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Healthy lifestyle behaviors and climate change awareness of college students

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Abstract

This study assessed the level of awareness among Filipino adolescents on climate change, health, and physical fitness. It employed a descriptive survey research design. Two sets of structured questionnaire namely Healthy Life Style Behaviors Scale and climate awareness and health survey were used to collect data among 197 respondents. This study revealed that participants had a low and inconsistent understanding regarding climate change and its impact on health. Results revealed that the respondents have a moderate level of practicing a healthy lifestyle while a fair level of awareness regarding the effects of climate change on their health. Test of difference showed that there is a significant difference on the healthy lifestyle behaviors, climate change, and health awareness when grouped according to gender particularly on exercise, nutrition, interpersonal support, and climate change awareness in favor of the female respondents. Result of the study will serve as a basis for the university to implement activities with the aim of enhancing the Healthy Lifestyle Behaviours and Climate Change Awareness of College Students.

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Introduction

Today's lifestyle should always be associated with physical activity, health, and climate change awareness. There is increasing evidence that physical activity is associated with altered risks as well as the effect of climate change. The links between physical activities, health, and climate change awareness are clearly shown in many studies (Hajat, 2010; Louis, 2008; Sallis, 2015; McMichael, 2013). Although there is a strong association between physical activity and health, the majority of individuals in many developed populations are not sufficiently informed of the effects of climate change to human health (Patz *et al.*, 2005; Jones *et al.*, 2008; Watts, 2015).

Health has been one of the concepts that have been heavily focused on since the beginning of humanity. Health can be considered as a continuum which covers different levels between healthy status at an optimum level and death (Palank, 1991; Courtenay, 2003; Uijdewiligen *et al.*, 2011). According to the World Health Organization, health is more than the status of not having a disease or disability but a status of being well in terms of mental, physical and social aspects. Being healthy, according to the same organization, is defined as "being aware of breathing, being able to meet the needs, being able to change the environment or handle the environment" (WHO, 2001; Murray *et al.*, 2012; APA, 2013).

It is predicted that climate changes affect both the environment and the humankind, whereas human health is affected by the ecological condition. Climate changes adversely affect humans, including their health, in several ways (Costello, 2009; Watts *et al.*, 2015; Younger, 2008; Landriga, *et al.,* 2018).

Climate change affects health through a range of pathways, for example as a result of increased frequency and intensity of heat waves, reduction in cold-related deaths, increased floods and droughts, changes in the distribution of vector-borne diseases and effects on the risk of disasters and malnutrition (D' Amato *et al.,* 2007; Haines, 2006; Frumlin, 2008). A case reported that high precipitation, high temperature, and wind influence people's outdoor physical activities, including young people (Chan *et al.,* 2009). Another climate change effect on health is related to vector-borne diseases. Thus, due to climate variability, economic status, vector control ability, and drug resistance (Githeko *et al.,* 2000), according to that evidence, climate change and human health are interrelated.

Physical activity and a healthy lifestyle are health determinants (Kaewthummanukul *et al*, 2006; Meyer, 2014; Kohl, 2012; Bize, 2007; Panedo, 2005). Likewise, there are several factors involved in health and illness (Bozlar & Arslanoglu, 2016). Health is influenced by poor eating habits, not exercising enough, excessive stress, personal traits, environment, and attitudes. Unhealthy habits seen in adulthood are said to be strongly associated with an unhealthy lifestyle in adolescence (Krueger & Chang, 2008).

Youth's awareness of climate change must be considered in climate change adaptation in the country. According to Fernandez and Shaw (2013), youth's awareness of climate change must be integrated even in the formulation of disaster risk reduction plan. This is necessary as the youths are among the marginalized sector of the society that bears much of the impacts of disasters (Gaillard & Pangilinan, 2010). Assessing teenagers' understanding related to climate change impact on health as well as their healthy lifestyle behaviors is a critical section for some reasons. First, it is important to have a better adaptive capacity for adolescents. Knowing the respondent's healthy lifestyles and preference of climate change source information is an essential part to provide effective and efficient information. Second, a teenager or adolescent is a proper agent of change whose possible role is a climate change message carrier. Researches have successfully engaged adolescents as a message carrier of environmental protection and climate change (Sulistyawati *et al.,* 2018; Tan 2018; Cortez, 2019; Magulod, 2018; Madarang, 2019; Bautista, 2019; Capili, 2018).

This study provides information on gender differences and specific needs of students which can help university administrators, curriculum planners,

and community health professionals design guidelines for structuring a healthier environment and developing physical health education programs that support healthy choices among university students.

This study generally aimed to assess the healthy lifestyle behaviors, climate change awareness and health awareness of adolescents. It specifically it answered the following: (1) ascertained the students' level of healthy lifestyle behavior on exercise, nutrition, health responsibility, interpersonal support; (2) assessed the students level of climate change and health awareness; (3) test the difference on the students' lifestyle behavior, climate change, and health awareness when grouped according to sex.

Materials and method

Research Design

The study employed a descriptive survey research design. It described the awareness of the adolescents on health, physical activities and climate change awareness. Dullock, 1993) describes this research design which collects information from a portion of a target population to describe preferences, practices, and characteristics.

Respondents

The study sample respondents consisted of (197) male and female students (5% of the study population) representatives of the various year level and courses in one campus of a state university in region 2, Philippines.

Data Gathering Tools

Personal Information Form was used to identify the personal information of the respondents. Healthy Life Style Behaviors Scale was used to measure behaviors that improve an individual's health related to healthy lifestyle adapted from Walker *et al* (1988); Bozlar (2016). This scale, there are a total of 48 items and 6 sub-scales. Likewise, to measure the students' climate awareness and health, a survey questionnaire was adapted from (Sulistyawati *et al.,* 2018). It consisted of 10 questions.

Data Gathering Procedure

Data were collected within three months during the first semester of 2018-2019 with written permission from authorities.

Prior to the study, an explanation of the study was provided, including information about the freedom to quit from the research without any punishment. For students that agreed to join this research, written informed consent was obtained from them. After the research gathering procedure, the data were coded and tabulated. An analysis was generated by Microsoft Excel and SPSS to express the frequency and the aggregate for each question.

Results and discussion

Healthy Lifestyle Behavior of Students

In terms of healthy lifestyle behavior of the respondents, the respondents have a moderate level of healthy lifestyle behavior as evidenced with the grand mean of 3.18. A closer look at the table, among the answers provided by the respondents, is health responsibility ($\bar{x}$=3.46, σ=.842). This is followed by interpersonal support ($\bar{x}$=3.29, σ=.818), nutrition ($\bar{x}$=3.20, σ=1.03), and the least is exercise ($\bar{x}$=2.76, σ=.972).

Table 1. Assessment on the Healthy Lifestyle Behavior of the Students.

Dimensions	Mean	Interpre-tation	Std.Dev.
Exercise	2.76	Moderate	.972
Nutrition	3.20	Moderate	1.03
Health Responsibility	3.46	High	.842
Interpersonal Support	3.29	Moderate	.818
Grand Mean	3.18	Moderate Level	

Legend: 4.20-5.00-Always/ Very High; 3.40-4.19-Very Often/ High; 2.60-3.39-Moderate/ Neutral; 1.80-2.59-Rarely/ Low, 1.00-1.79- Never/ Very Low.

As shown in Table 1, in terms of health responsibility as sub-scale of healthy lifestyle behavior, it obtained the highest mean of 3.46. They reveal a positive high behavior of consulting physicians or health practitioners regarding their health status. They also manifested favorable behavior towards improving their health, getting health care service providers. As well as knowing more information from health professionals about how to take good care of themselves.

In like manner, the respondents manifest a moderate behavior towards nutrition. This implies that most of them are not so much particular of their nutritious daily food intake.

Hence, their food intake can be characterized as unhealthy especially among students who left the parents' home and became responsible for their own food. Similar finding by Fernandes *et al.* (2012) and Bernardo *et al* (2017) concluding that most university students do not have adequate healthy food intake. Another study conducted Majeed (2015) corroborated these results as he found that the main barrier to a healthful diet was lack of time and lack of access to healthy foods among the students. Therefore, there is a need for developing university policies that promote healthy eating habits among students, such as interventions to change their eating habits and increase their access to healthy foods at the university environment.

Meanwhile, respondents display moderate behavior towards exercise. This shows that most often, the students do not exercise regularly as part of their lifestyle. They tend not to follow a planned exercise program. In the previous study of Milanovic *et al.* (2013), university students were very well informed about the importance of physical exercise and recreation but they lack involvement in such activities. This requires a recommendation is to promote time management skills that are intentional about leaving adequate time for exercise among the students. Teaching them to balance personal life, school, and work will leave more time for them to exercise, and therefore, increase their health overall.

The respondents also manifest moderate interpersonal support. This suggests that they have not yet established a social support system in the university which could help improve their healthy lifestyle. This implies that there is a need for the university to foster a higher level of encouragement for the students to practice a healthy lifestyle by providing necessary programs and activities. Coey-Boerner (2010) confirmed that there is a positive relationship between social support and healthy lifestyle behavior. Hosseini *et al.* (2017) also affirmed that interpersonal influences are factors for healthy lifestyle.

The general finding shows that the respondents have not yet established among themselves the habit of practicing a healthy lifestyle.

It implicates that the students are not yet fully aware of the importance of a healthy lifestyle. Such finding agrees with Al-Amari *et al.* (2015) and Heidari *et al.* (2015) that most college students do not take into account the seriousness of their health behavior. Hence, there is a need to increase awareness of college students about the effect of a healthy lifestyle on their health.

Climate Change and Health Awareness

Talking about climate change and health, the respondents have established a moderate level of awareness with the grand mean of 2.91. It shows that a fair level of understanding among the participants regarding the effects of climate change on their health. The grand mean shows that the respondents have a moderate level of climate change and health awareness. They recognized that climate change influences humans' mental health, infectious diseases, and the increase of food- and waterborne diseases in moderate level.

In the earlier study of Leiserowitz *et al.* (2011), among youth, there is a fairly low level of knowledge about the basic scientific concept that underpins climate change and tendency to underestimate the level of scientific consensus on climate change. The youth's perspectives on climate change are of paramount importance to build countries ownership, capacity and awareness to tackle the climate change problem (Singh and Singh, 2011; Conway and Mustelin, 2014). The present finding of the study indicates that schools should transmit all possible channels to the youth so that the plan and policies that are related to climate change for them to become environmentally aware.

A closer look at the table, the data reveals that the respondents showed awareness that climate change affects their physical health (3.52) and there is an impact of the present climate to their health (3.52). Meanwhile, a moderate level of awareness among by the respondents are seen in the items the increases of cardiovascular diseases are related to climate change (2.86); I am exposed to climate change impact now (2.87); Climate change can increase food and waterborne diseases such as diarrhea (2.75); Air

pollution has influenced my health (2.79); Evidence of climate change related to health is not convincing and is still controversial (2.70); Climate change has influenced my mental health, such as stress (2.57); and Infectious diseases, for example, dengue fever, can possibly increase by climate change events (2.68).

Table 2. Climate Change and Health Awareness.

	Mean	Interpretation	Std.Dev.
1. Change in the climate affects my physical health.	3.52	Aware	1.012
2. There is an impact of the present climate on my health	3.52	Aware	.7663
3. I am exposed to climate change impact now	2.87	Moderate	.9451
4. Air pollution has influenced my health	2.79	Moderate	.7689
5. Evidence of climate change related to health is not convincing and is still controversial	2.70	Moderate	1.152
6. The increases in cardiovascular diseases are related to climate change	2.86	Moderate	.8728
7. Climate change has influenced my mental health, such as stress	2.57	Moderate	1.125
8. Climate change can increase food and waterborne diseases such as diarrhea	2.75	Moderate	.8771
9. Infectious diseases, for example, dengue fever, can possibly increase by climate change events	2.68	Moderate	1.042
Grand Mean	2.91	Moderate	

Legend: 4.20-5.00-Very Aware; 3.40-4.19- Aware; 2.60-3.39- Moderate; 1.80-2.59-Unaware, 1.00-1.79- Not at all

The link between population health and climate change has been demonstrated by scientists who stated that climate change poses a wide range of risks to population health. The World Health Organization (2009) emphasized that climate change is a significant and emerging threat to public health, especially in lower income populations and tropical/subtropical countries. However, people in Asia and Africa were the least likely to perceive global warming as a threat.

Table 3. Test of Differences on the Healthy Lifestyle Behaviours, Climate Change and Health Awareness of Adolescents when grouped according to sex variable.

Dimensions	Sex	N	Mean	Std Dev	t- value	P value
Exercise	Male	64	3.40	.770	7.187	0.000*
	Female	133	2.45	.908		
Nutrition	Male	64	2.81	1.06	-3.67	0.000*
	Female	133	3.39	.967		
Health Responsibility	Male	64	3.34	.801	-1.46	.146 ns
	Female	133	3.52	.857		
Interpersonal Support	Male	64	2.62	.723	-9.764	0.000*
	Female	133	3.62	.646		
Climate Change and Health Awareness	Male	64	2.77	.546	-3.474	.001*
	Female	133	2.99	.352		

*= $p<0.05$

ns= not significant

In Table 2, the data reveals that there is a significant difference on the healthy lifestyle behaviors, climate change, and health awareness when grouped according to gender particularly on exercise, nutrition, interpersonal support, and climate change awareness.

Along with exercise, male respondents manifested favorable habit of exercise compared to female. This finding is attributed to males who are consistently reported as more physically active than females regardless of age or measure (Hands *et al.,* 2016). Meanwhile, female respondents have favorable nutritional intake compared to males. This can be explained that women have higher awareness and better knowledge of nutrition and nutrient intake than men (Kiefer and colleagues, 2005). Consequently, in terms of interpersonal support, the female showed favorable rating than males. This can be explained that females have higher motivations to practice a healthy lifestyle than males (Von Bothmer *et al.,* 2005). Accordingly, females manifested favorable attitude awareness on climate change and health compared to males. This is attributed to the finding that females are more environmentally aware because of their caring attitude (Hiramatsu *et al.,* 2016). While no significant difference is found on health responsibility when sex is taken.

Conclusion

This study generally aimed to assess the healthy lifestyle behaviors, climate change awareness and health awareness of adolescents. It employed a descriptive survey research design. Results revealed that the respondents have not yet established among themselves the habit of practicing a healthy lifestyle while a fair level of understanding among the participants regarding the effects of climate change to their health. There is a significant difference on the healthy lifestyle behaviors, climate change, and health awareness when grouped according to gender particularly on exercise, nutrition, interpersonal support, and climate change awareness in favor of the female respondents.

Recommendations

Based on the conclusion of the study, the following recommendations are offered: (1) Conduct of a similar study on other samples of teaching stages. (2) Strengthen the integration of health and climate change concepts within the teaching curricula; (3) implement student activities with the aim of enhancing the healthy lifestyle behaviors and climate change awareness of college students through the student services office; (4) provide avenues for students to develop their healthy lifestyles and climate change awareness.

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