Effects Of Exposure To Health Programs, Culture, Efficacy Expectations And Environment On Health Status Among Malaysians Of Multi-Cultural Backgrounds

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Abstract

This study determined the effects of exposure to health programs, culture, efficacy expectations and environment on health status, such as body mass index (BMI), blood pressure (BP), waist-to-hip-ratio (WHR) and resting heart rate (RHR), among Malaysians. The study utilized descriptive-correlational design. Four hundred fifty nine samples across three major geographical locations, three different cultural backgrounds such as Malays, Chinese and Indians from ages 18 and above were chosen as population using convenience sampling. Result showed that the respondents have low exposure to health programs, strong culture, strong efficacy expectations, moderate access to health care and strong social support. The respondents had overweight BMI, borderline and high WHR among males and females, respectively. Systolic blood pressure was borderline while diastolic blood pressure and resting heart rate were normal. In terms of the moderator variables, age, gender and race showed significant difference in the health status of the population; Moreover, the study further revealed that culture, specifically tradition, as well as environment, specifically access to health care delivery, are significantly related to health status.

I. INTRODUCTION

The quality of health is heavily influenced by lifestyle habits (Bandura, 2004) and with changes in lifestyle behaviour, led to abnormal health status such as high Body Mass Index (BMI), high body fat content and high blood pressure. In the United States, according to the Centre for Disease Control & Prevention, seven out of ten deaths each year is due to chronic diseases and heart disease and stroke remain the first and third leading causes of death, accounting for more than 30% of all mortality, and are among the leading causes of disability (CDC, 2009). One million Americans are disabled from strokes; many can no longer perform daily tasks, such as walking or bathing, without help (Kung, Hoyert, Xu & Murphy, 2008). With changes in the individual's BMI status, worldwide obesity has nearly doubled since 1980; in 2008, more than 1.4 billion adults (20 years and older) were overweight and of these, over 200 million men and nearly 300 million women were obese. Children are not spared, with more than 40 million children under the age of five were overweight in 2011 (WHO Factsheet, 2013).

In Malaysia, being a developing country, the pattern is very similar as compared to the western countries. The rapid change in modernization and urbanization is influencing the health behavior of Malaysians, which in turn heightens the occurrence of lifestyle diseases. For example, according to the Third National Health and Morbidity Survey (MOH, 2006), seven out of 10

Malaysians (70%) suffer from a noncommunicable disease and accounts for 51% cause of death in the country. Also, from the survey it was revealed that that there are 25% current smokers in the country while 23% are currently drinkers and nearly 70% Malaysians do not engage in exercise (MOH, 2012).

It may be right to say that in Asia, Malaysia has the most diverse culture. Malays, Chinese, Indians and other ethnic groups-have lived together in Malaysia for many generations; with their own cultural uniqueness, they have influenced each other in creating a unique country that is Malaysia-a truly Asian country (Malaysia Tourism Board, 2011). Cultural differences have an impact in health, especially in chronic diseases and mortality. For example, Ibrahim, et. al. (2013) conclude that Malay subjects had significantly higher personal barriers to exercise than Chinese subjects and

therefore are less likely to be involved in exercise; Also, they noted that Chinese women were considerably less active in both men and women and that Indians recorded the highest physical activity level. Ismail, Chee, Nawawi, Yusuff,Lim and James (2002) noted that energy intake of Indians was significantly lower than that of other ethnic groups and that Malays recorded a significantly higher energy intake than the other groups and that obesity rates were higher in

Malay women than in Chinese women, while in men the Chinese recorded the highest obesity prevalence followed by the Malay and Indians. When it comes to smoking, Lim, Ghazali, Kee, Lim, Chan, Teh, et. al., (2013) conclude that the prevalence of smoking in Malaysia remained high especially among the Malays.

It is the aim of this research to study the effects of the population's exposure to health programs, their culture, efficacy expectations and environment to health status among the multi-cultural backgrounds in Malaysia. It answered the level of health exposure, prevailing culture, self-efficacy, environment in terms of accessibility to health care and social support as well as health status of the respondents. This study also confirmed the relationships of each dependent, independent and moderator variables.

METHODS

This research utilized descriptive correlational design, employing quantitative approach and utilizing non-random, convenience sampling. The population were chosen from three major geographical regions in the Malaysian Peninsula including the states of Penang, Federal Territory (Kuala Lumpur) and Johor Bahru. The population was composed of females (60.8% or 279) and males, (39.2% or 180); as for the distribution of age, there were 276 or 60.1% comprise of those aged between 18 to 39, 159 or 34.6% were those 40-59 years of age while 87 or 19% belong to those 60 years old and above. As far as the race is concerned, there were more Chinese (51.4%) than Malays (27.9%) and Indians (19%). Furthermore, an almost equal number of Buddhists (30.9%) Christians (28.8%) and Muslims (27.7%) were observed, except for Hindus which accounted for 10.9%, and 1.7% belonging to other religion.

A self-constructed questionnaire based on the literature and the researcher's knowledge was designed using a quantitative approach. A pilot study was conducted prior to the actual conduction of the data gathering, among 70 respondents in Kuala Lumpur using convenient sampling

The respondents' health status such as body mass index, waist-to-hipratio, blood pressure and resting heart rate were measured accordingly. The researcher was helped by trained health volunteers during the duration of data gathering.

RESULTS

To analyze the data collected, this study adopted the Statistical Package for the Social Sciences (SPSS) software. In order to find out the demographic data of the population, frequency table and percentage were used. To describe the independent and dependent variables, Mean and Standard

Deviation were used. To find out the relationship between independent and dependent variables, stepwise regression treatment was employed. Lastly, ANOVA was also employed in order to determine existing relationships between the dependent and moderator variables.

Table 1 shows the overall mean value for *Level of exposure to health programs* was 4.88 with a standard deviation of 1.43; This result showed that the respondents' exposure to health programs was *low.*

Table 1

Exposure to Health Program

N	Mean	Std Deviation	Verbal Interpretation
459	**4.88**	**1.43**	**Low Exposure**

Scoring System: 10.51-13.00 (Very high exposure); 9.51-10.50 (High exposure); 6.51-9.50 (Moderate exposure); 3.51-6.50 (Low exposure); 1.00-3.50 (Very low exposure); 0.00 (No exposure)

For the prevailing culture of the population, the overall Mean result was 3.67 which suggest that the respondents have strong culture as reflected in table 2.

Table 2
Prevailing Culture

N	Mean	Std Deviation	Verbal Interpretation
459	**3.67**	**0.50**	**Strong Culture**

Scoring System: 4.51-5.00 (Very strong); 3.51-4.50 (Strong); 2.51-3.50 (Moderate); 1.51-2.50 (Weak); 1.001.50 (Very weak)

The prevailing efficacy expectation, or the person's level of self confidence in dealing with changes in one's life was 3.54 with a standard deviation of 0.36, which showed that the respondents have high level of efficacy expectations.

Table 3
Prevailing Efficacy Expectation

N	Mean	Std Deviation	Verbal Interpretation
459	**3.54**	**0.36**	**High Efficacy Expectation**

Scoring System: 4.51-5.00 (Very high); 3.51-4.50 (High); 2.51-3.50 (Moderate); 1.51-2.50 (Low); 1.00-1.50 (Very low)

In terms of environment, there were two variables involved such as access to health care delivery and social support; the mean score for the variable access to health care delivery was 3.28 which is interpreted as moderate access as reflected in table 4:

Table 4
Access to Health Care Delivery

N	Mean	Std Deviation	Verbal Interpretation
459	**3.28**	**0.58**	**Moderate Access**

Scoring System: 4.51-5.00 (Very high); 3.51-4.50 (High); 2.51-3.50 (Moderate); 1.51-2.50 (Low); 1.00-1.50 (Very low)

For the variable social support, the total mean score was 3.71 with a corresponding interpretation as high support, which is reflected in the table below:

Table 5
Social Support

N	Mean	Std Deviation	Verbal Interpretation
459	**3.71**	**0.72**	**Strong Support**

Scoring System: 4.51-5.00 (Very high); 3.51-4.50 (High); 2.51-3.50 (Moderate); 1.51-2.50 (Low); 1.00-1.50 (Very low)

The health status of the population was measured in terms of Body Mass Index (BMI),

Blood Pressure (BP), Waist-to-Hip Ratio (WHR) and Resting Heart Rate (RHR). The following table represent the result of this study:

Table 6
BMI

Health Status	Mean	Std Deviation	Verbal Interpretation
BMI	**24.69**	**5.08**	**Overweight**

Legend: BMI (normal: 18.5-22.9, overweight: 23-24.9, obese: 26 and above)

In terms of Body Mass Index, or BMI, the overall mean was 24.69 with a standard deviation of 5.08, this is interpreted as *Overweight.*

Table 7

Health Status	Mean	Std Deviation	Verbal Interpretation
Systolic Blood Pressure	**124.03**	**17.10**	**Pre-Hypertension**
Diastolic Blood Pressure	**76.57**	**10.49**	**Normal**

Blood Pressure

Legend: Systolic (normal: 90-120, pre-hypertension: 121-130, hypertension: 131 and above)); Diastolic (normal: 60-80, pre-hypertension: 81-90, hypertension: 91 and above)

The Blood Pressure of the population was divided into Systolic, with an overall mean of 124.03 and a verbal interpretation of *prehypertension,* and Diastolic, having a mean score of 76.57 which is considered as *normal.*

Table 8
Waist to Hip Ratio

Health Status	Mean	Std Deviation	Verbal Interpretation
Waist-to-Hip-Ratio (Female)	**0.86**	**0.10**	**High**
Waist-to-Hip Ratio (Male)	**0.94**	**0.11**	**Borderline**

Legend: WHR (Female: normal-below .80, borderline:.81.85; High:.86 and above; Male: normal-below .90, borderline:.91-.95, high: .96 and above)

In terms of Waist-to-Hip Ratio, or WHR, the overall mean for female was 0.86 which is interpreted as *high*. For males, the result was 0.94 which shows *borderline.*

For Resting Heart Rate or RHR, the overall mean score was 78.87 with a standard deviation of 11.97, this is interpreted as *normal.*

Table 9
Resting Heart Rate

Health Status	Mean	Std Deviation	Verbal Interpretation
Resting Heart Rate	**78.87**	**11.97**	**Normal**

Legend: RHR (normal: 60-100 beats/minute; Bradycardia: 59 and below; Tachycardia: 101 and above)

The relationships between the iindependent, dependent and moderator variables are reflected in the tables below using stepwise regression; The result showed Culture and Environment as the variables that are related to BMI, Blood Pressure and WHR.

Table 10
Relationship between Culture and BMI

	Unst. Coefficient B	Unst. Std. Error	Std. Coefficient B	t-value	Sig	R-Sq. Change
Tradition	-1.62	0.51	-0.14	-3.19	.002	012

R-Square= .012, F=22.559, Sig= .002

The table above reflects the relationship between culture and BMI having unstandardized coefficient of 1.62, a t-value of -3.19 and a significant value of .002. This denotes a negative relationship which means that the stronger the culture of the population in terms of tradition, the lower their BMI.

Table 11

	Unst. Coefficient B	Unstd. Std. Error	Std. Coefficient B	t-value	Sig	Change
Tradition	-0.04	0.10	-0.14	3.30	.001	009

Relationship between Culture and WHR

Table 12

	Unst. Coefficient B	Unstd. Std. Error	Std. Coefficient B	t-value	Sig	R-Sq. Change
Access to health care	1.03	0.40	0.12	2.57	.011	.012

Relationship between Environment and BMI
R-Square= .012, F=22.559, Sig= .011

The table above reflects the relationship between environment, meaning, access to health care delivery, to BMI, having unstandardized coefficient of 1.03, a tvalue of 0.12 and a significant value of .011. This signifies that the higher the access to health care, the higher the BMI. Similarly, access to health care also has a positive relationship with blood pressure whereby, the higher the access to health care, the higher the blood pressure as reflected in table 13.

Table 13
Relationship between Systolic and Diastolic Blood

	Unst. Coefficient B	Unstd. Std. Error	Std. Cofficient B	t-value	Sig	R-Sq. Change
Access to health care (systolic)	**8.32**	**1.21**	**0.13**	**3.15**	**.002**	**.016**
(diastolic)	**2.04**	**0.83**	**0.11**	**2.45**	**.015**	**.021**

(Systolic) R-Square= .16, F=49.995, Sig=.002

R-Square=.009, F=26.735, Sig=.001

Table 14 represent the relationship between health status and moderator variables such as gender, age and religion:

Table 14

Relationship between health status and gender

Gender	Mean	Std Deviation	t-value	df	Sig
Female	23.83	5.09	-4.61	457	.000
Male	26.02	4.80			
Female	0.86	0.09	-8.73	457	.000
Male	0.94	0.11			
Diastolic	Male	131.81	14.44		
	Female	73.84	10.14		
	Male	80.79	9.60	-7.32	457 .000
	Female	79.80	10.87		
RHR	Male	77.42	12.78	2.06	337.7
	Female	119.01	16.82		457
			-8.73		.004 .000
			119.01		
			16.82		
			-8.73		
			457 .000		

Table 14 shows that males have higher BMI (26.02), WHR (0.94) and Blood Pressure (131.81/8.079) than females (BMI-23.83), (WHR-0.86) and (Blood Pressure: 119.01/73.84). Females have higher RHR than males.

Relationship between health status and age

Table 15

Health Status	Age Group	Mean	Mean	F-Value		Sig
BMI	18-39	24.20	5.12	3.27		Sig
	40-59	25.35	4.81		0.39	
	60 and above	25.87	5.96			
Systolic	18-39	119.67	14.66	26.28		Sig
	40-59	129.86	18.29			
	60 and above	135.54	18.77			
Diastolic	18-39	75.14	9.55	7.77	.067	Sig
	40-59	78.26	11.22			
	60 and above	81.75	12.70		.000	

Table 15 shows that BMI and Blood Pressure increases with age. BMI is shown to be highest among the age group of 60 and above (25.87) as compared to those who are 40-59 (25.35) and ages 18-39 (24.20). Similarly, the Blood Pressure is highest among those who belong to 60 and above age group (135.54/81.75), as compared to those who are 40-59 (129.86/78.26) and those belonging to age group of 18-39 (119.67/75.14)

Table 16

Relationship between health status and cultural group

Health Status	Cultural Group	Mean	Std Deviation	F-Value	Sig
BMI	Malay	26.38	5.62		.000
	Chinese	23.08	3.84	28.42	
	Indian	26.69	5.86		
WHR	Malay	0.89	0.13	4.65	.010
	Chinese	0.88	0.10		

	Indian	0.92	0.10		
	Malay	124.71	16.33	0.18	0.84
Systolic	Chinese	123.5	16.97		
	Indian	124.05	18.78		
	Malay	77.68	10.32		
	Chinese	75.82	10.01		
Diastolic	Indian	76.42	11.84		0.27
	Malay	79.01	11.20	1.31	
	Chinese	78.43	12.09		
	Indian	79.96	11.87		
RHR					.579
				0.55	

Table 16 reveals that Indians have the highest BMI (26.69) and WHR (0.92) followed by Malays (BMI-26.38, WHR-0.89) and Chinese (BMI-23.08, WHR-0.88); the population did not show much difference in blood pressure however, Malays have the highest (124.71/77.68) followed by Indians (124.05/76.42) and Chinese (123.5/75.82).

Table 17
Relationship between Health Status and Religion

Health Status	Religion	N	Mean Rank
BMI	Non Adventist	376	230.55
	Adventist	83	227.50
WHR	Non Adventist	376	232.12
	Adventist	83	220.39
Systolic	Non Adventist	376	229.63
	Adventist	83	231.66
Diastolic	Non Adventist	376	229.68
	Adventist	83	231.45
RHR	Non Adventist	376	226.06
	Adventist	83	247.85

Table 17 reveals the health status of non Adventist and Adventist population; result showed that Non Adventists have a slightly higher BMI and WHR as compared to Adventist with a mean rank of 230.55 (BMI) and 232.12 (WHR) for the non-Adventists and 227.50 (BMI) and 220.39 (WHR) for Adventists. In terms of blood pressure and resting heart rate, the Adventist group have higher result as compared with the non-Adventists.

DISCUSSION

I. Exposure to Health Programs, Prevailing Culture, Efficacy Expectations and Environment

The level of exposure among the respondents was *low*. This result is in conformity with the researchers' experience and observation as a health educator in Malaysia, whereby despite the numerous health programs offered by the government and non-for-profit organizations, however Malaysians seem to display a nonchalant attitude regarding joining such health programs. Murthy and Klugman (2004) observed that in Asian community health programs are very limited and even if it is implemented, the community's participation is very low.

The prevailing culture revealed in this study was *strong;* which is not surprising as Malaysia is a multicultural country. Malaysia is a country that is rich in cultural heritage. It is a multicultural society and a secular state with Islam as the official religion. The population reached 28.4 million in 2010 and has an annual population growth rate of 1.3%. The Chinese, Indians, Thais, Indonesians Arabs, and later Europeans, mainly Portuguese, Dutch and British have

contributed to the multiethnic population of Malaysia. They mixed along with the indigenous population namely the Malays, Orang Asli and natives in Sabah and Sarawak, amongst others the Iban, Bidayuh, Melanau, Penan, Kadazan, Bajau and Murut. The indigenous groups later termed Bumiputras, have important significance in the planning and redistribution of resources for equity. As of 2010, the population distribution in Malaysia stands at 60.5% Bumiputras, 22.8% Chinese, 6.8% Indians and 1.3% others (Mohamad & Jaafar, 2011).

The efficacy expectations of the respondents was *high*; According to Williams (2010), self-efficacy is a strong predictor of health behaviour, meaning, the higher the self efficacy, the more positive the health behaviour. However, one of the major challenges of an individual's pursuit towards achieving positive health behaviour is his/her ability to translate the knowledge into actual actions, the goals he/she sets to do, the person's ability to sustain that positive health behaviour despite the odds, and how he/she sees him or herself in the future (Bandura, 1997). Malaysians are generally relaxed people; they don't seem to make fuss out of everything in life and this is reflected in the fact that since their independence in the 1950's they are served by the same political party and doesn't feel to make any changes. However if they see that change is needed then they will push themselves to do so.

One of the determinants of health is the environment, the condition in which people grew up, where they live, work and age. In this research study, there were two components which were tested under the variable 'environment,' such as: the respondents' access to health care delivery, which was *moderate*, and their social support, which scored *high*.

According to Boulware, Cooper, Ratner, LaVeist and Powe (2003), the community's response to primary health care depends upon the cultural factors and that there is a need for an improved understanding of these factors in order to enhance patient access and satisfaction; Thornton, et. al, (2006) noted that husbands and some female relatives were primary sources of informational support for weight, diet, and physical activityrelated beliefs and behaviors for the participants.

II. Health Status in terms of Body Mass Index, Blood Pressure, Waist-to-Hip Ratio and Heart Rate

The Health status of the population in this study included BMI, BP, WHR and RHR. Result showed that the respondents have *overweight* BMI, *pre-hypertension systolic* BP, *normal* diastolic BP, *high* WHR for Females, *borderline* among Males and *normal* RHR. These results were concurrent with the recent study conducted in Malaysia. Mohamud, Musa, Khir, Ismail, et al (2011) surveyed adult Malaysians and found that the prevalence of overweight and obesity varies among culture; in the result, it was highest among the Indians (24.6%, 95% CI=20.3, 29.3), followed by the Malays (23.2%, 95% CI=21.6, 24.8%) and lowest prevalence was among the Chinese subjects (8.2%, 95% CI=6.2, 10.6). In 2011 during the Fourth National Health and Morbidity Survey, it showed that 43.5% of Malaysian adult above 30 years old have hypertension and 32.7% among those who are 18 years old and above (MOH, 2013). Likewise, in a crosssectional study, Tee, Teoh, Mohd Aiman, Aiful, et. al (2010), it was revealed that 50 out of 168 people were hypertensive with a prevalence rate of 29.8%. 50.0% of those found with hypertension were undiagnosed and 48.0% of those who were diagnosed had uncontrolled blood pressure. Many studies (Seidell, Perusse, Despres and Bouchard, 2001; Moore, 2009; Bodenant, et al, 2011) revealed that not only WHR closely associated with overweight and obesity but it is highly associated with other unfavourable conditions such as cardiovascular and stroke problems. Norafidah, Azmawati and Norfazilah (2013); in a cross-sectional study among 629 Malaysians, concluded that females and non Malays have high abdominal obesity despite the fact that they have normal body mass index.

III. Relationship between Culture, Environment and Health Status

Among all the independent variables, only Culture and Environment, specifically access to health care delivery, entered in as variables that made a significant difference in BMI, Blood

Pressure and WHR among the respondents. Culture is *negatively related to BMI* which further denotes that the lesser the adherence to their culture, the more the respondents have a tendency to have a higher BMI**.** Malaysia being a mutli-cultural nation has very strong cultural values, and based on the result, this strong adherence to culture has a positive effect among the population studied. Moreover, in the United Kingdom, the National Health Service (2011) confirmed the apparent relationship between culture and obesity, as measured by BMI, varies significantly among different races. For example, those people whose culture adheres very closely to unhealthy eating habits and sedentary lifestyle tend to have an increasing predisposition to chronic diseases (NHS, 2011), and vice versa.

Culture was also negatively related to WHR; which means that the lesser the adherence to their culture, the more the respondents have a tendency to have a higher WHR; a

result similar to that of the BMI. Studies have shown that adherence to old tradition, especially regarding eating, has benefit on health. For example, Yu, Woo, Chan, Sham, Ho, et. al, (2011) revealed in a Chinese study that the subjects who stick to old Chinese dietary habits of fruits, vegetables and fish showed lower WHR and BMI. Furthermore, Indians who stick to old-tradition of incorporating of whole, ancient grains into their cooking have a lower tendency of risk for acquiring Diabetes Type 2.

Furthermore, access to health care delivery is *positively related* to BMI, which means that the higher the respondents' accessibility to health care, the higher the BMI. This result may imply that the reason the respondents have higher BMI is due to the fact that they had an access to the health care and where able to do the check. Wilson and Yoshikawa (2007) observed that those ethnic minorities who have poor access to health care delivery normally experience higher prevalence of poor health outcomes, including poor BMI, as compared to other populations. Furthermore, Starfield, Shi and Macinko (2005) observe that there is a body of evidence showing that proper delivery of health care system results in improved health status within the individual and the community, and that it may be responsible in preventing illness and death.

For Blood Pressure, the best predictor which entered the stepwise regression on systolic and diastolic blood pressure was *accessibility to healthcare delivery, which shows* that the more the respondents have access to health care, the higher the systolic and diastolic blood pressure. This result was synonymous with the term called "white coat hypertension" or "white coat syndrome" which was noted in a 1998 published editorial, meaning, that a blood pressure is higher in the presence of a medical setting than when the blood pressure is taken at home (Pickering, 1998). Pickering, Eguchi and Kario (2007) observed that White-coat hypertension may occur in as many as ten % of the general population and may be suspected in individuals who have a history of occasional high blood pressure readings, but who are apparently normotensive during a one-time check. Moreover, Jhalani, Goyal, Schwartz, Pickering and Gerin (2005), in wanting to find out what causes this phenomenon, revealed that anxiety and blood pressure expectancy cause the blood pressure to rise among ambulatory patients, especially when one is nearby a health care setting.

IV. Health Status and Age Group, Gender, Cultural Background and Religion

The study reveals that health status showed significant difference in the gender of the population whereby males have a tendency to have higher BMI and WHR than females; this result was not consistent with that of Malaysian overweight and obesity studies where females tend to be more overweight and obese as compared to men (Khambalia & Seen, 2010; Mohamud, Nazaimoon, Musa, Md Khir, Ismail, Ismail, et. al., 2011; Rampal, Rampal, Geok, Azhar, Shafie, et. al., 2007). However, in a recent study on the prevalence of overweight and obesity among Malaysian young adults, Goapalakrishnan, Ganeshkumar, Prakash, and Amalraj, (2012) revealed that even though prevalence of overweight tends to be greater among females, however there are more obese among men and result showed a higher tendency for men to have a higher BMI. Result also shows that males have higher tendency to have high systolic and diastolic blood pressure than that of their female counterparts. Doumas, Papademetriou, Faselis and Kokkinos (2011)

observed that while it is true that women tend to have lower hypertensive and cardiovascular risk than men and while gender differences have been found in several studies but according to them, opposite findings also exist.

Health status was also seen to be significantly related to age, whereby the higher the respondents' age, the higher they have a tendency to have an increased BMI and Blood pressure. This was consistent with the observation of Khambalia and Seen (2010) regarding the trend of overweight and obesity in Malaysia from 1996 up to 2009, authors confirmed that there was a slight increase in the BMI of the respondents as their age increased. Also, the National Institute of Health noted that blood pressure tends to rise with age and that about 65% of Americans aged sixty and above have high blood pressure (nih.gov).). As reported in The Star (2012), in Malaysia high blood pressure is very common among those of the older group.

Result of this study also showed significant difference between health status in terms of BMI and WHR and cultural group, whereby the Chinese has a lower BMI as compared to their Malay and Indian counterparts and the Indians have highest WHR as compared to their Malay and Chinese counterparts. This result was consistent with the systematic review conducted in Malaysia between 1996 and 2009, Khambalia and Seen (2010) revealed that among the three races such as Malay, Indian and Chinese, the highest prevalence of overweight and obesity are the Indians, followed by Malays and the least being Chinese. Furthermore, the above result is consistent with that of the third National Health Morbidity Survey assessing 4,746 Malaysians, result revealed that the predictors of central obesity or high WHR was prevalent among Indians as compared to other races.

In comparing between non Adventist and Adventist, and health status; result showed that Non Adventists have a slightly higher BMI and WHR as compared to Adventist with a mean rank of 230.55 (BMI) and 232.12 (WHR) for the non-Adventists and 227.50 (BMI) and 220.39 (WHR) for Adventists. In terms of blood pressure and resting heart rate, the Adventist group have higher result as compared with the non-Adventists. Due to unique lifestyle of the Seventh Day Adventists, they have been subjects to many health studies, two of which were considered major health studies. One of this was conducted in 1960 known as the "Adventist Mortality Study." The study concluded that "Adventist men lived 6.2 years longer than non-Adventist men in the concurrent and Adventist women had a 3.7-year advantage over their counterparts. However, no study has been conducted regarding the Adventist lifestyle in this part of the world (Loma Linda University, 1999).

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