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RESEARCH ARTICLE

Urban Quality of Life: Instrument Reliability and Validity

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Abstract

Quality of Life (QoL) is widely examined in different disciplines, presenting considerable differences in methodology and results among them. The multitude of factors from various literature on what constitutes quality of life make QoL analysis complex. Using Exploratory Factor Analysis (EFA), this research not only provided an empirical basis for the validity and reliability of the QoL instrument developed, but also reduced the complexity of QoL variables and the relationships among them by determining smaller number of constructs that underlie such relationships. The 47-item questionnaire under validation study used a 6-point Likert scale, and was administered to 613 respondents in Quezon City, Philippines. Inter-item correlations, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, Bartlett's Test of Sphericity, and communalities provided empirical evidence that supports the factorability of the 47-item scale. The reliability of the scale was established using Cronbach Alpha, and results suggest 7 criteria of urban QoL. The urban QoL instrument developed in this study was proven to be reliable and valid, hence, can be further validated in other countries or used in evaluating quality of life in different urban setting in the Philippines.

***Keywords*:** urban quality of life; instrument development; factor analysis

1. Introduction

More than half of the world population are urban settlers. Although the growing number of urban inhabitants favorably contribute to economic activities, the overcrowding of cities most especially in developing nations pose uncertainty in the overall quality of life of urban settlers. This calls for a continuous evaluation of communities and people's well-being in the urban areas. These evaluations can help policymakers in developing effective strategies that will manage and temper the negative effects of urbanization.

Quality of Life (QoL) was considered by many as a universally accepted theoretical framework in evaluating communities. The concept was measured in various ways and defined differently by many scholars in diverse disciplines. Some studies assess quality of life in a macro perspective such as a country's QoL, while others in a micro perspective such as the life condition of an individual. This paper is focused on the quality of life in the Philippine urban setting and utilizes the life satisfaction approach to assess individual well-being. Hence, QoL in this research reflects the life conditions and perceived satisfaction of urban dwellers, rather than a country's

QoL. The life satisfaction approach functions under the premise that a satisfied individual has a good quality of life, and this is only possible if the individual achieved his ideal life conditions (Mohit, 2014).

There are many indices around the world that attempted to measure quality of life, such as the Happiness Planet Index (HPI) of Britain, Gallup-Healthways Wellbeing Index of the United States, Gross National Index of Bhutan, and many others. However, there is very scant research focusing on quality of life in the Philippines. There are plenty of variables that were used to measure quality of life as suggested by various scholars, from economic, political, social, cultural, environmental, and even spiritual. These variables have different nature and sometimes contradict each other. Although relatively greater economic activities in urban areas have their advantages, it can be argued that economic benefits of urbanization can have adverse effects on social and environmental aspects of life. Hence, it is important to evaluate these urban areas and determine the effective and optimal way of providing quality of life to the populace.

The primary emphasis of this research is to provide an empirical basis for the validity and reliability of a constructed QoL instrument. With a multitude of factors coming from various literature on what constitutes quality of life, the objective of this paper is to reduce the complex analysis of these variables and the relationship among them by determining the smaller number of constructs that underlie such relationships. The purpose of this research was to design a valid and reliable instrument that can assess quality of life in the Philippine urban setting.

2. Literature Review

2.1. Quality of Life and Subjective Well-Being

Quality of life is a multidimensional concept, defined by various scholars from different disciplines in different regions around the world. This concept should not be confused with income or standard of living because quality of life is not reflected by living conditions alone, as people's assessments go beyond life's material aspect (Delhey & Steckermeier, 2016; Marsal-Llacuna et.al., 2014; Soltes, V., & Novakova, B. 2015; Keles, 2012). According to Stiglitz, Sen and Fittoussi, QoL can be quantified using three approaches. The first approach considers subjective well-being, the second is based on individual abilities and the individual's freedom to choose between these abilities, and the third considers the economic condition and fair allocation of resources (Soltes, V., & Novakova, B. 2015). QoL, life satisfaction and well-being were used interchangeably and inconsistently in various studies (Bakar et.al., 2016; Uysal et.al., 2015; Dolnical, et.al., 2012), together with the concepts of happiness, a 'good life' and utility. QoL or well-being refers to the dynamic process that leads to better conditions of life (Bakar et.al., 2016). Many studies used self-reported life satisfaction as a measurement of well-being or quality of life (McKerron, & Mourato, 2009; Soltes & Novakova, 2015).

Life satisfaction approach (LSA) is a nonmarket valuation technique that was built on current developments of economic researches focused on well-being. In this approach, self-reported satisfaction is used as empirical estimations of individual welfare (Frey, B.S., et. al., 2010). The satisfaction hierarchy model used by Dolnicar, et. al. (2012) guides this research in designing an instrument that will assess urban quality of life. This model works under the premise that the satisfaction from different life domains of an individual such as income, family, personal

health, employment and love, all contribute to, and is functionally related to his overall life satisfaction (Dolnical, et.al., 2012). Subjective Well-being (SWB) is not evaluated in terms of objective measures such as income and wealth. SWB, or one's happiness, can be evaluated through individual self-reported satisfaction, which are based on perceptions of happiness and experienced emotions in various well-being domains. (Tay, et. al., 2014).

Life satisfaction measures are important because they provide insight as to the kind of life people have. These may not be captured by economic indicators of well-being such as income and employment. Noise and air pollution, traffic congestion, and availability of green spaces were found to have association with levels of life satisfaction, however, these factors are often not included in economic quality of life measurements (Diener, et.al., 2012).

2.2. Quality of Life Indicators

Various scholars from different disciplines used welfare as a measurement of quality of life. These welfare indicators can be categorized into four dimensions: economic, social, environmental and political. Economic QoL indicators are physical properties or frequencies that reflect the human material living conditions. Scholars used economic indicators such as financial condition like income & purchasing power (Leknes, 2015; Glebova and Khabibrahmanova, 2014; Poldaru & Roots, 2014), assets (Greco et. al., 2015) and debt (Becchetti & Conzo, 2013); employment (Poldaru & Roots, 2014; Glebova and Khabibrahmanova, 2014), quality of work life (Narehan et.al., 2014), degree of urbanization (Dadashpoor & Khalighi, 2015), food prices (Badland et.al., 2014); leisure (Marans, 2012); energy source (Lambert et.al., 2014); public amenities (Dadashpoor & Khalighi, 2015); and dependencies (Mohit, 2013).

Analyzing the quality of life of urban dwellers cannot be wholly explained by material conditions alone such as assets, opportunities, and physical infrastructure but the satisfaction with different urban attributes and social conditions. Social welfare indicators refer to social conditions such as education, health, and domestic and community relationships, that reflect the capability and inclination of the people to participate in socio-economic activities. Social conditions such as access to education (Badland et.al., 2014) and quantity (Poldaru & Roots, 2014) and quality of education (Dadashpoor & Khalighi, 2015), quantity and quality of health services (Sores & Peto, 2015) , obesity, depression, physical activity, hypertension, diabetes, chronic kidney disease, stroke (Chen et.al., 2017), social and recreational resources and activities (Dadashpoor & Khalighi, 2015), communication (Mohit, 2013), community networks and social participation (Badland et.al., 2014), cultural resources and activities (Badland et.al., 2014), religious activities and spirituality (Panzini et.al., 2017), family institutions (Delhey & Steckermeier, 2016; Mohit; 2013), social security (Dadashpoor & Khalighi, 2015), are used by different scholars to assess quality of life.

Quality of life also depends on the environment. Environmental welfare indicators refer to the conditions of the natural and physical features of the urban infrastructures and environment that contribute to the quality of life. Different scholars analyzed life quality through environmental indicators such as natural amenities like climate (Dadashpoor & Khalighi, 2015), air quality (Ebrahimzadeh et.al., 2016), noise pollution (Badland et.al., 2014), pro-environment behavior (Eusuf et.al., 2014), mobility and access to space and public amenities such as parks and green spaces (Szoltysek & Orteba, 2016), energy quality and renewable energy sources (Lambert,

et.al., 2014), transport efficiency (Eusuf et.al., 2014), public safety (Von Wirth et.al., 2014), congestion (Ewing et.al., 2018), and residential quality and amenities (Bakar et.al., 2016; Badland et.al., 2014).

The ability of the government and public institutions to fulfil the citizen's purpose in life is referred to as governance. Governance contributes to the ability of the people to transform their financial and physical wealth and opportunities into valuable personal life benefits, thus improving their life quality. Various research measured governance in terms of different political indicators such as corruption (Bakar et.al., 2016), quality of government services (Weziak-Bialowolska, 2016), government assistance in times of uncertainties and disasters (Liang & Cao, 2015), the involvement of citizens in political activities such as elections (Marans, 2012), and other forms of participation of citizens in policymaking and the decision making process that will benefit the community in which they live (Madianou et.al., 2015). These, according to scholars, reflect the freedoms of citizens, and their self-worth (Delhey & Steckermeier, 2016).

The instrument tested for validity and reliability in this research was designed to capture all the quality of life variables used by different literature.

3. Research Design and Method

This descriptive research utilized a survey instrument that provides a systematic description of living conditions in urban areas in the Philippines and the perceived life satisfaction of individuals as reflected in their assessment of their respective life conditions. The instrument was administered to 613 urban settlers in the Philippines. The respondents in the study were selected based on age, which is 18 years old and above, and must be a city resident for at least six months.

A questionnaire was designed to assess quality of life using statements that describe the life condition of an individual. These statements were deduced from economic, social, political and environmental variables that constitute quality of life as mentioned in various literature in different regions around the world. 47 items listed on a 6-point Likert scale was used in the instrument under validation. Option 1 on the scale represented the "strongly disagree category, while the Option 6 represented the "strongly agree" category. The "strongly agree" category suggests that the respondent is very much satisfied in a particular life condition, hence, good quality of life on that item. On the other hand, the "strongly disagree" category suggests complete dissatisfaction of the individual with regards to a specific life condition, hence, poor quality of life.

The empirical evidence that supports the factorability of the 47-item scale were deduced from the inter-item correlations among the 47 items, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, Bartlett's Test of Sphericity, and communalities. There was a need to examine the inter-item correlation coefficients to ensure that most of them are greater than 0.3 (SPSS, 2000). The KMO for both multiple and individual variables/items were examined, subsequently. The KMO values vary between 0 and 1, where values closer to 1 are better. This study utilized the KMO criterion of greater than 0.5 (Field, 2000). To ensure that the correlation matrix is not an identity matrix, the Bartlett's Test of Sphericity was examined. Identity matrix is

a matrix in which all of the diagonal elements are 1 and all off diagonal elements are 0. Factor analysis of the data, therefore, is appropriate if Bartlett's Test of Sphericity is significant ($p<.05$).

To create the factor structure of the 47 items of the scale, the principal axis factoring with promax rotation method was used. Principal axis factoring was utilized since it gives the best results for data that are either normally-distributed or significantly non-normal (Costello and Osborne, 2005). The promax rotation method is practically consistent with the constructs of the scale which are expected to be correlated. In determining the optimum factor solution, the following criteria were used: 1) computation of the percentage of variance extracted, and (2) interpretability of the factors (Comrey & Lee, 1992). The selection of the items to be retained in the final scale was based on the rule of thumb of Tabachnick and Fidell (2001) discussed in Costello and Osborne (2005). Thus, a factor loading with absolute value greater than .32 was considered sufficiently high to assume a strong relationship between a variable and a factor, while factor loadings less than .32 in absolute value were regarded as insignificant and the items containing such loadings were removed from the scale. In addition, items with communalities of less than .40 were not included in the final scale. Moreover, factors with fewer than three items, even with loadings greater than .32, were excluded from the final version of the scale. With respect to determining the number of factors, only factors with eigenvalues greater than 1.0 were considered as significant.

After the factor structure of the scale was established via exploratory factor analysis using the principal axis factoring with promax rotation, the Cronbach's Alpha for each emerging factor was tested. The reliability of each factor was determined by the value of the Cronbach alpha, which should be equal to or greater than 0.7 (Fornell & Larcker, 1981)

4. Results and Discussion

4.1. Descriptive Statistics

Table 4.1 shows the sociodemographic characteristics of the (n=613) respondents who live in the city for at least six months. Most of the survey participants finished college, 61 percent are female, and 39 percent are male. Half of the sample are single, and the rest are either married, separated or widowed. Most of the respondents are employed (with monthly income ranging from 5,000 pesos to 250,000 pesos. The majority of the survey participants (77%) earn between 5,000 pesos to 40,000 pesos per month, who are low to middle income earners. 60 percent claim that they are head of the family, and the number of dependents range from 1 to 8, mostly children (81%). 63 percent have been living in the city for more than 10 years.

Table 4.1

Sociodemographic Characteristics of Urban Dwellers

Income (in Pesos)	%	Educational Attainment	%
below 10,000	14.63	no schooling completed	1.0
10,001-20,000	33.40	nursery to grade 7	1.3
20,001-30,000	18.57	HS diploma	1.5
30,001-40,000	10.13	HS graduate	11.0
40,001-50,000	8.44	some college credit, no degree	7.0
50,001-60,000	5.25	trade/technical/vocational training	5.1
above 60,000	9.57	bachelor's degree	65.3
	100.00	master's degree	5.0
		professional/doctorate degree	2.8
Gender	**%**		100.00
Male	38.69		
Female	61.31	**Employment**	**%**
	100.00	Student	3.60
		paid work	89.73
Civil Status	**%**	unemployed and actively looking for a job	1.26
Single	50.99	unemployed and not actively looking for a job	0.36
Married	43.81	Retired	0.36
Separated	2.33	permanently sick or disabled	0.72
Widowed	2.87	Homework	3.24
	100.00	Others	0.72
			100.00

4.2. Instrument Validity

The computation of the percentage of the variance was extracted to determine the optimum factor solution, together with the interpretability of the factors (Comrey & Lee, 1992). The selection of the items to be retained was based on the rule of thumb of Tabachnick and Fidell (2001) discussed in Costello and Osborne (2005). When a factor loading with absolute value higher than .32, the factor is considered sufficiently high to assume a strong relationship between a variable and a factor. Factor loadings lower than .32 in absolute value were regarded as insignificant, and the items with such loadings were removed from the scale. Table 4.2 presents the factor loadings of all the items in the instrument. In addition, items with communalities of less than .40 were not included in the final scale. Communalities and item KMOs are presented in Table 1 in the appendix. Moreover, factors with fewer than three items, even with loadings greater than .32, were excluded from the final version of the scale, hence, only 37 items were left. Factors with eigenvalues greater than 1.0 were considered as significant.

Table 4.2.

Factor Loadings and Cross-Loadings

	Items	Factor						
		1	2	3	4	5	6	7
S27	Leisure time with friends	**0.807**	-0.086	-0.076	-0.052	-0.025	0.064	0.177
S23	Proximity to health services	**0.762**	0.021	-0.004	0.057	0.061	-0.100	-0.021
S28	Time spent alone	**0.687**	-0.009	-0.077	-0.051	0.106	0.053	0.117
S24	Efficiency of health services	**0.681**	0.174	0.148	-0.010	-0.019	-0.071	-0.112
S29	Access to recreational areas	**0.670**	-0.119	0.041	0.026	-0.044	0.116	0.028
S26	Leisure time with family	**0.667**	-0.040	-0.153	0.006	0.079	0.057	0.183
S25	Health expenditures	**0.639**	0.222	0.106	0.025	-0.138	-0.002	-0.083
S33	Cultural amenities	0.004	**0.831**	-0.094	-0.142	-0.033	0.006	0.189
S32	Access to information	-0.014	**0.736**	-0.051	-0.049	-0.020	-0.098	0.278
S36	Efficiency of government service	-0.054	**0.733**	0.228	-0.026	-0.093	-0.032	0.037
S39	Community engagement	-0.042	**0.732**	-0.054	0.098	0.007	0.099	-0.034
S40	Political participation	0.032	**0.614**	0.041	0.141	0.048	0.079	-0.172
S37	Risk reduction and protection	0.093	**0.565**	0.091	0.160	-0.038	0.032	-0.035
S21	Frequency to green spaces/infrastructure	-0.074	**0.512**	-0.022	-0.165	0.053	0.358	0.079
S38	Humanitarian assistance	0.196	**0.505**	0.017	0.172	0.103	0.013	-0.196
S35	Political freedom	-0.028	**0.499**	-0.162	0.121	0.055	-0.107	0.253
S41	Proximity of your dwelling unit to the school	0.085	**0.410**	-0.059	0.045	0.342	0.004	-0.166
S13	Exposure to noise pollution	-0.004	-0.195	**0.891**	0.101	-0.046	-0.032	0.061
S14	Traffic accidents	0.064	0.055	**0.780**	-0.108	0.101	0.021	0.035
S12	Time spent in traffic	-0.105	-0.007	**0.751**	-0.043	0.135	0.063	-0.052
S15	Incidence of crimes	-0.002	0.193	**0.661**	0.003	0.033	-0.059	0.126
S45	Organizational benefits	-0.044	-0.068	-0.062	**0.890**	0.089	0.007	0.018
S47	Organizational support	-0.122	-0.076	-0.026	**0.745**	0.044	0.073	0.193
S46	Safety in the workplace	0.097	-0.002	0.028	**0.676**	0.045	-0.111	0.040
S43	Disposable income	0.111	0.044	0.116	**0.618**	-0.117	0.037	-0.023
S44	Personal savings	0.041	0.221	-0.016	**0.573**	-0.098	0.085	-0.025
S10	Distance to market by public transportation	0.047	-0.063	0.058	0.016	**0.883**	-0.068	0.016
S8	Distance to public transportation by foot	-0.033	0.027	0.050	-0.059	**0.790**	0.055	0.037
S11	Distance to city center	0.045	0.016	0.060	0.012	**0.761**	-0.024	0.001
S9	Distance to market by foot	-0.072	0.000	0.022	0.083	**0.730**	0.057	0.081
S19	Access to green spaces/infrastructure by bicycle	0.021	-0.036	-0.032	0.002	0.020	**0.928**	0.016
S18	Access to green spaces/infrastructure by foot	0.006	-0.066	0.059	0.145	-0.080	**0.861**	-0.015
S20	Access to green spaces/infrastructure by public transportation	0.048	0.096	-0.101	-0.048	0.183	**0.721**	-0.016
S17	Access to natural amenities	0.129	0.109	0.202	-0.056	-0.131	**0.506**	0.017
S6	Access to clean water	-0.026	0.091	0.059	0.088	-0.005	-0.010	**0.763**
S3	Access to electricity	0.163	-0.036	-0.005	-0.013	0.072	-0.048	**0.700**
S5	Private vehicle ownership	0.031	0.009	0.173	0.016	-0.016	0.148	**0.564**
S31	Internet access	0.024	0.224	-0.021	0.186	0.055	-0.033	**0.401**

	Extraction Method: Principal Axis Factoring. Rotation Method: Promax with Kaiser Normalization.

Exploratory Factor Analysis (EFA) presented seven urban quality of life dimensions with Cronbach Alpha values ranging between 0.801-0.906, which can be found in Table 4 of the appendix. The final factor analysis outcome has seven criteria with eigenvalues more than 1, explaining 68.03 percent of variance in the data. Eigen values and variances can be found in Table 3 of the appendix. The dimensions of the seven criteria are reflected by the factor loadings ranging between 0.401-0.928. The result of this research has proven empirically that the urban quality of life instrument is reliable and valid.

The exploratory factor analysis resulted in seven factors or quality of life dimensions. The author named the factor or dimensions according to the communality of the items that fall under a particular cluster. The 7 QoL dimensions are presented in Table 4.3.

4.3. Quality of Life Dimensions

4.3.1. Factor 1: Access to Health Support and Provision

Item S27 to S25 in Table 4.2 falls under the first dimension: Access to health support and provision, Factor 1 in Table 4.3. This cluster is composed of statements that reflect better health of urban inhabitants as a result of health support and provisions. These health support and provisions may be in the form of (1) public support such as proximity to health services, efficiency of health services, access to recreational areas and affordability of health, and; (2) social support, such as capability to have leisure time with friends and family and having time for oneself. These items provide physical and mental well-being to the individual, hence, self-reported satisfaction in this domain denote better quality of life.

4.3.2. Factor 2: Presence of Community and Government Support and Facilities

Items S33 to S41 in Table 4.2 fall under the second dimension: Presence of community and government support and facilities, Factor 2 in Table 4.3. This cluster is composed of statements that reflect satisfaction of urban inhabitants with regards to the sociopolitical variables which improve quality of life. These items can be considered as social and public support systems that aid urban inhabitants to have a sense of self-identity and belongingness, and political freedom. These items include accessibility to educational facilities and cultural amenities such as museums, libraries and public parks/green spaces, resilience during times of disasters and calamities, ease of access to information like news and current events, being able to participate in the presidential and local elections, and community engagement.

4.3.3. Factor 3: Safety, Security, and Order

Items S13 to S15 in Table 4.2 fall under the third dimension: Safety, security and order, Factor 3 in Table 4.3. This cluster is composed of statements that reflect the satisfaction of urban inhabitants with regards to the safety and security of their physical environment. This dimension includes items such as exposure to noise pollution, how long someone spends time in traffic, and feeling of security as measured by the absence of fear of road accidents or street crimes.

4.3.4. Factor 4: Presence of Opportunities for Economic Empowerment

Items S45 to S44 in Table 4.2 fall under the fourth dimension: Presence of opportunities for economic empowerment, Factor 4 in Table 4.3. This cluster is composed of statements that reflect satisfaction of urban inhabitants with regards to the economic opportunities available. The items under this dimension represent the capability of the urban inhabitant to function with ease with the use of economic opportunities presented to him, not only in a daily basis, but also during times of uncertainty.

4.3.5. Factor 5: Mobility and Access to Market

Items S10 to S9 in Table 4.2 fall under the fifth dimension: Mobility and access to market, Factor 5 in Table 4.3. This cluster is composed of statements that reflect satisfaction of urban inhabitants with regards to their access to the market. These include their perceived proximity to the market and urban spaces that may affect their quality of life.

4.3.6. Factor 6: Access to Natural and Environmental Amenities

Items S19 to S17 in Table 4.2 fall under the fifth dimension: Access to natural and environmental amenities, Factor 6 in Table 4.3. This cluster is composed of statements that reflect satisfaction of urban inhabitants with regards to their access to natural and environmental amenities. These include their perceived proximity to green spaces and other natural amenities that could benefit their overall quality of life.

4.3.7. Factor 7: Property Ownership and Access to Utilities

Items S6 to S31 in Table 4.2 fall under the fifth dimension: Access to natural and environmental amenities, Factor 7 in Table 4.3. This cluster is composed of statements that reflect satisfaction of urban inhabitants with regards to the properties and assets they possess and their access to utilities. These include access to clean water, electricity, the internet, and ownership of private vehicle.

Table 4.3

The 7 Dimensions of Urban Quality of Life

Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
Access to health support and provision	Presence of community and government support and facilities	Safety, security and order	Presence of opportunities for economic empowerment	Mobility and access to market	Access to natural and environmental amenities	Property ownership and access to utilities
Leisure time with friends	Cultural amenities	Exposure to noise pollution	Organizational benefits	Distance to market by public transportation	Access to green spaces/ infrastructure by bicycle	Access to clean water
Proximity to health services	Access to information	Traffic accidents	Organizational support	Distance to public transportation by foot	Access to green spaces/ infrastructure by foot	Access to electricity
Time spent alone	Efficiency of government service	Time spent in traffic	Safety in the workplace	Distance to city	Access to green	Ownership of private vehicle
Efficiency of health services	Community engagement	Incidence	Disposable income			Internet access
	Political participation					

Access to recreational areas Leisure time with family Health expenditures	Risk reduction and protection Frequency to green spaces/infrastructure Humanitarian assistance Political freedom Proximity of the dwelling unit to the school	of crimes	Personal savings	center Distance to market by foot	spaces/ infrastructure by public transportation Access to natural amenities	

The Cronbach's Alpha for each emerging factor was tested after the factor structure of the scale was established. This can be found on Table 4 of the Appendix.

The reliability of each factor was determined by the value of the Cronbach alpha, which should be equal to or greater than 0.7 (Fornell & Larcker, 1981). The 7 dimensions enumerated in Table 4 of the Appendix also refer to the 7 factors generated by the Exploratory Factor Analysis done in this research. Dimension 1 (Access to health support and provision), Dimension 2 (Presence of community and government support and facilities), Dimension 3 (Safety, security and order), Dimension 4 (Presence of opportunities for economic empowerment), Dimension 5 (Mobility and access to market), Dimension 6 (Access to natural and environmental amenities) and, Dimension 7 (Property ownership and access to utilities) found to have Cronbach Alpha values of 0.894, 0.906, 0.860, 0.863, 0.899, 0.899 and 0.801, respectively. All dimensions are reliable based on the results since all are greater than 0.7. This implies that the instrument designed in this research can measure the variable of interest per dimension.

5. Conclusion

The development of an instrument that can evaluate the quality of life in the Philippines is significant for future urban policies that will particularly cater to the improvement of well-being of the Filipinos. It will provide valuable insights to urban planners and other policy makers as to how they will assess quality of life indicators so that they can develop effective policies and strategies for the populace. This research reviewed past and current literature as a guide to develop a new instrument that will evaluate the subjective well-being of the urban inhabitants and to create a criteria or dimensions that can be used by urban planners and policy makers.

The Exploratory Factor Analysis results discussed in the previous section suggest that urban quality of life can be evaluated using seven dimensions: 1) Access to health support and provision; 2) Presence of community and government support and facilities; 3) Safety, security and order; 4) Presence of opportunities for economic empowerment; 5) Mobility and access to market; 6) Access to natural and environmental amenities and; 7) Property ownership and access to utilities. These dimensions, having their respective factor items under them, were proven to have internal consistency given the Cronbach Alpha values ranging between 0.801-0.906. The final factor analysis outcome of the seven criteria, with eigenvalues more than 1, explained 68.3 percent of variance in the data in this research. The factor loading ranging between 0.401-0.928

reflected the dimensions of the seven criteria of urban quality of life. Given the results of EFA and reliability tests, empirical evidence presented in this paper suggests that the developed quality of life instrument is reliable and valid, hence, can be used in future evaluations of urban quality of life.

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Appendix 1

Table 1

Communalities and Item KMOs

Items	Communalities		KMO
	Initial[a]	Extraction[b]	
S3	0.606	0.619	.903
S5	0.466	0.456	.952
S6	0.638	0.683	.917
S8	0.673	0.680	.936
S9	0.677	0.667	.940
S10	0.733	0.762	.918
S11	0.690	0.657	.929
S12	0.606	0.591	.901
S13	0.605	0.656	.883
S14	0.706	0.714	.916
S15	0.658	0.606	.932
S17	0.565	0.515	.944
S18	0.775	0.802	.922
S19	0.785	0.839	.925
S20	0.710	0.713	.958
S21	0.505	0.466	.964
S23	0.671	0.603	.949
S24	0.700	0.644	.949
S25	0.663	0.638	.964
S26	0.636	0.598	.952
S27	0.644	0.643	.954
S28	0.645	0.598	.952
S29	0.524	0.471	.954
S31	0.494	0.468	.966
S32	0.554	0.545	.964
S33	0.603	0.580	.956
S35	0.468	0.407	.943
S36	0.573	0.574	.971
S37	0.669	0.647	.974
S38	0.719	0.676	.962
S39	0.666	0.647	.964
S40	0.678	0.651	.967
S41	0.481	0.457	.973
S43	0.644	0.560	.925
S44	0.676	0.581	.929
S45	0.641	0.718	.948
S46	0.548	0.543	.962
S47	0.557	0.580	.952

[a]Initial communality is the squared multiple correlation coefficients controlling for all other items in the model.
[b]Extraction communality indicates the proportion of each item's variance that can be explained by the retained factors.

Table 2

Overall KMO and Bartlett's Tests

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) = .946
Bartlett's Test of Sphericity: Chisquare = 13352.364 df =703 p-value = .000

Table 3

Number of Factors and Total Variance Explained

Factor	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	**15.660**	**41.210**	**41.210**
2	**3.043**	**8.008**	**49.218**
3	**1.889**	**4.971**	**54.189**
4	**1.647**	**4.334**	**58.524**
5	**1.324**	**3.484**	**62.008**
6	**1.218**	**3.204**	**65.212**
7	**1.069**	**2.814**	**68.026**
8	0.948	2.496	70.522
9	0.779	2.050	72.572
10	0.771	2.028	74.600
11	0.660	1.737	76.337
12	0.630	1.658	77.996
13	0.612	1.612	79.607
14	0.546	1.437	81.044
15	0.508	1.337	82.382
16	0.499	1.312	83.694
17	0.478	1.257	84.951
18	0.439	1.156	86.107
19	0.418	1.099	87.206
20	0.399	1.049	88.255
21	0.382	1.006	89.261
22	0.357	0.939	90.200
23	0.344	0.905	91.105
24	0.306	0.806	91.911
25	0.298	0.785	92.696
26	0.294	0.773	93.469
27	0.283	0.744	94.213
28	0.263	0.692	94.905
29	0.250	0.658	95.563
30	0.227	0.598	96.161
31	0.220	0.578	96.739
32	0.217	0.572	97.311

33	0.204	0.538	97.848
34	0.192	0.505	98.353
35	0.187	0.491	98.844
36	0.166	0.437	99.281
37	0.153	0.403	99.684
38	0.120	0.316	100.000

Table 4

Name of Factors, number of items per factor, and Cronbach's Alpha

Factor	Name of Factor	Number of Items	Cronbach's Alpha
1	Dimension 1	7	.894
2	Dimension 2	10	.906
3	Dimension 3	4	.860
4	Dimension 4	5	.863
5	Dimension 5	4	.899
6	Dimension 6	4	.899
7	Dimension 7	4	.801