

# POTENTIAL FACTORS ASSOCIATED WITH CONTRACEPTIVE INTENTION AMONG ADOLESCENT MALES IN TAIWAN

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This study explored the predictors of contraceptive intention in adolescent males in Taiwan. It used a cross-sectional design and a sample of 1,000 vocational high school male students to determine the potential factors associated with contraceptive intention. Data were collected on an anonymous, self-administered questionnaire, including personal background variables, prior sexual experience, contraceptive knowledge, contraceptive attitude, contraceptive self-efficacy, perception of peers' contraceptive behavior, perception of support from significant others, and parental-adolescent communication about contraception. A total of 230 participants (23%) had prior sexual experience, 13% (30) of whom reported being involved in their girlfriends' pregnancies. Of the participants, 45% recognized the use of condoms as the most favorable contraceptive method for future sexual intercourse. Second to condom use, the combination of the calendar method and condom use was also popular (13.1%). Multiple stepwise regression indicated that better contraceptive attitudes, higher contraceptive self-efficacy, no prior sexual experience, more perception of peers' contraceptive behavior, and higher perception of support from significant others were predictors of higher contraceptive intention. The above predicting factors explained 31.9% of the total variance for contraceptive intention among adolescents. These results provide health professionals with important information to understand the reality adolescents encounter and to design effective contraceptive programs for male adolescents.

**Key Words:** male adolescent, contraceptive intention, contraceptive attitude, high school, Taiwan  
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Adolescent pregnancy is a growing public health concern in both Eastern and Western societies. Although there are fewer sexually active adolescents in Eastern than in Western cultures, under the impact of globalization, Eastern societies are now facing a boom in adolescent pregnancies. In Taiwan, where female chastity is still highly prized, adolescent sexual behavior has also been undergoing dramatic changes over the last decade. Consequently, there has been an increase in adolescent pregnancies compared to the previous decade. An official report in Taiwan shows that 13 of 1,000

females aged 15 to 19 years give birth to live babies each year [1]. However, Chang et al estimate that this figure represents only 50% of adolescent pregnancies [2]. The cultural stigma of adolescent pregnancy and the availability of mifepristone may contribute to under-reporting of the rate of adolescent pregnancy in this age group, so the reported rate of adolescent pregnancy in Taiwan is likely to be an underestimation.

Pregnancy can be avoided if the male or female partner uses an effective method of contraception. However, it seems that contraceptive practice has been considered the female's responsibility, regardless of the influence of the male partner. The sexual behavior of women is mostly passive in a situation of unequal power [3]. Women may be aware of the risk of not using contraceptives, but may not be in a position to use contraceptives because of the refusal of male partners. Gender roles and gender characteristics

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that reinforce male control over sexual and reproductive decision-making may contribute to female adolescents' inability to make decisions about contraceptive use [3]. Despite the fact that males play a crucial role in pregnancy, the literature has tended to focus on female adolescents rather than on both males and females as a complete target group [4-6], and does not mention the responsibility of male adolescents in using contraception to prevent adolescent pregnancy.

Behavioral intention, based on the theory of reasoned action (TRA), is suggested as the best single predictor for personal behavior [7]. There is a significant association between the intention and actual behavior of using contraception [8]. Contraceptive intention can be used as a significant predictor of contraceptive practice [7,8]. Furthermore, attitudes and subjective norms are psychologic antecedents of intention formation in TRA. Adolescents' attitudes toward using certain methods are significantly related to the intention of using contraception [8]. Perception of peers' contraceptive behavior is a good predictor of HIV-preventive intention and behavior among adolescents [9]. Male adolescents who perceive that their peers support condom use report the highest levels of use [10]. Accordingly, perception of support from significant others, such as parents and teachers, may also contribute to male adolescents' contraceptive intention.

Self-efficacy is a judgment of one's ability to accomplish a certain level of performance in executing a specific behavior. Bandura argued that self-efficacy influences one's thoughts, emotional arousal and actions: the higher one's self-efficacy for a certain behavior, the higher the possibility that one can accomplish it [11]. Self-efficacy is an important predictor of sexually related behavior and intentions [9,12-15]. Male adolescents who receive more sexual information, such as the methods and effectiveness of condom use, are more regular users of birth control [16]. Finally, poor contraceptive knowledge is associated with adolescent female pregnancy [17].

Discussing HIV/AIDS with adult family members and health professionals significantly influences the predictability of condom use by adolescents [12]. Moreover, consistent users of contraceptives are more likely to have frequent conversations with their parents than those who are not using contraception [13]. Accordingly, parental communication about contraception may influence the contraceptive intention of male adolescents.

A number of personal background variables have been identified as important factors in contraceptive use. Beginning sexual activity at an earlier age [4] or being from a low-

er income family [18] correlate with inconsistent use of contraception. Lower expectation for academic achievement is also a predictor of pregnancy in female adolescents [19,20]. Heavier alcohol use is associated with inconsistent condom use in males [21], and tobacco and alcohol consumption are associated with adolescent males' involvement in a pregnancy [22].

In summary, many factors may contribute to the contraceptive intention of male adolescents. Understanding the predictors of contraceptive intention in male adolescents could provide important information for health professionals in designing effective contraceptive programs for male adolescents. However, testing for contraceptive intention among males is largely absent in the literature, and most reports have been from Western societies. In this study, personal background characteristics, contraceptive knowledge, contraceptive attitudes, contraceptive self-efficacy, perception of peers' contraceptive behavior, perception of support from significant others, and parental communication about contraception were examined for their ability to predict contraceptive intention among male adolescents. The results may be applied to find ways to provide educational programs on contraceptive use for male adolescents and may serve as a reference for related studies.

## MATERIALS AND METHODS

### Subjects

This was a cross-sectional study. In order to ensure inclusion of a sufficiently large subgroup of adolescents who have had sexual experience (which was used to compare contraceptive intention between groups with different sexual experience), this study was administered in a large sample. After receiving permission from the school administrations, two vocational high schools were selected in Kaohsiung City, Taiwan. Five classes were randomly selected from the 10<sup>th</sup> to 12<sup>th</sup> grade in each school, and male adolescents in each class were invited to participate. All participants were informed that there was no penalty for refusal to participate and that they had the right to withdraw from the study at any time. A total of 1,161 male adolescents were invited to participate, of whom 1,000 completed the questionnaire, a response rate of 86.1%. All surveys were administered in the classroom by one of the researchers. To increase the chances of an honest disclosure of information and to protect the participating students from recognition while distributing the questionnaire, it was

anonymous and included a blank cover page to secure confidentiality.

### **Instruments**

A 25-minute, self-administered questionnaire with 87 items was used in this study. The questionnaire covered eight areas: personal background characteristics, contraceptive intention, contraceptive knowledge, contraceptive attitude, contraceptive self-efficacy, perception of support from significant others, perception of peers' contraceptive behavior, and parental communication about contraception.

Personal background characteristics included age, socioeconomic status (obtained by converting from the highest occupational and educational levels among parents), family structure, whether the participant had previously received contraceptive education in school, cigarette/alcohol use, and whether the participant intended to go on to higher education. Experience regarding sexual intercourse and having been involved in a pregnancy were also addressed.

Contraceptive intention was measured using a six-item scale to assess the possibility of contraception use if a participant wanted to have sexual intercourse within the next year. The response choices were "impossible" (1) to "very possible" (4). Possible total scores ranged from 4 to 24, with a higher total score indicating higher contraceptive intention. Cronbach's  $\alpha$  for the scale was 0.81 in this study. One question also asked participants about which contraceptives they would use if they were to have sexual intercourse within the next year, followed by a list of contraceptive methods.

Contraceptive knowledge, a participant's knowledge of reproductive anatomy and physiology, and the effectiveness and usage of contraceptive methods, were assessed using a 21-item scale developed by Lin [23]. The multiple choices for these items were "true", "false", and "do not know". Originally, there were 25 items, but based on item discrimination, only 21 items, whose index of item discrimination was greater than 0.20 and index of item difficulty was between 0.20 and 0.80, were retained. A total score was obtained by summing the correct responses (1 point each) across the 21 items. Possible total scores ranged from 0 to 21, with a higher score reflecting better contraceptive knowledge. The Kuder-Richardson 20 internal consistency was 0.79 in this study.

Contraceptive attitude was measured using a 19-item scale that determined attitude toward contraceptive practice, contraceptive interference with sexual pleasure and health, discussing contraception with the partner and significant

others (parents or health professionals), and the perceived availability of contraceptive devices [23]. Each item represented a belief statement and was rated on a 4-point scale from 1 (strongly disagree) to 4 (strongly agree) for positively worded items. Negatively worded items were coded in reverse. There were originally 21 items. However, using item-total correlation greater than 0.20 as the inclusive criteria, 19 items were retained. Possible total scores ranged from 4 to 76, with a higher total score indicating a more positive attitude. Cronbach's  $\alpha$  for the scale was 0.85 in this study.

Contraceptive self-efficacy, the participant's degree of certainty over sexual and contraceptive situations, was assessed using a 20-item scale [23]. Responses were rated on a scale of 0 (no confidence), 1 (have about 20–30% confidence), 2 (have about 50% confidence), 3 (have about 70–80% confidence), and 4 (have absolute confidence). Factor analysis was used to assess the internal reliability of various factors grouped together. Factors with values exceeding unity and scree tests were used to select factors to be rotated, and a threshold of at least 0.3 was applied for retention of items. All items remained and four factors were extracted. The four factors were defined as "insisting on contraception", "assertiveness in refusing sexual intercourse", "practicing contraception", and "accepting sexual responsibility". These four factors accounted for 55.8% of the total variance for contraceptive self-efficacy. Possible total scores ranged from 0 to 80, with a higher score indicating higher contraceptive self-efficacy. Cronbach's  $\alpha$  for this scale was 0.88 in this study.

Perception of support from significant others was assessed on an eight-item scale developed by the authors. It evaluated the participant's perception of parents, teachers, and school nurses supporting their contraceptive practice. Responses were rated on a scale with the terms "strongly disagree" (1) to "strongly agree" (4). Possible total scores ranged from 4 to 32, with a higher score indicating that participants perceived that significant others were more supportive of contraception use. Cronbach's  $\alpha$  for the scale was 0.90 in this study.

Perception of peers' contraceptive behavior, a participant's perception of their peers' involvement in contraception, was assessed using a seven-item scale. Responses were rated on a scale with the terms "strongly disagree" (1) to "strongly agree" (4). Possible scores ranged from 4 to 28, with a higher total score indicating that participants perceived that their peers had more involvement in contraception. Cronbach's  $\alpha$  for the scale was 0.89 in this study.

Parental communication about contraception was assessed using a six-item scale. All subjects were asked to indicate on a scale of "never" (0), "a little" (1), and "much" (2) about the amount of discussion they had with their parents on contraception-related topics. Possible total scores ranged from 0 to 12; the higher the total score, the better the parental communication about contraception. Cronbach's  $\alpha$  for the scale was 0.92 in this study.

Related experts, including researchers and practitioners in public health, nursing, sexual health education, obstetrics, and school nursing, evaluated all the instrument items for their content relevance and appropriateness. Based on the experts' suggestions and comments, some items were reworded to increase their succinctness. Ten male adolescents were requested to examine the revised instrument items for clarity. Unclear and ambiguous wording was modified based on the responses of these adolescents.

### Data analysis

The personal background characteristics and each scale were first examined using descriptive statistics. To compare the scores among different scales, the mean score for each scale was divided by its highest possible total score, transforming it into a score index. One-way analysis of variance (ANOVA) was used to measure the association between personal background characteristics and contraceptive intention. Pearson's product-moment correlation coefficients were used to examine the correlation between independent variables and contraceptive intention. Stepwise regression analysis was used to identify the important predictors of contraceptive intention. In all tests, a  $p$  value of less than 0.05 was interpreted as indicating statistical significance.

## RESULTS

Participants in this study ranged from 16 to 20 years old, with a mean age of  $17.03 \pm 0.84$  years. Of all participants, 230 (23%) had prior sexual experience, 30 of whom (13%) reported having been involved in a pregnancy. Age, cigarette use, alcohol use, intent to pursue higher education, and prior sexual experience were significantly associated with intentions (Table 1). Participants aged 19 to 20 years old had the lowest contraceptive intention, whereas participants who were not cigarette users, not alcohol users, who expected to pursue higher education, and had no prior sexual experience expressed higher contraceptive intention. Different socioeconomic status and family structure had no significant impact on contraceptive intention.

**Table 1.** ANOVA analysis of personal background characteristics in contraceptive intention

Characteristic	<i>n</i> (%)	Mean $\pm$ SD	F
Age (yr)			3.57*
15–16	269 (26.9)	18.04 $\pm$ 3.08	
17	477 (47.7)	18.64 $\pm$ 3.13	
18	207 (20.7)	18.50 $\pm$ 3.01	
19–20	47 (4.7)	17.51 $\pm$ 2.61	
Socioeconomic status			0.04
Low	620 (62.0)	18.42 $\pm$ 2.97	
Middle	301 (30.1)	18.40 $\pm$ 3.26	
High	78 (7.8)	18.31 $\pm$ 3.20	
Family structure			0.62
Extended family	182 (18.2)	18.16 $\pm$ 2.93	
Nuclear family	708 (70.8)	18.47 $\pm$ 3.12	
Single-parent family	81 (8.1)	18.19 $\pm$ 3.23	
Others	29 (2.9)	18.45 $\pm$ 2.73	
Previous contraceptive education in school			1.75
Yes	258 (25.8)	18.61 $\pm$ 2.90	
No	742 (74.2)	18.32 $\pm$ 3.14	
Intent to enter higher education			6.84 <sup>†</sup>
Yes	903 (90.3)	18.48 $\pm$ 3.01	
No	97 (9.7)	17.62 $\pm$ 3.62	
Cigarette use			15.37 <sup>†</sup>
Yes	285 (28.5)	17.19 $\pm$ 3.09	
No	715 (71.5)	18.63 $\pm$ 3.05	
Alcohol use			11.17 <sup>†</sup>
Yes	268 (26.8)	17.86 $\pm$ 3.19	
No	732 (73.2)	18.59 $\pm$ 3.02	
Prior sexual experience			10.71 <sup>†</sup>
Yes	230 (23.0)	17.81 $\pm$ 3.19	
No	770 (77.0)	18.57 $\pm$ 3.03	

\* $p < 0.05$ ; <sup>†</sup> $p < 0.01$ .

Table 2 displays the mean  $\pm$  standard deviation (SD) and score index for all scales. The score index for contraceptive intention was 76.63, which demonstrated a high rating for contraceptive intention. The participants in this study showed a high probability for contraceptive use if they were to have sexual intercourse within the next year. There was a medium rating for contraceptive self-efficacy. Of the four factors in contraceptive self-efficacy, participants had the highest rating in assertiveness for refusing sexual intercourse but had only low–medium ratings in practicing contraception and insisting on contraception. Participants had only a medium rating for contraceptive knowledge but

**Table 2.** Mean and standard deviation (SD) for independent and dependent variables (*n* = 1,000)

Variable	Mean ± SD	Score index
Contraceptive intention	18.39 ± 3.08	76.63
Contraceptive self-efficacy	47.45 ± 14.58	59.31
Insisting on contraception	13.07 ± 6.01	54.46
Assertiveness in refusing sexual intercourse	14.09 ± 4.76	70.45
Practicing contraception	12.78 ± 5.05	53.25
Accepting sexual responsibility	7.51 ± 2.99	62.58
Contraceptive knowledge	11.78 ± 4.59	53.55
Contraceptive attitude	57.66 ± 7.73	75.87
Perception of peers' contraceptive behavior	19.21 ± 4.06	68.61
Perception of support from significant others	23.16 ± 4.48	72.38
Parental communication about contraception	3.62 ± 3.36	30.17

Score index = (mean score / highest possible score) × 100

had a high rating for contraceptive attitude. The participants perceived that their peers were highly involved in contraception, and also perceived that significant others highly supported contraceptive use. However, the rating for parent-adolescent communication about contraception was poor.

Condoms were the most favored contraceptive method (45.0%) should participants have sexual intercourse within the next year. The calendar method combined with condom use was the second most popular (13.1%). Other contraceptive methods noted by participants were the contraceptive pill (8.7%), coitus interruptus (8.0%), condoms with spermicide (7.4%), the calendar method (6.7%), the calendar method with coitus interruptus (3.4%), intrauterine devices (2.6%), post-coital contraception (1.6%), levonorgestrel-releasing implant system (Norplant<sup>®</sup>, Aventis; 1.1%), basal body temperature with the calendar method (1.0%), spermicide only (0.5%), post-coital vaginal irrigation (0.3%), and others (0.6%).

Table 3 presents the correlation between each scale and contraceptive intention. A higher contraceptive self-efficacy, higher perception of peers' contraceptive behavior, higher perception of support from significant others, better contraceptive knowledge, and better contraceptive attitude were linked to a higher contraceptive intention. Parental communication about contraception had no significant association with contraceptive intention.

The factors identified in the bivariate analysis as significantly associated with contraceptive intention were entered into a stepwise regression analysis to identify the important predictors for contraceptive intention. The results show that a better contraceptive attitude, better contraceptive self-efficacy, no prior sexual experience, higher perception of peers' contraceptive behavior, and higher perception of support from significant others were important predictors of higher contraceptive intention (Table 4). These variables accounted for 31.9% of the total variance in contraceptive intention.

**Table 3.** Pearson correlation coefficients between contraceptive intention and independent variables (*n* = 1,000)

Independent variable	Contraceptive intention
Contraceptive self-efficacy	0.440*
Perception of peers' contraceptive behavior	0.239*
Perception of support from significant others	0.268*
Contraceptive knowledge	0.091*
Contraceptive attitude	0.471*
Parental communication about contraception	-0.018

\**p* < 0.01.

**Table 4.** Stepwise regression analysis for contraceptive intention (*n* = 1,000)

Independent variable	$\beta$	SE	Standardized $\beta$	R <sup>2</sup>	R <sup>2</sup> change	<i>t</i>	<i>p</i>
Contraceptive attitude	0.138	0.011	0.346	0.222	0.222	12.10	< 0.001
Contraceptive self-efficacy	0.056	0.006	0.262	0.303	0.080	8.83	< 0.001
Perception of peers' contraceptive behavior	0.054	0.023	0.071	0.311	0.009	2.34	0.019
Sexual experience (yes vs no)	0.512	0.193	0.070	0.316	0.005	2.65	0.008
Perception of support from significant others	0.043	0.021	0.062	0.319	0.003	2.03	0.043
Constant	4.861	0.767				6.34	< 0.001

SE = standard error.

## DISCUSSION

Of the adolescent males, 23% reported having had sexual intercourse, which was comparable with another study in Taiwan that found a rate of 16% to 37.5% [23]. A study in the USA showed that 87.8% of adolescents had had sexual intercourse and that 19.2% of male students reported that they had been involved in a pregnancy [24]. The results of this study showed that Taiwanese male adolescents had much lower rates of prior sexual experience and involvement in pregnancy than their American counterparts.

About 65.6% of participants admitted that they preferred to use condoms or condoms combined with other methods as the first choice of contraceptive for the following year. A study in the USA showed that 68% of male students had used condoms during their most recent sexual experience [13]. The accessibility and convenience of condoms in both countries may contribute to the preference for condoms among male adolescents.

In this study, attitudes were the strongest predictor of contraceptive intention. Health professionals should assess the contraceptive attitudes of male adolescents and help them to build positive attitudes about contraception. Although contraceptive knowledge had a significant association with contraceptive intention, the correlation coefficient was low. Some studies have also stated that knowledge alone has little effect on contraceptive behavior [25,26]. However, without acquiring enough knowledge, adolescents cannot make better decisions. Contraceptive knowledge is still necessary for male adolescents.

Contraceptive self-efficacy was the second strongest predictor for contraceptive intention in this study, in which male adolescents seemed to have less confidence in contraception than in refusing sexual intercourse. Previous studies also found that young men have lower perceived self-efficacy in relation to negotiating contraceptive use [27, 28]. Male adolescents typically view the reproductive realm

as the female domain and hardly have a chance to negotiate with their sexual partners about contraceptive issues. Thus, they may have low confidence in contraception. Health professionals should emphasize contraceptive responsibility to male adolescents and encourage greater autonomy in making contraceptive decisions with their partners.

In this study, the perception of peers' contraceptive behavior was stronger than the perception of support from significant others as a predictor for contraceptive intention. The results support the developmental characteristics of adolescents, in which peer behavior is an important factor in adolescent behavior.

The score index of parental communication about contraception was only 30.17 and was not associated with contraception intention in this study. From a review of the literature, Kirby claims that there is no simple relationship between parent-child communication and adolescent behavior [29]. The quality of family interactions may be more important than communication of information in influencing sexual behavior [30]. Therefore, the influence of parent-child communication on contraceptive intention merits further investigation.

The prevalence of smoking and drinking behavior among male adolescents in this study was similar to previous research in the adolescent population in Taiwan (22.5% and 23.3%, respectively) [31]. Participants who indicated cigarette use, alcohol use, and prior sexual experience had lower contraceptive intention than their counterparts. Young men with a history of sexual intercourse, alcohol consumption, or cigarette smoking are more likely to be involved in a partner's pregnancy [22,32]. These results are supported by the Problem Behavior Theory [33], which proposes that problem behaviors tend to cluster together. Male adolescents with prior sexual experience and cigarette or alcohol use should be considered a high-risk group, and the importance of contraception should be emphasized to them.

Only 25.8% of participants in this study had previously received contraceptive education, which reflects the fact that male adolescents are rarely considered subjects for contraceptive education in Taiwan. However, whether they had had previous contraceptive education or not was not significantly related to contraceptive intention. The effectiveness of contraceptive education in promoting contraception among male adolescents requires further research.

High expectations for academic achievement were associated with contraceptive intention, which is similar to the study on female adolescents showing a relationship between lower expectations for academic achievement and pregnancy [16,34]. Interventions aimed at encouraging higher academic achievement and the belief that it is achievable may help increase contraceptive intention among male adolescents. Although studies in female adolescents support the relationship between family structure and contraceptive choice [35,36], the findings of this study did not support an association between family structure and contraceptive intention among male adolescents. The relationship between family structure and contraceptive intention may have gender differences and therefore merit further study. In summary, most independent variables in this study correlated to contraceptive intention. The study instruments used showed good internal consistency and can be applied to future studies.

This study has some limitations. The sample was not randomly selected, so the results may not reflect the situation of the entire male adolescent population of Taiwan. The study only focused on contraceptive intention and a prospective study to predict the relationship between intention and actual use is needed. Also, the large proportion of unexplained variance in contraceptive intention indicates that further research is needed to expand the predictive variables of contraceptive intention among male adolescents. Bearing these limitations in mind, the results provide useful clues for contraceptive education of male adolescents.

## RECOMMENDATIONS

The results of this study may help provide direction for nursing intervention. Since attitudes and self-efficacy are related to intention, an educational approach that involves more than merely providing information is needed. Attitude change requires an exploration of personal values, while increasing self-efficacy requires role modeling and successful experience with the desired behavior. Adolescents

with prior sexual experience may need special attention in the educational program. Peer pressure could be used as an avenue for an educational program, increasing male adolescents' perception of contraception as a social norm. Additionally, parents, teachers, and school nurses should emphasize the importance of contraception to male adolescents. To further develop educational programs that have the potential for risk reduction, it is essential that research be conducted to provide a better understanding of the underlying psychosocial variables related to contraceptive intention. The results of this study may help provide some direction to intervention; however, much work is needed, including the expansion of predictive variables, longitudinal studies, and testing the effects of interventions on contraceptive intention.

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# 青少男避孕行為意圖預測因子的探討

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本研究是以 1,000 位高職青少男為對象，探討青少男避孕行為意圖的預測因子。採用匿名式的問卷進行研究資料的收集，其中問卷內容包括：個人背景資料、性經驗、避孕知識、避孕態度、避孕自我效能、感受同儕避孕行為、感受重要他人對避孕的支持及親子避孕的溝通等量表。研究結果顯示有 230 位 (23%) 的青少男曾有性經驗，其中 30 位 (13%) 曾經有使女朋友懷孕的經驗。對於未來若有發生性行為時的避孕方法，有 45% 的青少男回答會使用保險套，其次則為保險套及安全期法 (13.1%) 合併使用。以逐步複迴歸分析顯示，有較好的避孕態度、較高的避孕自我效能、沒有性經驗、自覺同儕避孕行為較好及感受重要他人有較佳的避孕支持者，有較好的避孕行為意圖，且可解釋 31.9% 的總變異量。本研究結果可提供健康專業人員作為對青少男避孕衛教介入的參考。

**關鍵詞：**青少男、避孕行為意圖、避孕態度、高職、台灣

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