How Does the Difference in the Content of Sex Education Affect the Effectiveness of Lowering the Sexual Double Standard Level?

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ABSTRACT

Sexual double standards (SDS) have been proven to exist, and it has many negative effects, such as leading to confirmation bias (Marks and Fraley, 2006) and harm to women's health. However, new research has found that sex education during school age can effectively reduce people's SDS levels. Further thinking, specifically, which part of sex education can most effectively promote the reduction of SDS? We divide the content of sex education into two aspects: physical knowledge sex education and sexual attitude education. In the experiment, we used The Implicit Association (IAT) test to test participants' implicit SDS. The results showed that the SDS level was reduced to the same extent only by the attitude education supplemented by the physiological knowledge education, followed by the only physiological knowledge education, and finally by the no sex education. We hope that through this study, we can promote the development of school-age education in China and encourage teachers to carry out sex education classes, not only to popularize physiological knowledge but also to pay attention to the education of sexual attitude.

Keywords: *sexual double standard, sex education, IAT*

1. INTRODUCTION

The World Health Organization (WHO) defines adolescence as the period, between childhood and adulthood that is between age10 and 19. Adolescence is one of the most important stages in human life [1-4]. During this period, people's bodies, brains, sexual maturity and reproductive ability all develop rapidly. Among them, 15 to 18 years old belong to the middle and late stage of puberty development. In China, people at this stage are usually in high school and their physical and psychological changes are more obvious and men and women have greater emotional fluctuations. If they do not receive timely and effective guidance (especially sex education) at this stage, they may have more serious confusion and adverse consequences in adulthood [5].

However, the current situation of sex education for adolescents in China is still not optimistic. Most schools pay more attention to the education of academic knowledge and ignore the importance of sex education. The results of a questionnaire on high school students' sexual health education showed that nearly half of the 368 participants in Fujian province were not clear about the causes of "menstruation", and "spermatorrhea", and how to protect their bodies during special physiological periods; about half of the students do not know the knowledge of adolescent sexual health care; only about a fifth of high school students know about contraception; nearly half of the students (46.47%) only knew about sexually transmitted diseases (STDS), but did not know the specific situation. In addition, when asked about their views on chastity, a majority (59.24 %) thought it was equally important for men and women, but 34.51 % thought it was more important for women [5]. To some extent, this reflects the sexual double standard (SDS - sexual behavior is evaluated differently depending on whether a man or a woman engages in it and it suggests that for men, sexual behavior brings praise and respect, whereas, for women, identical sexual behavior brings derogation and disrepute) [2,6].

Sex education is defined as education about human sexuality, including intimate relationships, human sexual anatomy, sexual reproduction, sexually transmitted infections, sexual activity, sexual orientation, gender identity, abstinence, contraception and reproductive rights and responsibilities [1,7]. Comprehensive sex education (CSE) can be divided into physical knowledge about sex, sexual attitudes, sexual skills and sexual values. Among them, sexual attitudes, defined as a

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person's attitude toward sex or sexual behavior, can be liberal or conservative [8]. Hence, the sexual double standard can be regarded as a kind of sexual attitude.

However, look at the world, Sweden was the first country in the world to introduce sex education for adolescents [9]. Since 1933, sex education in Sweden has achieved remarkable results [9]. The number of teenage pregnancies and abortions has decreased significantly and few girls under the age of 20 became pregnant and give birth.[9] In the five years from 1991 to 1996, the results of education on sexual health were remarkable, with a 32.4% drop in HIV infection among young people aged 15 to 19, a 65.8% drop in gonorrhea, and 55.9% drop in syphilis [9]. If we look closely at Swedish sex education, we can see the differences in Swedish sex education. In Swedish sex education, "equality" is one of the keywords [5]. In addition to the general popularization of sexual knowledge, they are more committed to building and shaping an equal society. Adults and adolescents have equal rights to enjoy sexual pleasure; Both homosexuality and heterosexuality have equal rights to enjoy sexual pleasure; Men and women have equal rights to experience the beauty of sex [5]. This is of guiding significance for the future development of adolescent sex education in China.

Nowadays, the sexual double standard (SDS) has been proven to exist [1]. Of concern is that SDS can lead to confirmation bias (Marks and Fraley, 2006) and have a significant negative impact on women's health [2,3]. Specifically, SDS became the justification and excuse for sexual violence against women and it led to the stigmatization of women victims of sexual violence, which further prevented them from seeking proper care [3]. The good news is that studies have shown that sex education at school age can effectively reduce SDS and that people who receive sex education at school age are less likely to have an unequal evaluation of sexual behavior [3]. Research also suggests that it is possible to influence school-age children to have a more equal evaluation of sex-related sexual behavior as adults through continued education throughout the school years [3].

Because of the negative effects of SDS, it encourages schools in China to teach sex attitude (not just physiological sex, or even no sex education at all) to people in adolescence. We look forward to further study in detail about: How does the difference in the content of sex education affect the effectiveness of lowering the sexual double standard level?

2. METHODS

2.1 Participants

24 schools were randomly selected from all regions of Jiangsu Province (both rural schools and urban schools). 100 never-married heterosexual adolescents (50 boys; 50 girls) aged 15-18 were randomly selected from each school. 2,400 participants in total.

2.2 Procedure

A total of 2400 participants will be randomly divided into four groups: control group, intervention group 1, intervention group 2 and intervention group 3. There are 600 participants in each group, with 300 males and 300 females. Before measure 1, one of the assistants explains and facilitates the administration of the IAT, followed by the demographic's questionnaire (sex, age, school).

Measure1: Each participant completes an IAT test for SDS before the start of sex education. Measure2: After watching their respective educational videos, each participant completes an IAT test for SDS exactly as before.

2.3 The Curriculum

This is the specific content of the online educational video that each group watched.
Control group: Non sex education
ecosystem and biomes: interactions between populations (8 minutes) +ecosystems and biome (7 minutes); biogeochemical cycles: the carbon cycle(8 minutes)+the nitrogen cycle(6 minutes)+the phosphorus cycle (5 minutes)+the water cycle (8 minutes); overall around 45 minutes;[10]

Intervention Groups: sex education
l1: Watch the video lesson 1,3：Good Adolescence + sexual health, pregnancy and contraception (physiological knowledge)(80minutes)
I2: Watch the video lesson 2：Gender equality, love and violence (sexual attitude)(40minutes)
I3: Watch the video lesson 1,2,3：Good Adolescence+ Gender equality, love and violence+ Sexual health, pregnancy and contraception (comprehensive sex education) (120minutes)
1. Good Adolescence (40minutes)
①Awareness of sex and sex education (meaning of sex education, different outcomes of different ideas)
②Awareness of reproductive system(composition of the sexual reproductive system, functions of the vital reproductive organs)
③Reproductive health habits (the formation of daily health habits)
④ Prevention of diseases (how to identify and find reproductive health-related diseases, how to seek medical attention)
⑤Watch the animated video *Adolescence*

2. Gender equality, love and sexual violence (40minutes)
①Gender Awareness(Biological and social sex)
②What is gender equality (how gender is shaped)

③ Learn about love and Marriage (how to handle relationships, how to treat different values)
④Awareness of violence (types, concepts, identification, and response to sexual violence)
⑤Watch the animated video *Love and Marriage*
3.Sexual health, pregnancy, and contraception (40minutes)
①Understand Sexually Transmitted diseases (Common types and misconceptions)
② Prevention of disease (methods of prevention, detection and treatment)
③ Pregnancy and Contraception (pregnancy identification, common contraceptive methods and misunderstandings)
④ Abortion (harm of abortion, attitudes, and responsibilities towards sexual behavior)
⑤Watch the animated video *Safety Sexual Behavior*

2.4 The Implicit Association Test (Thompson, 2020)[1]

The Implicit Association Test (IAT) is a computer-based classification task in which participants categorize stimuli as quickly as possible according to two target and two attribute concepts, with faster parings indicating greater associative strength [1]. The IAT test consists of five blocks, with the first, second and fourth blocks used for participants to practice. Blocks 3 and 5 are used to collect critical data. There are 20 trials in block1and 2 respectively; There are 30 trials in Block4; There are 120 Trials each in Block3 and 5. Participants were not allowed to proceed to the next trial until they were correctly matched in each trial. Before each trial in block1, block2, block4, three masks will appear accordingly ((150 ms for the first, 17 ms for the second, and 150 ms for the third). Before block and block5, masks still appeared before each trial, except the second of the three masks was replaced with the prime image for 17ms. In particular, in 120 trials each of block3 and block5, 40 trials include the male prime, another 40 the female prime and 40 trials with a mask instead of the prime.

In Block1, participants will practice categorizing images. There is a sexual image (e.g., an image of penetrative sexual behavior) or neutral image(e.g., an image of a couple on a bicycle ride) in the center of the computer screen. The left side of the screen says sexual, and the right side says neutral. Participants were asked to match images to attributes using the computer keyboard keys E and I. (E stands for sexual on the left, I stand for neutral on the right). In Block2, participants will practice sorting words. In the center of the screen, a positive word (e.g., family) or a negative word (e.g., war, disease) appears. The left side of the screen represents positive, and the right side represents negative. Participants were asked to match words to attributes using the computer keyboard keys E and I. (E for positive on the left, I for negative on the right). In the third block, participants were asked to categorize both images and words. For example, a participant may have been asked to pair "sexual" stimuli with "positive" words and "neutral" stimuli with "negative" words. The fourth block is identical to the first block, except the target category labels were switched to appear on opposite sides of the screen to reduce the effects of the participants' differences in left-handedness and right-handedness. The fifth block was identical to the third block; however, participants are now required to associate images with an opposite combination that was employed in block three (e.g., "neutral" and "positive"; "sexual" and "negative").

2.5 Prediction

Based on the three papers, we found that both sex education with only sexual attitude and sex education with physiological knowledge plus sexual attitude can significantly reduce SDS. However, only physiological knowledge of sex education did not significantly reduce SDS level. Hence, we predict that both sex education that include physiological information and sex attitude and sex education including only sex attitude content can effectively lower students' SDS to the same extent, followed by sex education that only includes physiological information.

2.6 Data Analyze Plan

The IAT generated D score and can be described as an indicator of associative strength. We use it to reflect the implicit SDS level. For each participant, two different D scores are calculated for the female and male prime trials. ANOVA is conducted to reflect the significant difference in lowering the extent of SDS among different groups. $F(2,400)=6.48$, $p=0.01$ (the significant level $p=0.05$).(Thompson, 2020)[1]

3. RESULTS (PREDICT)

D score can reflect the SDS level. Those who received the non-sex education video also reduce their mean SDS level, but by a very small amount. As shown in Table 1, the group that received both physiological and sexual attitude education had the same reduction in SDS as the group that received only sexual attitude education, followed by the group that received only physiological information. Figure 1 and figure 2 can effectively show the difference in SDS level before and after the sex education in difference groups.

Table 1. The effect of different content of sexuality education intervention on SDS level

	Base-line	Post-intervention
control	0.18	0.17
I1	0.16	0.11
I2	0.17	0.09
I3	0.19	0.11

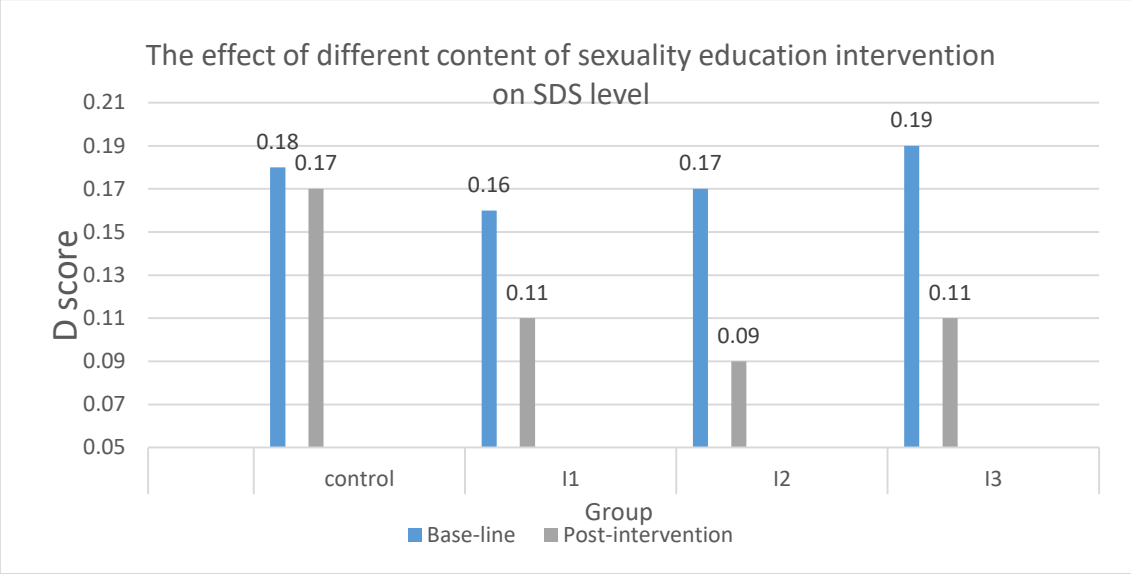

Figure 1 The effect of different content of sexuality education intervention on SDS level

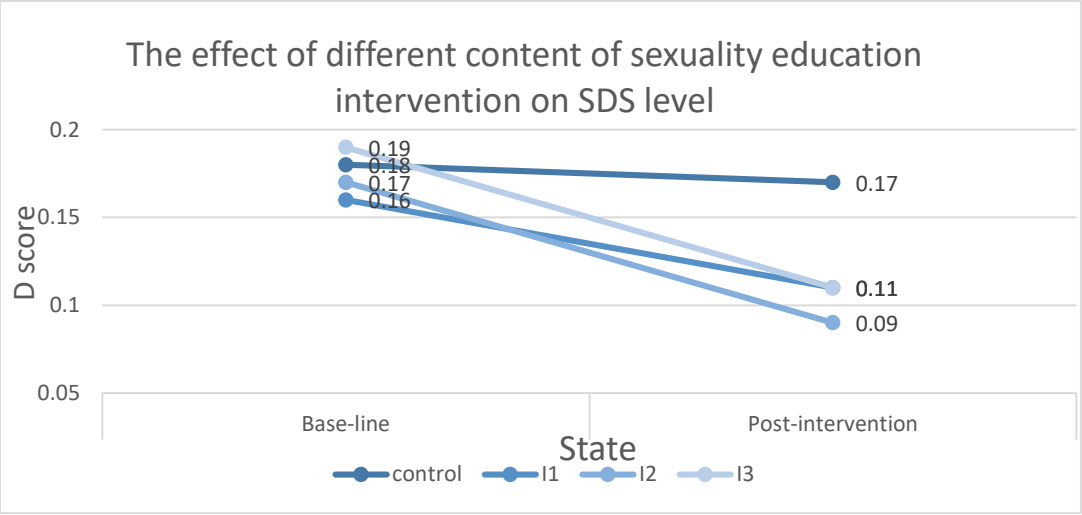

Figure 2 The effect of different content of sexuality education intervention on SDS level

4. DISCUSSION

4.1 Limitations

First about participants, considering the participants' level of physical and psychological development and sensitivity to sex, we only choose the higher education level in Jiangsu province. However, to the defects as much as possible and ensure the comprehensiveness of the experiment, we randomly selected both urban and rural schools. Second, In terms of online course teaching, we did not manage to control for the same amount of class time in each group. This is a contradictory place, where the content of the class and the duration time of the class often cannot be controlled at the same time, but in light of the fact that the questions in our study were related to sex education content instead of the time of sex education, we decided to control for the completeness of the sex education content in each group. Third, as for the content of sex education, we only divided it into physical

knowledge and sexual attitude. We did not consider whether teaching sexual skills would have an impact on SDS because no relevant literature was found indicating that sexual skills had an impact on sexual attitudes.

4.2 Future Direction

Think deeply about why sex education can reduce SDS levels. One of our ideas is that since the social cognitive theory (Thompson et al., 2020)[1], sex education may changes people's norm, the acceptance of female sexuality becomes more and more acceptable and people have lower levels of SDS. However, this is just an idea, which has not been verified by experimental results. Alternative explanations may related to social roles and so on (Thompson et al., 2020)[1]. Therefore, hopefully, there will be more specific studies in the future.

5. CONCLUSION

Our research uses Implicit Association Test to investigate what extent does the content of sex education affect its effectiveness in reducing SDS levels. The predicted result is that sexual attitude education is a necessary part in sex education, since the result of the experiment shows that the group that received both physiological and sexual attitude education had the same reduction in SDS as the group that received only sexual attitude education, followed by the group that received only physiological information. Our study has guiding significance for the popularization of sex education for Chinese teenagers. Meanwhile, more perfect experimental design and more detailed research on why sex education can reduce SDS level are expected in the future.

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