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Individual's awareness of healthy lifestyle: A cross sectional study of a rural community in Kedah, Malaysia

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ABSTRACT

Background

Healthy lifestyle practices play a key role in disease prevention and control of any chronic illness and disability. This study aims to identify the role of individual's awareness towards a healthy life and well-being in a rural community

Material and methods

This descriptive cross-sectional study was conducted by using structured questionnaire at a village, Kedah state, Malaysia on 2018.

Results

The study revealed that among 120 respondents the mean ±SD age of respondents was 24±16.32 years. All the respondents were Muslim. The mean±SD weight of respondents was 66.07±14.353 kilogram. Study revealed that no participant reported drinking alcohol within the last month. 91 (76.6%) of the respondents were non-smoker. 42(35%) respondents reported daily consumption of fruits. 86 (71.67 %) respondents reported moderate to vigorous physical activities for 30 minutes per day. Regarding co-morbidity status, 60 (49.9%) was not suffering from any form of illness during the study period. This study found the significant association between the BMI and smoking habit with co-morbidity ($p<0.000$).

Conclusion

Majority of the participants of this study was health conscious and had positive health-related behaviour. The effective behavioral changes less likely to happen unless the individual's awareness and motivation towards a healthy life is decreased.

Keywords

Awareness, chronic illness, community, health-related behaviours, physical activity

Introduction

According to World Health Organization (WHO), health is defined as a "state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" [1, 2]. Health-related behaviour can affect individual's health condition, either positively or negatively [3]. Common health –related behaviours are diet, physical exercise, smoking, alcohol consumption, safety practices and health screening examination. Among these, healthy diet and regular physical exercise have been given more priority because of their positive impact on health by disease prevention, increasing longevity of life and improving psychological wellbeing [4, 5]. Sedentary lifestyle is one of the major key factors for increased Non-communicable disease (NCDs) in Malaysia [6].

Healthy lifestyle is associated with both short term health benefits such as feeling well and energetic and also long-term health benefits by reducing the risk of developing certain chronic diseases such as cardiovascular disease, diabetes, obesity, arthritis and even cancer [7].

The key determinants of health are the socio-economic environment, the physical environment and the individuals' behaviour. Among those, the individual behavioral characteristics and socio-economic factors play a crucial role in human life. The main factors that determine whether people are healthy or unhealthy includes gender, education, income, occupational status, social and physical environment, individual health practices and adaptation, capability and the availability of health care services [8].

Worldwide the two major health issues are malnutrition and disease. Malnutrition includes under-nutrition and over-nutrition or obesity. The most common diseases that are associated with early death worldwide include cardiovascular disease (CVD) (e.g. ischemic heart disease), gastroenteritis, neonatal disorders, chronic obstructive pulmonary disease (COPD), lower respiratory tract infections (LRTI) and road traffic accidents (RTA) which are associated with more than 1 million deaths each year [9].

Unhealthy lifestyle is associated with poor health which includes unhealthy diet, smoking habit, excessive alcohol consumption and physical inactivity. Healthy diet such as certain plant and animal-based foods are required to maintain individual's health. The food guide pyramid is a pyramid-shaped guide divided into different sections based on the recommended intake of each food group such as carbohydrate, protein, fat, fruits and vegetables and other nutrient components of food so that everybody can follow a balanced diet. From the top to the bottom of the food pyramid, the size of each food group becomes larger showing that an individual should eat less of the foods at the top of the pyramid compared to the foods at the base of the pyramid [10].

Regular physical exercise is associated with increased longevity of life by reducing the risk factors of chronic diseases. Regular physical exercise has a lot of health benefits such as it lowers the risk of heart attack by lowering the blood pressure and blood cholesterol level, it reduces the risk of type-2 diabetes, osteoporosis and certain cancers and is associated with better weight management. Besides these positive health outcomes regular physical exercise is also giving a perception of feel good factor with improving sleeping patterns which help to eliminate depression of an individual. Researchers recommended at least 30 minutes moderate to vigorous physical activities daily [11].

It is the practices of taking action to improve one's health. These personal practices include getting enough sleep, maintaining proper nutrition, regular exercise, quitting smoking, avoiding excessive consumption of alcohol, maintaining social support, finding hobbies like gardening, drawing, keeping the mind sharp and having a positive attitude and maintaining a spiritual practice such as using prayer or meditation which has been shown as a major stress reliever. Self-care practices and healthy behaviours can prevent or minimize the effects of a disease [12].

Malaysia has been identified as a highest obesity problem country in South East Asia and sixth in Asia and sedentary lifestyle is the leading cause behind this [13]. According to the report from Ministry of Health Malaysia, the principal cause of morbidity and mortality among Malaysian population includes coronary heart disease, type-II diabetes mellitus, cancer, mental illness and even disease of pulmonary circulation which are associated by not being active [14].

Material and methods

Study Period

The duration of this study was from the 1st April 2018 until 30th April 2018.

Study design and the participants

This descriptive cross-sectional study was conducted at a village 'Kampung Batu Hampar' in Kedah state of Malaysia. The study was performed by the MBBS Batch-22, Year-3, Group-B students of AIMST University, Malaysia under supervision. The study population was one hundred and twenty which were randomly selected. Structured questionnaire which was adapted from WHO manual was delivered among the respondents. The questionnaire was pre-tested. The questions used in the questionnaire were related to socio-demographic characteristics and lifestyle and personal health behaviors of the respondents. The purpose of the study was explained to the study respondents and the verbal consent was secured from individual respondent. Confidentiality was insured by not including names or other identifiers in the data collection.

Data collection

The collected data include socio-demographic details such as gender, age in years, religion, marital status etc. Physical

characteristics (height and weight) were also measured. Body mass index (BMI) was calculated from the weight and height. BMI (kg/m2) was categorized as normal weight ($18.5 \leq BMI < 24$), overweight ($24 \leq BMI < 28$), and obese ($BMI \geq 28$) using the WHO recommendations [15]. Occupation, education level, number of family members and income.

The collected data include lifestyle and personal health behavior details such as alcohol consumption, smoking status, numbers of cigarettes per day, fruits consumption, types of water supply, practicing water purification methods, regular exercise for 30 minutes per day, knowledge and practice of food pyramid, meals per day, skipping meals and its frequency, food preference, consuming junk food, total fluid intake, caffeinated drinks intake and diseases suffered.

Inclusion criteria

Among the villagers at any age, both male and female including the children, who were willingly to participate, has been included in this study.

Exclusion Criteria

People who were severely ill and not able to communicate and the children with disability were excluded from the study.

Sample size calculation

Random sampling was done to obtain the study sample. The formula that was used for calculation of the required Sample size is: n = Z2P (1-P) / d2, n = sample size Z = Z statistic for a level of confidence (1.96 for level confidence of 95%) P = expected prevalence or proportion (0.2), d = precision (0.05). Using population correction formula and adding 10% non-response rate the sample size was 120. Sample was selected by convenient sampling method.

Data management and statistical analysis

Data was checked for completeness and were entered into Epidata 3.1 version and exported to SPSS 22.0 version for further analysis.

Outcome variable

The main outcome variable was individual's healthy life and wellbeing and comorbidity (diabetes mellitus/ hypertension/bronchial asthma/heart disease/other common illness/nil) after consuming healthy foods and involving regular physical activities.

Explanatory variables

The socio-demographic variables and the variables related to lifestyle and personal health behaviors have been described as individual levels. Factors which were taken into consideration at individual level were gender, BMI (kg/m2), smoking status, knowledge of food pyramid, regular exercise (30 minutes per day) and co-morbidity (diabetes mellitus/hypertension/bronchial asthma/heart disease /other/nil).

Ethical committee approval

This study was carried out by the MBBS Year-3 Batch-22 students of AIMST University under their community medicine posting is part of the community diagnosis module. This is part of the AIMST University curriculum and annually each batch carries out a survey at a different village in the region. The village is selected after the village head agrees to the students carrying out a survey in their locality. Consent was taken from the parents of children below 18 years. Confidentiality was insured by not including names or other identifiers in the data collection tool.

Results

Table -1 showing the socio-demographic characteristics of study subjects. The total number of respondents was 120. The mean±SD age of respondents was 24±16.32 years. Among them about 32.5% of the respondents were in the range of 1 to 19 years old, 33.33% were in the range of 20 to 39, 20.83% were in the range of 40 to 59, 11.67% were in the range of 60 to 79 and 1.67% were above 80 years old. And all of them were Muslim. Among the respondents male and female were 50.8% and 49.2% accordingly. A large percentage of the participants were married (80%).

Table 1: Socio-demographic characteristics, (N = 120)

		n (%)	95% CI
Gender	Male	61(50.8)	(41.86,59.74)
	Female	59(49.2)	(40.26, 58.14)
	1-19	39(32.5)	(24.12,40.88)
Age (years)	20-39	40(33.33)	(24.9,41.76)
	40-59	25(20.83)	(13.56,28.1)
	60-79	14(11.67)	(5.93,17.41)
	>80	2(1.67)	(-0.62,3.96)
	Islam	120(100)	(100,100)
Religion	Others (Buddha Hindu, Christian)	0(0)	
	Single	13(10.8)	(5.25,16.35)
Marital	Married	96(80.0)	(72.84,87.16)
status	Separated /Divorced	1(00.8)	(-0.79,2.39)
	Widow(er)	10(8.4)	(3.44,13.36)
	< 18.5	4(3.30)	(0.1,6.5)
BMI	18.5 to <24	54(45)	(36.1,53.9)
(kg/m2)	24 to <28	42(35)	(26.47,43.53)
	≥ 28.0	20(16.70)	(10.03,23.37)
Occupation	Unemployed	70(58.3)	(49.48,67.12)
	Employed	50(41.7)	(32.88,50.52)
	Primary	49(40.8)	(32.01,49.59)
Education	Secondary	55(45.8)	(36.89,54.71)
Level	Tertiary	8(6.7)	(2.23,11.17)
	Nil	8(6.7)	(2.23,11.17)
Number of	0-3	41(34.1)	(25.62,42.58)
Family	4-7	68(56.7)	(47.83% ,65.57)
Members	>8	11(9.2)	(4.03,14.37)
Income	<RM1000	46(38.3)	(29.6,47)
	RM1001-5000	71(59.2)	(50.41,67.99)
	>RM5001	3(2.5)	(-0.29,5.29)

The mean±SD weight of respondents was 66.07±14.35 kilogram. In terms of BMI, 45% respondents were within normal range, 35% were overweight and 16.70% were found as obese (Figure-1). Most of them had primary (40.8%), and secondary (45.85%) education. Among the respondents 58.3% were unemployed and 41.7% were employed. Average monthly income for 46 (38.3%) of the respondents was less than 1000 Ringgit, for 71(59.2 %) of them was 1001 to 5000 Ringgit and 2.5% of them had more than 5000 Ringgit.

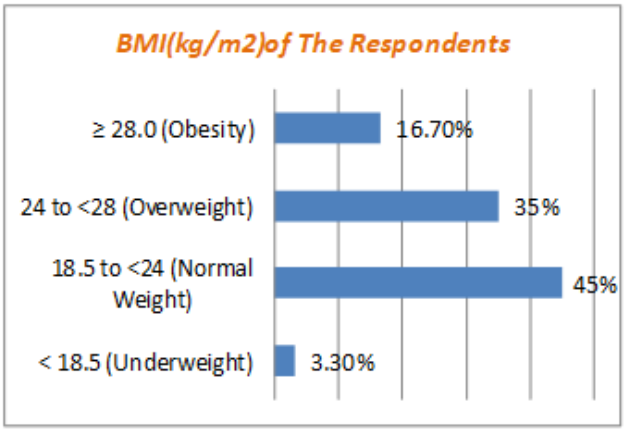

Figure-1: BMI (kg/m2) of the Respondents

Table 2 represented lifestyle and personal health behavior data. In this study no participant reported drinking alcohol within the last month. In terms of smoking status, about 23.4% were habituated to smoking whereas majority (76.6%) were non-smoker. 35% of the participants reported daily consuming of fruits whereas 30.8% used to eat fruits >3 times a week. About 98.4% respondents having the pipe water supply. Regarding water purification methods majority (53.3%) of the respondents were practicing boiling method at household level whereas 27.5%, 18.3% and 0.8% were practicing filtration, combined boiling, filtration and chemical methods, respectively (Table-2).

During their leisure time, 71.67 % respondents reported for moderate to vigorous physical activities for 30 minutes per day. Study showed majority (75.8%) had a basic knowledge of Food Pyramid. Among them 50.55% were applying this knowledge during their food choice. Regarding food habit 72.5% respondents were habituated of taking 3 times meal per day. 34.2% respondents used to skip meals among which 41.55%, 48.8% and 9.7% used to skipping meals once a week, 2-3 times a week and >3 times a week respectively. 85.9% preferred home cooked food whereas 14.1% used to like restaurant food. In term of consuming junk food 8.3%, 27.5%, 23.3% of the respondents were taking daily, >3 times a week and <3 times a week but majority (40.8%) of them were not like to take junk food.

In term of daily intake of fluid, majority (59.2%) of the respondents were taking >1000 ml of fluid per day whereas 34.2% and 6.7% respondents were taking 500-1000ml and <500ml of fluid daily. The respondents reported that 35.8% of them used to take caffeinated drink daily whereas 15% were taking >3 times a week, 20.8% were taking <3 times a week. 28.3% respondents were not taking any caffeinated drink.

Table 2: Lifestyle and personal health behavior

		n (%)	95% CI
Alcohol Consumption within the last month [n=120]	Yes	0	0
	No	120(100)	(100,100)
Smoking status [n=120]	Yes	29(23.4)	(15.83,30.97)
	No	91(76.6)	(69.03,84.17)
Numbers of Cigarettes Per Day [n=29]	1-10 Sticks	17(14.1)	(7.87,20.33)
	11-20 Sticks	9(7.5)	(2.79,12.21)
	>20 Sticks	3(2.5)	(-0.29,5.29)
Fruits Consumed[n=120]	Daily	42(35)	(26.47,43.53)
	<3 Times A Week	37(30.8)	(22.54,39.06)
	>3 Times A Week	37(30.8)	(22.54,39.06)
	Never	4(3.3)	(0.1,6.5)
Types of Water Supply They Have[n=120]	Pipe Water	118(98.4)	(96.16,100.64)
	Ground Water	2(1.6)	(-0.64,3.84)
Practicing Water Purification Methods [n=120]	Chemical	1(0.8)	(-0.79,2.39)
	Boiling	64(53.3)	(44.37,62.23)
	Water Filter	33(27.5)	(19.51,35.49)
	Both Boiling & Filtration Methods	22(18.3)	(11.38,25.22)
Regular Exercise (30 minutes/ day)	Yes	86(71.67)	(63.61,79.73)
	No	34(28.33)	(20.27,36.39)
Knowledge of Food Pyramid[n=120]	Yes	91(75.8)	(68.14,83.46)
	No	29(24.2)	(16.54,31.86)
Practicing Food Pyramid[N=91]	Yes	46(50.55)	(40.28,60.82)
	No	45(49.45)	(39.18,59.72)
Meals Per Day[n=120]	<3 Times	20(16.7)	(10.03,23.37)
	3 Times	87(72.5)	(64.51,80.49)
	>3 Times	13(10.8)	(5.25,16.35)
Skipping Meals[n=120]	Yes	41(34.2)	(25.71,42.69)
	No	79(65.8)	(57.31,74.29)
Frequency of Skipping Meals[n=41]	Once A Week	17(41.5)	(26.42,56.58)
	2-3 Times A Week	20(48.8)	(33.5,64.1)
	>3 Times A Week	4(9.7)	(0.64,18.76)
Food Preference [n=120]	Home Food	103(85.9)	(79.67,92.13)
	Restaurant Food	17(14.1)	(7.87,20.33)
Consuming Junk Food[n=120]	Daily	10(8.3)	(3.36,13.24)
	>3 Times A Week	33(27.5)	(19.51,35.49)
	<3 Times A Week	28(23.3)	(15.74% ,30.86)
	Nil	49(40.8)	(32.01,49.59)
Total Fluid Intake[n=120]	<500ML	8(6.7)	(2.23,11.17)
	500-1000ML	41(34.2)	(25.71,42.69)
	>1000ML	71(59.2)	(50.41,67.99)
Caffeinated Drinks Intake[n=120]	Daily	43(35.8)	(27.22,44.38)
	>3 Times A Week	18(15)	(8.61,21.39)
	<3 Times A Week	25(20.8)	(13.54,28.06)
	Never	34(28.3)	(20.24,36.36)
Diseases Suffered [n=120]	Diabetes Mellitus	8(6.7)	(2.23,11.17)
	Hypertension	12(10)	(4.63,15.37)
	Bronchial Asthma	2(1.7)	(-0.61,4.01)
	Heart Disease	3(2.5)	(-0.29,5.29)
	Other common illness (e.g. Common cold, dermatitis, etc.)	35(29.2)	(21.06,37.34)
	Nil	60(49.9)	(40.95,58.85)

Table 3: Association between gender with knowledge of food pyramid, physical exercise with BMI, smoking status with co-morbidity

							P- value
		Knowledge of Food Pyramid					
Gender		Yes			No		
	Male	38(62.3)			23(37.7)		*.000
	Female	53(89.8)			6(10.2)		
Regular Physical Exercise		BMI(Kg/m2)					
		<18.5	18.5 to <24	24 to <28	>28		
	Yes	0(0)	54(62.8)	32(37.2)	0(0)		*.000
	No	4(11.8)	0(0)	10(29.4)	20(58.8)		
		Co-Morbidity					
		Diabetes Mellitus	Hypertension	Bronchial Asthma	Heart Disease	Others	Nil	
BMI (Kg/m2)	<18.5	0(0)	0(0)	2(50.0)	0(0)	2(50.0)	0(0)	
	18.5 to <24	0(0)	0(0)	0(0)	0(0)	16(29.6)	38(70.4)	*.000
	24 to <28	0(0)	3(7.1)	0(0)	0(0)	17(40.5)	22(52.4)	
	>28	8(40.0)	9(45.0)	0(0)	3(15.0)	0(0)	0(0)	
Smoking Status		Co-Morbidity						
		Diabetes Mellitus	Hypertension	Bronchial Asthma	Heart Disease	Others	Nil	
	Yes	4(13.8)	10(34.5)	2(6.9)	3(10.3)	10(34.5)	0(0)	*.000
	No	4(4.4)	2(2.2)	0(0)	0(0)	25(27.5)	60(65.9)	

*p<0.05, statistically significant

Regarding co-morbidity status 6.7% were suffering from diabetes mellitus, 10% were suffering from hypertension, 1.7% were suffering from bronchial asthma, 2.5% were suffering from heart disease, 29.2% were suffering from other common illness (e.g. common cold, dermatitis, etc.) and 49.9% were not suffering from any form of illness during the study periods (Table-1), (Figure-2).

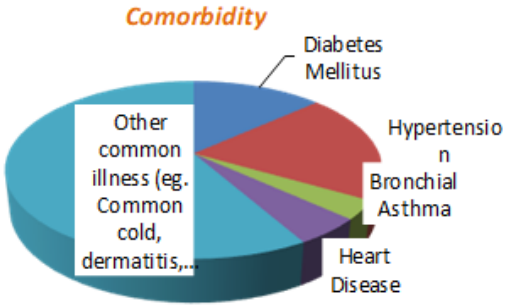

Figure-2: Distribution of the co-morbidity of the respondents

This study revealed that females are more aware about the concept of food pyramid compare to male. This study also found the significant association between regular physical exercises and the BMI (p<0.000), between BMI with co-morbidity (p<0.000) and smoking status with co-morbidity (p<0.000). (Table-3)

Discussion

Socio-demographic factor and co-morbidity

This study showed that half of the respondents were overweight and obese who were suffering from diabetes, hypertension, heart disease and some other common illness. According to the report of Malaysia Diabetic Association, most of the type-II diabetic patient are overweight [16]. Several studies in Malaysia revealed the significant association between obesity and comorbidity with hypertension and diabetes [6,17].

Most of the female respondents were aware of food pyramid as well as practicing their relevant knowledge to their food selection. This may be the region that almost half of the respondents were not suffering from any kind of illness. One study in Malaysia found that 45% adults were not following a healthy lifestyle because of their unhealthy dietary food habits and sedentary lifestyles and those people were suffering with several physical illnesses [18].

Personal health behaviors and co-morbidity

This study showed that majority of the respondents was involved in regular physical activities. Several studies in Malaysia revealed the inverse association between physical activity to the risk of overweight/obesity and they recommended to practice of moderate to vigorous-intensity physical activity. One study found the higher incidence of obesity and non-communicable diseases which were strongly associated with sedentary lifestyles and they encouraged the active lifestyle among the population [19].

This might be the reason for this studies that most of the respondents who were involving in active physical activities having normal BMI and were not suffering from any non-communicable diseases.

This study showed that most of the respondents were non-smoker. One study conducted in Malaysia showed the prevalence of tobacco use declined slightly whereas the use of smokeless tobacco products such as e-cigarettes has been increased significantly from 2011. Exposures of non-smoker to second-hand smoke were also identified to be more than 48.8% [20].

Some studies recommended that behavioral interventions should be targeted to both the healthy diet and regular physical activities for the betterment of life and to prevent overweight and obesity [21, 22]. This study showed that most of the respondents were practicing a healthy lifestyle including the regular physical activities and near about half of them were not suffering from any chronic diseases. Practicing healthy lifestyle may be the reason behind their wellness.

Conclusion

Evidence-based practices of healthy behaviour are very crucial for disease prevention and control and individual wellbeing. Behavioral modification is the first step to improve healthy dietary practices. Further studies are required on the same field to find out the new key issues for a sustainable healthy life in a community.

Abbreviations

Body Massa Index (BMI), cardiovascular disease (CVD), chronic obstructive pulmonary disease (COPD), ischemic heart disease (IHD), lower respiratory tract infections (LRTI), non-communicable diseases (NCDs), road traffic accidents (RTA), world health organization (WHO)

Authors' contribution

KF designed the study, drafted the manuscript and revised it. KF collected the data along with the students. HN has participated in the language editing along with KF. TA participated in statistical analysis, interpreted the data, and revised the manuscript. KF, HN and TA critically revised the manuscript. All the authors approved the final document.

Competing interests

There is no conflict of interest among authors arising from the study.

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Limitation and future scope of the study

The sample size of the study was less. Participants in this rural area may not be representative of the whole Malaysian population. A multi centric study with higher sample size will give better conclusion about individual's awareness towards a healthy life in a community. This study was based on the research carried out in a rural community in Malaysia. A multi centric based research with high sample size would be beneficial to assess individual's healthy behaviours and awareness in relation to a betterment of life

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