Effects of Nurse's Support for the Adolescents-led HIV/AIDS Sexual Transmission Prevention Program Using a Social Network on Behavioral Intention for HIV/AIDS Prevention and Perceived Effectiveness of HIV/AIDS Preventive Behavior among Adolescents with HIV/AIDS

Ampaiwan Boonkaewwan

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in Nursing (International Program)

Prince of Songkla University

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ชื่อเรื่องวิทยานิพนธ์	ผลของโปรแกรมสนับสนุนของพยาบาลสำหรับผู้นำวัยรุ่นในการป้องกันการแพร่เชื้อเอชไอวี/เอดส์ทางเพศสัมพันธ์ผ่านทางเครือข่ายสังคมออนไลน์ต่อพฤติกรรมความตั้งใจในการป้องกันเอชไอวี/เอดส์และการรับรู้ประสิทธิภาพของพฤติกรรมการป้องกันเอชไอวี/เอดส์ในวัยรุ่นที่ติดเชื้อเอชไอวี/เอดส์
นักศึกษา	นางสาวอัมไพวรรณ บุญแก้ววรรณ
หลักสูตร	สาขาการพยาบาล (หลักสูตรนานาชาติ)
ปีการศึกษา	2560

บทคัดย่อ

การวิจัยกึ่งทดลองแบบสองกลุ่มวัดก่อนและวัดหลังซ้ำ มีจุดประสงค์ของการศึกษาเพื่อทดสอบผลของโปรแกรมสนับสนุนของพยาบาลสำหรับผู้นำวัยรุ่นในการป้องกันการแพร่เชื้อเอชไอวี/เอดส์ทางเพศสัมพันธ์ผ่านทางเครือข่ายสังคมออนไลน์ สุ่มกลุ่มตัวอย่างแบบเฉพาะเจาะจง เป็นวัยรุ่นที่ติดเชื้อเอชไอวี/เอดส์ ที่มารับการรักษาที่คลินิกเอชไอวี/เอดส์โ รงพยาบาลมหาราชนครศรีธรรมราช จำนวน 70 คน แบ่งเป็นกลุ่มที่ได้รับโปรแกรม 35 คน และกลุ่มที่ได้รับการดูแลตามปกติ 35 คน โปรแกรมและเครื่องมือได้ผ่านการตรวจสอบความตรงตามเนื้อหาจากผู้ทรงคุณวุฒิ 3 ท่าน ผ่านกระบวนการแปลย้อนกลับของเครื่องมือจากผู้ทรงคุณวุฒิ 4 ท่าน และทดสอบความเที่ยงของเครื่องมือประกอบด้วย แบบสอบถาม 1) พฤติกรรมความตั้งใจในการป้องกันเอชไอวี/เอดส์ และ 2) การรับรู้ประสิทธิภาพของพฤติกรรมการป้องกันเอชไอวี/เอดส์ โดยการทดสอบสัมประสิทธิ์แอลฟาของครอนบาค กับเด็กวัยรุ่นที่ติดเชื้อเอชไอวี/เอดส์ 20 คน ได้ค่าความเที่ยงของแบบสอบถาม 1-2 เท่ากับ 0.80 และ 0.96 ตามลำดับ วิเคราะห์ข้อมูลโดยใช้สถิติพรรณนา สถิติไคสแควร์ สถิติที สถิติฟรีดแมน สถิติวิลคอกซัน และสถิติแมนท์วิทนีย์

ผลการศึกษาพบว่า

1. การแจกแจงลำดับที่ของพฤติกรรมความตั้งใจในการป้องกันเอชไอวี/เอดส์และการรับรู้ประสิทธิภาพของพฤติกรรมการป้องกันเอชไอวี/เอดส์ในกลุ่มควบคุม ไม่มีความแตกต่างอย่างมีนัยสำคัญในภาพรวม เมื่อวัดก่อน วันที่ 15 และวันที่ 30 ($p > .05$)

2. การแจกแจงลำดับที่ของพฤติกรรมความตั้งใจในการป้องกันเอชไอวี/เอดส์และการรับรู้ประสิทธิภาพของพฤติกรรมการป้องกันเอชไอวี/เอดส์ในกลุ่มทดลอง มีความแตกต่างอย่างมีนัยสำคัญทางสถิติในภาพรวม เมื่อวัดก่อน วันที่ 15 และวันที่ 30 ($p < .001$) การแจกแจงลำดับที่ของพฤติกรรมความตั้งใจในการ

ป้องกันเอชไอวี/เอดส์และการรับรู้ประสิทธิภาพของพฤติกรรมการป้องกันเอชไอวี/เอดส์ มีความแตกต่างอย่างมีนัยสำคัญทางสถิติ ระหว่างการวัดค่าพื้นฐาน และวันที่ 15 ($p < .001$) และ ระหว่างการวัดค่าพื้นฐานและวันที่ 30 ($p < .01$) การแจกแจงลำดับที่ของพฤติกรรมความตั้งใจในการป้องกันเอชไอวี/เอดส์มีความแตกต่างอย่างมีนัยสำคัญระหว่างการวัดในวันที่ 15 และวันที่ 30 ($p < .05$) ในขณะที่ การแจกแจงลำดับที่ของการรับรู้ประสิทธิภาพของพฤติกรรมการป้องกันเอชไอวี/เอดส์ไม่มีความแตกต่างอย่างมีนัยสำคัญ ระหว่างการวัดในวันที่15 และวันที่ 30 ($p > .05$)

3. การแจกแจงลำดับที่ของพฤติกรรมความตั้งใจในการป้องกันเอชไอวี/เอดส์และการรับรู้ประสิทธิภาพของพฤติกรรมการป้องกันเอชไอวี/เอดส์ ระหว่างกลุ่มทดลองและกลุ่มควบคุม มีความแตกต่างอย่างมีนัยสำคัญทางสถิติเมื่อวัดในวันที่ 15 และวันที่ 30 ($p < .001$) ในขณะที่การแจกแจงลำดับที่ของพฤติกรรมความตั้งใจในการป้องกันเอชไอวี/เอดส์และการรับรู้ประสิทธิภาพของพฤติกรรมการป้องกันเอชไอวี/เอดส์ระหว่างกลุ่มทดลองและกลุ่มควบคุม ไม่มีความแตกต่างอย่างมีนัยสำคัญ เมื่อวัดค่าพื้นฐาน ($p > .05$)

ดังนั้นพยาบาลสามารถนำโปรแกรมนี้ไปใช้ในการพยาบาลวัยรุ่นที่ติดเชื้อเอชไอวี/เอดส์ เพื่อป้องกันการแพร่กระจายของเชื้อทางเพศสัมพันธ์

Thesis Title Effects of Nurse's Support for the Adolescent-led HIV/AIDS Sexual Transmission Prevention Program Using a Social Network on Behavioral Intention for HIV/AIDS Prevention and Perceived Effectiveness of HIV/AIDS Preventive Behavior among Adolescents with HIV/AIDS

Author Miss Ampaiwan Boonkaewwan

Major Program Nursing (International program)

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ABSTRACT

A quasi-experimental, two-group pretest-posttest, repeated measures design was used to test the effects of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behaviors among adolescents with HIV/AIDS. Purposive sampling was used to select 70 adolescents with HIV/AIDS at a HIV/AIDS clinic, Maharat Nakhon Si Thammarat Hospital (received the program = 35, received a usual care = 35). The program and instruments were validated by three experts and were back translated by four experts. The reliabilities of behavioral intentions for HIV/AIDS prevention questionnaire, and perceived effectiveness of HIV/AIDS preventive behaviors scale were examined with 20 HIV-infected adolescents, yielding Cronbach's alpha coefficients equal to 0.80 and 0.96 respectively. Data were analyzed using descriptive statistics, Chi-square test, t-test, a Friedman-test, a Wilcoxon Matched Pairs Signed Rank test, and a Mann-Whitney U-test.

The findings revealed that;

1. There were no significant difference of overall mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior at baseline, Day 15, and Day 30 in the control group ($p > .05$).

2. There were significant differences of overall mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior at baseline, Day 15, and Day 30 in the experimental group ($p < .001$). There were significant differences of mean ranks of behavioral intention for HIV/AIDS prevention and perceived

effectiveness of HIV/AIDS preventive behavior between at baseline and Day 15 ($p < .001$), and at baseline and Day 30 ($p < .001$). There was a significant difference of mean ranks of behavioral intention for HIV/AIDS prevention between Day 15 and Day 30 ($p < .05$) whereas there was no significant difference of mean ranks of perceived effectiveness of HIV/AIDS preventive behavior between at Day 15 and Day 30 ($p > .05$).

3. There were significant differences of mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior measured at Day 15 and Day 30 between the control and experimental groups ($p < .001$). Meanwhile, there was no significant difference of mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior measured at baseline between the control and experimental groups ($p > .05$).

Thus, nurses can use this program to provide nursing care for adolescents with HIV/AIDS on sexual transmission prevention.

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Ampaiwan Boonkaewwan

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CHAPTER 1
INTRODUCTION

Background and Significance of the Problem

The epidemiological update of the current pandemic of HIV/AIDS shows that 36.7 million people worldwide are infected with HIV/AIDS (World Health Organization [WHO], 2016). Approximately 2.1 million children aged 0 to 14 years old were found to have HIV/AIDS and 17.8 million HIV/AIDS sufferers were found in 15-to-24 year olds (United Nations Programme on HIV/AIDS [UNAIDS], 2017). In Thailand, around 450,000 people are infected with HIV/AIDS, approximately 106,133 of these are adolescents (15-24 years old) and 65% of these adolescents were infected with HIV/AIDS from unsafe sexual behavior (UNAIDS, 2017).

The rate of HIV/AIDS infection in adolescents has increased from 57% in 2014 to 65% in 2016 with an estimated 9,600 new cases per year. In particular, the majority of adolescents with HIV/AIDS infection was from sexual transmission, leading to risk for HIV transmission (Bureau of AIDS TB and STIs, Department of Disease Control, Ministry of Public Health, 2017; Ministry of Public Health, 2017; UNAIDS, 2017). Of concern in the report is that 26% of newly diagnosed HIV/AIDS infections are caused by sexual transmission from adolescents with HIV/AIDS (Bureau of AIDS TB and STIs, Department of Disease Control, Ministry of Public Health, 2017; Ministry of Public Health, 2017). The incident of adolescents with HIV/AIDS in Thailand has become a massive problem, as the report showed 33,338 new cases in 2018 (NHSO, 2018). Nakhon Si Thammarat is a large province located in the southern part of Thailand and the center of the Office of Prevention and Disease Control Region 11 reported that the number of adolescents infected with HIV/AIDS in 2016-2018 were there 355, 476, and 585 adolescents infected with HIV/AIDS which significant increase respectively (Nakhon Si Thammarat Provincial Health Office, 2018). The prevalence of sexual transmission was considered because 20% of the new cases of HIV-infections were from adolescents with HIV/AIDS caused by unsafe sexual behavior (Nakhon Si Thammarat Provincial Health Office, 2018).

Based on the literature review, the most risk behavior of adolescents with HIV/AIDS is in regards to the beliefs, attitudes, and factors associated with sexual risk

behaviors (CDC, 2016). For example, adolescents' misguided beliefs about sexual behavior included the use of condoms when having sex could delay climaxing, the first time one has intercourse does not transmit HIV/AIDS, the use of condoms in sexual intercourse indicates a lack of trust between sexual partners, and having sexual intercourse without ejaculating inside the vagina does not transmit HIV/AIDS (Jittrakoon, 2012).

A report from a focus group of adolescents with HIV/AIDS who were infected from their mother showed that they did not want to use condoms when having sex because they were afraid that their partner would know about their HIV/AIDS infection. Moreover, they wanted to act like adolescents in general and have a boy/girlfriend (HIVQUAL-T Nation 3rd, 2009; Nakhon Si Thammarat Provincial Public Health Office, 2016). This is similar to my experience where I worked with one adolescent with HIV/AIDS in a pediatric clinic. She was in love with someone and had sexual intercourse with her boyfriend without using a condom because she thought that having sex for the first time did not transmit HIV/AIDS. This issue is very important in a pediatric clinic with HIV/AIDS because a seminar of care provider teams in Thailand illustrated that every hospital has experience of adolescents infected with HIV/AIDS from mother to child through a partner with an unknown HIV/AIDS status (Bureau of Epidemiology, Department of Disease Control Ministry of Public Health, 2012; 2016). It can be seen that adolescents with HIV/AIDS who are HIV infected from their mother are not different from other adolescents in general, especially in regards to both physiological and psychological development. They want to have a boy/girlfriend and some may want to marry and have a baby in the future. Thus, with all of these reasons, adolescents with HIV/AIDS in this group are at high risk for HIV/AIDS transmission.

The reasons outlined in the previous paragraph are similar to the study of Rongkavilit, Naar-King, Chuenyam, Wang, Wright, and Phanuphak (2007) youth with HIV/AIDS on health risk behaviors in Bangkok. The results revealed that the risky sexual behaviors in both men and women who exposed and those who did not exposed their HIV status illustrated similar numbers of sexual partnerships as well as multiple partners. Moreover, the sexual acts were conducted without the use of condoms because negotiation to use condoms in adolescents with HIV/AIDS is very difficult because instruction of condoms using is often seen as a sign of distrust in a sexual relationship (Guiella & Madise, 2007).

The report on the risky sexual behavior of adolescents outlined several influencing factors on sexual behaviors and these included attitude, beliefs, and social influences (peer and media). Moreover, most adolescents lack skills to negotiate safe sex practices such as condom use when having sex, and the ability to refuse to have unsafe sexual intercourse (Boonchieng, Tuanrat, Fongkaew, & Klunklin, 2013; Jittrakoon, 2012; WHO, 2010). This was especially so in adolescents with HIV/AIDS who had been infected from their mother. They study in school as general adolescents, they believe in their peers and they have a misguided attitude about sex; that is, they have created a new trend for of 'La Taem' (Thai phrase) meaning 'sexual partners accumulation'. Moreover, they practice risky sexual behaviors by exchanging their sexual partnerships, a practice known as 'Swinging' (Thato & Penrose, 2013) and they view having sexual intercourse with boy or girl friends as the usual thing to do (Viravaidya, 2012).

In Thailand, there are many campaigns about the sexual transmission of HIV/AIDS and HIV/AIDS prevention for adolescents in general in order to avoid becoming infected with HIV such as the use of TV media to promote the safe sex practice of using condoms, and VDO or brochures on HIV/AIDS preventive behavior (Bureau of AIDS TB and STI, Department of Disease Control, Ministry of Public Health, 2013). In addition, there are numerous nongovernmental organizations to support programs about sexual preventive behavior in adolescents such as PATH which is recognized by the Thailand International Development Cooperation Agency [TICA] (PATH, 2015). However, it does not have an appropriate program or path for adolescents with HIV/AIDS.

The goal of the policy in Thailand is to reduce new HIV infections from sexual transmission by two-thirds and to implement strategies for zero new HIV infections (Bureau of AIDS TB and STI, Department of Disease Control, 2016; Ministry of Public Health, 2016). This policy is focused on women sex workers, young people who use drugs, men who have sex with men (MSM), and young adults in school. It is not focused on adolescents with HIV/AIDS who have been infected by their mother. Although safe sex has been added as an indicator to measure outcomes in clinic patients with HIV/AIDS (Bureau of AIDS TB and STI, Department of Disease Control, Ministry of Public Health, 2012), there are no standards on sexual education programs or effective intervention programs in adolescents with HIV/AIDS. This is due to the treatment in hospitals of adolescents with HIV/AIDS which mainly focuses on the aspects of care or the medical treatment

(Chokephaibulkit, Boonsit, Leawsrisuk, Loreaka, & Nuchnat, 2012; National Health Security Office Region 11, 2014). The CDC Director said, "That so many young people become infected with HIV each year is a preventable tragedy" (CDC, 2013, para.1). This is similar to a comment by Rongkavilit et al. (CDC, 2013) who said that "further study of sexual risk behaviors in HIV-infected youth is needed and should be focused on reducing risk behaviors because they will spread HIV directly" (Discussion section, para. 2).

In Thailand, the nurse is still the main person who drives the health system because the nurse's role is very important especially in the role of educator, supporter, facilitator etc. (Marquis & Huston, 2015). Thus, a nurse's support is the one of the roles in nursing in order to facilitate patients throughout their journey through the health system. The literature review on HIV/AIDS prevention programs showed that the nurses are the key persons to support or coach in a program, leading to the achievement of goals. The examples are the HIV prevention program in Thailand by training the youth to be leader and they lead on the educational program on sexual and reproductive health for Thai adolescents (Fongkaew, Settheekul, Fongkaew, & Surapagdee, 2011). The reports have shown that the nurses are the leaders on HIV/AIDS prevention programs. Moreover, reviews of literature have illustrated that peer groups or peer leaders are a strong point and serve as powerful reinforcements in the program. This is because peers are a source of acceptance as they feel comfortable receiving information and relating to information provided by persons of the same age group (Mahat, & Scoloveno, 2010). For example, a peer leader has been used to drive the program in order to increase effective HIV prevention. A study of Thato et al. (2013), Fongkaew et al. (2011), and Tolli (2012) showed that peer educators are one of the most important factors for the success of HIV/AIDS prevention programs. This is similar to the study of Fongkaew et al. (2011) which presented that the using peer education program was effective in youth empowerment. Thus, there were significantly increased of the scores of HIV/AIDS knowledge and attitudes towards sexual behaviors in peers who receiving the program leader's activities in 12 schools (p = .05). In addition, from focus groups with adolescents with HIV/AIDS in phase 1, they mentioned that "we felt free to talk, share, or discuss with our homogeneity group because we know, and deeply understand each other when we share our stories together."

Although all the programs were significantly effective, they are undesirable for adolescents with HIV/AIDS because the programs have been built for general adolescents to avoid HIV/AIDS infection by learning and understanding about HIV/AIDS in order to keep themselves safe. In addition, developing the programs by cooperation with others such as teachers, families, and the community in order to get them involved in the program was not appropriate for adolescents with HIV/AIDS because adolescents with HIV/AIDS need privacy and confidentiality; therefore, there is a gap in the HIV/AIDS prevention programs in Thailand.

Thus, the development of the HIV/AIDS prevention program for adolescents with HIV/AIDS who have been infected from their mother need to mix strategies in both the nurse's role and peer leaders in order to achieve the goals. The main purpose of HIV/AIDS prevention programs is intention and perception in order to prevent HIV/AIDS transmission; it can lead to behavior change later. Similarly, the theory of Planned Behavior (TPB) was integrated in this study because it identifies the specific constructs that predict behavior beyond behavioral intentions and perceived behavioral control, related to behavioral change (Ajzen, 1991; Ajzen, 2002). The TPB accumulates the potentiality to predict, understand leading to behavioral change such as eroticism, differentials of gender-based power etc. (Fisher & Fisher, 2000). Particularly, HIV preventive behaviors are defined from intentions, attitude, subjective norms, and perceived behavioral control that is conceptualized as a personal assessment. The literature review showed that numerous studies were used TPB integrated with HIV/AIDS preventive behavior such as the studies of Bryan et al. (2002) and Heeren et al. (2002), in which the TPB in their studies more strongly predicted the condom use intentions of males. According to the TPB mentioned that perceived behavioral control might be affected of HIV preventive behavior in term of individual's perception add to the influence of attitude and norms leading to intend to perform an HIV prevention act (Fisher & Fisher, 2000).

Not only are adolescents influenced by their peers but technology nowadays has become a massive influencing factor on adolescents also. Because the development of adolescents (aged 10-19 years) is the most challenging time of one's life and today's adolescents known as generation Z, born between 1995-2012, are noted for being the generation to be influenced by communication technologies such as emails, mobile phones,

text messaging, and social networking sites (Chokephaibulkit et al., 2012; Taylor & Keeter, 2010).

To develop mobile applications for HIV/AIDS prevention as well as coming up with a social network project to prevent HIV/AIDS is a challenge worldwide. According to Rudneva (2013), the executive director of the Elena Pinchuk ANTIAIDS foundation "We realized that the best way to build a successful intervention is by starting a great media campaign" (para. 2). Moreover, Elena Pinchuk of ANTIAIDS foundation also acknowledge that in the future, ways to raise awareness about HIV/AIDS will include more integration of social media platforms in the future in order to discuss safe sex, knowledge, HIV/AIDS resources, stigma and discrimination issues, creative and innovative ways of communicating using social media, and establishing blogs and photo blog platforms to exchange ideas (Benjamin, 2011; ElenaPinchuk ANTIAIDS Foundation, 2013).

As these technologies increasingly grow, standards must be established to ensure the safety and effectiveness of such technologies in research. Social networking technologies increase the ability to rapidly connect, in a convenient and comfortable way (Young, 2012; Young, Zhao, Teiu, Kwok, Gill, & Gill, 2013). Because of the National Strategy and Thailand 4.0 policy in terms of science and technology, research, and innovation (Ministry of Digital Economy and Society, 2017), this study was undertaken using technology integrated with nursing care. Literature reviews using an online social network (Facebook) on HIV/AIDS prevention programs could decrease the stigma associated with HIV/AIDS and increase the relationships between users in this area. In addition, online social networks could make it easier to make contact with high-risk subjects and reduce sexual risk behavior (Young & Jaganath, 2013; Young & Shoptaw, 2013; Young, Szekeres, & Coates, 2013; Young, Zhao, Teiu, Kwok, Gill, & Gill, 2013). According to the report on the use of social networking sites worldwide, Facebook (80%) is the top online application and 81% of teens use this site which is the same as in Thailand at around 70 % of users of social networking sites use Facebook and 58.4% of adolescents and young adults use Facebook (Ministry of Digital Economy and Society, 2017; National Statistical Office, 2016). Therefore, due to these figures, Facebook could serve as an innovative forum to increase HIV/AIDS prevention discussions. Facebook has several channels that can be used to post, talk, and share the effectiveness of HIV/AIDS prevention (Chen, Ho, Yang, & Liu, 2013).

In Thailand, there are few studies on using social networks; however, the literature review found an HIV prevention program using internet-based instruction on a website among MSM users (Kasatpibal, Viseskul, Srikantha, Fongkaew, Surapagdee, & Grimes, 2014). This study did have limitations in how to access this population in the way of privacy and one-way communication (Kasatpibal et al, 2014).

Even though there were a few studies in Thailand on the use of the social networking site via Facebook on HIV/AIDS sexual transmission prevention in adolescents with HIV/AIDS, there were no studies regarding the use of a peer leader infected HIV/AIDS to lead a social networking online HIV/AIDS prevention program. This is a challenging and interesting program in the integration between a social networking site and nursing care to enhance intention and perceived effectiveness of HIV/AIDS prevention in order to reduce sexual risk behaviors in adolescents with HIV/AIDS. In addition, the program needed to be based on the previous studies to fit with the Thai culture and characteristics of adolescents with HIV/AIDS. Thus, the development of the program in this study was based on the TPB theory, leadership skills of adolescent leaders, and adolescent development. In addition, to establish an application and various media via Facebook, the researcher applied the uses and gratification theory to create all media used in the program to be most attractive for adolescents. This theory aims to explain how individuals use mass media to satisfy their needs. The uses and gratification theory identifies the user's needs to use media and distinguishes it into five general categories consisting of cognitive needs, affective needs, personal integrative needs, social integrative needs, and tension free needs (Katz, Gurevitch, & Haas, 1973).

The expected outcomes are to cultivate the intention to adopt HIV/AIDS preventive behavior leading to the perceived effectiveness of HIV/AIDS preventive behavior by adolescents who led and drove the HIV/AIDS sexual transmission prevention program via Facebook with a nurse as a supporter.

Objectives of research

1. To compare behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS before, and after receiving the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network at Day 15 and Day 30.

2. To compare behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS who receive the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network and those who do not receive the nurse's support for the adolescents-led HIV/AIDS prevention program using a social network before and after at Day 15 and Day 30.

Research questions

1. Are there significant differences of overall mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS who did not receive the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program at baseline, Day 15, and Day 30?

2. Are the mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS after receiving the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network at Day 15 and Day 30 higher than those of before receiving the nurse's support for the adolescents-led HIV/AIDS prevention program using a social network?

3. Are the mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS who received the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network and those who did not receive nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network at baseline?

4. Are the mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS who received the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network higher than those of who did not receive the nurse's support for the adolescents-led HIV/AIDS prevention program using a social network at Day 15 and Day 30?

Conceptual Framework

The conceptual framework in this study was developed based on the Theory of Planned Behavior (TPB) of Ajzen (1991), the literature review regarding HIV/AIDS sexual transmission prevention, the social development of adolescents, adolescent leaders, nurse's support, the online social networking site concept, and the uses and gratifications theory of Katz, Gurevitch, and Haas (1973). The details are as follows.

TPB is a theory regarding attitude, subjective norms, and perceived behavioral control, leading to intention over the performance of positive behavioral change. Concerning attitude toward the positive behavior, this means that the level of person which has an expressing approval or disapproval evaluation or appraisal of the questions' behavior. Subjective norms refer to the social pressure perception or social support to perform or not to perform the behavior, and perceived behavior control refers to person's perception of the ease or difficulty of performing the behavior and effectiveness of perception to HIV/AIDS preventive behavior. Therefore, the TPB is the accumulated ability to predict, understand and change behavior, including attitudes, subjective norms, and perceived behavioral control increase significantly to the influence of behavioral intentions; meanwhile, perceived behavioral control may affect the performance of HIV/AIDS preventive behavior directly. Therefore, if the person has adequate attitudes, norms, and perceived behavioral control this leads to effective behavioral intention of HIV/AIDS prevention; after that, the performance of behavioral intention leads to HIV/AIDS preventive behavior ultimately. Thus, in this study if the adolescent had sufficient intention and perceived behavioral control, this could be a direct predictor of HIV/AIDS preventive behavior as well. HIV/AIDS prevention of sexual transmission is activities to regard or prevent a risky behavior in order to reduce HIV/AIDS infection from sexual transmission (CDC, 2013). From the literature review, having sex is the major route of HIV transmission in the world (AIDS info, 2015). If those who were infected with HIV/AIDS did not transmit the virus to others, the virus HIV would burn out and decrease (Ferris, Mizwa, & Schutze, 2013). The review of the literature illustrated that the effectiveness of HIV/AIDS prevention was based on several factors such as knowledge, a positive attitude and behavioral skills control (AIDS info, 2015; CDC, 2013).

Enhancing the knowledge and education on how HIV is transmitted, and why we have to protect ourselves was applied to this study. Moreover, creating a positive attitude towards social responsibility and enhancing intention and perceived behavioral skills control with training in both interpersonal and personal skills (e.g. discussion or talking about sexual acts, avoidance of risks with a partnership, and affirming of personal preference in a sexual relationship) and condom use were also applied. This led to intention and perceived behavioral control, leading to decreased risky behavior (AIDS info, 2015; CDC, 2013; Ferris, Mizwa, & Schutze, 2013).

The social development of adolescents from 12 to 19 years old is considered in this study because the period of adolescence is involved more with peers than with family; especially in relation to talking about sexual behavior (Sanders, 2013). Adolescents can openly talk and discuss the stigma and discrimination problems regarding HIV/AIDS. Peer groups also act as powerful supplementary force during adolescence as sources of acceptance. Adolescents typically have at least one major cultivator group as a peer group with whom they identify with and whose members are usually similar in many aspects, including the aspect of sex as in sexual orientation. The nature of adolescents' involvement with their peer changes during the course of adolescence. This study applied adolescent leaders to drive the HIV/AIDS sexual transmission prevention program because peers are presumed to exert a major social influence on adolescents' sexual behavior. Moreover, adolescent leaders or peer leaders are part of a homogeneous group so they can access as well as talk within their group easier and better than talking with others (Sanders, 2013). Moreover, peer leaders provide support to friends in finding their own inner wisdom, own recovery stories to provide hope, and to set personal goals for recovery (Daly, Jackson, Mannix, Davidson, & Hutchinson, 2014).

However, the role of nurses in the healthcare reform has become of importance in the healthcare system because the nurse is one of the main persons who drive policies and promote teamwork. Thus, training adolescents to be a leader in this program is the major role of the nurse. In particular, the role of developing leadership in others well as being a facilitator or supporter to develop new leadership for driving the healthcare system. Therefore, in this study, the nurse's support is a term that has been used to define the help and supporting activities the nurse undertook as a supporter and facilitator for the adolescent leaders throughout the program which consisted of training

the adolescent leaders and assisting them while driving the program (Sanjari, Shirazi, Heidari, Salemi, Rahmani, & Shoghi, 2009).

The program was implemented via an online social networking site (Facebook) because the target group is generation Z which is noted for being the first generation to be connected with and influenced by communication technologies such as emails, mobile phones, text messaging, and social networking sites (Taylor & Keeter, 2010).

Social networking sites allow users to create personalized profiles to share pictures, videos, live chat with inboxes for individual persons and groups, in addition to other forms of multimedia which increase the ability to rapidly connect, do other forms of multimedia add information and knowledge (Ministry of Information and Communication Technology, 2015). This is a new channel of communication to use to launch an HIV/AIDS prevention program to connect with generation Z; moreover, it is a challenging as well as interesting project to undertake Because of the integration of a social networking site and nursing care to enhance intention and reduce sexual risk behaviors in adolescents with HIV/AIDS. In addition, the program uses a peer-led method mixed with Facebook and is designed for HIV/AIDS prevention to build relationships, share experiences and information among group members.

The uses and gratifications theory was considered for application in terms of creating all the media used in the program to be the most attractive for adolescents. The uses and gratifications theory identified the needs to use media and distinguished these needs into five general categories consisting of cognitive needs, affective needs, personal integrative needs, social integrative needs, and tension free needs (Katz et al., 1973; Blumler, 1979). The following outlines the application of each need in each category. Firstly, cognitive needs, in creating in terms of HIV/AIDS knowledge content with the use of colorful characters, pictures, attractive sizes and shapes, and short but easy to understand content. Secondly, affective needs, according to the emotions in adolescent development that are often characterized by rapidly fluctuating emotions (Zimmerman, Copeland, Shope, & Dielman, 1997), thus, this study used picture posts for relaxation and shared ideas of interest. Thirdly, personal integrative needs, VDO and music were applied to build inspiration and the self-esteem of adolescents with HIV/AIDS to prevent HIV/AIDS transmission to others. Fourthly, social integrative needs, to use adolescent leaders in order to chat, share and conduct individual chats with the adolescents within

the HIV/AIDS group to keep social contact and communicate continuously with friends in the group. Lastly, tension free needs, applied negotiation skills VDOs which show situations where adolescents are using negotiation skills and they then assign group members to act and share ideas.

In conclusion, this study developed the program based on the TPB theory by using adolescent leaders to drive the HIV/AIDS sexual transmission prevention program via Facebook. Moreover, the uses and gratifications theory was used to apply and create all the media used in the program with support from a nurse. The program consisted of knowledge, positive attitude, subjective norms, and perceived behavior control. Therefore, it was expected that the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program using a social network would enhance behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS (Figure 1).

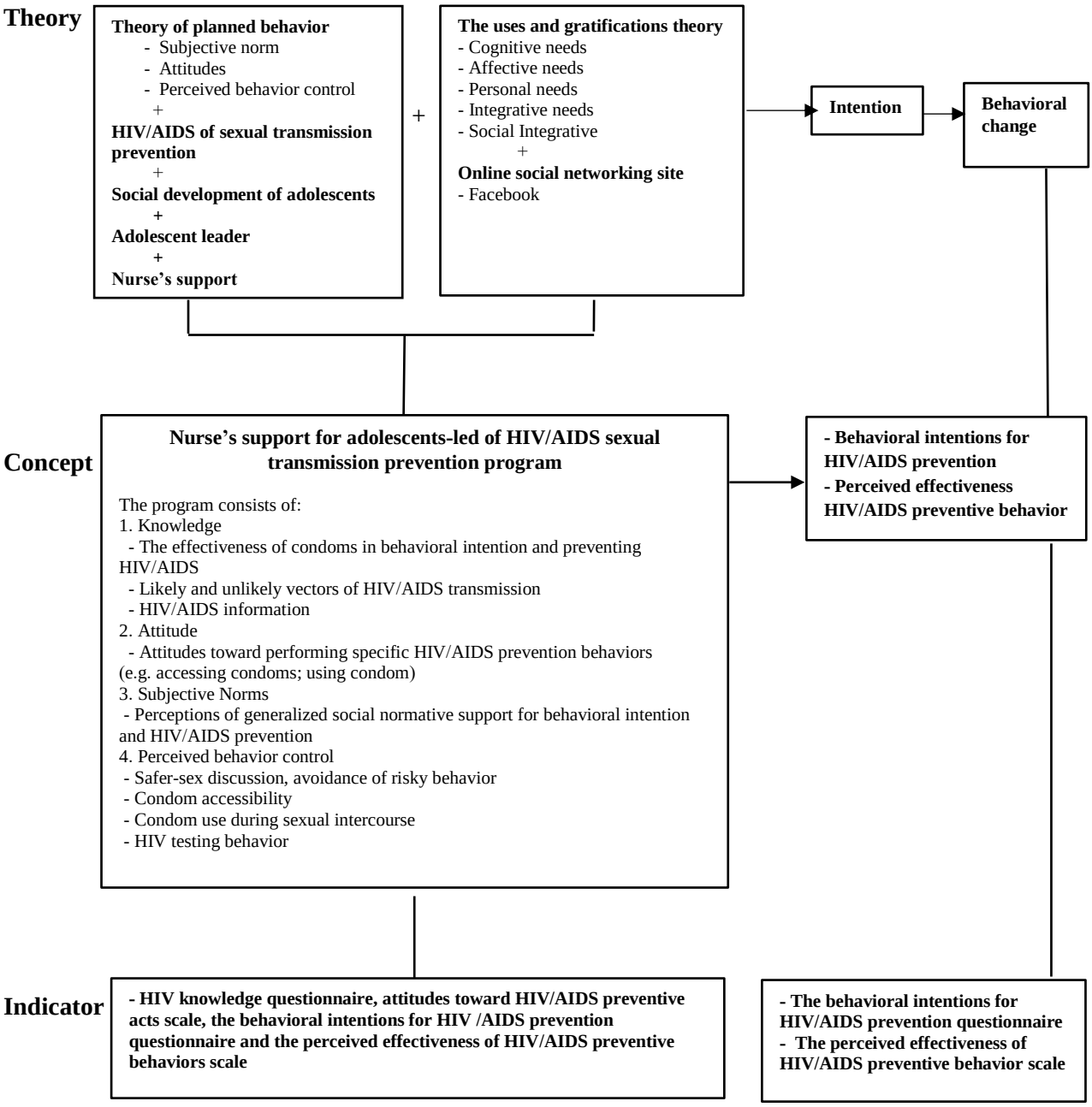

Figure 1. Conceptual framework of the effects of the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS

Research Hypothesis

1. Mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/ AIDS preventive behavior among adolescents with HIV/ AIDS after receiving the nurse' s support for the adolescents-led HIV/ AIDS sexual transmission prevention program using a social network at Day 15 and Day 30 are higher than those before receiving the nurse' s support for the adolescents-led HIV/AIDS prevention program using a social network

2. Mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/ AIDS preventive behavior among adolescents with HIV/ AIDS who received the nurse' s support for the adolescents- led HIV/ AIDS sexual transmission prevention program using a social network are higher than those of who do not receive the nurse' s support for the adolescents- led HIV/ AIDS prevention program using a social network at Day 15 and Day 30.

Operationalized Definition

Nurse's support refers to the activities of the nurse to facilitate, coach, and train the adolescents with HIV/AIDS to be leaders. These leaders can implement the HIV/AIDS sexual transmission prevention program using a social network to other adolescents with HIV/AIDS face-to-face and via Facebook. In this study, the researcher as a nurse helped the adolescent leaders regarding supportive activities. There were four types of support that were provide by the nurse consisting of 1**)** informational support was conceptualized as a giving supportive communication by making available understandable information to the adolescent leaders about the details of program, and the steps of driving the program including the group members' behavioral and emotional responses, human rights and responsibilities while driving the program, 2**)** emotional support included listening, showing of caring behaviors, and being concerned in ways that helped the adolescent leaders cope when they met any problems and any other aspects they consulted about that impacted on driving the program, 3**)** appraisal support which was conceptualized as enhancing, reinforcing, and supporting the adolescent leaders, and 4**)** instrumental support which included assistance of any kind, such as time, Wi-Fi support, and questions and answers via an inbox when the adolescent leaders had any queries while driving the program.

Adolescents-led HIV/AIDS sexual transmission prevention program refers to the activities of adolescent leaders to drive the HIV/AIDS sexual transmission prevention program using a social network with adolescents with HIV/AIDS to prevent HIV/AIDS transmission to others and to protect themselves from catching sexually transmitted infections from others. This program was developed based on TPB, and a literature review regarding HIV/AIDS sexual transmission prevention. The program consisted of knowledge, attitude, subjective norms, and perceived behavior control. It was implemented via an online social network (Facebook) by the trained adolescents with HIV/AIDS leaders under coaching from the nurse researcher. The program was implemented for 1 month. During these 4 weeks, the adolescent leaders drove the program by communicating with their group participants through Facebook chat, messages, and group wall posts approximately 3 times per week. The researcher evaluated the activities in this program performed by the HIV/AIDS adolescents using the questionnaire of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior, which was applied from Misovich, Fisher, and Fisher (1998).

Behavioral intention for HIV/AIDS prevention refers to HIV/AIDS adolescents who commit to perform or not perform activities regarding the prevention of HIV/AIDS sexual transmission to others and can protect themselves from catching sexually transmitted infections from others. This consists of intention to 1) negotiate not to have sexual intercourse, 2) discuss safer sex with sexual partners, 3) use a latex condom, and 4) undergo an HIV blood test. This was measured by the behavioral intentions for HIV/AIDS prevention questionnaire, which was applied from the behavioral intentions for HIV/AIDS prevention questionnaire of Misovich, Fisher, and Fisher (1998).

Perceived effectiveness of HIV/AIDS preventive behavior refers to HIV/AIDS adolescents recognizing that they have successfully performed activities regarding the prevention of HIV/AIDS sexual transmission to others and can protect themselves from catching sexually transmitted infections from others. It consists of 1) the effectiveness of safer sex, 2) condom use, 3) accessibility, and 4) HIV testing behavior. This was measured by the perceived effectiveness of HIV/AIDS preventive behavior scale, which was applied from the perceived effectiveness of HIV/AIDS preventive behavior scales of Misovich, Fisher, and Fisher (1998).

Scope of the study

The two-group, pre-posttest, and repeated measures quasi-experimental design was conducted to evaluate the effects of a nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network. Eighty adolescents with HIV/AIDS who met the inclusion criteria were recruited from Maharat Nakhon Si Thammarat Hospital, Nakhon Si Thammarat. Ten adolescents with HIV/AIDS were trained by a nurse researcher to be leaders and to drive the program. The nurse researcher supported them throughout the program. Seventy adolescents with HIV/AIDS were randomly assigned to either the experimental group (n=35) or the control group (n=35). The behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS were measured before and after receiving the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network at Day 15 and Day 30.

Significance of the study

This study used a social network site to integrate and drive the program. Thus, this is a new channel of communication for participants to access the service conveniently and connect continuously. Thus, adolescent leaders could work with friends in the homogeneity group and the program produced in them a sense of ownership and participation. In addition, an online social network and peer-led intervention is one channel for patients where they can participate and communicate without distrust because online social networking technology uses rapid and widespread communication so that it can reduce feelings of discrimination in people living with HIV/AIDS. Especially, adolescents when they need to go to school; thus, they might not be necessarily have to come to hospital. Finally, this program has raised awareness in adolescents with HIV/AIDS to reduce sexual transmission to others, leading to behavior change. Particularly, because the group has been driving this program continuously, it can be sustainable in future.

CHAPTER 2
LITERATURE REVIEW

In this chapter, the following topics were reviewed under the key concepts of this study. The outline of this review is presented as follows:

1. HIV/AIDS in adolescents
    - 1.1 Definition of HIV/AIDS
    - 1.2 Epidemiology of adolescents with HIV/AIDS
    - 1.3 Causes of HIV/AIDS infection
    - 1.4 Signs and symptoms
    - 1.5 Pathophysiology
    - 1.6 Treatment and care
    - 1.7 Adolescents with HIV/AIDS infected from mother-to-child transmission
2. HIV/AIDS preventive behavior
    - 2.1 Behavioral intentions for HIV/AIDS prevention
        - 2.1.1 Definition of behavioral intentions for HIV/AIDS prevention
        - 2.1.2 Compositions of behavioral intentions for HIV/AIDS prevention
        - 2.1.3 Influencing factors of behavior intentions for HIV/AIDS prevention in adolescents with HIV/AIDS
    - 2.2 Perceived effectiveness of HIV/AIDS preventive behavior
        - 2.2.1 Definition of perceived effectiveness of HIV/AIDS preventive behavior
        - 2.2.2 Compositions of perceived effectiveness of HIV/AIDS preventive behavior
        - 2.2.3 Influencing factors of perceived effectiveness of HIV/AIDS preventive behavior in adolescents with HIV/AIDS
    - 2.3 Effects of adolescent-led HIV/AIDS prevention program on HIV/AID preventive behavior
    - 2.4 Measurement of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior
3. Theory of Planned Behavior
    - 3.1 Introduction
    - 3.2 Categories of theory of Planned Behavior

3.3 Assumptions of theory of Planned Behavior

3.4 Utilization of theory of Planned Behavior

4. Online networking site (Facebook)

5. The Uses and Gratifications Theory

5.1 Introduction

5.2 Categories of the Uses and Gratifications Theory

5.3 Assumptions of the Uses and Gratifications Theory

5.4 Utilization of the Uses and Gratifications Theory

6. Leader

6.1 Introduction

6.2 Adolescent leader/peer leader

6.2 Leadership skills

6.2.1 Communication skills

6.2.2 Decision making

6.3 Utilization of communication skills and decision-making

6.4 Measurement of leader evaluation

7. Nurse's support

7.1 Nurse's role in leader training

7.1.1 Training a leader

7.1.2 Program Training

8. Summary of literature reviews

HIV/AIDS in adolescents

Definition of HIV/AIDS

HIV/AIDS is a disease infection caused by the human immunodeficiency virus (WHO, 2013). As the infection progresses, it intervenes in the activity of the immune system and the sufferer becomes weakened to tuberculosis, opportunistic infections and tumors. In the final stages of the disease, the infection is referred to as AIDS (WHO, 2013).

Epidemiology of adolescents with HIV/AIDS

Based on the United Nations Programme on HIV/AIDS [UNAIDS] epidemiological update, 36.7million people worldwide have been infected with HIV, 2.1 million new cases of HIV are diagnosed each year and 1 million people per year died from AIDS (UNAIDS, 2017).

There were 5.4 million adolescents and young adults (aged 10-24 years old) with HIV and approximately 780,000 cases were infected with HIV in this group per year (UNAIDS, 2017). In Asia and the Pacific, it was estimated that 5.1 million people were infected with HIV and 350,000 were adolescents (UNAIDS, 2016). This has decreased by 20% from 10 years ago (UNAIDS, 2016). In Thailand, since the year 1984, HIV/AIDS has been recognized as a deadly, contagious disease. Moreover, it has impacted on many Thai people as about 450,000 people have been infected with HIV; and of those about 106,133 people were adolescents in 2017(Ministry of Public Health, 2017). There has been a problem with the spread of HIV/AIDS in 2016 the number of HIV/AIDS patients was about 1,157,589 people, and 464,414 of these patients are still living. Moreover, in 2016, there are expected to be about 9,473 new cases infected with HIV/AIDS (Ministry of Public Health, 2016). The UNAIDS has indicated that adolescents and young adults had become the fastest growing population of newly HIV-infected of the world (UNAIDS, 2016).

In 2016, the number of newly HIV-infected adolescents was approximately 450,000 people by young people aged 15-24 years old accounted for 43,040 of new cases of HIV-infections (WHO, 2017). In Thailand, the infected HIV/AIDS rate is rising in adolescents with 9,470 new cases per year, and 80% are infected by sexual transmission

(Bureau of AIDS TB and STIs, Department of Disease Control, Ministry of Public Health, 2017).

Causes of HIV/AIDS infection

HIV/AIDS is spread by three main ways consisting of sexual contact, exposure to infected body fluids or tissues, and mother-to-child transmission (UNAIDS, 2013). Only sexual contact transmission is related and was presented in this study.

Sexual contact transmission

The most general HIV transmission is through sexual contact with an HIV-infected person with unsafer sex (WHO, 2015). HIV/AIDS can be transmitted from persons who have the HIV-infection to another by sexual intercourse including vaginal and anal means, blood including menstrual blood, and vaginal secretions (WHO, 2015). Sexual intercourse is chiefly the insertion of a male's penis into a female's vagina and ejaculation for the purposes of sexual pleasure or reproduction. Other forms of sexual intercourse with using anal sex (AIDS organization, 2014). Actually, sexual intercourse per the vagina is not as risky which compared with anal intercourse; however, it is still a high-risk behavior for HIV infection because this channel is possible for partners to be HIV-infected (CDC, 2015).

In women, HIV can be directly per the vagina and cervix because of HIV can absorb from the mucous membranes. If the vaginal wall was teared, possibly allow HIV to entrance in the body leading to HIV infection. Almost similar in men, the virus can enter the body through the penis or small cuts, if the tip of penis opening or sores on the penis. The risk of HIV infection is increased without sexual prevention (AIDS organization, 2014). In addition, oral sex is another way to give or receive HIV because oral sex involves the penis, the vagina, or the anus, however, this does carry a lower risk of contracting HIV. However, oral sex that involves ejaculation into the mouth or with partners who have mouth ulcers increases the risk considerably (CDC, 2013). However, there are several factors that may increase the risk of transmitted HIV including oral sex, bleeding per gums, genital sores, and having other sexually transmitted diseases (STDs) (AIDS organization, 2014). Indeed, in both heterosexual and homosexual contacts, there are risks of HIV transmission.

Signs and symptoms

There are three main phases of HIV infection including acute infection phase, clinical latency phase, and acquired immunodeficiency syndrome (AIDS) phase (WHO, 2015). Each detail is as follows.

Acute infection phase

This phase was contacted with HIV around 2-4 weeks is called acute HIV or acute retroviral syndrome. The symptoms of HIV approximally showed 40–90% such as fever, large tender lymph nodes, throat inflammation, skin rash, headache etc. (UNAIDS, 2015). Some people may be also developed of opportunistic infections (OIs) in this phase. Opportunistic infections are nonspecific in character in that these symptoms are not often identified as signs of HIV infection. Thus, it is mentioned that people who have an unexplained fever, that HIV be considered if the person has been exposed to any risk factors (CDC, 2015).

Clinical latency phase

This phase is asymptomatic HIV, or chronic HIV. By HIV infection can be averaged about three years, or eight years. In regards to symptoms of people who have fevers, weight loss, diarrhea and muscle pains (WHO, 2015; UNAIDS, 2015). However, the report showed that approximatelly 50- 70% of people also develop persistent generalized lymphadenopathy, non-painful enlargement of more than one group of lymph nodes for more than three to six months (CDC, 2015).

Acquired immunodeficiency syndrome (AIDS) phase

This phase is stage of acquired immunodeficiency syndrome (AIDS) that is the body has a lower the CD4+ T cell (less than 200 cells per μL) (CDC, 2015). The most symtoms of AIDS disease that aleart for the health provider team care consisted of pneumocystis pneumonia (PCP) (40%), cachexia (30%), esophageal candidiasis (20%), and other condition sign is respiratory tract infections (10%) (CDC, 2015). However, infections occur depends on the person's environment (CDC, 2015).

Pathophysiology

After the HIV entrance into the body, leading to an exuberance of HIV in the blood system by the level of HIV might be reached nemerous million-virus per millitres of blood (CDC, 2015). HIV/AIDS pathophysiology is very complex which making the CD4 T cell drop and allowing the HIV/AIDS virus to spread through the body (CDC,

2015). In addition, the immune system becomes weakened; thus, the body cannot fight or protect the body lead to HIV induce cells and kill cells by cytotoxic T cells. Finally, $CD4^+$ T cells loss of the ability of the immune system (CDC, 2015). Although the nature of the symptoms of immunodeficiency of AIDS does not appear after the infection for many years, most of the $CD4^+$ cell loss occurs during the first week of infection (CDC, 2015).

Treatment and Care

At present, HIV/AIDS treatments have become increasingly more effective (UNAIDS, 2015)**.** There are two kinds of treatment: specific treatment and supportive treatment.

Specific treatments

Specific treatment consists of two phases as follows.

The first phase

After being diagnosised with HIV with a blood HIV testing, a CD4 count and a viral load test were considered. Especially, a CD4 count of blood will check every 3 to 6 months after they are starting antiretroviral therapy drug (ART). (UNAIDS, 2017)**.** Other point for consideration is an HIV viral load that is the number of copies of the HIV in the blood. If viral load is lower than 20 copies/ml, it mean that patient has a good ARV adherence and sense of ARV are working correctly (UNAIDS, 2017)**.**

The second phase

Antiretroviral therapy is highly effective treatment, which provide for partient who has a CD4 blood count (Ministry of Public Health, 2017). Currently, there are five classes of ARV for treatment the patients who are living with HIV/AIDS., consist of Nucleoside Reverse Transcriptase Inhibitors (NRTIs), Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs), Protease Inhibitors (PIs), Cell Entry Inhibitors, and Integrase Inhibitors (Ministry of Public Health, 2017). The details are as follows.

1. Nucleoside Reverse Transcriptase Inhibitors (NRTIs). These classes of ARV affect the action of reverse transcriptase. the NRTIs block the process of reverse transcriptase from making copies of RNA of the genetic material of HIV by blocking the action of faulty building blocks in viral DNA production**.** Examples of NRTIs drug consist of zidovudine (AZT, Retrovir®), didanosine (ddI, Videx®), zalcitabine (ddC,

Hivid®), stavudine (d4T, Zerit®), emtricitabine (Emtriva®), lamivudine (3TC, Epivir®), abacavir (ABC, Ziagen®) and tenofovir (TDF, Viread®)

2. Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs), these ARV also affect reverse transcriptase by specify directly act on the efficacy of enzyme replication known as "non-nucs." Examples of NNRTIs drug consist of nevirapine (NVP, Viramune®), efavirenz (EFV, Stocrin®) and delavirdine (DLV, Rescriptor®)

3. Protease Inhibitors (PIs). These ARV intercept HIV proteins and create new copies of HIV by working to block the function of protease. They stop virus function and new copies of virus. Finally, the viruses can not splash new cells. For examples of protease inhibitors drug include; ritonavir (RTV, Norvir®), nelfinavir (NFV, Viracept®), saquinavir (SQV, Fortovase®), indinavir (IDV,Crixivan®), amprenavir (APV, Agenerase®), fosamprenavir (Lexiva®), tipranavir (Aptivus®), atazanavir (Reyataz®) and liponavir/ritonavir (LPV/RTV, Kaletra®)

4. Cell Entry Inhibitors. These drugs are inhibitors to prevent HIV from taking into cells. A type specific of inhibition agent is a inhibitor fusion. In order to begin to be involved in HIV target cell, it must blend to those cells and join with the membrane of the target cell. These drugs group try to protect the virus from wrapping to CD4 cells. Examples of entry inhibitors include enfuvirtide (Fuzeon®) and maraviroc (Selzentry®).

5. Integrase Inhibitors. Integrase is an enzyme that helps the HIV insert its genes into the DNA of the cell and integrase inhibitor blocks this process. This will help prevent the creation of new copies of HIV. One example of integrase inhibitors is raltegravir (Isentress®).

The supportive treatments

The supportive treatments are the airing of the side effects of Antiretroviral Therapy (ART) in regards to opportunistic infection exercise, diet and nutrition, and avoiding modifiable risk factors. The details are as follows.

1. Caring for side effects of ART

Although ARV help people with HIV/AIDS live longer, sometimes HIV medicines have also cause side effects. The side effects range from mild to severe (WHO, 2017). For example, headaches, dizziness, swelling of the mouth and tongue or damage to the liver etc. Some side effects may not be appear until many months or even

years after starting ARV (WHO, 2017). These effects are usually treated with medication based on symptom and depend on a person's individual needs. For example, patients who have high blood pressure, they need medicines for reducing high blood pressure (Ministry of Public Health, 2017). There are several choices in regards to specific side effects (Averting HIV and AIDS, 2012) as follows; 1) waiting for things to improve; about 2-3 weeks of treatment, 2) other possible factors from diet, smoking and physical activity, 3) change the method for taking the ARV (e.g., time of day, dosage, with or without food), 4) tring to treat the side effects from ARV, and 5) challenting of ARV.

For example, changing ARV is often an effective method to reduce or eliminate side effects when treated with other fail. If the virus is not detectable, it can usually only be changed without affecting its efficacy or future treatment (Averting HIV and AIDS, 2012). It is important to weigh the risks and possible benefits before deciding on this activity. Thus,do not stop taking antiviral drugs without consulting a physician because this may cause HIV to become drug resistant (WHO, 2013).

2. Opportunistic infections (OIs)

These infections are called "opportunistic" because the body's immune system is weakened and this leads to the likelihood of other illnesses (WHO, 2013). Antiretroviral therapy drug can be helped by increasing the number of CD4 cells that protect patients from OIs. Patients have to continuously take medication consistency to prevent other diseases (WHO, 2013). Preventing the opportunistic infections is still an important issue in care and treatment. The probability of patients infected with HIV catching OIs can be verified by the following screening (AIDS info, 2015). The details are as below.

2.1 The patient's CD4 cell counts

People who have CD4 counts greater than 500 cells/mm^3 are not at risk for opportunistic infections. Meanwhile, people who have CD4 counts lower than around 500 cells/mm^3, they can meet minor infections, such as candidal vaginitis or yeast infections (WHO, 2015). However, antiretroviral therapy can help them by increasing the number of CD4 cells and protect patients from OIs. A good adherence to take antiretroviral therapy (ART) is the major point to sustain HIV suppression, reduce the risk of drug OIs and improve overall health (AIDS info, 2015).

2.2 Primary and secondary prophylaxis therapies

Patients with HIV infection who have CD4 T-lymphocyte count falls lower than 200 cells/μL leading to their risk of specific infections .Therefore, the CD4 count must be current to within 4 months to determine and serve as an impetus to drug prophylaxis or other interventions (Haburchak, 2014). For example, the majority of patients with primary pneumocystis prophylaxis and take both antiretroviral regimens and a protease inhibitor that making an increase in $CD4^+$ T lymphocyte counts to >200 cells/μL for $\geq$3 months, therefore, the majority of patients for taking antiretroviral regimens should also include a protease inhibitor (PI) (CDC, 2012).

2.3 Patient's adherence to ART

Adherence to ART is very important for all patients with HIV. If poor adherence to take antiretroviral treatment, it make including failure to prevent viral replication and an increased risk of developing viral resistance. The report data suggest that the effectiveness of medication adherence required for optimal treatment is extremely high. Because the importance of drug adherence to prevent virus has also been emphasized (WHO, 2012). The adherence rate is calculated as the number of doses taken divided by the number prescribed, interviews with pediatric patients, and pill counts. The care provider teams follow pediatric patients in regards to drug adherence for 6 months range 3 to 15 months (WHO, 2012). However, adherence to ART of 95% or greater is necessary to optimize the virologic outcome, a greater increase in CD4 lymphocyte counts and for no opportunistic infections or deaths to occur in patients (Paterson et al., 2000). Thus, taking ART is of the upmost importance for patients with HIV.

There are five methods of how to take ART for good adherence. The details are as follows (Ministry of Public Health, 2012): 1) take ART on time and do not exceed more than half an hour over, 2) if a patient forgets to take ART, it should be taken immediately, 3) monitor the side effects of the medication, 4) track the pills consistently, and 5) meet the physician by appointment to follow up on the HIV virus.

3. Exercise

Actually, exercise is very importance both regular, and moderate exercise has many of the same advantages for people with HIV as it does for most people. Exercise can recover the muscle mass, heart and lung endurance. Moreover, it can increase energy levels,

reduce stress, an enhance sense of well-being, increase bone strength, decrease cholesterol decrease fatty fat, improve sleep etc.(AIDS info, 2014).

The exercise that should be considered for patients with HIV/AIDS is resistance training. Because resistance training is most important for the person who is infected with HIV especially strength training can help and enhance with muscle mass. Muscle mass can assist in the body's immune system. Moreover, resistance training is to help increase the size of the muscle fibers and can take a variety of forms and include weight training with free weights or machines, body weight such as yoga and Tai Chi (Paterson et al., 2000; WHO, 2010).

Ideally, resistance training should take 3 or 4 days per week and involve lifting comfortable weights or resistance of 8 to 12 repetitions, in which a repetition of the muscle is through its full range of motion for 2 or 3 sets. Each set should be rest at least 45 to 60 seconds. Patients who begin to practice resistance muscle training may begin with one day per a week and should repeat this 8 to 12 times in the first two weeks and increase the number of sets for 2 or 3 set when the body adjusts to the exercise (WHO, 2010).

4. Diet and nutrition

Adolescence is a period of rapid growth and development, including physical, mental and intellectual changes. Thus, energy and nutrients are need for adolescents which create and increase demand for due to the physical growth during this time (WHO, 2013). Nutrition is needed to achieve full growth. If teenagers with HIV do not receive enough energy and nutrients, lead to stunted of growth (WHO, 2013). Adequate nutrition could also help delay HIV disease progression and improve a body health system (AIDS info, 2014). Adolescence is a stage of urgent change and growth that increases the need for energy and nutrients. Especially, the physical changes that need more special nutrition are those consist of changes in weight, height, the onset of menarche for girls, and increases in fat and mass of muscle. The report showed that adolescent’s height is achieved approxially 25 percent in a during adolescence period. This growth based on the amount of nutrients, quality of food, and the ability of digestive system to absorb and utilize of food (WHO, 2013).

The nutritional status of adolescents with HIV has a great impact on health, growth, and psychiatric development. The goal of nutrition is for the care and support of HIV-infected adolescents. Protein is to provide sufficient nutrients to promote growth and normal growth during puberty. In addition, maintaining an adequate nutritional status promotes health and prevents disease. Moreover, good nutrition is important in managing or reducing symptoms of HIV disease, enhancing drug compliance and managing any complications associated with antiretroviral therapy (ART) (WHO, 2013).

HIV/AIDS infected adolescents are at high risk of poor nutrition because HIV infection causes incremental nutrient loss and imperfect absorption of food. Adolescents are regarded to be at risk for conditionsal of life threatening. The recommendation of dietary allowances (RDAs) provide guidelines for adolescent girls and boys for normal nutrition intake in two age categories of 11-14 and 15-18 years old. Thus, adolescents should increase nutrients for making greater in energy (protein, calcium, iron, and zinc) which are mentioned with increasing the body mass. Thus, adolescents with HIV/AIDS needs almost all (97-98 percent) (WHO, 2013; UNAIDS, 2013). The basic principles of healthy eating would also serve adolescents in the HIV/AIDS group. These principles include the intake of calories, protein, carbohydrates, fat, vitamins and minerals (WHO, 2013; UNAIDS, 2013). The details are as below.

4.1 Adolescents with HIV/AIDS need to have the calories and energy from foods that keep the body stocked with fuel in order to maintain proper body mass . The enough calories for adolescents need about 15.3 calories per kilogram for adolescents with HIV/AIDS who can normaly maintain CD4, and 18 calories per kilogram for adolescents with HIV/AIDS who have an opportunistic infection, and 22.5 calories per kilogram who are losing weight (WHO, 2013; UNAIDS, 2013).

4.2 Protein can help establish muscles mass, organs of body, and the immune system. The recommendations of enough protein for the man adolescents with HIV/AIDS are 100-150 grams per a day while 80-100 grams per a day for an HIV-infected woman. However, sufferers should not consume more than 15%-20% of calories from protein if they have kidney disease because protein can put stress on the kidneys. In comclusion, adolescents with HIV/AIDS should choose pork or beef, skinless chicken, fish etc (WHO, 2013; UNAIDS, 2013).

4.3 Carbohydrates can provide energy; therefore, adolescents with HIV/AIDS should take adequate of the carbohydrates such as legumes, whole grains, and brown rice. However, if they got diabetic or pre-diabetic, they should limit the amount of sugars, candy, cake, cookies, or ice cream (WHO, 2013; UNAIDS, 2013).

. 4.4 Fat provides extra energy, which should have 30% of daily calories, and 10% or more of daily calories by calories need to come from monounsaturated fats (nuts, seeds, fish). The suggestion of adolescents with HIV/AIDS should take polyunsaturated fats less than 10% calories per day (fish, corn oil, sunflower oil and soybean oil) and less than 7% calories per day from saturated fats (butter, whole-milk, and coconut).

4.5 Vitamins and minerals need to extra for adolescents with HIV/AIDS in order to repair and heal cells damage. Both vitamins and minerals foods can help and booster the immune system. The food has vitamins and minerals are as follow; vitamin A and beta-carotene (orange, red vegetables, fruit, milk), vitamins B (meat, fish, chicken, nuts, green leafy vegetables), vitamin C, vitamin E, and selenium (nuts, fish, and eggs), and zinc (meat, fish, beans,milk).

5. Avoid modifiable risk factors consisting of smoking, alcohol and drugs, and sexual risk behavior

5.1 Smoking

The impact of smoking makes the immune system weak, and it is harder to fight opportunistic infections (WHO, 2013). In addition, smoking also increases the risk of HIV/AIDS by reducing the CD4 cell count (Marshall, McCormack, & Kirk, 2009). The report of CDC (2013) mentioned that approximately 19% of smoking were more related of HIV infections symptom such as a mouth infection, oral candidiasis, white mouth sores, pneumocystis pneumonia etc. Smoking is highly risk to induce negative HIV/AIDS symptom (AIDS info, 2014). Thus, adolescents with HIV/AIDS should quit smoking by using encouraging them to stop smoking, getting support to reduce external factors, and participating in motivational groups (AIDS info, 2014).

5.2 Alcohol and drug abuse

Using drugs and drinking too much can make the immune system weakly, leading to harder to fight HIV and also increases the side effects from HIV medications related to liver and pancreas damage, trouble sleeping, stomach ulcers

and problems with the digestive system (WHO, 2013). Moreover, using drugs and drinking could be related to unprotected sexual behavior.

5.3 Sexual risk behavior

Avoiding sexual risk behavior can reduce HIV transmission (CDC, 2013). Because exchanging body fluids with a person who infected HIV/AIDS, receiving a newly severity of an HIV infection. Thus, using condom and delay the onset of having sex can protect and reduce the risk of HIV transmission from sexual partners (CDC, 2013). According to a report by the CDC (2013), there are many young people engaged in sexual risk behaviors. The results from the CDC report showed the reasons of adolescents with HIV/AIDS who have good health outcomes are 46.8% never had sexual intercourse and 34.0% never having sex during the previous 3 months, and 40.9% used a condom when having sex with partners. On the other hand, the report showed over 15.0% have had sexual intercouse with four or more sexual partners since they had their first sexual encounter lead to the sexual risky behaviors of adolescents and highly risk for HIV infection(CDC, 2013).

Adolescents with HIV/AIDS infected from mother-to-child transmission

In 2016, 610,000 young people between the ages of 15 to 24 were newly infected with HIV, and 260,000 of these were adolescents with HIV/AIDS infected from mother-to-child transmission (UNAIDS, 2017). Young people with HIV/AIDS are a vulnerable group and they receive experience that could affect their psychosocial wellbeing such as losing of caregivers from AIDS, stigma and discrimination from others (Avert HIV/AIDS, 2017).

Adolescents with HIV/AIDS is a critical period of development both emotional and physical changes. Moreover, adolescents have growing personal autonomy and responsibility for their individual health as adolescent in general. Thus, unprotected sex is the most normal of adolescents with HIV/AIDS because they want to act and learn with friends and they did not know about knowledge to prevent themselves, which highlights the need for HIV and sexual and reproductive health and rights education (WHO, 2016). For other reason, adolescents with HIV/AIDS who received HIV from their mother are not different from other adolescents in general, especially in regards to both

physiological and psychological development. They want to have a boy/girlfriend and some person to marry and have a family with in the future. Thus, with all of these reasons, adolescents with HIV/AIDS are at a high risk for HIV/AIDS transmission**.**

HIV/AIDS preventive behavior

HIV/AIDS preventive behavior is the activities to control or prevent a risk behavior in order to reduce HIV/AIDS infection (CDC, 2013). Two components lead to behavior change directly and these are behavioral intention for HIV/AIDS prevention and the perceived effectiveness of HIV/AIDS preventive behavior.
The details are as follows.

Definition of behavioral intention for HIV/AIDS prevention

The literature review found that there are a few defnitions on the intention for HIV/AIDS prevention. Most of the definitions focused on the individual recognizing the need to avoid high-risk behavior (CDC, 2010). It is important to mention that the intention for HIV/AIDS prevention is an individual's recognition of the likelihood or the subjective probability that they will engage in a given behavior regarding the prevention of the spread of HIV/AIDS. It is a likely or unlikely response of a respondent's behavioral intention how probable it is that they will perform and act (Misovich, Fisher & Fisher, 1998). Moreover, the CDC (2010) mentioned that an intention to HIV/AIDS preventive behavior is individual recognition to avoid sexual risky behavior and protect oneself from the risk factor. Moreover, WHO (2013) mentioned that intention for HIV/AIDS prevention is self- instruction to be aware of avoiding risky sexual behavior (Misovich, Fisher & Fisher, 1998). In conclusion, behavioral intention for HIV/AIDS prevention in this study refers to HIV/AIDS adolescents' commitment to perform or not perform activities regarding the prevention of HIV/AIDS sexual transmission to others.

Definition of perceived effectiveness of HIV/AIDS preventive behavior

From the literature review, numerous definitions of the perceived effectiveness of HIV/AIDS prevention behaviors were found. For example, the Ministry of Public Health of Thailand (2013) explored the meaning of the perceived effectiveness of HIV/AIDS preventive behavior which refers to an individual's ability to reduce the risk of getting infected or providing assistance in changing to positive behaviors in that protected sex aims to prevent HIV/AIDS transmission to others or to protect oneself from receiving HIV/AIDS infection. In addition, the CDC (2011) identified perceived HIV/AIDS preventive behaviors as the perception of an individual's activities that are focused on people who want to change and maintain behaviors to keep them uninfected from others. Moreover, WHO (2013) mentioned about HIV preventive behavior refers to activities or the effectiveness of the perception of a person aimed to reduce the risk behavior of widespread HIV/AIDS transmission by focusing on changing individual risk behaviors. The literature review showed that the perceived effectiveness of HIV/AIDS preventive behavior would occur after receiving a program intervention or stimulation for at least two weeks and it will be effective when the participants receive the program booster (Misovich, Fisher, & Fisher, 1998)

In conclusion, the definition of the perceived effectiveness of HIV/AIDS preventive behavior in this study refers to HIV/AIDS adolescents recognizing that they can successfully perform activities regarding the prevention of HIV/AIDS sexual transmission to others.

Compositions of behavioral intentions for HIV/AIDS prevention

The literature review presented numerous researchers who outlined compositions on the intention to perform HIV/AIDS preventive behaviors focusing on sexual risk behaviors such as Homsy et al. (2009) who mentioned the composition of intention to HIV/AIDS preventive behaviors is condom use. Moreover, Roberts and Kennedy (2006) reported women's sexual intention consists of condom use, the number of sexual partners, and substance use during sexual activity. In addition to the component of intention to HIV/AIDS preventive behaviors, this included condom use, and safe sex attitudes

(Davis, Sloan, MacMaster, & Kilbourne, 2007). Moreover, Misovich, Fisher and Fisher (1998) mentioned that the composition of intention to HIV/AIDS preventive behaviors are negotiations not to have sexual intercourse, discussions about safer sex with sexual partners, latex condom use, and HIV blood testing.

In summary, the compositions of intentions to HIV/AIDS preventive behavior in this study consisted of negotiating not to have sexual intercourse, discussions about safer sex with sexual partners, latex condom use, and HIV blood testing. The details are as follows.

1. Negotiating not having sexual intercourse

The negotiation of not having sexual intercourse is a main composition of the intention of HIV/AIDS preventive behavior because this strategy is to abstain from sexual intercourse (WHO, 2013). For example, the report of National Reconnaissance Office [NRO] (1995-1996) showed that the percentage of who has an influence on the couple when having sex between male and female. The overall answers showed that 60 % of men and 59 % of women answered that the man has the most influence, while 38 % of men and 33 % of women answered that both of genders have equal influence. Moreover, Elliott (2010) studied abstinence-only sex education that is based on the evidence that parents are the best sex educators of children regarding to negotiate against having sexual intercourse. The result revealed the three most common barriers to a mother's talk on this topic that are: Firstly, mothers recognized their teenagers as highly contrary to these conversations. Secondly, the mothers experienced oppressiveness and felt uncomfortable around this type of conversation. Lastly, they expressed contrariety about when, what, and how much to say to their children about sex education topics.

One strategy in order to reduce the risk is to regard a reduction in the total amount of sexual partners, as well as negotiating to avoid from sexual intercourse with HIV-infected partners. The high risk of HIV infection is only from the state of being exposed to contact with to HIV-infected partners; therefore, having sex with a partner who is known or likely to be HIV infection should be avoided (CDC, 2013).

2. Discussion around safer sex with sexual partners

Discussion with a sexual partner about sefer sex is an important strategy of communication skill about HIV/AIDS prevention and safe sex. Sexual partners can communicate or discuss on their sexual desires and intentions, which they can find the easily talk due to communicate regarding safe sex (UNAIDS, 2013). Many high school students feel unprepared to surf the topic of sexual safety with their boy/girlfriends before their first sexual encounter. The reluctance to talk or discuss anout safety topics may lead to inadequate condom use throughout the teen's sexual life (CDC, 2015).

The literature review showed that women who are afraid to talk about condoms with their partners may also be afraid to discover their HIV status. The study indicated that women are a higher risk for HIV infection than men. It is imperative that those women who are afraid to discuss condom usage are tested for HIV infection to begin antiretroviral therapy and avoid being infected from others (Mantell et al., 2011). Finally, the researcher also inspected the contextual surrounding of condom negotiation included abuse in a relationship, and discussing HIV/AIDS and condoms use with others. A study done in women who were afraid to negotiate the use of condoms during a sexual encounter; then, did the study show that women who were afraid to bring up the topic of condom use were also less likely to seek HIV testing (Mantell et al., 2011).

In conclusion, communication between sexual partners for safer sex is a very important component of the intention to HIV/AIDS prevention with discussions of condoms use leading to successful HIV/AIDS prevention.

3. Latex condom use

Using male and female latex condoms can reduces the risk of STDs and the spread of HIV that causes by AIDS (CDC, 2015). In addition, STDs protection, depending on the differences of the diseases or infections transmitted was protected by using condoms. Thus, using a correct latex condom can reduce and protect the risk from genital ulcer diseases, STD such as genital herpes, syphilis, and chancroid. Thus, consistently and correctly use of latex condoms can also reduce the risk from the genital human papilloma virus (HPV) infection (CDC, 2015).

The literature review mentioned that the consistent condom use is highly effective in preventing the HIV transmission. Similarly, epidemiologic study showed that condom use could reduce the risk of STDs infection (Warner, Stone, Macaluso, Buehler, &

Austin, 2006). In conclusion, using a condom during sex could greatly lower the risk of getting HIV during sex especially if using latex condoms.

4. HIV blood test

HIV blood testing is the method for evaluating HIV prevention in both people who are HIV-infected and people in general who want to check their HIV status. Normally, people with HIV-infections can access ARV. Effective of antiretroviral medications treatment to keep people who living with HIV/AIDS has healthy and living longer because of reducing of viral load (CDC, 2015). Thus, HIV testing for routine HIV screening. Because identifying and counselling persons with unrecognized HIV infections could help link them to a clinic or health care clinic in order to reduce the transmission of HIV any further (CDC, 2015). Moreover, The HIV blood testing is generally screening of HIV infection consisted of diagnosis before symptoms development, detective by reliable, inexpensive, and noninvasive screening tests, to gain of treatment is initiated early before symptoms development, and screening more effective and preventing transmission (Branson, Handsfield, Lampe, Janssen, Taylor, Lyss, & Clark, 2006).

Therefore, the importance of HIV blood testing due to prevent and protect in that a person who has sexual partners who did not know their an HIV infected status. Moreover, it can help someone who want to make better decisions about sex and health care.

Compositions of perceived effectiveness of HIV/AIDS preventive behavior

The literature review showed that there are numerous researchs about compositions of the perceived effectiveness of HIV/AIDS preventive behavior focusing on sexual risk behaviors. One such study is by Walter, Vaughan, Gladis, Ragin, Kasen, and O'Hall (1992), who mentioned the compositions of risky sexual behaviors are the entanglement when having sex, the risk status from sexual partners, and using of the consistency of condom during sexual intercourse. In addition, Misovich, Fisher, and Fisher (1998) developed an instrument to evaluate perceived HIV/AIDS preventive behaviors. It consists of four compositions, which are safer sex discussion, condom accessibility, condom use, and HIV testing.

Moreover, Walcott, Meyers, and Landau (2007) mentioned the compositions associated with perceived HIV/AIDS preventive behaviors control are initiating an early age for having sex, many sexual partners, and unsefer sex (condom use, condom accessibility). This is similar to the study of Lee, Dancy, Florez, and Holm (2013) in which they defined the compositions of HIV preventive behaviors on avoiding sexual risk behavior as delaying the initiation of sexual intercourse by sexual negotiation or discussion, avoiding multiple sexual partners and sexual behavior protection. According to a suggestion from WHO and CDC (2013), the main way to prevent HIV infection is to avoid sexual risk activities by having safer-sex discussions/negotiation and the avoidance of risky sexual behavior (not having multiple sexual partners, condom use during sexual intercourse and accessibility) and individual/couple HIV testing.

Thus, the main composition of the perceived effectiveness of HIV/AIDS preventive behaviors in this study consisted of safer sex discussions/negotiation and not having multiple sexual partners, condom use, condom accessibility, and HIV testing. The details are as below.

1. Safer-sex discussion and negotiation

Safer-sex discussions and negotiation is a main composition of perceived HIV/AIDS preventive behavior because safer-sex discussions and negotiation are strategies to delay sexual intercourse and allow time for decision making to have sex (WHO, 2013). Moreover, sexual discussions and negotiation with a partner are strategies to assert power decision making about safer sex with partners (CDC, 2006). This is similar to the study of Pearson (2006) aimed to explore the social psychology influencing the behavior of girls/boys, and to determine whether personal control and the ability to negotiate sexual intercouse with the risk of condom use. These relationships differ for male and female adolescents. The result showed that adolescent males and females mayfeel convay to have sex without condom using.

In addition, the potencial of motivation to safe sex both in girls and boys. The study of Pearson mentioned that negotiation of sexual intercourse refusion is personal control and self-efficacy are significantly related to safer sex more important for girls in regards to contraception taking. Furthermore, the sense of self-control can be empowerd in youth on sexual selection. Girls who have a personal sense of control may tend to be more than other girls to effectively negotiate with sexual partnerships (Gutierrez, Oh, & Gillmore, 2000; Tschann, Adler, Millstein, Gurvey, & Ellen, 2002).

Girl adolescents have a highly sense of perceived behavioral control of sexual negotiation and take an action in sexual situations. The girls might had a better potentiality to refuse in sexual intercouse and start to discuss about safer sex. Moreover, they can discuss or negotiate with their partners avoiding themselves from HIV/AIDS infection (CDC, 2013). Actually, boy adolescents have feel about a sense of self-control and have power to control a sexual situation especially they can control the girls in regarding to the effectively intention for safer sex (CDC, 2013). Discussions and negotiation are strategies to help adolescents in safer sex as can help them to delay the initial of sexual onset. Moreover, reducing the frequency of sexual intercourse, the number of spouses, and increase the condoms used.

Importantly note that, education were 50% more probably on pregnancies experience than adolescents who had comprehensive sex education. This is similar to the study of Kohler et al. (2007) studied about the impact of sexual education on sexual risk behavior in teenagers (15-19years old). The results showed that teens who completely received the sex education program less probably to experience pregnancy than those who only received the abstinence education program were 50 percent. In addition, the other study about who receieved the sexual education program made them to delay of sexual initiation (40%), reducing of the sexual frequency (30%), , and reducing of sexual unprotection (30%) (Kirby, 2007). Morover, the sexual education is a great route for teens to gain a deeper understanding and to help them due to remain healthy and avoid negative sexual outcomes (Advocates for youth, 2009).

In conclusion, a self- control is possibly to be important in sexual negotiation to protect oneself from undesirable effects. Individual control had a significant positive correlation to condom use of an adolescent while having sexual intercourse. Moreover, comprehensive sex education helped the teens to remain healthy and avoid negative sexual activities; in addition, providing a balance of power both in girls and boys in terms of the sexual relationships such as empowering and encouraging them to take an equal role in themselves protection and their partners, engaging in safer sex (WHO, 2013).

2. Not having multiple sexual partners

The composition of perceived HIV/AIDS preventive behavior is not having multiple sexual partners. Because a main way to drive the HIV/AIDS epidemic, and HIV prevention curriculum for teenagers (WHO, 2013). Moreover, avoiding multiple partners to

protect oneself from HIV infectuion by reducing the number of partnerships. They has been identified as an essential way of dealing with reducing the sexual risk of HIV transmission. In addition, having a few partners is determinedly related to HIV infection reducing (Mishra, 2009). The prevalence of HIV infection in most countries is focused on risky groups of women/men sex workers, men who have sex with men (MSM), and prisoners. Because these groups have, the high HIV incidence rates are caused from unprotected sex and in people have multiple sexual partners (Epstein, 2007).

Thus, promoting of partners' reduction comprised knowledge, attitudes, values, refusal skills, intention, and avoidance from having unsafe sex. Thus, adolescents' intention can lead to change of their behavior (Kirby et al., 2012).

3. Condoms use

The condoms use is the one of composition of HIV preventive behavior and it is effective to reduce HIV infection from the sexual transmission. Currently, latex condoms are the only effective tool in HIV prevention and other sexually transmitted infectious diseases (STIs) (WHO, 2013). Thus, using the condoms correctly and continuously are strategies that persons could select this method to reduce the risky of sexual exposure to HIV infection (WHO, 2013). Because latex condoms are extremely effectiveness in the sexual transmission prevention campaign (UNAIDS, 2013). However, condoms for adolescents have to be available and accessible. The study showed that the condoms using was related to reduc HIV infected and helped in HIV prevention.

In addition, several researchers studied HIV prevention in adolescents in regards to condom use. For example, the research of Jemmott, Jemmott, and Fong (2008) studied abstinence and safer sex practice on HIV risk-reduction in three middle schools. A self-report measured sexual behavior, condom use, and unprotected sexual intercourse in the adolescents. The results showed that the mean age of sexual risk behavior was 11.8 years old, the adolescents' intervention group reported less sexual intercourse than the control group, while condom use in the experimental group was higher than those who did not receive the program ($p < .05$). Similar to the study in East Africa, condom use was dramatically reduced HIV infections in teen populations and helped to reduce the transmittion to the general population (Ministry of Public Health, 2011). A similar policy in Cambodia on campaigning of condom uses howed a substantially decreasing

prevalence of HIV infection in women sex workers. In addition, the results of the condom promotion in the general population and the vulnerable groups in Brazil revealed a successfully of campaign can sustainly control of the HIV epidemic. Condoms used is a special role in campaign to protect the spread of HIV/AIDS because of their ability to protect HIV infection from sexual transmission. Thus, people nowadays are encouraged to use condoms and this can help to raise self-awareness. Moreover, good quality condoms need to be made readily available, and people need to be taught how to use condoms correctly in order to advocate for HIV prevention (WHO, 2005).

Thus, condoms have helped to reduce HIV infection rates where AIDS has already taken hold; moreover, condoms reduced the spread of HIV infection to others.

4. Condom accessibility

the compositions of HIV preventive behaviors is condom accessibility. In particular, it is a strategy for reducing the risk of the HIV transmission and other sexually transmitted disease (STDs) (WHO, 2016). The accessibility of condoms could help adolescents to make decisions to use condoms when they want to have sex with a sexual partner (CDC, 2015). One report from the U.S. showed that the adolescents with HIV infection had become infected with other STDs. There are many schools that now makeing condoms available for their students (CDC, 2013). This is similar to the study of Kirby and Brown (2013) which looked at making condoms available in schools through promotion and a promising approach for increasing condom use in students for reducing the risk of HIV infections and STDs. The result showed that at least 431 public schools in U.S. that making condoms available or their students. However, stakeholders created and revised the policies to allow condoms to be available in middles schools (Sayegh, Rose, Schapiro, 2012).

On the other hand, this issue of condom accessibility is a vulnerable topic in Thai culture. The study of Thato, Jenkins and Dusitsin (2008) aimed to evaluate the effectiveness of culturally sensitive on sex education program among Thai secondary school students. The result presented that students in the experimental group had lower levels of apprized follow up of sexual intercourse at 3 and 6 months when compared with those in the control group ($p < 0.01$). Student participants in the study had significantly greater intentions to refuse sex in the future than those in the the control group ($p < 0.05$). The sexual activities of adolescent participaticipats in the study presented significantly lower frequencies

of sexual intercourse in that time than in the control group ($p < 0.01$). However, the study did not influence steady condom using ($p > 0.05$), although the intervention was associated with increasing the intention to use condoms ($p < 0.01$). The condom using issue was still under supervision of the Ministry of Education about accessing condoms in high schools (Ministry of Public Health, 2013). However, the policy of HIV/AIDS prevention did allow patients with HIV/AIDS infection to receive free condoms from Thai government hospitals (Ministry of Public Health, 2013).

5. HIV testing behavior

HIV testing behavior is one of the compositions of HIV preventive behavior. HIV testing is considerd as the way to preventand treat (WHO, 2009). HIV testing behavior was confided due to lead to sexual behavior protection, while the antiretroviral provided for individuals person who infected with HIV since the first time (WHO, 2009). HIV testing has the largest effect on an unexpected of result provision on risky sexual behavior. WHO (2017) guidelines recommended the immune system by $CD4^+$ cell counts in all level can be received the ARVs; however, everthing based on the consideration of the physician in hospital. In addition, testing for an individual identify the HIV-positive which can access to ARV treatment that reduces both their own mortality rates and their risk of infecting others (Thomson et al., 2012).

Although most people with HIV/AIDS need to have a blood test every six months, if they have sex with a partner, they will invite their partner to test for HIV. For example, if a partner had sexual intercouse with people with HIV/AIDS and believes that she/he was different from infected with HIV result would have a little effect on this behavior of person (Boozer & Philipson, 2000). This is similar to the study by Cohen and Pilcher (2005), in that the HIV status of those in the control group at the baseline is unknown as they were not offered testing follow-up for the six-month. The results showed when compared between individuals HIV-positive in the experimental group and those in the control group. In experimental group was created for testing for six-month follow-up. While, in the control group was assumed that follow-up of an individual's HIV testing for the six-month would have been the same result at the baseline.

This study showed evidence that the groups surprised by HIV-positive tests increased their risky sexual behavior while those surprised by HIV-negative tests

decreased their risky sexual behavior. Thus, protected sexual contact, and reducing sexual risk behavior can help guard against HIV transmission to others so at the baseline, everyone accepts the HIV status of in the treatment arm and an HIV test is known for easy detection of HIV/AIDS (WHO, 2014).

Influencing factors of behavior intentions for HIV/AIDS prevention in adolescents with HIV/AIDS

The literature review found that there are four factors influence on HIV/AIDS behavioral intention in adolescents with HIV/AIDS consisting of peers, knowledge, attitudes and media. The details are as follows.

1. Peers

Peer education is a great way strategies concept that intergrates an enter to using a communication channel, a methodology, a philosophy, and a strategy. Modify of peer education to change at the individual affect level by attempting in individual person sas knowledge, attitudes, beliefs, or behaviors (UNAIDS, 2012). In particular, adolescent development illustrated that peers are heavily influenced in most things during their teenage years and the contexts of adolescents social development is best considered, relating to peers, school, and community (American Psychological Association, 2012). Thus, training peers to drive the program for the intention of HIV/AIDS prevention is effective.

It was found from the literature review that there are several studies showing the influence of peers in the decisions made by friends to have safe sex. For example, the case study of Campbell and Mzaidume (2001) participatory on peer education program by using community-led aimed to reduce HIV transmission among commercial sex workers in a South African. The result showed that peer education in the program's development is disagreeable with using this ideal criterion for participatory's health promotion. The program is influenced within health promotion and approach involving the participation of local people in sexual health promotional interventions. This is similar to Latkin (1998) studied about using the peer leaders participated and led in a training program were used pretest and posttest surveys. The result showed that there were a significantly increase in condom use, thus it can be clearly seen that peer

leaders training to be an effective HIV educators migh help promote and provide in term of prosocial roles.

In addition, the study of a systematic review and meta-analysis about the effectiveness of peer education on HIV prevention, the result revealed that there were significantly increase levels of HIV knowledge (*OR*:2.28; 95% *CI*:1.88, 2.75), reducce to use intravenous drug users (*OR*:0.37; 95% *CI*:0.20, 0.67), and increase condom using (*OR*:1.92; 95% *CI*:1.59, 2.33) (Medley, Kennedy, O'Reilly, and Sweat, 2009).

From above, it can be described that peer interventions were main strategy to appliy for HIV prevention and other sexually transmitted infections (STIs) in the world For example, interventions for adolescents to increase awareness, increase knowledge and encourage behavioral change in members group. Peer interventions can be formally to share demographic characteristics or risk behaviors with a target group. In particular, peers have a great influence on individual behavior because of their trust and comfort in open discussions of sensitive issues.

2. Knowledge

Knowledge is very important for the intention to HIV/AIDS prevention because the knowledge on HIV/AIDS epistemology among young people has become a major challenge in the prevention and control of this disease. Having adequate knowledge can help to protect young people from this disease. Moreover, young adults are now the target of this pandemic (WHO, 2012; UNICEF, 2012; UNAIDS, 2012). The study of James et al (2005) showed that an increased level of knowledge led to a reduction in the spread of sexually transmitted infections. In addition, the results were obtained of students' intentions to avoid sex from an adequate level of knowledge of protecting themselves. The results were compared between the experimental and control group showed that the score higher than the non-participant group on total scores ($p < .01$) (Lederman, Chan, & Roberts-Gray, 2004). In contrast, the study of Gong et al (2012) showed that there are no correlate between HIV/AIDS knowledge and sexual behaviors; however, the researcher suggested that HIV/AIDS knowledge is nessary to educate to target group.

Therefore, intention can be continuous or sustainable for HIV/AIDS prevention if young adults have sufficient knowledge and a deep understanding.

3. Attitude

People with HIV/AIDS infection have negative experiences such as stigma and burden leading to negative attitudes (UNAIDS, 2013). There were impacted in day life and their families. The HIV/AIDS pandemic has become a massive problem and it is a one of the most important public health problems in recent times.

The literature review found that positive attitudes lead to building safe practices among young adults especially as a clear understanding about attitudes is very important in the planning to control or in the prevention of the spread of HIV/AIDS (WHO, 2013). This is similar to the study of Thanavanh, Rashid, Kasuya and Sakamoto (2013), who illustrated that positive attitudes towards HIV/AIDS behavioral intention were increased in about 55.7% of respondents. Moreover, in the study of Rose (2008), participants were asked to assess their attitudes and beliefs related to HIV/AIDS preventive behavior. The study used a survey instrument and found that the participants' attitudes and beliefs showed an overall risky behavior. Furthermore, a study conducted in Laos and Nigeria by Ogunjuyigbe and colleagues (2009) assessed the attitudes of people living with HIV/AIDS. The result showed that the individuals who were HIV positive who had a positive attitude related to safe sex behavior. Moreover, the study of Kamala (2006) mentioned that a positive attitude to HIV prevention as the best method for HIV prevention, leading to students practicing abstinence and being faithful to their partner.

4. Media

The media consisted of music, television, radio and the internet etc. There are an significant of the adolescent's life in term of communication, particularly, internet accesing to talk with friends by adolescents spent around 6 to 8 hours per day with exposing to several types of media via the internet (Roberts, 2000). In addition, adolescents are increasingly attention more than one form of media at the same time by having a conversation on a mobile phone with a friend meanwhile messaging or chatting on the computer notebook or pc. Although media is consistently influence on adolescent development, undeniable that all effects depended on the extent of the possibilities that could be supervised and the negative influences. For example, the movies from television could have negative influences because of a lack of the positive role models (Berry, 2000). Commonly, the using of the mass media could be applied a form of teens'

interaction; Thus, it is also significant to be aware because of the latent risks of using online media. From review of the literature, there were numerous studies mentioned that the media are influenced in adolescents on sexual risk behavior.

A recent survey showed that 95% of teenagers (15 - 17 year olds) have been using a social online site that this group of users (15 – 17 year olds) was the highest group of users overall. They had accessed the internet from home; moreover, they accessed the internet from a private their bedroom, where most parents are rarely able to monitor the accessing (Rideout, 2001. Most of the adolescents' online activity contained communicating with people via email, instant messaging, and chatting with friends via chatrooms (Ministry of Digital Economy and Society, 2016).

For example, the study in Thailand of internet usage among teenagers aged 13-18 years old showed; most of the teenagers apprized that they had received very little advice from the adults in their lives about using the internet and the most of the guidance they received contain general precautions regarding online safety issues (Ministry of Digital Economy and Society, 2016). However, the respondents mentioned that they hoped adults would give them get help to avoid emotionally taxing situations, such as sexual intimidation or online pornography, and advice and support on how to deal with these kinds of situations. (Ministry of Digital Economy and Society, 2016). Finally, media had led to adolescents acting out on what they have seen from the media. Therefore, there is a need to learn about the influences of media on youth and then provide input from the youth on the harmful media influences on sexual risk behavior related to HIV infection.

In conclusion, peers, knowledge, attitudes and media are important factors that influence the intention to HIV/AIDS preventive behavior in adolescents with HIV/AIDS. In this study, the use of the online network was controlled by statistics**.**

Influencing factors of perceived effectiveness of HIV/AIDS preventive behaviors in adolescents with HIV/AIDS

Adolescence is a high-risk period for exposure to sexually transmitted HIV/AIDS infection based on the literature reviews**.** Seven factors were found that have an influence on the perceived effectiveness of HIV/AIDS preventive behaviors in adolescents with HIV/AIDS

consisting of knowledge, attitude, pubertal stage, peers, family relationships, socio-cultural influences and media. The details are as follows.

1. ***Knowledge of HIV/AIDS prevention***

Knowledge of HIV/AIDS prevention is the main understanding of HIV and how it to stop of spreads and it majority of new HIV/AIDS infections are transmitted through sex (Idele et al., 2014). However, the importance of changing teens at 'risk is knowledge of HIV prevention and changed behaviors or improved sexual health outcomes' (Shoveller, Johnson, Langille, & Mitchell, 2004). From the literature review, several research studies were found on HIV prevention that showed knowledge was the measured outcome of HIV prevention.

The study results of Tapia-Aguirre, Arillo-Santillan, Allen, Angeles-lerenas, Cruz-Valdez, and Lazcano-Ponce (2004) showed the result that young men who had high levels of HIV/AIDS knowledge are increased their condom used more than those young men who had low levels of HIV/AIDS knowledge ($p = .05$). This is similar to several studies on HIV prevention where the researcher provided a knowledge based program and measured the outcomes. The results showed that in the experimental group the knowledge based program had a meaningful effect on preventive behavioral skills more than in the control group ($p < .05$) (Ndebele, Kasese-Hara, & Greyling, 2012; Mongkuo, Lucas, & Taylor, 2012). Moreover, Jones, Modeste, Marshak, and Fox (2013) studied the effect of HIV/AIDS education on HIV prevention in adolescents in Trinidad and Tobago. The result showed that the intervention group were more likely to plan to delay sexual initiation ($p = .006$).

Thus, knowledge is the basis of HIV prevention because people with such knowledge will be more likely to make a decision to prevent themselves from sexual risk behavior.

2. ***Attitude regarding HIV/AIDS preventive behavior***

Adolescents' sexual attitudes based on family values. In 2000, Reiss argued that most adolescents believed and created the idea for sexual intimacy that is allowed in the context of desiration. Most adolescents (18-25 year olds) inherited to authorize of premarital sex under some conditions by approximately 20% of adolescents believed that having sex before marriage is always wrong (Smith, 2004). Nevertheless, there was massive variance in the point of view of adolescents towards the appropriateness of premarital sex; especially, in regards to informal sex. Adolescents who have been a victim

of incest are more likely to have an attitude that permits them to engage in sexual relationships with other people outside of their family (Treboux & Busch-Rossnagel, 1999). The young men have more sexual permission attitudes than young women; however, adolescent sexual behavior was often linked to religion (Feldman, Turner & Araujo, 1999). The literature review presented that adolescents who have no religious affiliation are most likely to initiate sex as teenagers (Forste & Heaton, 2000). The negative sexual attitudes and misconceptions of adolescents included using condoms when having sex could delay climax; the first time having intercourse does not transmit HIV, condom use in sexual intercourse is because of a lack of trust between sexual partners; and having sexual intercourse without ejaculating inside the vagina does not transmit HIV (Jittrakoon, 2012). In terms of misconceptions and beliefs in adolescents about sexual intercouse, in Thailand adolescents had created a new trend of 'La Taem' (Thai words) meaning 'accumulating sexual partners' and practicing risky sexual behaviors by exchanging their sexual partners, a practice known as in western countries as 'Swinging' (Viravaidya, 2012; Thato & Penrose, 2013).

The factors associated with sexual risk behaviors in adolescents from the literature review were that false beliefs in having sex such as not using condoms when having sex. It would not result in a climax, the first time having sex did not make a partner become HIV- infected , and the use of condoms in sexual intercourse represented a lack of trust, and teenagers who knew their status of being HIV- infected but did not use condoms when having sex was because they were afraid that their partner would know they have an HIV infection (Jittrakoon, 2012). Fongkaew et al. (2006) found that the factors associated with sexual risk behavior in adolescents included attitude and beliefs.

3. Pubertal stage

The pubertal stage is a part of the natural biology of science that is interested in the study of organisms body includes the structure, function, growth, distribution, taxonomy of organisms, and hormones (Wiley & Wilson, 2009). Hormone levels are involved in the development and timing of puberty as follows; adolescence is a period of dramatically changes in hormone levels, including shape of body and size of physical. Adolescents' development and puberty of adolescent sexual behavior was associated with sexual ideation and precoital behavior becuase this time for the

transition to wanting to have sexual intercourse before an adolescent has reached full maturity. The development of adolescents (age 12-19 years) is the most challenging time of one's life as they transition into adulthood with physical, mental, emotional and social maturity (Chokephaibulkit et al., 2012). Moreover, this is the time for radical physical and psychological changes. It can be enjoyable, crazy, and wonderful. In this phase, adolescents seek identity, independence, and autonomy (Chokephaibulkit, 2011).

The pubertal stage could predict the level of sexual experience the following year (Bongardt, 2015). In both male and female, earlier pubertal onset was related to peers who had an earlier onset of puberty compared to their peers were more likely to also experience an earlier onset of sexual experiences (Brendgen, Wanner, & Vitaro, 2007). The girls who had early menarche were associated with a younger age of first having intercourse. While high-maturity boys compared to their peers were associated with having sex earlier (Capaldi, Crosby, & Stoolmiller, 2010). Pubertal hormones may be underlying the relationship between pubertal development and sexual behavior (Moore, Harden, & Mendle, 2014). The cross-sectional study of Robinett (2012) demonstrated that an association between androgen levels, and both sexual and behavioral motivation in early adolescence. However, the literature review showed that there was no support for this linkage with increasing testosterone in early adolescence, which is not testosterone the male hormone (Harden, 2014). In boys, the beginning of testosterone levels were correlated with the simultaneous and subsequent sexual behavior. In contrast, changing of testosterone levels did not predict of sexual behavior changes. Thus, instead of it having a direct influence on sexual behavior, hormones might indirectly work by stimulating physical growth and sexual attraction. According to hormone levels, body shape, and physical size change in relation to adolescent sexual behavior, which influences early sexual debut, thus, providing more opportunities over time for adolescents to be exposed to HIV (Stephenson, Simon, & Finneran, 2014).

Teenage years are a unique developmental period of the heart of physical growth, psychological and social change, increased independence, and experimentation with new behaviors (Özdemir, Utkualp, & Palloş, 2016). In terms of the development of an adolescent, adolescence is the most challenging time of one's life. Adolescence is the transition into adulthood with physical, mental, emotional and social maturity (Chokephaibulkit

et al., 2012). This is a great time for physical and psychological changes. Adolescents are seeking their own identity, independence, and autonomy (Chokephaibulkit, 2011).

Thus, there are important changes in term of cognitive, behavioral, emotional, and social development in adolescents as follows;

3.1 Adolescent Cognitive Development

Cognitive development in adolescents is reason and understand are even more than a clear physical change. In adolescents, there is an increase in intelligence and knowledge. In addition, there is the creation of new insights from concrete to abstract thinking, which will help young people to create about the future as problem solving, consider their ideas, and set their goals (Piaget, 2008). Now, they can able to analyze the situation rationally in terms of causes and effects, and they can entertain in presumable situations and imaginary symbols (Piaget, 2008). Most adolescent have highly levels of thought and creation for the future, choices evaluation, and personal goals setting (Rachel, & Daniel, 2012). Although, the individual differences in the development of youth literacy are different, these new abilities allow teens to engage in complete vigilance and judgment, which previously was beyond their ability cognitive.

Acually, adolescent boys and girls, there are no significant differences in the cognitive development, may be in something based on their confidence intellectual proficiencies and skills.For example, adolescent girls have feel more confident about social skills than boys; meanwhile, adolescent boys have feel more confident about sports and skills of mathematics (Eccles, & Wigfield, 2002). Despite the development of cognitive capability are higly level, most adolescents' still need advice from adults due to develop a skill as decision-making ability. As teenagers, develop their cognitive skills, emotional skills, and communication skill because these skills would be helpful for developing of adolescents' cognitive competencies (Eccles, & Wigfield, 2002).

3.2 Adolescent Emotional Development

Adolescent emotional development is often characterized by rapidly emotional fluctuation. Some of adolescents' emotional development make them to confuse from adults' interaction; however, these nomal of adolescents' characteristics personality (Zimmerman, Copeland, Shope, & Dielman, 1997). Emotional development is an

adolescent's experience from birth through the late of adolescence staes included growth and the processes changing (Zimmerman, et al., 1997).

The emotional development does not isolate from neural, cognitive, and behavior and emotional development based on a social and cultural context. There are various theories of emotional development related to age and adolescents' emotional development milestones. One critical of adolescents' emotion is self-esteem, which involves a self-evaluation about how do you feel about your self? The self-esteem refer to feel much more certainly in ourselves (Kachur, Mesnick, & Liddon, 2013).

3.3 Adolescent Social Development

The adolescents social development should be regarded in the context surrounding in which relating to peers and family. These significantly to keep in mind of the social development of adolescents interm of interpreting the findings.

4. Peers

In the stage of adolescents' relationship has become changes from family tern to peer group. It is significantly reduce of contact with their family; however, family still important with these group. Although it has assumed less importance for the adolescent (O'Koon, 1997). Adolescents need to adapt themselves for their peers a higher than the stages of development in the early. A friends group is very important system for adolescence because they sense the owner identity as a temporary reference point in development.

Another important function for teens as strive and note that ways to identify with their parents, especially, providing the information aboutsource in the world as outside of the family (Santrock, 2001). Normlly, during adolescence as sources of popularity which serving as powerful reinforcers, status, prestige, and acceptance. Moreover, a sexual relationship has be generally concerned at least one primary peer group and they are identify with group members as usually similar in various respects (Savin-Williams & Berndt, 1990).

Peers are likely to have significant social influences and impact on adolescent. Same sex partners may have related on the acceptance of sexual behavior, and friends with sexual experience may be served as role models. Finally, romantic couples provide opportunities for sexual eactivity (Crockett et al., 1996). The relationship between a close friend's sexual behaviors have not been documented (Harden & Mendle, 2011).

Although these models may indicate a social impact, chooses a friend with similar attitudes and behaviors. One long term study looked at there are also efforts to differentiate societies by ignoring confusion, which may involve reporting a friend's behavior, choosing a friend, and an incorrect experience (Prinstein & Dodge, 2008). The results showed that peer effects occur only between friends who have similar sexual experiences. Thus, the effects of peer-to-peer behavior may restrain beliefs about the sexual behavior of peers, seeming to be more influential than the actual behavior of peers (Bauermeister, Elkington, Brackis-Cott, Dolezal, & Mellins, 2010).

Peer education is the good strategy to provide information because of an effective approach to educate and empower adolescents, as they feel comfortable to receive information and relate to provide information by a peer leader who is person in the same group (Mahat, & Scoloveno, 2010). This is similar to the study of Thato and Penrose (2013), training peer to be leader for leading HIV prevention program. The result showed that group who receieved the programvincreased knowledge, attitudes, subjective norms, and intentions to act on HIV preventive behaviors than those groups did not received the program ($p < .001$). Studies of Mahat, Scoloveno, Leon, and Frenkel (2008) showed that the peer education had effective program in order increase knowledge and practice safe sex more than in the control group who received the traditional education ($p < .001$). Another similar study by Mahat and Scoloveno (2010) regarding the effect of HIV peer education on relationships between adolescents' HIV/AIDS knowledge and self-efficacy showed that HIV/AIDS knowledge improved after receiving the peer education program ($p < .001$). However, HIV/AIDS knowledge between the groups was not significantly different. The self-efficacy score improved after receiving the intervention program ($p < .001$). Self-efficacy score who received the program was higher than that of the control group ($p = .018$). In addition, HIV knowledge positively correlated with self-efficacy ($r = .22$, $p = .03$).

This is similar to the study of Tolli (2012), studies were found: these consisted of one significant study regarding sexual experience; 22 studies regarding knowledge, 5 studies had no significant results; 3 studies regarding communication and negotiation skills, two of the studies had no significant results; 3 studies regarding attitude, one had significant results; and one non-significant study regarding behavioral intentions. Although a few statistically significant results for peer education programs

were foundr, esearchers suggested that the recruitment of peer to be leader and drove program is one of the most significant factors for the success of theeducation programs**.** Thus, peer educators must satisfactory in the target group and the personality of peer educator need to train to be sufficient peer by the training and working with their group**.**

5. Family Relationships

Nowadays, when compared to the traditional family structure, single parents where not a common family type in the past. Family forms, bonding, intimacy, and family attachment are related to improve of emotional development, school arrangement and in contrast, involvement in activities of high-risk as like using drugs (Sasikala & Nithy, 2016)**.** According to the National Statistical Office of Thailand (NSOT)**,** the number of divorce cases in the country has risen**.** The divorce rate is about 35 % for new marriages and this has increased by about 27% over the previous nine years**.** Most causes of divorce are the stress factors and emergence of home income (Wipulakorn, 2014).

In regards to families living with family members with HIV/AIDS, the report showed that stigma against people living with HIV started when the family members discriminated against the HIV/AIDS-infected family member once they found out their positive HIV/AIDS status (Maneepong et al**.**, 2010). Whether divorce can affect adolescents, depends on many factors, not just the divorce itself. Although adolescents from a divorced family are more likely to have improvement problems than adolescents who come from integral families (Conger & Chao, 1996)**,** it has been suggested that most teens can cope with the divorce of their parents (Emery, 1999)**.** Thus**,** the economic issues that often arise after a divorce lead to other stresses (Emery, 1999).

6. Socio-cultural Influences

Societies of human were enormously dissimilared in each cultural law and enforced vigor about sex activity. In some cultures, existing before marriage is supported because of pregnancy, allowing for determining the fertility of a likely spouse. Other cultures, premarital sex is very frustrating, in particular for girls, because innocence is a very valuable thing (Shoveller, Johnson, Langillec, & Mitchelld, 2004)**.** Because of these negative attitudes, young adults are contributed to prepare for adulthood in various areas yet will receive little guiding and training for sexual demonstration. The study presented there are different between the US and other countries about **"**abstinence**-**only**"** in sexual movement

in terms of sexual education (Shoveller et al., 2004). In European country, the Swedish State Commission on sex education mention that knowledge should be gained in students that "would equip them to experience sexual life as a source of happiness and joy in fellowship with others" (Schmitt, 2011).

In contrast, US sex education programs focus on the harms of sex and the needs of girls in prevention from male predators (Harvey & Fine, 2004); Not long ago, a federal statement on "abstinence-only education" has reduced the opportunity for more US funded projects to discuss and share on the completely of sexual experiences. However, former surgeons entitled to advocate of sexual health and chargeable sexual behavior, sparking renewed interest in open sexual dialogue. Cultural values and attitudes about sex are distilled from everyday social context experiences. Interacting with family, friends, and other everyday contexts can influence the way teens are sexually active (Gerald & Berzonsky, 2008).

In Thailand, social and cultural aspects are regarded to have special and sensitive characteristics when compared with other countries in western. However, over the last two decades, norms have substantially changed in sexual behavior and these changes had included sexual issues (Liu et al., 2006; Ounjit, 2015). Thai cultural, males have allowed in sexual freedom; meanwhile, female but imposed restriction on sexual behavior. In the past, single males can have often experienced sexual initiation with female sex workers, while young unmarried women were maintained their premarital virginity (Liu et al., 2006). In the past, talking about sexual relationships, specifically in women, It is prohibited because of the value and culture of Thai society, which considered a personal sexuality matter and should not be discussed openly. Thai society and culture have long believed that women should be reserved and should be sustained their innocence or should not discuss about sexual behavior in public because it is regarded embarrassing (Sorndet, 2007). Sexual relationships are speculated unpleasant; thus, Thai adolescents are afraid to consult or discuss about their sexual relationships with their family (Ounjit, 2015). This is similar to the study of Ounjit (2015) about adolescent sexual relationships in Thailand. The result findings showed that Thai adolescents believed that talking and discussing about sexual relationship topics are not acceptable, particularly among women, because of the values and cultures of Thai society, which concerned sexuality to be personal. At the family level, proper sex education is not

available to children. Teenagers believed that a couple can be together without having to get married and that this is normal. On how to deal with sexual problems, it is found that most teens believe that they should not talk to the opposite sex about sex and the teens believe that you should be dressed modestly to drink alcohol. However, most teens create and learn about a sexual knowledge by themselves from their experience and their friends who often provide inaccurate information. These teens are given the wrong understanding and attitudes towards sex. Which study were recently exposed to social problems, such as premature sexual intercourse or abortion. In Thailand, at present, Thai society and culture are dramatically change when compared with the past, including the issue of the sexual relationships because industrialization and urbanization has been attributed to increase influence from western ideas brought (Ounjit, 2015). Interestingly, teens created and maintained the social bonds by using communication technologies comprised of email, chat rooms, online social networks **(**Facebook and Twitter**).** Because these technologies have become dramatically massive in Thai soceity as changing to talk with other, increasing the amount for time spending with one another,and redefining the means to be a **"**friend**."** The factors are influences in Thai socio**-**cultural included family, peers, school, neighborhood, and cultural or religious norms**.** However, Thai teens still afraid toopen up or ask their families for advice about sex **(**Ounjit, 2015; Rasamimari, Dancy, Talashek, & Park, 2007).

The literature review found that there are several research studies, which have looked at the health risk behaviors among Thai adolescents by using a qualitative method**.** For example, the study of Ounjit (2015) on of adolescent sexual relationships in Thai society and cultural dimensions among Thai adolescents by using a quantitative method**.** The result showed that firstly, peers influenced on their sexual behaviour because the attitude about having a girl/boyfriend while studying is normal. Other result, cohabitation before marriage is normal and it is exciting and exotic at present**.** In addition, partying with friends by going to nightclubs can lead teens into sexual relationships**.** Secondly, the movies and television programs in in Thai society, were influenced and encourageed teens to have early sexual intercourse because of sexual interaction as the scenes. Thus, adolescents want to learn in sexual relationship by they might expose and learn by using the internet on their own**.** Especially, Thai families do not provide or give a correct knowledge about sexual relationship to their children**.** This can

be explained in the terms of Thai society not fully accepting open communication about sex. This is similar to the study by Ruangkanchanasetr, Plitponkarnpim, Hetrakul, and Kongsakon (2005) about youth risk behavior in Bangkok, Thailand. The result showed that family (included a low socioeconomic status), socio-environment (peers and school) and media influenced risk behavior among Thai adolescents. In addition, the study looked at the health risks behaviors among HIV-infected youth in Bangkok, Thailand (Rongkavilit, Naar-King, Chuenyam, Wang, Wright, & Phanuphak, 2007). The result showed that the attitudes for having sex are unprotected sex acts and substance use, leading to unsafe sex activity both genders and nondisclosure among males were of concern to the researchers.

In the literature review and Thai culture, it can be said that the life style of Thai adolescents is based on peers who are a major influence in doing things because of the characteristics of young Thai adults who want to be accepted by their peer group and who imitate their peer idols as heroes. Moreover, they want to learn about sexual knowledge and find a sexual experience from their peers group, although their group peers give incorrect information (Ounjit, 2015). Adolescents are often afraid to open up or ask for advice from their families. In particular, Thai adolescents with HIV do not want to expose themselves; however, if they feel homogeneity with others, they would cooperate together. Thus, peer leaders would be incorporated into this program for driving the program via social media because trained adolescent leaders can be a role model and can have the courage to disclose about themselves for promoting HIV prevention. As a result, these trained adolescent leaders would become major leaders in HIV prevention.

In conclusion, socio-cultural influences on Thai adolescents consisted of peers, family, school, social media, and attitudes towards unprotected sex acts. From the review, it is clear that the empirical evidence of Thai socio-cultural influences on Thai adolescents. Thus, we could incorporate the socio-cultural factors into this HIV prevention program by using adolescent leaders who drive the HIV prevention program via social network. According to the literature review on peers, social media and attitude influenced Thai adolescents. Thus, this study integrated the adolescent leaders and social network based on the theory of planned behavior (TPB) in the HIV prevention program in order for the program to be successful and sustainable so that

peers and social media were an integral part of the program for Thai adolescents leading to HIV preventive behaviors**.**

7. Media

Teens often experience sexual content on television, in movies and in magazines (Ministry of Information and Communication Technology, 2014)**.** It can be seen that most sexual behaviors that are viewed on television is unmarried, viewing sexual behaviors on tv negate the potential for sexual intercourse. In addition, music videos sex and violence (Huston, Wartella, & Donnerstein, 2008)**.** Although, there were no adequately studied about the impact of information exposure on attitudes and sexual behaviors of adolescents, the study illustrated that permissive attitudes premarital sex was caused by the exposure of sexual content. According to generation Z, born **(**1995 to 2012**)**, this generation was influenced from technologies such as emails, mobile phones, text messaging, and social networking sites (Taylor & Keeter, 2010)**.**

The studies of using mobile technologies for HIV prevention by Benjamin (2011) found that the potential mobile technologies could provide an online resources, information, and learning opportunities about health information, including HIV/AIDS, and methods for post**-**diagnosis treatment**.** From the literature review, the result showed that sexually active youth had a very slight increase in using condoms**.** The technologies such as smart phones, social network and the internet are interesting as they are an integral and essential part of adolescents**'** lives nowadays (Consumer Electronics Association, 2008). The growth of technology is an important part of life and has a major influence on adolescents**.** Thus, social networking technologies increase the ability to connect, in a convenient and comfortable way**.** Moreover, these technologies could also be used for ways to promote healthy behaviors and decrease HIV transmission (Young, Zhao, Teiu, Kwok, Gill, & Gill, 2013).

In this study, pubertal stage (adolescent), family relationship and socio**-**cultural aspect were controlled by statistics**.**

Effect of adolescents-led HIV/AIDS prevention program using a social network on HIV/AIDS preventive behaviors

Based on the previous studies retrieved from 2008-2016, no studies were found regarding the effect of an adolescents-led HIV prevention program using a social network on HIV/AIDS preventive behaviors in adolescents with HIV/AIDS. However, several related studies showed many programs for HIV prevention in adolescents. The details of each HIV prevention program are as follows.

1. Peer-led program

The literature reviewed between 2008 and 2016 showed that there are eleven articles based on peer-led programs on HIV prevention in adolescents. The methodologies used consist of nine articles that are quasi-experimental design, 1 article that is a randomized control trial design, and 1 article is a systematic review.

For example, the study of Thato and Penrose (2013) on a peer-led HIV prevention program for college students in Bangkok, Thailand found that the peer-led HIV prevention program in the experiment group increased knowledge, positive attitudes, subjective norms, and intentions to practice preventive behaviors than those of the control group ($p < .001$). This is similar to the study of Fongkaew et al. (2011) which showed that the peer education program used in this study was effective in empowering youth. Thus, the mean scores of HIV/AIDS knowledge and attitudes towards sexual behaviors' attitude significantly increased after receieving the peer-led program ($p = .05$). Similar to the study of Mahat and Scoloveno (2010) regarding the HIV peer education showed that HIV/AIDS knowledge are improved after receiving the peer education program ($p < .001$). The mean score of self-efficacy in the experimental group was higher than that of the control group ($p = .018$).

In contrast to the study of Mahat and Scoloveno, the study of Tolli (2012) was a systematic review of the effectiveness of peer education in the European Union published between January 1999 and May 2010. The results showed that 22 studies were found consisting of one significant study regarding sexual experience; 22 studies regarding knowledge, 5 studies had no significant results; 3 studies regarding communication and negotiation skills, two of them had no significant results; 3studies regarding attitude, one had significant result; and one non-significant study regarding

behavioral intentions. Although a few statistically significant results for peer education programs were found, the researchers suggested that the peer educators is important factors for the success of the programs in adolescent because the peer educators were accepted from the target group; Thus, peer educator must be adequate for the training and working with their experience (Tolli, 2012).

Most of the results showed that a peer-led method could increase knowledge, positive attitudes, subjective norms, and intentions to practice preventive behaviors in the experimental group than those of the control group. However, researchers highlighted the weak points in these studies as follows; could not follow the behavior in the long term, the result of the report was a short time for a study, could not follow up, and some issues could not be approached with the adolescents (Mahat, Scoloveno, Leon, & Frenkel, 2008; Tolli, 2012).

2. Using an online social network (Facebook) on HIV/AIDS prevention

Ten articles are quasi-experimental design. All of the studies were published in 2010 – 2016, focused on men who have sex with men (MSM) and homeless adolescents. For example, the study of Yong and Jaganth (2012) looked at the use of social networking for mixed method on HIV prevention in Latino and African- American by using Facebook due to discuss the following HIV-related topics such as HIV prevention and HIV blood testing, stigma, knowledge, and Advocacy. The results showed that there were significantly more likely to request an HIV testing kit (p = .001). Yong and Jaganth (2013) studied continually about online social networking for HIV education by using mixed-methods analysis and using online social networking to facilitate HIV-related discussions and bulding relationship between HIV-related online discussions .The result showed that Facebook could serve as an innovative forum to increase both HIV prevention discussions and HIV testing.

Furthermore, Young, Szekeres, and Coates (2013) studied an analysis of HIV prevention behaviors between African American and Latino MSM by using social network. This study explored the feasibility of recruiting minority of Facebook users of MSM for HIV prevention program and sexual risk behaviors. The study presented that the primarily Latino (60.2%) and African-American (28.0%) used a social media to find sexual partners about 33.1%. In contrast, Black MSM used a social networking in a lower frequency ($p < 0.05$). Results suggested that using social media can be recruited for HIV

studies and there are different exist among minority social networking users in term of sexual risk behavioral. The finding highlighted from the study mentuined the importance of technologies can be integrated into campaign of HIV prevention interventions.

From the literature review, it was found that technologies could provide and serve the online resources, information, and learning opportunities, including HIV/AIDS, and stigma/discrimination. Therefore, an online social networking can be used as an innovative method of HIV prevention. As these technologies grow increasingly, standards must be established to ensure their safety and effectiveness in research (Young, 2012).

Olga Rudneva the executive director of ANTIAIDS (2013) suggested that in the future ways to raise awareness about STD's will include more integration of social media platforms, using media to discuss safe sex knowledge, HIV/AIDS resources, stigma and discrimination issues, creating innovative ways of communication using social media, and establishing blogging and photo blogging platforms to exchange ideas (Benjamin, 2011). Online social networking can be used as an innovative method of HIV prevention. As these technologies increasingly grow, standards must be established to ensure their safety and effective use in research (Young, 2012). In conclusion, the growth of technology is an important part of life so nurses should develop and integrate between technologies and health care services to practice (Barnard, 2007). Social networking technologies increase the ability to rapidly connect in a convenient and comfortable way.

Moreover, these technologies can also be used for ways to promote healthy behaviors and decrease HIV transmission (Young, Zhao, Teiu, Kwok, Gill, & Gill, 2013).

Measurement of HIV/AIDS behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior

The measurement of HIV/AIDS behavioral intention is one way in which to evaluate a perception of person likelihood or subjective probability that they will engage in a given behavior on HIV/AIDS regarding prevention. It is the likely to unlikely probability that a respondent will perform a behavioral intention (Misovich, Fisher, and Fisher, 1998).The literature review showed two measurements of HIV/AIDS behavioral intentions focused on the TPB conceptual framework. The measurements can be divided into two instruments as below

1. The behavioral intention scale

This measurement was developed by Suckra (2010) to evaluate an increase in HIV/AIDS behavioral intentions and indicates whether the participants intend to alter their current behavior by engaging in safer sexual behaviors and or make positive changes based on TPB of Ajzen (1991). The behavioral intention portion of the questionnaire consists of 5 questions using a 5 point Likert scale with responses ranging from "extremely unlikely" (score: 1), "somewhat unlikely" (score 2), "unsure" (score 3), "somewhat likely" (score 4) to "extremely likely" (score: 5).

These items range in score from 5-25. Items are summed such that a higher score increase indicates that the participants intend to alter their current behavior by engaging in safer sexual behaviors and make positive changes. The scale produced a Cronbach's alpha of .70 among the undergraduate students from a mid-Atlantic historically Black university.

In summary, this measurement was developed for the evaluation of behavior intention based on the TPB. The behavioral intention scale which is an instrument to evaluate the activities of sexual risk behaviors by engaging in safer sexual behaviors and or make positive changes based on TPB; however, this instrument does not cover the components of intention to HIV/AIDS prevention.

2. Behavioral intentions for HIV /AIDS prevention questionnaire.

Behavioral intentions for HIV/AIDS prevention questionnaire of Misovich, Fisher, and Fisher (1998). It was developed from the Information-Motivation-Behavior skills model which was established based on TPB to evaluate intention to HIV/AIDS preventive behavior. It has been used to evaluate HIV/AIDS behavioral intentions in regards to the perception or the recognition of the likelihood of performing a behavior in safer sexual behaviors with heterosexual college students. This was compared by the subset of the experimental and control respondents who reported engaging in sexual intercourse during the month prior to the administration of the questionnaire (N=263).

This scale consists of 8 items and four domains: negotiating not having sexual intercourse (1 item), discussion of safer sex with sexual partners (2 items), latex condom use (3 items), and HIV blood testing (2 items) to perform each of the HIV/AIDS preventive behaviors. The format of this scale is a 5-point rating scale from very likely (1) to very unlikely (5). A total score ranges from 8 to 40. The total score

will be consistent with the following interpretation (Misovich, Fisher, & Fisher, 1998). Mean scores 8 to 16 reflect the perceived likelihood of performing a behavior is very good, meanwhile, mean scores more than 16 reflect the perceived likelihood of performing a behavior is poor. Cronbach's alpha for this scale with university students was .80.

In this study, the researcher asked permission to modify the format of this scale by modifying the scale from very likely which is 1 to 5, somewhat likely is 2 to 5, unsure is 3 to 3, somewhat unlikely is 4 to 2, and very unlikely is 5 to 1; thus, mean scores more than 32 reflected that the self-instruction for the likelihood of performing a behavior intention is very good.

In summary, this instrument is a questionnaire used to evaluate the perception of the likelihood of performing a behavior intention to predict HIV/ AIDS preventive behavior. Behavioral intentions for HIV/AIDS prevention questionnaire was used to evaluate the intention to HIV/ AIDS preventive behavior, and it was used to evaluate HIV/ AIDS behavioral intentions to perceive or recognize the likelihood of performing a behavior in safer sexual behaviors. It was developed based on TPB and covers four domains consisting of negotiating not having sexual intercourse, discussion of safer sex with sexual partners, latex condom use, and HIV blood testing.

Measurement of perceived effectiveness of HIV/AIDS preventive behavior

The measurement of the perceived effectiveness of HIV/AIDS preventive behaviors is one way in which to evaluate the perception of sexual risk behaviors in adolescents with HIV/AIDS (WHO, 2013). The literature review showed a few measurements of HIV preventive behavior focused on TPB conceptual framework and a few studies measured HIV preventive behavior directly. Moreover, the measurement of HIV preventive behavior focused on condom use by the development of a conceptual framework based on Bandura's theory of self-efficacy. Other studies measured outcomes such as knowledge, attitude, and behavioral skills. Thus, this study presented all of the measurements related to evaluating HIV preventive behavior. The details of these measurements are as follows.

1. Correct Condom Use Self-Efficacy Scale

This measurement was developed by Crosby, Graham, Milhausen, Sanders, and Yarber (2004) to evaluate consistent and correct male condom use which has been noted as one effective method for preventing the transmission of HIV based on self-efficacy of Bandura (1994). The Correct Condom Use Self-Efficacy Scale (CCUSS) is a 7-item scale designed to measure an individual's perception of the ease or difficulty with using male condoms correctly. Respondents are asked how easy or difficult it would be for them to perform various correct condom use tasks. Responses are provided using a scale ranging from 1 (very difficult) to 5 (very easy).

These items range in score from 8-35. Items are summed such that a higher score indicates greater self-efficacy for correct use of male condoms. The scale produced a Cronbach's alpha of .70 among (the aforementioned sexual transmission infection (STI) clinic sample). In summary, this measurement focused on condom use only and was built based on self-efficacy of Bandura (1994). The Correct Condom Use Self-Efficacy Scale is used to evaluate consistent and correct male condom use which has been an effective method for preventing the transmission of HIV/AIDS based on self-efficacy of Bandura. It is focused on male condom use skill only, which does not cover all the domains of HIV preventive behavior.

2. HIV/AIDS preventive behavior questionnaire

The HIV/AIDS preventive behavior questionnaire was developed by Misovich, Fisher, and Fisher (1998). It was developed from the IMB model which was established based on TPB to evaluate the behavior for preventing HIV by focusing on the activities of sexual risk behaviors in the past. The HIV preventive behavior questionnaire consists of 24 items which are safer sex discussion (9 items), condom accessibility (8 items), condom use (3 items), and HIV testing (4 items), as well as a number of single items to reflect a variety of safer versus riskier sexual practice; moreover, each of the items had a variety of scales. Several additional items measuring HIV risk and HIV preventive behavior are included in the HIV preventive behavior portion of the questionnaire. It has been used to evaluate HIV preventive behavior in heterosexual college students (N=325).

Each of the domains of the questionnaire is as follows. Safer-sex discussion is measured with nine items that ask if the respondent has discussed HIV prevention

with a sexual partner to practice using only safer sex. The format of this scale is a yes/no question for 3 items, in the other items, the format of the scale is a 5-point rating scale consisting of always = 5, often = 4, sometimes = 3, rarely =2, never =1.

Condom accessibility was assessed with eight items to ask the respondents about how often they have brought condoms and the extent to which they have kept condoms easily available. The format of this scale in the questionnaire is for respondents to write their answer in the blank for 6 items, and 2 items, the format of scale is 5-point rating scale consisting of always = 5, often= 4, sometimes = 3, rarely =2, never =1.

Condoms used during sexual intercourse are assessed with three items that ask the respondents about their frequency of condom use during intercourse. The format of this scale is a 5-point rating scale consisting of always = 5, often = 4, sometimes = 3, rarely =2, never =1.

Finally, HIV testing behavior is assessed by asking respondents to report whether or not they have made an appointment for an HIV test. The format of this scale is yes/no question for 3 items, and only 1 other item asks 'did you have a blood test' and the respondent circles – yes or no. For this measurement, the Cronbach's alpha was .98.

In summary, this instrument is a questionnaire to evaluate the activities of sexual risk behaviors in the previous 6 months and to evaluate experiences in HIV preventive behaviors in only those who are sexually active. Moreover, this instrument has numerous scale measurements and some questions in the interval scale; on the other hand, some questions in the ordinal scale are mixed with open-ended questions. This instrument is used to evaluate the activities of sexual risk behaviors by asking respondents about their behavior during the past 6 months to evaluate their experience in HIV preventive behaviors. It was developed based on TPB and it covers four domains that consist of safer-sex discussion, condom use, condom accessibility, and HIV testing behavior. However, this instrument cannot evaluate perception on HIV preventive behavior.

3. The Perceived Effectiveness of HIV/AIDS Preventive Behavior Scale

The Perceived Effectiveness of HIV Preventive Behavior Scale was developed by of Misovich, Fisher, and Fisher (1998) to form an overall perceived effectiveness of HIV preventive behavior. It was developed from the IMB model which was established

based on TPB. It is used to evaluate HIV preventive behavior focusing on the perception of activities in HIV preventive behavior designed for use in heterosexual college students and is compared by the subset of the experimental and control respondents who report engaging in sexual intercourse during the month prior to the administration of the questionnaire (N=263).

This scale consists of 24 items and four domains: safer-sex discussion (10 items), condom accessibility (6 items), condom use (6 items), and HIV testing behavior (2 items).The format of this scale is a 5-point rating scale (5= very ineffectively, 4= somewhat ineffectively, 3= neither effectively nor ineffectively, 2= somewhat effectively, 1=very effectively). A total score ranges from 24 to 120. The total score will be consistent with the following benchmarks (Misovich, Fisher, & Fisher, 1998): Mean scores 24 to 36 reflect the perceived effectiveness that HIV-preventive behavior is very good, meanwhile mean scores more than 36 reflect the perceived effectiveness of HIV-preventive behavior is poor.

Validity evidence is again provided by findings that show that perceived effectiveness scores change in response to HIV prevention intervention experimental conditions. Cronbach's alpha for this scale within a sample of heterosexual college students was .88. In this study, the researcher asked permission to modify the format of this scale by modifying the scale from 5 to 1= very ineffective, 4 to 2= somewhat ineffective, 3 to 3= neither effective nor ineffective, 2 to 4= somewhat effective, and 1 to 5=very effective. Thus, mean scores more than 96 reflected that the perceived effectiveness of HIV-preventive behavior as very good.

In summary, this instrument is a questionnaire to evaluate the perception of the effectiveness of activities on HIV preventive behavior skills. Moreover, all of the items in this instrument are an interval scale. The Perceived Effectiveness of HIV/AIDS preventive behavior scale is used to evaluate the perception of the effectiveness of activities on HIV/AIDS preventive behaviors skills. It was developed based on TPB and covers four domains consisting of safer-sex discussion, condom use, condom accessibility, and HIV testing behavior.

According to this study, the researcher studied HIV/AIDS preventive behavior and used TPB in the conceptual framework, which measures the perception of adolescents' activities with sexual risk behavior on HIV/AIDS regarding the prevention of the

spread of HIV/AIDS to others. Thus, the researcher selected the Perceived Effectiveness of HIV Preventive Behavior scale because it was developed from the IMB model which was established based on TPB to evaluate the perception of activities on HIV prevention behaviors and covers four domains consisting of safer-sex discussion, condom use, condom accessibility, and HIV testing behavior. Although the HIV/AIDS preventive behavior questionnaire evaluates the activities of HIV/AIDS preventive behavior, it is focused on the activities of sexual risk behaviors in the past or experiences of sexual risk behaviors in the past. It cannot evaluate the perception of activities on HIV preventive behavior skills of adolescents. Thus, the researcher selected the perceived effectiveness of HIV/AIDS preventive behavior scale to use in this study.

Theory of planned behavior (TPB)

Introduction

Icek Ajzen offered the concept of the theory of planned behavior. It was improved on the theory of reasoned action, including perceived behavioral control (Ajzen, 1985). The theory dimentions consist of attitude toward behavior, subjective norms, and perceived behavioral control in order to shape an individual's behavioral intentions and finally behavioral change. The theory was intended to explain about all behaviors of people who have the ability to control by their self. The key components of this model are behavioral intention and behavior change is the expected outcome (Fisher & Fisher, 2000).

Categories of theory of Planned Behavior

The TPB is a theory focused on beliefs and behavior. The components of theory consisted of attitude, subjective norms, and perceived behavioral control, linking to an behavioral intentions and behavioral change (Ajzen, 1991). An attitude toward behavior refer to an individual's positive of self-performance. The concept is the degree to action or process of carrying out of the behavior is positively valued. It is definited by behavioral beliefs, leading to the behavior outcomes and other attributes. Subjective norms refer to perception of individual's person about the special behavior by the consideration of significant others.Finally, perceived behavioral control is self evident, refers to perception of people to do the ease or difficulty of performing the behavior

(Ajzen, 1991). It is assumed that perceived behavioral control is determined by the total set of accessible control beliefs. There are three domains in the categories of the theory of Planned Behavior. The details are as follow (Ajzen, 1991).

Attitude towards the behavior refers to the positive or negative of individual's person feelings about accomplishing a behavior.

Subjective norm refers to an important people to the individual think of the behavior should be taken action. The benefaction of the opinion is weighted by the motivation that the person must comply with the wishes of the referrence.

Perceived behavioral control is the extent of a person feels able to enact the behavior. It has two aspects, including how much a person has control and how confident a person. Both situational is determined by control beliefs about the power of internal factors to inhibit or facilitate the performing of the behavior.

Assumptions of planned behavior

The TPB's components that behavioral achievement based on both ability of intention and behavioral control. There are numerous limitations of the TPB included (Fisher & Fisher, 2000);

1. Assumes that the success of performing the desired action behavior of person is regardless of intention because he/she has occasions and the resources.

2. It does not explain other variables that there are influenced for behavioral intention and motivation, including fear, threat, emotion, or past experience.

3. Although it regards the normative influence, it does not take into other factors may affect the person's willingness to perform a behavior such as environmental or economic.

4. Assumes that behaviorl is changed from a decision process, it does not consider that it can change at any time.

5. While the increased structure of cognitive behavioral control is an important part of the theory, it does not mention about the actual behavior control.

6. The period between "intentional" and "behavioral" is not explained by theory.

Ajzen's behavioral planning theory (TPB) is a model of intention, attitude, norms, and perception of behavioral control in the performance of protective behaviors.

The TPB was developed from the theory of reasoned action (TRA), and it is the enhanced ability to predict, understand and change behavior such as arousal sex , different of gender'spower and substance abuse (Fisher & Fisher, 2000).

HIV preventive behaviors are ascertain exactly from intentions, attitude, norms, and perceived behavioral control that is conceptualized of a personal's assessment. Beliefs and behavior were link to TPB. Thus, the total sets of accessible control beliefs are perceived behavioral control **.**

Utilization of the theory

Literature reviews revealed that the effectiveness of HIV prevention from sexual transmission among adolescents is not only having adequate knowledge but also focusing on changing risk behaviors and having a positive attitude (Close, 2010). Several studies have used TPB to build a program. For example, Fisher, Fisher, Bryan, and Misovich (2008) studied the effect of the Information-Motivation-Behavioral Skill Model on changes of HIV risk behavior in inner-city high schools. The program was developed based on TPB and the theory of reasoned action. The result showed that the intervention group had higher knowledge and positive attitudes than that of the control group (p <.01). The intervention group had higher sexual behavior skills than that of the control group (p <.01).

Many researchers have applied this program to prevent HIV infection such as the study by Ndebele, Kasese-Hara, and Greyling (2012) regarding the effect of the application of the information, motivation and behavioral skills program on HIV risk behaviors among adolescents in South Africa. The results showed that knowledge, attitude and behavior skills in the intervention group were greater than that of in the control group (p < .01). This is similar to the study of Mongkuo, Lucas, and Taylor (2012) in that the intervention group had higher positive attitudes than that of the control group and motivation affected behavior skills (p < .01), knowledge and motivation affected behavior skills moderately (p < .05), however using only knowledge had no effect on behavioral skills (p > .05). Moreover, Potsonen and Kontula (1999) studied about adolescents' knowledge and attitudes concerning HIV infection in Finland. The result showed that both boys and girls showed a good level of knowledge about HIV infection while they had negative attitudes to those having HIV/AIDS.

In this study, three main concepts of the TPB were used in the conceptual framework that the researcher applied to develop the adolescents-led HIV prevention program. In terms of attitude, the researcher determined the respondents' attitudes toward performing HIV preventive behaviors. The content focused on positive attitudes consisting of not having sexual intercourse at all, talking with partners about safer sex, and always using latex condoms during intercourse. For subjective norms, the research assessed the participants' perceptions of generalized social normative support for HIV prevention. The researcher focused on the participants' beliefs and motivation about people who are important in supporting them for HIV prevention. For the perceived behavior control, the researcher focused on safer-sex discussions, the avoidance of risky behavior, condom accessibility, condom use during sexual intercourse, HIV testing behavior with perceived difficulty and perceived effectiveness of HIV preventive behaviors "very easy to do" to "very hard to do" by using behaviors skill training, and sharing personal experiences and scientific evidence of the values.

Thus, attitudes toward performing HIV preventive behaviors, subjective norms regarding the perceived social pressure or social support to perform or not perform HIV preventive behaviors, and perceived behavioral control to perform HIV preventive behavior would enhance adolescents with HIV to intend to perform HIV preventive behaviors, and finally to perform HIV prevention. An adolescent who has a positive attitude towards an HIV preventive activity, performance of the activity in term of positive norms concerning, and perceived behavior control activity should be intended to practice for HIV preventive. In conclusion, positive attitude and norms, perceived behavior control led to intentions and HIV preventive behavior.

Online networking site

An online network is a social networking website that allows people who used internet to contact with their friends via online and they can share their thoughts, opinions, updates of status, photos, videos and links to others depend on their interesting or amusing (Kenski & Stroud, 2006). Online networking sites consist of Facebook, twitter, my space, Skype etc. (Kenski & Stroud, 2006). According to the report of social networking site use in the world, Facebook is used 80% (CDC, 2013).

This is similar to Thailand, in that the social networking site most frequently used by adolescents is Facebook at 70.7% (National Statistical Office, 2013). This study will only use Facebook. The details are as follows.

In today's world Facebook has become an important function, because it is the modern way of building relationships to become friends due to share and talk anythings with people who lived so far via online. Using of Facebook pages is increasingly common for education because Facebook functions were developed for finding a source of knowledge. Facebook is a great channel of sharing, talking, and creating with friends. For example, sharing photographs, allowing friends to be tagged and commented with their photograph. As now, most people have digital cameras; they can store pictures and share them on Facebook. Especially Facebook function is a great way to keep in touch with friends and family. Morover, there are any functions for keeping privacy, or individuals'secret or groups' secret that easily making sections of their profile in the private or secret by setting about photographs and relationship statuses blocking (University of California [UCLA], 2013).

Technology has become massive in the adolescents life; especially, it may be influenced factors, particularly on the processes of giving information and comunication (CDC, 2013). According to generation Z, who were born between 1995-2012 (10-21 years old), this generation who used and connected with others by technology communications such as emails, mobile phones, text messaging, and online social network (Taylor & Keeter, 2010). The study results of CDC (2013) about adolescents, technology and reducing risks for HIV showed the use of technology (social media) on reducing risks for HIV in adolescents. Adolescents used a technology to play and explore aspects of their identity with their friends (Ponton, 1997).

Facebook could serve as an effective tool for preventing HIV infection among a risk group (University of California [UCLA], 2013). The researcher of UCLA recruited African American and Latino men who have sex with men (MSM) through a Facebook fan page. On the Facebook page was information that showed this group of men have a disproportionately high risk of becoming infected with HIV, and a Facebook group was used to initiate HIV-related conversations, and HIV prevention. Moreover, they discussed HIV-related topics such as testing, knowledge, stigma and advocacy (UCLA, 2013). In addition, Young and Rice (2011) studied about HIV

knowledge, sexual risk and testing behaviors among homeless youth by using Facebook. The researchers suggested that discussions on Facebook can increase and decrease sexual risk behaviors based on using the networks. Moreover, development program about a sexual health services via Facebook can reduce sexual risk behavior. This is similar to the study of Young and Jaganath (2013) who used online social networking (Facebook) for HIV education and prevention in men who have sex with men by using mixed methods (qualitative/quantitative). The result showed that the participants used Facebook to discuss and share idea on the topics of HIVprevention and HIV testing, knowledge, stigma, and advocacy. The finding showed that HIV stigma was decreased as the study progressed to prevention. The results showed about the group who posted as opposed to those participants who did not post.

In this study, the researcher used Facebook to conduct the adolescents-led HIV prevention program by training adolescent leaders. After that, the adolescent leaders did they use a personal facebook pageor was it a closed group facebook page. Moreover, they led the sharing of ideas and discussions via group chat or individual chat if it was a sensitive topic.

The Uses and Gratifications Theory (U&G)

Introduction

The uses and gratifications theory (U&G) of Katz, Gurevitch, and Hass (1973) was used communication theorists to explain how individuals use mass media to satisfy their needs (Infante, Rancer, & Womack, 1997).

Categories of the Uses and Gratifications Theory

The compositions of uses and gratifications theory have four categories for people who used media consisted of person diversion, personal relationships, personal identity and surveillance (McQuail, 2001). The U&G theory has three objective points that are what people do with media, the underlying motives in using media, and consequences of that use (Bela et. al., 2001). The U&G theory is focused on the acceptance both new and old media depend on personal needs.

There are a multitude of human needs or reasons to use media. In 1973, Katz, Gurevitch, and Haas identified the needs and divided them into five general categories

consist of integrative needs, affective needs, cognitive needs, needs related to escape or tension, and the need to keep social contact. It can be explained as below;

1. Integrative needs, using media to reassure their status, gain credibility and stabilize.

2. Affective needs, using media depend on all kinds of emotions, pleasure and other moods of the person.

3. Cognitive needs, using media for achieving knowledge, information etc.

4. Needs related to escape or tension, using media as a means of relaxation or relief from tension.

5. The need to keep social contact and communication with family and friends, using media for keeping in touch and making relations in the society (Katz et al., 1973).

Assumption of the Uses and Gratifications Theory

According to the new view of the uses and gratifications theory, there are now five standard assumptions (Rubin, 2002).

1. Communication behavior and choosing the media use in order to direct and motivate the purposive and goal. This is explained because people independently choose their media and since this behavior is functional, it has consequences for both individuals and societies.

2. Assumption is the idea that people select and use communication vehicles. This is different than most of the theories prior to uses and gratifications and will be addressed in the strengths section because people select media use due to gratify their needs. In this explanation, group members are active ensure their media use and communicate respond to their needs and satisfy their wants (Rubin, 2002).

3. Assumption of this theory is that a host of social and psychological factors guides or mediates communication behavior (Rubin, 2002). This is because media users are influenced on their views or expectation of the media from their interpersonal experiences and current environments.

4. Assumption of the U&G theory is attent and use the media with others for communication, and use media to help consumers to gratify their needs or wants.

5. Assumption is that generally people are more influential than the media, but not all the time because we mediate the patterns and consequences of media use (Rosengren, 1974; Rubin & Windahl, 1986).

Utilization of the Uses and Gratification Theory

The theory hypothesizes that seeking of media of person refer to they make decisions on somthing they see, hear, or read (Littlejohn, 1996**).** This is similar to the study of Mpofu and Salawu (2014), they studied by using social network to contribut of HIV/AIDS awareness and prevention in students. The users and gratifications theory was used; the results showed that there are significant tools to build reinforcment and increase HIV/AIDS knowledge and adopt of prevention behaviors among young people in South Africa.

According to the study of Gudelunas (2012), he used the U&G theory and online social networking applications for gay men. This research was developed based on the U&G theory in term of the needs and motivations, the result showed that there are significant on psychological and social contexts of gay men (Ruggiero, 2000).

Thus, the U&G theory has been used for the analysis of new media and provided a vantage point from the ways that person respond to the breadth and depth of information of new media. This theory regards people as active media users rather than passive active user.

In this study, the uses and gratification theory was applied in terms of creating all media used in the program to be the most attractive to adolescents. The researcher applied the uses and gratification theory in each category. Firstly, cognitive needs, the researcher created HIV knowledge content with colorful characters, used pictures, attractive sizes and shapes, and brief content that is easy to understand. Secondly, affective needs, according to the motion of adolescents' development, which are often characterized by rapidly fluctuating emotions (Zimmerman, Copeland, Shope, & Dielman, 1997), the researcher used picture posts for relaxation and shared ideas of interests. Thirdly, personal integrative needs, the researcher posted VDO and music about building inspiration and self-esteem of adolescents with HIV to prevent HIV transmission to others**,** and shared ideas or discussions. Fourthly, social integrative needs, the researcher applied adolescent leaders for group chats and individual chats with the adolescents in the HIV group to keep continuous social contact and communication and group friends**.**

Lastly, tension free needs, the researcher applied games about using condoms and the skills of negotiation by using activities of role play through the adolescent leaders posting situations , and they assigned group members to act and share ideas. Other people discussed the situation by giving stars to collect scores for the people who were discussing the situation. There were opportunities for group members to create ideas by themselves for relaxation or to reduce any tension.

Leader

Introduction

A leader is an important person who can lead someone to do anything leading to change in personal and social's systems by creating positive change in the followers with the archived goal of developing followers into leaders **(**Burns, 1978**).** There are various definitions of leadership**.** For example, "a leader is a person who does the right thing, managers are people who do things right" said Bennis (2015); moreover, Eisenhower (2015) mentioned that "leading is the art of getting someone else to do something you want done because he wants to do it." Therefore, the characteristics of a leader are similar in both adults and adolescents (Rehm, 2014). Youth leaders need to take on competencies including common competencies like communication, responsibilities and positive characteristics. Leading is about responsible decision-making, listening, and public speaking skills (Murphy, 2011). An adolescent leader can build an inspiring vision, and create something new to guide followers to the right goal. Leadership roles are very important to create valuable and positive change in participants and enhance the motivation, morale and performance of participants (Marquis & Huston, 2015).

Adolescent leader/peer leader

The importance of effective adolescent peer leaders in the health care system is that they are a homogeneous group and they can openly talk and discuss the stigma and discrimination problems regarding HIV/AIDS. In particular, peer groups also serve as powerful reinforcements during adolescence as sources of acceptance with their group (Sanders, 2013). What is the difference between the health provider care team services and peer leader services? The literature review showed that most services of the health provider care team focused on diagnosis, therapy different types, or medication possible

prescription etc. and providing sevices to support people to achieve the goals, and using treatments to approach the goal by an overcoming of barriers. While, peer leaders provided support for people in finding their own inner wisdom, own recovery stories to provide hope, and personal goals for recovery (Daly, Jackson, Mannix, Davidson, & Hutchinson, 2014).

From the literature review, no studies were found that developed adolescents with HIV/AIDS to be leaders; however, there are numerous studies that developed adolescent leaders in general and most of the studies were established to develop the adolescent leaders to drive a program. Most of the studies established the adolescent leader with participatory action research to develop curriculum training. For example, the development of early adolescent peer leaders by using young-adult partnership. The study use young adults to train the early adolescent peer leaders The researchers used experiences, approacheing and enhancing of skills-building strategies for the the youth leaders' capacities. The results of showed that using the senior-junior peer in the education program was effective in the program (Fongkaew, Fongkaew, & Suchaxaya, 2007). The components of adolescent leadership consisted of exploring and analyzing of oneself, group process and importance, a good leader and follower, the skills of decision-making and problem solving, and teamwork and team unity, the definition, duties, and a leader qualifications, and steps to be leader (Fongkaew et al, 2007). Moreover, there is a study of the of a practitioner's model development for adolescent leadership. This study promoted a model for youth leadership education by leadership provided the program with a practical blueprint to act their creation and implementation in high school (Rehm, 2014). The practitioner's model can be divided into four models in which each model mentioned adolescent leadership effectiveness by the need to have leadership skills such as skills of critical thinking, communication, collaboration, creativity the learning and innovation that need to be included in a leadership training program model (Rehm, 2014).

In addition, several curriculums were developed for training adolescents to be a leader of an intervention program. For example, the youth leadership curriculum of the ASPIRA association (2012) that emphasized leadership development is an effort the capacity of learner to be leader. This study mentioned that a leader led and provided the qualities by their lists may focus on task-related characteristics, such as "drive to

achieve, desire to excel, drive for responsibility, enterprise, initiative, persistence against obstacles, responsibility in the pursuit of objectives, and task orientation.”

The goal of the ASPIRA youth leadership curriculum consist of resiliency, positive identity, self-esteem skills through a comprehensive positive youth development program. This tool was esthablished to reduce risky behaviors in both middle and high school and to prevent them from engaging in risk behaviors in the future. This curriculum mentioned the skills training for achieving personal growth in adolescents, including self-awareness, self-knowledge, decision-making, communications, and social skills.

In summary, adolescent leadership is very important in leading peer groups, thus developing leadership effectiveness needs training in the skills needed to be an effective leader such as decision-making skills, communications skills, and social skills. In this study, the focus was on the training of the two skills of decision-making and communication.

Leadership skills

Leadership skills are needed for an effective leader to persuade, motivate and inspire followers to engage with that vision, and create an inspiring vision of the future. In addition, leadership skills are used to coach and build participants, so that they become more effective at achieving their goals (Bass, 1985). From the literature review, it was found that there are numerous skills for leadership consisting of twenty elements, in which two of these elements are decision making and communication skills, in which are the main skills of leadership, thus these two skills are appropriate for this program (Marquis & Huston, 2015).

1. Communication skills

Communication skills are processd of sending and receiving messages between two or more people (Riley, 2012); therefore, communication can either facilitate the relationship development or create barriers (Stuart, 2009). Moreover, communication is more informed the information for exchanging on emotional and intentional understanding. Because communication is also effective of a two-way communication process. It is not only conveyed a message to receive the message understood by someone in exactly the way intended, but also listened to gain the full meaning of what is being said and to make the person feel heard and understood (Ellis, Gates, & Kenworthy, 1995).

Therefore, communication skills included listening skill, clear articulation, empathy expression, and the individual's presence quality (Riley, 2012).

Communication is an important foundation in a program because it provides participants with the ability to engage in giving information, inspiration and motivation with participants' activities and also gives individuals a sense of connection with each other and themselves (Archibaid, 2014). Thus, communication will be divided into five communication skills for the benefit of improving the verbal communication skills (Greenberg, 2005) of the adolescent leaders as follows.

1.1 The inspirational communication tactics: the effective leaders use the inducement techniques to motivate participants when they communication.

1.2 A supportive communicator**:** the effective leaders use effectively communication with participants, in particularly, a leader showed intently listening without judgment and respond in ways that reinforce the relationship between the leader and participant's message.

1.3 Encourage open feedback: is the prime to effective communication. Leaders need to accurate information and encourage feedback because it is an important source of information. The leader inviting participants to submit ideas about how something may be improved, felt, or intended can achieve this.

1.4 Walk the talk**:** the effective leader is a role model; particulary, they must work at what they say and need to be heard as loud as their actions.

1.5 A good listener: the effective listening is an important skill for leader. Thus, a leader must listen in ways that encourage participants to continue speaking or may be relay the message the message by being nonjudgmental while taking in information from the participant.

2. Decision making

From the literature review, it was found that theories of judgment and decision making can be subdivided into three categories: normative, descriptive and prescriptive (Thompson & Dowding, 2002). Normative judgment and decision-making are concerned with a 'good' judgment. Decision-making is considered as the cognitive process by belief selection of an action course in several alternative possibilities. In decision-making process are finding the final choice. Therefore, decision-making is the

process of identifying and choosing alternatives depended on decision-maker's values and preferences of the (Marquis & Huston, 2015).

In regarding of decision-making skills and techniques, almost any decision involves some conflicts or dissatisfaction. The difficult of decision part is picked one solution which the positive outcome and can outweigh possible losses. The most practical decision making techniques was summarized in five steps (Thompson & Dowding, 2002) as follows.

2.1 Identify the purposes of a decision. In this step, the leader had to solve a problem; therefore, the leader needs to know "What exactly is the problem to be solved?" "Why should it be solved?"

2.2 Gather information. In this step, the leader encouraged the participant to find out the factors by posing the question "What factors does the problem involve?"

2.3 Identify the principles to judge the alternatives. In this step; the leader had to inform and identify the principles to judge the alternatives, which were answered by "What standards and judgment criteria should the solution meet?" to understand the participants.

2.4 Brainstorm and list different possible choices. In this step, the leader encouraged and persuaded the participant to share ideas and brainstorm in order to generate ideas for possible solutions. The outcome of the solution is only as good as the best options and ideas with their group.

2.5 Evaluation of each choice in the part of its consequences. This step, the leader used basic standards and the criteria judgments to determine the cons and pros of each alternative. The leader had to distinguish the advantages and disadvantages from the ideas of the participant.

In conclusion, leadership skills are very important for leaders in coaching followers to do the right way; especially, the basic skills of communication and decision making**.** Leaders need to be able to take action and provide information to participants; thus, in this study, these two skills of communication and decision-making were selected for training the adolescents with HIV/AIDS to be effective leaders**.**

Utilization of communication skills and decision-making

The literature review about leader skills in adolescents with HIV/AIDS did not show competency in leadership skills, and most of the research focused on program prevention only. However, studies on leadership skills focused on nursing care and nursing management based on the leadership concept numerous research.

For example, the study of Ann (2003) investigated clinical decision-making in fourth-year nursing students. The result showed that the effectiveness of decision-making significantly influences patient outcomes. Similarly, the study of Guadagnoli and Ward (1998) presented the research about decision-making of patient want to inform, the results showed that most patients want to be informed about treatment alternatives, if treatment involved decisions when more than one treatments. They concluded that physicians should invite the patient in in decision-making participation because it is justified on human right. Moreover, the study of communication skills in patient cancer of Fallowfeld and Jenkins (1999) showed that communication skill is a core clinical skill for specialist cancer nurses have received much formal training. Because inadequate communication can reduce on patients and their families' distress. In contrast, the lack of effective communication of nurse specialists and departments can also cause confusion and a loss of confidence amongst the team.

Other researchs focused on the leadership theory. For example, the study of Doody and Doody (2010) focused on the transformational leadership in nursing practice. This study applied four components of transformational leadership to used in research consisted of idealized influences, inspirational motivation, intellectual stimulation, and individual consideration. The result showed that transformational leadership is provided as good leaders to have the power and to produce successful leaders in the future generations. Moreover, Bamford-wade and Moss (2010), who studied about transformational leadership and shared governance, aimed to demonstrate the practical relevance of the concepts of transformational leadership. The study showed that a nurse director in working could inform by action research and active in the process, to achieve the incremental breakthroughs associated with culture change in nursing. Moreover, transformational leadership make nurse to have an evident in a confident, competent, and embraces continuous learning.

In summary, in this study, the researcher selected two leadership skills, which were communication skills and decision making because these skills are the basic skills of leaders for training adolescent leaders to build their performance in leadership. In terms of leadership, the leader gave empathy and support, kept communication open and placed challenges for the participants. Moreover, the leaders stimulated and encouraged creativity in their participants' decision-making. For example, the leaders posted situations about the negotiation of delaying sexual intercourse, and stimulated the participants to think and share ideas. Furthermore, the leader articulated a vision that was appealing and inspiring to prevent HIV transmission by the participants, and to stimulate positive attitudes of the participants. Thus, the leader provided support by the use of communication skills that made the vision understandable, precise, powerful and engaging and decision making to decide on the appropriate way of safe sex with a partner, behavioral intention and HIV/AIDS preventive behavior.

Measurement of evaluation of leadership

From the literature review, several tools were found to evaluate leadership skills. However, this study evaluated a part of leadership skills and this part is communication and decision skills; thus, three instruments were used as follows.

1. The communication skill test questionnaire

The communication skill test questionnaire (Mine tools Ltd, 2013) was used to self-evaluate the skills to be a good communicator. This scale consisted of 15 items and it can be divided into five domains: the source –planning message (2 items), encoding-creating a clear message (5 items), choosing the right channel (3 items), decoding-receiving and interpreting messages (4 items), and feedback (2 items). The format of this scale is a 5-point rating scale (5= very often, 4= often, 3= sometimes, 2= rarely, 1= not at all). The total score ranges from 15 to 75. The total score will be consistent with score interpretation (Mine tools Ltd, 2013) in that mean scores 15 to 35 reflect communication skill is poor that they need to be trained again, scores 36 to 55 reflect communication skill is good, but sometimes lack of experience of communication, and scores 56 to 75 reflect an excellent approach to communication skills. The reliabilities were performed with leaders who worked at a company, yielding Cronbach's alpha coefficient of 0.80.

2. The decision-making questionnaire

The decision making questionnaire (Mine tools Ltd, 2013) was used to self evaluate the ability to be a good decision maker in this study. This scale consisted of 18 items and 6 domains: establishing a positive decision-making environment (4 items), generating potential solutions (3 items), evaluating the solutions (3 items), deciding (3 items), checking the decision (2 items), and communicating and implementing (3 items). The format of this scale is a 5-point rating scale (5= very often, 4= often, 3= sometimes, 2= rarely, 1= not at all). The total score ranges from 18 to 90. The total score was consistent with the following benchmarks (Mine tools Ltd, 2013). Mean scores 18 to 42 reflect that the individual's decision making has not fully matured, scores 43 to 66 reflect that the individual's decision- making process is good, and scores 67 to 90 reflect that the individual has an excellent approach to decision making. The reliabilities were performed with leaders who worked at a company, yielding Cronbach's alpha coefficient of 0.80.

3. The test skill of the leadership questionnaire

The test skill of the leadership questionnaire (Mine tools Ltd, 2013) was used to self-evaluate the skills of leadership. This scale consisted of 15 items and 5 domains: personal mastery (2 items), time management (4 items), communication skills (3 items), problem solving and decision making (3 items), leadership and management (3 items). The format of this scale is a 5-point rating scale (5= very often, 4= often, 3= some times, 2= rarely, 1= not at all). The total score ranges from 15 to 75. The total score is consistent with the following benchmarks (Mine tools Ltd, 2013). Mean scores 15 to 35 reflect that an individual's leadership skills have not fully matured, scores 36 to 55 refer to an individual having good leadership skills, and scores 56 to 75 refer to an individual having an excellent approach to leadership skills. The reliabilities were performed with leaders who worked at a company, yielding Cronbach's alpha coefficient of 0.80.

In conclusion, in this study, the two leadership skills of communication and decision-making skills for training adolescent leaders to be leaders were selected. Therefore, this study needed to select all of the tools to evaluate the outcome of communication skills, decision-making skills, and leadership skills because all of the instruments focus on each skill, the tools could be used to identify those adolescents who were good leaders.

Nurse's support

The nurse's support is a term that has been used for helping the adolescent leaders to do activities consist of a supportive relationship and information, encouragement of adolescent leaders in order to maintain their role throughout the driving program, affirmative of comment and appraisal, emotional support, and make adequate preparation for competency when they had or met with a problem while driving the program (Yarbrough, 1994). There are four supports in this study including supportive information is providing information to adolescent leaders by using communication skill for making available understandable information on the details of program, and the steps of driving the program including the group members' behavioral and emotional responses, and human rights and responsibilities while driving the program. Emotional support consisted of listening, exhibiting caring behaviors, and being concerned to help adolescent leaders to cope when they met problems during driving the program. Appraisal support is ideas to strengthen and support youth leaders. Finally, instrumental support includes assistance of any kind, such as time, Wi-Fi support, and questions and answers via inbox when the leaders had any questions while driving the program (Sanjari et al., 2009).

Thus, the nurse's support refers to the activities of the nurse to facilitate, coach, and train the adolescents with HIV/AIDS to be leaders. These leaders can implement the HIV/AIDS sexual transmission prevention program using a social network to other adolescents with HIV/AIDS face-to-face and via Facebook.

The nurses' role in leader training

There are several roles of the nurse both in the clinical setting and in administration such as coaching, consulting, co-coordinating, facilitating etc. (Marquis & Huston, 2015). Moreover, Hassmiller (2010) concluded the nurse's role in reforming healthcare included 1) innovations, 2) evidence and research development, 3) redesign nursing education, 4) the scope of practice expandation, 5) diversify of workforce, 6) using technology, 7) interprofessional collaboration, and 8) leadership development in every level. In particular, the role of developing leadership at every level has become an important role of nurses not only in clinical nursing practices or follow-up treatment but also as a facilitator or supporter to develop new leadership so nurses can drive the healthcare system by themselves. In this study, the nurse's role was mentioned as a

supporter throughout the program consisting of training adolescent leaders and training in the program.

Training adolescent leaders

The role of nurses in the healthcare reform has become of importance in the healthcare system because the nurse is the main person to drive policy and promote teamwork**.** Thus, training adolescents to be a leader in this program is the major role of the nurse**.** From the literature review, no study was found about developing adolescents with HIV/AIDS to be leaders; however, there are several studies about the development of adolescents in general to be leaders**.** For example, Fongkaew, Settheekul, Fongkaew, and Surapagdee (2011) studied about the effectiveness of a youth leader in educational program for Thai early adolescents**.** This study showed the role of nurses to train youth to be leaders by establishing the curriculum for training youth leaders in schools**.** Although the youth leader is the implementation in the program, the nurse is the supporter and facilitator during the implementation of the program**.** Moreover, Fongkaew, Fongkaew and Suchaxaya (2007) studied about the development of an HIV prevention program for adolescents; a curriculum was consisted of youth leaders' trainner through a youth and adult partnership with schools**.** The curriculum used participatory learning by using experiences approaches and a skills**-**building strategy to enhance the aptitude of the youth leaders**'** by a nurse as a supporter**.**

It can be seen that the role of a nurse is very important in developing adolescent leaders, especially the role of the nurse in this study, which is to train the adolescents with HIV/AIDS to be leaders**.** It is a new way to drive the healthcare system in a sensitive group aimed to sustain and continue in their group to reduce risky sexual behavior and prevent HIIV/AIDS transmission to others covered by the nurse as a supporter or facilitator during the implementation of the program**.**

Training in the program

In this study, the nurse who is a researcher developed the program to be implemented in adolescents with HIV/AIDS by adolescent leaders who drove the program**.** Training in the program is one of the roles of the nurse**.**

A study by Thato & Penrose (2013) about the effectiveness of HIV prevention program by driving the program with peer**-**led showed the process of the program in 70 undergraduate students taking a health sexuality course in the first semester**.** The students

were divided into groups of 10 students and each group had a peer leader, who had received the training program from a nurse.

In this study, the nurse's role involved the training program for adolescent leaders infected with HIV/AIDS who implemented the program with adolescents with HIV/AIDS. The nurse's role was to support and train the adolescent leaders in the program because the nurse was the major player in the health system to develop the program and train other stakeholders to continuously drive the program.

Summary of literature reviews

The newly HIV/AIDS infected adolescents increased by approximately 42% from 2013 to 2016. Similarly, in Thailand, the HIV infection rate is rising in adolescents and 80% of adolescents with HIV/AIDS have been infected by sexual transmission. The goal of the policy in Thailand beyond 2017 is for new HIV infections from sexual transmission to be reduced by two-thirds and to campaign for reducing sexual risk behavior. Based on the previous studies, there were no standard programs or effective intervention programs about HIV/AIDS prevention in adolescents with HIV/AIDS. No studies used a social networking site via Facebook and no studies used a peer leader infected with HIV/AIDS to lead a program on social networking online. This is a challenging and interesting program about integrating a social networking site with support from the nurse and nursing care by using the TPB theory to develop the program via social networking using the uses and gratifications theory, and the leadership skills concept to drive the program. This study integrated literature reviews regarding HIV/AIDS prevention knowledge, findings from focus groups, and the adolescent development concept to develop the adolescents with HIV/AIDS to be leaders. Moreover, the researcher established the adolescents-led HIV/AIDS prevention program on behavioral intention for HIV/AIDS prevention and the perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS. Success of the program was related to reducing sexual risk behaviors and preventing HIV/AIDS transmission from adolescents with HIV/AIDS to others in a program that was driven by HIV/AIDS adolescent leaders via Facebook.

CHAPTER 3
REREARCH METHODOLOGY

In this chapter, the methodological components consist of the research design, variables, research setting, population and sample, instrumentation, human rights protection, data collection, and statistical analysis.

Research Design

The research design of this study was a quasi-experimental, two-group pretest-posttest, repeated measures design**.** The aims of this study were to develop and test the effects of the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behaviors among adolescents with HIV/AIDS.

Research setting

The study setting was a pediatric outpatient HIV/AIDS clinic at Maharat Nakorn Si Thammarat Hospital, Nakhon Si Thammarat province. It is a 950-bed tertiary hospital.

Population

The population in this study consisted of adolescents aged 12-19 years, who were diagnosed with HIV/AIDS by a pediatrician, and who attended the HIV/AIDS clinic. In 2016, the number of children with HIV/AIDS was 140 (The medical records of Maharat Nakorn Si Thammarat Hospital, 2016).

Phase of the study

This study consisted of three phases: Phase I development of the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program and the leader training program, Phase II training of the adolescent leaders, and Phase III testing of the effects of the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program on behavioral intention and perceived effectiveness of HIV/AIDS preventive behaviors among adolescents with HIV/AIDS. The details of each phase are as follows.

Phase I: Development of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network and the leader training program

1. The nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using social network

Objective of the study

The objective of the study in Phase I was to develop the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network.

Participants

The participants in this phase consisted of adolescents with HIV/AIDS who attended the HIV/AIDS clinic, Maharat Nakhon Si Thammarat Hospital, Nakhon Si Thammarat province.

Purposive sampling was used to recruit 10 adolescents with HIV/AIDS. The inclusion criteria for the adolescents were: 1) aged 12 to 19 years old diagnosed with HIV/AIDS by a pediatrician at stage N or stage A because at this stage the patients had AIDS symptoms but they could still perform as usual in daily life, 2) had a status at post disclosure of at least 3 months after diagnosis and they had accepted the status of living with HIV/AIDS because the patients had been prepared by a care provider team before disclosure; thus, the time range of disclosure of at least 3 months as having accepted the status of being HIV/AIDS infected, 3) the laboratory results showed that CD4 >350cells/mm^3 and Viral Load < 40 copies/ml because there was a good response to treatment and the patients had good health, 4) drug adherence > 95% per 3 months before recruitment because it showed that treatments had been successful and there was reduced drug resistance (Bureau of AIDS, TB, and STIs Ministry of Public Health,

2015), 5) able to communicate, listen, read, and write in Thai language, and 6) had the ability to use the internet (Facebook) and had access via a computer or smart phone.

Steps of program development

The program development process used in this step consisted of pre- program development (problem assessment and literature review), specifying core contents and structuring of the program, determining content validity and appropriate program, and pilot testing of the program (Danaher et al., 2012; Seropian, Brown, Gavilanes, & Driggers, 2004). The steps are as follows.

1. Pre-program development (problem assessment and literature review)

1.1 Literature review

The researcher applied TPB and reviewed the literature on searching the databases (e.g., CINAHL, ProQuest, ScienceDirect, PubMed, and OVID Medline) using keywords (e.g., HIV/AIDS preventive behavior, HIV/AIDS-infected adolescent, youth with HIV/AIDS, peer-led HIV/AIDS prevention, HIV/AIDS preventive using social network, and sexual regarding HIV/AIDS prevention program). Both English and Thai language journals and publication dates of the literature review ranging from 2006 to 2016 were included.

After that, the researcher performed a systematic review of the literature (Joanna Briggs Institute [JBI], 2008) and analyzed the concept with a concept analysis method (Walker & Avant, 2005) to find any gaps of knowledge and to analyze the weaknesses and strengths of the existing programs. There are several gaps of knowledge and weaknesses in the existing programs, which were inappropriate for adolescents with HIV/AIDS. Most of the programs were focused on disadvantages of HIV-infection and there was a lack of programs that were specific to HIV/AIDS-infected adolescents. Although there are HIV/AIDS clinics that took care of this group, the focus was on treatment and care. Otherwise, there is a lot of media support such as brochures and VDOs; these did not seem to be appropriate for adolescents with HIV/AIDS as well. It was also found that technology in Thailand was not used such as online networking sites for following the adolescents with HIV/AIDS.

In order to establish a program for HIV-infected adolescents and due to the policy of Thailand focused on HIV prevention; therefore, the researcher developed the program by integrating between the TPB, literature review, and the gaps of the

existing programs that focused on HIV/AIDS sexual transmission prevention among adolescents with HIV/AIDS. The details of the program consisted of four items: knowledge, attitude, subjective norms, and perceived behavioral control.

1.2 Focus group

The proposal in regards to the Protection of Human Rights was approved by The Institutional Review Board (IRB) of the Faculty of Nursing, Prince of Songkla University, and by the committee of Maharat Nakhon Si Thammarat Hospital, Nakhon Si Thammarat province. The researcher performed a focus group with ten adolescents with HIV/AIDS who met the previous mentioned inclusion criteria. The aims of the focus group were to discuss a suitable program consisting of the details of the activities, process, time, location, types of media and the steps of the program. The details of the focus group were as follows.

1.2.1 The researcher approached and met with adolescents with HIV/AIDS face-to-face to form a relationship. Next, the researcher explained the objectives of the study to the HIV/AIDS adolescents and their caregivers, and invited them to participate in the study by providing information presented in an informed consent form. Time was also provided for the participants to think about their decision before signing informed consent.

1.2.2 Focus group discussions were aimed to discuss and share ideas on the topics of activities, process, time, location, types of media and the steps of the program. The researcher made three appointment times with the adolescents with HIV/AIDS. The details were as follows.

1.2.2.1 The first time, the researcher approached and formed relationships with the adolescents with HIV/AIDS. Next, they talked and discussed the topic of HIV/AIDS prevention in terms of attitude, subjective norms and perceived behavioral control. Most adolescents mentioned that they did not want to use condoms when having sex because they were afraid that their partner would know about their HIV/AIDS infection. Some adolescents said that they wanted to act like normal adolescents without HIV/AIDS and have a boy/girlfriend. Moreover, they mentioned that their partner did not believe them when they told them about their HIV-infection. Actually, they did not want to transmit HIV/AIDS to others because they knew and understood about being discriminated against. After performing the focus groups, the

researcher applied the contents to develop the HIV/AIDS program. The researcher especially applied a short film in the program. The short film had an actor who was HIV-infected. This short film was used on the topics of positive attitude, subjective norms, and perceived behavioral control in order to cultivate adolescents with HIV/AIDS for social responsibility.

1.2.2.2 The second time, the researcher met the adolescents again, the objective of this step was to discuss the program regarding the topics of the activities of the HIV/AIDS sexual transmission prevention program and leader training program. Participants discussed and shared ideas of the program step by step with the researcher as the moderator. During the focus group, the researcher used an audio recorder to record the group discussions and observed the behavior and reactions of the group members. The results from the group showed that all of the group members agreed that most of the program was appropriate. However, they suggested that some topics needed to be more concise such as the activities and the times of the activities of introducing and making relationships; thus, some of the activities were omitted. Moreover, the participants suggested to reduce the time spent on the activities of introductions and extend the time on the activities of knowledge, attitude, subjective norms and perceived behavior control for discussion. Thus, the program was modified based on the group discussions.

1.2.3 The final time, the researcher met the adolescents with HIV/AIDS for completing the HIV/AIDS prevention program. They read and discussed the details of the program again. All of them agreed on the activities and the types of media in the program.

1.2.4 Finally, the researcher completed the nurse's support for adolescent-led HIV/AIDS sexual transmission prevention program and leader training program (Appendix A).

2. Specifying core contents and structuring of the program

The structure of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network was developed based on the contents from the focus group, literature reviews of HIV/AIDS of sexual transmission prevention, social development of adolescents, TPB theory, the uses and gratification theory, and online social networking site (Table 1, chapter 4).

3. Determining content validity and appropriate program

3.1 Face validity was performed by three experts. The experts consisted of one pediatrician who has expertise in HIV/AIDS care in children from Maharat Nakhon Si Thammarat Hospital, and one nursing instructor who has expertise in program development using information technology from Faculty of Nursing, Prince of Songkla University. The other expert is a practice nurse who has expertise in HIV/AIDS care from Nakhon Si Thammarat Provincial Public Health Office. These experts validated the contents of the program consisting of content relevance, content repetition, and content clarification of the program and all of the media used in the study. After that, the researcher revised the program based on the comments and suggestions of the experts.

4. A pilot study

The researcher tried out the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program using a social online network and the leader training program with two adolescents with HIV/AIDS who had similar characteristics to the sample in this study. This was performed to test the possibility of the use of programs. It showed that the researcher could systematically drive the program with them; however, the researcher encountered a problem of time such as some activities took a lot of time; on the other hand, some activities could be completed in a short time successfully. After the pilot study, the researcher revised the program to be more appropriate for adolescents with HIV/AIDS. Finally, the nurses' support for the adolescent-led HIV/AIDS sexual transmission prevention program using a social network was completed. The steps of the development of the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program using a social online network are summarized in Figure 2.

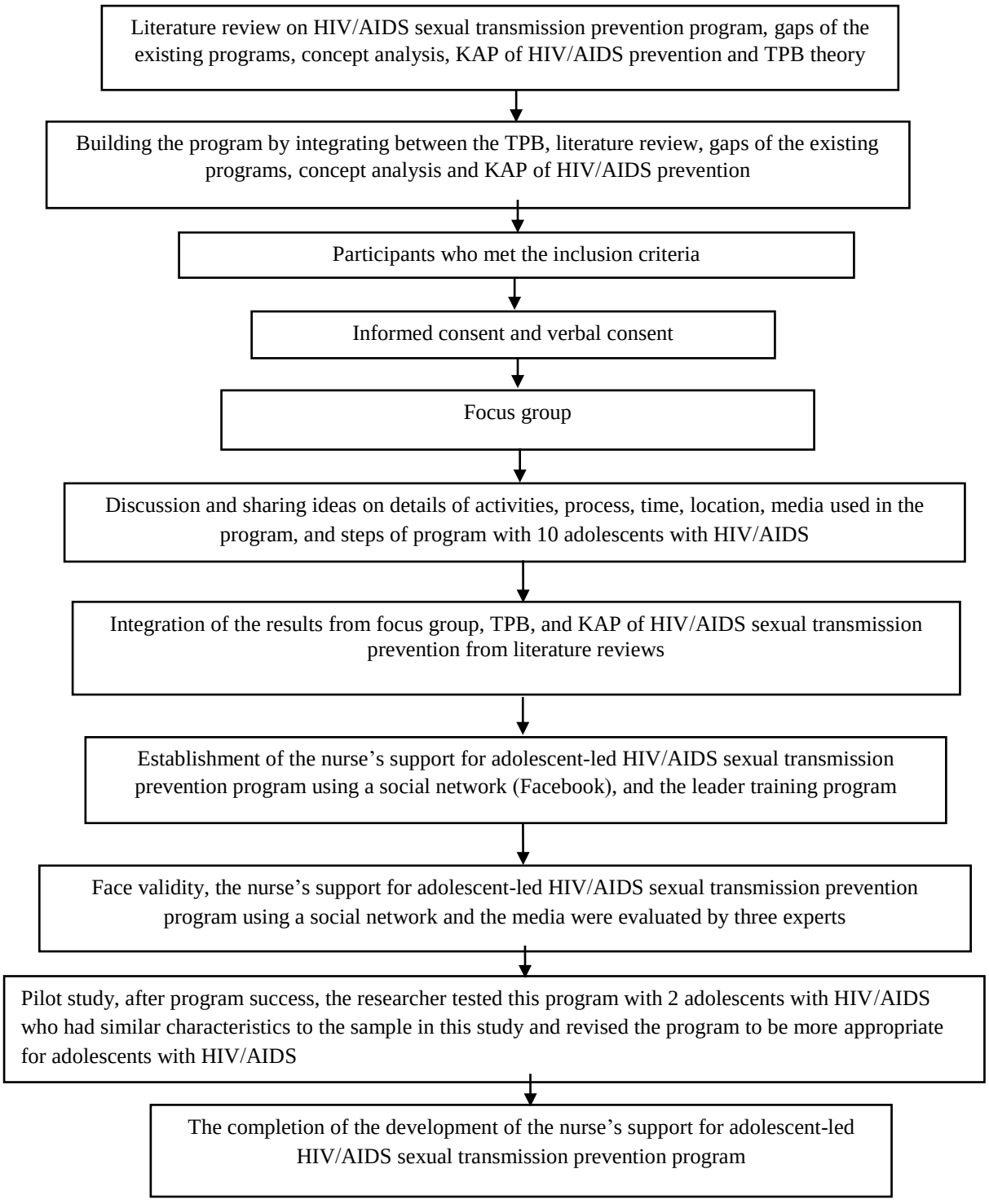

Figure 2. Development of the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network

2. The leader training program

Objective of the study

The objective of the study was to develop the leader training program

Steps of program development

The development process of the leader training program used the steps as previously mentioned in the steps of the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program using a social network. The details are as follows.

1. Pre-program development (problem assessment and literature review)

1.1 Literature review

In this study, the researcher had to consider concisely for training adolescents to be leaders. The literature review revealed that there are numerous skills for leadership consisting of twenty elements, in which two of these elements are communication and decision making skills. Communication and decision-making are the basic skills of leadership; thus, two skills are appropriate for this program (Marquis & Huston, 2015). In addition, the components of transformational leadership showed that inspirational motivation is one of four elements that leads to leadership, which is an important challenge for using communication skills to inspire followers (Burns, 1990) because it is the degree which the leader articulates a vision that is appealing and inspiring to followers. Moreover, decision-making is important skill for an effective leader. The literature review showed no study about adolescents with HIV/AIDS training to be a leader. However, most studies showed peer training for leaders in communication skills, decision making skills, and knowledge (Jaganatha, Gillb, Cohen & Young, 2012; Medley, Kennedy, O'Reilly, & Sweat, 2009).

Moreover, the literature review showed the leader training program for HIV prevention entitled harnessing online peer education (HOPE) consisting of integrating C-POL and social media to train peer leaders in HIV prevention (Jaganath, Gill, Cohen, & Young, 2012). The program consisted of 1) integrated basic knowledge of HIV/AIDS by discussion and role playing exercise, 2) awareness of socio-cultural HIV/AIDS issues in the age of technology, and 3) communication methods for training peer leaders in effective, interactive social media-based HIV prevention. In Thailand, there was a brief theory-based peer-led HIV prevention program (Thato & Penrose, 2013).

Therefore, in this study, the leader training program was developed by the researcher. It was divided into two sections: the first section, training in communication skills and decision-making skills to enhance leader skills and the second, training to use computer integrated with leader training to implement the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program.

1.2 Focus group

The researcher performed a focus group with ten adolescents with HIV/AIDS who met the previous mentioned inclusion criteria. The aims of the focus group were to discuss a suitable program consisting of the details of the activities, process, time, location, types of media and the steps of the program. The details of the process of performing a focus group were similar as previously mentioned.

2. Specifying core contents and structuring of the program

The structure of the leader training program was based on the literature reviews of leadership skills. It was divided into two sections; 1) leader training, and 2) leader training to implement the program (Table 2, chapter 4).

3. Determining content validity and appropriate program

3.1 The leader training program and the types of media for use via social networking were evaluated for face validity by three experts. The three experts are the same persons as mentioned in the phase of development of the nurse's support for adolescent-led HIV/AIDS sexual transmission prevention program using a social network. The experts validated the content of the program consisting of content relevance, content repetition, and content clarification of the program and all the media used in the study. The three experts agreed that the contents were clear, and were relevant and consistent with the objective of the study.

4. A pilot study

The researcher tried out the leader training program with two adolescents with HIV/AIDS who had similar characteristics to the sample in this study which is the same as that mentioned in the phase of development of the nurse's support for adolescent-led HIV/AIDS sexual transmission prevention program. This was performed to test the possibility of the use of programs. It showed that the researcher could systematically drive the program with the adolescents and this program could be driven smoothly. The steps of development of the leader training program are summarized in Figure 3.

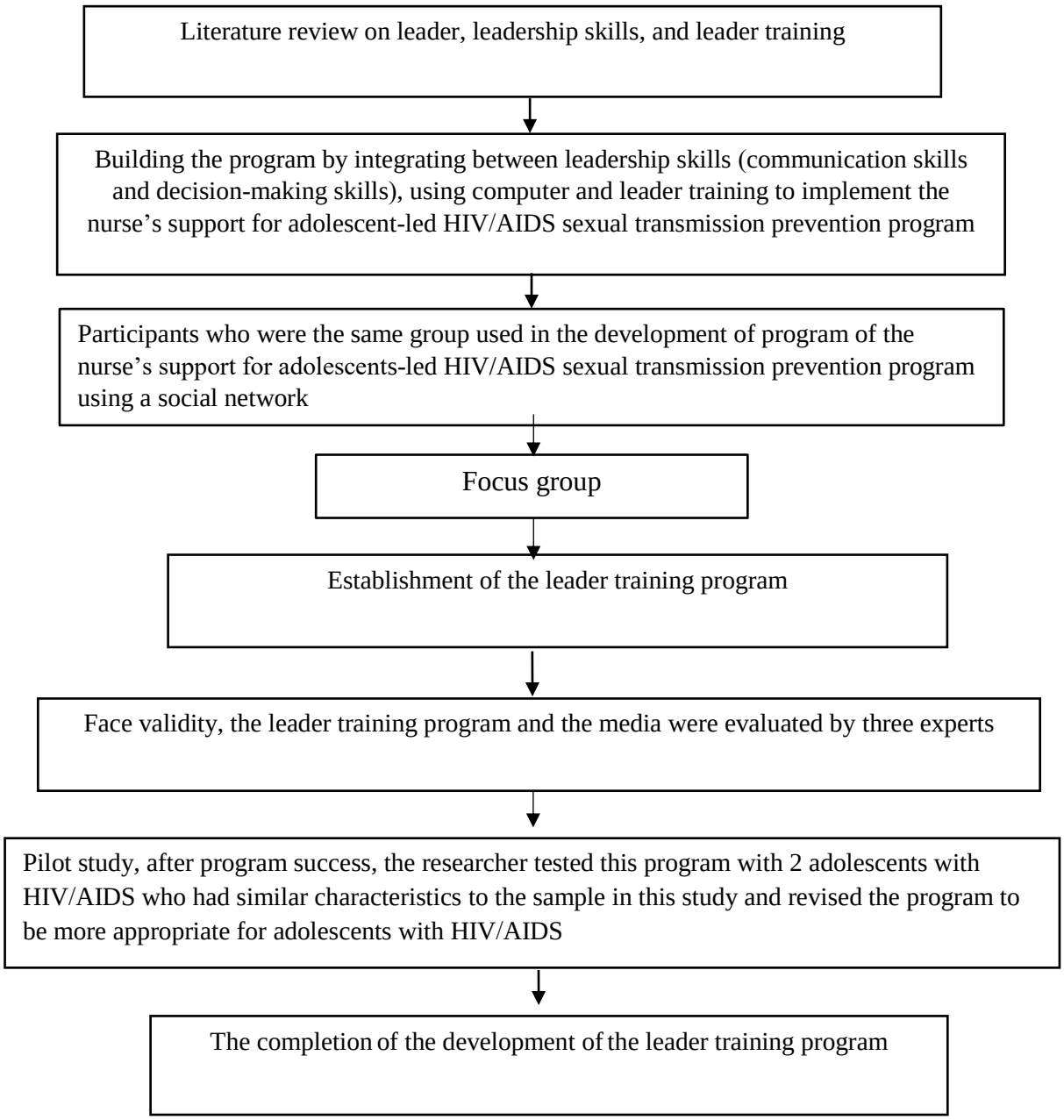

Figure 3. Development of the leader training program

Phase II: Training of adolescent leaders

Objective of the study

The objective of this study in Phase II was to train adolescents with HIV/AIDS to be effective leaders who led the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program via an online social network.

Participants

The researcher selected the same ten adolescents with HIV/AIDS who participated in the phase of program development as previously mentioned.

Instrumentation

Instrumentation was divided into two parts. The first part, instrumentation was used to evaluate before and after training in leadership skills. The second part, instrumentation was used to evaluate before and after training the adolescent leaders to implement the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program via an online social network. The details of the instrumentation are as follows.

Instrumentation for the evaluation of the leaders' skills

1. The communication skills questionnaire

The communication skills questionnaire of Mine tools Ltd (2013) was used to test for the skills to be a good communicator via a social network site. The permission of using and modifying this instrument was granted. Some items were modified by changing the answers to be specific with the study. For example, "When I write a memo, email, or other document, I give all of the background information and details I can to make sure that my message is understood" modified to "When I write a message board, post wall, inbox, or timeline, I give all of the background information and details I can to make sure that my message is understood."

It consisted of 15 items and was divided into five domains: the source-planning messages (2 items), encoding- creating a clear message (5 items), choosing the right channel (3 items), decoding- receiving and interpreting messages (4 items), and feedback (2 items). The format of this scale is a 5-point rating scale (5 = very often, 4 = often, 3 = sometimes, 2 = rarely, 1 = not at all). The total score ranges from 15 to 75. Mean scores of 15 to 35, 36 to 55, and 56 to 75 reflected poor communication skills so that they need to be trained again; good, but sometimes lack of experience in communication; and an excellent approach to communication skills, respectively. The reliability was performed with 20 adolescents with HIV/AIDS

who had the similar characteristics as the samples, yielding Cronbach's alpha coefficient of 0.89.

2. The decision-making skills questionnaire

The decision making skills questionnaire of Mine tools Ltd (2013) was used to self- evaluate the ability to be a good decision maker in this study. It consisted of 18 items and 6 domains: establishing a positive decision-making environment (4 items), generating potential solutions (3 items), evaluating the solutions (3 items), deciding (3 items), checking the decision (2 items), and communicating and implementing (3 items). The format of this scale is a 5-point rating scale (5 = very often, 4 = often, 3 = sometimes, 2 = rarely, 1 = not at all). The total score ranges from 18 to 90. Mean scores of 18 to 42, 43 to 66, and 67 to 90 reflected decision-making has not fully matured, good, and an excellent, respectively. The reliability was performed with 20 adolescents with HIV/AIDS who had the similar characteristics as the samples, yielding Cronbach's alpha coefficient of 0.88.

3. The test skill of the leadership questionnaire

The test skill of the leadership questionnaire of Mine tools Ltd (2015) was used to self-evaluate the skills to be a leader. It consisted of 18 items and 8 domains: self-confidence (2 items), positive attitude and outlook (2 items), emotional intelligence (2 items), providing a compelling vision of the future (2 items), motivating people to deliver the vision (2 items), being a good role model (2 items), managing performance effectively (2 items), and providing support and stimulation (4 items). The format of this scale is a 5-point rating scale (5= very often, 4= often, 3= sometimes, 2= rarely, 1= not at all). The total score ranges from 18 to 90. Mean scores of 18 to 34, 35 to 52, and 53 to 90 reflected leadership skill has not fully matured and the need to work hard on leadership skills; doing as a leader, but has the potential to do much better; and well done on becoming a good leader, respectively. The reliability was performed with 20 adolescents with HIV/AIDS who had the similar characteristics as the samples, yielding Cronbach's alpha coefficient of 0.81.

Instrumentation for the evaluation of adolescent leaders to implement the program

1. Demographic data questionnaire

The researcher developed the demographic data questionnaire. It consisted of gender, age (years), religious, education, occupation, source of HIV-infected, age that the child perceived that they had HIV (year), having boy/girlfriend, status of marriage, history of having sex, sexual prevention, selection method for safer sex, causes of unprotected sexual, use of social online network, frequency of using social online network, use of online networking site, device for using a social online network, type of family, marital status of parents, number of siblings, number of siblings from different mothers, number of members living in the same house, living with, family occupation, and family income (baht/month). The data were collected face-to-face by the researcher before beginning the program.

2. HIV Knowledge Questionnaire (HIV-KQ-18)

HIV knowledge questionnaire (HIV-KQ-18) of Carey and Schroder (2002) was used to determine HIV knowledge level. A self-report scale included statements on how HIV spreads and how to protect against the disease. The scale is marked as yes, no, and I do not know; 1 score means correct answers and 0 score means incorrect or I do not know answers. The total score ranges from 0 to 18. Higher scores indicate sufficient levels of knowledge at least 80% that is greater than or equal to 15. The reliability was performed with 20 adolescents with HIV/AIDS who had the similar characteristics as the samples, yielding Cronbach's alpha coefficient of 0.81.

2. Attitudes toward HIV/AIDS Preventive Acts Scale

Attitudes Toward HIV/AIDS Preventive Acts Scale of Fisher, Fisher, and Rye (1995) was used to determine subjects' attitudes toward performing specific HIV/AIDS-preventive behaviors. Subjects rate their performance of several preventive behaviors on three 5-point semantic differential scales (good to bad, nice to awful, and pleasant to unpleasant). This scale consists of 8 big items and each item having 5 scores from 5 (positive evaluation) to 1 (negative evaluation). The total score was summed to produce an attitude toward HIV/AIDS preventive behavior. The total score ranges from 96-120 scores reflecting having a positive attitude toward HIV/AIDS preventive behavior; meanwhile, a score less than 96 reflected having a negative attitude toward HIV/AIDS

preventive behavior. The reliability was performed with 20 adolescents with HIV/AIDS who had the similar characteristics as the samples, yielding Cronbach's alpha coefficient of .80.

3. The Behavioral Intentions for HIV /AIDS Prevention Questionnaire

The behavioral intentions for HIV /AIDS prevention questionnaire of Misovich, Fisher, and Fisher (1998) was used for the self-evaluation of behavioral intention to HIV/AIDS prevention regarding performing safer sexual behaviors. This scale consisted of 8 items to measure each performance of the HIV/AIDS preventive behaviors. The format of this scale is a 5-point rating scale from very likely (1) to very unlikely (5). The total score ranges from 8 to 40. Mean scores 8 to 16 reflected that the self-instruction for the likelihood of performing behavior intention is very good; however, mean scores more than 16 reflected that the self-instruction for the likelihood of performing behavior intention is poor. In this study, the researcher asked permission to modify the format of this scale. Thus, the scale was modified from very likely which was 1 to 5, somewhat likely 2 to 5, unsure 3 to 3, somewhat unlikely 4 to 2, and very unlikely 5 to 1. Mean scores greater than or equal to 32 reflected that the self-instruction for the likelihood of performing behavior intention is very good; while, mean scores less than 32 reflected that the self-instruction for the likelihood of performing behavior intention is poor. The reliability was performed with 20 adolescents with HIV/AIDS who had the similar characteristics as the samples, yielding Cronbach's alpha coefficient of .80.

4. The Perceived Effectiveness of HIV/AIDS Preventive Behaviors Scale

The perceived effectiveness HIV/AIDS preventive behaviors scale of Misovich, Fisher, and Fisher (1998) was used to evaluate perception of HIV/AIDS preventive behavior. The participant was given a hypothetical situation and he or she had to make a decision based on this situation. This scale consisted of 24 items and 4 domains: safer-sex discussion (10 items), condom accessibility (6 items), condom use during sexual intercourse (6 items), and HIV testing behavior (2 items). The format of this scale is a 5-point rating scale (5= very ineffective, 4= somewhat ineffective, 3= neither effective nor ineffective, 2= somewhat effective, 1=very effective). The total score ranges from 24 to 120. Mean scores 24 to 36 reflected the perceived effectiveness of HIV-preventive behavior as very good; however, the mean scores of more than 36 reflected the perceived effectiveness of HIV-preventive behavior as poor.

In this study, the researcher asked permission to modify the format of these scales. For reasonable interpretation of the score, the rating scales were modified from 5 to 1 = very ineffective, 4 to 2 = somewhat ineffective, 3 to 3 = neither effective nor ineffective, 2 to 4 = somewhat effective, and 1 to 5 =very effective. Mean scores greater than or equal to 96 reflected the perceived effectiveness of HIV-preventive behavior as very good; while, mean scores less than 96 reflected the perceived effectiveness of HIV-preventive behavior as poor. The reliability was performed with 20 adolescents with HIV/AIDS who had the similar characteristics as the samples, yielding Cronbach's alpha coefficient of .96.

Validity testing

Validity testing of the demographic data questionnaire and the communication skills questionnaire was performed by three experts. They were the same experts as in the phase of program development as previously mentioned. The details are as follows.

1. Face validity was used to evaluate the demographic data questionnaire. The items of this questionnaire were cleared and relevant to the objectives of the study. However, the items of the siblings to the same parents and siblings to different parents of adolescents with HIV/AIDS were added as per the experts' suggestions.

2. Content validity was used to evaluate the communication skills questionnaire because it was the only questionnaire that modified the items to fit with the program. The items in the other questionnaires were not modified. The researcher calculated the content validity index (CVI) using the equation for proportion (Lynn, 1986) which is shown as follows.

$$\text{CVI} = \frac{\text{Number of items expert agreement rated 3 or 4}}{\text{The total numbers of items}}$$

The researcher calculated the CVI of the communication skills questionnaire. The CVI that was relevant and representative would be calculated for each item by the proportion of agreement between the experts who rated the item as valid as a rating of 3 or 4. The three experts agreed on the instrument. The calculation of the CVI of the communication skills questionnaire was .95.

Reliability

The Cronbach's alpha coefficient was used to examine the internal consistency of the Thai instruments after back translation (e.g., the communication skills questionnaire, the decision making skills questionnaire, the test skills of the leadership questionnaire, the HIV knowledge questionnaire, attitudes toward HIV/AIDS preventive acts scale, the behavioral intentions for HIV/AIDS prevention questionnaire, and the perceived effectiveness of HIV/AIDS preventive behaviors scale).

The sample for testing internal consistency were 20 adolescents with HIV/AIDS who met the inclusion criteria, and had the same characteristics as the participants in this study from Maharat Nakhon Si Thammarat Hospital. After the study was approved from the Institute Review Board (IRB) of Faculty of Nursing, Prince of Sonkla University and Maharat Nakhon Si Thammarat Hospital, the researcher directly contacted the sample and explained the objectives of the study and the procedure of the data collection.

In this study, the internal consistency reliabilities of all the questionnaires mentioned above were examined using the Cronbach's alpha coefficient, and yielded 0.89, 0.88, 0.81, 0.84, 0.80, 0.80, and 0.96 respectively.

Back translation

All of the original instruments consisting of the communication skills questionnaire, the decision making skills questionnaire, the test skills of the leadership questionnaire, the HIV knowledge questionnaire (HIV-KQ-18), attitudes toward HIV/AIDS preventive acts scale, the behavioral intentions for HIV/AIDS prevention questionnaire, and the perceived effectiveness of HIV/AIDS preventive behaviors scale were translated from the English version to a Thai version using the back translation technique (Brislin, 1986). Steps of the back translation were as follows.

1. Forward translation of instrument

The original English instruments consisting of the communication skills questionnaire, the decision making skills questionnaire, the test skills of the leadership questionnaire, HIV-KQ-18, attitudes toward HIV/AIDS preventive acts scale, the behavioral intentions for HIV/AIDS prevention questionnaire, and the perceived effectiveness of HIV/AIDS preventive behaviors scale were translated into a Thai version by a nursing expert from Thailand who is fluent in both English and Thai language, and also had knowledge

on HIV/AIDS. After the translation, the researcher carefully compared and checked the instruments from the translator with an advisor.

2. A blind back-translation

The first time, the Thai version was back-translated into English by two nursing experts from Thailand who had doctoral degrees from abroad and are fluent in English and Thai language, and also had knowledge specific to HIV/AIDS. These nursing experts were blinded to the original English version. A blind back-translation of the English version ensures the meaning of the English version to reflect in the back-translated version without any prior knowledge on the content of the original instrument. Thus, there were two English versions. Next, the researcher consulted with the advisor and compared between the two versions; finally, there was one English version from the back-translated version.

3. Comparison of the original and back-translated version

One native English editor compared item by item the original and back-translated scales to evaluate their semantic equivalence such as concepts, grammar, wording, meaning, and format. The original version of all the instruments were compared with the back-translated English versions. None of the items were deleted or added. The native English editor suggested that the meaning of the word used in the test skills of the leadership questionnaire related to item 9 between the original English version (used morale) and the back-translation version (used ethics) was not similar. However, the native English editor suggested that the meaning in the sentence was good but there were some meanings of words that were wrong and he suggested to use Thai words in that item; that was “garn hai kwan gam lang jai”.

Moreover, the perceived effectiveness of HIV/AIDS preventive behaviors scale related to item 23, the meaning of the phrase in the original version (mutual masturbation) and back-translation version (self-masturbation) was not the same meaning. However, the native English editor suggested that the meaning in the sentence was good but there were some word meanings that were wrong and he suggested to use Thai words; that was “garn chuay sam-ret kwaam krai seung gan lae gan”. After that, the researcher consulted with the advisor and revised the sentences followed the native English editor’s suggestion.

Steps in training adolescent leaders

The training of adolescent leaders consisted of two steps; training in leadership skills and training the adolescent leaders to implement the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program using a social network. The details are as follows.

1. Training in leadership skills

This step was the training in leadership skills for adolescent leaders and consisted of communication skills, decision- making skills, and using a social network site. Thus, this step took two days and consisted of 8 hours for training the adolescent leaders face-to-face and be appointment 4 times (7 hours) for training via the social networking site (facebook) by the researcher. The details of each topic used in training the adolescent leaders are as follows.

1.1 Relationship activity: There was one activity to build relationships between the adolescents with HIV/AIDS and the researcher. This activity took about 45 minutes via face-to-face. The leaders introduced themselves including giving their full name and nickname and they payed attention to listen to their groups by using a story telling technique namely holding the stone. In this step, the adolescent leaders cooperated and some adolescents cried when they talked.

1.2 Encouragement of leader power: This second step, the researcher encouraged the adolescent leaders by talking and playing a game in order to pull out the potentiality of the adolescent leaders. This step took 45 minutes face-to-face. Finally, the leaders expressed their performances by writing, and speaking regarding their competency and they were proud of what they had done.

1.3 Communication skills training: This consisted of communication tactics, listening skills, and giving information skills via online. The researcher directly trained the adolescent leaders face-to-face for about 1 hour 30 minutes. The two activities regarding communication skills that the adolescent leaders needed to be trained in consisted of 1) appropriate principles of communication and 2) communication skills via an online social media. The power point was used to present the situation on communication. In this step, adolescent leaders shared and discussed about the suitable way of communication in each situation. Moreover, training of communication via the online social media was

performed by using words or sentences with adolescents and using emoticon stickers to express empathy based on the situation.

1.4 Decision making skills training: The researcher trained the adolescent leaders based on the five steps of decision making which were 1) identify the purposes of a decision 2) gather information 3) identify the principles to judge the alternatives 4) brainstorm and list different possible choices, and 5) evaluate each choice and put the decision into action. The researcher trained the adolescent leaders for approximately 1 hour face-to-face and using one activity. The activity is the title of the video 'The Choices.' There were three situations for discussion; moreover, sharing the reasons why the actor in the video decided and selected this way. If we were in this situation "what would we do?" and the reasons were shared and discussed.

1.5 Using a social networking site (Facebook): This topic was divided into two topics for training the adolescent leaders in skills training to use Facebook, which included structure, function, usability, and computer related crime Act. B.E. 2550. The other topic of training the adolescent leaders was using social media for communication via Facebook such as conducting conversations with the language of emoticons and wall posts**.** The researcher trained the adolescent leaders approximately 1 hour 30 minutes via face-to-face and a 1-hour training via Facebook. There was one activity to train the adolescent leaders in using social online, ethics in using an online social media, and the Computer-related Crime Act (No. 1) B.E. 2007.

1.6 Evaluation of leadership skills: Before and after the training, the adolescent leaders self-evaluated whether they had good communication skills, decision-making skills, and leadership skills. They self-evaluated using the three instruments for the evaluation of leadership performance: the communication skills questionnaire, the decision-making skills questionnaire, and the test skills of the leadership questionnaire (Appendix B).

2. Training the adolescent leaders to implement the nurse's support for adolescent-led HIV/AIDS sexual transmission prevention program

In this step, the researcher trained 10 adolescent leaders to implement the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program using a social network. The contents were saved on media discs and the four topics were taught. They consisted of HIV/AIDS knowledge, attitude, subjective norms

and perceived behavioral control. Therefore, the researcher taught and trained the adolescent leaders in two methods and this consisted of face-to-face training for approximately 2 hours 30 minutes and training via Facebook for 1 hour to post and drive the program by following the sequence of the program (Appendix A). The steps of training were as follows.

2.1 The researcher approached and met with the adolescents with HIV/AIDS face-to-face and made an appointment via Facebook. Next, the researcher explained the objectives of the study and the steps of implementing the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program. The steps of training were as follows;

2.1.1 The researcher trained the adolescent leaders in two games of making relationships which were 'who are you?' and 'inspiration you and me'. After the leaders had been trained in the basics of using Facebook, they were further trained how to sign up, log in, build a closed group, as well as the ethics for using online social networking. The adolescent leaders were divided into three groups and each group had 11-12 members per group.

2.1.2 Training the adolescent leaders regarding HIV/AIDS knowledge (e.g., knowledge of HIV/AIDS, opportunistic infections of HIV/AIDS, using antiretroviral drugs, and health promotion of HIV/AIDS). The researcher taught and trained the adolescent leaders to post videos and discuss with group members by following the sequence of the program (Appendix A).

2.1.3 Training the adolescent leaders regarding positive attitude adjustment using a video story. There were three sections (e.g., introduction, main story, and story conclusion), and the researcher trained the leaders to post a video story and to motivate group members to discuss and share ideas (Appendix A).

2.1.4 Training the adolescent leaders regarding subjective norms using a video story. The researcher trained the leaders to post a video story and stimulate group members to discuss and recognize the person who you are living with.

2.1.5 Training the adolescent leaders regarding perceived behavioral control (e.g., safer-sex discussion, self-protection, condom use, service accessibility, and HIV testing behavior). The researcher trained the leaders to use videos and posters with inspirational and motivational messages for members to discuss and share ideas. Moreover, the researcher

who is an advanced practice nurse directly supported, encouraged and motivated the adolescent leaders in implementing the program.

2.2 Program trial was performed by the adolescent leaders who were matched with a group. There were three groups: 3-4 adolescents per group. Each group had to practice to implement the program with a friend in their group. Then, they had to switch between pairs of leaders from leader to follower and follower to leader. Throughout all of the steps, the researcher was the supporter.

2.3 Evaluation of adolescent leaders

Before and after training, the researcher evaluated the effectiveness of the adolescent leaders using HIV-KQ-18, attitudes toward HIV/AIDS preventive acts scale, the behavioral intentions for HIV/AIDS prevention questionnaire, and the perceived effectiveness of HIV/AIDS preventive behaviors scale. The evaluation showed that the leaders had adequate HIV/AIDS knowledge, attitudes toward HIV/AIDS preventive, behavioral intentions for HIV/AIDS prevention, and perceived effectiveness of HIV/AIDS preventive behaviors. The steps of training the leaders are shown in Figure 4.

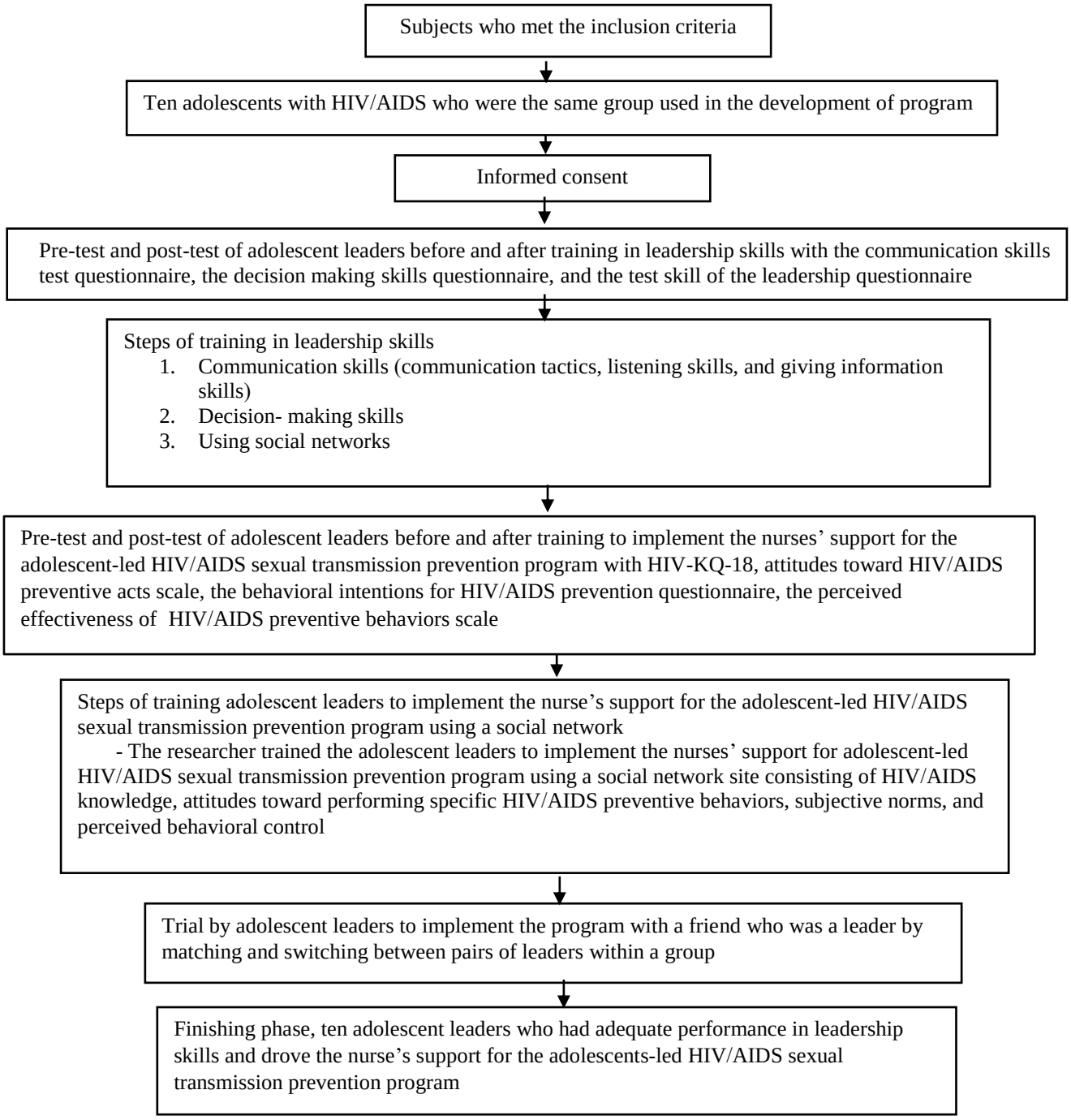

Figure 4. The training in leadership skills and training adolescent leaders to implement the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network

Data Analysis

1. Demographic data were analyzed using descriptive statistics and presented in terms of frequency, percentage, mean, and standard deviation.

2. Paired t-test was used to examine the differences of the mean scores of the communication skills, the decision making skills, the test skills of the leadership, HIV-knowledge, attitudes toward HIV/AIDS preventive acts, the behavioral intentions for HIV/AIDS prevention, and the perceived effectiveness of HIV/AIDS preventive behaviors before and after preparation for the adolescent leaders. Before analyzing the data with paired t-test, all assumptions such as normality of the data distribution with values of skewness and kurtosis less than 3.29 were tested and met (Appendix C).

Phase III: Testing of the effects of the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention for HIV/AIDS prevention and perceived effectiveness HIV/AIDS preventive behavior among adolescents with HIV/AIDS

Objective of the study

The objective of the study in Phase III was to test the effects of the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program on behavioral intention and perceived effectiveness HIV/AIDS preventive behavior among adolescents with HIV/AIDS.

Sample

The researcher used the same inclusion criteria as that used to select the seventy adolescents with HIV/AIDS who participated in the phase of program development as previously mentioned.

Sample size estimation

The sample size was estimated based on the previous study of Bulduk and Erdogan (2012) entitled 'The effects of peer education on reduction of the HIV/sexually transmitted infection risk behaviors among Turkish university students'. The effect sizes (Eta^2) were calculated with the free statistics calculators on the internet. Based on the power = .08, alpha= .05, the eta-square (Eta^2) was 0.13; thus, the sample size was 30 per group (Polit & Beck, 2004, p.499). However, to prevent sample size dropout of 10% (Srisatidnarakoon, 2010), the sample size was 35 per group. Thus, the total sample size was 70.

Sampling

The researcher recruited 102 eligible adolescents with HIV/AIDS who met the inclusion criteria. Thirty adolescents were excluded because 10 were trained to be leaders, 2 for a pilot study, and 20 for testing reliability. The rest of 70 eligible adolescents were allocated to either the experimental group (n =35) or the control group (n =35) using a simple random sampling (drawing lots of hospital numbers of adolescents with HIV/AIDS) (Figure 5).

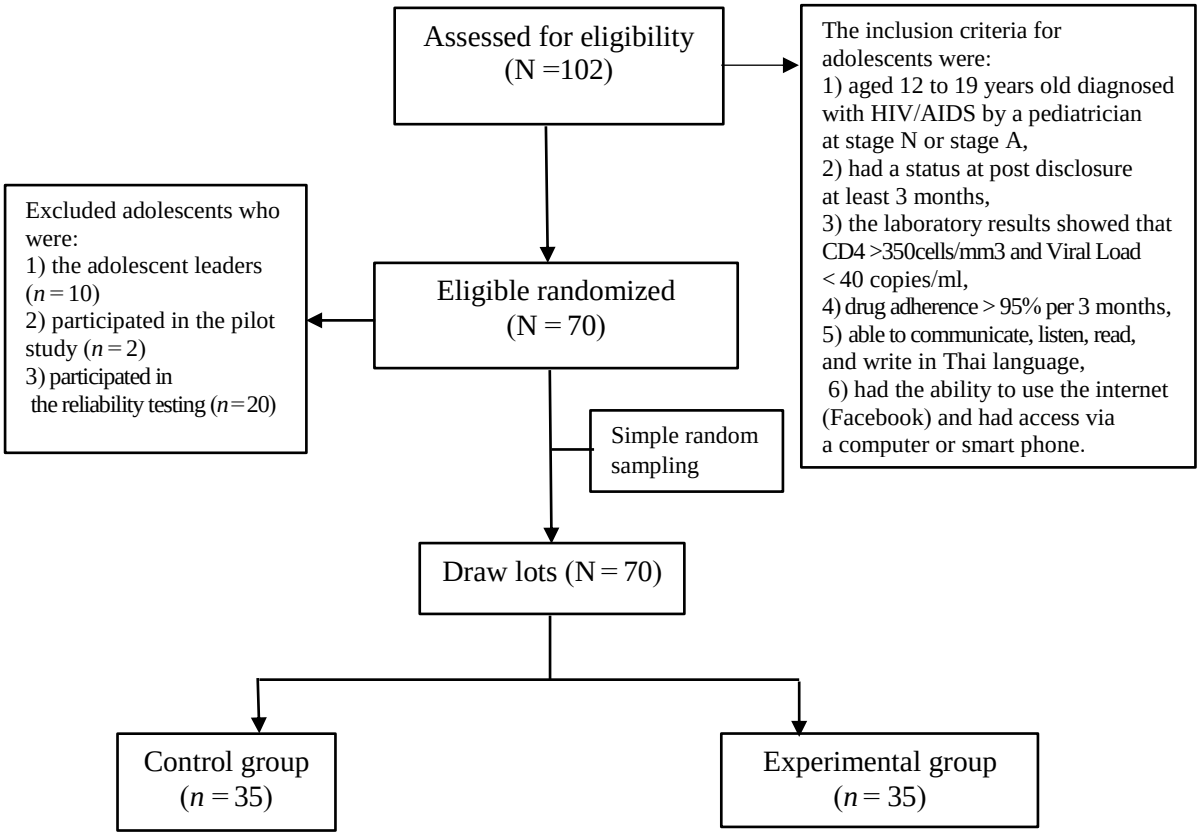

Figure 5. The diagram of sample sampling

Instrumentation

The study instruments consisted of 1) the experimental instrument, and 2) the instruments for data collection. Details of the instruments are as follows.

Experimental instrumentation

The researcher developed the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program using a social online network. As previously mentioned, this program consisted of HIV/AIDS knowledge, attitudes toward performing specific HIV/AIDS preventive behaviors, subjective norms, and perceived behavioral control (Appendix A).

Instruments for Data Collection

The instruments used for data collection consisted of 1) a demographic data questionnaire, 2) the behavioral intentions to HIV/AIDS prevention questionnaire, and 3) the perceived effectiveness for HIV/AIDS preventive behaviors scale. The details of all the instruments were previously mentioned in the phase of the leader training.

Validity and reliability testing

Face validity was validated by three experts for the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program using a social online network and a demographic data questionnaire. The Cronbach's alpha coefficient was used to examine the internal consistency of the behavioral intentions to HIV/AIDS prevention questionnaire and the perceived effectiveness for HIV/AIDS preventive behaviors scale. The details were the same as in the phase of the leader training as previously mentioned.

Data collection procedure

Data collection procedure consisted of the preparation phase and data collection phase. The details of each phase were as follows.

1. Preparation phase

1.1 The research proposal was approved by the examination dissertation committee from the Faculty of Nursing, Prince of Songkla University and approval (Reference number 0521.1.05/0778) was given by the Institutional Review Board (IRB) of Faculty of Nursing, Prince of Songkla University for the protection of human rights.

1.2 The researcher contacted and asked for a permission letter to collect the data from the Dean of Faculty of Nursing, Prince of Songkla University and submitted this to the director of Maharat Nakhon Si Thammarat Hospital, Nakhon Si Thammarat province to collect data. After receiving written permission from the hospital and approval (Reference number 23/2559) from the committee of IRB of Maharat Nakhon Si Thammarat Hospital, the researcher started to collect the data and the researcher coordinated with the research assistant to collect data in the control group only from January to May, 2017.

1.3 Before beginning data collection in the control group, the researcher contacted and trained the research assistant who is a registered nurse with a master degree. The researcher introduced the purpose of the study, explained the research assistant's responsibility, and how to check all the questionnaires returned from the adolescents. Moreover, the researcher explained how to obtain an informed consent; that was the adolescents who were 18-19 years old signed informed consent forms by themselves; whereas the adolescents who were 12-17 years old, the researcher had to seek assent consent from the adolescents and informed consent forms from the parents or caregivers of these adolescents**.**

2. Data collection

2.1 The control group

2.1.1 The researcher and research assistant met the adolescents with HIV/AIDS who agreed to participate in the study and they were assigned using a simple random sampling (drawing lots) to the control group. The researcher and research assistant introduced and explained the purpose of the study. After that, the participants gave assent and or informed consent. The research assistant collected the data (pre-test) from the participants by self-report using the demographic data questionnaire, the behavioral intentions for HIV /AIDS prevention questionnaire, and the perceived effectiveness HIV/AIDS preventive behaviors scale.

2.1.2 Adolescents in the control group received the usual care from a health care provider team in the hospital. The usual care composed of nursing care to promote safe sex, skills training (e.g., to use condoms, negotiate to delay sexual intercourse), knowledge, and HIV/AIDS transmission. Each adolescent participated in the usual care for 4 weeks.

2.1.3 The research assistant collected the data (post-test) using the behavioral intentions for HIV /AIDS prevention questionnaire, and the perceived effectiveness HIV/AIDS preventive behaviors scale after receiving the usual care at Day 15, and Day 30 of the study.

2.1.4 The data were checked for completeness from 35 adolescents.

2.2 The experimental group

2.2.1 The researcher, research assistant and adolescent leaders met the adolescents with HIV/AIDS who agreed to participate in the study and they were assigned using a simple random sampling to the experimental group at Day1. The researcher, research assistant and adolescent leaders introduced and explained the purpose of the study. The adolescents with HIV/AIDS then gave assent and/or informed consent. Next, the research assistant collected the data (pre-test) using the demographic data questionnaire, the behavioral intentions for HIV /AIDS prevention questionnaire, and the perceived effectiveness HIV/AIDS preventive behaviors scale before receiving the nurse's support for the adolescent-led sexual transmission HIV/AIDS prevention program using a social online network.

2.2.2 The researcher made an appointment with the adolescent leaders and adolescents with HIV/AIDS at the first time. The adolescent leaders were divided into three groups using draw lots, and each group had 3 to 4 leaders. Approximately 11 to 12 adolescents were randomly assigned to either groups. To prevent adolescents' dropping out, the researcher made an appointment with the adolescents on the same date that they met with their pediatricians. The researcher always supported all group members and all leaders received the materials and guideline for running the program. A commitment was made about driving the program consisting of running the program which followed the guideline systematically, the leaders could consult with the researcher via the inbox any time if they had any problems, they had to drive the program based on the guideline, and while running the program in all groups, the researcher as a nurse supported and facilitated the adolescent leaders every time. In this study, the adolescent leaders in all groups could control and follow the guideline to run the program correctly.

In fact, there were some the adolescent leaders who could not come to join in the first activity; thus, the researcher used the strategy of introducing these leaders to the adolescents via their Facebook and with permission from them.

Next, the researcher formed relationships with the adolescents based on the first activity. There were three activities in this step which took about 2 hours 30 minutes face-to-face. This started with the "Who are you?" activity, the second activity was "You are not a loser with inspiration and encourage reinforcement to do good deeds", and finally the activity via face-to-face was using an online social media (Facebook) as follows;

2.2.3 Adolescents signed up to Facebook and were added to a closed group. Facebook was used to create a closed group page for privacy, which was unable to be accessed or searched for by non-group members.

2.2.4 Adolescents were trained to use Facebook by the researcher and the adolescent leaders for 1 hour 30 minutes. Next, the adolescent leaders created three closed groups by using the name of a follower consisting of Rose, Marigold, and Jasmine. Then, they had an appointment via Facebook with the researcher who was the supporter and facilitator in all the groups. The researcher supported the adolescent leaders regarding inspiration and motivation when they had an problem while the program was running and used supportive strategies for adolescent leaders to use during the program running. During the following 2 weeks, the adolescent leaders drove the program via Facebook.

2.2.5 The adolescent leaders drove the program step by step as follows;

2.2.5.1 The first step on Day 2, the adolescent leaders began the activity of providing HIV/AIDS knowledge. There were four sub-activities consisting of learning with HIV/AIDS, opportunistic infections, antiretroviral HIV/AIDS, and health promotion which took 4 hours. Each group had an appointment to learn together and to communicate with their group by chats, messages, and group wall posts. The adolescent leaders instructed adolescents how to communicate about HIV/AIDS prevention to each other. The adolescents could talk via Facebook by following appointment times. The adolescent leaders drove this group while the researcher who is an advanced practice nurse supported all of the process.

2.2.5.2 The second step on Day 3 was the activity of adjusting positive attitude. This activity used Pala's story who was HIV-infected and there were three parts consisting of the introduction of Pala, Pala and his girlfriend's story, and the conclusion of Pala's life. This activity took approximately two hours. An example of

how the activity was conducted, the adolescent leaders posted a message that “Hello friends! Today, I have a short film about Pala’s story; are you ready? Please let’s see and pay attention”. Next, adolescent leaders up loaded the video of the introduction of Pala. It took about 10 minutes. Then, the adolescent leaders spoke with members to think, reflect and stimulate friends to express comments such as “How do you feel about Pala’s story” and “Pala’s story is different or the same as in our life.” In each step, the samples could show ideas, discuss and comment on an appropriate practice and learn with Pala’s story.

2.2.5.3 The third step on Day 4, this was the activity of subjective norms. There was one activity that was “Who is someone?” This activity used Pala and Pala’s grandma story in order to recognize of anchor mind of the adolescents with HIV/AIDS. This step took about one hour. This step used a video and group discussion. For example, the adolescent leaders posted a message. Normally, people have someone for recollection when we felt sad and gloomy; however, all people have someone who is a supporter and standing beside you. Who is this someone? Who is she/he?” Next, Pala and Pala’s grandma story was uploaded and they shared ideas and discussed Pala and Pala’s grandma story. Moreover, the comparison between an adolescent’s life and Pala and Pala’s grandma story was used for discussion. Finally, the adolescent leaders made a conclusion.

2.2.5.4 The last step on Day 5, it was the activity of perceived behavioral control. There were four sub-activities consisting of negotiation for HIV/AIDS prevention, self-prevention by delaying sexual intercourse, condoms used (male and female condom) and learning of the sources of support HIV/AIDS groups both in the private sector and government hospitals. This took about five hours. For example, the adolescent leaders posted a situation using a VDO of Kaew’s story on how to negotiate the delay of sexual intercourse. Next, the adolescent leaders led a discussion with group members. The adolescent leaders posted comments which led to the sharing of ideas about the situation portrayed by Kaew’s story. The booster program, from Day 1 to Day 5, 2 days were spent for discussions on HIV/AIDS knowledge, attitudes about HIV/AIDS and sexual transmission. Adolescent leaders who drove the program via Facebook, posted, and generated discussions about 3 times per day. At Day 3, the topics were on attitudes and perceived behavior control (e.g., condom use, negotiation,

delaying sexual intercourse using a VDO). From Day 6 to Day 10, they talked and discussed about HIV/AIDS prevention in a group member chat in which they shared ideas, methods on HIV/AIDS prevention with poster posts and positive poems by the adolescent leaders. They discussed and shared ideas about the strategies of HIV/AIDS prevention for 5 days, 3 times per day. From Day 11 to Day 14, the adolescent leaders reflected on the past and discussions again with group members on important topics. Moreover, they established commitments on HIV/AIDS preventive behaviors from the group.

In conclusion, the intervention program was performed for 14 days with 21 times per week for discussions, sharing of ideas and communication with the homogeneous group.

2.2.6 The experimental group also received the usual care from a health care provider team.

2.2.7 The behavioral intention and perceived effectiveness of HIV/AIDS preventive behaviors of the adolescents were measured after receiving the program at Day 15, and Day 30.

The process of testing the effects of the nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention and perceived effectiveness of HIV/AIDS prevention among adolescents with HIV/AIDS is summarized in Figure 6.

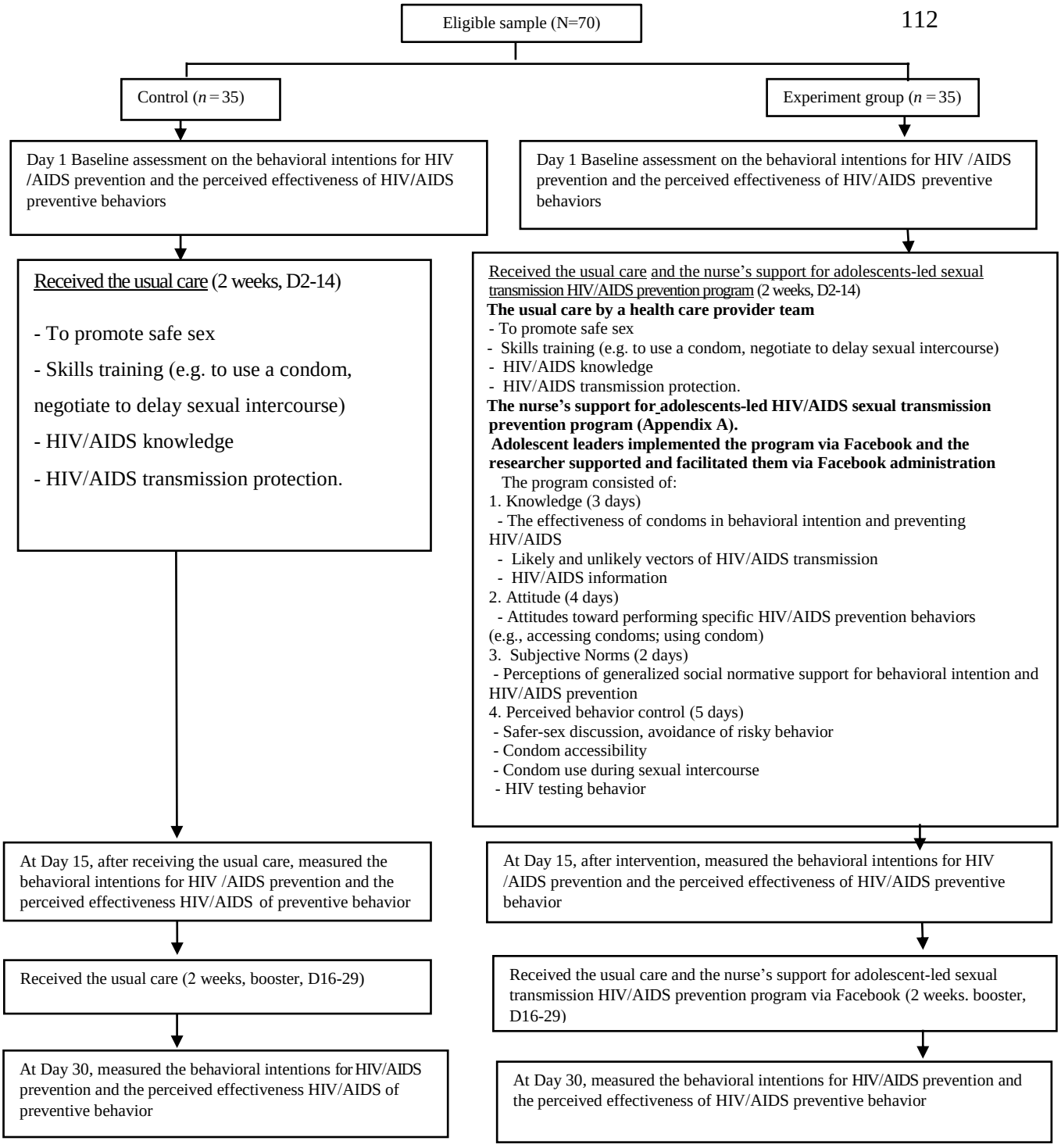

Figure 6. The process of testing the effects of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program on behavioral intentions for HIV/AIDS prevention and perceived effectiveness HIV/AIDS preventive behaviors among adolescents with HIV/AIDS

Ethical Considerations

This study was conducted after obtaining permission from the Research Ethical Committee, Faculty of Nursing, Prince of Songkla University, and Ethical Committee Review Board of Maharat Nakhorn Si Thammarat Hospital and permission was granted from the hospital and the pediatric outpatient department, Nakhon Si Thammarat province. In this study, all participants received a verbal and written explanation about the study as follows.

1. The adolescents who are 18-19 years old signed a consent form by themselves. In addition, they could withdraw from participating at any time without any negative consequences to the care being provided to them. Moreover, the researcher's contact information (telephone, address, and email) was provided to all adolescents. All of their information would be kept confidential. Especially, any results of this study would be presented in an aggregate form and for academic purposes only.

2. The adolescents who are 12-17 years old, the researcher obtained permission and a signed consent form from their parents or caregivers. The researcher protected the adolescents' privacy through anonymity by using a coding system to identify the adolescents. In addition, there were no risks in participation in the study. The anonymous-linked methodology was explained, it also guarantees that personal information would remain confidential. Informed consent was obtained. An anonymous-linked data collection was coded with a number which was applied to identify individual questionnaires for the purpose of data management, which allowed us to emphasize the confidential nature of the data collection. Only the researcher had access to the data.

3. Phase of testing the program via Facebook, this step had to follow ethical social media in order to design a safeguard for the adolescents in the social network and to protect the long-term viability of the network research. Confidentiality and privacy are central challenges on Facebook with concerns of viewing private information, hacking, and changing privacy rules. In this phase, the researcher consulted with a technician and a lawyer about using information technology correctly in order to protect against computer crime so that strategies based on an act of legislation on using a computer were in place to protect against any problems. Moreover, strategies to protect against the hacking of data included setting up a password protected firewall to protect

against spyware**.** Not only did the researcher have to protect the program based on informational technology of law but also had to manage strategies on Facebook in order to keep privacy secure for the adolescents**.**

Data Analysis

Data management

The researcher performed all data management including identifying and correcting errors, coding, data entry, data cleaning, and data missing. The researcher checked all data and errors after each data collection.

Then, all completed questionnaires (n=35 per group) were coded and entered into a computer. The Statistical Packages for Social Science (SPSS) for windows software package, version 22 was used for data processing and data analysis.

Data screening and testing assumptions

The researcher screened the completeness and accuracy of the data, and prepared demographic information on the groups. The data was checked for missing values, out-of-range data, and data accuracy with descriptive statistics. The data were analyzed using SPSS. Univariate assumptions of dependent variable data were analyzed for normality and homogeneity of variance.

Descriptive statistics such as frequency, percentages, mean, and standard deviation were computed to summarize the data. Differences between groups were assessed using chi-square and independent t-test. Testing of assumptions for t-test, and repeated measures univariate analysis of variance (ANOVA) were carried out before proceeding with the hypothesis testing.

Normal distribution of the data was checked using skewness and kurtosis values (Munro, 2001). The results showed that all dependent variables in the control group met the assumption of normality of the data distribution with values of skewness and kurtosis less than 3.29 (see Table 16 Appendix C). In the experimental group, all data met the assumption of normality of data distribution except the means of behavioral intention for HIV/AIDS prevention measured at Day 15, perceived effectiveness of HIV/AIDS preventive behavior measured at baseline and at Day 15. To manage the data of these three variables, 8 outliers were omitted for perceived effectiveness of HIV/AIDS preventive

behavior at the baseline and 14 outliers were omitted for perceived effectiveness of HIV/AIDS preventive behavior at Day 15. For behavioral intention for HIV/AIDS prevention measured at Day 15, the data still showed non-normal distribution after deleting 14 outliers. Further deleting of outliers could not be performed because only two different scores were left. Thus, in this study, non-parametric statistics including a Friedman-test, a Wilcoxon Matched Pairs Signed Rank test, and a Mann-Whitney U-test were chosen for data analysis as follows**.**

1. Descriptive statistics and Chi-square analysis were used to determine differences in demographic data, including gender, religion, education, occupation, source of HIV-infection, having boy/girlfriend, status of marriage, history of having sex, sexual prevention, method for selection for safer sex, causes of unprotected sex, use of social online network, frequency of using social online network, use of online networking site, device for using a social online network, types of family, family marital status, number of siblings, number of siblings from different mothers, number of members living in the same house, living with, family occupation, and family income (baht/month).

2. T-test was used to determine differences in age (years), and age of the adolescents when perceived they had HIV (years) because normality assumption was checked using skewness and kurtosis statistics were inspected for the value of ±3.29 (Munro, 2001).

3. The mean ranks of the dependent variables of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS after receiving the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network at baseline, Day 15, and Day 30 within the control and experimental groups were compared using a Friedman-test and a post hoc test was performed using a Wilcoxon Matched Pairs Signed Rank test.

4. The mean ranks of the dependent variables of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS between who received the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network and those who did not receive the nurse's support for the adolescents-led

HIV/AIDS prevention program using a social network at baseline, Day 15, and Day 30 were compared using a Mann-Whitney U-test.

CHAPTER 4
RESULT AND DISCUSSION

The purpose of this study was to examine the effects of the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS. The research findings are divided into three parts and presented as follows:

Part I Results of program development

1. The nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network

2. The leader training program

Part II Results of the leader training program

1. Demographic characteristics of the adolescent leaders

2. The effectiveness of trained leaders

    2.1 The evaluation of leader skills

    2.2 The evaluation of adolescent leaders to implement the program

Part III Results of the effects of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior

1. Demographic characteristics of the adolescents with HIV/AIDS

2. The effects of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention for HIV/AIDS prevention among adolescents with HIV/AIDS measured at baseline, Day 15, and Day 30 within and between the control and experimental groups

3. The effects of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network on perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS measured at baseline, Day 15, and Day 30 within and between the control and experimental groups

Part I Results of program development

1. The nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network

The core contents of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network were developed based on the contents of focus group, literature reviews of HIV/AIDS of sexual transmission prevention, social development of adolescents, TPB theory, the uses and gratification theory, and online social networking site. Three experts agreed that the contents of the program were clear, and relevant and consistent with the objectives of the study. However, some details were added to the program based on suggestions from the experts such as the part of knowledge (e.g., treatment, drugs, and blood testing), the role of the nurse's support (e.g., identified in the nurse's support in each step of the activities), and identifying the time for meeting face-to-face with the group. The major contents of the program consisted of 5 topics and 13 subtopics (Table 1). The details of this program are shown in Appendix A.

Table 1

The core contents of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network

Topics	Subtopics
1. Building relationships and trust	1. Who are you? "To achieve building relationships and trust between the researcher, adolescent leaders, and adolescents with HIV/AIDS" 2. Uncompromising and Encouraging "To inspire and reinforce courage to do good things for adolescents with HIV/AIDS" "To improve computer skills and using a social network (Facebook)" 3. Learning and using an online social network "To improve computer skills and using a social network (Facebook)"

Table 1 (continued)

Topics	Subtopics
2. HIV/AIDS knowledge	1. Learning about HIV/AIDS disease 2. Learning about the opportunistic infections 3. Learning about antiretroviral HIV/AIDS 4. Learning about health promotion
3. Positive attitude	1. Learning to have a positive attitude with Plala's story
4. Subjective norms	1. When you have HIV-infection, who is the one to support you?
5. Perceived behavioral control	1. Negogiation in order to reduce the problem of unsafe sex 2. Learning about self-protection 3. Learning about and using male and female condoms 4. Learning how to access the HIV/AIDS services.

2. The leader training program

The core contents of the leader training program were developed based on the leader skills of decision making skills and communication skills. The core contents of the leader training program consisted of 6 topics and 11 subtopics (Table 2). The details of this program are shown in Appendix A.

Table 2

The core contents of the leader training program

Topics	Subtopics
1. Building relationships and trust	1. Know me, know you by listening carefully without judgment
2. Encouragement of leader power	2. I am a superman' in that adolescent leaders recognize their own potential and their hidden leadership abilities.
3. Communication skills	1. Learning and increasing skills of communication 2. Learning skills of communication via an online network
4. Decision making skills	1. Learning and increasing critical decision making by using the short movie "The choice"
5. The use of computer, an online social network, and ethical considerations of social networking site	1. Gaining knowledge, ethics of social networking sites, and using an appropriate social networking site online 2. Cultivation on awareness and responsibility to use an online social network
6. The training in the implementation of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network	1. HIV/AIDS knowledge 2. Positive attitude 3. Subjective norms 4. Perceived behavioral control

Part II Results of the leader training program

1. Demographic characteristics of the adolescent leaders

Ten adolescents were trained to be leaders. Half of them were male. The average age was 15.80 years old (*SD* = 1.75). All of them were Buddhist and students. Eight of them were studying at high school level. All of them had been infected with HIV from their mothers. Therefore, the average age perceived that they had HIV infection was 10.40 years (*SD* = 1.51). All of them had boyfriends or girlfriends. None of them were married. Half of them had a history of having sex and out of the half who had a history

of having sex 4 of these adolescents had had unprotected sex or had not practised safe sex. In terms of the selection for safe sex, all of them selected a male condom as a method for safer sex. In terms of causes of not using any form of protection during sex, half of the adolescents reported that they were afraid that their partners would know that they had HIV infection and the other half disliked to using safe sex protection methods. All of them used online social networking and they used this every day. Six of them used Facebook and a smart phone. The rest of the adolescents used Line and Facebook, and both a smartphone and notebook. Half of the adolescents came from a single family. Four of the families of adolescent leaders were married, two families were divorced and two had died. Each of four of families had no siblings and six families had two siblings. Five of the families of adolescent leaders had siblings from the same mother and had more than three siblings living in the same house. They lived with their parents (three adolescents), mother (two adolescents), and each one lived with father, grandfather, grandmother, cousin, and both grandfather and grandmother. Four and three of adolescent leaders' families were self-employees and agriculturist. Four of the families of adolescent leaders had a family income equal to 0-7,500 baht per month and another four families had 7,501-18,000 baht per month income (Table 3).

Table 3

Frequency, mean (M), and standard deviation (SD) of adolescent leaders and their families identified by demographic characteristics (N =10)

Demographic Characteristics	Frequency
Demographic characteristics of adolescent leaders	
Gender	
Male	5
Female	5
Age (years)	$M \pm SD = 15.80 \pm 1.75$
Religion	
Buddhist	10
Education	
Primary School	2
High School	8
Occupation	
Student	10
Source of HIV-infection	
Mother to child	10
Age of child when perceived that they had HIV (years)	$M \pm SD = 10.40 \pm 1.51$
Having boy/girlfriend	
Yes	10
Status of marriage	
No	10
History of having sex	
Yes	5
No	5
Use of sexual prevention (only the ones who had sex)	
Yes	1
No	4

Table 3 (continued)

Demographic Characteristics	Frequency
Selection method for safe sex	
Male condom	10
Causes of unprotected sex	
Afraid that partner will know	5
Dislike	5
Use of social network site online	
Yes	10
Frequency of using social network site online	
Every day	10
Types of online networking site use	
Facebook	6
Line and Facebook	4
Device for accessing social network site online	
Smartphone	6
Smartphone and notebook	4
Demographic characteristics of families of adolescent leaders	
Types of family	
Single family	5
Extended family	5
Marital status of families	
Married	4
Divorced	2
Widowed	1
Separated	1
Death	2
Number of siblings	
0	4
1	2
2	4

Table 3 (continued)

Demographic Characteristics	Frequency
Number siblings from different mother	
0	5
1	2
2	1
More than 2	2
Number of members living in the same house	
1	1
3	4
More than 3	5
Living with	
Mother	2
Father	1
Grandfather	1
Grandmother	1
Cousin	1
Both grandfather/mother	1
Parents	3
Family occupation	
Agriculture	3
Self-employed	4
Seller	2
Government officer	1
Family income (baht/month) (SES : Standardization of Socio-Economic Status Classification)	
0-7,500	4
7,501-18,000	4
18,001-24,000	2

2. The effectiveness of trained leaders

Ten adolescent leaders were trained as a leader to further provide a program to adolescents with HIV/AIDS in this study. The effectiveness of the trained leaders was evaluated and presented in two parts: 1) leader skills, and 2) program implementation skills. The details are as follows.

2.1 The evaluation of leader skills of the adolescent leaders

The mean scores of the communication skills, the decision making skills, and leadership skills of adolescents after training (posttest) were higher than those of before training (pretest) ($p < .001$). All leadership skills of the adolescent leaders before training did not pass the cutoff point of each skill. However, after training, all the adolescents had excellent leader skills (Table 4).

2.2 The evaluation of program implementation skills of adolescent leaders

The mean scores of attitude toward HIV/AIDS prevention, HIV knowledge, behavioral intention for HIV/AIDS prevention, and perceived effectiveness of HIV/AIDS preventive behavior after training (posttest) were higher than those of before training (pretest) ($p < .001$). All program implementation skills of the adolescent leaders before training did not pass the cutoff point of each skill. However, after training, all adolescents had effective program implementation skills (Table 5).

Table 4

Minimum (Min), maximum (Max), mean (M), standard deviation (SD), comparisons of mean scores of communication skills, decision-making skills, and leadership skills before and after training and interpretation of effective leaders (N =10)

Topic	Min	Max	*M*	*SD*	*t*	*p*	Effective Leader	
							Cutoff point score	Interpretation
Communication skills								
pretest	23	55	43.30	10.21	-5.42	.000**	≥56	Poor
posttest	56	68	61.40	5.04			(Mine tools Ltd, 2013)	Excellent
Decision-making skills								
pretest	46	60	54.30	4.19	-10.72	.000**	≥67	Not fully matured
posttest	67	80	73.70	4.52			(Mine tools Ltd, 2013)	Excellent
Leadership skills								
pretest	41	52	48.60	4.67	-5.19	.001**	≥53	Not fully matured
posttest	57	85	68.50	10.11			(Mine tools Ltd, 2013)	Well done

Note. ** $p < .001$

Table 5

Minimum (Min), maximum (Max), mean (M), standard deviation (SD), comparisons of mean scores of attitudes toward HIV/AIDS prevention, HIV knowledge, behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior of adolescent leaders before and after training and interpretation of effective leaders (N =10)

Topic	Min	Max	*M*	*SD*	*t*	*p*	Effective Leader	
							Cutoff point score	Interpretation
Attitude toward HIV/AIDS prevention								
pretest	60	77	70.80	5.53	-11.80	.000**	≥96 (Fisher, Fisher, & Rye ,1995)	Negative
posttest	96	112	102.60	6.11				Positive
HIV knowledge								
pretest	3	14	8.40	4.35	-6.63	.000**	≥15 (Carey & Schroder, 2002)	Insufficient
posttest	15	18	16.80	1.03				Sufficient
Behavioral intention for HIV/AIDS prevention								
pretest	12	29	17.80	5.77	-8.81	.000**	≥32 (Misovich, Fisher, & Fisher, 1998)	Poor
posttest	32	38	33.70	2.11				Very good
Perceived effectiveness of HIV/AIDS preventive behavior								
pretest	32	81	51.00	13.53	-12.06	.000**	≥96 (Misovich, Fisher, & Fisher, 1998)	Poor
posttest	96	102	98.40	2.07				Very good

Note. ** $p < .001$

Part III Results of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior

Before performing data analysis, the assumptions of ANOVA and t-test were tested. Normal distribution of the data was checked using skewness and kurtosis values (Munro, 2001). The results showed that all dependent variables in the control group met the assumption of normality of the data distribution with values of skewness and kurtosis less than 3.29 (Table 15, Appendix C). In the experimental group, all data met the assumption of normality of data distribution except the means of behavioral intention for HIV/AIDS prevention measured at Day 15, perceived effectiveness of HIV/AIDS preventive behavior measured at the baseline and at Day 15. To manage the data of these three variables, 8 outliers were omitted for perceived effectiveness of HIV/AIDS preventive behavior at the baseline and 14 outliers were omitted for perceived effectiveness of HIV/AIDS preventive behavior at Day 15. For behavioral intention for HIV/AIDS prevention measured at Day 15, the data still showed non-normal distribution after deleting 14 outliers. Further deletion of outliers could not be performed because only two different scores were left. Thus, in this study, the non-parametric statistics including a Friedman-test, a Wilcoxon Matched Pairs Signed Rank test, and a Mann-Whitney U-test were chosen for data analysis. The results are as follows.

1. Demographic characteristics of the adolescents with HIV/AIDS

There were no significant differences in the adolescent characteristics between the control and experimental groups except having boy/girlfriend (Table 6). Most adolescents in the control group were male (60%) whereas that of the experimental group were female (57.1%).The mean of age in the control group was 16 years old (SD = 0.85) whereas that of the experimental group was 15.74 years old (SD = 1.95). Most of the adolescents in both groups were Buddhist and students. The education of most of the adolescents in the control group was junior high school (51.4%) whereas those of the experimental group were junior high school (37.1%) and senior high school (37.1%). All adolescents in both groups had received HIV from their mothers. The age of the adolescents in both groups when they perceived that they had HIV was approximately 9 years old. Most of the adolescents in both groups had no boy/girlfriend.

Almost all of the participants in the control group and all of the experimental group were not marry. Most of them in both groups had never had sex and for the ones who had had sex, all of them had sexual prevention. The reasons for not using any form of protection during sexual intercourse for both groups was that they were afraid that their partners would know that they had HIV/AIDS. In terms of the method of choice for safe sex, all of them selected the male condom for safe sex. All of the adolescents in both groups used a social network site online and most of them used this every day. Most of the participants in both groups used Facebook and a smartphone. Adolescents with HIV/AIDS in the control group came from a single family (34.3%) whereas the adolescents with HIV/AIDS in the experimental group came from an extended family (45.7%). The marital status of the parents of the adolescents with HIV/AIDS in the control group were widowed (31.4%) whereas in the experimental group this was married (40.0%). The number of siblings in the control group was two siblings (40.0%) whereas in the experimental group this was none (57.1%). Both groups had more than 3 members living in the same house. Adolescents with HIV/AIDS in the control group lived with their mother (23%) whereas the experimental group lived with their parents (20%). The family occupation in the control group was agriculture (42.9%) whereas that of the experimental group was self-employed (48.6%). Most of the participants in both groups came from families with low income (0-7,500 baht per month).

Table 6

Frequency, percentage, chi-square, and t-test results of adolescents with HIV/AIDS in the control and experimental groups identified by demographic characteristics (N=70)

Demographic Characteristics	Control group (n = 35)		Experimental group (n = 35)		χ^2	t	p
	n	%	n	%			
Demographic characteristics of adolescents with HIV/AIDS							
Gender							
Male	21	60.0	15	42.9	2.06	-	.151
Female	14	40.0	20	57.1			
Age (years)	$M \pm SD$ = 16.00 ± 0.85		$M \pm SD$ = 15.74 ± 1.95			0.57	.573
Religion[a]							
Buddhist	33	94.3	32	91.4	0.00	-	1.00
Muslim	2	5.7	3	8.6			
Education[b]							
Primary school	4	11.4	6	17.2	5.39	-	.146
Junior high school	18	51.4	13	37.1			
Senior high school	6	17.2	13	37.1			
Other	7	20.0	3	8.6			
Occupation[a]							
Student	35	100	33	94.3	0.52	-	.473
No occupation	0	0	2	5.7			
Source of HIV-infection							
Mother to child	35	100	35	100	-	-	-
Age of child when perceived that they had HIV (years)	$M \pm SD$ = 9.37 ± 2.97		$M \pm SD$ = 9.63 ± 2.22			-0.41	.683

Note. [a] = Yates' Continuity correction, [b] = Fisher's exact test, $^{*}p < .05$

Table 6 (continued)

Demographic Characteristics	Control group (n = 35)		Experimental group (n = 35)		χ^2	t	p
	n	%	n	%			
Having boy/girlfriend							
Yes	8	22.9	17	48.6	5.04	-	.025*
No	27	77.1	18	51.4			
Status of marriage[a]							
Yes	1	2.9	0	0	0.00	-	1.000
No	34	97.1	35	100			
History of having sex							
Yes	7	20.0	11	31.4	1.20	-	.274
No	28	80.0	24	68.6			
Sexual prevention (only the ones who had sex)							
Yes	7	100	11	100	-	-	-
Selected method for safe sex							
Male condom	35	100	35	100	-	-	-
Reasons for unprotected sex[b]							
Partner does not want to use preventive measures	1	2.9	0	00.0	2.83	-	.243
Afraid that partner will know	25	71.4	21	60.0			
Dislike	9	25.7	14	40.0			
Use of social network site online							
Yes	35	100	35	100	-	-	-
Frequency of using social network site online[b]							
Every day	16	45.7	22	62.9	6.92	-	.075
Every other day	4	11.4	5	14.3			
Once a week	15	42.9	6	17.1			
Once a month	0	0.00	2	5.7			

Note. [a] = Yates' Continuity correction, [b] = Fisher's exact test, *p < .05

Table 6 (continued)

Demographic Characteristics	Control group (n = 35)		Experimental group (n = 35)		χ^2	t	p
	n	%	n	%			
Types of online networking site use[b]							
Facebook	20	57.1	24	68.5	2.79	-	.425
Line	3	8.6	1	2.9			
Instagram	0	0.0	1	2.9			
Line and Facebook	12	34.3	9	25.7			
Device for accessing social network site online[b]							
Smartphone	24	68.6	29	82.8	4.27	-	.234
Notebook	2	5.7	0	0.0			
Computer pc	2	5.7	3	8.6			
Smartphone and notebook	7	20.0	3	8.6			
Demographic characteristics of families of adolescents with HIV/AIDS							
Types of family							
Single family	12	34.3	15	42.9	4.17	-	.124
Extended family	12	34.3	16	45.7			
Other	11	31.4	4	11.4			
Marital status of family[b]							
Married	6	17.1	14	40.0	9.12	-	.105
Divorced	2	5.8	4	11.4			
Widowed	11	31.4	3	8.6			
Separated	6	17.1	7	20.0			
Not married	9	25.7	6	17.1			
Death	1	2.9	1	2.9			
Number of siblings[b]							
0	12	34.3	20	57.1	5.33	-	.149
1	4	11.4	4	11.4			
2	14	40.0	10	28.6			
More than 2	5	14.3	1	2.9			

Note. [a] = Yates' Continuity correction, [b] = Fisher's exact test, $*p < .05$

Table 6 (continued)

Demographic Characteristics	Control group (n = 35)		Experimental group (n = 35)		χ^2	t	p
	n	%	n	%			
Number of members living in the same house[b]							
1	0	0.0	2	5.7	4.24	-	.236
2	2	5.7	0	0.0			
3	16	45.7	14	40.0			
More than 3	17	48.6	19	54.3			
Living with[b]							
Monk	0	0.0	1	2.9	15.22	-	.085
Mother	8	23.0	6	17.1			
Father	6	17.1	3	8.6			
Grandfather	4	11.4	2	5.7			
Grandmother	7	20.0	4	11.4			
Cousin	4	11.4	5	14.3			
Both grandfather/mother	2	5.7	6	17.1			
Brother	4	11.4	1	2.9			
Parents	0	0.0	7	20.0			
Family occupation[b]							
Agriculture	15	42.9	10	28.6	8.35	-	.080
Self-employed	9	25.7	17	48.6			
Seller	2	5.7	5	14.3			
No job	8	22.9	2	5.7			
Government officer	1	2.8	1	2.8			
Family income (baht/month) (SES : Standardization of Socio-Economic Status classification)[b]							
0-7,500	31	88.6	23	65.7	5.84	-	.054
7,501-18,000	2	5.7	9	25.7			
18,001-24,000	2	5.7	3	8.6			

Note. [a] = Yates' Continuity correction, [b] = Fisher's exact test, $^{*}p < .05$

2. The effects of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention for HIV/AIDS prevention among adolescents with HIV/AIDS measured at baseline, Day 15, and Day 30 within and between the control and experimental groups

1) Comparisons of the overall mean ranks of behavioral intention for HIV/AIDS prevention among adolescents with HIV/AIDS in the control group measured at baseline, Day 15 and Day 30

Friedman's test revealed that there were no significant differences of the overall mean ranks of behavioral intention for HIV/AIDS prevention at baseline, Day 15, and Day 30 in the control group ($\chi 2 = 3.46$, $p > .05$) (Table 7). Thus, it was not necessary to further perform a post hoc analysis.

Table 7

Friedman's Test comparison on overall mean ranks of behavioral intention for HIV/AIDS prevention at baseline, Day 15 and Day 30 in the control group

Time	Control group ($n = 35$)			
	Mean Rank	χ^2	*df*	*p*
baseline	2.20	3.46	2	.178
Day 15	1.77			
Day 30	2.03			

2) Comparisons of the overall mean ranks of behavioral intention for HIV/AIDS prevention among adolescents with HIV/AIDS in the experimental group measured at baseline, Day 15 and Day 30.

Friedman's test showed that there were significant differences in the overall mean ranks of behavioral intention for HIV/AIDS prevention at baseline, Day 15, and Day 30 in the experimental group ($\chi 2 = 51.87$, $p < .001$) (Table 8). Wilcoxon Matched Pairs Signed Rank test revealed that there were significant differences of mean ranks of behavioral intention for HIV/AIDS prevention between baseline and Day 15 ($Z = -5.04$, $p < .001$), baseline and Day 30 ($Z = -5.14$, $p < .001$), and Day 15 and Day 30 ($Z = -2.31$, $p < .01$) (Table 9).

Table 8

Friedman's Test comparison on overall mean ranks of behavioral intention for HIV/AIDS prevention at baseline, Day 15 and Day 30 in the experimental group

Time	Experimental group (n = 35)			
	Mean Rank	χ^2	*df*	*p*
baseline	1.09	51.87	2	.000**
Day 15	2.26			
Day 30	2.66			

Note. ** $p < .001$

Table 9

Wilcoxon Matched Pair Signed Rank Test on mean ranks of behavioral intention for HIV/AIDS prevention at baseline, Day 15 and Day 30 in the experimental group

Time	Experimental Group (n = 35)	
	Z-value	*p (1-tailed)*
baseline * Day 15	-5.04	.000**
baseline * Day 30	-5.14	.000**
Day 15 * Day 30	-2.31	.01*

Note. * $p < .01$; ** $p < .001$

3) Comparisons of the mean ranks of behavioral intention for HIV/AIDS prevention among adolescents with HIV/AIDS between the control and experimental groups at baseline, Day 15 and Day 30.

Mann-Whitney U-test revealed that there were significant differences of mean ranks of behavioral intention for HIV/AIDS prevention measured at Day 15 and Day 30 between the control and experimental groups (Z = -5.14, $p < .001$; Z = -5.77, $p < .001$, respectively). In contrast, there was no significant differences in the mean ranks of behavioral intention for HIV/AIDS prevention measured at the baseline between the control and experimental groups (Z = -0.77, $p > .05$) (Table 10).

Table 10

Mann-Whitney U-test on mean ranks of behavioral intention for HIV/AIDS prevention between the control group and experimental group at baseline, Day 15, and Day 30 (N=70)

Time	Control group (n = 35)		Experimental group (n = 35)		Mann-Whitney U- test	Z	p
	Mean Rank	Sum of Ranks	Mean Rank	Sum of Ranks			
baseline	37.37	1308.00	33.63	1177.00	547.00	-0.77	.221
Day 15	23.14	810.00	47.86	1675.00	180.00	-5.14	.000**
Day 30	21.57	755.00	49.43	1730.00	125.00	-5.77	.000**

Note. $^{**}p < .001$

3. The effects of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network on perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS measured at baseline, Day 15, and Day 30 within and between the control and experimental groups

1) Comparisons of the overall mean ranks of perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS measured in the control group at baseline, Day 15 and Day 30.

Friedman's test revealed that there were no significant differences of overall mean ranks of perceived effectiveness of HIV/AIDS preventive behavior at baseline, Day 15, and Day 30 in the control group ($\chi 2 = 0.26$, $p > .05$) (Table 11). Thus, it was not necessary to further perform a post hoc analysis.

Table 11

Friedman's Test comparison on overall mean ranks of perceived effectiveness of HIV/AIDS preventive behavior at baseline, Day 15, and Day 30 in the control group

Time	Control group (n = 35)			
	Mean Rank	χ^2	*df*	*p*
baseline	2.00	0.26	2	.879
Day 15	2.06			
Day 30	1.94			

2) Comparisons of the overall mean ranks of perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS measured in the experimental group at baseline, Day 15 and Day 30.

Friedman's test showed that there were significant differences in the overall mean ranks of perceived effectiveness of HIV/AIDS preventive behavior at baseline, Day 15, and Day 30 in the experimental group ($\chi2 = 33.31$, $p < .001$) (Table 12). Wilcoxon Matched Pairs Signed Rank test revealed that there were significant differences of mean ranks of perceived effectiveness of HIV/AIDS preventive behavior between the baseline and Day 15 ($Z = -4.72$, $p < .001$), and the baseline and Day 30 ($Z = -4.66$, $p < .001$). However, Wilcoxon Matched Pairs Signed Rank test showed that there was no significant differences in the mean ranks of perceived effectiveness of HIV/AIDS preventive behavior between Day 15 and Day 30 ($Z = -0.62$, $p > .05$) (Table 13).

Table 12

Friedman's Test comparison on overall mean ranks of perceived effectiveness of HIV/AIDS preventive behavior at baseline, Day 15 and Day 30 in the experimental group

Time	Experimental group (n = 35)			
	Mean Rank	χ^2	*df*	*p*
baseline	1.26	33.31	2	.000**
Day 15	2.34			
Day 30	2.40			

Note. ** $p < .001$

Table 13

Wilcoxon Matched Pair Signed Rank Test on mean ranks of perceived effectiveness of HIV/AIDS preventive behavior at baseline, Day 15 and Day 30 in the experimental group

Time	Experimental Group (n = 35)	
	Z-value	*p (1-tailed)*
baseline * Day 15	-4.72	.000**
baseline * Day 30	-4.66	.000**
Day 15 * Day 30	-0.62	.269

Note. ** $p < .001$

3) Comparisons of the mean ranks of perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS between the control and experimental groups at baseline, Day 15 and Day 30.

Mann-Whitney U-test revealed that there were significant differences in the mean ranks of perceived effectiveness of HIV/AIDS preventive behavior measured at Day 15 and Day 30 between the control and experimental groups (Z = -5.40, $p < .001$; Z = - 4.35, $p < .001$, respectively). On the other hand, there was no significant difference in the mean ranks of perceived effectiveness of HIV/AIDS preventive behavior measured at the baseline between the control and experimental groups (Z = -0.15, $p > .05$) (Table 14).

Table 14

Mann-Whitney U-test on mean ranks of perceived effectiveness of HIV/AIDS preventive behavior between the control and experimental groups at baseline, Day 15, and Day 30 (N=70)

Time	Control group (n = 35)		Experimental group (n = 35)		Mann-Whitney U- test	*Z*	*p*
	Mean Rank	Sum of Ranks	Mean Rank	Sum of Ranks			
baseline	35.14	1230.00	35.86	1255.00	600.00	-0.15	.442
Day 15	22.40	784.00	48.60	1701.00	154.00	-5.40	.000**
Day 30	24.97	874.00	46.03	1611.00	244.00	-4.35	.000**

Note. ** $p < .001$

Discussion

The aim of this study was to evaluate the effects of the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior. The dependent variables of this study were measured at Day 15 and Day 30. All hypotheses were stated and discussed as follows.

1. Demographic characteristic data

This study revealed that there were no significant differences of the adolescent characteristics between the control and experimental groups except for the item "having boy/girlfriend" ($\chi^2 = 5.04$, $p = .025$).

Most adolescents in the control group were male (60%) whereas those of the experimental group were female (57.1%). The mean age in the control group was 16 years old ($SD = 0.85$) whereas that of the experimental group was 15.74 years old ($SD = 1.95$). Thus, in this study, the average age of the adolescents with HIV/AIDS was 16 years. This is similar to WHO (2015), in that the ages of the adolescents were 10 to 19 years old. Moreover, the American Academy of Pediatrics (2015) divided the ages of adolescents into three stages: early adolescence (11-14 years old); middle adolescence (15-17 years old); and late adolescence (18-21 years old). It can be clearly seen that in this study, most of the samples are in middle adolescence development. Most of them in both groups were Buddhist. Similarly, the most popular religion in Thailand is Buddhism. Approximately, 93.6 percent of all people in Thailand are Buddhists (Thailand Foreign Office, 2014). Most of the adolescents in both groups were students. Especially, the education of most adolescents in the control group was junior high school (51.4%) whereas that of the experimental group was junior high school (37.1%) and senior high school (37.1%).

This was similar to the education system of Thailand which mentioned that the majority of the adolescents aged from 12 to18 years old are studying at a high school (Education System Thailand, 2015). All adolescents in both groups had received HIV infection from their mothers. In fact, HIV/AIDS is spread by three main ways: Mother-to-child, sexual transmission, and drug addiction (use of needles). Mother-to-child transmission is HIV-infected transmission from mother to child and it had a high incident rate in 1995-2010 (UNAIDS, 2016).

Thus, in this study, all of adolescents were HIV-infected from their mother. The age of the adolescents when they perceived that they had HIV was approximately 9 years. Based on Piaget's theory of child cognitive development (1998), children in the state of concrete operations (age 7 to 11 years old) begin to abstractly think and conceptualize creating in logical structures that explain their physical experiences. Thus, the age from 9 to 10 years is regarded to be the prime time for HIV-infected children to learn about their illness because they can understand about causes of the illness (Oberdorfer, Puthanakit, Louthrenoo, Charnsil, Sirisanthana, & Sirisanthana, 2006). This is similar to the disclosure guidelines for children and adolescents in the context of HIV infection in Thailand; the appropriate age for disclosure is 9 or 10 years olds (Bureau of AIDS, TB and STI, 2016).

Most of the adolescents in both groups had no boy/girlfriends. However, there were significant differences of having boy/girlfriends between the two groups. The number of adolescents having boy/girlfriends in the experimental group (n =17) was higher than that of the control group (n = 8). This result might affect the dependent variables. This difference was non-applicable to be controlled by using statistics and unfortunately it was not controlled before data collection. This was a weakness of this study. However, the literature review showed that having boy/girlfriends had lower correlation with behavioral intention for HIV/AIDS prevention. Similarly, the study of Atwood et al. (2012) examined the risk and protective factors associated with the sexual risk behaviors among Thai early adolescents and showed that having boyfriend/girlfriends weakly correlated with intentions to have sex (r = .22, p < .0001). Almost all of the adolescents in the control group and all of the adolescents in the experimental group were not marry and most of them in both groups had never had sex. In Thai culture, most adolescents are students who are not married and had no boy/girlfriends. In Thai society and culture there is a long held belief that while adolescents are students they should spend time on studying and they should retain their virginity (Sorndet, 2007). In terms of sexual prevention, most of the adolescents in both groups who had boy/girlfriends used sexual prevention methods and the selected method for safe sex was the male condom. This can be ascribed according to the policy of HIV/AIDS prevention, all of the adolescents with HIV/AIDS treated in hospitals had to receive information of HIV/AIDS prevention and information on the use of the male condom to protect themselves (Ministry of Public

Health, 2016). For the reason of adolescents who did not perform sexual protection in both groups because they were afraid that their partners would know that they had HIV/AIDS. A report from a focus group of adolescents with HIV/AIDS in this study showed that they did not want to use condoms when having sex because they were afraid that their partner would know about their HIV/AIDS infection. Moreover, they wanted to act like adolescents in general and have a boy/girlfriend (HIVQUAL-T Nation 3rd, 2009; Nakhon Si Thammarat Provincial Public Health Office, 2016). This is similar to the researcher's experience in this study regarding one adolescent with HIV/AIDS that she worked with. This adolescent was in love and had sexual intercourse with her boyfriend without using a condom because she thought that having sex for the first time did not pass on HIV/AIDS. In addition, other adolescents with HIV/AIDS also thought that having an HIV infection would make them a target for discrimination from others (Nakhon Si Thammarat Provincial Public Health Office, 2016). This is similar to the study of Saki, Kermanshahi, Mohammadi, and Mohraz (2015) which showed that stigma and discrimination are world events which seriously affect the lives of people with HIV. All of the adolescents in both groups used a social online network and they used it every day. In particular, most of the participants in both groups used Facebook which they accessed by smartphones.

The development of adolescents (aged 10-19 years) can be described as the most challenging time of one's life and technology nowadays has become a massive influencing factor on adolescents also. Today, adolescents are known as generation Y, born between 1993 to 2004 (age 10-21 years old), and are noted for being the first generation to be influenced by communication technologies and social networking sites (Chokephaibulkit et al., 2012; Taylor & Keeter, 2010). Similar to the report of social networking site use in the world, the most site most used was Facebook (80%) (CDC, 2013). This is similar to Thailand, in that the most frequently social networking site used by adolescents was Facebook (70.7%) (National Statistical Office, 2016). In today's world, Facebook has become an important function because it is the modern way of building relationships to become friends and share things and talk about things online to form bonds when people cannot be together. The use of Facebook pages is becoming increasingly common for education and websites. It is a great site for keeping in touch with friends and family. If there are any concerns about privacy, individuals

or groups can easily make sections of their profile private, such as photographs and relationship statuses (University of California [UCLA], 2013). Adolescents in the control group came from a single family (34.3%) whereas that of the experimental group had an extended family (45.7%). Moreover, both groups had more than 3 members living in the same house. Adolescents in the control group lived with their mother (23%) whereas the experimental group lived with their parents (20%). the marital status of the parents of the adolescents in the control group were widowed (31.4%) whereas that of in the experimental group were married (40.0%). The number of siblings of a participant in the control group was two siblings (40.0%) whereas in the experimental group was none (57.1%). United Nations Population Fund [UNFPA] (2016) apprized that the increasingly variant structure of Thai family, which are being fueled by the rapid economic development and the changing structure of human populations. Thailand's families are increasingly multitudinous with 6.5 million were extended families, where three generations live together, and 19.5 million were single families. In addition, the report showed that 26 percent of families with a traditional set up of a mother, father and children all living together. Moreover, 1.3 million or 7 percent were single parent families, and 16 percent was couples without children have increased three-fold. However, there are double over the period of skipped generation families, where children live with their grandparents. Family and social relationships are important structural supports in Thailand. There has been a transformation in family structure in Thailand in order to changes in economic and social structures over time. The rise of divorce rates can be expected due to a rise in single-parent families (UNFPA, 2016).

The main family occupation of the adolescents in the control group was agricultural (42.9%) whereas that of the experimental group was self-employed (48.6%). According to the report of the Ministry of Labor (2016), most occupations in the rural areas in Thailand are in agriculture because most areas in Thailand are appropriate for growing. Similar to this study setting, Nakhon Si Thammarat is one rural province that has a lot of area for growing rubber, palm and fruit (Ministry of Agriculture and Cooperatives, 2016). On the other hand, according to social change, being self-employed was created to earn money for the family and this occupation had been become massive in Thai society (Making Self-Employed Thais Competitive in ASEAN, 2016).

Most of the participants in both groups came from low income families (0-7,500 baht per month) when compared with the standardization of socio-economic status (SES) classification of Thailand which is divided into 8 levels: E (0 – 7,500 THB), D (7,501 – 18,000 THB), C^- (18,001 – 24,000 THB), C (24,001 – 35,000 THB), C^+ (35,001 – 50,000 THB), B (50,001 – 85,000 THB), A (85,001 – 160,000 THB), and A^+ (160,000+ THB) (Poomontre & Setthawong, 2016). Most Thai people have income at the level C^- to C^+. In contrast, in this study, all of the adolescents in both groups had family incomes at the levels E and D (Poomontre & Setthawong, 2016) which is classified as a poor family. It can be described that the average monthly income of Thai people is 26,915 baht and the Central Region of Thailand has a high household income followed by the southern part of Thailand. The average income of people in Nakhon Si Thammarat was 21,501-28,000 baht per month (Thailand National Statistical Office, 2016).

2. Comparisons of mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS within groups

2.1 Comparisons within the control group

In the control group, the results revealed that there were no significant differences of the overall mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior measured at baseline, Day 15 and Day 30 ($\chi^2 = 3.46$, $p > .05$; $\chi^2 = .26$, $p > .05$, respectively). The reasons were probably due to the way of providing information, and information and the purpose of care. Adolescents in the control group received the usual care from the health care provider team especially by nurses who are registered nurses in a pediatric department with an HIV/AIDS department. Nurses taught adolescents with HIV/AIDS by using brochures by individually giving information. The details consisted of safe sex, skills training (e.g. use a condom, negotiate to delay sexual intercourse), HIV/AIDS knowledge, and HIV/AIDS transmission protection which is based on the policy of Bureau of AIDS, TB, and STI of Ministry of Public Health (2016). Although safe sex has been added as an indicator to measure outcomes in the clinic of patients with HIV/AIDS (Bureau of AIDS TB and STI, Department of Disease Control, Ministry of Public Health, 2012), there are no standards on sexual education programs or effective intervention programs in adolescents with HIV/AIDS. Based on literature

reviews, there are few reports on usual care or usual health care on HIV/AIDS prevention. However, there were studies about using HIV/AIDS clinical practice guidelines, health literacy on HIV-infection treatment and best practices in HIV care by focusing on practices that demonstrated success in achieving HIV prevention and HIV treatment (Family Health International [FHI], 2011; Maina, Mill, Chaw-Kant, & Caine, 2016; Wawrzyniak, Ownby, McCoy, & Waldrop-Valverde, 2013). Most studies were focused on the clinical practice on HIV/AIDS such as HIV laboratory for diagnostic testing and monitoring, management of HIV-infection, prophylaxis treatment, etc. (Bureau of AIDS, TB, and STI of Ministry of Public Health, 2017). Moreover, there were reviewed best practices to care for people who are newly diagnosed with HIV infection and the role of comprehensive services to improve patient outcomes. The results showed HIV treatment regimens for people with HIV infection (e.g. best practices, processes, and documented outcomes for the evaluation of patients with HIV/AIDS) and social support (Maina, Mill, Chaw-Kant, & Caine, 2016). Although there were studies about HIV/AIDS prevention, the strategies to implement were taught by a health care provider team. It can be described that the strategies that used community involvement in the program were not suitable for adolescents with HIV/AIDS because of confidentiality of the group. In particular, the usual care in hospitals for adolescents with HIV/AIDS mainly focuses on the aspects of care or the medical treatment (Chokephaibulkit, Boonsit, Leawsrisuk, Loreaka, & Nuchnat, 2012; National Health Security Office Region 11, 2014).

In summary, the usual care was driven by a health provider team in order to give the information to adolescents with HIV/AIDS. Most of them had appointments with a pediatrician around once a month. The literature review showed that learning by doing and using media were appropriate for adolescents because this is the way to encourage learning together in terms of problem solving and participation in the learning process by using age-appropriate media (Chaiban, 2014). The usual care which was driven by nurses only included giving information as the same strategy and using the same materials. Thus, nurse education only might not be enough and may not be appropriate for enhancing the behavior intention and perceived effectiveness for HIV/AIDS prevention in adolescents with HIV/AIDS. Therefore, there were no significant differences of the mean ranks of two dependent variables measured at baseline, Day 15 and Day 30.

2.2 Comparison within the experimental group

In the experimental group, there were significant differences of overall mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior measured at baseline, Day 15 and Day 30 ($\chi^2 = 51.87$, $p < .001$; $\chi^2 = 33.31$, $p < .001$ respectively). There were significant differences of mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior between baseline and Day 15 ($Z = -5.04$, $p < .01$; $Z = -4.72$, $p < .001$), and baseline and Day 30 ($Z = -5.14$, $p < .01$; $Z = -4.66$, $p < .001$). There was a significant difference in the mean ranks of behavioral intention for HIV/AIDS prevention between Day 15 and Day 30 ($Z = -2.31$, $p < .01$) whereas there was no significant difference in the mean ranks of perceived effectiveness of HIV/AIDS preventive behavior between Day 15 and Day 30 ($Z = -0.62$, $p > .05$).

The possible reasons supporting the significant results are explained as follows.

The experimental group received the program established based on the Theory of Planned Behavior (TPB), the related literature review, the findings from focus groups with Thai adolescents with HIV/AIDS, adolescents' social development, and social media. The leader in each group was well trained by the researcher which is supported by the 100% self-report evaluation. The program was implemented via Facebook which is suitable for the young generation and Thailand 4.0. It can be described that each time; the adolescents with HIV/AIDS received the program by adolescent leaders who drove the program step by step. In each step; they talked, shared ideas, and discussed the story of a short film**.**

From literature reviews regarding a good learning practices of humans is a learner had to participate and discuss with topics. They must conclude and summarize the lesson learned with their group as this will make the learning sustainable (Karban, 2015). Similar to this study, adolescents with HIV/AIDS were stimulated by adolescent leaders under the supervision of the researcher. They had to share ideas, participate within the group, and any issues that came up for in each step were dealt with by the group. Finally, the adolescent leaders summarized the discussion from the group. Thus, in all steps, the adolescents with HIV/AIDS had learned and sustainable learning had been aroused. Especially, at present, the influence of the internet has increased enormously and has become an important part of adolescents' daily lives because of its convenience and ease of access (Ounjit, 2014). This is similar to this study, in that Facebook was used to run the program. It could maintain the relationships between the adolescent leaders and the

participants. Unfortunately, the results of this study could not be compared with those of the previous studies However, there were some almost similar to this study. For example, the study of the effects of a cultural adaption in HIV prevention intervention in Haitian youth showed that there were significantly greater intentions to use condoms ($p < .01$) and significant improvement in the ability to use a condom at 4-weeks after the intervention ($p < .001$) (Malow, Stein, McMahon, Dévieux, Rosenberg, & Jean-Gilles, 2009). In addition, the systematic review and meta-analysis about the effectiveness of peer education interventions for HIV prevention in developing countries by Medley, Kennedy, O'Reilly and Sweat (2009) showed that there was significantly increased condom use (*OR:*1.92*; 95% CI:*1.59, 2.33). Similarly, the study about the effects of peer education on HIV sexually transmitted infection in Turkish university students by Bulduk and Erdogan (2012) showed that there were significant differences of mean scores of refusing sexual intercourse and condom use between groups and time ($F = 51.706$, $p = .000$; $F = 64.814$, $p = .000$ respectively). On the other hand, there were no significant differences in the mean scores between groups and time in terms of ability to ask questions of potential partners ($F = .278$, $p = .758$). The researchers mentioned that the duration of the study was too short to have an effect on behavioral outcomes.

In this study, there was no significant difference in the mean ranks of perceived effectiveness of HIV/AIDS preventive behavior between Day 15 and Day 30 ($Z = -0.62$, $p > .05$). The possible reasons might be the influence of sexual beliefs of adolescents with HIV/AIDS (Musiimenta, 2012). In this study, most samples had boyfriends and girlfriends influencing the adolescent's decision to refuse or negotiate for safer sex practices in order to maintain the HIV/AIDS preventive behavior. Because having a girl or boyfriend or special friend is normal because everyone else does led to the difficult to say no or refuse to have sex with their boy or girlfriend (Ounjit, 2014). This factor might influence the perceived effectiveness for HIV/AIDS prevention. Similarly, in a focus group, adolescents with HIV/AIDS mentioned that "having boy/girlfriends had an influence on the expression of sexual behavior so most teenagers believed that having sex with a girlfriend or boyfriend is a fashionable lifestyle". Especially, adolescents with HIV/AIDS who are female said that "although we perceive safer sex, it is very difficult to refuse to have sex with our boyfriend because we are afraid that they will know our status." Similarly, the study of Ounjit (2014) showed that refusing to have sex with a partner for a female was more difficult than for a male.

Similar to this study, most participants in the experimental group were female (n = 20); thus, this reason might support this issue. Another possible reason might be due to the effectiveness of the adolescent leaders who drove the program, even though the adolescent leaders had passed the evaluation of the leader training program in both leader skills and skills of implementation the program. Since this study sample was divided into three groups, as mentioned in chapter 3, each group had different leaders. However, after performing subgroup analyses of the sample under each leader, one way ANOVA revealed that the overall mean scores of perceived effectiveness of HIV/AIDS preventive behavior of these three groups were not significantly different (F=.223, p=.801). Thus, it was assumed that all three adolescent leaders ran the program effectively. Although, there were no significant difference in the mean ranks of perceived effectiveness of HIV/AIDS preventive behavior between Day 15 and Day 30, the mean rank at Day 15 increased from 2.34 to 2.40 at Day 30. It might be claimed that the samples had have perceived effectiveness of HIV/AIDS preventive behavior.

3. Comparisons of mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS between groups

3.1 Comparison between groups at baseline

There were no significant differences of mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior measured at baseline between the control and experimental groups (Z = -0.77, p >.05; Z = -0.15, p >.05, respectively). It can be said that both the control and experimental group received the same usual care from the health care provider team who taught and gave information to the adolescents with HIV/AIDS. Thus, there were no different mean ranks between the groups at the baseline.

Based on the literature review, there were no studies the same as this study and there were no studies that measured the same variables as in this study. However, a few studies were similar to this study. For example, the study about the effect of social cognitive theory-based HIV education prevention program among high school students in Nanjing, China by Li et al. (2010) who showed that there were no significant differences of mean scores of stigmatizing attitude, HIV knowledge, and intention of having sex and other

health issues at baseline between the intervention and the control group. This is similar to the study of Kerr et al. (2015) who showed that there were no significant differences in the mean scores at the baseline of HIV knowledge and stigma between the intervention and control group (p >.10). From above, it can be claimed that in most of the intervention studies there were no significant differences at baseline when compared between groups which is similar to this study, in that there were no significant differences of mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior measured at the baseline.

3.2 Comparison between groups at Day 15 and Day 30

There were significant differences of mean ranks of behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior measured at Day 15 and Day 30 between the control and experimental groups (Z = -5.14, p < .001; Z = -5.77, p < .001; Z = -5.40, p < .001; Z = - 4.35, p < .001, respectively).

The possible reasons supporting the results are explained as follows. The experimental group received the program established based on the Theory of Planned Behavior (TPB), the related literature review, the findings from focus groups with Thai adolescents with HIV/AIDS, adolescents' social development, and social media. There are several advantages of this program because this program was developed based on TPB. This theory mentioned that the enhanced ability to predict, understand and change behavior, which attitudes, subjective norms, and perceived behavioral control add significantly to the influence of behavioral intentions leading to final behavior change in the long term (Ajzen & Fishbein, 1980; Ajzen, 1991). Moreover, the core contents of the program were integrated from focus groups and literature reviews. This program consisted of four main components: HIV/AIDS knowledge, attitude, subjective norms, and perceived behavioral control. This is similar to study of Carmack and Lewis-Moss (2009) about causal-indicator models on examining the theory of planned behavior applied to condom use which showed that subjective norms and perceived behavioral control had a significance influence on intention (r = .544, p < .05; r = .627, p < .001, respectively). In addition, the study of Kalolo and Kibusi (2015) about the influence of perceived behavior control, attitude and empowerment on condom use in adolescents in rural Tanzania. The study showed that perceived behavior control predicted intentions to use condoms (*AOR* = 3.059, 95 % *CI* 1.324-7.065), and a positive attitude predicted condom use (*AOR* = 3.484, 95% *CI*

1.132-10.72). The study showed especially that subjective norms had an indirect effect on intention.

All the media used in this program were developed from the focus groups, adolescent social development, and the literature reviews. Media selection was created based on the uses and gratifications theory. The contents of the media built the consistent core concepts which were made up of short films, animation about using male/female condoms, videos, and posters. Through all the processes of the program, the adolescent leaders drove the program via Facebook under supervision of the researcher who is an advanced practice nurse. The adolescent leaders passed the evaluation of the leader training program in both leader skills and skills of implementing the program. In this study, the leader training program was developed based on literature reviews of leadership roles to build the performance of the adolescent leaders based on inspirational motivation. The researcher applied the leader skills with training for the adolescent leaders not only so they had decision-making skills and communication skills but so they also had social responsibilities to use Facebook skills as well. Eventually, the process of training used face-to-face and Facebook in each step which was based on the elements of the program. The researcher evaluated the adolescent leaders by individual observation regarding decision-making skills, communication skills, and the implementation of the program. The confidence of the leaders with Facebook wall discussion during leader training via Facebook was also evaluated during this practice with friends and by switching the role from leaders to participants. The researcher used a checklist and the adolescent leaders had to pass the self-report evaluation. Finally, the adolescents with HIV/AIDS were effective leaders by 100%. Then, they drove the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network while the program was running.

It can be clearly seen that adolescent leaders are one of the most important factors for the success of the HIV preventive program because the adolescent leaders who are also HIV-infected drove this program so it helped to make them feel free and friendly within their homogeneous group. Moreover, there were several studies both in Thailand and in other countries regarding peer leaders. The results showed that adolescents could openly talk and discuss the stigma and discrimination problems regarding HIV/AIDS within their peer groups which also served as powerful reinforcements

during adolescence as sources of acceptance (Fongkaew, Settheekul, Fongkaew, & Surapagdee, 2011; Michielsen et al, 2012; Thato & Penrose, 2013). The demographic characteristics of the adolescents were very similar and they had received HIV infection from their mothers. Moreover, most of them used social media (Facebook) every day. It can be seen that there were no differences in their background. Thus, this program is suitable for adolescents with HIV/AIDS. Moreover, the focus group showed that the adolescents wanted to discuss and express their feelings within their homogeneous group who understood them.

This is similar to the literature review that showed that being peer-led has a strong influence on individual behavior because of trust, and feeling more comfortable of more open discussions of sensitive topics (UNAIDS, 2012) leading to a major social influence on adolescent sexual behavior. In addition, it has been determined as an effective approach to use education and empowerment in adolescents, as they feel comfortable when receiving information and relating to information provided by a person of the same age group (Mahat, & Scoloveno, 2010). This is similar to the study of Thato and Penrose (2013), in that the peer-led HIV prevention program in the experiment group increased knowledge, positive attitudes, subjective norms, and intentions to practice preventive behaviors than those of the control group ($p < .001$). Another study by Mahat and Scoloveno (2010) regarding the effects of HIV peer education on HIV/AIDS knowledge and self-efficacy showed that HIV/AIDS knowledge was improved after receiving the peer education program ($p < .001$). The effectiveness of leaders made a significant difference/change in HIV/AIDS prevention, leading to a strengthened, sustainable and continuous group. The leaders led a program that involve their peers help the leaders to build upon their leadership skills in a positive way so adolescent leaders worked with friends in the homogeneous group. The program made them have a sense of ownership and participatory.

In terms of using an online site (Facebook), it is one channel for adolescents where the can participate and communicate without distrust because online social networking technologies can be used rapidly and it is widespread communication so it can reduce feeling of discrimination in people living with HIV/AIDS (Young, 2012). Adolescent leaders could work with friends in the homogeneous group and the program produced in them a sense of ownership and participation. The literature review revealed that online social networking can be used as an innovative method of HIV prevention, especially,

Facebook was it really designed for adolescents to build relationships and share information and it is widely used for social communication. In addition, this program was integrated between technology and nursing care. The Thailand Nursing and Midwifery Council (2017) pushed forward the policy Thailand 4.0 by encouraging nurses to create nursing innovations integrated with technology, leading sustainability as well as encouraging adolescents learning by discussion, sharing ideas, and participating within a group. Thus, this program made use of various media such as videos (short films), posters, and animations. The Minister of the Ministry of Education (2017) stated that a good media creation needs to be focused on understanding and in the interest of the learners and their development and it should be integrated between entertainment and appropriate content. It could be described that this program was different from the other programs in terms of details, types of media, methodology, and the person who drove the program. The program resulted in the experimental group having intention and perceived effectiveness for HIV/AIDS prevention when compared to the control group.

PATH a non-government organization said that good media for adolescents should be created, be modern, and suitable for ages leading to effective learning (PATH, 2015). In this study adolescent leaders drove the program via Facebook. In addition, the discussion about the role of social networks on the health system by Balatsoukas, Kennedy, Buchan, Powell, and Ainsworth (2015) revealed that social network technologies had become a part of wider health education and health promotion. Hence, social network technologies could exactly increase the efficiency and effectiveness of public health campaigns. Especially as there are several functions of Facebook were met the demands of adolescents such as building relationships, sharing and talking especially people who are shy so that online is a great way to build friendships in a safe environment to help to make them feel stronger when they meet that friend via online. Thus, Facebook is a great way of sharing photographs and allowing friends to tag within a group and comment on them (Ha, 2016). The adolescents in the focus group in Phase I of the program development in this study previously mentioned, “it is a great way to talk with friends because we could express everything without being shy or afraid.” Importantly, they can listen with friends, discuss tunes using Facebook and chat with friends at the same time or any time if they want. In particular, online social network interventions have been

effective in significantly improving aspects of health behavior especially developing interventions by using Facebook. The results suggested that online social networks can be effective for the users because they can be retained over a period of time (Maher, Lewis, Ferrar, Bourdeaudhuij, &Vandelanotte, 2014). The study of Taggart, Grewe, Conserve, Gliwa, and Roman (2015) was a systematic review of the uses of social media in HIV communication and showed that social media platform types were used such as Facebook, YouTube, or SMS text messaging systems and media for communication on social media such as one-to-one messaging, wall posts, video animation etc. In addition, the researchers mentioned the benefits in using social media to communicate about HIV prevention were 1) information accessing, 2) the enhanced ability of communication, 3) anonymous identity, 4) feelings of social and emotional support, 5) creating a virtual community, and 6) geographical accessing.

In terms of measurement, this program was designed for repeated measures at Day 15, and Day 30. The literature review showed that there are six steps to changing behavior consisting of pre-contemplation, contemplation, determination, action, maintenance, and termination (Horneffer-Ginter, 2008). However, the step of determination preparation took around 0-3 months and at least 2 weeks to a month leading to contemplation of behavioral intention so that leading to carry on as before or to change behavior (Horneffer-Ginter, 2008). Thus, this program took 1 month and the dependent variables were measured at Day 15 and Day 30 after receiving the program. Thus, there were appropriate times for the adolescents to establish behavioral intention for HIV/AIDS prevention, which was enough time to measure the behavioral intention and perceived effectiveness for HIV/AIDS prevention. Unfortunately, the results of this study could not be compared with those of the previous studies. However, there were some studies almost similar to this study. For example, the study of Bauserman,, Richardson, Ward, Shea, and Solomom (2003) about a case management (PCM) program to promote changes in risk behavior showed that there were significant positive changes in perceived risk, condom attitudes, condom use and behavioral intentions during participation in the program for condom use. Similarly, the study of Peragallo, DeForge, O'Campo, Lee, Kim, Cianelli, and Ferrer (2005) about an HIV-risk-reduction intervention among low-income Latina women showed that there were significant improvements on risk-reduction behavioral intentions, and condom use, and perceived effectiveness to use condoms ($p < .05$). Similar to the study of Liu, Kennedy, Liu, Hong, Ha, and Ning (2013) about the effect of

perceived behavioral control on intended condom use showed that the perceived behavioral control was a mediator in pathways beginning with intentions ending with condom use, and beginning with subjective norms and ending with intentions. In addition, the researchers mentioned that perceived behavioral control should be given for the samples due to effective HIV interventions. Moreover, in a study by Thato and Penrose (2013) about a peer-led HIV prevention program in the experiment group, the results showed that there were increased perceived behavioral control and intentions to practice preventive behaviors than those of the control group ($p < .001$).

Another similar study by Layzer, Rosapep, and Barr (2014) about a peer education program on sexual health promotion messages in schools showed that participants increased behavioral intentions regarding sexual health. Similar to the study of Prati, Mazzoni, and Zani (2014) about a longitudinal cross-lagged design on perceived behavioral control, subjective norms, attitudes and intention to use condom showed that female participants had higher scores on perceived behavioral control when compared with male participants to use condoms. In addition, there were significant relationships between intention and condom use. Meanwhile, gender was not associated with condom use ($p > .05$). In addition, perceived behavioral control did not predict subsequent intention to use condoms. However, although there were no significant influences between perceived behavioral control and condom use, the researchers suggested that enhancing perceived behavioral control leads to behavioral change.

The experimental group also received the usual routine care from the health care provider team as well as in the control group. Meanwhile, the control group received only the routine care as mentioned earlier. Thus, based on the above reasons, it can be claimed that the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network could enhance behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS.

CHAPTER 5
CONCLUSION AND RECOMMENDATIONS

This chapter is organized into five sections; the conclusions of the study, findings and conclusion, recommendations of the study, strengths and limitations, and recommendations for further study.

Conclusions of the study

A quasi- experimental design, two-group pretest-posttest, repeated measures design was used to develop and test the effects of the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behaviors among adolescents with HIV/AIDS.

This study consists of three phases: Phase I development of the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network and the leader training program, Phase II training of adolescent leaders (N=10), and Phase III testing of the effects of the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention for HIV/AIDS and perceived effectiveness of HIV/AIDS preventive behaviors among adolescents with HIV/AIDS (control = 35, experimental = 35).

The study was conducted over 1 year and 6 months, from April 2016 to July 2017. Purposive sampling was used to select eighty adolescents with HIV/AIDS: 10 adolescents in Phase I and II, and 70 adolescents with HIV/AIDS in Phase III. Eight instruments were used for the evaluation of the adolescent leaders in Phase II consisting of a demographic data questionnaire, the communication skills questionnaire, the decision making questionnaire, the test skills of the leadership questionnaire, HIV knowledge questionnaire (HIV-KQ-18), Attitudes Toward HIV/AIDS Preventive Acts, the behavioral intentions for HIV/AIDS prevention questionnaire, and the perceived effectiveness of HIV/AIDS preventive behaviors scale.

Three instruments were used in Phase III consisting of a demographic data questionnaire, the behavioral intentions for HIV/AIDS prevention questionnaire, and the perceived effectiveness of HIV/AIDS preventive behaviors scale.

Face validity was performed by three experts with the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network, the leader training program, all media used in the program, and a demographic data questionnaire. Moreover, content validity by three experts was performed on the communication skills questionnaire (CVI = .95)

The Cronbach's alpha coefficient was used to examine the internal consistency reliability of the seven instruments: the communication skills questionnaire, the decision making skills questionnaire, the test skills of the leadership questionnaire, the HIV knowledge questionnaire, attitudes toward HIV/AIDS preventive acts scale, the behavioral intentions for HIV/AIDS prevention questionnaire, and the perceived effectiveness of HIV/AIDS preventive behaviors scale, yielding .89, .88, .81, .84, .80, .80, and .96 respectively.

Results of the study

Phase I

1. The nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network. The core contents consisted of building relationships and trust, HIV/AIDS knowledge, positive attitude, subjective norms, and perceived behavioral control

2. The leader training program. The core contents of leader skill training consisted of building relationships and trust, encouraging leader power, communication skills, and the decision-making skills. For training the leaders to implement the program, the core contents consisted of using a computer via an online social network, the ethics of a social networking site, and the training of the implementation of the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network.

Phase II

1. The mean scores of the communication skills, the decision making skills, and leadership skills of adolescents after training (posttest) were higher than those of before training (pretest) (p <.001).

2. The mean scores of attitude toward HIV/AIDS prevention, HIV knowledge, behavioral intention for HIV/AIDS prevention, and perceived effectiveness of HIV/AIDS preventive behavior after training (posttest) were higher than those of before training (pretest) (p <.001).

Phase III

1. Comparison of the mean ranks of behavioral intention for HIV/AIDS prevention among adolescents with HIV/AIDS measured at baseline, Day 15 and Day 30 within and between the control and experimental groups.

1.1 There were no significant differences of the overall mean ranks of behavioral intention for HIV/AIDS prevention at baseline, Day 15, and Day 30 in the control group (χ^2 = 3.46, p >.05).

1.2 There were significant differences of the overall mean ranks of behavioral intention for HIV/AIDS prevention at baseline, Day 15, and Day 30 in the experimental group (χ^2 = 51.87, p <.001). In addition, there were significant differences of mean ranks of behavioral intention for HIV/AIDS prevention between baseline and Day 15 (Z = -5.04, p < .001), baseline and Day 30 (Z= -5.14, p < .001), and Day 15 and Day 30 (Z= -2.31, p < .01).

1.3 There were significant differences of mean ranks of behavioral intention for HIV/AIDS prevention measured at Day 15 and Day 30 between the control and experimental groups (Z = -5.14, p < .001; Z = -5.77, p < .001, respectively). In contrast, there was no significant difference of mean ranks of behavioral intention for HIV/AIDS prevention measured at the baseline between the control and experimental groups (Z = -.77, p > .05).

2. Comparison of the mean ranks of perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS measured at baseline, Day 15 and Day 30 within and between the control and experimental groups.

2.1 There were no significant differences of the overall mean ranks of perceived effectiveness of HIV/AIDS preventive behavior at baseline, Day 15, and Day 30 in the control group ($\chi 2 = .26$, $p > .05$).

2.2 There were significant differences of the overall mean ranks of perceived effectiveness of HIV/AIDS preventive behavior at baseline, Day 15, and Day 30 in the experimental group ($\chi 2 = 33.31$, $p < .001$). In addition, there were significant differences of the mean ranks of perceived effectiveness of HIV/AIDS preventive behavior between baseline and Day 15 ($Z = -4.72$, $p < .001$), and baseline and Day 30 ($Z = -4.66$, $p < .001$). However, there was no significant differences of the mean ranks of perceived effectiveness of HIV/AIDS preventive behavior between Day 15 and Day 30 ($Z = -0.62$, $p > .05$).

2.3 There were significant differences in the mean ranks of perceived effectiveness of HIV/AIDS preventive behavior measured at Day 15 and Day 30 between the control and experimental groups ($Z = -5.40$, $p < .001$; $Z = -4.35$, $p < .001$, respectively). On the other hand, there was no significant difference in the mean ranks of perceived effectiveness of HIV/AIDS preventive behavior measured at the baseline between the control and experimental groups ($Z = -0.15$, $p > .05$).

Recommendations of the Study

The findings of the study contribute to nursing research and nursing practice in caring for adolescents with HIV/AIDS on sexual transmission prevention. It can be divided into two major categories of new knowledge as follows; the first, new knowledge about establishing leadership among adolescents with HIV/AIDS by using a qualitative method based on the concept of leadership roles. There was no report of building leaders in adolescents living with HIV/AIDS under pinning the leadership role both inside and outside countries. It would be made sustainable in a homogenous group. The second, it is new knowledge on HIV/AIDS prevention program among adolescents with HIV/AIDS using a social network because the program was established from adolescents with HIV

directly, based on TPB, and a qualitative method regarding the prevention of the spread of HIV to others. It can be clearly seen that at present, this is a period of globalization and a period of innovative technology; the development of the program can be performed by applying new technology. In Thailand, there are only a few research papers on using a social network, especially using social networks with participants with HIV/AIDS. Thus, this is a new type of research for nursing in Thailand.

Nursing practice

This study could offer nurses an opportunity to think about and become more aware of using technology and social networking to integrate in nursing practice. At present, the esthetics of nursing in a new generation epoch need to respond to new contexts and high levels of technology. This is the art of nursing to implement with patients via social networking online since nursing and technology are a specialized field that combines nursing science with technology management and scientific analytics to identify, define, manage; Moreover, nurse can communicate, inform data in knowledge, and wisdom in nursing practice. Communication from a technology, through chat based applications, text messaging, social network websites that offer patients flexibility and accessibility. Using technology is the way to reduce the gap between interpersonal; thus, using appropriate technology can help to build relationships between nurses and patients. Moreover, it can help a nurse to understand a patient better via social media which could reduce stigma and discrimination in adolescents with HIV/AIDS.

The findings of the study revealed that the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network were effective on behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behaviors among adolescents with HIV/AIDS. Thus, nurses should incorporate this program into the usual care in pediatric departments with HIV/AIDS care units in hospitals because nurses can act based on the program in order to develop adolescent leaders to continuously drive this program via Facebook. This not only cultivates behavioral intention and perceived effectiveness for HIV/AIDS prevention among adolescents with HIV/AIDS, but the nurse can also follow up the adolescent with HIV/AIDS via online social media continually. It can be clearly seen that the nurse's role, who is a researcher, supported the adolescent leaders throughout the running of the program. Not only was a supportive role used but also there were several roles undertaken in

this program, including encouragement, motivation, inspiration, and facilitation. Therefore, nurses who practice in pediatrics with HIV/AIDS patients need to undertake all roles in order to drive the program.

Nursing research

The findings of the study revealed that not only nursing care can build an effective program but also using integrated strategies consisting of media, and peers who drove the program via an online social network led to an appropriate and effective program. Thus, nursing research should use mixed methods and mixed strategies to develop an effective program. This helped the program to be effective.

Strengths and Limitations

Strengths

The findings of the study revealed that this is an effective program because there are several strengths as follows; using mixed methods to develop the appropriate program: phase I (qualitative arm), phase II (quantitative arm and leader training), and phase III (testing the program). Moreover, there were several strategies used to integrate the program via Facebook, including the adolescent leaders, videos, discussion, sharing of ideas; especially, the nurse's support which is the heart of nursing care in the AIDS area. In addition, adolescent leaders could work with friends in the homogenous group and the program produced in them a sense of ownership and participation. In particular, the program was developed as a closed group, therefore, access to this program was only open to members of the group who can drive this program continuously by themselves. Therefore, this program can help in reducing discrimination of adolescents with HIV/AIDS because they can talk and share ideas using an alias name.

Limitations

This program was developed for adolescents with HIV/AIDS in Nakhon Si Thammarat province, which may not represent the other cultures that have a different context and, therefore, cannot be generalized. Moreover, the demographic data should be controlled and include the criteria in terms of having boy/girlfriends. Although, the literature review revealed that having boy/girlfriends had lower correlation with behavioral intention for HIV/AIDS prevention (Atwood et al., 2012; Teitelman, Bohinski, &

Boente, 2009), controlling for this variable should be performed. Unfortunately, this variable was not controlled by either the sampling method or statistics and should be added in the inclusion criteria when considering sampling recruitment.

Accordingly, adolescents with HIV/AIDS are a vulnerable group; therefore, there were several barriers throughout the program such as appointments, confidentiality, trust, and apperception. In addition, the external factors were uncontrolled such as a natural calamity (flooding) which obstructed the beginning of the process of the program development until leaders' training. The characteristics of persons who are interested in the HIV/AIDS program should be stronger than others such as in collaboration, dependability, flexibility, priority, cooperation, and tolerance because the program involves spending long hours working, cooperating with the health provider care team, and participating with the samples and their families. Moreover, nurses who want to use this program need to be trained by the researcher before using the program because nurses have to use several strategies in order to support this group throughout the program, including Facebook use, adolescents' training and the use of different types of media.

Recommendations for Further Study

Further recommendations are indicated as follows:

1. A longitudinal study should be conducted in order to evaluate the sustainability of the effects of the program on behavioral intention and perceive effectiveness of HIV/AIDS prevention.

2. The research area should include a diverse range of HIV-infected adolescents such as those who have contracted HIV from having unprotected sex, and adolescents who have caught HIV from injecting illegal drugs to assess the effectiveness of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behaviors.

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Appendix A: Programs

Nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network (Facebook)

Introduction

The epidemiological update of the current pandemic of HIV/AIDS shows that 36.7 million people worldwide are infected with HIV/AIDS (World Health Organization [WHO], 2016). Approximately 2.1 million children aged 0 to 14 years old were found to have HIV/AIDS and 17.8 million HIV/AIDS sufferers were found in 15-to-24 year olds (United Nations Programme on HIV/AIDS [UNAIDS], 2017). In Thailand, around 450,000 people are infected with HIV/AIDS, approximately 106,133 of these were adolescents, and 65% were infected with HIV/AIDS caused by unsafe sexual behavior (UNAIDS, 2017).

The rate of HIV/AIDS infection in adolescents has increased from 57% in 2014 to 65% in 2016 with an estimated 9,600 new cases per year. In particular, the majority of adolescents with HIV/AIDS infection was from sexual transmission, leading to risk for HIV transmission (Bureau of AIDS TB and STIs, Department of Disease Control, Ministry of Public Health, 2017; Ministry of Public Health, 2017; UNAIDS, 2017). Of concern in the report is that 26% of newly diagnosed HIV/AIDS infections are caused by unsafe sexual transmission by adolescents infected with HIV/AIDS (Bureau of AIDS TB and STIs, Department of Disease Control, Ministry of Public Health, 2017; Ministry of Public Health, 2017).

From the reasons outlined above, the incident of adolescents with HIV/AIDS in Thailand has become a massive problem on a personal, family, and community level. At the present, there are several HIV prevention programs; however, there is a lack of programs specific for adolescents with HIV/AIDS. Although adolescents with HIV/AIDS are under care from a health provider care team, there are no standards on sexual education programs or effective intervention programs for this particular group. This is due to the treatment in hospitals for adolescents with HIV/AIDS being mainly focused on the aspects of care or the medical treatment (Chokephaibulkit, Boonsit, Leawsrisuk, Loreaka, & Nuchnat, 2012; National Health Security Office Region 11, 2014).

Thus, it is very important in terms of the cultivation of social responsibility and intention for adolescents with HIV/AIDS to protect and prevent against the transmission of HIV to others and also prevent themselves from catching infections from other people.

There were a few studies in Thailand on the use of the social networking site via Facebook on HIV/AIDS sexual transmission prevention in adolescents with HIV/AIDS, however, there were no studies regarding the use of a peer leader infected with HIV/AIDS to lead a social networking online HIV/AIDS prevention program. This is a challenging and interesting program in the integration between a social networking site and nursing care to enhance intention and perceived effectiveness of HIV/AIDS prevention in order to reduce sexual risk behaviors in adolescents with HIV/AIDS. Thus, the development of the program in this study was based on the TPB theory, leadership skills of adolescent leaders, and adolescent development. In addition, to establish an application and various media via Facebook, the researcher applied the uses and gratification theory to create all media used in the program to be most attractive for adolescents. The expected outcomes are to cultivate the intention to adopt HIV/AIDS preventive behavior leading to the perceived effectiveness of HIV/AIDS preventive behavior by adolescents who led and drove the HIV/AIDS sexual transmission prevention program via Facebook with a nurse as a supporter.

Objectives

1. To enhance behavioral intention for HIV/AIDS prevention among adolescents with HIV/AIDS

2. To enhance perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS

Participants

The researcher selected 35 adolescents with HIV/AIDS who were diagnosed with HIV/AIDS by a pediatrician, and who attended the HIV/AIDS clinic at Maharat Nakhon Si Thammarat Hospital.

Purposive sampling was used to recruit 35 adolescents with HIV/AIDS. The inclusion criteria for the adolescents were: 1) aged 12 to 19 years old diagnosed with HIV/AIDS by a pediatrician at stage N or stage A because at this stage the patients had AIDS symptoms but they could still perform as usual in daily life, 2) had a status at post disclosure at least 3 months after diagnosis and they had accepted the status of

living with HIV/AIDS because the patients had been prepared by a care provider team before disclosure; thus, the time range of disclosure of at least 3 months as having accepted the status of being HIV/AIDS infected, 3) the laboratory results showed that CD4 >350cells/mm3 and Viral Load < 40 copies/ml because there was a good response to treatment and the patients had good health, 4) drug adherence > 95% per 3 months before recruitment because it showed that treatments had been successful and there was reduced drug resistance (Bureau of AIDS, TB, and STIs Ministry of Public Health, 2015), 5) able to communicate, listen, read, and write in Thai language, and 6) had the ability to use the internet (Facebook) and had access via a computer or smart phone.

Implementer

1. Ten adolescent leaders who were infected with HIV/AIDS
2. The researcher who is an advance practice nurse

Research setting

1. Pediatric HIV/AIDS clinic at Maharat Nakhon Si Thammarat Hospital
2. Social online network (Facebook)

Duration

Duration of the intervention was 14 days. Each activity took 13.30 hours.

Outcomes

Adolescent leaders could work with friends in the homogeneity group and the program produced in them a sense of ownership and participation. In addition, they can participate and communicate without distrust because online social networking technologies use rapid and widespread communication so that it can reduce feelings of discrimination in people living with HIV/AIDS. Finally, this program has raised awareness in adolescents with HIV/AIDS to reduce sexual transmission to others, leading to behavior change. Particularly, because the group has been driving this program continuously, it can be sustainable in future.

Evaluation

1. Behavioral intention for HIV/AIDS prevention among adolescents with HIV/AIDS after receiving the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network at Day 15 and Day 30

2. Perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS after receiving the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network at Day 15 and Day 30

Activities

The activities of the program consisted of six activities. The contents of the activities were as follows.

Activity 1 Making relationships and creating trust (2.30 hours)

Sub-activity 1.1 Who are you? (30 minutes)

Sub-activity 1.2 Uncompromising and encouraging (30 minutes)

Sub-activity 1.3 Learning and using an online social network (1.30 hours)

Activity 2 HIV/AIDS knowledge (4 hours)

Sub-activity 2.1 Learning about HIV/AIDS disease (1 hours)

Sub-activity 2.2 Learning about the opportunistic infections (1 hours)

Sub-activity 2.3 Learning about antiretroviral HIV/AIDS (1 hours)

Sub-activity 2.4 Learning about health promotion (1 hours)

Activity 3 Positive attitude (2 hours)

Sub-activity 3.1 Plala's story (2 hours)

Activity 4 Subjective norm (1 hour)

Sub-activity 4.1 When you are HIV-infected, who is the one supporting you?

Activity 5 Perceived behavioral control (5 hours)

Sub-activity 5.1 Negotiation in order to reduce a problem with unsafe sex (1.30 hours)

Sub-activity 5.2 Learning on self-protection (1.30 hours)

Sub-activity 5.3 Learning about and using male and female condoms (1 hours)

Sub-activity 5.4 Learning on accessing the HIV/AIDS services (1 hours)

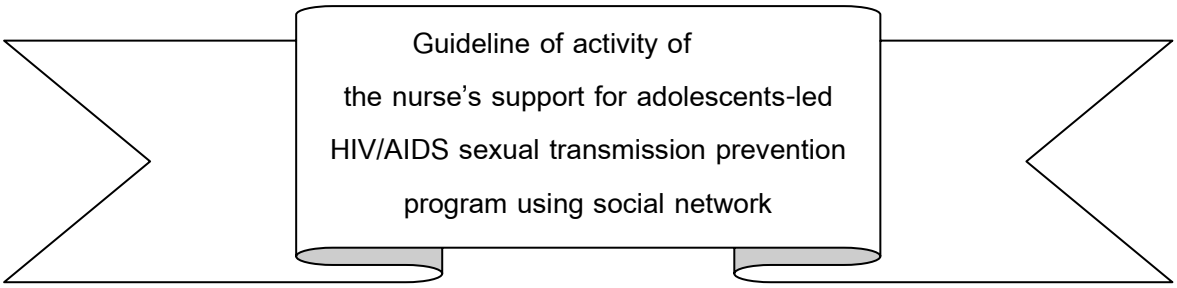
The details are as follows.

Steps and activities of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network (Facebook)

Date/time/ location	Objectives	Media/content	Procedures and activities			Evaluation
			Researcher (Nurse)	Adolescent leaders	Participants	
Day 1 9.00 -9.30 am. (30 min): Small meeting room of a pediatric outpatient department, Maharat Nakhon Si Thammarat Hospital	**Activity 1** Making relationship and creating trust Sub-activity1.1 Who are you? 1.To build a relationship and trust between the researcher, adolescent leaders, and adolescents with HIV/AIDS	Media 1. Conversation within group 2. Table and chairs Content (The contents of who are you? the activities from a guidebook of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network site (Facebook) for activity	1. The researcher introduced herself and explained the details of research and activities by making a relationship and creating trust between the researcher, adolescent leaders, and adolescents with HIV/AIDS. Then, the researcher introduced the adolescent leaders to the adolescents with HIV/AIDS for making relationships within the group 2. Making relationships by each of the adolescents introducing themselves with their full name, nickname, and age, and they were asked to agree to	1. Adolescent leaders introduced themselves and described the objective of the study and motivated the participants in order to introduce themselves including giving full name and nick name	1.Adolescents with HIV/AIDS introduced themselves 2. Participation in group	1. Adolescents with HIV/AIDS introduced themselves, including full name and nick name and made the decision to participate in the study.

Date/time/ location	Objectives	Media/content	Procedures and activities			Evaluation
			Researcher (Nurse)	**Adolescent leaders**	**Participants**	
		management of 1.1	participate in the study. All of these activities were performed by adolescent leaders with the researcher's support. 3. Opening opportunity to ask questions and make the decision to join the study with parents.			
. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Day 5 12.00-13.00 (1 hour): via Facebook	Sub-activity 5.4 Knowing the resources 1. To know the places for treatment	Media 1. Poster about private/public hospitals and places by take condoms Content	1. Inspiration, support, and consultation when the leaders had a problem which they could not solve. discussion about hospital access	1. Adolescent leaders posted the last activity with the sentence; " We do not live alone because we have received treatment and free ARV by government support; moreover, there are free condoms, HIV-testing, and counseling"	1. Asked and answered questions from the group 2. Participation and discussion within the group.	1. Adolescents with HIV/AIDS can tell of the places, both private and public hospitals, where there are

Date/time/ location	Objectives	Media/content	Procedures and activities			Evaluation
			Researcher (Nurse)	Adolescent leaders	Participants	
	and supportive resources	Please see sub-activity 5.4 in the program		2. Uploaded the poster about places where there are support people with HIV/AIDS in both public and private hospitals by the poster which was posted on the web board 3. Emotional reflection from members and 4. Summary about hospitals where people with HIV/AIDS were treated and supported again. This was mentioned again as below; “There is free treatment from public hospitals by nurse supporters and are there several other places that offer free condoms; however, for private hospitals, you have to inquire again because of high budget”		support poeple with HIV/AIDS.



Activity 1 Making relationships and creating trust

Sub-activity1.1 Who are you?

Objectives

1. To build relationships and trust between the researcher, adolescent leaders, and adolescents with HIV/AIDS

Duration 30 minute**s**

Media and equipment

1. Table and chairs

Steps and activities

1. The researcher introduced herself and explained the details of the research and activities by making relationships and creating trust between the researcher, adolescent leaders, and adolescents with HIV/AIDS. Then, the researcher introduced the adolescent leaders to the adolescents with HIV/AIDS for making relationships within the group.

2. Making relationships commenced by each of the adolescents introducing themselves by their full name, nickname, age, and they were asked to agree to participate in the study. All of these activities were performed by the adolescent leaders with the researcher's support.

3. Opening opportunity to ask questions and make the decision to join the study with their parents.

Evaluation

1. Adolescents with HIV/AIDS introduced themselves, including full name and nickname and made the decision to participate in the study.

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<u>Sub-activity 5.4</u> Knowing the resources

Objectives

1. To know about treatment and supportive resources

Duration 1 hour

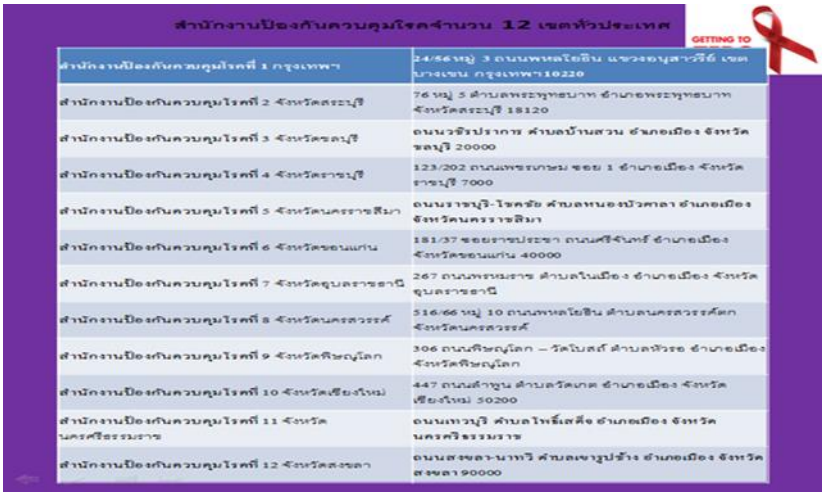
Media and equipment

1. Poster about private/public hospitals and places to get condoms

Steps and activities

1. Adolescent leaders posted the last activity with the sentence; "We do not live alone because we receive treatment and free ARV by government support; moreover, there are free condoms, HIV-testing, and counseling"

2. Adolescent leaders uploaded the poster about the places that support people with HIV/AIDS both in public and private hospitals. This poster was posted on the web boards



สำนักงานป้องกันควบคุมโรคที่ 1 กรุงเทพฯ	24/56 หมู่ 3 ถนนพหลโยธิน แขวงอนุสาวรีย์ เขตบางเขน กรุงเทพฯ 10220
สำนักงานป้องกันควบคุมโรคที่ 2 จังหวัดสระบุรี	76 หมู่ 5 ตำบลพระพุทธบาท อำเภอพระพุทธบาท จังหวัดสระบุรี 18120
สำนักงานป้องกันควบคุมโรคที่ 3 จังหวัดชลบุรี	ถนนวชิรปราการ ตำบลบ้านสวน อำเภอเมือง จังหวัดชลบุรี 20000
สำนักงานป้องกันควบคุมโรคที่ 4 จังหวัดราชบุรี	123/202 ถนนเพชรเกษม ซอย 1 อำเภอเมือง จังหวัดราชบุรี 7000
สำนักงานป้องกันควบคุมโรคที่ 5 จังหวัดนครราชสีมา	ถนนราชบุรี-โชคชัย ตำบลหนองบัวศาลา อำเภอเมือง จังหวัดนครราชสีมา
สำนักงานป้องกันควบคุมโรคที่ 6 จังหวัดขอนแก่น	181/37 ซอยราชประชา ถนนศรีจันทร์ อำเภอเมือง จังหวัดขอนแก่น 40000
สำนักงานป้องกันควบคุมโรคที่ 7 จังหวัดอุบลราชธานี	267 ถนนพรหมราช ตำบลในเมือง อำเภอเมือง จังหวัดอุบลราชธานี
สำนักงานป้องกันควบคุมโรคที่ 8 จังหวัดนครสวรรค์	516/66 หมู่ 10 ถนนพหลโยธิน ตำบลนครสวรรค์ตก จังหวัดนครสวรรค์
สำนักงานป้องกันควบคุมโรคที่ 9 จังหวัดพิษณุโลก	306 ถนนพิษณุโลก – วัดโบสถ์ ตำบลท่าโรง อำเภอเมือง จังหวัดพิษณุโลก
สำนักงานป้องกันควบคุมโรคที่ 10 จังหวัดเชียงใหม่	447 ถนนห้วยแก้ว ตำบลสุเทพ อำเภอเมือง จังหวัดเชียงใหม่ 50200
สำนักงานป้องกันควบคุมโรคที่ 11 จังหวัดนครศรีธรรมราช	ถนนเทวบุรี ตำบลไชยมนตรี อำเภอเมือง จังหวัดนครศรีธรรมราช
สำนักงานป้องกันควบคุมโรคที่ 12 จังหวัดสงขลา	ถนนสงขลา-นาทวี ตำบลเขารูปช้าง อำเภอเมือง จังหวัดสงขลา 90000

3. Emotional reflection from members and

4. Summary about hospitals where people with HIV/AIDS were treated and supported again. This was mentioned again as below;

“There is free treatment from public hospitals by nurse supporters and are there several other places that offer free condoms; however, for private hospitals, you have to inquire again because of high budget”

Evaluation

1. Adolescents with HIV/AIDS can tell of the places, both private and public hospitals, that support people with HIV/AIDS.

Leader training program

Introduction

The report of UNAIDS revealed that HIV / AIDS was still a global health problem, including in Thailand. In 2015, the number of people living with HIV/AIDS was around 1,526,028 cases and about 6,759 cases were newly HIV-infected cases (ASEAN World Aids Day MESSAGES, 2016). Approximately 85% of patients with HIV/AIDS are adolescents (15-25 year olds) and migrant workers (Ministry of Public Health, 2016). The literature review showed that the role of health education was undertaken by health provider care teams or teachers. There are several programs using adolescent leaders in order to drive in general the adolescents' group to prevent HIV/AIDS. The study showed that the peers' role was important for adolescents' develoment. Because peers are presumed to exert a major social influence on adolescent sexual behavior. Moreover, an adolescent leader or peer leader whose homogeneity group can share and discuss within group. They can easily access and talk with the group better than talking with nurse or a health care provider team (Sanders, 2013). In Thailand, there were no reports about training adolescents with HIV/AIDS to be leaders in order to drive the HIV prevention program in the homogeity group for reducing HIV infection (CDC, 2015)

From the outlined reasons, the researcher devoted much attention to develop the adolescents with HIV/AIDS to be leaders and they could lead in their group via a social network as a younger generation. and a new era. In this program, leader training was focused on the role of the leader for driving the program which consisted of duty and responsibility to manage and control throughout the time the program ran to achieve the goal. Similar to Gibson, Ivancevich, and Donnelly (1997) who mentioned that leadership is the interaction between a leader and group member and the leader is the main person to lead the follower for achieving the goal and changing the behavior. Thus, the skills of leadership are very important. There are 20 skills for leadership; however, the basic skills should be had which are communication and decision-making skills (Marquis & Huston, 2006). The leader training was developed by using a social network; therefore, comunication skills via Facebook such as using emotional stickers, writing langugage, Video chat etc. Moreover, the participants were trained in

decision-making skills to make decisions and to link the reason, leading to the best choice. From the above, the researcher seclected two skills for training adolescents with HIV/AIDS to be leaders. In addition, adolescent leaders were trained in the skill of using a social network . Then, they were trained by the researcher. Finally, the adolescent leaders drove the HIV/AIDS sexual transmission program via Facebook with support by the nurse on behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS.

Objective

To train adolescents with HIV/AIDS to be effective leaders who led the nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program via an online social network.

Participants

The researcher selected ten adolescents with HIV/AIDS who were diagnosed with HIV/AIDS by a pediatrician, and who attended the HIV/AIDS clinic at Nakhon Si Thammarat Hospital.

Purposive sampling was used to recruit 10 adolescents with HIV/AIDS. The inclusion criteria for adolescents were: 1) aged 12 to 19 years old diagnosed with HIV/AIDS by a pediatrician at stage N or stage A because at this stage the patients had AIDS symptoms but they could still perform as usual in daily life, 2) had a status at post disclosure at least 3 months after diagnosis and they had accepted the status of living with HIV/AIDS because the patients had been prepared by a care provider team before disclosure; thus, the time range of disclosure of at least 3 months as having accepted the status of being HIV/AIDS infected, 3) the laboratory results showed that CD4 >350cells/mm3 and Viral Load < 40 copies/ml because there was a good response to treatment and the patients had good health, 4) drug adherence > 95% per 3 months before recruitment because it showed that treatments had been successful and there was reduced drug resistance (Bureau of AIDS, TB, and STIs Ministry of Public Health, 2015), 5) able to communicate, listen, read, and write in Thai language, and 6) had the ability to use the internet (Facebook) and had access via a computer or smart phone.

Implementer

Miss Ampaiwan Boonkaewwan, PhD candidate, Faculty of Nursing, Prince of Songkla University

Research setting

Recreation Room of Learning Park of Nakhon Si Thammarat Face-to-face and via Facebook

Duration

Face-to-face took 2 days, total 8 hours.

Via Facebook took 7 hours and 4 appointment times

Evaluation

1. Obsevation of participation in all activities of adolescents leaders

2. Interest and asking questions of adolescent leaders

3. Evaluation of mean score of comunication skills, decision-making skills, leadership skills,HIV/AIDS knowlege, attitude toward HIV/AIDS prevention, behavioral intentions for HIV/AIDS prevention, and perceived effectiveness of HIV/AIDS preventive behavior by the average scores greater than or equal to 80% which were interpreted as being effective leaders.

4. Attention behavior, ideas sharing and discussion of adolescent leaders throughout the leader training program.

Activities

The activities consited of 6 activities as below.

1. Making relationships and building trust which consisted of one sub-activity of understanding I and you and listening carefully without judgment (total 45 minutes).

2 . Encouragement of leader power consisted of one sub-activity which is I am a superman in that adolescent leaders recognized their own potential and their hidden leadership abilities (total 45 minutes).

3 . The communication skill consisted of two sub-activities which are learning and increasing the skills of communication and learning the skills of communication via an online network (total 1.30 hours).

4. The decision-making skill consisted of one sub-activities which is learning and increasing critical decision making by using the short movie “the choice” (total 1 .30 hours)

5. The use of a computer, an online social network, and ethics of social networking site consisted of two sub-activities which are learning knowledge, ethics of social networking site, and using the appropriate social online network, and cultivation on awareness and responsibility to use an online social network (total 2.30 hours).

6. The training of the implementation of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network consisted of four sub-activities

6.1 HIV/AIDS knowledge

6.2 Positive attitude

6.3 Subjective norm

6.4 Perceived behavioral control

The details are as follows.

Steps and activities of leader training program

Date/Time/Place	Objective	Media/Content	Procedure and activity		Evaluation
			Researcher (Nurse)	Adolescent leader	
Day 1 9.00- 09.45am. at Recreation Room, Learning City Park, Nakhon Si Thammarat	**Activity 1** Making relationship and building trust Sub-activity 1 Know me, know you 1. To make relationship and build trust between the researcher and adolescent leaders with HIV/AIDS 2. To train about listening carefully without judgment	**Media** 1. Stone 2. CD song "Cheewit Likit Eng" (permission from GMM grammy co. Ltd.) **Content** (The details of activities were learnt through the guidebook of leader training program for activity management of 1 page 1-2)	1. The researcher introduced herself and explained the study and activities by making relationships and building trust between the nurse and adolescent leaders 2. Sit in a circle and put the stone in the middle and introduce yourself by who wants to introduce them selves you must keep the stone in one hand. When he/she had finished introducing his/herself, he/she put the stone in the middle. Then, next person keeps the stone in one hand and introduces them self, do this activity until the last person. The rule is the person who speaks is the one who holds the stone in their hand only. Meanwhile, people who do not have the stone must listen carefully. 3. When everyone finishes introducing himself or herself, the second round begins by leaders sharing about the happiest things	1. Adolescent leaders introduced themselves by saying their full name, nick name, and age 2. Adolescent leaders knew who is you and they expressed emotion and feelings in order to create trust among friends in the group. 3. Adolescent leaders carefully listened to friends' stories.	1. Adolescent leaders introduced themselves and they can express emotions.

Date/Time/Place	Objective	Media/Content	Procedure and activity		Evaluation
			Researcher (Nurse)	**Adolescent leader**	
			in life by holding the stone in one hand. Who wants to talk, they must hold the stone before speaking. If they have finished talking, they must put the stone in the middle of circle. About 2 minutes per person is allowed for this. Meanwhile, people who do not have stone must listen carefully. 4. When everyone finishes talking, begin the third round; please rethink about the events that made you so sad. Then, they share the story while holding the stone in one hand. Who wants to talk, they must hold the stone before speaking. If they finished talking, they must put the stone in the middle of the circle. It takes about 2 minutes per person. Meanwhile, people who do not have the stone must listen to others carefully. 5. The researcher reflects on the story of the leaders for about 5 minutes as follows; “Everybody		

Date/Time/Place	Objective	Media/Content	Procedure and activity		Evaluation
			Researcher (Nurse)	**Adolescent leader**	
			had his or her own provenance, there were several events of both happiness and joylessness. We would feel good, if someone understood and intended to listen to our both happiness and sadness. Therefore, this activity is training for carefully listening and training about confidentiality within the group without judging"		
. . . . . .	. . . . . .	. . . . . .	. . . . . .	. . . . . .	. . . . . .
<u>Day 2</u> 1) 13.00- 15.30 pm. at Recreation Room, Learning City Park, Nakhon Si Thammarat	**Activity 6** The training of implementation of the nurse's support for adolescents-led HIV/AIDS sexual transmission	**<u>Medias</u>** 1. The CD of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network	1. The researcher introduced the importance of the leaders to drive the program because adolescent leaders drive this program until finish to achieve goals. They must drive the program step by step following the guideline (30 minutes)	1.Adolescent leaders practice and try out the program with a friend 2. Adolescent leaders match each other and switch to be leaders and followers.	1. Adolescent leaders can use the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network effectively.

Date/Time/Place	Objective	Media/Content	Procedure and activity		Evaluation
			Researcher (Nurse)	Adolescent leader	
2) 19.00-21.00pm. via Facebook, Day 1 3) 19.00-21.00pm. via Facebook, Day 2 4) 19.00-21.00 pm. via Facebook, Day 3	prevention program using a social network Sub-activity 6.1 The training of implementation of the program 1. To train adolescent leaders to drive the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network 2.To train adolescent leaders to understand the steps and use the medias of the nurse's support for adolescents-	2. Notebook **Content** (Please see the details of activities in the guideline of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network, activities 2-5, pages 11-34)	2. The researcher taught adolescent leaders to use the program systematically such as posting pictures, posters, videos etc. (2 hours) by face to face. 3. Try out to run the program by practice between friends and switching from leader to follower based on 5 activities and must pass evaluation which was evaluated by the researcher. (6 hours)		2. Adolescent leaders can practice the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network with a friend systematically correctly. 3. They can do questionnaires consisting of HIV knowledge, attitude toward HIV/AIDS prevention, behavioral intention for HIV/AIDS prevention, and perceived effectiveness of HIV/AIDS preventive behavior and pass with at least 80%

Date/Time/Place	Objective	Media/Content	Procedure and activity		Evaluation
			Researcher (Nurse)	Adolescent leader	
	led HIV/AIDS sexual transmission prevention program using a social network				

Guidelines of activity

Activity 1 Making relationships and building trust

Activity 1 Know me, know you

Objectives

1. To make a relationship and build trust between the researcher and adolescent leaders with HIV/AIDS

2. To train in listening carefully without judgment

Duration 45 minutes

Media and equipment

1. Stone

2. CD song “Cheewit Likit Eng” (permission from GMM Grammy co. Ltd.)

Steps and activities

1. The researcher introduces herself and explains the study and activities by making a relationship and building trust between the researcher and adolescent leaders

2. Sit in a circle and put the stone in the middle and introduce youself you must keep the stone in your hand. After finishing introducing her/himself, he/she puts the stone back in the middle. Then, next person holds the stone in his/her hand and introduces his/herself, until the last person has introduced his/herself. The rule is the person who speaks is the only one who holds the stone. Meanwhile, people who do not have stone must listen to the others carefully.

3. When everyone finishes introducing himself or herself the second round begins with the leaders sharing the happiest things in life by holding the stone in one hand. Who wants to share must hold the stone before speaking. If they finish talking, they must put the stone back in the middle of the circle. This process will take about 2

minutes per person. Meanwhile, the people who do not have stone must listen to the others carefully.

4. When everyone finishes talking, begin the third round; please think about the events that make you so sad. Then, everyone takes a turn to tell their story by holding the stone in one hand. Who wants to share must hold the stone before speaking. If they finish talking, they must put the stone back in the middle of the circle. This process will take about 2 minutes per person. Meanwhile, the people who do not have the stone must listen to the others carefully.

5 . The researcher reflects on the stories of the leaders for around 5 minutes as follows. "Everybody has his or her own provenance, there are several events of both happiness and joylessness. Thus, how many people have these experiences? We will feel good, if someone understands and intends to listen to both our happy and sad events. Therefore, this activity is training for carefully listening and training about confidentiality within the group and without judgement"

Evaluation

1. Adolescent leaders introduce themselves and they can express emotions.

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Activity 6 The training of implementation of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network

Sub-activity 6 The training of implementation of the program

Objectives

1. To train adolescent leaders to drive the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network

2. To train adolescent leaders to understand the steps and use the medias of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network

Duration 2.30 hours

Media and equipment

1. The CD of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network

2. Notebook

Steps and activities

1. The researcher introduces the importance of the leaders to drive the program because adolescent leaders must drive this program until the finish to achieve the goals. They must drive the program step by step following the guideline (30 minutes)

2. The researcher teaches the adolescent leaders to use the program systematically such as posting pictures, posters, videos etc. (2 hours) by face to face.

3. Trying out the program by practicing between friends and switching from a leader to a follower based on 5 activities and an evaluation must be passes which is evaluated by the researcher (6 hours)

(Please see the details of activities in the guideline of the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network, activities 2-5, pages 11-34)

Evaluation

1. Adolescent leaders can use the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network effectively.

2. Adolescent leaders can practice the nurse's support for adolescents-led HIV/AIDS sexual transmission prevention program using a social network with friends systematically correctly.

3. They can do the questionnaires consisting of HIV knowledge, attitude toward HIV/AIDS prevention, behavioral intention for HIV/AIDS prevention, and perceived effectiveness of HIV/AIDS preventive behavior and pass with at least 80%

Appendix B: Instruments

Code……

Time...../.....

Demographic data questionnaire

Instruction

Demographic data questionnaire was established to ask your personal information

Please mark ✓ in the space box based on your most accurate personal information

Example

1. Number of your close friends?	☐ None ☐ 1 ☑ 2 ☐ other.....	☐☐☐☐

From example It means that you have 2 close friends.

Demographic data questionnaire

1. Gender	☐ Male ☐ Female ☐ Other	☐☐☐
2. Age	Specify ……years	
. . . . .		
24. Family occupation	☐ Agriculture ☐ Self-employed ☐ Seller ☐ Other.....	☐☐☐☐
25. Family income (baht/month)	Specify.....baht/month	

Behavioral intention for HIV/AIDS prevention questionnaire

<u>Direction</u>

Please select items to intend to HIV/AIDS preventive behaviors score ranging from very unlikely to very likely. By you can mark / in the space based on your intention.

Items	Very likely	somewhat likely	Unsure	somewhat unlikely	Very unlikely
1. I intend to not have sexual intercourse at all during the next month					
. . . .					
8. I intend to ask my partner to get a blood test during the next month to check whether they have the virus that causes AIDS.					

The perceived effectiveness of HIV/AIDS preventive behavior scales

Instruction:

Please select how effectively or ineffectively you feel you could do each of the following things.

"Imagine that you are in your room with an attractive person whom you have recently met and you like very much. It is clear from their behavior that they want to have sexual intercourse with you, and you also want to have sex with them. However, whom you have sex you want you and your partner to use a condom or safer- sex discussion to reduce both of your risk of becoming infected with the HIV that causes AIDS".

Please select items to perceive effectiveness of HIV/AIDS- preventive behaviors score ranging from very effectively to very ineffectively. You can mark ✓ in the space based on your perception.

Statements to Answer	Score ranging				
	Very effectively	**Somewhat effectively**	**Neither effectively nor ineffectively**	**Somewhat ineffectively**	**Very ineffectively**
Safer-sex discussion (10 items) 1. How effectively could you discuss safer sex (such as using latex condoms) with your partner before having sex with them?					
. . . .					
HIV testing (1 item) 24. How much effective, you can persuade your partner to receive blood examination for checking HIV germ?					

HIV Knowledge Questionnaire (HIV-KQ-18)

Instruction

For each statement, please / “True” (T), “False” (F), or I don’t know (DK), If you do not know, please do not guess; instead, please / DK.

Details	True	False	I don’t know
1. Coughing and sneezing Do not spread HIV.			
. . . .			
18. Using Vaseline or baby oil with condoms lowers the change of getting HIV.			

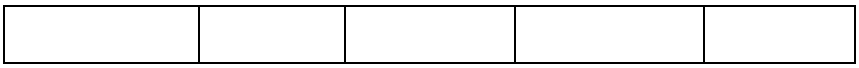
Attitudes toward HIV/AIDS Preventive Acts Scale

Direction

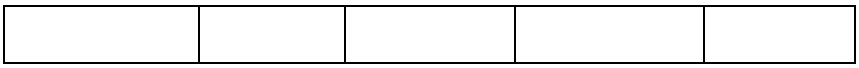
Each question below is asked in the context of what you would think or do in the next month. Answer each of the questions below by putting an X on the part of the line that best represents your feelings. Be sure to put your mark within one of the five intervals on each line

1. My not having sexual intercourse at all during the next month would be:

Very good very bad



Very awful very nice



Very pleasant very unpleasant

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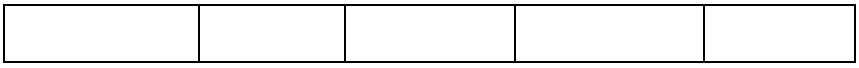
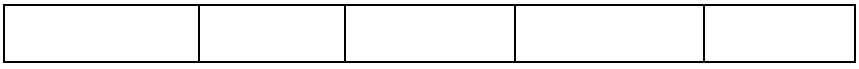
8. Asking my partner(s) to get a blood test during the next month to check whether they have the virus that causes AIDS would be:

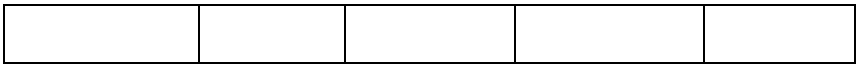
Very good very bad



Very awful very nice



Very pleasant very unpleasant



Communication Skills questionnaire

Instructions

For each statement, select in the column that best describes you. Please answer questions as you actually are (rather than how you think you should be) by making / in the space the score ranging from not at all to very often.

Statements to Answer	Not at All 1	Rarely 2	Sometimes 3	Often 4	Very Often 5
1. I try to anticipate and predict possible causes of confusion, and I deal with them up front.					
. . . .					
15. I consider cultural barriers when planning my communications.					

Decision-Making Skills questionnaire

Instructions

For each statement, select in the column that best describes you. Please answer questions as you actually are (rather than how you think you should be), which you can mark ✓ in the space ranging from not at all to very often.

Statements to Answer	**Not at All 1**	**Rarely 2**	**Sometimes 3**	**Often 4**	**Very Often 5**
1. I evaluate the risks associated with each alternative before making a decision.					
. . . .					
18. I emphasize how confident I am in my decision as a way to gain support for my plans.					

The test skill of the leadership questionnaire

Instructions

For each statement, select in the column that best describes you. Please answer questions as you actually are (rather than how you think you should be), which you can mark ✓ in the space by score ranging from not at all to very often.

Statements to Answer	Not at All 1	Rarely 2	Sometimes 3	Often 4	Very Often 5
1. When assigning tasks, I consider people's skills and interests.					
. . . .					
18. I think that teams perform best when individuals keep doing the same tasks and perfecting them, instead of learning new skills and challenging themselves.					

Appendix C: Assumption Testing

Assumption Testing

Table 15

The assumption testing of normality using skewness and kurtosis, standard error of skewness and kurtosis and skewness and kurtosis value of demographic data and variables of adolescent leaders (N =10)

Variable	Skewness		Kurtosis		Skewness value	Kurtosis value
	Statistic	Std.Error	Statistic	Std.Error		
Age (years)	.223	.687	-.063	1.334	0.32	-0.05
Age of children perceived that they had HIV (years)	.606	.687	-1.181	1.334	0.88	-0.89
Pre-test of knowledge	.237	.687	-1.667	1.334	0.34	-1.67
Post-test of knowledge	-.272	.687	-.896	1.334	-0.39	-0.67
Pre-test of communication skill	-.381	.687	.074	1.334	-0.55	0.06
Post-test of communication skill	-.837	.687	.560	1.334	-1.22	0.42
Pre-test of decision-making skill	-.705	.687	.299	1.334	-1.03	0.22
Post-test of decision-making skill	-.410	.687	-1.218	1.334	-0.60	-0.91
Pre-test of leader skill	.932	.687	1.540	1.334	1.36	1.15
Post-test of leader skill	.421	.687	-1.405	1.334	0.61	-1.05
Pre-test of attitude toward HIV/AIDS prevention	-.682	.687	-.010	1.334	-0.99	-0.01
Post-test of attitude toward HIV/AIDS prevention	.234	.687	-.347	1.334	0.34	-0.26
Pre-test of behavioral intention to HIV/AIDS prevention	1.066	.687	.168	1.334	1.55	0.13
Post-test of behavioral intention to HIV/AIDS prevention	.564	.687	-.009	1.334	0.82	-0.01
Pre-test of perceived effectiveness of HIV/AIDS prevention	.987	.687	2.069	1.334	1.44	1.55
Post-test of perceived effectiveness of HIV/AIDS prevention	.555	.687	.072	1.334	0.81	0.05

The results showed that all dependent variables of adolescent leaders were met assumption of normality of the data distribution with values of skewness and kurtosis less than 3.29.

Table 16
The assumption testing of normality using skewness and kurtosis, standard error of skewness and kurtosis and skewness and kurtosis value of demographic data and variables in control group (N =35)

Variable	Skewness		Kurtosis		Skewness value	Kurtosis value
	Statistic	Std.Error	Statistic	Std.Error		
Age (years)	.356	.398	-.908	.778	0.89	-1.17
Age of children perceived that they had HIV (years)	.914	.398	.484	.778	2.30	0.62
Total behavioral Intention for HIV/AIDS prevention						
baseline	-.485	.398	-.438	.778	-1.22	-0.56
Day 15	.022	.398	-1.391	.778	0.02	-1.79
Day 30	-.158	.398	-1.076	.778	-0.40	-1.38
Total perceived effectiveness of HIV/AIDS prevention						
baseline	-1.147	.398	1.111	.778	-2.90	1.43
Day 15	-1.043	.398	1.560	.778	-2.62	2.01
Day 30	-.614	.398	-.271	.778	-1.54	-0.35

The results showed that all dependent variables of adolescent leaders were met assumption of normality of the data distribution with values of skewness and kurtosis less than 3.29.

Table 17
The assumption testing of normality using skewness and kurtosis, standard error of skewness and kurtosis and skewness and kurtosis value of demographic data and variables in experimental group (N =35)

Variable	Skewness		Kurtosis		Skewness	Kurtosis
	Statistic	Std.Error	Statistic	Std.Error	value	value
Age (years)	.207	.398	-.761	.778	0.52	-0.98
Age of children perceived that they had HIV (years)	-.045	.398	-.688	.778	-0.11	-0.88
Total behavioral Intention for HIV/AIDS prevention						
Baseline	-.391	.398	-.100	.778	-0.98	-0.13
Day 15	-1.621	.398	2.045	.778	-4.07	2.63
Day 30	-1.239	.398	.785	.778	-3.11	1.01
Total perceived effectiveness of HIV/AIDS prevention						
Baseline	-1.762	.398	2.925	.778	-4.43	3.76
Day 15	-1.335	.398	.761	.778	-3.35	0.98
Day 30	-1.221	.398	.617	.778	-3.07	0.79

The results showed that all data were met assumption of normality of data distribution except the means of behavioral intention for HIV/AIDS prevention measured at Day 15, perceived effectiveness of HIV/AIDS preventive behavior measured at baseline and at Day 15.

Appendix D: List of Experts

LIST OF EXPERTS OF CONTENT VALIDITY

1. Assistant Professor Dr. Sasikarn Kala, Department of Obstetrics and Gynecology Nursing, Faculty of Nursing, Prince of Songkla University, Hat Yai, Thailand
2. Mrs. Somsri Kutchaweth, Pediatrician and the expert in pediatric with HIV/AIDS, Pediatric Department, Maharat Nakhon Si Thammarat Hospital, Nakhon Si Thammarat, Thailand
3. Mrs. Monta Pethpan, Head of HIV/AIDS Sub-department, Department of Disease Control, Nakhon Si Thammarat Provincial Health Office, Nakhon Si Thammarat, Thailand

LIST OF EXPERTS OF BACK TRANSLATION

1. Associate Professor Dr. Piyanuch Jittanoon, Department of Family and Community Nursing, Faculty of Nursing, Prince of Songkla University, Hat Yai, Songkhla, Thailand
2. Associate Professor Dr. Waraporn Kongsuwan, Associate Dean for Research, Graduate Studies, and International Affairs, Faculty of Nursing, Prince of Songkla University, Hat Yai Thailand
3. Assistant Professor Dr. Orawan Nukaew, Department of Psychiatric and Mental Health Nursing, Faculty of Nursing, Prince of Songkla University, Hat Yai Thailand
4. Dr. Alan Frederick-Geater, Lecturer, Department of Epidemiology, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla, Thailand

Appendix E: Ethical Considerations

Informed consent Form

My name is Ampaiwan Boonkaewwan, a nurse who is pursuing a degree of Doctor of Philosophy at the Faculty of Nursing, Prince of Songkla University. I am conducting a study on "Effect of nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention of HIV/AIDS preventive behaviors and perceived effectiveness for HIV/AIDS preventive behavior among adolescents with HIV/AIDS" under supervision of Associate Professor Dr. Busakorn Punthmatharith and Assistant Professor Dr. Wantanee Wiroonpanich. The aim of the study is to test the effects of the nurse's support for adolescents-led HIV/ AIDS sexual transmission prevention program using a social network on behavioral intention for HIV/ AIDS prevention and perceived effectiveness of HIV/ AIDS preventive behaviors among adolescents with HIV/ AIDS. Therefore, it is expected that the results of this study will be contributed to HIV/AIDS preventive behaviors among adolescents with HIV/AIDS. Thus, you will be divided into two groups ether control or experimentation group. Both groups will receive the same usual care from the hospital personnel about 14 days and booster for 14 days also. Meanwhile, experimental group will receive the nurse's support for adolescents-led HIV/ AIDS sexual transmission prevention program using a social network about 14 days and booster for 14 days. Moreover, both groups will be collected the data with three instruments consist of demographic data questionnaire, behavioral intention for HIV/AIDS prevention questionnaire, and the perceived effectiveness of HIV/AIDS preventive behavior scales before and after receiving the program or usual care at Day 15 and Day 30. After that the control group will receive the program also. The protect risk of this study will be protected hacking data that there is setting firewall for protecting spire ware with password protected. Moreover, we have to protect program based on informational technology of law and mange strategies in Facebook to keep private security for participants. Throughout the driving program, you can contact to me by cell phone, email, and Facebook every time as soon as you want.

You are being asked to participate in this study. All information in this study will remain confidential, no name will be mentioned, and the information gather will be reported as a dissertation, which is a requirement for the doctoral degree. The adolescent leaders who are also HIV/AIDS infection will drive the program via Facebook by researcher

will support throughout the driving program. During the study, you have the right to withdraw from the participation anytime without the problems prior to completion of data collection. If you are interested in participation of this study, you will be assessed the information data as follows.

You will be asked to complete the demographic data form, the behavioral intentions for HIV/AIDS prevention and the perceived effectiveness of HIV preventive behavior scales. When you decide to participate in this study, you will be assigned into either the experimental group or the control group. Both groups will receive the same standard care from the health care provider team. The experimental group participates the program after the first assessment of data, whereas the control group does not participate the program. This program will take 1 month by discussion or chat within group in topics of HIV/AIDS prevention. During 2 weeks, adolescent leaders will attempt to communicate with their group participants via Facebook chat, messages, and group wall posts approximately 2-3 times per week. If you feel uncomfortable about participation in this study, please do not hesitate to tell me.

If you have any questions or suggestions or cannot participate in this study, you can directly contact me by phone number 088-7830987, and my email: aew_iya@hotmail.com. If you agree to joint this program, please sign your name on the consent form. Please remember to keep your appointment.

Thank you for your kind cooperation

Ampaiwan Boonkaewwan

Consent Form

I am a caregiver or parents of participant. I recieved informations from Miss ampaiwan Boonkaewwan about objective of this study and the process of the study. Thus, I agrees and allows he/she who is my under supervision to participate in this study of whom is my concern to participate in the study "Effect of nurse's support for the adolescents-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention of HIV/AIDS preventive behaviors and perceived effectiveness for HIV/AIDS preventive behavior among adolescents with HIV/AIDS."

Caregiver or parents

Date……..

For participant

This program has been explained to me, and I voluntary agree to give my consent to participate in this study.

☐ Agree

☐ Not agree

Participant

Date……..

VITAE

Name Ms. Ampaiwan Boonkaewwan

Student ID 5610430010

Education Attainment

Degree	Name of Institution	Year of Graduation
- Certificate of Advanced Practice Nurse (Pediatric Nursing)	Thailand Nursing Council	2010
- Master of Nursing Science (Pediatric Nursing)	Chiang Mai University (Thailand)	2006
- Bachelor of Nursing Science	Mahasarakam University (Thailand)	2001
- Diploma in Nursing and Midwifery (Equivalent to Bachelor of Science in Nursing)	Boromarajonni Nursing College, Nakhorn Si Thammarat (Thailand)	1996

Scholarship Award during Enrolment

1. Visiting Scholar to College of Nursing, Kent State University, USA at 2017. Scholarship award from Faculty of Nursing, Prince of Songkla University, Thailand
2. Scholarship for dissertation supporting at 2015 from the Graduate School, Prince of Songkla University, Thailand

Work Position and Address

Advanced practice nurse at department of HIV/AIDS, Chawang Crown Prince Hospital, Nakhorn Si Thammarat province, Thailand. Email: aew_iya@hotmail.com

Research and Publication

Boonkaewwan, A., Punthmatharith, B., & Wiroonpanich, W. (2018, May). *Effects of a nurse's support for the adolescent-led HIV/AIDS sexual transmission prevention program using a social network on behavioral intention for HIV/AIDS prevention and perceived effectiveness of HIV/AIDS preventive behavior among adolescents with HIV/AIDS*. Paper presented at 6th Padjadjaran International Nursing Conference (PINC 2018), May 23-24, 2018, EL Royal Hotel, Bandung, West Java, Indonesia. (Abstract, received the best oral presenter award)

Boonkaewwan, A., Punthmatharith, B., Wiroonpanich, W., & Ross, R. (2017, July). *HIV sexual transmission prevention in HIV-infected adolescents in Thailand: A concept analysis.* Poster session presented at the international nursing conference on ethics, esthetics, and empirics in nursing: Driving forces for better health Publishing, Faculty of Nursing, Prince of Songkla University. July 5-7, 2017, the 60th anniversary of His Majesty the King's Accession to the Throne International Convention Center, Songkhla. (Abstract, received the popular vote award)

Boonkaewwan, A., Punthmatharith, B., & Ross, R. (2017, April). *Facebook HIV transmission prevention intervention among Thai HIV-infected adolescents: Sequential exploratory mixed methods research*. Paper presented at the meeting of in Engagement Series Brown Bags, College of Nursing, Kent state University. Spring 2017, April 18, 2017, Henderson Hall, College of Nursing, Kent state University Ohio, USA.

Boonkaewwan, A., Punthmatharith, B., & Ross, R. (2017, April). *Facebook HIV transmission prevention intervention among Thai HIV-infected adolescents: Sequential exploratory mixed methods research*. Poster session presented at graduate symposium, College of Graduate, Kent State University. April 21, 2017, Student center hall, Kent State University, Ohio, USA.

Boonkaewwan, A., Punthmatharith, B., & Wiroonpanich, W. (2015, May). *Transition in adolescents with HIV/AIDS: A concept analysis*. Paper presented at the more than 2 decades of graduate nursing study, Faculty of nursing, Prince of Songkla University, Songkla, Thailand. May 2015, 3rd building Faculty of Nursing, Prince of Songkla University. (Abstract, received the best oral presentation award)

Boonkaewwan, A., Lamchang, S., & Thanasuwan, W. (2008). Sleep patterns and sleep disturbance factors among pediatric patients in a community hospital. *Nursing Journal, 34*(1), 18-28.