Prevention of Sexually Transmitted Infections among Bangkok High School Students: Knowledge, Attitudes, and Practices

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Abstract

This survey research studied the correlation between knowledge, attitudes, and practices to prevent sexually transmitted infections (STIs) among students in High School Educational Regions 1 and 2, Bangkok, Thailand. It also compared their STI prevention practices according to their gender and parents' marital status. A total of 349 high school students who were selected using a multi-stage quota sampling procedure responded to the survey.

The correlation between students' knowledge, attitudes, and practices was examined using Pearson's Product-Moment Correlation. Their knowledge was negatively correlated with their attitudes, but their attitudes were positively correlated with their STI prevention practices. STI prevention practices were then compared between genders and among three groups based on parents' marital status using one-way ANOVA, Independent t-test, and Scheffe's Post Hoc test. Female students generally had higher levels of STI prevention practices than did male students at a statistically significant level of 0.05. However, parental marital status did not have a statistically significant effect on STI prevention practices. The results of the study emphasize the importance of adolescent sex education and the promotion of appropriate sexual attitudes and practices.

Keywords: *Knowledge, Attitudes, Practices, Prevention of sexually transmitted infections (STIs), High School Students*

Introduction

Sexually Transmitted Infections (STIs) are caused by sexual contact through vaginal, oral, or anal intercourse with a contagious disease carrier. The five major sexually transmitted diseases are syphilis, gonorrhea, lymphogranuloma venereum, non-gonococcal urethritis, and chancroid. Other sexually transmitted infections include trichomoniasis, scabies, pubic lice, genital warts, mulluscum contagiosum, chlamydia, vaginal candidiasis, Hepatitis B, and AIDS (Kongkekkuat, Kittiyaovamarn, & Daengsaard, 2015). World Health Organization (2016) data indicates that on average, about one million people contract sexually transmitted infections each day, and there are 357 million new infections each year. The Annual Epidemiological Surveillance Report from the Thai Department of Epidemiology, Ministry of Public Health in 2012 reported that the rate of sexually transmitted infections was 51.31 patients per 100,000 population. In 2014, this rate increased to 53.55 per 100,000, and in 2015, it climbed to 61.02 per 100,000, with the highest rate found among the 15 – 24 years of age group, or among adolescents. This shows that this matter is a major public health problem, and signals the prevalence of unsafe sex practices and risk of HIV infection.

Adolescents have a higher risk of STIs than other groups because they are rapid adopters of new things. They are undergoing physical, mental, and emotional changes; they are starting to think for themselves, and they want to be accepted by their friends. They like to take risks and experiment with new experiences, especially in regards to sex, because of their physical development and higher levels of sexual hormones (Poopaiboon, 2004). Technological advances, changing patterns in communication, and more rapid and convenient access to media such as television, movies, books, the Internet, and various provocative materials have impacted teenagers, who are not able to properly discriminate and choose wisely for themselves. As Karnjanavasri (2014) has noted, today's society gives children implicit opportunities to freely learn about sex by unobstructed observation of various media. For example,

adult entertainment magazines are sold publically, questions about sex are answered on radio, television, video games, and other online media; this may leave them feeling frustrated or curious. As a result, teenagers may express themselves by dressing immodestly – for instance, by wearing short skirts, wide or plunging necklines, and low-waist pants; they may also imitate foreign customs such as embracing, publicly holding hands, dating, and unreserved kissing/hugging. They may become interested in finding answers to sexual questions from misinformed friends in their same age group, and all these factors may lead to inappropriate behavior among teenagers.

Sexual knowledge is an important part of life starting from birth. From infancy to early childhood, children will play with their own sexual organs, or show interest in the genitals of other children of similar age. This is the process by which they learn about the body's organs. Forbidding such behavior or blaming them without reason will cause children to have wrong attitudes about sex. Nowadays, time spent with family members has decreased due to economic conditions and high living costs, as parents struggle to support their families and spend less time with their children because of work pressures. There is no time to adequately impart knowledge about sex education, build values, or cultivate high moral standards. The children turn to their own activities, which are mostly related to technology, games, and the Internet instead of spending time with family. This makes it easier for teens to contact or date persons with whom they were not previously acquainted, and results in riskier sexual behavior.

According to a study by Boontham (1992), the structure of family relationships is one of the factors that can correctly predict the level of risky sexual behavior that leads to AIDS infections. If a family breaks up, the behavior of affected teenagers tend to be more deviant. A study by Petkal (2008) found that family interaction and activities were correlated with prevention of sexual intercourse by adolescent students. A study by Moombanchao (1994) cited by Phosri (2004) found that in broken families, members are not committed to each other, and so such families lack warmth. This provides an opportunity for members – especially teenagers – to engage in risky sexual behaviors. According to an Office of Standards, Ministry of Social Development and Human Security (2010) study, building good family relationships is very important. As members talk honestly with each other, trust is created, along with courage for children to share all their problems openly with other family members, including teenage love affairs. As teenagers consider the consequences of disobeying their parents or guardians, this becomes a preventive measure that restrains teenage girls from doing wrong, including in sexual matters.

This is consistent with a study by Huebner & Howell (2003), which found that communication with parents about sexual matters affected understanding and attitudes toward reducing risky sexual behavior. It is evident that knowledge, attitudes, and practices are directly and indirectly related to each other. A study entitled "Gender Roles and Teenage Reproductive Health Practices in Uttardit Municipality, Uttadarit Province (Thailand)" found a relationship between recognition of gender roles in transmission of sexual infections/AIDS and actual practices (Sethaboot and Sirirasmee, 2002). Another study entitled "Knowledge, Attitudes, and Safe Sex Practices of Teenage Students' in Phrae Municipality, Phrae Province" found that the sample group revealed a moderate level of safe sex knowledge and practice (Srichai, Hiranthanavivat, and Viketkarn, 2005). However, these findings are not consistent with those of Uavitayasuporn & Phomuentip (2011), who found a low level of knowledge and attitudes toward risky sexual behavior in the Muang District of Nakhon Ratchasima Province among teenagers, while their sexual behavior was highly risky.

Traditional Thai values call upon women to observe sexual self-restraint; this custom has been practiced for a long time, and still works well. Parents teach their daughters to preserve their purity by retaining their virginity until they are married. This increases a woman's worth, and so women are trained to be careful and control their sexual behavior, which helps protect them from sexual risks. Thai society accepts men's dominance over women, and explicitly gives them sexual freedom. Men may have

sex with many women as a way of expressing their masculinity without damaging their reputations. For this reason, men are not careful, and tend to engage in sexually risky behavior.

The work of Jongvannasiri (2006) indicates that in traditional Thai culture, girls should be reserved and not become too intimate in public, while boys are allowed to freely express sexual behavior as part of their masculinity. Gender is therefore a good predictor of sexually risky behavior, and boys are clearly the riskier gender. Phomrain (2007) showed that junior high school students from Srinakarinviroth University, Bangkok exhibited differences in sexually risky behavior according to their education level. Ravajai (2011) studied the factors influencing prevention of sexual risk among 406 students at the Office of the Vocational Education Commission, Bangkok, and concluded that each gender presented different sexual risk prevention, with female students achieving better prevention of sexual risks at a statistically significant level of 0.05.

These research reports demonstrate the importance of Thai culture in preventing promiscuous behavior (preserving virginity), and how vital is its cultivation among adolescents from an early age. As unavoidable worldwide changes have impacted Thai culture and society, sexual mores among Thai young people have shifted and premarital sexual relations have become more common. In a report prepared by the Bureau of Reproductive Health, Sookrat (2014) found that from 2004 to 2014, sexual activity among male high-school students increased from 17.8% to 24.8% while among female students, it had increased from 5% to 20.2%. This report shows that risky sexual behavior among adolescents is a critical problem that is intensifying, with increases in sexually transmitted infections and an upward trend in new AIDS cases. These problems call for urgent action, and have led the researcher to study knowledge, attitudes, and practices that may help prevent STIs among high school students. The study searches for guidelines that are suitable for Thai societal conditions and help to effectively resolve these problems.

Research Objectives

1. To study the correlation of knowledge levels, attitudes, and practices to prevent sexually transmitted infections among students in High School Educational Regions 1 and 2, Bangkok, Thailand.
2. To study and compare practices to prevent sexually transmitted infections by gender and parents' marital status among students in High School Educational Regions 1 and 2, Bangkok, Thailand.

This type of research is rather difficult to conduct because the topic is quite sensitive; however, a better understanding of these matters may help in formulating more effective preventive measures.

Methodology

1. **Design:** This research of knowledge levels, attitudes, and practices to prevent sexually transmitted infections is based on a cross-sectional survey research design.

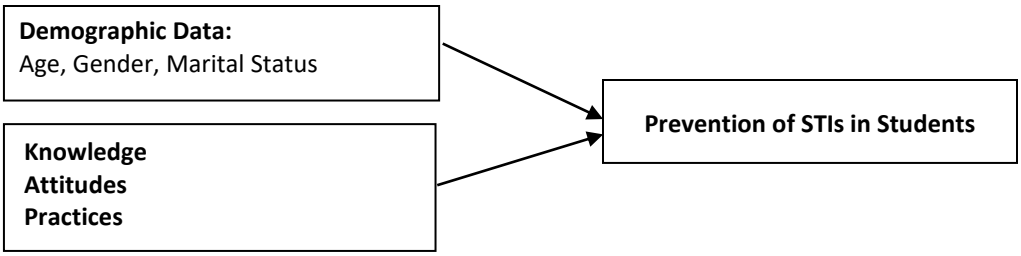
2. **Population:** All high school students who participated in this research study were from 2 regional school districts. At the time of the study, there were 56,124 students from High School Region 1 consisting of 22 zones with 67 schools, and 58,084 students from High School Region 2 consisting of 25 zones with 52 schools.

3. **Sampling:** Questionnaires were distributed to 386 high school students from High School Regions 1 and 2, Bangkok in the sample group. Sample size was calculated using Yamane's Formula with a sampling error of 0.05 (Srisa-ad, 2013).

4. **Study Variables:** The independent variables in this study consisted of various demographic data, along with knowledge levels, attitudes, and practices regarding prevention of sexually transmitted

infections; the dependent variable was prevention of STIs among students from High School Regions 1 and 2, Bangkok.

5. Conceptual Framework



6. **Research Instrument:**

Part 1: Ten questions about respondent demographic variables (age, gender, education, parental marital status, etc.)

Part 2: Ten True or False questions about respondents' knowledge levels regarding prevention of sexually transmitted infections.

Part 3: Thirteen questions about respondents' attitudes regarding prevention of sexually transmitted infections using a 5-level rating scale to measure their agreement or opinion with various statements, consisting of: Strongly agree (the most), Agree (somewhat), Undecided (neutral), Disagree (little), and Strongly Disagree (the least).

Part 4: Practices to prevent sexually transmitted infections prevention using a 3-level rating scale, consisting of Regularly, Sometimes, and Never.

Instrument Development: Upon completion of design and development of this research instrument, content validity was verified by three experts to review language, information relevancy, content, and structure used. The calculated Content Validity Index (CVI) was 0.85. With advice and recommendations from these experts, this questionnaire was tried out with 30 non-targeted high school students. For reliability, questions in Part 2 were tested using Kuder & Richardson's (KR-20) method, and the result was 0.78. Questions in Parts 3 and 4 were examined using Cronbach's Alpha-Reliability Coefficient, and the result was 0.83.

Ethical Considerations: Prior to data collection and in order to protect the rights of respondents, approval for conducting this research project was obtained from the Asia-Pacific Institutional Review Board and from the directors of High School Educational Regions 1 and 2, Bangkok, Thailand. The researcher explained the objectives and benefits of the study, participation criteria, expected results, and answered questions. Participants could withdraw at any time during the research study. The teachers and students welcomed this study, cooperated well, and helped facilitate the research process.

Data Collection: The researcher began data collection after research project approval was received from school principals. Data was collected from each school at specific times scheduled by the researcher and research assistants, who had completed training and were proficient in data collection procedures. A total of 349 out of 386 questionnaires were collected from January to March of 2016, for a response rate of 90.42%. Data was later processed for statistical analysis.

Data Analysis: The researcher divided the data into 3 parts for analysis by a statistical software program:

Part 1: Descriptive analysis of respondents' status using frequencies and percentages (%)

Part 2: Data analysis of Research Objective 1 "To study the correlation of knowledge levels, attitudes, and practices to prevent sexually transmitted infections among high school students from High School Educational Regions 1 and 2, Bangkok, Thailand" using Pearson's Product Moment Correlation.

Part 3: Data analysis of Research Objective 2 "To study and compare practices to prevent sexually transmitted infections among students from High School Educational Regions 1 and 2, Bangkok, Thailand" by gender and parents' marital status, using an Independent Sample t-test, One-way Analysis of Variance (One-way ANOVA), and a Post Hoc test using Scheffe's Method.

Results

1. Status of Respondents: Completed questionnaires were received from 349 students. Table 1 indicates that a majority of respondents were 17-18 years old (68.50%), male (55.30%), and lived with both parents (65.60%).

Table 1. Status of Respondents (N = 349)

Subjects	Number	Percentage
Age in Years		
15	30	8.60
16	71	20.30
17	122	35.00
18	177	33.50
19	9	2.60
Totals	349	100.00
Gender		
Male	193	55.30
Female	156	44.70
Totals	349	100.00
Marriage Status of Parents		
Living together	229	65.60
Separated	67	19.20
Divorced	53	15.20
Totals	349	100.00

Research Objective #1: Correlation between Knowledge Levels and Attitudes Regarding Prevention of Sexually Transmitted Infections among Students

Data analysis was performed using Pearson's Product Moment Correlation in conjunction with research criteria.

Correlation Coefficient	Interpretation
0.81 - 1.00	Strongly agree (the most)
0.61 - 0.80	Agree (somewhat)
0.41 - 0.60	Undecided (neutral)
0.21 – 0.40	Disagree (little)
0.00 – 0.20	Strongly disagree (the least)

Results of an analysis of Research Objective #1 were as follows:

Table 2. Summary of Relationships between Knowledge Levels, Attitudes and Practices to Prevent Sexually Transmitted Infections among Students

Topic	Knowledge	Attitudes	Practices
Knowledge	–	– 0.380*	– 0.093
Attitudes		–	0.491*
Practices			–

*P ≤ 0.05

Table 2 indicates two correlations with a statistically significant level of 0.05:

1. Correlation of knowledge levels and attitudes of high school students is slightly negative when compared to the set criteria, and statistically significant at the 0.05 level. This means that students with little knowledge of how to prevent sexually transmitted infections displayed favorable attitudes toward prevention, while students with substantial knowledge regarding prevention of STIs displayed less favorable attitudes toward prevention, with a confidence level of > 95%.
2. Correlation between high school students' attitudes and practices is moderately positive when compared to the set criteria, and statistically significant at the 0.05 level. This implies that students with favorable attitudes toward prevention of sexually transmitted infections are more likely to adopt preventive practices, while students with less favorable attitudes are less likely to adopt practices to prevent STIs, with a confidence level of > 95%.

2. Research Objective #2: Comparison of Practices to Prevent Sexually Transmitted Infections by Gender and Parents' Marital Status among Students.

Data analysis of Research Objective #2 was performed using an Independent Samples t-test and One-way Analysis of Variance (One-way ANOVA), and a Post Hoc test using Scheffe's Method.

3.1 Practices to Prevent Sexually Transmitted Infections Classified by Gender

Table 3 reveals the results of practices to prevent sexually transmitted infections by high school students.

1. Female students showed higher scores (Mean 2.44) for practices to prevent STIs than male students (Mean 2.30), at a statistically significant level of 0.05.
2. Male students displayed higher scores for practices to prevent STIs for the following 4 items, at a statistically significant level of 0.05:
    2.1. I masturbate to relieve sexual tension / achieve sexual pleasure
    2.2. I distract myself by playing sports or listening to music when I have sexual desire
    2.3. My lover and I use a condom when having sex
    2.4. I don't go to brothels or any sex entertainment establishments
3. Female students had higher scores for practices to prevent STIs for the following 9 items, at a statistically significant level of 0.05:
    3.1. I tend to have sexual desire when I am alone with my lover
    3.2. I do not have any alcoholic drinks before sex
    3.3. I do not have sex with boyfriends or female prostitutes
    3.4. I only go to sex entertainment establishments with my lover or boyfriends
    3.5. I do not stay alone with my lover or boyfriends

3.6. I do not watch pornographic videos or internet clips
3.7. I do not practice oral nor anal sex
3.8. I do not have sexual ejaculations outside the vagina
3.9. Neither my lover nor myself uses lubricant or lotion on condoms before sexual intercourse

Table 3. Summary of Independent Samples t-test of Practices to Prevent Sexually Transmitted Infections by Gender of Students

Activity	Male		Female		t-value	Sig.
	$\overline{X}$	S.D.	$\overline{X}$	S.D.		
1. I masturbate to relieve sexual tension/achieve sexual pleasure.	2.04	.640	1.26	.578	11.81**	.000
2. I distract myself by playing sports or listening to music when I have sexual desire.	2.28	.659	2.04	.864	3.02**	.003
3. * I tend to have sexual desire when I am alone with my lover.	2.11	.752	2.62	.636	-6.77**	.000
4. I do not have any alcoholic drinks before sex.	2.50	.737	2.85	.390	-5.4**	.000
5. My lover and I use a condom when having sex.	1.97	.853	1.63	.852	3.71**	.000
6. I do not have sex with boyfriends or female prostitutes.	2.58	.696	2.88	.393	-4.87**	.000
7. I don't go to brothels or any sex entertainment establishments.	2.05	.752	1.91	.875	1.57	.119
8. * I only go to sex entertainment establishments with my lover or boyfriends.	2.47	.662	2.81	.442	-5.44**	.000
9. I do not stay alone with my lover or boyfriends.	2.46	.722	2.66	.551	-2.84**	.005
10. I do not watch pornographic videos/internet clips.	2.06	.682	2.72	.518	-9.92**	.000
11. I do not practice oral nor anal sex.	2.61	.676	2.87	.378	-4.19**	.000
12. I do not have sexual ejaculations outside the vagina.	2.31	.712	2.69	.630	-5.15**	.000
13. Neither my lover nor I uses lubricant or lotion on condoms before sexual intercourse.	2.48	.700	2.83	.457	-5.31**	.000
Total	2.30	.290	2.44	.220	-5.02**	.000

* Negatively worded items **P ≤ 0.05

3.2 Practices to Prevent Sexually Transmitted Infections Classified by Parents' Marital Status

Table 4. Summary of One-way ANOVA Analysis Comparing Practices to Prevent Sexually Transmitted Infections by Parents' Marital Status

	Source	SS	DF	MS	F	Sig
Overall	Between Groups	0.104	4	0.03	0.35	.841
	Within Groups	25.297	344	0.07		
	Total	25.401	348			

*P ≤ 0.05

Table 4 displays a one-way ANOVA analysis comparing students' practices to prevent sexually transmitted infections categorized by parents' marital status (both parents living together, separated or divorced). The results indicate that parents' marital status does not generally affect students' STI prevention practices at a statistically significant level of 0.05. There are also no statistically significant differences in prevention practices when each marital status category is analyzed.

Discussion

This study found a weak but negative correlation between knowledge levels and attitudes towards the prevention of sexually transmitted infections (STIs) among high school students. These results indicate that students with lower knowledge levels are more likely to hold favorable attitudes toward practices to prevent STIs. Most students still have misconceptions regarding prevention of STIs (Disagree > 50%) in 4 areas:

1. STIs can be contracted by having sex during the menstrual cycle (70.50%)
2. STIs can be transmitted through oral sex and anal sex (64.80%)
3. Double condoms do not lower risk of contracting STIs (57%)
4. Washing genitals with cleansing solution immediately after sex cannot prevent contraction of STIs (51.90%)

The questionnaires were designed with the practical intention of preventing STIs more than to provide tools to make sex education more accessible in the classroom. Parents feel uncomfortable in communicating and discussing sex issues with their children due to nature of Thai culture and their incompetence or ineptitude with the subject matter. A study by Nienkun and Sornchai (2013) found that there was no correlation between parents' sexual knowledge/attitudes and communication between parents and children entering adolescence. Sexual knowledge is an important matter in life, especially for adolescents who have unclear information about sex or are seeking information from online sources, media, or peers. This information might not have been verified or checked by parents, teachers, or other adults. Thus, when parents take part in teaching and advising their children with simple illustrations, such communication gives teenagers a clearer understanding and helps to prevent them from contracting sexually transmitted infections.

Huebner and Howell (2003) also found that communication with parents about sexual matters affected children's understanding and attitudes towards reducing sexually risky behaviors. Lederman, Chan, and Roberts-Gray (2008) studied relationships between parents and teenagers. They found that social interaction and discussion between parents and children was more effective in helping children to understand sexual issues than the sex education class in the school curriculum. Research by the Bureau of Standards, Social Development and Human Security (2010) found that building relationships among families is important as well. For example, letting members talk openly to each other builds trust and encourages children to share their problems with family members, including matters regarding teenage love affairs. Considering the consequences of disobedience to parents is a way to prevent teenage girls from doing anything wrong, including in sexual matters.

This study of the correlation between attitudes and practices regarding prevention of sexually transmitted infections among high school students found a moderately positive relationship between these variables. The interpretation is that students with favorable attitudes toward prevention of STIs are more likely to adopt preventive practices. This outcome might be because students in the sampling group were from regional school districts with stricter rules of conduct and proper behavior in accordance with upper secondary academic objectives. The result of the parents' marital status survey found that 65.50% of parents were living together, and so unbroken families can provide students with warmth, love, and guidance. This finding is similar to the research of Huebner & Howell (2003), who

explained that parental communication about sexual matters influenced understanding and attitudes, lowering sexually risky behavior. Attaveelarp (2001) found that factors influencing teens' sexual behavior were attitudes towards sex, sexual entertainment establishments, and sexually arousing media. Teens must be aware and savvy while still holding on to appropriate attitudes towards sex. Parents need to teach teens about morals and values, communicate openly with them, and have freedom to address sexuality issues with a positive attitude and trust. A happy and well-structured family will shield teens from negative and exploitative sexual messages from media and provocative social environments. This will help teens to develop their characters and maintain high behavioral standards, which prevent sexually transmitted infections and help them to become healthy and well-balanced adults.

Analysis of STI prevention practices data based on gender reveals that female students exhibited higher levels of self-practice than their male counterparts; these differences were significant at the 0.05 level. Thai culture and society still influence the way of life and play a role in restraining sexual expression, upholding purity, and preventing premarital sex; these are good practices from Thai culture. Therefore, it is important for ladies to behave properly when they associate with members of the opposite sex. Women must be taught that being too forward or readily accessible gives men opportunities to more easily take advantage of them. Being well-behaved, living a careful life, and not easily being too close to men is a good thing for ladies. Men enjoy novelty and may wish to engage in unlimited sexual experimentation. Men look at having sex as a way of seeking happiness that comes with no obligations, and as a result, they are more likely to contract sexually transmitted infections.

Analysis of STI prevention practices data based on parents' marital status (both parents living together, separated, or divorced) shows that this variable has no significant influence on such practices. This correlates to the findings of Chualee and Narongsang (2007), who found that differences in parents' marital status did not alter child sex education. Yingpaiboonsook and Karuehadej (2011) studied student sexuality at Rachpatsunanta University, Ratanakosin Campus, and found no significant differences in sexual values among students living with parents, caretakers, in dormitories, or renting apartments; about 65.50% of respondents had their parents living together to provide guidance, advice and help when initial problems arose. Parents are usually the primary resource for consultation about subject matters such as information about sexuality, and its social and moral consequences.

The information cited in this study confirms the existence of a crisis in adolescent behavior in Thailand that requires assistance from all parties. Fortifying the family institution and school sex education systems are key measures to help students properly understand sex, prevent sexually risky behaviors, and have positive attitudes toward behavioral changes that deter untimely sexual intercourse. These measures will lead to the prevention of sexually transmitted infections. Though several studies on this topic have been conducted, implementation of findings is still minimal, as can be observed from the ongoing increase in statistics of infected young people. The researcher's desire is that this study will provide data for people involved with this issue, and help Thai teenagers to become more aware of how to live correctly and become respectable adults.

In conclusion, providing sex education at a proper age that is suitable for the current situation is of vital importance. Promoting and preserving Thai cultural values among children regarding associating with the opposite gender, and parental good examples will help teenagers to learn and understand about these matters. Adopting good attitudes and demonstrating proper sexual demeanor can protect them from sexually risky behaviors. Moreover, institutions should train teachers how to precisely convey information about sexual topics and sexually transmitted infections, as well as how students can protect themselves from them.

It is recommended that further qualitative research be conducted on how to prevent sexually transmitted infections and unwanted pregnancies in Bangkok high schools and metropolitan areas.

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