



UNIVERSITI PUTRA MALAYSIA

***URBAN AND RURAL INEQUALITY IN KNOWLEDGE, ATTITUDE AND
PRACTICE ON HAZE IN KLANG VALLEY***

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**URBAN AND RURAL INEQUALITY IN KNOWLEDGE, ATTITUDE AND
PRACTICE ON HAZE IN KLANG VALLEY**

BY

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ABSTRACT

URBAN AND RURAL INEQUALITY IN KNOWLEDGE, ATTITUDE AND PRACTICE ON HAZE IN KLANG VALLEY

NATHANAEL A/L V.JAMES

Introduction: Haze occurs during the southwest monsoon season because low-level winds over Malaysia are generally south-westerly and the weather is generally dry. Fine particulate matter which primarily derived from direct emission from combustion processes has most concern towards the health effect due to its toxicological and physiological considerations which suggest that the fine particles may play the largest role in affecting human health. As awareness of the source and dangers of smoke haze spread, Malaysian government increasingly came under pressure from the public and civil society at the national, state, and district level to address the haze issue. The knowledge, attitude and practice inequalities of urban and rural community could be a barrier in promoting awareness on haze. **Objectives:** To determine the urban and rural inequality in knowledge, attitude and practice on Haze. **Methodology:** The sample population for this study are the urban and rural residents of Klang Valley. The sample size was 400 from both urban and rural community. For this cross-sectional study, the purposes is to determine the inequalities in knowledge attitude and practice on haze. The Sampling Frame was obtained from the Local Government Department of Klang Valley. The population was then selected based on their inclusive criteria. The study instrument used is a standardized questionnaire. The questionnaire was constructed and are pretested. The questionnaires will then be distributed to the urban and rural population of the Klang Valley. The questionnaire consist of two sections that are part A and part B. The section A functions to collect the sociodemographic information of the participants. While the section B is constructed to collect the overall knowledge, attitude and practice of a selected population. **Result and Discussion:** There was a difference in knowledge between urban and rural community ($p < 0.05$). There was a difference in practice between urban and rural community ($p < 0.05$). There was also an association between attitude and practice on haze ($p < 0.05$). **Conclusion:** Both the urban and rural community had moderate level of knowledge, attitude and practice towards haze. The urban and rural community also had difference in terms of knowledge, attitude, and practice towards haze.

Keyword: Urban, Rural, Particulate matters, Haze, Klang Valley

ABSTRAK

KETIDAKSAMAAN PENGETAHUAN, SIKAP DAN AMALAN JEREBU BANDAR DAN LUAR BANDAR DI LEMBAH KELANG

NATHANAEL A / L V.JAMES

Pengenalan: Jerebu berlaku semasa musim monsun barat daya kerana angin tahap rendah seluruh Malaysia secara umumnya mengalami cuaca yang biasanya kering. Dan zarah halus yang terutamanya timbul daripada pancaran terus dari proses pembakaran mempunyai mendatangkan kebimbangan terhadap kesan kesihatan disebabkan oleh pertimbangan toksikologi dan fisiologi yang mencadangkan bahawa zarah halus boleh memainkan peranan terbesar dalam mempengaruhi kesihatan manusia. Kkesedaran terhadap bahaya asap jerebu yang merebak telah menyebabkan kerajaan Malaysia semakin menerima tekanan daripada masyarakat awam, peringkat kebangsaan, daerah, dan negeri untuk menangani isu jerebu. Pengetahuan, sikap dan amalan ketidaksamaan masyarakat bandar dan luar bandar boleh menjadi halangan dalam mempromosikan kesedaran mengenai jerebu. **Objektif:** Untuk menentukan ketidaksamaan bandar dan luar bandar dalam pengetahuan, sikap dan amalan Jerebu. **Metodologi:** Sampel penduduk untuk kajian ini adalah penduduk bandar dan luar bandar di Lembah Klang. Jumlah penduduk yang terlibat adalah seramai 400 orang. Kajian keratan rentas ini, bertujuan untuk menentukan ketidaksamaan dalam sikap pengetahuan dan mengamalkan pada jerebu. Data penduduk tempatan telah diperolehi daripada Jabatan Kerajaan Tempatan Lembah Klang. Penduduk itu kemudian dipilih berdasarkan kriteria termasuk yang ditetapkan. Instrumen kajian yang digunakan adalah soal selidik. Soal selidik telah dibina dan selidik. Borang soal selidik telah diedarkan kepada penduduk bandar dan luar bandar di Lembah Klang. Soal selidik ini terdiri daripada dua bahagian iaitu bahagian A dan bahagian B. Bahagian A bertujuan untuk mengumpul maklumat berkenaan sosiodemografi para peserta. Manakala bahagian B bertujuan untuk mengumpul pengetahuan keseluruhan, sikap dan amalan penduduk yang dipilih. **Keputusan dan Perbincangan:** Terdapat perbezaan dalam pengetahuan antara masyarakat bandar dan luar bandar ($p < 0.05$). Terdapat perbezaan dalam amalan antara masyarakat bandar dan luar bandar ($p < 0.05$). Terdapat juga kaitan antara sikap dan amalan mengenai jerebu ($p < 0.05$). Kesimpulan: Kedua-dua masyarakat bandar dan luar bandar mempunyai tahap sederhana pengetahuan, sikap dan amalan terhadap jerebu. Masyarakat bandar dan luar bandar juga mempunyai perbezaan dari segi pengetahuan, sikap, dan amalan terhadap jerebu.

Kata-kata: Bandar, Luar Bandar, Habuk halus, Jerebu, Lembah Kelang

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LIST OF ABBREVIATION

WHO	World Health Organization
PM	Particulate Matter
AQH	Air quality index values
PSI	Pollutant Standards Index
CO	Carbon monoxide
SO ₂	Sulfur dioxide
O ₃	Ozone
NO ₂	Nitrogen dioxide
API	Air Pollution Index

Chapter 1

INTRODUCTION

1.1 Background

In recent decades the countries of Southeast Asia have been affected by air pollution (commonly called haze) arising from the burning of vegetation by small holders, plantation owners and logging companies. Haze is defined as the presence of fine particles (0.1–1.0 μm in diameter) dispersed at a high concentration through a portion of the atmosphere that diminishes the horizontal visibility, giving the atmosphere a characteristic opalescent appearance (MMS, 2000).

Haze episodes in the Klang Valley were usually associated with dry weather which suppressed convection. A dry layer in the lower troposphere during haze episodes was observed, and it was speculated that the dry layer could act as a lid for vertical mixing and hence contribute to the trapping of the emitted pollutants (Sham, 2001). In the Klang Valley region there are two kinds of haze; shallow localized haze and dense haze. Shallow localized haze usually occurs in urbanized areas, arises from trapping of pollutants from anthropogenic emissions in response to stabilization of the atmosphere.

While the dense haze is thought to be due to different reasons (MMS, 1995) such as the advection by prevailing winds of suspended ash particles from large-scale forest fires and open burning in Indonesia, local open-burning and the injection of suspended ash particulates from volcanic eruptions such as Mount Pinatubo in June 1991 (MMS, 1995).

Haze contains dust and smoke particles. Due to the small particulate size, the particles that make up haze can go deep into the lungs, and in some cases, enter the bloodstream. The health effects can be classified into local and systemic effects. Local effects can result in eye, nose, and throat irritation. People with history of sinus problems or sensitive nose are more likely to develop nasal congestion, sore throat and coughing. There may be increase incidents of skin irritations as well for those with eczema or other skin conditions. Systemic effects are more serious. These can range from respiratory conditions such asthma attacks and bronchitis to worsening of heart diseases such as heart attacks or heart failure.

The rising incidence of chronic heart failure has led to an increased number of persons who are potentially susceptible to adverse health effects associated with particulate matter. Congestive Heart Failure (CHF), a clinical syndrome resulting from pump failure of the cardiac muscle, is characterized by symptoms that include shortness of breath, fatigue, and edema resulting in weight gain and swelling of lower body extremities. As heart failure

worsens, patients typically experience acute, severe symptom exacerbations that require medical care (Morris, 2001). Worsening CHF is responsible for over one million hospital admissions annually, representing one of the largest categories of annual Medicare expenditures (Morris, 2001).

During the Haze Episode in Malaysia, unhealthy Air Pollution Index (API) readings were recorded all over the regions of Malaysia including in 24 areas in the states of Sarawak, with Selangor and Langkawi in Kedah being the worst hit by the haze. Residents with asthma and pulmonary problems were told to stay indoors until the air quality in their areas improved. Malaysia's aviation and maritime sectors were put on high alert following a worsening in view of the reduced visibility caused by the haze. The education ministry stated all schools had to close if the API readings surpassed 200. (MOE 2015).

As a result, on 15 September, schools in the four states of Sarawak, Selangor, Negeri Sembilan and Malacca together with the Federal Territories of Kuala Lumpur and Putrajaya were ordered to close temporarily. On 4 October, as haze reached unhealthy levels in many parts of the country, the government announced that all states except for Kelantan, Sabah and Sarawak were to close schools again for two days. The API in Shah Alam, Selangor even hit the hazardous level of 308. Until 20 October, around 1,909,842 students from 3,029 schools in Malaysia were affected, which increased to 2,696,110 students and 4,778 schools by 22 October (MOE 2015).

Each country has its own index that corresponds to a national air quality standard. For instance, air quality in Malaysia is reported as the Air Pollution Index (API) which measures carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂) and particles that are 10 micrometers or less in width (PM₁₀). Singapore uses the Pollutant Standards Index (PSI) which includes PM_{2.5} in addition to PM₁₀, CO, O₃, NO₂ and SO₂. In other countries, the air quality index is known by different names. For example, in Canada and Hong Kong, it is called the Air Quality Health Index while in India and the United States, it is simply known as Air Quality Index (AQI) are usually grouped into ranges. Each range is assigned a descriptor or severity, a color code, and a cautionary statement. Given an air quality index value, you can get a general idea of the air quality, the possible health effects associated with it and the precautions you may need to take. This provides an easy mean to communicate the quality of the air to the general public and helps them to adjust their activity levels during increased levels of air pollution.

As awareness of the source and dangers of smoke haze spread, Southeast Asian governments increasingly came under pressure from the public and civil society at the national, regional, and international level to address the haze issue . Therefore, at the regional level, ASEAN has initiated an ASEAN Cooperation Plan on the Management of Transboundary Pollution in order to address issues such as transboundary haze. Under this agreement, the members of ASEAN countries agreed to cooperatively develop and

implement measures to prevent, monitor and mitigate trans-boundary haze pollution by controlling sources of land or forest fires, the development of monitoring, assessment and early warning systems, the exchange of information and technology, and the provision of mutual assistance.

Thus, in response to the 1997 Southeast Asian haze, the ASEAN countries agreed on a Regional Haze Action Plan (1997). However, since 2003 nothing has been done to stop the fires because Indonesia has refused to ratify the agreement in order to protect their oil palm sector from scrutiny. The main reason is, this 'soft law' approach was not a legally binding agreement. It was left to the governments concerned to decide what was to be included in their national plans, with the freedom to bypass or equivocate on matters raised . Moreover, there were also no mechanisms under the plan for any member country to ensure that the other member countries fulfilled their obligations. As a result, haze persists as a regional pollution problem in Southeast Asia year after year.

1.2 Problem Statement

First and foremost, haze has been known to cause severe health effect towards human. Particles, which are of respirable sizes, are of concern because of their negative effect on health, as well as their other environmental impacts. Sham *et al.* (1991) reported that the main sources of pollutants in Klang area other than haze are vehicle and industrial emissions. Moreover, the development in this area during the last two decades has resulted in a stream of construction activities including the clearing of agricultural land for building roads, housing estates, industrial parks, and airport expansion. In the early 1990s the number of the pollutant sources increased due to the economic boom in the area.

Klang Valley rural population is located in the outskirts of Klang Valley. These lands are populated with rural community where there are also agricultural lands. The primary occupation of these villagers is agricultural based. Open burning is common here due to the mass oil palm plantation. Besides that open burning are practiced by the population here to discard their domestic waste. This adds to the severity of the haze phenomenon. The rural population level awareness on haze may influence their practice during haze. The media coverage in rural community is just above average, which brings out more reason to understand the level of awareness of the rural population. Unlike

rural areas, urban settlements are defined by their advanced civic amenities, opportunities for education, facilities for transport, business and social interaction and overall better standard of living. Factors like this may also affect the communities awareness on haze.

Besides that, the attitude and practice between urban and rural community may also differ. The inequalities between them should be studied, in order to improve both the urban and rural communities' awareness on haze. The current health promotion techniques that are used for both the urban and rural community may not be efficient, as there are inequalities in knowledge, attitude, and practice between them.

1.3 Research Justification

Researches was conducted on occurrences of haze and its relationship with particulate matters, these studies outline the potential health impact of haze (Pope III and Dockery 2006). Fine particulate matter which primarily derived from direct emission from combustion processes and haze has most concern towards the health effect due to its toxicological and physiological considerations which suggest that the fine particles may play the largest role in affecting human health (Pope III and Dockery 2006). Haze health impacts are usually related to particulate matters. Large epidemiologic studies have suggested that increased levels of air pollutants such as fine particulate matter (particulate matter ≤ 2.5 μm in aerodynamic diameter (PM_{2.5}) and nitrogen dioxide are associated with an increased incidence of myocardial infarction (Norhaniza, 2011). Evidences were also found in studies relating Particulate matters with reducing overall life expectancy (Tolbert 2004).

A research conducted on education by the ministry of Malaysia shows that, the rural population has a lower level of education which is commonly affected by poverty (Osman, 2011). Lower education level usually results in lower level of specific knowledge regarding haze. This in turn would also affect the attitude and practice of the community. Equality in access to education is becoming a significant factor behind

income disparities in rural and urban areas as the urban areas are frequently associated with greater access to education (Christian, 2010). By understanding the inequalities of the urban and rural population on haze, it therefore closes the gaps of inequalities in terms of knowledge between the communities.

Although studies on the health effect on haze are important, little research has been done on the knowledge, attitude and practice (KAP) between urban and rural communities on haze. The differences on KAP that exist between urban and rural communities on Haze and its potential health impact are still a mystery. Furthermore, the inequalities of economy, education, and social status suggest that there are differences in KAP between urban and rural community. This research can establish a good baseline in determining the effectiveness of the institutional in educating the public on haze. It can also tie the knob between different ranges of communities in understanding the practice related to haze. Besides by improving the knowledge, attitude and practice of the urban and rural community we can also reduce the risk of population developing short or long term side effect on haze.

1.4 Conceptual Framework

Figure 1.1 shows the conceptual framework of this study. It can be concluded that the institutional plays an important role in the community. Communities may differ as shown and can be divided into urban and rural community. Furthermore, knowledge attitude and practice is the main aspect to be studied in order to understand the awareness of the community.

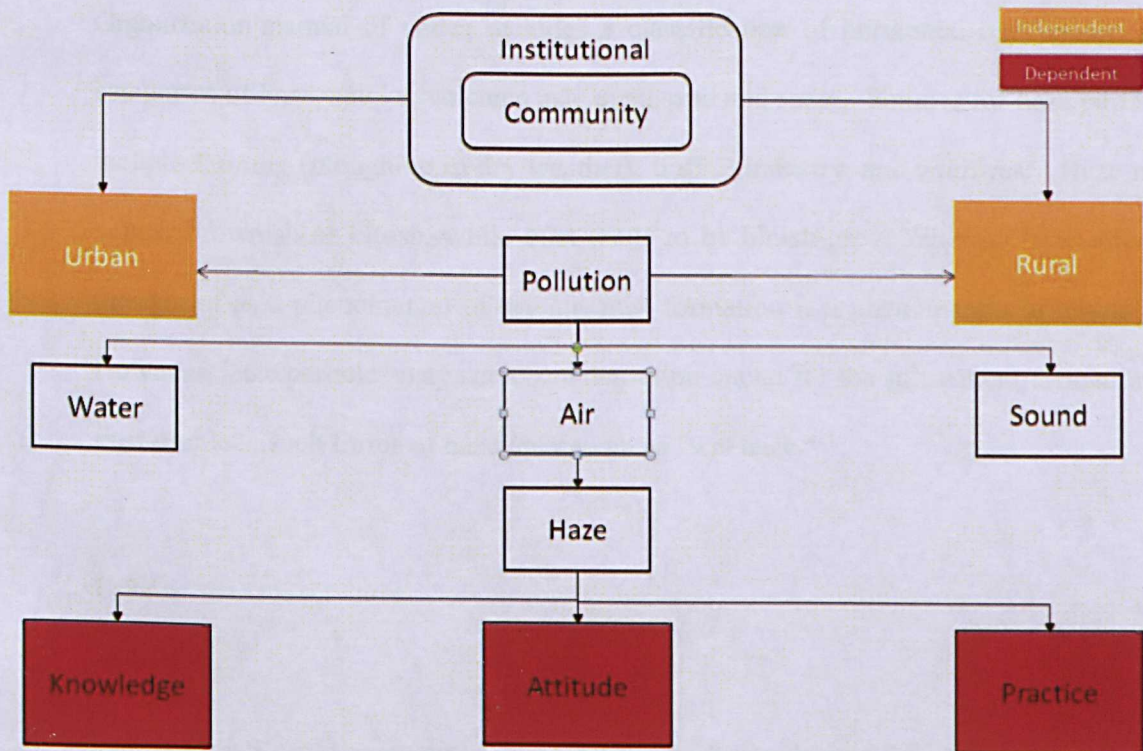


Figure 1.1: Conceptual Framework

1.5 Definition of Terms

1.5.1 Conceptual Definition

Haze

Haze is traditionally an atmospheric phenomenon where dust, smoke and other dry particles obscure the clarity of the sky. The World Meteorological Organization manual of codes includes a classification of horizontal obscuration into categories of haze, smoke, volcanic ash, dust, sand and snow. Sources for haze particles include farming (ploughing in dry weather), traffic, industry, and wildfires. Haze may appear brownish or bluish, while mist tends to be bluish-grey. Whereas haze often is thought of as a phenomenon of dry air, mist formation is a phenomenon of humid air. However, haze particles may act as condensation nuclei for the subsequent formation of mist droplets; such forms of haze are known as "wet haze."

Urban

Urban settlements are defined by their advanced civic amenities, opportunities for education, facilities for transport, business and social interaction and overall better standard of living. Socio-cultural statistics are usually based on an urban population.

Urban areas are also classified according to land use and density of population. But this can vary from developed countries to developing countries. For example, in Malaysia, urban cities must include at least a 1,000 residents with 200 or more people per square kilometer.

Rural

Rural areas may develop randomly on the basis of natural vegetation and fauna available in a region, urban settlements are proper, planned settlements built up according to a process called urbanization. Many times, rural areas are focused upon by governments and development agencies and turned into urban areas. Rural settlements are based more on natural resources and events; the urban population receives the benefits of man's advancements in the areas of science and technology and is not nature-dependent for its day to day functions.

Knowledge

Knowledge is a precondition for environmental awareness to ignite in individual. It is the student's ability to understand and evaluate the impact of the society on the ecosystem. (Rosta et al., 2011)

Attitude

Attitude defined as manner, disposition, feeling with regards to a persons tendency of the mind to a negative attitude, be in the terms of like or dislikes and views of a concern issue (Sammut, 2013).

Practice

Practice is the observable actions of an individual in response to a stimulus, something that deals with actions.

1.5.2 Operational Definition

Haze

Haze is also known as an atmospheric phenomenon where dust, smoke and other dry particles obscure the clarity of the sky. The World Meteorological Organization manual of codes includes a classification of horizontal obscuration into categories of haze, smoke, volcanic ash, dust, sand and snow. Haze often is thought of as

a phenomenon of dry air, mist formation is a phenomenon of humid air. However, haze particles may act as condensation nuclei for the subsequent formation of mist droplets; such forms of haze are known as "wet haze."

Urban

Urban community was chosen as part of this study of knowledge, attitude, and practice. The urban community chosen was located Subang Jaya.

Rural

Rural community was also chosen as part of this study of knowledge, attitude, and practice for the purpose of inequality comparison. The rural community chosen was located Kampung Batu Laut.

Knowledge

The knowledge of the population was evaluated by using self-administrated questionnaires. These questionnaires consist of general information on haze, and also the importance of haze. Closed ended question was also used in the process of evaluation.

Attitude

The attitude of the population was evaluated by using self-administrated questionnaires. The respondents were tested with scale type questions. These questionnaires are then scored to evaluate their attitude.

Practice

Practice of the population was also evaluated by using self-administrated questionnaires. These questionnaires consist of general practice on haze. Closed ended question was also used in the process of practice evaluation.

1.6 Objective of Study

General Objective:

To determine the urban and rural inequality in knowledge, attitude and practice on Haze.

Specific Objective

1. To determine the social demographic information of Klang valley population.
2. To determine the knowledge, attitude and practice of overall population.
3. To determine the significant difference in knowledge, attitude and practice between urban and rural population.
4. To determine the association of knowledge, attitude and practice between urban and rural population.

1.7 Study Hypothesis

1. There is significant difference between urban and rural population in knowledge, attitude and practice of haze.
2. There is significant association between urban and rural population in knowledge, attitude and practice of haze.
3. There is significant relationship between urban and rural population in knowledge, attitude and practice of haze

Chapter 2

LITERATURE REVIEW

2.1 Haze

For the last 25 years, widespread burning of forest has occurred in almost every year in Indonesia resulting in serious air pollution or haze in both Indonesia and its neighbors. In 1997 and 1998, the burning and consequent haze reached critical proportions and was brought to the attention of the world community. Since 1998, outbreaks of forest fires have continued to occur over prolonged periods of each year. The worst years were 2001 and 2002 when many fires occurred in forest reserves and plantation areas of Riau province, in West and Central Kalimantan and in several provinces of Sumatra. The same areas were affected by widespread forest burning in 2003.

From March to July 2004, widespread forest burning in Sumatra and Kalimantan has once again become noticeable, and has led to increased air pollution at different times during this period in Singapore, Malaysia and Brunei, as well as Indonesia (Anwar

2011). The hovering specter of haze existed in the region for a very long time. One record, which is more than a century old, indicated the occurrence of a serious haze hazard in the late 1880s (Brsasy, 1889). The hazard will in all probability be present in the region in the foreseeable future due to the apparent cyclic nature of the ENSO phenomenon and droughts with which it is associated. The drought will enhance combustibility of forests due to drought-induced desiccation. The expected long-term nature of haze episodes in the region is also based on what (Jim 2003) called the “deeply-ingrained” human actions and their ‘inertia’ that has worked against accepting drought as part of the natural way of things in the humid tropical environment of Southeast Asia.

2.2 Particulate Matter

Fine-particle air pollution, defined as particulate matter with an aerodynamic diameter of $<2.5 \mu\text{m}$ (PM_{2.5}), is associated with increased all-cause and cause-specific mortality and with increased respiratory and cardiovascular morbidity. While mechanisms through which inhaled particulate matter injures the pulmonary system have been documented, understanding of the biologic processes by which particulate matter may affect the cardiovascular remains incomplete. Epidemiologic research has identified adverse physiologic effects associated with increased particulate matter exposure in persons with cardiovascular disease, including reduced heart rate variability

Among persons with cardiovascular disease, those with congestive heart failure (CHF) may be especially sensitive to ambient air pollutants, principally PM_{2.5}. In general, the rising incidence of chronic heart failure has led to an increased number of persons who are potentially susceptible to adverse health effects associated with particulate matter. CHF, a clinical syndrome resulting from pump failure of the cardiac muscle is characterized by symptoms that include shortness of breath, fatigue, and edema resulting in weight gain and swelling of lower body extremities. As heart failure worsens, patients typically experience acute, severe symptom exacerbations that require medical care, usually through a hospital emergency department. Worsening CHF is responsible for over one million hospital admissions annually, representing one of the largest categories of annual medicare expenditures (Carrol 2009).

Primary cardiac arrest represents a significant public health problem in developed countries, accounting for an estimated 250,000–300,000 events annually . In addition, an improvement in mortality from acute myocardial infarction in conjunction with an aging population has resulted in an epidemiologic cohort at increased risk for primary cardiac arrest . Although major advances have occurred in our understanding of the more proximate cellular and molecular influences that contribute to the overall incidence of primary cardiac arrest , gaps remain in our understanding of the triggering factors responsible for primary cardiac arrest in both apparently healthy persons and those with established cardiac diseases. (Marry 2011)

2.5 Haze and Knowledge

Fritz (2008), defines knowledge as a precursor to an optimistic or pessimistic reaction of people, substance, occurrence, behavior, thoughts, or anything within the surroundings. It is very essential to uncover the meaning following the reaction and its atmosphere. Usually, positive attitude improvises to success and satisfaction, whereas the negative portrays failure. Knowledge in social psychology is very significant to comprehend. Moreover, attitude has numerous outcomes. Firstly, it influences perception, performance and verbalization. Secondly, it manipulates emotional well-being both mentally and physically. Lastly, it depends upon the individual's capacity to fulfill one's objective.

According to Gagne's theory, (1985) attitude is defined as: Acquired internal states that influence the choice of personal action toward some class of things, persons or events which are affected by knowledge.(Gagne 1985; Driscoll 2005.)

2.6 Haze and Attitude

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essential to uncover the meaning following the reaction and its atmosphere. Usually, positive attitude improvises to success and satisfaction, whereas the negative portrays failure. Attitude in social psychology is very significant to comprehend. Moreover, attitude has numerous outcomes. Firstly, it influences perception, performance and verbalization. Secondly, it manipulates emotional well-being both mentally and physically. Lastly, it depends upon the individual's capacity to fulfill one's objective.

The original concept of attitude consists of three major components as Affective Behavioral and Cognitive. The Affective 'A' confirms the expressions from emotions and how an individual feels toward an impact of an object. The behavioral 'B' determines the conducting manners that are reflected after how the individual has reacted towards the force of contact. Finally, the Cognition 'C' interprets the determination of the individual's belief and credence after the collision of an experience. The triumph of trio ABC consequently, accompanies how an individual's attitude toward a subject or an object. (Kwon & Vogt, 2010; McLeod 2009.)

Attitude lends a hand for an individual to survive the milieu through the function knowledge and utilitarian. Similarly, expands and sustain association within the society therefore, value-expressive and impression management function of attitudes are ordinary on site (Hogg & Vaughan 2005). According to cultural variances, attitude accentuate on the individual to illustrate uniqueness in independent western cultures

whereas, in inter-dependent ethnicity underlines assembly of synchronization and harmony (Wang 2012; Webb & Sheeran 2006).

2.7 Haze and Practice

According to Fritz (2008), the components of negative and positive practice in environmental problems are clearly divided, the negative consisting; laxity, unawareness, over poise, sarcasm, lethal, hasty, rage, irresponsible and languid etc. Whereas, the positive consisted; heartening, contentment, attentive, shows positive reception, supportive, forecast in advance, vigilance and preciseness (Kwon & Vogt 2010; Fritz 2008). The distinction between the positivity and negativity solely depends upon the affective branch of an practice in which an individual echoes the reaction on the basis of precedent experiences candidly or circuitously (Kwon & Vogt 2010).

Chapter 3

METHODOLOGY

3.1 Study Design

The was a comparative cross sectional to determine the urban and rural inequality in knowledge, attitude and practice on haze.

3.2 Study Location

Occupying a central location on the West Coast of Peninsular Malaysia, the Klang Valley region is a highly populated and industrialized urban area. This region includes the following: Kuala Lumpur, the capital city of Malaysia, Petaling Jaya, a densely populated and industrialized area, Shah Alam, the state capital, Klang and Port Klang. The outskirts of Klang Valley are the dense agricultural land, mainly oil palm plantation. This region has been shown to have a high potential for pollution because of the increase in pollution sources following rapid urbanization and haze.

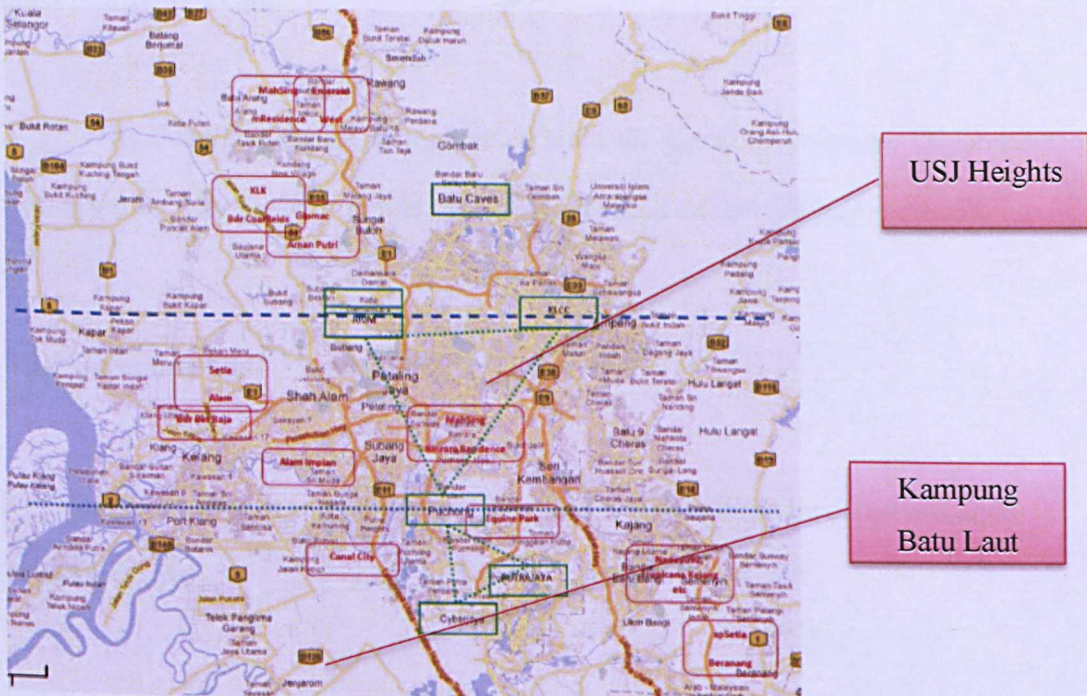


Figure 3.1: Study Location

3.3 Sampling

3.3.1 Sampling Population

The sample population for this study are the urban and rural residents of Klang Valley.

3.3.2 Sampling Frame

The Sampling Frame was obtained from the Local Government Department of Klang Valley. The population was then selected based on their inclusive criteria.

3.3.3 Sampling Unit

Urban and Rural population of Klang Valley where those involved was aged between 20-50.

3.3.4 Sampling Method

Stratified Sampling Method was used to select population of this study. The following figure 3.2 and 3.3 shows the stratified sampling method done.

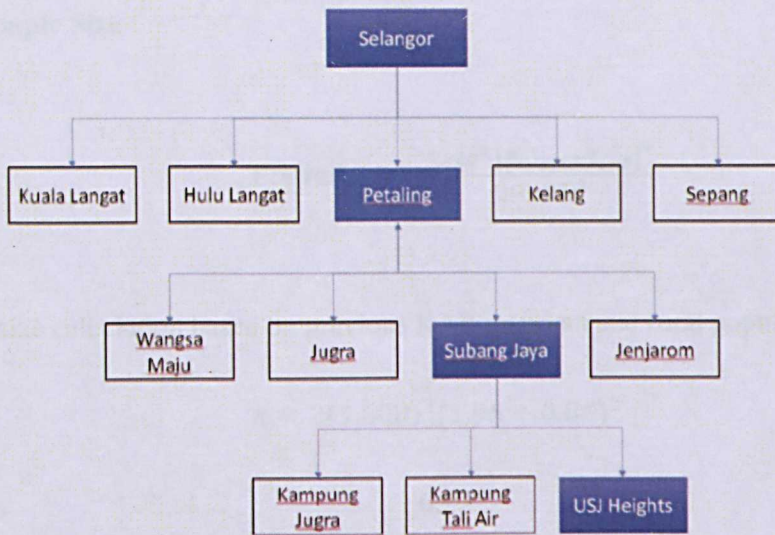


Figure 3.2 Flow chart of sampling method (urban population)

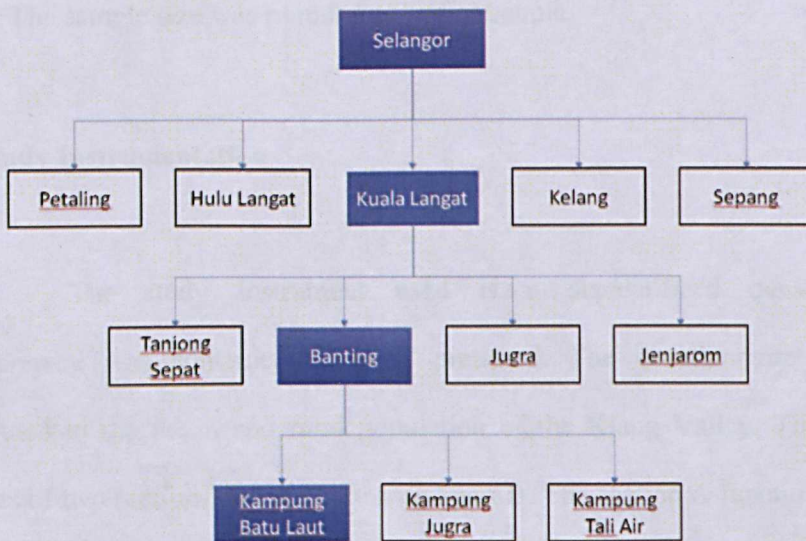


Figure 3.3 Flow chart of sampling method (rural population)

3.3.5 Sample Size

$$\text{Formula, } n = \frac{2x2\sigma^2 [Z_{1-\alpha/2} + Z_{1-\beta}]^2}{(\mu_1 - \mu_2)^2}$$

Sample size calculation based on previous KAP on urban and rural population

$$\begin{aligned} n &= 2(1.608)^2(1.96 + 0.84)^2 \\ & \quad 0.2 \\ &= 390.5 \\ &\approx 400 \end{aligned}$$

The sample size was rounded of to 400 people.

3.4 Study Instrumentation

The study instrument used is a standardized questionnaire. The questionnaire was constructed and is pretested. The questionnaires will then be distributed to the urban and rural population of the Klang Valley. The questionnaire consists of two sections that are part A and part B. The section A functions to collect the socio-demographic information of the participants. While the section B is constructed to collect the overall knowledge, attitude and practice of a selected population.

3.5 Data Collection

After all application process was accepted, the questionnaire was distributed to the respondent randomly prior to data collection. Figure 3.4 shows the flow chart of sampling strategy to obtain permission and the process of reaching to the members of public.

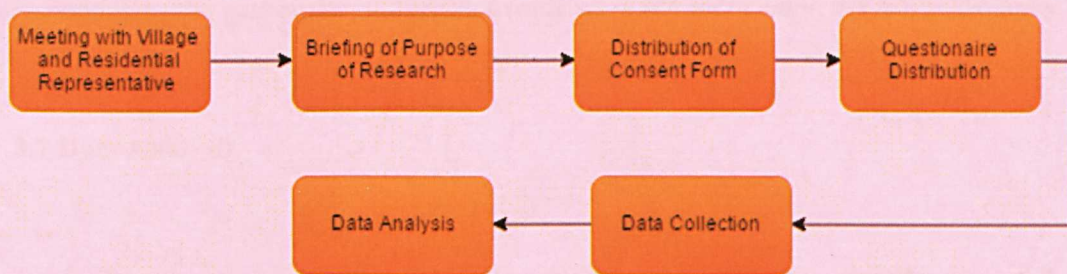


Figure 3.4 Flow chart of Data Collection

3.6 Quality Control

In order to ensure questionnaire reliability, a pilot study was conducted both the rural and urban community. 50 respondents was chosen for the pretest using Cronbach alpha to test the internal reliability and consistency of the whole section of the questionnaire. The 50 questionnaire was analyzed using SPSS to calculate the Cronbach alpha. The Cronbach alpha value was 0.81. Cronbach alpha value of 0.7 or more was accepted for Reliability test for questionnaires Bryman and Cramer (2005). The respondents who participate in the pilot study were not included in the full scale study.

3.7 Data Analysis

Data analysis was done by using SPSS version 22. The test for knowledge, attitude and practice all had 10 questions.

The scoring for planned as below:

1. Knowledge scoring method

Right answer : 1 point

Wrong answer : 0 point

The obtained score were then converted in terms of score level and was classified into 3 level (low, moderate and high knowledge). Possible scores, ranged between 0-10

points. A mean score and standard deviation of the group were used to classify the subjects into 3 category as follows (Ajith, 2010)

- Good level : score $>$ Mean + S.D
- Moderate level : score = Mean +/- S.D
- Low level : score $<$ Mean +/- S.D

2. Attitude scoring method

- Strongly agree answer : 5 points
- Agree Answer : 4 points
- Not certain : 3 points
- Disagree Answer : 1 point

The obtained score was converted in terms of score level and classified into attitude levels. Possible score ranged from 1-50 points. A mean score and standard deviation of the group were used to classify subjects into 3 groups as follows (Ajith,2010)

- High Attitude : score $>$ Mean + S.D
- Medium Stitude : score = Mean +/- S.D
- Low Attitude : score $<$ Mean +/- S.D

3. Practice scoring method

Right answer : 1 point

Wrong answer : 0 point

The obtained score were then converted in terms of score level and was classified into 2 levels (poor and good practices). Possible scores, ranged between 0-10 points. A mean score and standard deviation of the group were used to classify the subjects into 2 category as follows (Ajith, 2010):

Good level : score $>$ Mean + S.D

Poor level : score = Mean \pm S.D

3.8 Ethical Consideration

Ethical approval was obtained by the Ethic Committee of University Putra Malaysia before this study was conducted.

3.9 Study Limitation

Recall bias may be one of the study limitations as some of the information of haze will have to be recalled back by the respondents.

Chapter 4

Result and Discussion

This chapter includes the descriptive and analytic findings on social demographic characteristic, knowledge, attitude and practice. It also shows the descriptive findings on general information followed by the descriptive characteristic on general knowledge haze pollution, knowledge on haze, attitude, and also the practices during a haze. Furthermore it also includes the analytic findings on the comparison between groups of urban and rural community. The association of all the independent variables and dependent variable are also shown later in this chapter.

In order to complete the study, 400 copy of questionnaire was distributed. The questionnaires were distributed both to the urban and rural population in Klang valley. Out of 400 copy of questionnaire that was handed out, the response rate was 400. The questionnaire was completed by the participants and then sent back to the researcher.

This study was a cross sectional study to explore the knowledge, attitude and practice on haze among the urban and rural community by administrating questionnaires.

4.1 General Social Demographic Characteristic

This part shows frequency distribution of selected variables describing background characteristics of the respondents. Table 4.1 reveals general information such as age, sex, races, occupation, level of education, income both from urban and rural community. The following diagram 4.1, 4.2, 4.3, 4.4 also summarizes the social demographic properties of the urban and rural community in terms of bar chart and pie chart.

A total of 400 respondent was chosen from two location of urban and rural community in Klang Valley. Survey was conducted in the Subang Jaya and Kampung Batu Laut consecutively. All the participants for the research both from urban and rural are above 21 years of age and below 55 years of age. Both urban and rural are of same number of participants that is 200 for urban and 200 for rural. Following up on sex, the

study population of the rural community comprises of 90 females and 110 males. Meanwhile, the urban community comprises of 107 females and 93 males.

Furthermore the participants of this research are multiracial comprising of Malay, Chinese, Indian and Others. The Malay race was most dominant for both urban and rural community. Malay race made up 85% of rural community and 60% of the urban community. Chinese race made up 10 percent of the rural population and 30% of the urban population. Finally the Indian race made up 4% of the rural community and 8% of the urban community.

The income of the rural community was lower than of the urban community. 80% of the rural community had income below RM5000. While for the urban community 70% of them had income above RM5000.

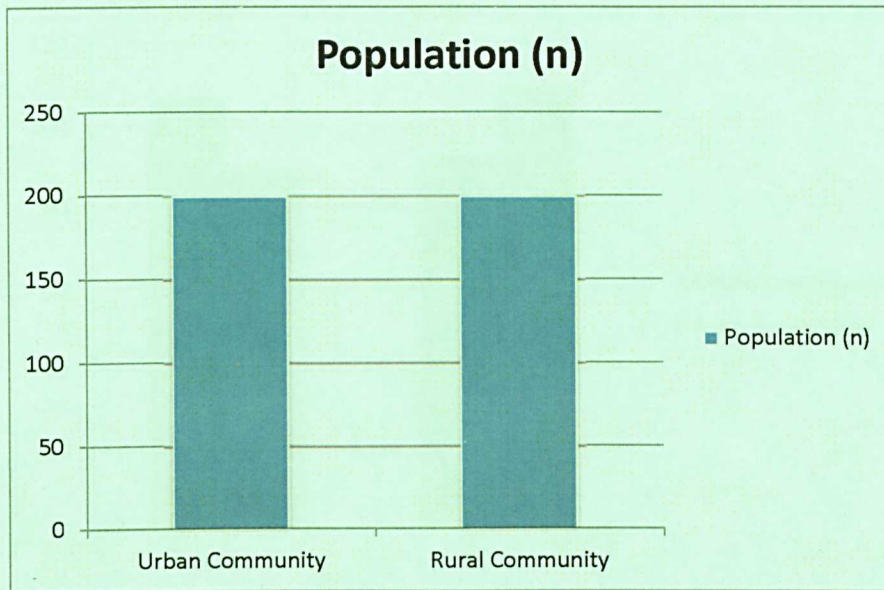


Figure 4.1: Total number of population in both urban and rural community

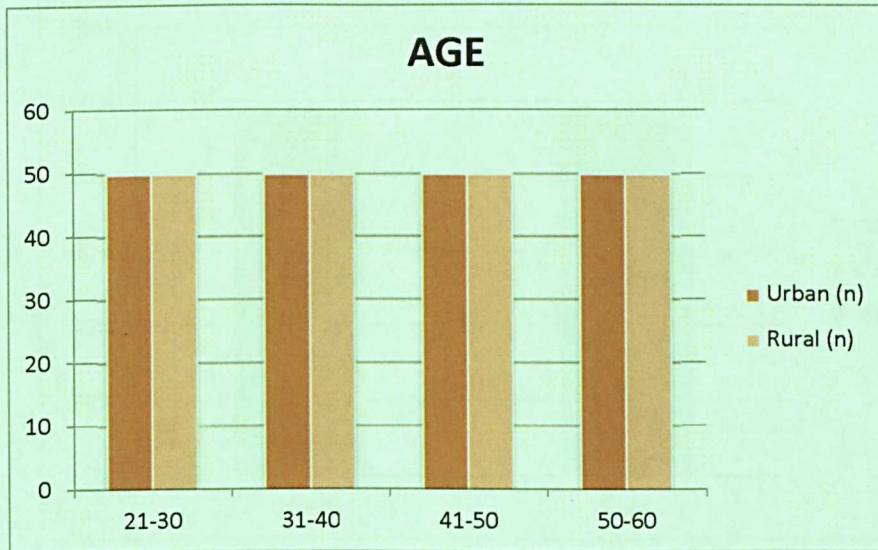


Figure 4.2: Total number of population of age in both urban and rural community

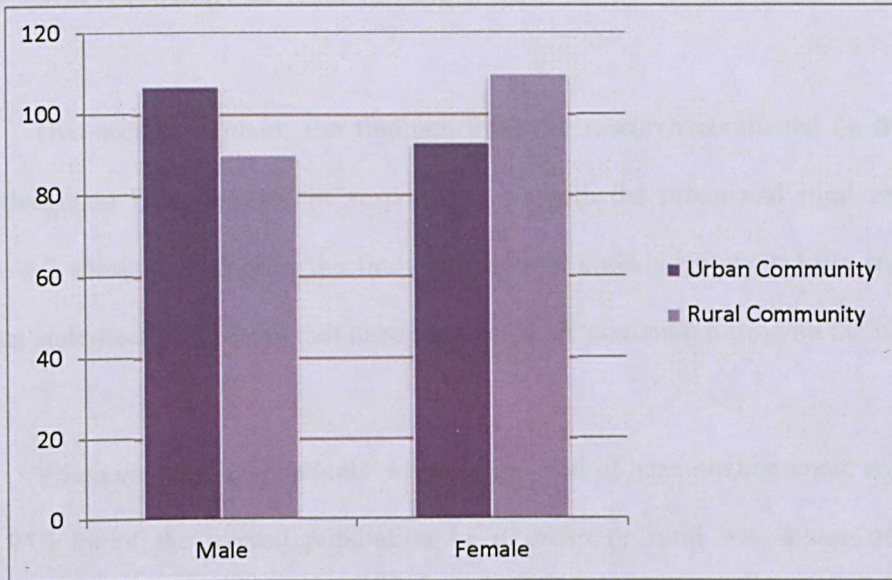


Figure 4.3: Gender of population involved in both urban and rural community

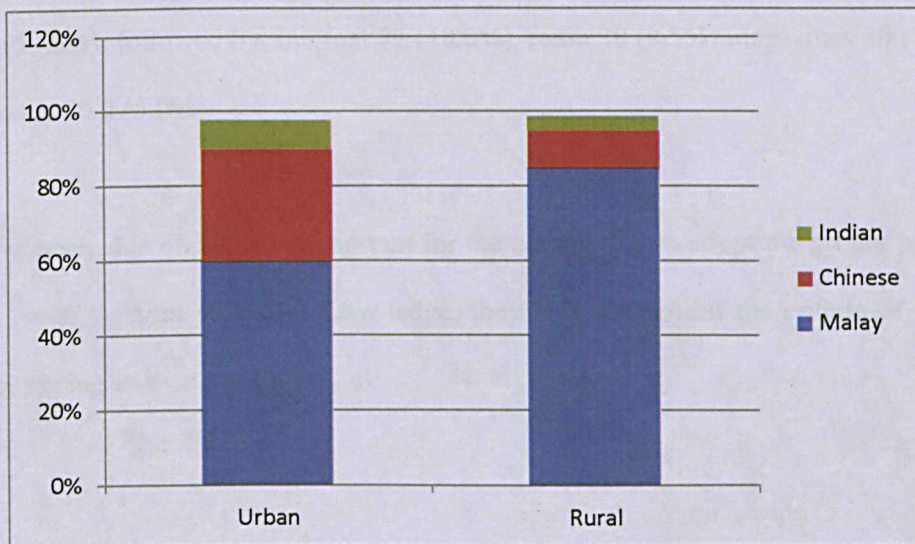


Figure 4.4: Ethnicity of population involved in both urban and rural community

4.2 General Knowledge on Haze Phenomenon

This section explains the findings from the research conducted on the general knowledge on Haze among the respondents of both the urban and rural community. Table 4.2 shows summarizes the findings on basic knowledge about haze such as API checks and also the knowing that haze has been a phenomenon hitting on the nation.

When examine respondents' knowledge level of haze phenomenon, result shows that 95.5 % of the overall population be it urban or rural was aware of the haze phenomenon. In addition, 92.5 % of the population has the knowledge of haze happening in Malaysia. This increasing number of participants were reported to have chosen television as their primary source of obtaining information about haze which was at 240 (60.0%), followed by, Internet 72 (18.0%), radio 38 (9.5%) magazines 30 (7.5%), and friends 20.0 (5.0%).

Knowledge on Haze is important for the community to adopt the proper practice during haze. Without sufficient knowledge, they will not exhibit the criteria of proper practice during an event of haze.

Examining the knowledge of API index

An API check is used to monitor the air quality during a haze phenomenon. Knowing the API index is important during a Haze episode. From Table 2, the overall population showed that (255) 63.75% of them was aware of the API index which (145) 36.25% of the remaining was not aware about it. From this study it was found that 247 (61.75) did check for API index during haze. While the remaining 153 38.25% fail to do so.

Due to severe haze episode that strikes this nation, the government has taken initiative to inform the public on the matters of haze. Reading newspapers, article and social media coverage can also affect the communities in terms on their knowledge. The urban community has a higher educational background, which explains their higher knowledge on haze and its health effect. This in turn will lead them towards reading more newspapers, article and following the latest API index to keep up with the haze situation.

Besides the rural community also do come around in taking haze matters to concern, although they have an average lower educational background, the social media and television has played an good role in educating them on the matters of API index, which shows the results that, even the rural community is aware of the API index.

Table 4.2 : General knowledge of the overall population on haze

General Knowledge	Number of participants (n)	Percentage (%)
Knowing Haze Phenomenon		
(n=400)		
Yes	382	95.5
No	18	4.5
Knowing Haze has occurred in Malaysia		
(n=400)		
Yes	370	92.5
No	30	7.5
Source of information on Haze (n=400)		
Television	240	60.0
Radio	38	9.5
Magazines	30	7.5
Internet	72	18.0
Friends	20	5.0
Knowing API index		
Yes	255	63.75
No	145	36.25
Daily API check		
Yes	247	61.75
No	153	38.25

4.3 Knowledge Level on Haze

A total of 10 questions were asked to explore the knowledge of haze among the respondents. Each correct answer is scored as 1 and 0 for an incorrect answer. The obtained score was then converted into score levels and was classified into 3 levels as follows, low, medium and high knowledge. Possible scores ranged between 0-10 points. A mean score of 7.02 and standard deviation of 1.557 was used to classify the subjects into 3 groups as follows (Ajith,2010)

- Good level of knowledge : score of 9 or more
- Moderate level : score between 8-5
- Low level : score of 4 below

In order to summarize the knowledge level of the respondents, the distribution of knowledge towards haze was shown on table 4.3. We can therefore conclude that community from urban areas showed a higher level of knowledge on haze by 53 people at (26.5%) compared to rural by 120 people at (17%). For average level of knowledge urban community had 130 (65%) compared to rural that has 69 people (60%). There were also 17 respondent (8.5%) of the urban community and 46 respondents (23%) of rural community with poor level of knowledge.

Knowledge is vital for the both the communities to adopt the practice of recycling. Without sufficient, they cannot perform the proper practice during haze. Both the urban and rural community might be exposed to the general knowledge on haze, but the more detailed and rather to specify the health effects of haze are more understood by the urban community. Knowledge is a precondition for environmental awareness (Gambro et al., 1996) . Specific knowledge can further strengthen the attitudes and practices (Awang *et al.*, 2013).

Although the knowledge of respondents was relatively moderate, they are still difference in the knowledge shown by the urban community and rural community. Knowledge will affect the respondents self-learning, managing behavior, situation awareness and decision making (Lorenz *et al.*, 2005).

Table 4.3 Level of knowledge of respondents on Haze

Level of knowledge	n(%)	
	Urban	Rural
High Knowledge	53(26.5)	34(17)
Average Knowledge	130(65)	120(60)
Low Knowledge	17(8.5)	46(23)

4.4 Attitude towards haze

In order to understand the attitude of the population towards haze, all the respondents were asked about the opinion to either agree or disagree the statements for the attitude during a haze phenomenon. The attitude part has a total of 10 questions. The score was given 5 strongly agree, 4 for agree answer, 3 for uncertain answer, 2 for disagree and 1 for strongly disagree.

The obtained attitude score is converted in terms of attitude score level and was classified into 3 levels (low, moderate, and good attitude). Possible score ranged between 1-50 points. A mean score of 34.43 and a standard deviation of 5.340 was used to classify the subjects into 3 groups as follow (Ajit 2010);

- Good level : score of 41 or more
- Moderate level : score between 30-40
- Low level : score of 29 below

Level of attitude of respondent on haze and its distribution is shown in table 4.4. The respondents from urban showed average level of attitude with 100 respondents (50%). While the rural community showed a lower level attitude on haze with 95 respondents (47.5%).

The attitude towards haze is an important determinant the communities practice during a haze phenomenon. Regarding the attitude on haze, the present study found that more than 50% of the populations have high and moderate attitude, but poor practice during haze. This shows that knowledge and attitude alone cannot bring good behavior and practice. Oweini and Hourri (2006) argue that, although attitude is requisites for positive action, attitude alone may not push an individual into action.

Changing the community attitude is a challenging task, because peoples attitude differs and attitudes accumulates throughout the upbringing process depends on the believe of the individual itself (Awang *et al.*, 2013). Although the attitude of respondents was relatively moderate, they are still difference in the attitude shown by the urban community and rural community. Attitude is also known to be a precursor in a persons practice.

Table 4.4: Level of attitude towards haze phenomenon (n=400)

Level of attitude	N(%)	
	Urban	Rural
High level of attitude	20(10)	25(12.5)
Average level of attitude	100(50)	80(40)
Low level of attitude	80(40)	95(47.5)

4.5 Practice towards haze

For practice on haze, questions were asked to explore the practice of the population during haze. A total of 10 questions were given to the respondents to answer. Each correct answer is scored as 1 and 0 for an incorrect answer. The obtained score was then converted into score levels and was classified into 3 levels as follows, low, medium and high practice. Possible scores ranged between 0-10 points. A mean score of 4.79 and standard deviation of 2.484 was used to classify the subjects into 2 groups as follows (Ajith,2010)

Good Practice : score of 7 or more

Bad Practice : score below 6

It was found that both the urban and rural community had bad practices on haze. The good practice of urban community was slightly higher than the rural community.

Table 4.5: Level of practice during haze (n=400)

Level of practice	N(%)	
	Urban	Rural
Good Practice	51(25.5)	34(17)
Bad Practice	149(74.5)	166(83)

4.6 Comparing the knowledge, attitude and practice on haze

Table 4.6, 4.7, 4.8 shows the difference in knowledge, attitude and practice score between urban and rural community.

Difference in knowledge between urban and rural community

The p value of knowledge score for Levene's test for equality of variance was 0.797. Since the p value was more than 0.05, equality of variance was assumed. Hence, Independent t-test must be used. The p-value of the t-test was less than 0.05. Therefore, it can be assumed that there was a difference in mean knowledge score between urban and rural community. The mean of knowledge among urban community was higher compared to rural community. The 95% confident for mean difference was between 0.06 and 0.63. Null hypothesis was therefore accepted where there was a significant difference on knowledge score between urban community and rural community.

Difference in attitude between urban and rural community

The p value of attitude score for Leven's test for equality of variance was 0.040. Since the p-value was less than 0.05, the equality of variance was not meet. Hence a

non-parametric test must be used. The mean for urban community was 30.21, while the mean for rural was 29.81. Based on Mann-Whitney U test, the p-value was more than 0.05. Hence null hypothesis is rejected and therefore there was no significant difference on attitude between urban population and rural population.

Difference in practice between urban and rural community

The p-value of practice score for the Levene's test for equality of variance was 0.78. Since the p-value was more than 0.05, equality of variance was assumed. Hence, independent T-test must be used. Hence independent T-test must be used. The p-value of the test was less than 0.05. Thus, there was a difference in mean practice score between urban and rural community. The mean of practice score among urban community was higher compared to rural school. The 95% confident interval was assumed and the mean difference was found between 0.012 and 0.560. Null hypothesis is therefore accepted where there was significant difference on practice score between the urban and rural community.

Between urban and rural community, there was significant difference in knowledge and practice, however there was no significant difference between both the urban and rural community in their attitude. It shows that the mean of knowledge and practice was relatively higher among urban population compared to rural population.

This might be due to the difference of their personality, influenced by their lifestyle and family (Zarritaj *et al.*, 2013). It might also be affected by the way information on are delivered to the population (Loon 2004). Information and communication is relatively more efficient in the urban community rather than in a rural community. This can be affected by several factors including the availability of such information. Besides the awareness level of urban population is higher which will allow them to understand knowledge to be delivered. The level of education of the urban community which is higher can explain the awareness level which is higher in the urban community compared to the rural community.

Table 4.6: Comparing the knowledge on haze between urban and rural community (n=400)

	Group	n	Mean	Std. Deviation	Sig(2-tailed)
Score Knowledge	Urban Population	200	7.12	1.608	0.018
	Rural Population	200	6.77	1.623	

n=400 independent T-test, *significant at p<0.05

Table 4.7: Comparing attitude on haze between urban and rural (n=400)

	Group	n	Mean	Std. Deviation	Sig(2-tailed)
Score Attitude	Urban Population	200	29.98	10.54	0.018
	Rural Population	200	27.81	9.72	

n=400 independent T-test, *not significant at p>0.05

Table 4.8: Comparing the practice on haze between urban and rural (n=400)

	Group	n	Mean	Std. Deviation	Sig(2-tailed)
Score Practice	Urban Population	200	5.07	2.367	0.012*
	Rural Population	200	4.51	2.570	

n=400 independent T-test, *significant at p<0.05

4.7 Association between Social Demographic with Knowledge, Attitude and Practice on Haze.

The association between gender and age with the population's knowledge, attitude, and practice was analyzed using Chi-square test and presented in the table 4.9, 4.4.10 below.

A number of factors have been shown to be determinant of behaviors (Alwitt *et al*, 1996). From Yung (2010) research shows that factors such as social demographic, education level and gender do not hold any relevancy in determining the behavior of a certain environmental related behavior.

There was no association between gender with the attitude of the population. There was also no association between age with the attitude of the population. This can be explained again by the difference in the personality of both the populations, which are influenced by the different family and lifestyle of the urban and rural community.

4.7 Association between Knowledge and Attitude on the Practice during Haze.

Chi – Square test was used to analyze the association between knowledge and attitude during haze and was presented in the table.

More than 60% of either the urban or rural community has moderate knowledge with poor practice during haze. The p-value of the test was less than 0.01. Table 4.9 shows the association between knowledge and practice during haze. The people with poor knowledge tend to have poor practice during haze.

About 50% have moderate attitude with poor practice on haze. Table 4.10 shows the p value test was less than 0.01. There was an association between attitude and practice on haze. People with moderate attitude tend to have poorer practice during haze.

The study performed showed significant association between knowledge-attitude level with practice level. Community with moderate level of attitude tends to have poor practice during haze phenomenon.

According to Awang *et al.*, (2013), the knowledge on haze and attitude has a direct influence on the practice during haze. In order to improve the practice of the

community, their knowledge on haze therefore needs further improvements. At the same time, their attitude towards haze must also be strengthened as well. This is so to ensure practice such as wearing a N95 mask becomes a common practice during a haze phenomenon. Since attitude formation are closely related to upbringing, the early exposure to practices during haze should also be focused on younger generation groups.

Table 4.9 Association between Knowledge and Practice

		Count	Practice Level		p-value
			Good Practice	Poor Practice	
Knowledge	Good	87	53	34	0.000*
	Moderate	250	130	120	
	Poor	63	17	46	

N=400 Chi-square test *significant at $p < 0.01$

Table 4.10 Association between Attitude and Practice

		Count	Practice Level		p-value
			Good Practice	Poor Practice	
Attitude	Good	45	20	25	0.000*
	Moderate	180	100	80	
	Poor	175	80	95	

N=400 Chi-square test *significant at $p < 0.01$

Chapter 5

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Generally, this study indicated that the level of knowledge and attitude among the rural and urban community was moderate. However, the practice during haze was low on both the urban and rural community. Although certain knowledge was higher among the urban community, the attitude and practice shown by the urban community was still rather lower. The rural community otherwise also showed lacking in certain specific knowledge on haze. Thus, necessary steps are required to produce a better outcome to balance up the inequality present in the knowledge, attitude and practice both the urban and rural community.

This study also concluded that, knowledge and practice between urban and rural community was significantly different. The mean of knowledge and practice of the urban community was higher compared to the rural community. However the attitude among urban and rural community did not show any significant difference.

Proper practice during haze important in order to reduce the health effect that is caused by it. Among the practice that should be improved includes, wearing N95 mask, staying indoors, and hydrating adequately. Information sources are widely available on haze now, and the public should be more aware of it and take precaution measures during the times of haze.

5.1 Recommendation

Knowledge, attitude, and practice is a field that should be taken into concern as it is able to change the lifestyle of communities. As the saying goes prevention is better than cure, although haze is not a daily occurrence, studies have shown the severe health effects that can be caused by the particulates of haze. Therefore, the improvement of knowledge, attitude, and practice on haze can reduce the risk of communities from the health effects of haze.

In terms of knowledge, the institutional should focus more on the improvement of specific knowledge of the rural community. The local government should focus more on the educating the rural community on the use of N95 mask. While more policy regarding haze should be made. The rural community should be exposed to the health effects of haze.

Besides, both the urban and rural community regarding their knowledge level has poor practice. This study show that knowledge alone cannot change the practice of community and that, the approach towards haze awareness should be diverted towards changing the practices of the community during an haze phenomenon.

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APPENDICES

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Assoc. Prof. Dr. Normala Ibrahim	Assoc. Professor of Psychiatry, Department of Psychiatry, Faculty of Medicine and Health Sciences	Female	√
Assoc Prof Dr Sharmala Paramasivam	Assoc Prof of Department English, Faculty of Modern Languages and Communication	Female	√

Assoc Prof Dr Arshad Abdul Samad	Assoc Prof of Department Language and Humanities Education, Faculty of Educational Studies	Male	
Assoc Prof Dr Muhamamd Najib Mohamad Alwi (Independent Member)	Psychiatric Consultant, Cyberjaya University College of Medical Sciences (CUCMS)	Male	v
Dr. Salmiah Md. Said	Lecturer of Epidemiology, Medical Statistics, Department of Community Health, Faculty of Medicine and Health Sciences	Female	v
Assoc. Prof. Dr. Noritah Omar (Lay Person)	Assoc. Professor of English Language, Dept of English Language, Faculty of Communication and Modern Languages	Female	
Dr. Rojanah Kahar (Lay Person)	Senior Lecturer of Dept of Human Development and Family Studies, Faculty of Human Ecology	Female	
Tan Sri Dato' Napsiah Omar (Independent Member)	Chairman, National Population and Family Development Board	Female	
En John Posko Anthony (Lay Person)	Headmaster of Sekolah Jenis Kebangsaan (Tamil) Kajang	Male	v



BORANG PERSETUJUAN RESPONDEN

TAJUK PENYELIDIKAN :

Urban and rural inequality in knowledge, attitude and practice on Haze in Klang valley

PENYELIDIK :

SayaNo. Kad Pengenalan
beralamat.....
..... dengan ini bersetuju untuk mengambil bahagian secara sukarela dalam menyertai penyelidikan soal selidik seperti yang disebut di atas.

Saya telah diberi penjelasan secara menyeluruh mengenai dasar penyelidikan soal selidik. Saya memahami bahawa saya berhak menarik diri dari penyelidikan ini pada bila-bila masa tanpa memberi sebarang alasan. Saya juga memahami bahawa sebarang maklumat yang berkaitan identiti saya akan dirahsiakan.

Saya* berminat / tidak berminat untuk mengetahui keputusan kajian yang dijalankan ke atas sampel yang diambil dari saya.

** Potong yang mana perlu*

Tandatangan.....
.....
(IbuBapa/Penjaga)

Tandatangan

(Saksi)

Tarikh:.....
:.....

Nama

No

I/C:.....

Saya mengesahkan bahawa saya telah menerangkan kepada Ibu Bapa/ Penjaga ciri-ciri dan tujuan penyelidikan klinikal seperti yang dinyatakan di atas.

Tarikh

Tandatangan
(Penyelidik)



**TAHAP PENGETAHUAN, SIKAP DAN AMALAN MENGENAI JEREBU DI
KALANGAN PELAJAR PERUBATAN UNIVERSITI PUTRA MALAYSIA**

Tujuan borang kaji selidik ini adalah untuk mendapatkan pendapat maklumat daripada anda tentang tahap pengetahuan, sikap dan amalan mengenai jerebu di kalangan pelajar perubatan. Segala maklumat yang diberikan akan diproses menggunakan komputer dan disimpan secara rahsia. Hasil jawapan individu tidak akan dibentangkan dalam apa-apa jua pembentangan. Oleh yang demikian, saya memohon jasa baik daripada pihak tuan untuk menjawab borang kaji selidik ini dengan jujur dan tepat. Segala kerjasama yang diberikan amat saya hargai.

Saya telah membaca pengenalan borang soal kaji selidik dan bersetuju untuk menjawab mengikut syarat-syarat yang ditetapkan.	Ya / Tidak
---	------------

Tandatangan

Tarikh :

.....

Sulit

Maklumat adalah untuk tujuan kajian sahaja dan maklumat ini dianggap sulit.

Arahan : Sila jawab semua soalan dan tandakan (/) dalam kotak yang disediakan.

A.MAKLUMAT RESPONDEN

1. Kawasan Penduduk: Bandar () Kampung ()
2. Umur: _____
3. Jantina:
Lelaki Perempuan
4. Bangsa
Melayu Cina India
5. Tahap Pendidikan
Sekolah Rendah ()
Sekolah Menengah ()
Univerisiti ()
6. Pekerjaan () Pendapatan Sebulan ()

B.SOALAN UMUM

1. Adakah anda pernah mendengar mengenai jerebu?
Ya Tidak
2. Adakah anda menyedari tentang fenomena jerebu yang melanda negara kita?
Ya Tidak
3. Daripada manakah maklumat yang anda perolehi mengenai episod jerebu yang berlaku?

Televisyen
Radio
Surat Khabar
Rakan
Internet
Lain-lain : Nyatakan
4. Adakah anda mengetahui tentang bacaan Indeks Pencemaran Udara (IPU)?
Ya Tidak
5. Adakah anda mengetahui impak kesihatan pencemar udara yang terdapat dalam jerebu?
Ya Tidak
6. Adakah fenomena El Nino mengakibatkan jerebu bertambah teruk di Malaysia?
Ya Tidak

C. TAHAP PENGETAHUAN, SIKAP DAN AMALAN

a) Tahap pengetahuan tentang jerebu

No.	Kenyataan	Ya	Tidak
1	Zarah PM 2.5 micrometer lebih berbahaya daripada PM 10 micrometer		
2	Adakah anda mengetahui <i>particulate matter</i> bersaiz 2.5 mikrometer (PM _{2.5}) lebih berbahaya berbanding <i>particulate matter</i> bersaiz 10 mikrometer (PM ₁₀)?		
3	Adakah anda tahu jerebu boleh mengakibatkan penyakit berkaitan pernafasan seperti asma, batuk, dan sakit tekak.		
5	Adakah anda fikir kerajaan melakukan sesuatu dalam menangani isu jerebu di Malaysia?		
7	Adakah anda mengetahui keberkesanan topeng muka N95 berbanding topeng pembedahan (<i>surgical mask</i>)?		
8	Adakah peningkatan operasi perindustrian akan memburukkan lagi keadaan jerebu?		
9	Adakah anda mengetahui pembakaran di Sumatra, Indonesia sebagai punca utama jerebu di Malaysia?		
10	Adakah anda mengetahui topeng N95 boleh menapis <i>particulate matter</i> .		

b) Sikap semasa jerebu

Skala: 1=sangat tidak setuju, 2=tidak setuju, 3=tidak pasti, 4=setuju, 5=sangat setuju

No.	Kenyataan	Pilihan jawapan				
		1	2	3	4	5
1	Bacaan Indeks Pencemaran Udara (IPU) di kawasan saya dalam bacaan kurang daripada 100 dan tidak memberi apa-apa kebimbangan kepada saya.					
2	Pengurusan jerebu adalah tanggungjawab pihak kerajaan bukan daripada diri saya sendiri.					
3	Pemakaian topeng muka semasa jerebu tidak memberi apa-apa kebaikan kepada saya.					

4	Saya merasakan pengambilan air masak yang banyak ketika jerebu tidak penting bagi saya.					
5	Saya percaya pemberitahuan maklumat tentang jerebu melalui iklan TV membantu saya memperolehi lebih maklumat.					
6	Saya merasakan pendedahan tentang jerebu sepatutnya diajar kepada pelajar universiti.					
7	Saya rasa pengambilan banyak air minum semasa jerebu tidak penting kepada saya.					
8	Keluarga saya tidak menggalakkan saya untuk tinggal di luar semasa jerebu .					
9	Saya percaya bahawa penyebaran maklumat mengenai jerebu melalui media boleh membantu saya mendapatkan maklumat lanjut.					
10	Saya rasa bahawa pendedahan mengenai isu kesihatan perlu diajar.					

c) Amalan semasa jerebu

No.	Kenyataan	Ya	Tidak
1	Saya selalu mengambil air masak sekurang-kurangnya 8 gelas sehari.		
2	Saya selalu memakai topeng muka semasa jerebu.		
4	Saya sering mendidik ahli keluarga dan sahabat agar berwaspada ketika jerebu.		
6	Saya sering membasuh tangan dan muka dengan sabun dan air bersih selepas melakukan aktiviti luar.		
7	Saya selalu memastikan udara dalam rumah sentiasa bersih daripada pencemaran dalaman seperti asap rokok.		
8	Saya sering mengurangkan aktiviti luar ketika jerebu.		
9	Saya sentiasa mendapatkan informasi berkaitan jerebu dan kesannya kepada persekitaran		
10	Adakah anda menyertai program berkaitan pencemaran udara.		

Soalan tamat.

Terima kasih kerana sudi menjawab borang kaji selidik ini.

Daripada Nathanael James, Pelajar UPM.