWARE AND ANALYTICAL TOOLS

All analyses were conducted using IBM SPSS Statistics version 29.0. The Complex Samples module was used to ensure appropriate estimation under the survey design, producing valid population estimates and standard errors. This approach is widely recommended for analyzing nationally representative survey data.

RESEARCH ETHICS

This study utilized secondary data provided by the National Statistical Office of Thailand. The dataset was de-identified and approved for academic use. Ethical approval was obtained from the Human Research Ethics Committee of Sirindhorn College of Public Health, Phitsanulok (Approval No. SCPHPL 2/2568.1.2).

The study adhered to the principles of the Declaration of Helsinki and ensured confidentiality, integrity, and data security throughout the research process.

RESULTS

This study examined equity in primary health care utilization among the Thai population using data from the Health and Welfare Survey 2023 conducted by the National Statistical Office of Thailand [25]. The survey included a nationally representative sample of households across all regions of the country.

After data cleaning and exclusion of incomplete records, a total of 69,078 individuals were included in the final analysis, representing 95.1% of the original sample. All analyses were weighted using population weights to ensure nationally representative estimates.

OBJECTIVE 1: CHARACTERISTICS OF THE STUDY POPULATION

A total of 69,078 respondents were included in the analysis. Females accounted for 52.0% of the sample, while males comprised 48.0%. The mean age was 42.21 ± 22.35 years, with the majority belonging to the working-age group (25–59 years).

Regarding educational attainment, most respondents had completed primary education or lower (40.9%), followed by secondary education (33.9%). In terms of health insurance coverage, the majority were covered under the Universal Coverage Scheme (UCS) (77.8%), followed by the Social Security Scheme (SSS) (9.2%) and the Civil Servant Medical Benefit Scheme (CSMBS) (6.1%).

Regionally, the largest proportion of respondents resided in the Northeastern region (28.6%), followed by the Central (26.2%), Northern (18.6%), Southern (13.4%), and Bangkok Metropolitan Region (13.1%). Table 1 presents the general characteristics of the study population.

TABLE 1. GENERAL CHARACTERISTICS OF THE STUDY POPULATION (N = 69,078)

Variable	Category	n	%
Sex	Male	33,115	48.0
	Female	35,963	52.0
Age (years)	Mean ± SD	42.21 ± 22.35	–
Education	Primary or lower	27,711	40.9
	Secondary	23,424	33.9
	Vocational/Associate	8,226	11.9
	Bachelor or higher	9,717	14.1
Health insurance	UCS	53,714	77.8
	SSS	6,326	9.2
	CSMBS	4,215	6.1
	Others	4,823	7.0
Region	Northern	12,870	18.6
	Northeastern	19,740	28.6
	Central	18,113	26.2
	Southern	9,285	13.4
	Bangkok	9,070	13.1

OBJECTIVE 2: ILLNESS STATUS AS A PROXY FOR HEALTH CARE UTILIZATION

Illness during the past month was used as a proxy indicator of health care need and potential service utilization. The results showed that 13.3% of respondents reported illness, while 86.7% reported no illness (Table 2).

Self-reported measures may underestimate minor or transient conditions because some respondents may not report mild symptoms.

TABLE 2. ILLNESS DURING THE PAST MONTH (N = 69,078)

Illness status	n	%
Ill	9,176	13.3
Not ill	59,902	86.7
Total	69,078	100.0

OBJECTIVE 3: BIVARIATE ANALYSIS OF FACTORS ASSOCIATED WITH ILLNESS

Chi-square analysis indicated that sex, age, education, health insurance scheme, and region were significantly associated with illness during the past month ($p < 0.001$). Table 3 presents the results of the bivariate analysis.

TABLE 3. BIVARIATE ANALYSIS OF FACTORS ASSOCIATED WITH ILLNESS

Variable	χ^2	p-value
Sex	45.23	<0.001
Age	67.12	<0.001
Education	33.75	<0.001
Health insurance	21.09	<0.001
Region	56.41	<0.001

*Chi-square test

OBJECTIVE 4: MULTIVARIABLE ANALYSIS OF FACTORS ASSOCIATED WITH ILLNESS

Binary logistic regression analysis was conducted to identify factors associated with illness during the past month, which was used as a proxy indicator of health care need and potential primary health care utilization. Both crude odds ratios (COR) and adjusted odds ratios (AOR) with 95% confidence intervals (95% CI) were estimated.

In the univariate analysis, age, sex, education, health insurance scheme, and region were all significantly associated with illness during the past month ($p < 0.001$). Older individuals demonstrated higher odds of reporting illness (COR = 1.31, 95% CI: 1.25–1.37), while females were slightly more likely to report illness than males (COR = 1.01, 95% CI: 1.009–1.011). Health insurance coverage and educational attainment were also significantly associated with illness status.

After adjustment in the multivariable logistic regression model, age, sex, education, and health insurance remained statistically significant predictors of illness. Older age remained associated with higher odds of illness (AOR = 1.29, 95% CI: 1.23–1.36, $p < 0.001$). Female respondents continued to demonstrate slightly higher odds of reporting illness compared with males (AOR = 1.02, 95% CI: 1.015–1.017, $p < 0.001$). Educational attainment was inversely associated with illness (AOR = 0.92, 95% CI: 0.907–0.933, $p < 0.001$), suggesting that individuals with higher education levels were less likely to report illness. Likewise, respondents covered under more comprehensive health insurance schemes demonstrated lower adjusted odds of illness (AOR = 1.12, 95% CI: 1.056–1.189, $p < 0.001$).

In contrast, regional differences were no longer statistically significant after adjustment (AOR = 1.00, 95% CI: 0.982–1.023, $p = 0.819$), suggesting that the apparent regional disparities observed in the bivariate analysis were likely explained by demographic and socioeconomic characteristics included in the model.

The final multivariable logistic regression model demonstrated acceptable model performance. The classification accuracy of the model was 87.3%, indicating good predictive performance for distinguishing between respondents who reported illness and those who did not. In addition, the Nagelkerke R^2 value was 0.035, suggesting that although the

identified predictors contributed significantly to the model, a substantial proportion of variation in illness status may also be explained by other unmeasured factors.

The logistic regression model was expressed as follows:

$$\text{logit}(p) = \beta_0 + \beta_1(\text{Age}) + \beta_2(\text{Sex}) + \beta_3(\text{Education}) + \beta_4(\text{Health Insurance}) + \beta_5(\text{Region})$$

where p represents the probability of reporting illness during the past month.

Overall, the findings suggest that demographic and socioeconomic characteristics played a more important role than geographic region in explaining differences in illness status. Although some disparities in health needs remain across population groups, the absence of statistically significant regional inequities after adjustment may reflect the relatively equitable distribution of primary health care services under Thailand's Universal Coverage Scheme.

TABLE 4. FACTORS ASSOCIATED WITH ILLNESS DURING THE PAST MONTH (LOGISTIC REGRESSION)

Variable	COR (95% CI)	AOR (95% CI)	p-value
Age	1.31 (1.25–1.37)	1.29 (1.23–1.36)	<0.001
Sex	1.01 (1.009–1.011)	1.02 (1.015–1.017)	<0.001
Education	0.89 (0.879–0.902)	0.92 (0.907–0.933)	<0.001
Health insurance	1.32 (1.256–1.393)	1.12 (1.056–1.189)	<0.001
Region	1.02 (1.002–1.040)	1.00 (0.982–1.023)	0.819

Note:
COR = Crude Odds Ratio
AOR = Adjusted Odds Ratio
CI = Confidence Interval
Nagelkerke R^2 = 0.035
Overall classification accuracy = 87.3%

DISCUSSION

This study provides a comprehensive assessment of equity in primary health care utilization among the Thai population using nationally representative survey data. The findings suggest that Thailand's Universal Coverage Scheme (UCS) has contributed to improving access to primary health care services; however, variations in health needs and utilization patterns persist across demographic and socioeconomic groups.

The findings indicate that demographic characteristics, educational attainment, and health insurance status continue to influence illness reporting and potential health service utilization. Although regional disparities were observed in the bivariate analysis, these differences were no longer statistically significant after adjustment, suggesting that socioeconomic and demographic factors may play a more important role than geographic location in explaining inequities in primary health care utilization.

From a systems perspective, the results highlight that equitable health service utilization is shaped not only by individual characteristics but also by broader structural and organizational factors. Recent evidence from Thailand further suggests that workforce competencies, organizational learning, and leadership capacity are important determinants of organizational effectiveness, which ultimately influence service quality and health system responsiveness [20].

Previous studies in Thailand have emphasized that strengthening workforce capacity, organizational performance, and service quality is essential for improving health system effectiveness and equitable access to care [19, 20]. Consistent with the present findings, these observations support integrated policy approaches that address both individual-level and system-level determinants of health equity through investments in workforce availability, competency-based professional development, and organizational learning systems.

POPULATION CHARACTERISTICS AND IMPLICATIONS FOR SERVICE UTILIZATION

The demographic profile observed in this study is generally consistent with Thailand's population structure, characterized by a predominance of working-age individuals and a substantial proportion of individuals with lower educational attainment. Previous studies have reported that demographic and socioeconomic characteristics are associated with differences in access to and utilization of primary health care services [18].

The high coverage of the Universal Coverage Scheme (UCS) may reflect the effectiveness of Thailand's health financing system in expanding access to essential health services. However, the concentration of individuals with lower educational attainment suggests the need for targeted health communication, outreach strategies, and equitable service design to improve access among vulnerable population groups.

INEQUALITIES IN HEALTH NEEDS AND UTILIZATION

The bivariate analysis revealed significant differences in illness across sex, age, education, health insurance, and region. These findings suggest that demographic and socioeconomic disparities remain associated with variations in health needs and primary health care utilization.

Consistent with previous epidemiological and health services research, regional variations may reflect differences in infrastructure, healthcare workforce distribution, service capacity, and access to health services. Recent provincial evidence from Thailand further indicates that, despite universal health coverage, contextual factors such as physician availability, bed occupancy, and local economic conditions continue to influence healthcare experiences and perceived service adequacy [22].

Although Thailand's Universal Coverage Scheme has substantially expanded access to care, the findings indicate that inequalities related to demographic and contextual characteristics continue to exist. These results support the need for ongoing efforts to strengthen equitable distribution of primary health care resources and improve access among vulnerable populations [18]. These findings reinforce that insurance entitlement alone does not necessarily ensure equitable service capacity or patient experience across provinces [22].

MULTIVARIABLE DETERMINANTS OF UTILIZATION

After adjusting for covariates, age, sex, education, and health insurance remained significant predictors of illness, whereas region was no longer statistically significant. These findings suggest that regional differences observed in the bivariate analysis may be partially explained by demographic and socioeconomic characteristics. However, the absence of a statistically significant regional association after adjustment should be interpreted cautiously. The regional variable represents a broad geographic classification and may not capture important differences in healthcare resources, service congestion, workforce availability, and local socioeconomic conditions across provinces. Recent evidence from a nationwide provincial panel study demonstrated that physician availability, bed occupancy, and provincial economic conditions remained associated with healthcare experiences under Thailand's Universal Coverage Scheme [22].

The findings indicate that structural inequalities related to population characteristics may contribute more substantially to variations in health needs and primary health care utilization than geographic location alone. Previous studies have similarly reported that socioeconomic conditions, access to information, health system characteristics, and local service capacity are associated with differences in health service utilization [8, 22].

The relatively low explanatory power of the model suggests that additional unmeasured factors, including environmental conditions, service quality, behavioral determinants, and contextual influences, may also contribute to utilization patterns. These findings highlight the complexity of achieving equity in primary health care utilization within diverse population settings [23].

IMPLICATIONS FOR EQUITY IN PRIMARY HEALTH CARE

When considering all analytical results together, the findings suggest that Thailand has achieved a relatively equitable distribution of primary health care access under the Universal Coverage Scheme (UCS). The absence of statistically significant regional differences after adjustment may indicate improvements in reducing geographic disparities in access to care [18].

However, equity in health care should not be interpreted solely based on statistical significance or broad geographic classifications. Although regional differences were not statistically significant after adjustment, inequities may still arise from differences in healthcare resource availability, service congestion, workforce capacity, and local socioeconomic conditions across provinces, as demonstrated in recent Thai evidence [22].

Methodological limitations should also be acknowledged. The use of illness during the past month as a proxy indicator does not directly measure actual service utilization and therefore cannot conclusively determine whether utilization itself is fully equitable. In addition, unmeasured contextual factors, including perceived quality of care, accessibility, and service responsiveness, may also influence health care utilization patterns.

These findings highlight the importance of continuous equity monitoring using more sensitive indicators, including healthcare workforce distribution, physician availability, service congestion, and local health system capacity, together with adaptive policy responses to strengthen equitable primary healthcare services across Thailand [22].
In addition, strengthening workforce competencies, organizational learning, and leadership development should complement workforce expansion to enhance service responsiveness and long-term health system performance [20].

POLICY IMPLICATIONS

The findings of this study have several important policy implications. First, strengthening primary health care systems in underserved areas remains important. Investments should continue to focus on improving workforce distribution, infrastructure, service accessibility, and organizational capacity in regions with limited resources. In addition to increasing workforce availability, competency-based professional development and organizational learning should be promoted to improve service responsiveness and long-term health system performance [20].

Second, improving service quality across health insurance schemes may help reduce disparities in health care utilization. Although the Universal Coverage Scheme has substantially expanded coverage, differences in perceived and actual quality of care may still influence utilization patterns.

Third, the development of integrated health equity monitoring systems may provide more comprehensive insights into unmet health needs and service gaps. Linking household survey data with administrative health data could support more evidence-informed policy evaluation. Equity monitoring should incorporate indicators beyond insurance coverage, including physician availability, healthcare workforce density, service congestion, and contextual provincial characteristics to better identify persistent geographic inequalities [22].

In addition, promoting health literacy and digital inclusion may contribute to improved access to health information and health services, particularly among vulnerable populations.

Finally, intersectoral collaboration remains important for strengthening policy coherence across different health financing schemes and population groups in Thailand. These strategies should support not only equitable access but also equitable service capacity and responsiveness across different population groups and geographic settings.

RECOMMENDATIONS FOR FUTURE RESEARCH

Future studies should incorporate broader determinants of health care utilization, including socioeconomic status, service quality, accessibility, and contextual factors, to provide a more comprehensive understanding of equity in primary health

care utilization. Integrating household survey data with administrative health databases may also improve the accuracy of analyses and support more evidence-informed policy evaluation.

In addition, longitudinal and mixed-methods approaches may help capture changes in health care access over time and provide deeper insights into the experiences and barriers faced by different population groups. Further research using advanced analytical methods and more comprehensive indicators of health equity would strengthen understanding of the complex factors influencing equitable access to primary health care services in Thailand.

LIMITATIONS AND ADVANTAGES OF THIS STUDY

This study has several strengths, including the use of a large nationally representative dataset from the Health and Welfare Survey 2023 and the application of analytical methods that accounted for the complex survey design. These features enhance the generalizability and robustness of the findings.

However, several limitations should be acknowledged. First, illness during the past month was based on self-reported data and used as a proxy for primary health care utilization, which may introduce reporting bias and may not fully reflect actual service utilization. Second, the cross-sectional design limits the ability to infer causal relationships between health needs and service utilization. Third, some important contextual variables, such as household income, service quality, travel accessibility, and geographic accessibility, were not available in the dataset and therefore could not be included in the analysis.

CONCLUSION

This study demonstrates that Thailand's Universal Coverage Scheme has contributed substantially to improving equity in primary health care access. Although geographic disparities appear to have been reduced, socioeconomic and individual-level factors continue to influence health care utilization patterns.

The findings suggest that Thailand has achieved a relatively equitable distribution of primary health care services at the national level. However, persistent differences related to demographic and socioeconomic characteristics indicate that deeper forms of inequity may still exist.

Future policy efforts should focus on strengthening primary care capacity, improving service quality, enhancing health literacy, and addressing emerging challenges such as digital inequality. Continuous equity monitoring and context-sensitive policy development will be essential for achieving sustainable and inclusive health care equity in Thailand.

ACKNOWLEDGMENTS

The author would like to express sincere gratitude to the National Statistical Office of Thailand [25] for providing access to the microdata from the 2023 Health and Welfare Survey, which served as the primary data source for this study.

AUTHOR CONTRIBUTIONS

The authors responsible for the conceptualization of the study, research design and methodology, data analysis, manuscript writing, and revision of the final version prior to submission.

CONFLICT OF INTEREST STATEMENT

The author declares that there are no conflicts of interest related to the conduct of this research, the data analysis, or the preparation of this manuscript.

FUNDING STATEMENT

This research did not receive external funding. It was supported by the internal research program of Sirindhorn College of Public Health, Phitsanulok, Faculty of Public Health and Allied Health Sciences of the Praboromarajchanok Institute, Ministry of Public Health, Thailand which provided essential resources and institutional support throughout the study.

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