



A Comparative Study of Elderly Healthcare Models between Mainland and Island Areas in Satun Province, Thailand

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Abstract

Background: Satun Province, located along Thailand's Andaman Sea coast, has a growing elderly population comprising 14.27% of its total residents, distributed across both mainland and island communities. **Objective:** This study aims to examine elderly healthcare models in contextual differences. **Methods:** A descriptive cross-sectional study was conducted among 400 older adults in Satun Province, selected via multi-stage sampling. Data were collected using a validated structured questionnaire (CVI = 0.91; Cronbach's α = 0.87). Statistical analyses comprised descriptive and inferential methods. **Results:** Results revealed no overall difference in healthcare models between the mainland and island elderly populations. However, dimension-specific differences were evident: mainland participants exhibited greater self-reliance in healthcare, whereas island residents demonstrated stronger mutual reliance facilitated by community and primary healthcare networks ($p < 0.001$). Reliance on professional healthcare services did not differ significantly between the two groups. **Conclusion:** These findings underscore the necessity of context-specific healthcare models for aging populations. Interventions should focus on strengthening self-care among the mainland elderly and enhancing community-based mutual care in island areas. Furthermore, improving the accessibility and responsiveness of formal health services across both settings will support healthy aging outcomes.

Keywords: Elderly, Healthcare, Mainland areas, Island areas

What was Known

- Elderly individuals in mainland areas exhibited higher self-reliance, whereas those in island communities demonstrated greater mutual reliance.

What's New and Next

- Improving healthcare models and adapting public health services to local contexts.
- Enhancing access to health information through more frequent, targeted dissemination.
- Promoting community-based mutual support networks for the elderly.

Introduction

In 2023, Thailand transitioned into a “Complete Aged Society”, with over 12.9 million people aged 60 years and older, accounting for 20% of the total population. Demographic projections indicate that within 15 years, the country will become a “Super Aged Society,” with older adults comprising approximately 28% of the population⁽¹⁾. While this demographic shift reflects an increase in life expectancy, it simultaneously poses profound challenges to the healthcare system. The inevitable physical decline and rising prevalence of chronic diseases associated with aging have necessitated a strategic prioritization of comprehensive geriatric care among policymakers and providers.

To address these challenges, Thailand has promoted a multilevel healthcare model for older adults, integrating self-care (self-reliance), community-based primary healthcare (mutual support), and professional healthcare services (professional reliance)^(2,3). This framework operationalizes the WHO’s Ottawa Charter for Health Promotion and Kleinman’s pluralistic healthcare system model. By empowering the popular and folk sectors, this model enhances personal health skills, strengthens grassroots action, and facilitates seamless transitions into professional care for complex conditions^(4,5). Ultimately, this dynamic triad guarantees equitable, high-quality, and accessible healthcare, thereby improving the well-being and quality of life for older adults⁽⁶⁾.

However, significant disparities persist across these levels of care. Diminishing physical capacity and the burden of chronic illnesses often hinder older adults from fully engaging in self-care, increasing their dependence on family members and public services^(7,8). Moreover, socioeconomic shifts—such as the rise of nuclear families and intensifying materialism—have weakened traditional intergenerational ties, community solidarity, and mutual assistance⁽⁹⁾. Furthermore, while public health services are nominally free of charge, many older adults still face transportation barriers, particularly in remote or geographically isolated areas.

Satun Province, located in the southernmost region of Thailand along the Andaman Sea, consists of both mainland coastal areas and numerous islands. The province has 46,437 older adults, representing 14.27% of its population⁽¹⁰⁾, distributed across these diverse geographical settings. Although this proportion is currently lower than the national average, the older population in Satun is rising rapidly and presents unique challenges dictated by its geography. Situational analyses indicate that many older adults in Satun suffer from chronic illnesses and receive limited familial care due to nuclear family structures and employment-driven youth migration, forcing them to rely heavily on themselves for daily survival⁽¹¹⁾.

A closer examination reveals a stark geographical divergence in health accessibility and living challenges between mainland and island communities. While mainland older adults benefit from relatively stable infrastructure despite limited public transport, their island counterparts face severe spatial inequality. Older adults living on islands encounter compounding hardships, including prolonged travel times and hazardous sea conditions during monsoon seasons, which drastically restrict access to professional healthcare services. Consequently, island-dwelling older populations are forced to rely much more heavily on self-care and mutual community support than those on the mainland.

Despite these stark environmental contrasts, previous research has predominantly adopted a macro-level perspective, leaving a notable gap in empirical comparative studies between mainland and island older populations. This pronounced disparity underscores the urgent need for a comparative study of healthcare models between mainland and island areas in Satun Province. Therefore, this study aims to examine and compare these models to inform the development of healthcare interventions that are contextually appropriate, culturally sensitive, and highly responsive to the unique needs of older adults in both mainland and island communities.

Materials and Methods

1. Study Design

This descriptive, cross-sectional study collected data from March to May 2024 among 400 older adults (aged 60 and older) in Satun Province. Although the Krejcie and Morgan formula⁽¹²⁾ required 381 participants, the sample size was increased to 400 to mitigate potential non-response bias and ensure an equal distribution between mainland and island communities. A multistage sampling method was employed. First, districts and sub-districts were purposively selected to encompass both geographical contexts. Second, disproportional stratified sampling was applied,

using the mainland and island settings as strata to yield 200 participants from each area. Finally, eligible participants within the selected sub-districts were recruited via simple random sampling.

2. Research Instrument

The data collection instrument was a questionnaire developed based on two conceptual frameworks: the WHO self-care intervention framework⁽¹³⁾ and Thailand's long-term care guidelines for older persons⁽¹⁴⁾. The former posits that effective self-care stems from the synergistic management of the person, community, and health workers. Concurrently, the latter asserts that sustainable success in healthcare for older adults hinges on the collaboration of three pivotal sectors: self-care/family care, community care, and professional care. Synthesizing these perspectives, both frameworks emphasize a collaborative care architecture that seamlessly merges self-reliance, mutual reliance, and professional reliance. The questionnaire consists of two main sections:

Section 1: General Information. This section consists of 12 multiple-choice and fill-in-the-blank items assessing demographic variables (residence, gender, age, religion, educational level, occupation, monthly income, and comorbidities) and socio-familial support factors (marital status, living arrangement, group membership, and sources of health information).

Section 2: Healthcare Models Among Older Adults. This section contains 45 items categorized into three subdomains: self-reliance (self-care), mutual reliance (community-based care), and professional reliance (professional health services). Responses are evaluated on a 5-point Likert scale ranging from 0 to 4 ("Never" = 0, "Rarely" = 1, "Sometimes" = 2, "Often" = 3, and "Always" = 4) to establish a true zero-baseline reflecting the absolute absence of a specific healthcare model. The mean scores are interpreted as follows: 0.00–0.80 = very low, 0.81–1.60 = low, 1.61–2.40 = moderate, 2.41–3.20 = high, and 3.21–4.00 = very high level of healthcare model implementation.

Regarding validity and reliability, the content validity of the instrument was evaluated by three experts (a gerontologist, a public health specialist, and a psychologist), using the Item–Objective Congruence (IOC) method with a $-1/0/+1$ rating scheme. Items with $\text{IOC} \geq 0.67$ were retained, whereas those requiring refinement were revised based on the experts' feedback, resulting in an overall scale IOC of 0.91. Subsequently, a pilot test ($n = 30$) was conducted with a cohort sharing similar characteristics to evaluate the instrument's reliability. Internal consistency was calculated using Cronbach's alpha, yielding a coefficient of 0.87, which demonstrates robust reliability exceeding the acceptable threshold (≥ 0.70).

3. Data Collection

Data were collected from March to May 2024 by researchers and trained research assistants. Prior to data collection, detailed information regarding the study's objectives and eligibility criteria was provided to the participants, and written informed consent was obtained. For participants who were unable to read the questionnaire independently, each item was read aloud by the research team, and the responses were recorded without any modification.

4. Statistical Analysis

Statistical analysis was conducted using IBM SPSS Statistics for Windows, Version 30.0 (IBM Corp., Armonk, NY, USA), under the license of Songkhla Rajabhat University.

1. Descriptive statistics including frequency, percentage, mean, standard deviation, minimum, and maximum were used to analyze the participants' demographic characteristics.
2. The Chi-square test and Mann–Whitney U test were utilized to compare demographic characteristics between mainland and island groups.
3. An independent samples *t*-test was employed to compare healthcare model scores between mainland and island participants, after verifying the assumptions of normality and homogeneity of variances using the Kolmogorov–Smirnov ($p > 0.05$) and Levene's ($p > 0.05$) tests, respectively.

Results

1. General Information

Comparative analysis of older adults in the mainland and island areas of Satun Province revealed significant demographic variations ($p < 0.05$) in religion, educational level, occupation, and monthly income. Conversely, no significant differences were observed regarding gender, age, and comorbidities (Table 1). This indicates that distinct spatial contexts shape the socio-economic and lifestyle profiles of the elderly, while biological traits and health status remain unaffected. In terms of socio-familial support, marital status and living arrangements differed significantly ($p < 0.05$), whereas group membership and access to health information showed no such disparities (Table 2). Thus, spatial contexts influence family structures and cohabitation patterns, yet do not create inequities in social networking and health information acquisition among older adults.

Table 1 Demographic Characteristics of Elderly in Mainland and Island Areas

Demographic Characteristics	Mainland (n=200)		Island (n=200)		Statistic	P-value
	n	%	n	%		
Gender					2.636	0.104 ^a
Male	91	45.50	75	37.50		
Female	109	54.50	125	62.50		
Age (years)					0.467	0.640 ^b
60–69	115	57.50	122	61.00		
70–79	70	35.00	54	27.00		
80–89	14	7.00	24	12.00		
90 and above	1	0.50	0	0.00		
Mean ± SD = 68.90 ± 7.15, Min=60, Max=94						
Religion					71.253	<0.001 ^{a*}
Buddhism	14	7.00	79	39.50		
Islam	186	93.00	113	56.50		
Christianity	0	0.00	8	4.00		
Educational Level					35.810	<0.001 ^{a*}
No formal education	23	11.50	63	31.50		
Primary school	159	79.50	122	61.00		
Secondary school	12	6.00	4	2.00		
High school	2	1.00	10	5.00		
Diploma	3	1.50	0	0.00		
Bachelor's degree	1	0.50	1	0.50		
Occupation					66.551	<.001 ^{a*}
Unemployed	87	43.50	75	37.50		
Pensioner	2	1.00	1	0.50		
Laborer	15	7.50	51	25.50		

Table 1 Demographic Characteristics of Elderly in Mainland and Island Areas (Cont.)

Demographic Characteristics	Mainland (n=200)		Island (n=200)		Statistic	P-value
	n	%	n	%		
Occupation						
Sales and service	15	7.50	17	8.50		
Agriculturist	50	25.00	4	2.00		
Business owner	5	2.50	12	6.00		
Fisheries	21	10.50	35	17.50		
Housewife/househusband	5	2.50	5	2.50		
Monthly Income (THB)					3.678	<0.001 ^{b*}
< 2,000	104	52.00	78	39.00		
2,001–4,000	44	22.00	35	17.50		
4,001–6,000	32	16.00	39	19.50		
6,001–8,000	7	3.50	24	12.00		
8,001–10,000	7	3.50	18	9.00		
> 10,000	6	3.00	6	3.00		
Mean ± SD = 3,823.00±4,269.45, Min = 600, Max = 48,000						
Comorbidities					0.544	0.461 ^a
No	72	36.00	65	32.50		
Yes	128	64.00	135	67.50		

SD, standard deviation; ^a Chi-Square Test; ^b Mann-Whitney U Test; **p* < 0.05

Table 2 Socio-Familial Support of Elderly in Mainland and Island Areas

Socio-Familial Support	Mainland (n=200)		Island (n=200)		Statistic	P-value
	n	%	n	%		
Marital Status					17.368	0.001 ^{a*}
Single	6	3.00	11	5.50		
Married	144	72.00	105	52.50		
Widowed	46	23.00	81	40.50		
Divorced/Separated	4	2.00	3	1.50		
Living Arrangement					16.775	0.005 ^{a*}
Alone	18	9.00	17	8.50		
With spouse	75	37.50	48	24.00		
With children/grandchildren	40	20.00	69	34.50		
With other relatives	4	2.00	4	2.00		
Extended family	63	31.50	62	31.00		
Group Membership					1.210	0.271 ^a
No	106	53.00	95	47.50		
Yes	94	47.00	105	52.50		
Sources of Health Information					0.502	0.616 ^b
1–2 sources	94	47.00	92	46.00		
3–4 sources	58	29.00	28	14.00		
5–6 sources	36	18.00	73	36.50		
7–8 sources	8	4.00	6	3.00		
≥ 9 sources	4	2.00	1	0.50		

Mean ± SD = 3.27±1.95, Min = 1, Max = 12

SD, standard deviation; ^a Chi-Square Test; ^b Mann-Whitney U Test; **p* < 0.05

2. Comparison of Health Care Models among Older Adults between Mainland and Island Areas

The results indicated that the overall health care models for older adults did not differ significantly between the mainland and island areas. However, domain-specific analyses revealed statistically significant differences. In particular, the self-reliance (self-care) and mutual reliance (community-based care) models differed significantly between the two groups ($p < 0.001$). Older individuals in the mainland areas demonstrated a higher level of self-reliance, whereas those in the island communities exhibited greater mutual reliance. In contrast, no statistically significant difference was found in the use of professional reliance (professional health services) between older adults in the mainland and island settings. (Table 3)

Table 3 Comparison of Health Care Models among Elderly between Mainland and Island Areas

Health Care Models	Mainland (Mean $\pm$ SD)	Island (Mean $\pm$ SD)	t	P-value
Self-care reliant	3.12 $\pm$ 0.37	2.94 $\pm$ 0.42	4.578	<0.001*
Mutual reliance	2.77 $\pm$ 0.82	3.04 $\pm$ 0.62	3.654	<0.001*
Professional reliance	2.53 $\pm$ 0.75	2.48 $\pm$ 0.78	0.681	0.496
Overall	2.81 $\pm$ 0.52	2.82 $\pm$ 0.40	0.244	0.807

SD, standard deviation; * $p < 0.001$

Discussion

The comparative analysis of elderly health care models between mainland and island areas of Satun Province revealed statistically significant differences in self-care (self-reliance) and community-based mutual care (mutual reliance) ($p < 0.001$). Elderly individuals in mainland areas exhibited higher levels of self-reliance, whereas those in island communities demonstrated greater mutual reliance. These disparities can be attributed to the differing socio-environmental contexts of the two regions.

Mainland areas are characterized by higher population density, socioeconomic diversity, and superior infrastructure; however, social life is highly individualistic. Interpersonal relationships are primarily driven by roles, status, and professional duties, with an emphasis on reciprocal benefits. The nuclear family predominates, as children typically establish separate households upon marriage. Since both genders pursue independent careers, familial bonds are often weakened. Furthermore,

neighborly ties are diminished by prevailing materialistic values, which fuel continuous competition and stifle mutual altruism⁽¹¹⁾. Consequently, older adults must reduce their reliance on family and immediate social networks, thereby establishing self-reliant living mechanisms to navigate this atomized environment⁽¹⁵⁾. This aligns with previous studies^(16,17) indicating that when older individuals reside in individualistic societies devoid of close interpersonal support, they pivot toward self-reliance—leveraging technology and community infrastructure to preserve autonomy.

Conversely, older adults on islands demonstrate a higher degree of interdependence, deeply rooted in a communal way of life characterized by kinship systems and intimate ancestral ties. Consequently, mutual affection, solidarity, and informal community care remain highly prevalent. Furthermore, geographical isolation limits their access to modern infrastructure and urban centers. Within this resource-constrained environment, mutual reliance emerges naturally as a cornerstone of community health resilience, driven by the community's inherent social capital⁽¹⁸⁻¹⁹⁾. This aligns with previous studies indicating that despite socioeconomic limitations, older island residents maintain an exceptionally high quality and depth of social interactions⁽²⁰⁾. Moreover, these communal norms of reciprocal support and interpersonal closeness serve as critical factors in enhancing the efficiency of older adults' access to primary healthcare systems⁽²¹⁾. Therefore, there is a compelling need to continuously foster and reinforce awareness of community-based self-reliance.

Professional healthcare services serve as a critical formal support mechanism when self-care, family, and peer networks are insufficient⁽²²⁾. This study revealed no statistically significant difference in professional reliance between the mainland and island regions. This homogeneity reflects Thailand's institutional commitment to health equity, mandated by the 2017 Constitution and the National Health Act of 2007 to guarantee accessible, efficient healthcare for all citizens, including older adults. Such equitable access across diverse topographies is largely driven by the strategic decentralization of primary care units and the integration of family medicine, ensuring uniform standards of quality care⁽²³⁾. This finding aligns with international literature indicating that well-established primary healthcare systems effectively mitigate spatial disparities and narrow the accessibility gap between urban and remote rural populations⁽²⁴⁾. Furthermore, our results concur with evidence from Indonesia, a comparable archipelagic and rural context highlighting that widespread primary care infrastructure combined with universal health coverage is a pivotal driver of health equity for older populations⁽²⁵⁾.

This study is strengthened by its relatively large sample size, which enhances statistical power, and its comparative design, which allows for a rigorous examination of health care models across different spatial contexts. However, several limitations must be acknowledged: the cross-sectional design precludes definitive causal inferences; the variables were restricted solely to demographic and socio-familial factors; the data relied entirely on self-reported assessments susceptible to recall bias; and the geographical scope was limited to a single province (Satun Province), which may restrict the generalizability of the findings to other regions of Thailand.

In summary, these findings underscore the importance of tailoring health care strategies to the unique socio-cultural and geographical contexts of elderly populations. Enhancing self-care capabilities in mainland areas and strengthening community-based support mechanisms in island communities can lead to more effective and sustainable health outcomes for the elderly.

Conclusion

This study concludes that while geographic context does not generate disparities in biological characteristics, health status, or professional healthcare reliance, it profoundly influences demographic structures, social-familial support, and coping mechanisms. Mainland populations exhibit greater self-reliance, whereas island communities demonstrate stronger communal interdependence, highlighting that health patterns are intricately shaped by geographic and cultural environments. Consequently, a “one-size-fits-all” healthcare strategy may inadvertently cause health inequities or inefficient resource allocation. To optimize health outcomes and guarantee long-term health equity, tailored policies must capitalize on these spatial dynamics by promoting individual health literacy on the mainland to mitigate social isolation risks, and formalizing community support networks on islands to overcome geographical barriers. Future research should employ longitudinal designs to monitor the efficacy of these localized care models, explore the cultural mechanisms of island community reliance, and evaluate broader health outcomes across distinct spatial dimensions.

Ethical Approval Statement

The study was approved by Songkhla Rajabhat University Human Research Ethics Committee at the HREC (No. 037/2566). For participants who were unable to read the questionnaire by themselves, the researcher or research assistant read each item and recorded the responses provided by the participant.

Author Contributions

All authors designed the study and formulated the concept as well as the study methodology and manuscript preparation, including responsible for statistical analysis. SS was responsible for preparation and distribution of the questionnaire, data collection and data cleaning.

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Conflicts of Interest

The authors declare that they have no competing interests.

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