

Assessing the quality of life in a rural Thai province: A case study

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Abstract: This study investigates the impact of personal characteristics (PER), personal environment (PEV), individual factors (INF), and urban development (DEV) on the quality of life (QoL) in the northeastern (Isan) region of Thailand, specifically focusing on Roi Et Province. The research employs a quantitative approach using stratified random sampling to select a sample of 400 individuals from a population of just over 1 million residents. Data analysis was conducted using LISREL 9.1 for confirmatory factor analysis (CFA) and structural equation modeling (SEM) to explore the relationships between the variables. The results reveal significant positive relationships between the studied variables and their influence on public services. Personal characteristics showed a moderate positive effect on QoL, highlighting the importance of gender and community relationships. The personal environment significantly impacted QoL, emphasizing the role of supportive living conditions. Individual factors were crucial for QoL, indicating the significance of societal roles and personal well-being. Urban development directly influenced QoL, suggesting that well-planned infrastructure enhances residents' QoL. These findings align with the Social Determinants of Health framework and New Urbanism theory. This research underscores the multifaceted nature of QoL determinants in rural settings, demonstrating that both individual and environmental factors contribute to residents' well-being. The study provides valuable insights for policymakers and urban planners, suggesting that enhancing personal and environmental factors, alongside strategic urban development, can significantly improve the quality of life in rural areas.

Keywords: Gender, Life quality, Politicians, Rural communities, Structural equation model, Thailand.

1. Introduction

Thailand's 20-Year National Strategy (2018-2037) aims to achieve national stability, happiness for its people, continuous economic development, social equity, and sustainable natural resource management. This strategy focuses on six key areas: national security, enhancing competitiveness, human resource development, social equity, environmental quality of life, and public sector management reform. Each strategy has specific development goals and emphasizes sustainable development and practical implementation. Effective execution requires participation from all stakeholders, including communities and local governments.

Urban development must align with Thailand's 12th National Economic and Social Development Plan (NESDP), particularly strategies 2 and 9, which focus on social equity, reducing disparities, and urban and special economic zone development [1]. The plan includes:

1. Developing provincial central urban areas to be livable for all societal groups, supporting balanced economic and social growth.

2. Promoting integrated urban environmental management with participation from central and local governments, civil society, and the private sector.
3. Enhancing urban public transportation systems.
4. Preserving urban identity and leveraging local resources to distribute income.
5. Improving urban management efficiency.

The government's significant role in supporting urban development is evident from the NESDP's inception through its 12th iteration, leading to increased urbanization. Preparing infrastructure and economic and social systems is crucial. The National Economic and Social Development Council (NESDC) [2] is tasked with implementing government policies at the local level, ensuring clear and effective development for sustainable societal benefit.

Quality of Life (QoL) promotion entails citizen well-being, including material, social, economic, and technological advancements. Studying and improving QoL has been recognized globally, influencing healthcare policies worldwide.

For developing countries like Thailand, human-centric development is fundamental. The 12th NESDP (2017-2021) adheres to the principles of 'Sufficiency Economy Philosophy' [3], 'Sustainable Development,' and 'People-Centered Development,' emphasizing high-quality education, continuous learning, and improved health for all age groups. These ideas align with studies showing that strong social institutions are essential to national development [4].

QoL development is vital for individuals, families, and communities to achieve desired goals [5]. It involves physical and mental development, self-management, and social empathy [6]. Ensuring adequate income and employment, moral and ethical standards, and reducing societal issues lead to personal and societal growth. Research highlights factors influencing urban and organizational development for improved QoL [7].

For example, traffic congestion and environmental degradation have been identified as major problems in sustainable industrial city development in Laem Chabang, Chonburi [8]. Quality of life has been explored through Buddhist psychology, which includes body, mind, precept, and intelligence [9]. Success factors in promoting urban sustainability in Thailand's Chonburi Province have been investigated [10], while sustainable urban development in Chiang Mai has been examined from a Buddhist perspective [11]. Improving rural QoL for the elderly in Mae Rim, Northern Thailand, highlighted the need for community-based activities that educate the elderly and apply the sufficiency economy philosophy in everyday life [3]. Officials also need to organize activities for the elderly to exercise, engage in joint recreation, and adopt better living principles [5]. Therefore, QoL is a critical aspect of development that has been extensively studied. The effects of land abandonment on QoL components in the Mediterranean have been reviewed [12], with examinations of social support's impact on QoL and good governance's influence on components of sustainable urban development [13].

Urban development, often linked with regional QoL issues, is another crucial factor in the conceptual framework. The internal and external factors affecting Thai provincial government public services have been highlighted, noting that modern societies' public services are complicated to maintain, which strains local governments on limited budgets [13]. The need for 'citizen alignment' to meet smart cities' development goals has also been [14].

The personal characteristics of residents contribute to QoL, with examinations of smart city governance and development characteristics, noting the personal environment's vital [15-16]. How environmental and energy factors influence urban sustainability and the elements contributing to the growth of healthy Thai suburban regions have been analyzed [7].

Integrating these latent variables—QoL, urban development, internal personal factors, environmental factors, and personal factors—provides a comprehensive framework for understanding and improving urban and societal development. The following sections will delve into these variables' specific impacts and interrelationships, supported by current research and practical examples. Studying

the socio-economic and political conditions in Roi Et reveals its agricultural society's primary income source and limited economic and political engagement. The lack of public participation in development necessitates research on improving QoL. This research aims to identify development issues and strategies needed for QoL improvement.

Recognizing the literature gap between QoL studies in Western developed nations and Southeast Asia, this study investigates how Thai residents perceive factors affecting their QoL. It explores how an individual's personal characteristics, personal environment, individual factors, and urban development affect an individual's resident QoL. The main research objectives of the study are:

1. To examine the literature's theory concerning QoL, focusing on Southeast Asian and Thailand rural and urban settings.
2. To develop a CFA to see how the variables fit the proposed model.
3. To perform SEM to analyze.

2. Methods

2.1. Population and Sample

This research targeted 1,061,204 Roi Et Province residents aged 18 and above from 20 districts (Table 1). The sample size was calculated according to scholarly guidelines [17], which recommend a sample size for SEM to be 10-20 times the number of observed variables. With 24 observed variables in this study, the required sample size ranged from 240 to 480 participants. A multistage random sampling technique was employed, proportionally drawing samples from each district based on the population register of Roi Et Province.

Table 1.
Roi Et Province district populations and sample sizes.

No.	District	Population	Collected sample
1	Mueang Roi Et	116,536	44
2	Kaset Wisai	72,821	27
3	Pathum Rat	43,856	17
4	Chaturaphak Phiman	65,792	25
5	Thawat Buri	49,965	19
6	Phanom Phrai	53,641	20
7	Phon Thong	87,662	33
8	Pho Chai	52,773	20
9	Nong Phok	53,010	20
10	Selaphum	103,475	39
11	Thung Khao Luang	19,101	7
12	Nong Hi	20,136	8
13	Chiang Khwan	22,591	9
14	Changhan	38,260	14
15	Si Somdet	43,257	16
16	Moei Wadi	18,774	7
17	At Samat	64,273	24
18	Phon Sai	22,393	8
19	Mueang Suang	19,279	7
20	Suwannaphum	93,609	35
	Totals	1,061,204	400

2.2. Instruments

A questionnaire was designed to gather opinions on residents opinions concerning which factors affected their QoL. The questionnaire consisted of six sections. These were Section 1's resident general information, using a checklist format. Sections 2 – 6 used a 5-level Likert-type opinion scale whose responses ranged from 1-5 with '1' = 'least agreement' (1.00-1.50), '2' = 'slight agreement' (1.51-2.50), '3' = 'moderate agreement', '4' = 'significant agreement' (3.51-4.50), and finally, '5' = 'total agreement' (4.51-5.00).

Moreover, Section 2 asked for opinions on *personal characteristics* (PER), Section 3 had items concerning each individual's *environment* (PEV), Section 4 had items concerning the importance of *individual factors* (INF), Section 5 had items concerning the importance of *urban development* (DEV), and finally, Section 6 had items concerning what factors influence the QoL. The study's panel of experts judged Section 2-6 item reliability at 0.76, 0.86, 0.86, 0.79, and 0.87, respectively.

2.3. Data Collection

The respondents were residents aged 18 and above who were eligible to vote in the fiscal year 2022 in Thailand's Roi Et Province (Table 1). A team of research assistants conducted multistage random sampling across 20 districts from November to December 2022 until the proposed sample size was achieved.

2.4. Ethics Statement

All individuals who participated in the study gave their informed consent for inclusion before they participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the authors' university ethics committee. Furthermore, all study participants were notified of the confidentiality of their information.

2.5. Data Analysis

The data path analysis involved assessing the validity of the SEM for variables influencing DEV and QoL using LISREL 9.10 software. The model's fit was evaluated using goodness-of-fit (GoF) indices. If the calculated statistics met the criteria, the model was considered valid.

3. Results

3.1. Resident Characteristics

Table 2 shows the residents' responses from Part 1 of the questionnaire, with men making up 64.50% of the respondents, with 37.25% being from 31-40 years of age. Somewhat interestingly, although Roi Et Province is a rural, agricultural region, 46.50% of those surveyed have obtained an undergraduate degree. Also, 28.25% identified themselves as being an entrepreneur or business owners, while 20% responded they were workers/contractors.

Table 2.
Roi Et residents' characteristics ($n=400$).

Characteristic	Residents	%
Gender		
Men	258	64.50
Women	142	35.50
Education		
High school diploma or lower	161	40.25
BA/Bs degree	186	46.50

Characteristic	Residents	%
Graduate degree	53	13.25
Age		
18–30	48	12.00
31–40	149	37.25
41–50	114	28.50
51 or older	89	22.25
Occupation		
Government /State enterprise	73	18.25
Entrepreneur/Business owner	113	28.25
Worker/Contractors	104	26.00
Farmer	80	20.00
Students	30	7.50

3.2. GoF Analysis

Validity assessment of the causal model was undertaken using LISREL 9.1 which suggests values for the CFI ≥ 0.95 , GFI ≥ 0.90 , and RMSEA ≤ 0.06 . Byrne (2013) is often cited as suggesting criteria for Chi-square (χ^2) $p \geq 0.05$ and relative Chi-square (χ^2/df) ≤ 2.00 [18]. Schumacker and Lomax (2016) also suggest that AGFI ≥ 0.90 , NFI ≥ 0.90 , and SRMR ≤ 0.05 [17]. Cronbach Alpha values are also used in assessing questionnaire validity whose minimum values should be ≥ 0.70 . From these criteria and theory, it was established that the model equaled or exceeded all criteria as $\chi^2 = 0.05$, $\chi^2/df = 1.89$, CFI = 1.00, SRMR = 0.03, GFI = 0.96, AGFI = 0.95, NFI = 0.97, RMSEA = 0.00, with Alpha (α) values = 0.76-0.87.

3.3. CFA Assessment Results

Construct validity (CV) is critical for evaluating the effectiveness of a model [19]. A strong CV is characterized by high values of both discriminant and convergent validity. Table 3's CFA provides a thorough assessment of these parameters through reliability and validity metrics.

3.4. Reliability and Validity Metrics

The CFA analysis yielded α values ranging from 0.76 to 0.87. The AVE values span from 0.54 to 0.65, and the construct reliabilities (CR) are between 0.80 and 0.88 [20]. These values indicate a satisfactory level of reliability and convergent validity.

3.5. Interpreting the AVE and CR Values

Furthermore, the determination of construct validity should involve AVE, main loading correlations, and CR [20]. Numerous studies have also indicated that AVE values ≥ 0.50 indicate adequate convergent validity.

3.6. R² Values

While there is no consensus on universally accepted benchmarks for R² values, various studies propose the R² values of 0.25=weak, 0.50=moderate, and 0.75=strong as explanatory power.

Table 3.
CFA analysis of variables.

Latent variables	α	AVE	CR	Observed variables	Loading	R ²
Personal characteristics (PER)	0.76	0.65	0.88	Gender (x1)	0.70	0.48
				Age (x2)	0.75	0.57
				Education (x3)	0.90	0.82
				Relationships (x4)	0.86	0.74
Personal environment (PEV)	0.86	0.57	0.84	Residence and neighborhood (x5)	0.52	0.27
				Family (x6)	0.65	0.42
				Values and culture (x7)	0.93	0.86
				Technology and communications (x8)	0.85	0.72
Individual factors (INF)	0.75	0.64	0.87	Society (x9)	0.48	0.23
				Government officials (x10)	0.93	0.86
				Businessmen/entrepreneurs (x11)	0.69	0.47
				Politicians (x12)	0.99	0.98
Urban development (DEV)	0.79	0.52	0.80	Physical condition (y1)	0.47	0.23
				Management (y2)	0.66	0.43
				Services and welfare (y3)	0.86	0.75
				Law and regulations (y4)	0.82	0.68
Quality of life (QoL)	0.87	0.54	0.83	Physical health (y5)	0.50	0.23
				Mental health (y6)	0.59	0.32
				Social life (y7)	0.80	0.58
				Financial conditions (y8)	0.55	0.27
				Environmental quality (y9)	0.57	0.29
				Safety of life and property (y10)	0.64	0.37
				Employment and income (y11)	0.62	0.35
				Recreation and self-development (y12)	0.61	0.34

3.7. Latent Variable Correlation Analysis Results

Table 4's correlation matrix presents the interrelationships among five latent variables of PER, PEV, INF, DEV, and QoL. The values are derived from the authors' LISREL 9.1 analysis and highlight significant correlations (Sig. \leq .01) between these constructs.

Table 4.
Latent variable correlation matrix.

Latent variables	PER	PEV	INF	DEV	QoL
PER	1.00				
PEV	0.69**	1.00			
INF	0.66**	0.72**	1.00		
DEV	0.33**	0.40**	0.37**	1.00	
QoL	0.81**	0.90**	0.87**	0.49**	1.00

Note: **Sig. \leq .01.

3.8. Personal Characteristics (PER)

Personal characteristics are strongly correlated with (PEV) ($r = .69, p < .01$) and INF ($r = .66, p \leq .01$). This suggests that an individual's demographic and intrinsic qualities are closely linked to their environment and the broader socio-economic factors that influence their life.

According to Bronfenbrenner's Ecological Systems Theory, an individual's development is significantly influenced by their immediate environment (microsystem) and the larger socio-cultural context (macrosystem) [21]. The strong correlations observed support this theory, highlighting the interplay between personal characteristics and environmental factors.

3.9. Personal Environment (PEV)

PEV shows a high correlation with INF ($r = .72, p \leq .01$) and QoL ($r = .90, p \leq .01$). This indicates that the environment in which an individual resides, including social and cultural factors, has a substantial impact on their overall QoL [22].

The Social Determinants of Health (SDH) framework asserts that the environments where individuals are born, grow, live, work, and age have a substantial impact on their health and QoL. The significant correlation between PEV and QoL in this study supports the SDH framework, highlighting the importance of a supportive and enriching environment.

3.10. Individual Factors (INF)

INF is highly correlated with QoL ($r = .87, p \leq .01$) and shows significant relationships with both PER and PEV. This demonstrates that individual perceptions, societal roles, and interactions are crucial determinants of one's QoL.

Maslow's Hierarchy of Needs theorizes that individual well-being is contingent upon fulfilling various psychological and self-fulfillment needs. The significant correlation between INF and QoL aligns with this theory, suggesting that personal factors and societal roles significantly contribute to an individual's sense of well-being and QoL.

3.11. Urban Development (DEV)

While urban development (DEV) shows moderate correlations with PER ($r = .33, p < .01$), PEV ($r = .40, p < .01$), and INF ($r = .37, p < .01$), its correlation with QoL is stronger ($r = .49, p \leq .01$). This highlights the importance of urban infrastructure and services in shaping an individual's QoL [23].

New Urbanism theory advocates for the development of walkable, mixed-use communities that promote a higher QoL. The correlation between DEV and QoL supports this theory, suggesting that well-planned urban development can positively influence resident well-being [23].

3.12. Quality of Life (QoL)

QoL is most strongly correlated with PEV ($r = .90, p < .01$) and INF ($r = .87, p \leq .01$), followed by PER ($r = .81, p \leq .01$) and DEV ($r = .49, p \leq .01$). These correlations underline the multifaceted nature of QoL, which is influenced by personal characteristics, environmental factors, individual roles, and urban development. QoL also includes aspects such as physical health, psychological state, level of independence, social relationships, personal beliefs, and their interactions with key environmental features [24]. The strong correlations found between QoL and other latent variables in this study support this holistic definition [25].

3.13. Mediation Effects

Table 5 presents the SEM's mediation effects, highlighting the direct (DE), indirect (IE), and total effects (TE) of various causal variables on DEV and QoL. The combined TE on the model, as indicated

by the R^2 value, was 94% for QoL and 18% for DEV. These R^2 values demonstrate the explanatory power of the model, particularly for QoL.

Table 5 also details the TE values for the latent variables, with PER, PEV, and INF having TE values of 0.25, 0.45, and 0.38, respectively. This indicates that these latent variables are crucial determinants of QoL.

Table 5.
Standard coefficients (β) of influence.

Causal variables	DEV			QoL		
	DE	IE	TE	DE	IE	TE
PER	0.06	-	0.06	0.24*	0.01	0.25*
PEV	0.26*	-	0.26*	0.43**	0.02	0.45**
INF	0.13	-	0.13	0.36**	0.02	0.38**
DEV	-	-	-	0.11*	-	0.11*
R^2		0.18			0.94	

$\chi^2=189.54$, $df=215$, $p=0.89$, SRMR=0.03, CFI=1.00, GFI=0.97, AGFI=0.95, NFI=0.97, RMSEA=0.00

Note: *Sig. ≤ 0.05 , **Sig. ≤ 0.01

The model fit indices indicate a well-fitting model, with values suggesting that the model adequately represents the data, with good overall fit and minimal discrepancy between the observed and predicted covariance matrices. The findings suggest the significant roles of personal characteristics, personal environment, and individual factors in determining QoL (Table 6). The high R^2 value for QoL (94%) indicates that these variables collectively explain most of the variance in QoL. These insights are crucial for policymakers and urban planners aiming to enhance QoL through targeted interventions in personal and environmental factors.

3.14. Hypotheses Testing

SEM hypotheses testing showed that five of the seven hypotheses were supported (Table 6 and Figure 1).

Table 6.
Hypotheses testing.

Hypotheses Statements	Coefficient	t-test	Results
H1: PER influences DEV directly.	0.26	2.53*	Supported
H2: PER influences QoL directly.	0.43	3.29**	Supported
H3: PEV influences DEV directly.	0.13	1.24	Unsupported
H4: PEV influences QoL directly.	0.36	2.93**	Supported
H5: DEV influences QoL directly.	0.11	1.96*	Supported
H6: INF influences DEV directly.	0.06	0.68	Unsupported
H7: INF influences QoL directly.	0.24	2.33*	Supported

Note: *Sig. ≤ 0.05 , **Sig. ≤ 0.01 .

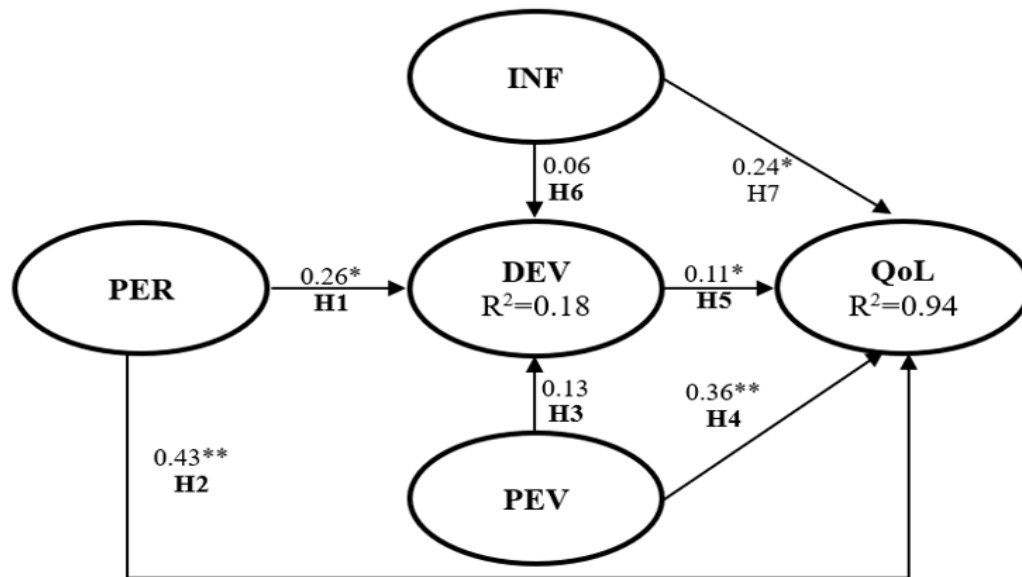


Figure 1.

Final SEM of factors influencing QoL.

Note: $\chi^2=189.54$, $df=215$, $p=0.89$, SRMR=0.03, CFI=1.00, GFI=0.97, AGFI=0.95, NFI=0.97, RMSEA=0.00,
*Sig. $\leq .05$, **Sig. $\leq .01$

4. Discussion

The study's results highlight the significant influence of various factors on urban development and quality of life (QoL) in rural Thai provinces. Each latent variable demonstrated distinct impacts on these outcomes, as evidenced by the hypothesis testing results. This section discusses the findings in detail, integrating current theoretical perspectives.

4.1. Personal Characteristics (PER) Testing

Hypothesis testing for Personal Characteristics (PER) supported both H1 and H2. H1 posited that PER directly influences DEV, which was positive but weak ($r = 0.26$, t -value = 2.53, $p \leq 0.05$). Additionally, H2 exhibited a positive and moderate relationship with QoL ($r = 0.43$, t -value = 3.29, $p \leq 0.01$).

Moreover, Table 6's descriptive statistics showed Roi Et Province residents felt that PER was most influenced by gender (x1) and relationships (x4). This finding is consistent with recent studies which highlighted the importance of gender and community relationships in perceptions of QoL [13], [26].

4.2. Personal Environment (PEV) Testing

Hypothesis testing for Personal Environment (PEV) revealed mixed results. H3, which hypothesized that PEV directly influences DEV, was not supported. However, H4, which posited that PEV directly influences QoL, was supported, showing a weak but positive relationship ($r = 0.36$, t -value = 2.93, $p \leq 0.01$). Additionally, Table 6's descriptive statistics showed Roi Et Province residents rated their environment highly (mean = 4.11, SD = 0.26). Factors such as residence and neighborhood (x5), family (x6), values and culture (x7), and technology and communications (x8) were considered important. These results align with the Social Determinants of Health (SDH) framework, whose factors significantly affect their health and QoL⁶. Therefore, the significant correlation between PEV and QoL reinforces this framework, emphasizing the critical role of a supportive and enriching environment.

4.3. Individual Factors (INF) Testing

Hypothesis testing for Individual Factors (INF) also provided mixed results. H6, which posited that INF directly influences DEV, was not supported. However, H7, which hypothesized that INF directly influences QoL, was supported ($r = 0.24$, $t\text{-value} = 2.33$, $p \leq 0.05$). Moreover, Table 6's descriptive statistics showed Roi Et Province residents highly valued INF (mean = 4.07, SD = 0.24). Self-Determination Theory (SDT) also suggests that individuals have innate psychological needs essential for growth and well-being: autonomy, competence, and relatedness [27]. The significant correlation between INF and QoL supports this theory, indicating that personal factors and societal roles are factors in an individual's sense of well-being and QoL. These findings are consistent with a study in Myanmar, where the authors reported that elderly income and intimate friendships influence QoL perceptions [28]. Their education levels and marital status also contributed to environmental domains, psychological health, and social relationships.

Table 6.
Latent and observed variables descriptive statistics.

Latent/Observed variables	Mean	SD	Level	Skewness	Kurtosis
Personal characteristics (PER)	4.12	0.22	4	-0.129	0.246
Personal environment (PEV)	4.11	0.26	4	0.228	-0.048
Individual factors (INF)	4.07	0.24	4	0.243	0.344
Urban development (DEV)	4.19	0.19	4	-0.245	0.364
Quality of life (QoL)	4.11	0.21	4	0.215	0.074
Personal characteristics (PER)	4.12	0.22	4	-0.129	0.246
Gender (x1)	4.17	0.35	4	-0.908	1.448
Age (x2)	4.09	0.29	4	-0.319	0.443
Education (x3)	4.10	0.31	4	0.119	0.043
Relationships (x4)	4.12	0.36	4	-0.122	-0.141
Personal environment (PEV)	4.11	0.26	4	0.228	-0.048
Residence and neighborhood (x5)	4.10	0.36	4	-0.441	0.678
Family (x6)	4.10	0.31	4	0.002	-0.425
Values and culture (x7)	4.13	0.32	4	0.093	-0.347
Technology and communications (x8)	4.08	0.38	4	-0.255	0.082
Individual factors (INF)	4.07	0.24	4	0.243	0.344
Society (x9)	4.10	0.37	4	-0.360	2.245
Government officials (x10)	4.04	0.37	4	-0.138	0.224
Businessmen/entrepreneurs (x11)	4.07	0.33	4	-0.388	0.810
Politicians (x12)	4.08	0.33	4	-0.099	-0.285
Urban development (DEV)	4.19	0.19	4	-0.245	0.364
Physical condition (y1)	4.26	0.30	4	-0.343	0.236
Management (y2)	4.22	0.32	4	-0.254	-0.173
Services and welfare (y3)	4.17	0.30	4	-0.321	-0.209
Law and regulations (y4)	4.13	0.34	4	-0.329	0.143
Quality of life (QoL)	4.11	0.21	4	0.215	0.074
Physical health (y5)	4.08	0.37	4	-0.626	1.059

Latent/Observed variables	Mean	SD	Level	Skewness	Kurtosis
Mental health (y6)	4.09	0.32	4	-0.388	0.689
Social life (y7)	4.13	0.28	4	-0.082	-0.515
Financial conditions (y8)	4.10	0.37	4	-0.087	-0.469
Environmental quality (y9)	4.16	0.36	4	-0.086	-0.089
Safety of life and property (y10)	4.10	0.36	4	-0.123	0.181
Employment and income (y11)	4.11	0.33	4	0.081	-0.260
Recreation and self-development (y12)	4.09	0.32	4	-0.072	0.541

Note: '4' indicated 'strong agreement' (3.51–4.50).

4.4. Urban Development (DEV) and Quality of Life (QoL)

The direct influence of DEV on QoL was examined in H5. The hypothesis was supported, showing a positive relationship ($r = 0.11$, $t\text{-value} = 1.96$, $p \leq 0.05$). This finding underscores the critical role of DEV in enhancing the overall QoL for residents. Table 6 illustrates that respondents rated urban development variables such as physical condition (y1), management (y2), services and welfare (y3), and law and regulations (y4) highly (mean = 4.19, SD = 0.19). This suggests a strong agreement on the importance of urban development in improving QoL. The New Urbanism theory advocates for developing walkable, mixed-use communities that promote a higher QoL [29].

The correlation between DEV and QoL supports this theory, suggesting that well-planned urban development can positively influence residents' well-being. The findings of this study emphasize the significant roles that personal characteristics, personal environment, individual factors, and urban development play in influencing both urban development and QoL in rural Thai provinces. This aligns with Puttikankit, who found that elderly exercise is crucial for enhancing QoL in Thailand's northern Chiang Mai Province for both rural and urban residents [30]. These insights provide valuable information for policymakers and urban planners aiming to enhance public services and overall well-being in these regions.

5. Conclusion

The study's SEM analysis provided insights into the interrelationships among latent variables. A GoF assessment and CFA validated the model's strength before SEM analysis. Using LISREL 9.1 on data from 400 respondents, we found that causal variables positively influenced urban development (DEV) and quality of life (QoL), with a combined R^2 of 72%.

The correlation matrix highlights how personal, environmental, and societal factors shape QoL. Improvements in one area can positively affect others; for example, enhancing the personal environment through better housing and social support can improve overall QoL.

These findings are crucial for policymakers and urban planners developing strategies that address multiple aspects of well-being. Recognizing factor interplay can lead to more effective interventions, fostering environments that promote healthy, fulfilling, and prosperous lives.

The results align with recent studies emphasizing supportive environments and individual factors in enhancing QoL [13], [26] and resonate with principles of good governance outlined by the United Nations Development Programme [31]. However, in Northeastern Thailand, farmer engagement in sustainable land management has been challenged by changing contexts, leading to stress and lower life quality [32].

5. Future Research Suggestions

To enhance future research, we suggest incorporating in-depth interviews, community focus groups, non-participatory observation, or mixed-methods approaches combining content analysis to

gain deeper insights into the factors influencing QoL in diverse settings.

6. Limitations

This study has several limitations. First, it focuses on a single rural province in northeastern Thailand, which may not reflect experiences in other regions or urban areas like Bangkok. Second, the cross-sectional design limits causal inference. Third, the survey instruments were not validated for the cultural context of rural Thai populations, possibly affecting data accuracy and reliability. Finally, despite assurances of anonymity, participants may have given socially desirable responses, introducing response bias.

Authors' Contributions:

Conceptualization — W.T., W.S., S.S., & R.S.; Methodology — W.T., W.S., S.S., & R.S.; Software - W.T., & W.S.; Validation - W.T., W.S., R.S. & S.B.; Formal Analysis — W.T., R.S. & S.B.; Investigation — S.S., R.S. & S.B.; Resources - W.T., R.S. & S.B.; Data Curation - W.T., & R.S.; Writing — Original Draft — W.T., & R.S.; Writing — Review & Editing — W.T., W.S., & R.S.; Visualization - W.T., & W.S.; Supervision — W.S., S.S., & R.S.; Project Administration - W.T., W.S., S.S., & R.S.; Funding Acquisition - N/A. All authors have read and agreed to the published version of the manuscript.

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