IJSCET

International Journal of Sustainable Construction Engineering and Technology

Assessing the Relationship Between Environmental, Psychological, Physical and Social Towards the Quality of Life

Siti Rasidah Md Sakip*[1,2], Anis Zulaikha Mohd Zukri[1], Puteri Rohani Megat Abdul Rahim[3]

[1]Department of Built Environment Studies and Technology, College of Built Environment, Faculty of Architecture, Planning and Surveying,
 Universiti Teknologi Mara, Perak Branch, Seri Iskandar, 32610, MALAYSIA

[2]Green Safe Cities Research Group,
 Universiti Teknologi Mara, Shah Alam Campus, 40450, Selangor, MALAYSIA

[3]Academy of Language Studies,
 Universiti Teknologi Mara, Perak Branch, Seri Iskandar, 32610, MALAYSIA

*Corresponding Author

Abstract : The term quality of life (QoL) has been broadly used in various disciplines to describe the concept of personal well-being beyond the simple economist equation of well-being in relation to income. Quality of life is conceptualised in three aspects: (a) role functioning (difficulties in social, occupational, and interpersonal functioning), (b) life satisfaction and well-being, and (c) socio-material conditions (health cost, health care utilisation and employer cost). However, this paper presents a study that focused on the satisfaction of residents associated with crime and quality of life in their residential area. The study was conducted in three states to the targeted respondents in Petaling Jaya (Selangor), Sentul (Kuala Lumpur), and Johor Bahru Selatan (Johor). The selection of these sites is based on a high crime index from 2011 to 2020. Thus, the objective of this paper is to examine the relationship between environmental, psychological, physical, and social towards the quality of life. This research employed a quantitative approach using a random distribution of questionnaires to respondents at the residential areas that are most likely to experience high crime rates. The preliminary survey involved 51 residents as the respondents from the community. The findings of this study showed that there was a significant and positive relationship, with a medium to strong relationship between the environmental, psychological, physical and social towards the quality of life. Thus, it is hoped the findings of this study will highlight the relationship of these elements which are environmental, psychological, physical, and social towards the quality of life.

Keywords: Environmental, psychological, physical, social, quality of life

1. Introduction

Quality-of-life status has gained recognition and prestige in Malaysia after the Eighth Malaysia Plan began introducing the quality-of-life in its policy. In addition, the Twelfth Malaysia Plan has emphasized the importance of quality of life for economic development. Furthermore, economic growth for a country must be linked to an increase in the standard of living for all residents. This approach explains why in every assessment of success the focus would be

on economic development and on other pertinent aspects such as the environment, safety, and security. This also aligns with the goal of sustainable development. The goal of sustainable development is often associated with a better quality of life that includes development in economy, social, safety and security, and environmental system. All of this guarantee satisfaction, security, and a healthy and productive environment and encompass the demands of current and future generations. Therefore, measuring the quality of life (QoL) in the community is significant in order to identify the community's quality of life. In this study, the focus of measuring the quality of life (QoL) is on life satisfaction and well-being. Thus, the main factors or constructs used in this study were physical, social, environmental and psychological towards the quality of human life. The variables for the study were analysed to examine the relationship of the mentioned variables with the quality of life in Malaysia.

2. Literature Review

2.1 Quality of Life

The term quality of life (QoL) has been broadly used in various disciplines to express the concept of personal well-being beyond the simple economist equation of well-being in relation to income (Malkina-Pykh & Pykh, 2008). Throughout this research, as aptly stated by Schuessler and Fisher (1985), the term "quality"" is synonymous with ""grade" and the grade scale runs from high to low, from better to worse. As a result, statements like "Their quality of life is improving" and "Their quality of life is worse than our"" are common. The majority's opinion on this term (McCall, (1975), as cited by Schuessler and Fisher (1985), should only be used in the context of mental life. Nonetheless, the idea that environmental factors do influence QoL is also relevant. There is a constant shift between the objective (food and shelter) and the subjective (health and quality of life) in empirical studies of QoL. On the other hand, environmental factors too do promote or facilitate QoL rather than constituting or creating it.

Besides the concepts mentioned above, another concept that is associated with QoL is individual and social. In QoL there is no specific distinction between individual and social. These two concepts are related but are also distinct in nature. For example, when living in a better society, social QoL contributes to individual QoL and some individuals do feel that they are better off, than their counterpart. However, the problem with this definition is that it has three issues (Malkina-Pykh & Pykh, 2008). First, it can only be measured subjectively by asking people about their quality of life. Second, QoL, in this definition, relies heavily on the character and dispositions of the individual. Third, on's subjective satisfaction with on's life is strongly associated with one's expectations for it (Malkina-Pykh & Pykh, 2008). Thus, these concepts in relation to life events, physical and mental health disorders, and various interventions on an individual's functioning and overall sense of well-being have been the subject of numerous research efforts due to its intricacy. The concepts are aimed at understanding the significance of life events, physical and mental health disorders, and various interventions on an individual's functioning and overall sense of well-being (Gladis, Gosch, Dishuk, & Crits-Christoph, 1999; Kaplan, 2003; Katsching (2006) as cited by Hanson et al. (2010).

Gladis and Colleagues, (1999 as cited by Hanson et al. 2010) have a different perspective of QoL. They explained that the Quality of life (QoL) is conceptualised in three aspects: (a) role functioning (difficulties in social, occupational, and interpersonal functioning), (b) life satisfaction and well-being, and (c) socio-material conditions (health cost, health care utilisation, and employer cost) (Gladis and Colleagues,1999 as cited by Hanson et al. (2010).Based on the three aspects of quality of life listed above, this paper focused solely on the categories of life satisfaction and well-being. These two categories are more reliable and are associated with the crime variable. As defined by Hanson et al. (2010), victimisation and its impact on role performance are associated with crime and victim satisfaction and quality of life, . However, according to Micholas and Zumbo (2000), as cited by Hanson et al. (2010) crime-related concerns have a minimal effect on people's satisfaction with the quality of their lives, life satisfaction or happiness. That would be the reason why Schuessler and Fisher (1985) defined QoL as a general sense of well-being.

Nonetheless, this study focused on the domain-specific of satisfaction because it is more relevant to public policy. The trend of limiting one's quality of life to a specific domain is reflected in terms like "quality of urban life" "quality of work-life" and "quality of family life" The attributes that meet citizens' diverse and growing hopes and dreams beyond basic needs are examples of quality of life. For instance, the sustainable human settlement requires a better environment for human health and well-being, improving people living conditions and eliminating disparities in their quality of life (Shamsuddin, Azim, & Hussin, 2013). The QoL is measured using life indicator.

2.2 Quality of Life Indicator

The concept of quality of life is complex, and its definition and assessment have sparked a considerable number of scholarly and public discussion (Rogerson, Findlay, Morris, & Coombes, 1989). According to Cutter (1985), as cited by Rogerson et al. (1989), researcher advocated for a conceptual mode in which quality of life studies should combine both objective and subjective indicators across several dimensions. A life indicator is used to measure life quality. The quality-of-life research and social indicators share a standard basis; the idea is not accessible to direct assessment. For instance, subjective measures are related to happiness or contentment and are referred to as an overall feeling. For example, they are satisfied with life as a whole or in a domain-specific sense (satisfied with my job). In many cases, domain-specific feelings are combined to predict or measure general feelings (Schuessler & Fisher, 1985).. Cutter

(1985) proposed three fundamental indicators in his model: social environment, physical environment, and perceptual indicators (Rogerson et al., 1989). These variables contained social environment-related characteristics such as crime, health, housing, income, and education. However, it also applies to the physical environment, encompassing climate, pollution, and recreation. Marans (2003) summarises the global assessments of life quality and shows that objective features of society, such as poverty, crime, and pollution, do influence how people evaluate their lives. Each quality-of-life variable can be quantified objectively or subjectively based on the population's 'self-image' of well-being in social and physical environments (Rogerson et al., 1989). Numerous studies highlight the importance of both 'objective' and 'subjective' indicators (Malkina-Pykh & Pykh, 2008; Rogerson et al., 1989).

Besides, public policy institutes, government organisations, and the news media have proposed many QoL indicators. However, the benefits and drawbacks of each have not been thoroughly assessed (Malkina-Pykh & Pykh, 2008). Measuring QoL throughout the domain or within a specific life is accomplished using subjective or objective indicators. Subjective indicators are heavily weighted toward psychological reactions such as life satisfaction, job satisfaction with life, and personal happiness, while, the objective indicators are measured in terms of consistency or physical quantity. This is evidence in the standard of living, physical health level, and personal income. The quality of life encompasses economic development and social, psychological, cultural and environmental aspects (Shafii, H., & Miskam, 2011). There are also several domains in the quality of life.

2.3 Quality of Life Domains

The quality of life is classified into seven domains as in table 1.

Table 1 - The quality of life domains

No.	Domains	References
1	Environmental	(Bracy et al., 2014; Mohit, 2013a; Serag El Din, Shalaby, Farouh, & Elariane, 2013);
2	Physical	(Bracy et al., 2014; Mohit, 2013a)
3	Mobility	(Bracy et al., 2014; Serag El Din et al., 2013);
4	Social	(Corcoran & Zahnow, 2021; Ghani, 2017; Mohit, 2013b; Soh, 2012);
5	Psychological	(Corcoran & Zahnow, 2021; Kitchen & Williams, 2010; Lynch, Stretesky, & Long, 2020; Serag El Din et al., 2013; Trujillo & Howley, 2021);
6	Economic	(Ghani, 2017; Serag El Din et al., 2013);
7	Political	(Ghani, 2017; Mohit, 2013b; Serag El Din et al., 2013; Soh, 2012).

Based on table 1, four out of seven dimensions were chosen to be applied in this study, namely a) physical; b) psychological; c) environment; d) social. Quality-of-Life measures different elements. For instance, from a physical aspect it measures elements that provide security, such as safety at home, in the neighbourhood areas and in the city. Meanwhile, the measurement of quality of life for the psychological aspect includes the feeling of fear, anxiety, depression, and happiness. Therefore, to assess the influence of local criminal activity on people's quality of life, it is necessary to evaluate the respondent's psychological state. Next, the researchers focused on the environmental aspect that focuses on weather elements such as temperature and humidity were based on the influence of weather on criminal activity. Finally, the researchers examined the relationship of people with their social activities based on the level of security around them and the domains mentioned earlier Below are the descriptions of the four domains.

2.3.1 Physical Domain

Research by Hur & Nasar, (2014) has discovered that physical characteristics, especially the influence of perception is the most important factor in increasing neighbourhood's satisfaction (Hur & Nasar, 2014). In addition, neighbourhood characteristics in the physical domain will significantly determine the resident's perceptions on the risk of becoming a victim of crime and their satisfaction with the safety of neighbourhood. The level of crime is also based on the residents' perception. This includes the structure of neighbourhoods and their ecological setting (West & Knapp, 1990). Therefore, study on neighbourhood quality of life must first examine two related concepts that constraint indicator development that are quality of life to be investigated in the study and the neighbourhood being a target or physical carrier (Yinshe Sun, 2005).

Besides, the physical characteristics physical domain also involves the human-made physical environment where activity does take place. Its components can be organised in several ways. For example housing. For housing, it can be categorised as residential well-being and is conceptualized as "resident" attitude toward their living space. In addition,

it involves a "feeling of gratification from living in a specific space" and 'residents' perceptions of the quality of life of the community (Mouratidis, 2021).

These components could be operationalized by measuring satisfaction in terms of safety, safety of the neighbourhood and safety of city/urban. This could be used as a physical construct to measure criminal behaviour quality of life. While housing satisfaction was predicted best by the age of home and home ownership. This is done to examine the level of perception of quality of life (Serag El Din et al., 2013). Scholars have utilized several methods to evaluate the neighbourhood fear of crime, perceptions of disorder, and quality of life (Lersch & Hart, 2020). Furthermore, quality of life is often examined related to "community" (Yinshe Sun, 2005). Moreover, the perceived environment also correlates with neighbourhood and city/urban satisfaction on safety and fear of crime.

2.3.2 Social Domain

In the social study, a sense of community for quality of life is often used to garner attention from various quarters. For example, in the construction and development sectors, professionals like planners, architects, and those in historic preservation and crime prevention promote a sense of community as the cure-all for many urban ailments (Hur & Nasar, 2014; Sakip, Johari, Abdullah, & Salleh, 2013). The strength of these community ties is perceived to provide life satisfaction. Therefore, it is a key factor in determining the quality of life for people of all social classes. Sakip et al.'s (2013) study found that having community relationships that lead to a good and strong community spirit gives residents a sense of safety from crime. Sarason (1974) introduced the sense of community and was responsible in introducing the sense of community by identifying that the emotional connections among the community members do affect the community functionality (Sakip et al., 2013). McMillan and George (1986) came up with three ways to tell if a neighbourhood has strong community ties: how long people have lived there, how happy they are with the community, and how many neighbours they know based on how many first names they can remember.

In addition, Sakip et al. (2013) compiled various studies confirming the neighbourhood residence period. The longer a person resides in a neighbourhood, the stronger the sense of belonging will be nurtured. Thus, Clampet_Lundquit (2010) proposed that a long period of residence of at least a year is perceived as resident" stability. This may influence the community's participation as they feel safe and stable to participate freely among the community at the residential area. Hence, this may contribute to crime prevention in the neighbourhood (Ji Hyon Kang, 2011; Sakip et al., 2013). Additionally, Sakip et al. (2013) stated good community ties in neighbourhoods is believed to deter potential criminals from deciding to commit acts of crime before actually committing them. Bernasco and Neiuwbeerta (2005) are of the opinion that criminals use the community ties factor in evaluating a neighbourhood when they select their crime targets. It was found that criminals prefer to choose a neighbourhood with unstable community ties structures as it was perceived that weakness in community ties will resulted in residents failing to identify stranger who sneaked into their areas (Sakip et al., 2013). Furthermore, community ties are usually associated with fear of crime and feelings of security in residing in a neighbourhood area (Sakip et al., 2013; Sakip, Johari, & Salleh, 2012).

2.3.3 Psychological Domain

Fear can be characterized as a sense of danger and anxiety produced by threat of physical harm (Lersch & Hart, 2020). Fear of crime is elicited by environmental cues related to some aspect of crime. However, according to Michalos and Zumbo (2000), relatively few studies have attempted to connect individual-level criminal victimisation measures to evaluate happiness, life satisfaction or satisfaction with the overall quality of life systematically. For example, feeling of safety in their neighbourhood was negatively associated with their satisfaction of their neighbourhood. The direction of the relationship between (life) satisfaction and fear is in the predicted direction but is not significant. Nevertheless, the relationship is consistent with a hypothesis suggesting that the more satisfied individuals of their safety they are less likely will become a victim of crime and less likely to express more anxiety and fear (Michalos & Zumbo, 2000). Garafalo (1978) develop idea that fear of crime affects the subjective quality of life.

2.3.4 Environmental Domain

The environmental aspect focuses on weather elements such as temperature and humidity have influenced on criminal activity. Environmental quality has always been one of the essential components of quality of life and strongly influences the quality of life for human beings. Although this reality is not faced with any reaction, the measurement of qualitative and practical environmental quality evaluation has caused predicament among social scientist in viewing the relationship (Keles, 2012). Weather characteristics is included as one of the factors that influence crime activity. As stated by Sommer, Lee, and Bind (2018), the weather can relate to the current history of human behaviour in the environmental factors such as weather can affect crime. This was substantiated by Corcoran and Zahnow (2021). They argued that crime-weather literature has consistently shown that weather exerts an important influence on crime, and at the same time, it can influence people's quality of life.

3. Research Methodology

This study employed a quantitative approach using a set of questionnaires to achieve the research objectives. Therefore, the site selection needed to be examined first prior to getting the respondents for this study. This study focused on the quality of life that considers the issue of crime in environmental factors. Thus, the site selection was based on areas with high-index crime statistics. Therefore, the index crime statistics data report from the Royal Malaysian Police (PDRM) for ten years (2011 to 2020) was evaluated to identify the study area. Table 2 shows the index crime statistics in Malaysia for the year 2011 to 2020.

Table 2 - The crime index in Malaysia

State	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Johor	20970	19068	17105	15082	13480	12941	11307	10338	9870	7350
Kedah	10667	10100	8636	8028	7817	7440	6759	6221	5615	4131
Kelantan	6199	6053	5737	5603	5031	4548	4520	3987	3545	2531
Kuala Lumpur	25002	23022	22319	18293	15946	16989	13482	12127	11172	8301
Melaka	4830	4764	4186	3675	2948	3664	3097	2800	2561	1794
Negeri Sembilan	6050	6563	5993	5495	4787	4474	3973	3673	3327	2431
Pahang	5994	5619	5257	5085	4257	3777	3607	3584	3271	2331
Perak	9869	8545	7429	6860	6228	5841	5326	5128	4912	3388
Perlis	1113	974	831	814	741	655	603	563	527	493
Pulau Pinang	9758	8399	7936	7491	6697	6116	5551	5017	5218	3853
Sabah	-	3489	5772	5210	5176	5367	6236	6151	5745	3799
Sarawak	-	6202	9191	7556	7230	6826	6381	5830	6023	5850
Selangor	44302	40629	43060	36165	32547	31222	26069	21420	19800	17272
Terengganu	3841	3505	3610	3213	2659	2494	2257	1823	1870	2099

Source: (PDRM, 2021)

Table 2 shows three states that were reported to have high crime index statistics for ten years, which is Selangor, Kuala Lumpur and Johor Bharu. Therefore, these three states have been selected to be the targeted area to obtain the respondents. The population in the study area involved only in each of the three states selected as the study area, namely Petaling Jaya (Selangor), Sentul (Kuala Lumpur), and Johor Bahru Selatan (Johor) as in Table 3.

Table 3 - The population of the study area

State	Location	Years	Population
Johor	Johor Bharu	2020	1,621.4
Kuala Lumpur	Sentul	2020	173,400
Selangor	Petaling Jaya	2020	2,223.3
Total Population			177,244.7

Source: (Department of Statistics Malaysia,2022)

Based on the Table 3, the total population in study area is 177,244.7 based on the population census data from Department of Statistics Malaysia. In this study, the random sampling method was used to determine the selection of respondents with the fifty sample size. In this preliminary study, fifty samples were reached to cover all subgroups (Han, Liang, Hara, Uwasu, & Dong, 2018) of the target population. The purpose of this study was to examine the validity and reliability of the questionnaire. Although the number of samples was small, it is sufficient to test the validity and reliability of the questionnaire. Furthermore, from the data, the assessment of the relationship between variables was examined to the 51 respondents in this study. A set of questionnaire was used to obtain data for the study via Google Forms (GF). The distribution of the questionnaire by GF may reduce any concerns among potential respondents about dealing with outsiders.

In addition, the issue of Covid-19 was still ongoing during the data collection. Besides, the questionnaires prepared in the Google Form (GF) was convenient for respondents to answer questions more efficiently. Moreover, every residential area nowadays has a WhatsApp group for any announcements and dissemination of information needed in the residential area. Thus, the GF was given to communities (through the contacts) who live in the three states (Kuala Lumpur, Selangor and Johor Bharu) to the residents in their areas of residence.

4. Analysis and Discussion

4.1.1 Demographic of Respondents

Figure 1 shows that majority of the respondents for this pilot study were female, which took up 73% of the number of respondents, the male respondents constituted 27 %.
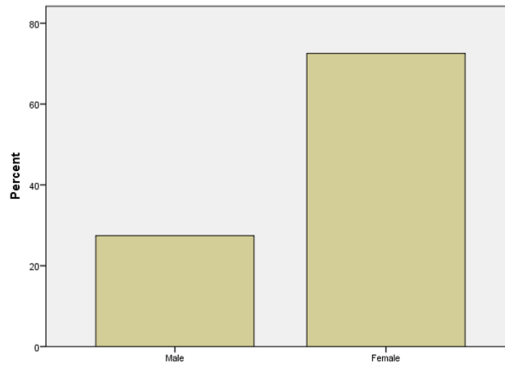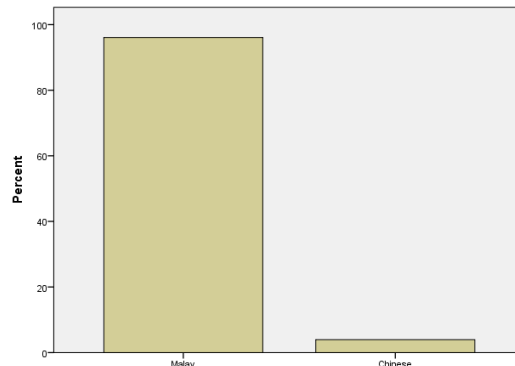
Fig. 1 - Respondent background–- Gender
Source: Author (2022)

Figure 2 displays the age of the respondents. Majority of the respondents (67 %) were 20 years old, followed by 18% and 19% at the range age of 30 and 40. Only about 2% in the range of 50 years old.
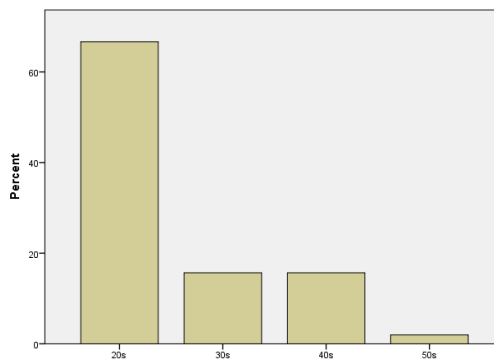
Fig. 2 - Respondent background–- Age
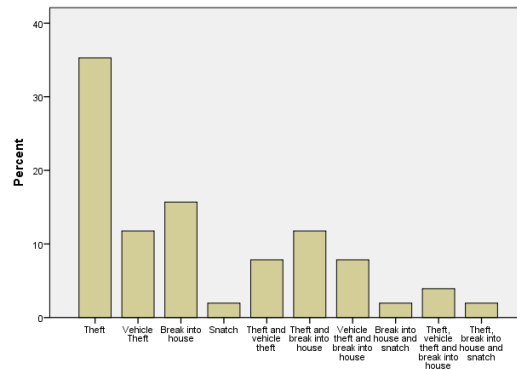Source: Author (2022)

Figure 3 shows the type of race of the respondents. The respondents for this study involved only two primary races in Malaysia, namely Malays (96.1%), and Chinese (3.9%). In addition, all of the respondents (96%) involved in this survey have never been victims of crime in the past. However, the percentage of respondents who heard or knew about criminal cases in the study area was relatively high (88%).

Fig. 3 - Respondent background–- Race
Source: Author (2022)

Figure 4 displays the types of crime at the resident reported by the respondents. The graph shows that there were \various types of crimes occurred around the neighbourhood. The majority of the respondents (35%) stated theft was very common at their residential area, followed by breaking into the house (16%). In fact, the incidents of vehicle theft and break into the house are the most common type of crime that took place the residential area. This illustrates that the occurrence of these types of crime if not being addressed properly may affect the safety of the residents. They may no longer feeling safe and secure to stay at the residential area. As aptly put by Sakip et al. (2013), the emotional

connections among the community members will affect the community's functionality. Thus, when they have the perception of no longer being safe, the QoL too may be affected and disrupted.

Fig. 4 - Types of crime
Source: Author (2022)

4.1.2 Validity and Reliability of Construct

To ensure the construct of the study was valid and reliable, the validity and reliability of the construct were checked in measuring the quality of life. Knowing that errors will creep into measurements in practice, it is necessary to evaluate the accuracy and reliability of measuring instruments. Validity refers to the extent to which a test/instrument measures what is intended to measure. Reliability refers to the accuracy and precision of the measurement procedure (Srinivasan & Lohith, 2017). A scale or measuring tool is said to have validity to the extent that the measurement value reflects the real difference in the characteristic or trait being measured (Sakip et al., 2013). Internal validity is the extent to which differences found with a measuring instrument reflect underlying differences between those tested. Content validity is the extent to which the instrument provides adequate coverage of the topic under study. To determine the construct of the study was valid and reliable in measuring the quality of life, the researchers undergo two processes. Initially for validity purposes, three experts in the academic field acted as an internal panel to check the validity of the content that measures the quality-of-life construct. The review covers the content of the questions that should revolve around the field being studied. This panel are those who are experienced in the study of the built environment that involves the quality of life. Next, criterion-related validity is external validity, which reflects the success of a measure for some purpose of empirical estimation.

Reliability is crucial and more beneficial test for questionnaire's internal reliability. One approach of measuring the strength of consistency and stability of the instrument measures the concept and contributes to the measurement (Srinivasan & Lohith, 2017). Reliability is a partial contributor to validity. The consistency of the respondent's responses to every item measured was tested using the concept of inter-item consistency reliability. The items were connected and represent independent measures of the same concept. Cronbach's Alpha for multipoint scale items was used to test the reliability consistency. Cronbach's Alpha is a reliability coefficient that assesses the full scale's consistency. The generally agreed-upon lower limit for Cronbach's Alpha is 0.70, although it may decrease to 0.60 in exploratory research (Srinivasan & Lohith, 2017).

The reliability of any given questionnaire refers to the extent to which it is a consistent measure of a concept. Cronbach's Alpha is one way of measuring the strength of that consistency (Singh, 2017). Cronbach's Alpha is computed by correlating the score for each scale item with the total score for each observation (usually individual survey respondents) and then comparing that to the variance for all individual item scores (Singh, 2017). The standard for what makes a good alpha coefficient is entirely arbitrary and depends on the researcher's theoretical concept of the scale in question. Many researchers recommend a minimum alpha coefficient between 0.65 and 0.80 (or higher), and alpha coefficients less than 0.50 are generally not acceptable (Singh, 2017).

Thus, the four main variables–- Physical, Psychological, Environmental and Social, are examined to see if these variables are reliable in measuring the quality of life construct. The output of examination of the construct is shown in Table 4.

Table 4 - The reliability of quality-of-life construct

Construct (Variable)	Sub-dimension	Items	Cronbach's Alpha	Alpha Value for Construct
Physical	House Safety	5	0.78	0.91
	Neighborhood Safety	6	0.89	
	City/Urban Safety	6	0.84	

Psychological	Anxiety and Fear	10	0.93	0.90
	Depression and Stress	5	0.89	
	Happiness	5	0.95	
Environmental	Temperature	5	0.60	0.71
	Humidity	5	0.74	
Social	Local social relationship	6	0.77	0.77

Source: Author (2022)

The Cronbach alpha (α) value was used to determine the level of reliability through the internal consistency for each factor. An item-to-scale value of 0.3 and above was used as the minimum value for a unidimensional scale (de Vaus, 1986), while the scale was considered reliable if the alpha value was 0.6 and above, based on the De Vellis (1991) criteria. The results for all domains of quality-of-life items exceed 0.70 (Alpha: 0.71 to 0.93). Thus, this indicates that all domains have a good reliability value. With total correlation for all items also exceeds 0.30 (Alpha: 0.30 to 0.90). However, two items under the domain environmental had been eliminated, four items under domain physical and one item under social because of the corrected item was low then 0.3. Therefore, based on this finding, it can be confirmed that the three constructs–- physical, environmental, social and psychological, are authentic and valid to measure the quality of life.

4.1.3 Quality of Life Relationship

The main objective of this study was to examine the relationship between environmental, psychological, physical, and social towards the quality of life. Therefore, the Pearson correlation analysis was conducted. The Pearson correlation coefficient) checked whether there was a positive correlation (when one variable increases, so does the other) or a negative correlation (when one variable increases, the other decreases). In addition, the output was the size of the Pearson Correlation (r) value. This could range from -1.00 to 1.00. This value indicates the strength of the relationship between two variables. A correlation of 0 indicates no relationship at all, a correlation of 1.0 indicates a perfect positive correlation, and a value of -1.0 indicates a perfect negative correlation (Julie Pallant, 2001). Based on Pallant (2001), the determination of the strength of the relationship is based on the value of r as follows: r=.10 to .29 or r=−.10 to −.29 small; r=.30 to .49 or r=−.30 to −.49 medium and r=.50 to 1.0 or r=−.50 to −1.0 large. Thus, the output of the relationship between variables of the construct QoL is shown in Table 5.

Table 5 - Pearson correlation between measures of quality of life

Measures	1	2	3
(1) Physical construct			
(2) Psychological construct	.696**		
(3) Social construct	.463**	.546**	
(4) Environmental construct	.466**	.446**	.602**

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Author (2022)

The relationship between quality of life among physical, psychological, social and environmental construct was investigated using Pearson product-moment correlation coefficient. Preliminary analyses were performed to ensure there was no violation of the assumption of normality, linearity and homoscedasticity. There was a strong, positive correlation between two variables of physical and psychological construct [r=.696, n=51, p<.01], social and psychological construct [r=.546, n=51, p<.01], and environmental and social construct [r=.602, n=51, p<.01]. Meanwhile there was a medium, positive correlation between two variables of social and physical construct [r=.463, n=51, p<.01], environmental and physical construct [r=.466, n=51, p<.01], and environmental and psychological construct [r=.446, n=51, p<.01].

5. Conclusion

As mentioned before, the paper aims to examine the relationship between physical, physiological, social and environmental variables on the quality of life. In order to obtain the findings of this primary objective, other results are helpful for the researchers to see. The reliability and validity of the variables are essential before proceeding with any

form of analysis. In this study, all four constructs underwent the validity and reliability process. Three experts checked the validity in the field by reviewing each item's content for each construct dimension. Furthermore, reliability findings concerning the Alpha value that should exceed 0.70 found that all dimensions for each construct reached a good level of Alpha value which is 0.7 and above. Next, the results of the relationship between the variables on the quality of life found that all the variables have a significant and positive relationship. In other words, the physical construct relates to the physiological, social and environmental. This finding proves the statement by Corcoran and Zahnow (2021) that crime-weather is an essential factor influencing people's quality of life. This relationship category falls from medium to strong relationships. Meanwhile, the psychological construct has a relationship with social and environmental with a medium to a strong relationship in the context of psychological it regarding the sense of fear of crime. Because this sense relates to life satisfaction, happiness and overall quality of life, this study confirmed that the social construct has a significant, positive, and robust relationship with the environment. This finding confirmed that all constructs are linked to the quality of life. For further research, it is recommended that this study be extended to a more in-depth investigation by examining other variables related to the quality of life.

Acknowledgement

References

Bernasco,W., & Nieuwbeerta,, P. (2005). How do Residential Burglars Select Target Areas? A New Approach to the Analysis of Criminal Location Choice. Brit. J. Criminal, 44, 296-315

Bracy, N. L., Millstein, R. A., Carlson, J. A., Conway, T. L., Sallis, J. F., Saelens, B. E., King, A. C. (2014). Is the relationship between the built environment and physical activity moderated by perceptions of crime and safety? International Journal of Behavioral Nutrition and Physical Activity, 11(1), 1–13. https://doi.org/10.1186/1479-5868-11-24

Clampet-Lundquist, S. (2010). "Everyone Had Your Back": Social Ties, Perceived Safety, and Public Housing Relocation. City & Community, 9(1), 87-108.

Corcoran, J., & Zahnow, R. (2021). The Effect of Weather on Assault. Environment and Behavior, 54(2), 300–326. https://doi.org/10.1177/00139165211014629

De Vaus, D. A. (1986) Surveys in social research, London, Academic Divison Of Unwin Hyman Ltd.

Devellis, R. F. (1991). Scale development: Theory and aplication., Thousand Oaks, Ca, Sage.

Ghani, Z. A. (2017). A comparative study of urban crime between Malaysia and Nigeria. Journal of Urban Management, 6(1), 19–29. https://doi.org/10.1016/j.jum.2017.03.001

Han, J., Liang, H., Hara, K., Uwasu, M., & Dong, L. (2018). Quality of life in China's largest city, Shanghai: A 20-year subjective and objective composite assessment. Journal of Cleaner Production, 173, 135–142. https://doi.org/10.1016/j.jclepro.2016.10.097

Hanson et al., 2010. (2010). The Impact of Crime Victimization on Quality of Life. Journal of Traumatic Stress, 23, 189–197. https://doi.org/10.1002/jts

Hur, M., & Nasar, J. L. (2014). Physical upkeep, perceived upkeep, fear of crime and neighborhood satisfaction. Journal of Environmental Psychology, 38, 186–194. https://doi.org/10.1016/j.jenvp.2014.02.001

Ji Hyon Kang. (2011). Participation in the Community Social Control, the Neighborhood Watch Groups: Individual and Neighborhood-Related Factors. Crime & Delinquency, 1-25.

Julie Pallant. (2001). SPSS Survival Manual Book. Australia: McPherson's Printing Group.

Keles, R. (2012). The Quality of Life and the Environment. Procedia - Social and Behavioral Sciences, 35(December 2011), 23–32. https://doi.org/10.1016/j.sbspro.2012.02.059

Kitchen, P., & Williams, A. (2010). Quality of life and perceptions of crime in Saskatoon, Canada. Social Indicators Research, 95(1), 33–61. https://doi.org/10.1007/s11205-009-9449-2

Lersch, K. M., & Hart, T. C. (2020). Geographies of Behavioural Health, Crime, and Disorder, 126. Retrieved from http://link.springer.com/10.1007/978-3-030-33467-3

Lynch, M. J., Stretesky, P. B., & Long, M. A. (2020). Climate change, temperature, and homicide: A tale of two cities, 1895–2015. Weather, Climate, and Society, 12(1), 171–181. https://doi.org/10.1175/WCAS-D-19-0068.1

Malkina-Pykh, I. G., & Pykh, Y. A. (2008). Quality-of-life indicators at different scales: Theoretical background. Ecological Indicators, 8(6), 854–862. https://doi.org/10.1016/j.ecolind.2007.01.008

Marans, R. W. (2003). Understanding environmental quality through quality of life studies: The 2001 DAS and its use of subjective and objective indicators. Landscape and Urban Planning, 65(1–2), 73–83. https://doi.org/10.1016/S0169-2046(02)00239-6

McMillan, D. W., & George, D. M. C. (1986). Sense of Community: A Definition and Theory. Journal of Community Psychology, 14, 6-23.

Michalos, A. C., & Zumbo, B. D. (2000). Criminal victimization and the quality of life. Social Indicators Research, 50(3), 245–295. https://doi.org/10.1023/A:1006930019814

Mohit, M. A. (2013a). Objective Analysis of Variation in the Regional Quality of Life in Malaysia and its Policy Implications. Procedia - Social and Behavioral Sciences, 101, 454–464. https://doi.org/10.1016/j.sbspro.2013.07.219

Mohit, M. A. (2013b). Quality of Life in Natural and Built Environment – An Introductory Analysis. Procedia - Social and Behavioral Sciences, 101, 33–43. https://doi.org/10.1016/j.sbspro.2013.07.176

Mouratidis, K. (2021). Urban planning and quality of life: A review of pathways linking the built environment to subjective well-being. Cities, 115(April), 103229. https://doi.org/10.1016/j.cities.2021.103229

PDRM. (2021). Index Crime Statistics in Malaysia. Kuala Lumpur.

Rogerson, R. J., Findlay, A. M., Morris, A. S., & Coombes, M. G. (1989). Indicators of Quality of Life: Some Methodological Issues. Environment and Planning A: Economy and Space, 21(12), 1655–1666. https://doi.org/10.1068/a211655

Sakip, S. R. M., Johari, N., Abdullah, A., & Salleh, M. N. M. (2013). Assessing Sense of Community Dimension in Residential Areas in the Malaysian Context. Procedia - Social and Behavioral Sciences, 105, 655–663. https://doi.org/10.1016/j.sbspro.2013.11.068

Sakip, S. R. M., Johari, N., & Salleh, M. N. M. (2012). The Relationship between Crime Prevention through Environmental Design and Fear of Crime. Procedia - Social and Behavioral Sciences, 68, 628–636. https://doi.org/10.1016/j.sbspro.2012.12.254

Sarason, S. B. (1974). The psychological sense of community. San Francisco: Josey-Bass

Schuessler, K. F., & Fisher, G. A. (1985). Quality of life research and sociology (Canada and USA). Annual Review of Sociology. Vol. 11, 129–149.

Serag El Din, H., Shalaby, A., Farouh, H. E., & Elariane, S. A. (2013). Principles of urban quality of life for a neighborhood. HBRC Journal, 9(1), 86–92. https://doi.org/10.1016/j.hbrcj.2013.02.007

Shafii, H., & Miskam, N. (2011). Pembentukan Penunjuk dan Indeks Kualiti Hidup Bagi Mengukur Kesejahteraan Hidup Masyarakat di Pekan Parit Raja , Johor. Fakulti Pengurusan Teknologi , Perniagaan dan Keusahawanan Universiti Tun Hussein Onn Malaysia (UTHM) Beg Berkunci 101 , 86400 Parit R, 1–13.

Shamsuddin, S. B., Azim, N., & Hussin, B. (2013). Safe City Concept and Crime Prevention Through Environmental Design (CPTED) for Urban Sustainability in Malaysian Cities. American Transactions on Engineering & Applied Sciences, 2(3), 223–245. Retrieved from http://tuengr.com/ATEAS/V02/223-245.pdf

Singh, A. S. (2017). Common Procedures for Development, Validity and Reliability of a Questionnaire. Swaziland: Department of AEM, Faculty of Agriculture, University of Swaziland. International Journal of Economics, Commerce and Management, 5(5), 790–801.

Soh, M. B. C. (2012). Crime and Urbanization: Revisited Malaysian Case. Procedia - Social and Behavioral Sciences, 42(July 2010), 291–299. https://doi.org/10.1016/j.sbspro.2012.04.193

Sommer, A. J., Lee, M., & Bind, M. A. C. (2018). Comparing apples to apples: an environmental criminology analysis of the effects of heat and rain on violent crimes in Boston. Palgrave Communications, 4(1). https://doi.org/10.1057/s41599-018-0188-3

Srinivasan, R., & Lohith, C. P. (2017). Pilot study - Assessment of validity and reliability. In: Strategic marketing and innovation for Indian MSMEs. India studies in business and economics. Springer, Singapore. https://doi.org/10.1007/978-981-10-3590-6

Trujillo, J. C., & Howley, P. (2021). The Effect of Weather on Crime in a Torrid Urban Zone. Environment and Behavior, 53(1), 69–90. https://doi.org/10.1177/0013916519878213

West, C., & Knapp, A. (1990). from the SAGE Social Science Collections . All Rights. Hispanic Journal of Behavioral Sciences, 9(2), 183–205. Retrieved from http://hjb.sagepub.com.proxy.lib.umich.edu/content/9/2/183.full.pdf+html

Yinshe Sun. (2005). Development of Neighbourhood Quality of Life Indicators. Community-University Institute for Social Research.