Original Article

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Factors Associated with Health Literacy for Public Health Students

Public Health Section

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ABSTRACT

Introduction: Health literacy is a necessary skill for a future workforce who will be a healthcare model for patients and even people around them. This will enhance knowledge of people to engage in the prevention of diseases and health risk factors, especially supporting people to modify their health behaviour.

Aim: To investigate the factors associated with Health Literacy for Public Health Students.

Materials and Methods: This cross-sectional descriptive research involved 143 students from Sirindhorn College of Public Health, Praboromarajchanok Institute, Ministry of Public Health, Thailand. The data was collected from August to November, 2019 using a questionnaire, which was tested for content validity by 3 experts and its reliability was assessed using Cronbach's alpha. The critical thinking and health literacy yielded a score of 0.75 and 0.96, respectively. The data was analysed using descriptive statistics and multiple logistics regression at 0.05 level of significance, the adjusted odds ratio, 95% confidence Interval and p-value.

Results: It was found that 109 (76.22%) of the respondents were female, the average age was 23.39±4.15 years, and 57 (39.86%) had a Grade Point Average (GPA) 3.00 from 4.00. The critical thinking and health literacy was classified as high level at 18 (12.59%) and 78 (54.55%), respectively. The factors significantly associated with reported high health literacy (p-value <0.05) were: (1) Gender (Adjusted OR=3.11, 95% CI: 1.28-7.58; p-value=0.012); (2) GPA (Adjusted OR=2.41, 95% CI: 1.15-5.04; p-value=0.019); and (3) Critical thinking (Adjusted OR=2.99, 95 % CI: 1.36-6.54; p-value=0.006).

Conclusion: The factors associated with high health literacy were: gender, GPA and student's critical thinking. Therefore, the stakeholders or policy makers should be concerned with ensuring students improve their learning and encourage them to gain a higher level of health literacy for a sustainable healthcare professional career.

Keywords: College student, Critical thinking, Future workforce, Health education, Healthcare professional

INTRODUCTION

Economic, environmental, and social circumstances have changed the pattern of disease, including the increase of Non-Communicable Diseases (NCDs), such as heart diseases, diabetes and hypertension. Health literacy has been found to be a major contributor through the following factors [1]. The main causes were inappropriate health behaviour, with the result that 16.0% of Thai people regularly smoked, and 19.2% aged 15 years and above had insufficient physical activity. The study of the health literacy of Thai people found that a majority (59.4%) had an inadequate level of health literacy, which included exercise, emotional stability, and consumption of food, tobacco, and alcohol [2].

Health literacy represents the cognitive and social skills which determine the motivation and ability of individuals to gain information on the ways to promote and maintain good health [3]. It is more than the ability to read and follow a health manual. It is the ability of a person to access health information and use it effectively. The important factors to determine the knowledge of health consists of: access to information and health services, cognitive functions, communication skills, media literacy, decision making skills, and self-management [4]. Health promotion, disease prevention, rehabilitation, and consumer protection are also needed for a person to have good health literacy and apply it in their work effectively [5].

Many studies found that the health literacy of college students was related to health promotion and disease prevention [6-9]. It was also positively correlated with the ability to consume health products safely [10]. However, no study had previously investigated the health literacy of Public Health students; therefore, it was thought desirable to consider the health literacy of students who studied at the Bachelor of Public Health program in Community Health at Sirindhorn College of Public Health. This degree focuses on producing a future workforce to meet the needs of the community healthcare system [11]. The graduated students will be required to work in public health positions in the health service department. Indeed, health literacy is a necessary skill for people to develop appropriate health behaviour and is especially important for future healthcare professionals, who can provide a healthcare model for patients and even people around them. In order for the future workforce to achieve efficient goals, the students need a substantial ability in health literacy, requiring knowledge of such courses as health promotion, disease prevention, health care, rehabilitation, and consumer protection. This study investigated the factors related to health literacy of students who applied for the Public Health programme.

MATERIALS AND METHODS

Study Design

This was a cross-sectional descriptive research, aimed to investigate the health literacy issues and factors related to health literacy of public health students at the Praboromarajchanok Institute, Ministry of Public Health, Thailand. The study included 143 students (final year) of the Bachelor of Public Health degree in the Community Health Program. Students who were unwilling to participate in the research project were excluded. This research has been considered by the Human Research Ethics Committee of Mahasarakham University with the Approval number: 086/2019 to protect participant rights, so that the participant has the right to withdraw from the program throughout the duration of the study.

Survey Questionnaire

A questionnaire (144 item) was developed by the researchers, with three sections dealing with background demographic data

(9 items), critical thinking (15 items), and health literacy (120 items). [ANNEXURE I] (available as Supplemental data). The Critical section contained multiple choice with a score of 1 for each correct answer. The scores were divided into 3 levels [12]: low level (less than 60 per cent of total points), moderate level (60-79 per cent of total points), and high level (80 and above per cent of total points). The health literacy section employed 5 rating scales questions to establish the performance level. The scores were again divided into 3 levels [13]: low level (range 1.00-2.33 points), moderate level (range 2.34-3.67 points), and high level (range 3.68-5.00 points). The factors that related to health literacy were categorised into 2 groups (dichotomous variables), in problem solving and promoting health literacy, which was to set the code 0 as a reference group, including: Health literacy [14] (High=1, Moderate and Low=0) Critical thinking (High=1, Moderate and Low=0) Gender (Male=1, Female=0) Age (23 years=1, <23 years=0) Income (enough for spending=1 not enough to spend,=0) Feelings about current health (good and very good=1, inadequate=0) GPA (3.00=1, <3.00=0) [15].

The content of the health literacy questionnaire was validated by 3 experts analysing by the index of Item-Objective Congruence (IOC), who found that every item had an IOC of 0.50-1.00 [16,17]. Then, it was tried out with 20 Bachelor of Public Health students in Community Health, College of Public Health, Sirindhorn, Yala Province, specifying Cronbach's alpha at null hypothesis (CA0)=0 and expected value of Cronbach's alpha (CA1)=0.7, α=0.05, Power (1-β)=0.1 [18]. The sections of the questionnaire on critical thinking and health literacy were found to have a reliability of 0.75 and 0.96, respectively.

STATISTICAL ANALYSIS

Data were analysed by SPSS for Windows Version 18 under license of Mahasarakham University. The descriptive statistics for sequence variables were established as mean and standard error, while categorical variables were depicted as frequencies with percentages for the whole sample. Inferential statistics were used with multiple logistics regression to analyse the factors related to health literacy, presenting the adjusted odds ratio with a 95% Confidence Interval (CI) and p-value. p-value less than 0.05 was considered as statistically significant.

RESULTS

Participant Characteristics

It was found that 34 (23.77%) of the participants were from Suphan Buri Province. 109 (76.22%) of the respondents were female, and 133 (93.01%) were single marital status. The average age was 23.39±4.15 years. 57(39.86%) had a GPA of 3.00 and above, average income received for expenses was 5,339.15±2,300.89 baht per month, 105 (73.43%) considered their income to be sufficient, 139 (97.20%) were without chronic diseases, and 104 (72.73%) had good feeling about their health.

Critical Thinking

Students had an average critical thinking score equal to 9.31±1.99 from a full score of 15, and 81(56.64%) had a moderate level of critical thinking [Table/Fig-1].

Level of critical thinking	Number	Percentage
High level	18	12.59
Moderate level	81	56.64
Low level	44	30.77
Mean±SD=9.31±1.99 Median (Min, Max)=9 (4, 13)		

[Table/Fig-1]: Critical thinking (n=143).

Health Literacy

Students had the highest mean score for health literacy on disease prevention (3.96±0.57 points), followed by medical care (3.95±0.60 points), and the lowest score was rehabilitation (3.88±0.57 points). The average for health literacy was 3.65±0.46 out of 5 points, as most of students had a high level of health literacy at 78 (54.55 %) [Table/Fig-2].

Level of health literacy	Number	Percentage
High level	78	54.55
Moderate level	64	44.76
Low level	1	0.7
Mean±SD=3.65±0.46 Median (Min, Max)=3.69 (1.55, 4.63)		

[Table/Fig-2]: Health literacy (n=143).

The Factors Associated with Health Literacy

Analysing factors that were related to health literacy by multivariable analysis, it was found that the factors that were associated with a high level of health literacy with a statistical significance of 0.05, were gender, GPA and critical thinking. In the case of gender, male students had a level of health literacy 3.11 times higher than female (95% CI: 1.28-7.58; p-value= 0.012). Students with a GPA higher than 3.00 had a level of health knowledge 2.41 times that of students with a GPA <3.00 (95% CI:1.15-5.04; p-value=0.019). Students with good critical thinking had a level of health knowledge 2.99 times that of students with low-moderate critical thinking (95% CI: 1.36-6.54; p-value=0.006) [Table/Fig-3].

Factor	Numbers	% of high health literacy	Crude OR	Adjusted OR	95% CI	p-value
Gender						
Female	109	50.46	1	1	1	**0.012**
Male	34	67.65	2.05	3.11	1.28-7.58	
GPA						
<3.00	80	46.25	1	1	1	**0.019**
≥3.00	63	65.08	2.16	2.41	1.15-5.04	
Critical thinking						
Low-medium	44	36.36	1	1	1	**0.006**
Good	99	62.63	2.93	2.99	1.36-6.54	

[Table/Fig-3]: The factors associated with health literacy (Multivariable analysis) (n=143).
OR: Odd ratio; CI: Confidence interval; GPA: Grade point average; 1-0: (reference group)

DISCUSSION

Health literacy is an intersection of health and education, which involves more than reading ability [19]. It is a necessary skill for people to develop appropriate health behaviour. It is also a special concern for future healthcare professionals, who can provide a healthcare model for patients and even people around them. These results revealed that the health literacy of the students was at a moderate level. The scores were highest in disease prevention, moderate in medical care and lowest in rehabilitation, which was in accordance with the fact that the sample of this study was final year students, who had passed courses such as health promotion, disease prevention, primary therapy, rehabilitation, and consumer protection. The students had also done practical service in the local community and their instructors used a variety of teaching methods to promote students' 21st century skills. In addition to the literacy gained in the classroom, students also need to take action, such as searching for information from the college, which provides various resources to help learners learn and practice their skills to gain more information on health care, disease prevention and health promotion. In addition, the topic of health matters is something that students must learn and pay special attention to more than the general public. Students must communicate with clients and provide access to health information that is beneficial to clients [20]. This is consistent with

the health education literacy of nursing students which is found at the highest level [6] and, consistent with Naresuan University students with a high level of knowledge of health and good health promoting behaviours [21].

Gender correlated with statistical health literacy significantly, so male students, may have a higher level of health literacy because they have more varied life experiences, may be influenced by peer groups and have better information technology skills than females. This is consistent with another study that have found that gender is related to health literacy [22]. One previous study found that males have better knowledge of health in the component of decision making skills which enhance health behaviours [23]. However, this finding contradicts a study that found that females have a better health literacy than men, with males and females having good health literacy at a level of 52.60% and 60.30%, respectively with a statistical significance (p-value <0.001) [24] whereas some studies found that gender has no relationship with health literacy [25]. GPA correlated with statistical health knowledge significantly because students with very good grades are in a group with a good background and have high intellectual ability. This group of students will learn more and are interested in obtaining new learning and are diligent in pursuing literacy. This is consistent with the study's findings that the GPA is related to health [25,26].

Critical thinking also has a statistically significant correlation with health literacy. Students with good critical thinking were found to have 2.99 times higher level of health knowledge than students with low-moderate critical thinking. This is due to critical thinking being a thought process that uses reasoning and careful thought when studying data and evidence to consider the reliability of the information, leading to good decision making in understanding what matters should be believed, what should be done, and the reasoning. Thus, critical thinking is associated with health literacy including logical thinking, giving priority to that information that leads to making good decisions [27]. It is consistently found that student's cognitive ability is related to health literacy in accessing information and health services [28] as well as cognitive impairment being related to reduced health knowledge [29]. There have been studies that have found that abnormal cognition correlates with insufficient statistical health literacy [30].

Limitation(s)

One important limitation of this study is that it relies on a cross-sectional design that does not permit causal inferences from the observed relationships hence, the findings are provisional ones.

CONCLUSION(S)

Gender, GPA and student's critical thinking were found to be associated with high health literacy. Hence, the study can be used as an imperative tool for the stakeholders or policy makers in improving learning of students and encourage them to gain a higher level of health literacy for a sustainable healthcare professional career. Further research including cohort studies have been advised, that are better able to identify causal factors that are associated with health literacy.

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