Development of Quality of Life Instrument for Urban Poor in The Northeast of Thailand

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Background: *Measuring the quality of life is important for evaluation and prediction of life and social care needs. To evaluate Quality of Life (QOL) in an urban poor population in northeast of Thailand, the Urban Poor Quality of Life (UPQOL) instrument was developed.*
Objective: *To develop an initial instrument to measure urban poor QOL.*
Material and Method: *The development was started with literature review and investigated in urban poor communities. The results were transformed into the items required to build a structured questionnaire. Five hundred twenty three subjects, representatives of urban poor, were selected to test this instrument. Descriptive statistics described feature of items and the samples, exploratory factor analysis conducted the items score, and confirmatory factor analysis conducted the construct validity.*
Results: *The result found that the UPQOL instrument consisted of nine domains (education, income and employment, environment, health, infrastructure, security and safety, shelter and housing, civil society and political, and human rights domains) with egien value rank from 1.5 to 4.2 and 61 items with the factor loading rank from 0.41 to 0.82. The internal consistency was 0.92. The correlation between items to domain ranged from 0.30 to 0.72 and domains to overall QOL ranged from 0.27 to 0.84. Confirmatory factor analysis showed that the structure fit all domains well. Domains and overall structure were good with CFI (> 0.95).The internal consistency value ranged from 0.73-0.93. UPQOL scores were able to discriminate groups of subjects with differences levels of QOL.*
Conclusion: *The UPQOL instrument is conceptually valid. The results support good validity and reliability. It forms the basis for future testing and application in other settings.*

Keywords: *Quality of life, Urban Poor, Slum, Thailand*

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The rapid growth of urban poor areas has largely contributed to the social, economic, and environmental problems in urban poor areas. Estimates by UN-HABITAT (United Nations Human Settlements Programme) suggest that some 38% of the population of developing-country cities live in slums, with total slum populations numbering 126 million persons in Africa, 433 million in Asia, and 87 million in Latin America[1]. The urban poor area or slum is the place where poor people struggle to make a living and bring up their families[1,2]. Poor urban slum dwellers tend to suffer more from environmental and infectious illnesses including infant mortality, child growth, and infectious disease risk[2,3]. Death rates for diarrhea, measles, and TB among urban poor children can be up to 100 times higher than for their counterparts in industrialized countries[4]. Poverty, crowded living conditions, outdoor and indoor pollution, and food insecurity are among the factors causing ill health[5,6]. The poor usually also have a "low quality of life".

WHO defines Quality of Life as "an individual's perception of their position in life in the context of the culture and value systems in which they

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live and in relation to their goals, expectations, standards and concerns"[7]. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships, and their relationship to salient features of their environment[8]. Terms of QOL have been used in many ways and many QOL instruments were conducted[9]. Two widely used instruments to measure QOL were the World Health Organization Quality of life (WHOQOL) indicator[7] and the Medical Outcomes Study SF-36 Health survey (SF-36) indicator[10,11]. Both indicators are designed for measuring QOL of patients with diseases such as cancer, tuberculosis, and heart disease[12]. Recent thinking debate on QOL, suggested that there is more to QOL than income alone[13,14]. Health, education, political freedom, and environment are all important components of QOL[15]. These factors are bound to each other, and to income, in a complex network of two-way relationships[5,16]. The relation between poverty and poor health is well established. The urban poor have more medical illness and mental illness, emotional distress, and physical pain[17].The multi-dimension of life's condition of the urban poor clearly shows that it is necessary to study "Quality of Life of the urban poor" to get a better understanding of their situation and to be able to help them in improving their life. However, presently appropriate tools for measuring QOL of the urban poor are rare. The present study attempts to develop an initial tool to measure urban poor QOL in Thailand. Despite the rapid spread of urbanization and urban poverty, the political, social, and economic situation disregarded the unfortunate development. The openness to new ideas that could have solved the problem does not exist. The implication of the present study might be far-reaching and might be felt in even the most remote parts of urban poor. As the world changes quickly, there is a need to make sure that the urban poor benefits and do not fall further behind.

Material and Method

Establishing the initial UPQOL structure

Two steps of conducted UPQOL. Firstly, a literature reviewed the concept of QOL. An in-depth literature search was conducted using terms (QOL/ Urban poor/Slum/QOL of the urban poor/Health of the urban poor) to gather relevant information for the initial framework. Four types of sources were used during the literature search. The first was academic electronic databases. The second was journals and books in Thai university Libraries. The third was Internet search. The last was searching special materials in organizations. Those search yielded a list of 22 QOL tools with 134 domains. Secondly, two urban poor community were investigated (Teparuk Community, Khon Kaen and Rod Fai Community, Nakorn Ratchasrima) for six months. The findings were aggregated. Then, three experts tested content validity. The experts were asked to comment on the initial domain model and items. The results of the panel meeting were used to produce the domains and items structure that guided the drafting of the UPQOL.

Draft items

Items of the UPQOL were supposed to be indicators of QOL. The items were written in wordings that were commonly used in the daily life communication. The items were phrased in the form of questions asking about frequency, satisfaction, perception, and feelings where appropriate. Subjects could rate the items with a set of three point rating scales (good, moderate, or poor). The three response scales were selected for this measurement tool because the urban poor have a rather low education and were unfamiliar with the rating scales. A very detailed scale of five or seven may be difficult for them to justify. Another point was that the three response scales, especially middle scale, could be used as a reference to compare the higher or lower level of each item. It was confirmed by the study of Van-Nieuwenhuizen[19], using the fixed three point scale (disagree, no opinion, agree) to assess the degree to which an individual can envision his/her life as having some meaningful perspective and fulfillment. This scale assesses whether an individual has derived a set of life goals from their live. The response scales ranged from one to three. For most items, score 1 referred to the lowest QOL and 3 referred to the highest QOL.

Questionnaire pretest

The six urban poor representatives from two communities were invited as reviewers. The aim of this stage was to ask for their suggestions and identified items that did not fit with their livelihood. Furthermore, the items that affected their feelings were deleted. Then, convenience samples of 35 people within an urban poor area were recruited to test domains and indicators of the questionnaire. In the field test, all of the subjects were interviewed and asked to answer a set of questionnaires that consisted of the items of UPQOL. Then, the UPQOL measurement tool was

employed to test reliability. The Cronbach's alpha coefficient was 0.92.

Subjects and field test

Five hundred twenty three urban poor in five provinces in the northeast of Thailand including Nakorn Ratchasrima (n = 175), Khon Kaen (n = 156), Ubol Ratchathanee (n = 75), Nong Kai (n = 65), and Surin (n = 52), who were 15 years old and over, residing in an urban poor area for more than six months and could communicate in Thai were recruited. The urban poor households were selected using systematic sampling techniques from every urban poor to get the entire spread of urban poor. After identifying eligible subjects, the UPQOL was administered by face-to-face interview.

Build the final UPQOL structure and data analysis

Exploratory Factor Analyses (EFA) using Principal component extraction method with Varimax rotation and Eigen value > 1. The factor loading ≥ 0.4, factor analysis was used to examine the items in each of the domains[20]. The purpose was to select items that best represented the domains, and to reduce items that did not fit in well with other items in any facets under the domain. Confirmatory Factor Analyses (CFA) was then conducted to confirm the item-facet and facet-domain structure of the domains. Comparative Fit Index (CFI) and the Chi square (X^2) were reported to show the structure fitness. The domains scores were used to test the overall items to domain structure of the UPQOL instrument[21]. The characteristics of the respondents were described as mean standard deviation and percentage. The standardized coefficient Cronbach's alpha analyses were conducted to confirm reliability (SPSS 11.0).

The concept of UPQOL

The initial steps of UPQOL development reviewed and explored the theoretical of QOL. Then, the urban poor community investigation was employed for the urban poor life. However, there were few documents for the urban poor QOL. The context, culture, and economic status were influenced to measure QOL of this group[4]. In conclusion, the concept of UPQOL was based on the theoretical QOL concept and integrated the urban poor life, the culture, the context, and their environment. The focus of the UPQOL were aggregated health, economic, environment, and other contexts that related to their life. The model of UPQOL focused on their need, aspiration, satisfaction, expectation, value, and perception.

The items pool

After revising and reviewing the initial 188 items of 10 domains of UPQOL, 129 items were considered by the researcher based on the expert's judgment. Finally, 100 items of UPQOL were retained, which were a synthesis.

Results

Demographics of the sample in the field study

Five hundred twenty three subjects from five urban poor communities in the northeast of Thailand were recruited for the field study. More than half of them were female (62.2%) (Table 1). The mean age was 44.5 years, ranging from 15 to 86 years. Most of the subjects came from the ethic group of Thai (84.0%). About 77% were married and about 62% had completed primary school.

The final UPQOL structure

A series of EFA and CFA were used to test the appropriateness and structure fitness of the initial UPQOL. The first round of principle component factor analysis was done on 100 items. The items with a factor loading < 0.4 were excluded. Seventy-eight items remained. The income and economic domain was integrated with employment and occupation domain and remanded to income and occupation domain. Further EFA was conducted on the 9 domains and 78

Table 1. Demographic of the samples (n = 523)

Variables	n	%
Age		
Mean (SD)	44.5 (15.90)	
Median (min:max)	43.0 (15:86)	
Sex		
Female	325	62.2
Male	198	37.8
Ethic group		
Thai	438	84.0
Laotian	25	4.7
Cambodian	22	4.2
Myanmar	17	3.2
Vietnamese	4	0.7
No answer	17	3.2
Marital status		
Married	402	76.8
Single	50	9.5
Widow	47	8.9
Separated	13	2.4
Divorced	11	2.1

Table 2. Descriptive statistic and reliability of the UPQOL

Domains	Items (n)	Possible range	Actual range	Mean	SD	Alpha	Item to total correlation
Education	5	5-15	5-15	10.9	2.1	0.71	0.43-0.50
Income and occupational	6	6-18	6-17	11.5	2.0	0.69	0.31-0.51
Environment	4	4-12	4-12	6.9	1.8	0.74	0.30-0.59
Health	13	13-39	14-37	26.5	4.4	0.67	0.30-0.50
Infrastructure	6	6-18	6-18	11.8	2.7	0.84	0.52-0.70
Security and safety	9	9-27	9-27	17.3	3.3	0.81	0.34-0.65
Shelter and housing	6	1-18	6-18	12.1	2.4	0.72	0.39-0.60
Civil and political	7	7-21	7-21	14.8	2.9	0.79	0.48-0.58
Human right	5	5-15	5-15	11.3	2.5	0.83	0.57-0.72
UPQOL	n = 61	61-183	76-171	123.4	16.9	0.92	0.30-0.78

items. The authors excluded the items that had a factor loading < 0.4. Sixty-one items in nine domains were synthesized. The final model of UPQOL consisted of 61 items in nine domains with the mean score of 123.4 (SD = 16.9) and standardized coefficient Cronbach's alpha value of 0.93. The items had a total correlation ranging from 0.30 to 0.78. The Cronbach's alpha coefficient value of UPQOL also indicated high internal consistency (0.92) and the nine domains subscales had alpha coefficient ranging from 0.67 to 0.84 (Table 2). The factor loading of nine domains were greater than 0.4 (fig. 1) and egien value was greater than 1 (Table 3). The factor loading of 61 items were greater than 0.4 (Table 4). The CFA of UPQOL showed best-fit data. The chi square values of the nine domains of UPQOL showed non-significant. A non-significant Chi-square indicates a good model fit. Whereas, the GFI of the UPQOL was greater than 0.98. While, the standard RMR values of UPQOL lower than 0.02. Therefore, the conducts of all items to domain structures of UPQOL were supported. The nine domains structure of the UPQOL was also supported by confirmatory factor analysis. The CFI of the nine domains were greater than 0.9. The final structure of UPQOL consisted of 9 domains and 61 items (Table 5).

Table 3. Egien value of 9 domains

Domains	Eigen value
Education	1.5
Income and occupational	2.6
Environment	2.6
Health	2.1
Infrastructure	1.5
Security and safety	4.1
Shelter and housing	4.2
Civil and political	2.6
Human right	3.0

Discussion

The Cronbach's alpha coefficient value of UPQOL also indicated high internal consistency (0.92) and the nine domains subscales had alpha coefficient rank from 0.67 to 0.84. The rank of Cronbach's alpha coefficient also indicated the good internal consistency of the UPQOL instrument, which was supported by DeVellis[22] who suggested that 0.70 or higher is sufficient. The correlation values of UPQOL were ranking from 0.38 to 0.85. Ferketich and Muller[23] confirmed that the item correlation of greater than 0.30 mean that the item could explain the instrument and fit for the domain. The factor loading of the nine domains in the present study were greater than 0.4. Similarly, Hair[24] suggested that the factor loading with greater than 0.30 be considered to meet the minimal significant level. The CFA of UPQOL showed best-fit data. The Chi-square values of the nine domains of UPQOL showed non-significance. A non-significant Chi-square indicates a good model fit. The GFI of the UPQOL is greater than 0.98. Because the desired value for the GFI is greater than 0.90, it mean that it is acceptable and indicates good model fit. The standard RMR values of UPQOL are lower than 0.02. A suggested value for the standardized RMR is lower than 0.08. This indicates a good fit of the model. The RMSEA values of the UPQOL were lower than 0.02. Suggested values for the RMSEA that are lower than 0.06 indicate good fit of the model. The CFI values of UPQOL of 1.00. Value of 0.95 or higher for CFI is indicative of a well-fitting model[19].

Table 4. Factor loading of UPQOL

Domains	Indicators	Factor loading
1. Education domain	1. Satisfies with educational attainment	0.59
	2. Worries about education	0.50
	3. Equal chance to access to education	0.55
	4. Enthusiasm to leaning new things	0.58
	5. Education is important for one's and one's family	0.47
2. Income and occupation domain	6. Satisfies with job	0.73
	7. Have job security	0.42
	8. Worried about job	0.63
	9. Able to work	0.45
	10. Satisfies with income	0.43
	11. Satisfies with economic status	0.61
3. Environment domain	12. Living in a safe and secure environment	0.44
	13. Satisfies with the solid waste management in the community	0.73
	14. Satisfies with quality of air in the community	0.80
	15. Satisfies with quality of water in the community	0.61
4. Health domain	16. Energetic for daily life	0.63
	17. Having enough food or nutrient for daily life	0.63
	18. Regular exercise	0.43
	19. Have concentration	0.45
	20. Enough sleep	0.65
	21. Negative felling such as blue mood, despair, anxiety, and depression	0.45
	22. Having opportunity for leisure activities	0.44
	23. Satisfies with sexual life	0.46
	24. Satisfies with oneself	0.51
	25. Satisfies with one' health	0.42
	26. Enjoy life	0.53
	27. Having hope for the future	0.68
	28. Being useful for self and others	0.57
5. Infrastructure domain	29. Accessibility to school	0.45
	30. Accessibility to hospital	0.76
	31. Accessibility to fire station	0.78
	32. Accessibility to police station	0.80
	33. Accessibility to public phone	0.62
	34. Accessibility to post station	0.50
6. Security and safety domain	35. Free from accident	0.45
	36. Free or safety from being taken advantage	0.41
	37. Able to face with terrorism problems	0.41
	38. Secure with security and safety system of the community	0.58
	39. Secure with housing condition	0.68
	40. Secure with education system	0.71
	41. Secure with family and community	0.79
	42. Secure with job and income	0.74
	43. Secure with health delivery system	0.46
7. Shelter and housing domain	44. Comfortable with the housing condition	0.48
	45. Satisfies with one's house	0.45
	46. Safety living in one's house	0.51
	47. Having warming family	0.76
	48. Harmony among household members	0.45
	49. Satisfy with family support	0.50
8. Civil and political domain	50. Getting assistance from others as needed	0.56
	51. Willing to participate in community activities	0.62
	52. Happy to join community activities	0.63
	53. Good relationships with community members	0.67
	54. Getting support or aids from foundation or organization during crisis	0.53
	55. Being treated equitably by the government	0.47
	56. Freedom for vote	0.54

Table 4. Factor loading of UPQOL (cont.)

Domains	Indicators	Factor loading
9. Human right domain	57. Freedom of citizen	0.64
	58. Freedom or speech, lifestyle and access to necessity commodity and public services	0.71
	59. Freedom and no discrimination on religion	0.82
	60. Freedom for joining protest or rally	0.68
	61. Free from prisoners or strangers	0.65

Table 5. Structure fitness of items, domains and the over all structure

Domain	Item (n)	X^2	df	p-value	RMSEA	Standard RMR	CFI	GFI
Education	5	0.67	2	0.71	0.00	0.01	1.00	1.00
Income and occupation	6	4.11	8	0.84	0.00	0.01	1.00	1.00
Environment	5	1.13	2	0.56	0.00	0.01	1.00	1.00
Health	12	55.26	41	0.06	0.02	0.02	1.00	0.98
Infrastructure	6	3.42	4	0.48	0.00	0.01	1.00	0.99
Security and safety	9	27.49	18	0.07	0.03	0.02	1.00	0.99
Shelter and housing	6	7.40	4	0.11	0.04	0.02	1.00	1.00
Civil and political	7	15.40	10	0.11	0.03	0.02	1.00	1.00

The UPQOL was conducted in Thai culture. In a review of available approaches to quality of life assessment of M. Power, it was found that most instruments have been constructed in one culture and language and then translated into other target languages (e.g., the Nottingham Health Profile, the Sickness Impact Profile, and the Medical Outcomes Study Short Form-36)[25]. The importance of cross-cultural studies is that they can provide theoretical insights into whether QOL is a universal or relativistic concept and the degree of its importance and use, both between and within geographical and respondent groups and the best measurement approach to use[26,27]. In a future study, it is essential to develop instruments that assess UPQOL across cultures.

Limitations

The investigation in the urban poor community lasted for six months. It was quite limited because some in-depth information needed more times to ensure the time variation of the data. The items in the UPQOL instrument came mainly from conversation with the urban poor. The participants mostly had limitation of their time due to their work conditions. Many of them worked at night and rested during the daytime, which made it harder to get access to them.

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References

1. UN-HABITAT. The challenge of the slums: Global report on human settlements. Nairobi: United Nations; 2003.
2. McDade TW, Adair LS. Defining the "urban" in urbanization and health: a factor analysis approach. Soc Sci Med 2001; 53: 55-70.
3. Gulis G, Mulumba JA, Juma O, Kakosova B. Health status of people of slums in Nairobi, Kenya. Environ Res 2004; 96: 219-27.
4. Mendes JF, Motizuki WS. Urban quality of life evaluation scenarios: The case of S□o Carlos in Brazil. Brazil: University of S□o Paulo, Brazil; 2001.
5. Coronini-Cronberg S, Laohasiriwong W, Gericke

CA. Health care utilisation under the 30-Baht Scheme among the urban poor in Mitrapap slum, Khon Kaen, Thailand: a cross-sectional study. Int J Equity Health 2007; 6: 11.
6. Unger A, Riley LW. Slum health: from understanding to action. PLoS Med 2007; 4: 1561-6.
7. The WHOQOL Group. The World Health Organization Quality of Life assessment (WHOQOL): position paper from the World Health Organization. Soc Sci Med 1995; 41: 1403-9.
8. Colver A. Study protocol: SPARCLE - a multi-centre European study of the relationship of environment to participation and quality of life in children with cerebral palsy. BMC Public Health 2006;6:105.
9. Asadi-Lari M, Javadi HR, Melville M, Oldridge NB, Gray D. Adaptation of the MacNew quality of life questionnaire after myocardial infarction in an Iranian population. Health Qual Life Outcomes 2003; 1: 23.
10. Lamas GA, Orav EJ, Stambler BS, Ellenbogen KA, Sgarbossa EB, Huang SK, et al. Quality of life and clinical outcomes in elderly patients treated with ventricular pacing as compared with dual-chamber pacing. Pacemaker Selection in the Elderly Investigators. N Engl J Med 1998; 338: 1097-104.
11. Mitchell J, Wolffsohn JS, Woodcock A, Anderson SJ, McMillan CV, Ffytche T, et al. Psychometric evaluation of the MacDQoL individualised measure of the impact of macular degeneration on quality of life. Health Qual Life Outcomes 2005; 3: 25.
12. Phattharayuttawat S, Ngamthipwatthana T, Pitiyawaranun B. The development of the Pictorial Thai Quality of Life. J Med Assoc Thai 2005; 88: 1605-18.
13. Easterlin RA. Income and happiness: towards a unified theory. Econ J 2001; 111: 465-84.
14. Moody LE, McMillan S. Dyspnea and quality of life indicators in hospice patients and their caregivers. Health Qual Life Outcomes 2003; 1: 9.
15. Reed PJ. Medical outcomes study short form 36: testing and cross-validating a second-order factorial structure for health system employees. Health Serv Res 1998; 33: 1361-80.
16. Marpalad-Ruane MC, Rodringuez CB. Measuring urban well-being race and gender matter. Am J Econ Sociol 2003; 62: 461-83.
17. Mauksch LB, Katon WJ, Russo J, Tucker SM, Walker E, Cameron J. The content of a low-income, uninsured primary care population: including the patient agenda. J Am Board Fam Pract 2003; 16: 278-89.
18. Andrulis DP. Community, service, and policy strategies to improve health care access in the changing urban environment. Am J Public Health 2000; 90: 858-62.
19. van Nieuwenhuizen C, Schene AH, Koeter MW, Huxley PJ. The Lancashire Quality of Life Profile: modification and psychometric evaluation. Soc Psychiatry Psychiatr Epidemiol 2001; 36: 36-44.
20. Nunnally JC. Psychometric theory. 2nd ed. New York: McGraw-Hill; 1978.
21. Nunnally JC, Bernstein HI. Psychometric theory. 3rd ed. New York: McGraw-Hill; 1994.
22. DeVellis FR. Scale development: theory and application. Newbury Park: Sage; 1991.
23. Ferketich S, Muller M. Factor analysis revisited. Nurs Res 1990; 39: 59-62.
24. Hair JF, Anderson RE, Tatham RL, Black WC. Multivariate data analysis. 5th ed. Upper Saddle River, NJ: Prentice-Hall International; 1998.
25. Power M, Harper A, Bullinger M. The World Health Organization WHOQOL-100: tests of the universality of Quality of Life in 15 different cultural groups worldwide. Health Psychol 1999; 18: 495-505.
26. Schalock RL, Verdugo MA, Jenaro C, Wang M, Wehmeyer M, Jiancheng X, et al. Cross-cultural study of quality of life indicators. Am J Ment Retard 2005; 110: 298-311.
27. Luger MI. Quality-of-life- differences and urban and regional outcomes: a review. Housing Policy Debate 1996; 7: 749-71.

การพัฒนาเครื่องมือวัดคุณภาพชีวิตสำหรับคนจนเขตเมืองในภาคตะวันออกเฉียงเหนือของประเทศไทย

พฤฒินันท์ สุฤทธิ์, วงศา เลาหศิริวงศ์, ภัทระ แสนไชยสุริยา, Frank Perter Schelp

ภูมิหลัง: *การวัดคุณภาพชีวิตเป็นสิ่งสำคัญสำหรับประเมินและทำนายชีวิตและความต้องการต่าง ๆ ในสังคม เพื่อประเมินคุณภาพชีวิตของคนจนเขตเมือง การศึกษาครั้งนี้ จึงเป็นการพัฒนาเครื่องมือ วัดคุณภาพชีวิตสำหรับคนจนเขตเมืองในภาค ตะวันออกเฉียงเหนือ ของประเทศไทย*

วัตถุประสงค์: *เพื่อพัฒนาเครื่องมือวัดคุณภาพชีวิตสำหรับคนจนเขตเมือง*

วัสดุและวิธีการ: *การพัฒนาเครื่องมือเริ่มต้นจากการทบทวนวรรณกรรมและการสืบค้นข้อมูลในพื้นที่คนจนเขตเมือง นำผลที่ได้มากำหนดเป็นตัวประกอบและข้อประเมิน จากนั้นสร้างเป็นแบบสอบถาม ทำการทดสอบแบบสอบถามโดยตัวแทนคนจนเขตเมืองจำนวน 523 คน วิเคราะห์ข้อมูลทั่วไปโดยสถิติเชิงพรรณนา การวิเคราะห์ตัวประกอบเชิงพรรณนาและเชิงยืนยัน เพื่ออธิบายค่าคะแนนของข้อประเมินและความตรงเชิงโครงสร้าง*

ผลการศึกษา: *พบว่าเครื่องมือที่พัฒนาขึ้นประกอบด้วย 9 ตัวประกอบ (การศึกษา รายได้และการจ้างงาน สิ่งแวดล้อม สุขภาพ สิ่งจำเป็นพื้นฐาน ความมั่นคงและความปลอดภัย บ้านและที่อยู่อาศัย สังคมและการเมือง และสิทธิมนุษยชน) ที่ค่า egien มีค่าตั้งแต่ 1.5 ถึง 4.2 และ 61 ข้อคำถามที่มีค่าสัมประสิทธิ์องค์ประกอบมีค่าระหว่าง 0.41 ถึง 0.82 ค่าความสอดคล้องภายในแต่ละตัวประกอบมีค่าเท่ากับ 0.92 ค่าความสัมพันธ์ระหว่างข้อคำถาม กับองค์ประกอบมีค่าระหว่าง 0.30 ถึง 0.72 และในแต่ละตัวประกอบกับเครื่องมือมีค่าระหว่าง 0.27 ถึง 0.84 การวิเคราะห์ตัวประกอบเชิงยืนยันพบว่าโครงสร้างในแต่ละตัวประกอบเข้ากันได้ดี ค่าความสอดคล้องเชิงสัมพัทธ์ในแต่ละตัวประกอบมีค่ามากกว่า 0.95 ค่าความสอดคล้องภายในมีค่าระหว่าง 0.73 ถึง 0.93 ค่าวัดคุณภาพ ชีวิตสามารถแยกกลุ่มที่มีคุณภาพชีวิตที่แตกต่างกันได้*

สรุป: *เครื่องมือวัดคุณภาพชีวิตของคนจนเขตเมืองมีความสอดคล้องกับแนวคิดของคุณภาพชีวิต ผลการศึกษาพบว่าเครื่องมือมีความตรงและความเที่ยงที่ดี อย่างไรก็ตามเครื่องมือยังคงต้องการการพัฒนาในอนาคตต่อไป*