The Influence of Age, Sex, and Strand on the Knowledge on HIV/AIDS among Senior High School Students: An Assessment

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Abstract

Reported cases of HIV/AIDS have been rampant and is uncontrollably increasing. Thus, the government has been focusing on the treatment and is losing sight on the importance of prevention. The researchers aimed to identify the knowledge of Senior High School students with an objective of determining further interventions that could be of help to the society and to the government, such as health education, health seminars, etc. In relation with the current findings from the Department of Health, this age group is also one of the age groups that are at risk of acquiring HIV. A Descriptive Comparative research design was utilized in the study. 300 Senior High School students, age 18-21 years old from STEM, ABM and HUMSS were purposively chosen as respondents and a 45-item questionnaire was utilized as a tool. Percentage analysis, ANOVA and T-test were used as statistical treatment. The result of the study revealed that there were 150 female and 150 male students. Furthermore, 100 participants were gathered from each of the aforementioned strands. Meanwhile, 267 students were 18 years old, 28 were 19 years old, 3 were 20 years old and 2 students were 21 years old. The results revealed that there is a significant difference when grouped according to sex (p-value=.048). It showed that male students (mean=22.56) were knowledgeable while female students were not knowledgeable (mean=21.08). Likewise, there is a significant difference when grouped according to strand (p-value=.000). It showed that students who were enrolled in the STEM (mean=23.11) and HUMSS strand (mean=22.62) were knowledgeable while ABM strand (mean=19.81) were not knowledgeable. However, there is no significant difference when grouped according to age (p-value=.847).

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It showed that 19 (mean=22.7) and 21 years old (mean=23) were knowledgeable while 18 (mean=21.7) and 20 years old (mean=21) were not knowledgeable. Overall, results showed that male students were more knowledgeable than female students, and the higher the age, the more knowledgeable. It also shows that STEM strand are more knowledgeable than HUMSS and ABM strand.

Keywords: HIV/AIDS; Knowledge; Senior High School students; Senior High School strands.

1. Introduction

According to the estimates done by the World Health Organization (WHO) and the Joint United Nations Programme on HIV/AIDS (UNAIDS), 36.7 million people were living with HIV globally at the end of 2016 in which 56 thousand of these cases are from the Philippines. On the same year, 1.8 million people became newly infected, and 1 million died of HIV-related causes [24]. The Philippines has become the country with the most number of cases of Human Immunodeficiency Virus epidemic in the Asia Pacific Region. In line with this, the UNAIDS showed a report which alarmed the country that there was a 140% increase in the number of new HIV cases ranging from 4,300 on 2010 to around 10,500 on 2016 [35]. A total of 629 persons, most of whom are millennials, were infected with the Human Immunodeficiency Virus (HIV) on April 2017. More than 80 percent or 513 of those diagnosed with the virus belong to the 15 to 24 age group. Two out of three new HIV cases were among 15 to 24 year-old men, who were said to have insufficient awareness of HIV, its symptoms and treatment [31]. In 2015, six cities were identified by the DOH, and its corresponding prevalence rates among males who had sex with males, namely, Cagayan de Oro with 4.7%, Davao with 5%, Caloocan with 5.3%, Quezon city with 6.6%, Manila with 6.7%, and lastly, Cebu with 7.7%. This report showed that Cebu has the highest rate of HIV cases by the year 2015. In relation to this, the Manila Times released an article, which showed that in 2018, there had been reports regarding 275 new cases of HIV and one third of these are from Metro Manila [33]. Since Metro Manila has the highest rate of HIV cases in 2018, the researchers aim to conduct this study in the said area. HIV/AIDS awareness in the Philippines requires urgent attention due to the increasing rates of HIV infection. In contrast to a worldwide trend of decreasing rates, the biggest proportion of cases is now coming from the younger generation as 8 out of 26 Filipinos daily who contract HIV are age 15-24 years old [29]. The current data regarding cases on HIV/AIDS is alarming and these figures are a clear proof that the country needs to promote sole prevention, specifically in educating the Filipino youth on how they should care and be aware of their sexual health. In the Philippines, sex education modules have been tested in 159 schools for the school year 2010-2011 [31]. The report of the United Nations about the increase in the HIV infection rate among people age 15-24 prompted the release of the new sex education modules. The modules were given beginning in Grade 5 and extended to Grade 12 students who were enrolled in Science, Health, English and Physical Education courses. Materials given were age-appropriate and the topics incorporated were about personal care and hygiene, the menstrual cycle, and puberty in the earlier years of the program, whereas the later years focused on the proper behavior among and between different sexes and the religious perspective on premarital sex focused on in later years. In spite of these concepts on sexual health, there were no specific and detailed instructions or modules on diseases related to sexual health, such as HIV infection, AIDS, STD's and the like, which would strengthen and provide deeper knowledge on these matters to the students [28]. There are strategies and interventions with regards to the treatment, management and fight against the stigma and discrimination in

persons with HIV that are implemented by the government, such as availability of free voluntary HIV Counseling and Testing Service, 100% Condom Use Program (CUP) especially for entertainment establishments, peer education and outreach, multi-sectoral coordination through Philippine National Aids Council (PNAC), empowerment of communities, community assemblies and to reduce stigma, augmentation of resources of social hygiene clinics, and procured male condoms distributed as education materials during outreach [25]. Most of these studies found were focused on counseling and treatment while there has been no significant action regarding prevention, particularly detailed health education among the people. Henceforth, there has been an increasing gap between the treatment and prevention of HIV/AIDS. The focus of HIV programming must be on prevention of this disease and to target the people most at risk, which are men having sexual intercourses with other men, sexual intercourses between opposite sexes, young people who are not exposed or educated with sexual education, members of the health team, and those who are 15 to 24 years old. If these objectives would be the sole focus of programs directed to address HIV, then the Philippines will not only return to a stable situation but can also end the AIDS epidemic, which has been seen as a public threat by the year 2030 [35]. Consequently, this motivated the researchers to determine the influence of age, sex, and strand on the knowledge on HIV/AIDS among Senior High School students as this may serve as a way of prevention for them. Knowing the factors, which affect one's knowledge on HIV/AIDS can minimize the risk factors that could predispose them in having the disease.

2. Literature Review

2.1.1 HIV/AIDS

The Human Immunodeficiency Virus (HIV) infects cells of the immune system, destroying or impairing their function. Infection with the virus results in progressive deterioration of the immune system, leading to immune deficiency. This immune deficiency progresses until it leads to AIDS, which is the end stage of the HIV infection process. The Acquired Immunodeficiency Syndrome (AIDS) is a syndrome caused by a virus called Human Immunodeficiency Virus (HIV). The disease alters the immune system, which leads people to become more vulnerable to infections and diseases. In AIDS, the risk of developing a life-threatening illness is much greater. Serious conditions may be controlled, avoided, and/or treated with other medications, alongside HIV treatment. Death of an individual with this disease would be inevitable [25]. HIV can be transmitted through unprotected sexual intercourse (vaginal or anal), and oral sex with an infected person; transfusion of contaminated blood; and the sharing of contaminated needles, syringes, surgical equipment or other sharp instruments. It may also be transmitted between a mother and her infant during pregnancy, childbirth and breastfeeding. The risk for HIV transmission can be prevented by using male or female condoms correctly, taking antiretroviral drugs for pre-exposure prophylaxis of HIV (PrEP), practicing only non-penetrative sex, and remaining faithful in a relationship with an uninfected equally faithful partner with no other risk behavior. Condoms are proven to be effective in preventing HIV infection from spreading when used properly during every sexual intercourse. However, apart from abstinence, no protective method is 100% effective. HIV testing plays a vital role as it has two important benefits: One is because people can take steps before symptoms appear or upon knowing that they are positive of the virus through treatments, care and support, which, in turn, will potentially prolong their lives and prevent health complications for many years; Another point to consider is that

precautions can be taken to prevent the spread of HIV to others. Antiretroviral drugs are now being used in the treatment of the aforementioned infection and the prevention of its progression. These drugs fight HIV by interfering with the reproduction of the virus and reducing its amount in the body. As of mid-2017, 20.9 million people were receiving HIV antiretroviral therapy (ART) globally. While this number illustrates a formidable success in HIV treatment scale up, nearly half of all people in need are still waiting to be treated. In addition to ART, people with HIV often need counseling and psychosocial support [24]. For the first quarter of 2011, the DOH program has attained particular targets for the three major final outputs: health policy and program development; capability building of local government units (LGU) and other stakeholders; and leveraging services for priority health programs. For the health policy and program development, the Manual of Procedures/Standards/Guidelines is already finalized and disseminated. The ARV Resistance Surveillance among people living with HIV (PLHIV) on treatment is being implemented through the Research Institute for Tropical Medicine (RITM). Moreover, both the Strategic Plan 2012-2016 for Prevention of Mother to Child Transmission and the Strategic Plan 2012-2016 for most at risk young people and HIV Prevention and treatment are being drafted. With regards to capability building, the Training Curriculum for HIV Counseling and Testing is already revised. Twenty five priority LGUs provided support in strengthening Local AIDS councils. As of March 2011, there were already 17 treatment hubs nationwide. Lastly, for the leveraging services, baseline laboratory testing is being provided while male condoms are being distributed through social hygiene clinics. A total of 1,250 PLHIV were provided with treatment [25]. This study will be focusing on schools in the urban areas. Despite the fact that having knowledge cannot impeccably eliminate the possibility to acquire the disease, it can be a great factor in minimizing the risk. This is the reason why further assessment of knowledge, especially on the transmission, prevention, treatment and management, should be implemented among people living in these said areas [18]. On the other hand, the young ones residing in rural areas have adequate knowledge on HIV/AIDS due to the fact that health workers from different health institutions, particularly community health services, give appropriate information on the said disease. They might be able to prevent themselves from being infected by knowing the vital details with regards to the virus and the disease and apply it accordingly [17]. The adapted HIV Knowledge Questionnaire (HIV-K-Q) in the study is a 45-item material to purposefully assess an individual's knowledge on the human immunodeficiency virus, along with the transmission, effective preventive methods, the misconceptions, and the consequences of being infected by it. Factor analysis and evaluation validity was used to demonstrate that the previously mentioned questionnaire is a psychometrically sound and useful instrument for assessing HIV-related knowledge. It was constructed by researchers in the University of Miami School of Nursing and Health Sciences. Initially, it was a 62-item HIV-Knowledge Questionnaire (HIV-K-Q), which was administered to 409 women and 227 men. However, item analyses resulted in the deletion of 17 items that were either too easy or did not correlate well with the total score. Factor analysis on the remaining 45 items resulted in a single factor labeled as HIV Knowledge. This generalized one-factor solution was confirmed with data from 285 women and 76 men. Reliability analyses revealed that the HIV-K-Q is internally consistent and stable over 1-week, 2-week, and 12-week intervals. Evidence for the validity of the HIV-K-Q was assembled using known groups and treatment outcome analyses. Additional evidence emerged from analyses revealed associations between scores on the HIV-K-Q and two related knowledge measures, and between HIV-K-Q scores and level of educational attainment. Discriminant validity was obtained through non-significant relationships between the HIV-K-Q and potentially biasing

constructs, including social desirability. The HIV-K-Q is a reliable, valid, and practical measure of HIV-related knowledge [4]. This study will be using the Social Cognitive Theory of Albert Bandura to determine the influence of age, sex, and strand on the knowledge on HIV/AIDS among Senior High School students. This theory explained the basic causes and mechanisms of human behavior and motivation. Behavior, cognition and other personal factors, and environmental influences all operate as interacting determinants that influence one another bi-directionally. According to Bandura, environmental factors represent situational influences and the environment in which behavior is performed, while personal factors include instincts, drives, traits, and other individual motivational forces. The Social Cognitive Theory of Albert Bandura stated that there are different factors affecting the learning of an individual, namely: behavioral, personal and environmental factors [1].

2.1.2 Knowledge based on Age and Sex

Ostensibly, a lot of misconceptions and misinformation about the disease make the young people at risk [11]. Students from the age group of 13-25 years old had a satisfactory level of knowledge but misapprehensions about HIV transmission were highlighted and is suggested to be corrected by including sex education in the school curriculum [20]. The knowledge regarding HIV/AIDS on ages 15 and 19 years old were moderate. Students' scores were highest in the mode of transmission while lowest scores were in the area of HIV testing. It can also be observed that older students were more aware on HIV/AIDS in comparison to younger ones [5]. Another study determined that those age 15–24 years old, with two or more sex partners in the past 12 months preceding the 2005–06 ZDHS survey, had a significantly elevated risk of HIV infection of 1.568 times relative to their counterparts with no sex partners in the same period of time [7]. In the year 2017, individuals age 15-24 had the highest prevalence out of 1098 new cases being infected with HIV, wherein 96% of these cases were men. In view of the fact that younger people are becoming more curious about sexually-related information, they become more at risk without appropriate guidance. Due to the adolescents' vulnerability, they have been the target group of HIV programs. Because of the challenges emanating from their physical, emotional and social experiences, adolescents are predisposed to be at risk for HIV. Some of the important challenges that make young people vulnerable to HIV infection are sexual activity, lack of effective prevention, peer pressure and lack of adequate information. Except for some sporadic efforts, there is no school-based sexuality education for Filipino adolescents regarding the acquisition of HIV. Despite the widely divergent HIV prevalent rates, the Philippines is seeking to strengthen its respective national programs on HIV/AIDS. The country must cast greater attention to and build more impact on young people [27]. Both men and women in slum and non-slum areas are more aware about the virus and disease in a general perspective, than to a deeper extent. Poor access and lack of awareness about the available health services despite the extensive use of mass media suggests a lapse in building the knowledge. Knowledge of awareness and prevention methods on HIV/AIDS was high in the younger group, which is less than 25 years old in slum areas. In the same way, it was also high among women who were educated more than 10 years, had regular media exposure, and were from the richest wealth category [6]. Meanwhile, male adolescents already have a basic knowledge of the disease which includes its definition, causes, mode of transmission, and the appropriate measures to prevent the disease. There is also a belief amongst the aforementioned group that HIV/AIDS has a high mortality rate especially in the working class. Despite of known risks, some still disregard safe sexual practices which eventually led to the progression of the said disease [13]. The level of HIV knowledge is low in a total of 3,305 men between 15-54 years old,

regardless of HIV status. Only 3% of the respondents could answer all the questions correctly. Less than one-tenth (8.2%) of all respondents got half or fewer of the answers correct and about three times less of those (32.9%) got correct answers for 70% of the questions. One-third was of rural origin and about one-fifth had no formal education. About 30% of the respondents had completed primary education and 46% of respondents had a secondary level of education or higher [19]. It was found out that women have a very shallow and limited knowledge regarding the transmission of HIV/AIDS. Sex education not being integrated within the educational system leads to various lapses in basic knowledge regarding HIV/AIDS such as various modes of transmission of the disease, and different common preventive measures against the disease. These lapses are observed to be more prevalent among women thus leading to their increased susceptibility to HIV/AIDS [2]. In the Philippines, almost all Filipino women have heard of AIDS but awareness varies whether they came from rural or urban areas, wherein those who came from the latter were observed to be more aware about the disease than the other area. However, the percentage of Filipino women who have comprehensive knowledge, including the mode of transmission, prevention and the appropriate management on HIV/AIDS, is low. It has also been evident that these women had not experience formal education. In addition, the comprehensive level of knowledge also was higher in 15-24 years old women living in urban areas than those living in rural areas. With respect to region, it revealed that NCR had the highest comprehensive level of knowledge, followed by Cordillera administrative region, then Eastern Visayas, Calabarzon, Bicol, Central Visayas, Mimaropa, Central Luzon, Caraga, Zamboanga peninsula, Cagayan Valley, Ilocos, Northern Mindanao, Western Visayas, Davao, ARMM, and lastly, Soccsksargen. Increase in level of education and in wealth was seen as a factor that substantially affects the comprehensive knowledge on HIV/AIDS [22]. In MIMAROPA, it was stated that the overall comprehensive knowledge in HIV/AIDS is quite low, having a figure of 12.5%, suggesting many misconceptions on the transmission of the virus or disease. Among the factors associated with comprehensive knowledge, education was the most significant, with higher levels of schooling positively associated with more accurate and complete knowledge [3].

2.1.3 Senior High School strands

The Senior High School (SHS) covers the last two years of the K to 12 program, namely Grades 11 and 12. The two additional years will equip students with skills that will prepare them for higher education, as well as for their employment, entrepreneurship, and skills development. The following strands of SHS are: Humanities and Social Sciences Strand (HUMSS), Science, Technology, Engineering and Mathematics Strand (STEM), Accountancy, Business and Management Strand (ABM), General Academic Strand (GAS), Music, Arts and Design Strand (MAD), Physical Education and Sports Strand (PES), and Technical – Vocational and Livelihood/ Information and Communications Technology (TECHVOC or TLC/IVC). However, the study will be focusing on STEM, HUMSS and ABM only. These strands offer different kinds of courses that are grouped according to particular specializations. The HUMSS strand is designed for those who wonder about the present reality and other people and is integrated with in-depth communication skills and effective interpersonal attitudes. However, this strand excludes subjects related to health and physical education. On the other hand, STEM strand is designed for individuals who are curious in applying interventions in the real world with the inclusion of holistic approach to life and adaptation to real life setting. Courses in the said strand do not solely focus on mathematics and physical education, since it is integrated with information regarding technologies and

health. Meanwhile, the ABM strand is equipped with concepts of management, accounts and operations, as well as in-depth organization and development of systems. Health and physical education are not prioritized in this strand. Due to the dissimilarities of the strands and the lack of sex education in the curriculum, SHS students would have comparative differences in their knowledge on HIV/AIDS [26]. Moreover, a study stated that ABM students generally have average awareness on the pathological process of the virus and low awareness on its mode of transmission. With regard to the prevention and treatment of HIV and AIDS, the students were found to have high awareness [8]. Another study assessing the HIV-Related knowledge by academic Major, specifically in STEM, HUMSS and ABM stated that those who claimed to be completely knowledgeable about HIV were less likely to be in the HUMSS Major. It added that the content, timing and delivery mechanisms on sex education and HIV education is largely ignored and downplayed in the K-12 system, and these inconsistencies deprive young adults from obtaining the necessary sexual health information to protect themselves. It states that the those in the STEM strand are more knowledgeable about the virus and disease in comparison to the other stands (ABM and HUMSS) having a low level of knowledge, since the former is more inclined with health-related topics [16].

2.2 Research Hypothesis

H1: there is a significant difference on the knowledge on HIV/AIDS among Senior High School students when grouped according to age.

H2: there is a significant difference on the knowledge on HIV/AIDS among Senior High School students when grouped according to sex.

H3: there is a significant difference on the knowledge on HIV/AIDS among Senior High School students when grouped according to strand.

2.3 Operational Definitions

- Knowledge - is determined using a 45-item adapted questionnaire from HIV-K-Q wherein it is categorized as follows: if the result ≥ 22.5 (50% of the total score) it is considered as knowledgeable. On the other hand, if the result is ≤ 22.5 (50% of the total score) it is considered as not knowledgeable.
- Senior High School strands - The Strands of Accountancy, Business & Management (ABM), Science, Technology, Engineering & Mathematics (STEM), Humanities and Social Sciences (HUMSS) of Senior High School students will be used as a variable in determining if which strand of Senior High School is knowledgeable or not knowledgeable on HIV/AIDS by comparing the questionnaire results of the respondents from each strand. Using the strands in Senior High School, it will be determined if it has a factor on the respondent's knowledge on HIV/AIDS.
- Senior High School students - The inclusion criteria are: (a) those who belong to age 18 to 21 years old; (b) enrolled in any of the strands (ABM, STEM, HUMSS); (c) is a Grade 12 Senior High School student; (d) and those who have a background knowledge on HIV/AIDS. On the other hand, the exclusion criteria in the study are: (a) Grade 12 students below 18 years and above 21 years of age; (b)

Not a Grade 12 Senior High School Student.

2.4 Conceptual Framework

In this study, Social Cognitive Theory was used to determine the influence of age, sex, and strand on the knowledge on HIV/AIDS among Senior High School students. This theory explained the basic causes and mechanisms of human behavior and motivation. Behavior, cognition and other personal factors, and environmental influences all operate as interacting determinants that influence one another bi-directionally. According to Bandura, environmental factors represent situational influences and the environment in which behavior is performed, while personal factors include instincts, drives, traits, and other individual motivational forces. The Social Cognitive Theory of Albert Bandura stated that there are different factors affecting the learning of an individual, namely: behavioral, personal and environmental factors [1]. However, this study only integrated personal and environmental factors affecting the learning of Senior High School students. The students age and sex falls under personal factors while the strand falls under environmental factors. Behavioral factors were not included since the study only focused on determining the knowledge on HIV/AIDS among Senior High School students according to age, sex, and strand and if there is a significant difference on the knowledge on HIV/AIDS among Senior High School students when grouped according to age, sex, and strand.

3. Methods

3.1 Research Design

A Descriptive Comparative research design was used in this study. It described variables and examined differences in two or more groups that occur naturally in a setting [36]. In this study, it was used to determine the knowledge on HIV/AIDS among Senior High School students according to age, sex, and strand and to determine if there is a significant difference between the knowledge on HIV/AIDS among Senior High School students when grouped according to age, sex, and strand.

3.2 Subjects and Setting

The locus of the study were schools in urban areas. According to statistics in 2015, Manila has the second highest incidence of HIV cases in the country and in 2018, there have been reports regarding 275 new cases of HIV and one third of these are from Metro Manila [32]. Therefore, the researchers aimed to conduct the study in the said area. This study was conducted in two schools and both schools offers ABM, STEM and HUMSS strands since in 2017, the age group who were mostly diagnosed with HIV are those who belong to age 15-24 [31]. ABM, STEM and HUMSS strands in Senior High School were selected to determine if either those who are in non-health related or health related strands are more knowledgeable with regards to HIV/AIDS. Power analysis was used by the statistician to compute for the population. Through this method, a total of 300 Senior High School students were purposively chosen as respondents. An equal division of 150 students for each school was deduced. Purposive sampling technique is a judgmental or selective sampling that involves the conscious selection by the researcher of certain subject or elements to include in a study [36]. The inclusion criteria are: (a) those who belong to age 18 to 21 years old; (b) enrolled in any of the strands (ABM, STEM,

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HUMSS); (c) is a Grade 12 Senior High School student; (d) and those who have a background knowledge on HIV/AIDS. On the other hand, the exclusion criteria in the study are: (a) Grade 12 students below 18 years and above 21 years of age; (b) Not a Grade 12 Senior High School Student.

3.3 Research Instruments

The researchers utilized an adapted questionnaire as a tool. The first part of the tool consists of the profile of the respondents and the Questionnaire consists of 45 items adapted and validated from HIV Knowledge Questionnaire (HIV-K-Q) assessing the student's knowledge on the definition, mode of transmission, signs and symptoms, risk factors, common misconceptions, prevention, management, and the current national policy on HIV/AIDS [4]. Dichotomous scoring was utilized in the study. This refers to the assignment of one of two possible values based on a person's performance or response to a test question [36]. A simple example is the use of correct and incorrect to score a cognitive item response. These values are mutually exclusive and describe the correctness of a response in the simplest terms possible, as completely incorrect or completely correct. The Cronbach's alpha values were assigned per question. All the answers to the knowledge questions were summed up to generate the knowledge of each respondent. The total knowledge score will be based 50%, wherein it is categorized as follows: if the result ≥ 22.5 (50% of the total score) it is considered as knowledgeable. On the other hand, if the result is ≤ 22.5 (50% of the total score) it is considered as not knowledgeable. Through this scale, the knowledge of the respondents was determined. Therefore, the researchers were able to identify the respondent's profile and whether the respondents are knowledgeable or not knowledgeable when grouped according to age, sex, and strand.

3.4 Data Collection Procedure

Initially, the researchers sought consent to adapt the questionnaire "HIV/AIDS Knowledge Questionnaire (HIV-K-Q)" from the author. Then, the tool was validated with the help of three experts from the field of infectious diseases followed by the request for approval from the Ethics Review Board and the Technical review board committee. The school administrators received a letter from the researchers, which was noted by the researcher's adviser and the Dean of the College of Nursing. Afterwards, a pilot study for 10 Senior High School students was performed to determine the study's reliability. Results revealed that the tool used is reliable, with a Cronbach's alpha of 0.832, which led to the continuance of the study. It was conducted in two schools in urban areas, specifically in Metro Manila, to Senior High School students enrolled in STEM, ABM and HUMSS. The selection was conducted using purposive sampling technique. The purpose, risks and inconveniences, benefits, financial considerations, provision for inquiry, confidentiality and voluntariness of participation were disclosed to the respondents. The researchers ensured that the questionnaires were only given to students who have a background knowledge on HIV/AIDS by directly asking them. Later, the questionnaires were distributed to the respondents and 15 minutes was allotted for them to answer. Following this, the researchers proceeded with the collection of the tools containing the data, which will only be used for research purposes. These were analyzed using Percentage Analysis, T-test and Analysis of Variance (ANOVA).

3.5 Data Analysis

The researchers utilized a quantitative approach upon the analysis of the data that were gathered during the conduction of this Descriptive Comparative study [36]. A 45-item questionnaire were given to the respondents. To determine the knowledge of the respondents, descriptive statistics including arithmetic mean and standard deviation were used. Mean scores were calculated for each age, sex, and strand. Percentage analysis was utilized for the profile and knowledge of the respondents on HIV/AIDS. ANOVA was used to determine if there is a significant difference between the knowledge on HIV/AIDS among Senior High School students when grouped according to age and strand. T-test was used to determine if there is a significant difference between the knowledge on HIV/AIDS among Senior High School students when grouped according to sex [36]. The results were based on the collated answers of Grade 12 Senior High School students at the end of the test.

3.6 Ethical Considerations

Ethical approval was obtained from the Ethics Review Board of the University of Santo Tomas, College of Nursing. Informed consent from the students were obtained prior to the distribution of questionnaire. The advantages, purpose, and objectives of the study were completely disclosed to the respondents. The respondents were informed regarding the right to refuse anytime and was assured that the study will not cause any physical, emotional and psychological harm. Moreover, stating the identity of the respondents was not obligatory and was also assured to be treated equally. The risk that the respondents may encounter by participating in the study includes the usage of the respondent's time, as this study may serve as an inconvenience and may cause minimal stress. To avoid this, the researchers scheduled an appropriate and compatible time to conduct the study. In participating in this study, the respondents were able to determine the knowledge on HIV/AIDS and were able to identify if the knowledge is true and is enough to prevent from acquiring the virus. Lastly, the researchers assumed full responsibility throughout the study.

4. Results

This study aimed to determine the knowledge on HIV/AIDS among Senior High School students. Specifically, this study aimed to answer the following questions:

Research Question 1: What is the profile of the Senior High School students in terms of (a) age, (b) sex, and (c) strand?

In table 1.0, Percentage Analysis was used to determine the percentage of the respondents per age group based on the frequency. A total of 300 respondents participated in this study, which are classified according to age. The profile for age includes 18 to 21 years old Grade 12 Senior High School Students. There were 267 students out of 300 who are 18 years old (89.0%), 28 students out of 300 are 19 years old (9.3%), only 3 students out of 300 are 20 years old (1.0%) and lastly, only 2 students (0.7%) out of 300 are 21 years old.

Table 1: Profile of the respondents in terms of Age

AGE		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18	267	89.0	89.0	89.0
	19	28	9.3	9.3	98.3
	20	3	1.0	1.0	99.3
	21	2	.7	.7	100.0
	Total	300	100.0	100.0	

Table 2: Profile of the respondents in terms of Sex

SEX		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	150	50.0	50.0	50.0
	female	150	50.0	50.0	100.0
	Total	300	100.0	100.0	

In table 2.0, Percentage Analysis was used to determine the percentage of the male and female respondents based on the frequency. The respondents were asked to indicate their sex by placing a tick next to the relevant option provided (male or female). Out of 300 respondents who participated in this study, 150 (50.0%) grade 12 Senior High School students came from the group of male students, and 150 (50.0%) came from the group of female students.

Table 3: Profile of the respondents in terms of Strand

STRAND		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STEM	100	33.3	33.3	33.3
	HUMSS	100	33.3	33.3	66.7
	ABM	100	33.3	33.3	100.0
	Total	300	100.0	100.0	

In table 3.0, Percentage Analysis was used to determine the percentage of the respondents per strand based on the frequency. It also contains the profile, which involves the different strands of the grade 12 Senior High

School students based on the curriculum established by the Department of Education. The researchers specifically included students who were enrolled in the strand of HUMSS, ABM, and STEM as respondents for this study. Out of 300 respondents, there were 100 students (33.3%) from HUMSS strand, 100 students (33.3%) from ABM strand, and 100 students (33.3%) from STEM strand.

Research Question 2: What is the knowledge on HIV/AIDS among Senior High School students according to (a) age, (b) sex, and (c) strand?

Table 4: Knowledge on HIV/AIDS in terms of Age

AGE	MEAN	SD	Verbal Interpretation
18	21.7154	6.56900	not knowledgeable
19	22.7857	5.00635	knowledgeable
20	21.0000	9.84886	not knowledgeable
21	23.0000	1.41421	knowledgeable

Legend: ≥ 22.5 = knowledgeable; ≤ 22.5 = not knowledgeable

In table 4.0, it is composed of the age category, mean, standard deviation and verbal interpretation. A legend of ≥ 22.5 will be considered as knowledgeable and ≤ 22.5 will be considered as not knowledgeable. The table shows that the knowledge to be determined is based on the age of the respondents in which 18 years old students had a result of (mean=21.7254, SD=6.56900), 19 years old students had (mean=22.7857, SD=5.00635), 20 years old students had (mean=21.0000, SD=9.84886), and 21 years old students had (mean=23.0000, SD=1.41421). The results of the study showed that 19 (mean=22.7857) and 21 years old (mean=23.0000) Senior High School students were knowledgeable and those 18 (mean=21.7154) and 20 years old (mean=21.0000) Senior High School students were not knowledgeable on HIV/AIDS. Moreover, the results showed that 21 years old Senior High School students (mean=23.0000) are the most knowledgeable among the age group category of 18 to 21 years old. Second most knowledgeable are those who are 19 years old (mean=22.7857), which is a few points lower than those who are 21 years old.

Table 5: Knowledge on HIV/AIDS in terms of Sex

SEX	MEAN	SD	Verbal Interpretation
MALE	22.5600	6.71318	knowledgeable
FEMALE	21.0867	6.12283	not knowledgeable

Legend: ≥ 22.5 = knowledgeable; ≤ 22.5 = not knowledgeable

Third, is the age group of 18 years old (mean=21.7154) and the lowest score for the age group is those who came from the group of 20 years old (mean=21.0000) in which both age group falls below the level of the knowledgeability legend.

In table 5.0, it is divided into the sex category, mean, standard deviation and verbal interpretation. A legend of ≥22.5 will be considered as knowledgeable and ≤22.5 will be considered as not knowledgeable. The table shows that the knowledge to be determined is based on the sex of the respondents in which male students had a result of (mean=22.5600, SD=6.71318) and female students had (mean=21.0867, SD=6.12283). The results showed that male Senior High School students (mean=22.5600) were knowledgeable and female Senior High School students (mean=21.0867) were not knowledgeable on HIV/AIDS. Furthermore, it shows that male Senior High School students (mean=22.5600) are more knowledgeable compared to the female Senior High School students (mean=21.0867), which can be considered a point lower than the male group of students and falls below the level of the knowledgeability legend.

Table 6: Knowledge on HIV/AIDS in terms of Strand

STRAND	MEAN	SD	Verbal Interpretation
HUMSS	22.6200	5.85477	knowledgeable
ABM	19.8100	6.63735	not knowledgeable
STEM	23.1100	6.33396	knowledgeable

Legend: ≥ 22.5 = knowledgeable; ≤ 22.5 = not knowledgeable

In table 6.0, it consists of the strand category, mean, standard deviation and verbal interpretation. A legend of ≥22.5 will be considered as knowledgeable and ≤22.5 will be considered as not knowledgeable. The table shows that the knowledge to be determined is based on the strand of the respondents in which HUMSS students had a result of (mean=22.6200, SD=5.85477), ABM Students had (mean=19.8100, SD=6.63735) and STEM Students had (mean=23.1100, SD=6.33396). The results showed the influence of strands such as HUMSS, ABM, and STEM on the knowledge on HIV/AIDS among Senior High School Students. It shows that the strand of STEM (mean=23.1100) and HUMSS (mean=22.6200) were knowledgeable and the strand of ABM (mean=19.8100) were not knowledgeable on HIV/AIDS. In addition, it shows that the strand of STEM is the most knowledgeable among other strands since it garnered a (mean=23.1100), compared to HUMSS (mean=22.6200) and ABM (mean=19.8100). Among these strands, ABM received the lowest mean score that falls behind the level of knowledgeability legend, which indicates that this strand is the least knowledgeable compared to the other two strands.

Research Question 3: Is there a significant difference between the knowledge on HIV/AIDS among Senior High School students when grouped according to sex?

Table 7: Between-Group Comparison of Sex (N = 300)

MALE (n = 150)		FEMALE (n = 150)		*t*-value	Significance	*p*-value
Mean	SD	Mean	SD			(Two-tailed)
22.5600	6.71318	21.0867	6.12283	1.986	significant	.048

*Significant at ≤ 0.05 level; †Significant at ≤ 0.01 level

In table 7.0, the significance of sex in between-group comparison using T-test is being tested with a p-value of ≤0.05 and ≤0.01 as a basis to be considered as significant and not significant if otherwise. The table shows if there is a significant difference on the knowledge to be determined based on the sex of the respondents in which it had a result of (t-value=1.986, p-value=.048). Based on the results of the study, there is a significant difference (p-value=.048) between the knowledge on HIV/AIDS among Senior High School students when grouped according to sex.

Research Question 4: Is there a significant difference between the knowledge on HIV/AIDS among Senior High School students when grouped according to strand?

Table 8: Between-Group Comparison of Strand (N = 300)

HUMSS (n = 100)		ABM (n = 100)		STEM (n = 100)		*F*-value	Significance	*p*-value
Mean	SD	Mean	SD	Mean	SD			(Two-tailed)
22.6200	5.85477	19.8100	6.63735	23.1100	6.33396	8.031	significant	.000

*Significant at ≤ 0.05 level; †Significant at ≤ 0.01 level

In table, 8.0, the significance of strand in between-group comparison using ANOVA is being tested with a p-value of ≤0.05 and ≤0.01 as a basis to be considered as significant and not significant if otherwise. The table shows if there is a significant difference on the knowledge to be determined based on the strand of the respondents in which it had a result of (f-value=8.031, p-value=.000). The results showed a significant difference (p-value=.000) between the knowledge on HIV/AIDS among Senior High School students when grouped according to the strands of HUMSS, ABM and STEM.

Research Question 5: Is there a significant difference between the knowledge on HIV/AIDS among Senior High School students when grouped according to age?

Table 9: Between-Group Comparison of Age (N = 300)

18 (n = 267)		19 (n = 28)		20(n = 3)		21 (n = 2)		F-value	Significance	p-value (Two-tailed)
Mean	SD	Mean	SD	Mean	SD	Mean	SD			
21.7154	6.56900	22.7857	5.00635	21.0000	9.84886	23.0000	1.41421	.270	not significant	.847

*Significant at ≤ 0.05 level; †Significant at ≤ 0.01 level

In table 9.0, the significance of age in between-group comparison using ANOVA is being tested with a p-value of ≤0.05 and ≤0.01 as a basis to be considered as significant and not significant if otherwise. The table shows if there is a significant difference on the knowledge to be determined based on the age of the respondents in which it had a result of (f-value=.270, p-value=.847). The results of the study determined that there is no significant difference (p-value=.847) between the knowledge on HIV/AIDS among Senior High School students when grouped according to age.

5. Discussion

In research question number 1, a proper distribution of respondents was presented when it comes to Senior High School students' sex and strand. However, the distribution of respondents for the students age was unequal with regards to age group due to the availability of the students enrolled within the range of inclusion criteria, which has affected the representation of each age group of the respondents in the study. In research question number 2 of table 4.0, the results of the study showed that 19 and 21 years old Senior High School students were knowledgeable and those 18 and 20 years old Senior High School students were not knowledgeable on HIV/AIDS. Moreover, the results showed that 21 years old Senior High School students were the most knowledgeable among the age group category of 18 to 21 years old. The results showed that the higher the age, the more knowledgeable and it is supported by the authors of [5], which concluded that older students demonstrated a better level of knowledge on HIV/AIDS compared to younger ones in which 15-19 years old showed a moderate score and got a high score in mode of transmission but lowest in the area of HIV testing. On the other hand, the knowledge on awareness and prevention methods on HIV/AIDS were high in the younger groups and stated that it starts from age 25 and below [6]. In table 5.0, the results showed that male Senior High School students were knowledgeable and female Senior High School students were not knowledgeable on HIV/AIDS. Furthermore, it shows that male Senior High School students were more knowledgeable compared to the female Senior High School students, which can be considered a point lower than the male group of students and falls below the level of the knowledgeability legend. The result is supported by a study in which male adolescents are said to have the basic knowledge that includes the meaning, causes, and mode of transmission and prevention methods of the disease [13]. In addition, women have a very shallow and limited

knowledge regarding the transmission of HIV/AIDS [2] and the percentage of Filipino women who have comprehensive knowledge to identify the mode of transmission, prevention and misconceptions on HIV/AIDS is low [3]. However, the author of [6] states that the knowledge on awareness and prevention of HIV/AIDS was high among women who were educated for more than 10 years, had regular media exposure, and were from the richest wealth category. The authors of [19] also mentioned that the extent of knowledge on HIV and its determinants among men is low and only 3% of the 3305 men age 15-24 years old of the respondents could answer all the questions correctly. Also, the comprehensive level of knowledge was higher in women age 15-24 years old living in urban areas than those living in rural areas [2]. In table 6.0, the results showed that the strand of STEM and HUMSS were knowledgeable and the strand of ABM were not knowledgeable on HIV/AIDS. In addition, it shows that the strand of STEM is the most knowledgeable among other strands. It is supported by a study, which indicates that students enrolled in STEM were more knowledgeable on HIV/AIDS compared to other strands due to health related course requirements. It was also stated that the ABM strand has not been exposed to HIV/AIDS-related education and are either naive about modes of HIV transmission or embrace historical stereotypes on HIV/AIDS. On the other hand, the result of the study contradicts the result of an article as it states that HUMSS students are less likely to be completely knowledgeable about HIV/AIDS [16]. The author of [8] stated that ABM students have average awareness on the disease process of HIV and AIDS, low awareness on its mode of transmission, and high awareness on prevention and treatment, which means that ABM students are somehow knowledgeable. In research question number 3 of table 7.0, T-test was used to determine its significance and based on the results of the study, there is a significant difference between the knowledge on HIV/AIDS among Senior High School students when grouped according to sex. The hypothesis number 2 of this research study was suggested to be accepted. A study stated that male adolescents have a basic knowledge and are aware about HIV/AIDS but despite being knowledgeable, male students still choose to be involved in practicing risk behaviors [13]. Women on the other hand have a shallow and limited knowledge on HIV/AIDS due to the lack of sex education in the system [2]. In research question number 4 of table 8.0, ANOVA was used to determine its significance and the results showed a significant difference between the knowledge on HIV/AIDS among Senior High School students when grouped according to the strands of HUMSS, ABM and STEM. The hypothesis number 3 of this research study was suggested to be accepted. The authors in [26] stated that students enrolled in STEM are more knowledgeable on HIV/AIDS compared to other strand due to health related course requirements. Lack of sex education in the curriculum has to be considered and students have different approaches in different topics due to the specific strand, which would lead to a comparative differences on level of knowledge on HIV [16]. In research question number 5 of table 9.0, ANOVA was used to determine its significance and the results of the study determined that there is no significant difference between the knowledge on HIV/AIDS among Senior High School students when grouped according to age. The hypothesis number 1 of this research study was suggested to be rejected. The awareness about HIV/AIDS among young people age 15-24 years old is widespread but a lot of misconceptions and information about the disease makes them at risk [11] in which reinforcing sex education to the students curriculum in school could help to become the main source of information [20]. The vulnerability of this age group is high due to sexual activity, peer pressure, lack of effective prevention and adequate information [27].

5.1 Conclusion

Results showed that there is a significant difference on the knowledge on HIV/AIDS among Senior High School students when grouped according to sex and strand. However, there is no significant difference when grouped according to age. It also shows that male Senior High School students were more knowledgeable than female senior high school students, and the higher the age, the more knowledgeable.

5.2 Limitations

There are factors that served as the impediments of the study. First, the time which was be allotted by the administration for the researchers to conduct the study since each of the Senior high school student also have classes and the researchers will only be given a schedule to conduct the study. Second, the willingness of the Grade 12 Senior High School students to be the respondent of this study since not everyone would like to participate and may affect the way of answering the questionnaire. Third, the availability of the respondents to participate in the study since the schedule can still be subject to changes, especially when classes are suspended and when the respondents are not available. Fourth, the truthfulness of the Senior High School students in answering may also be an impediment in a way that the truthfulness of the respondent's answers might not really reflect the knowledge since the they can easily take a guess in times that the respondents do not want to answer a particular question, given that each statement provides only three options to be chosen from as an answer. Fifth, there are limited research that have been conducted here in the Philippines, which tackles the knowledge on HIV/AIDS. Lastly, three strand will only be included in the study namely: STEM, HUMSS and ABM since these are the strand offered and common between the two schools chosen as study site.

5.3 Recommendations

For the Senior High School Administrators to implement seminars, group discussions and programs that will be tackling sex education and health teachings that would stress on in-depth or thorough understanding on HIV/AIDS. For the Nursing profession and other health care professionals in the school clinic, the researchers would like to recommend the result of the study to serve as a basis to implement programs regarding education about HIV/AIDS to help or assist nurses, especially when performing health teaching and seminars by stressing important matters to be discussed such as mode of transmission, management, and prevention of HIV/AIDS. For the future researchers to utilize these information or results as basis for an evaluative, action research that involves an intervention such as creating programs or seminars that will tackle HIV awareness in which the researchers can determine the effectivity of having such activities on the knowledge of these Senior High School students. Through this study, future researchers could provide accurate and reliable information through links on HIV/AIDS with a specific content of message tailored to Grade 12 Senior High School students. This implies that the students could obtain accurate, precise and appropriate knowledge instead of false information. In addition, the future researchers could also conduct an experimental study wherein after giving the questionnaire for pre-test, the researchers will be conducting an oral and video presentation about HIV/AIDS then the students will have a post-test afterwards so that the researchers will not just be assessing the students knowledge, but will be able to impart new and accurate knowledge on HIV/AIDS and to promote awareness as well. Lastly, the future researchers who will also have an interest on addressing the issue on HIV/AIDS could work on a study to determine the knowledge of Senior High School students who are enrolled in public institutions so that there

would be a comparison on the knowledge of these students from those who are enrolled in private institutions.

Acknowledgements

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