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Based on the Theory of Planned Behaviour to Analyze the Factors Affecting HPV Immunization Among Chinese College Students

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Abstract: HPV infection rates in both males and women is increasing worldwide, and university students account for a large proportion of the population. The majority of studies on HPV infection and vaccination among university students are from developed countries, but there are not many studies on HPV vaccination among university students in developing countries, and the knowledge about HPV prevention is not widely spread. The purpose of this research was to investigate the variables that impact university students' behavioral intention to take the HPV vaccine. This study takes Chinese university students as an example, examine the factors influencing the behavioural intention of university students to receive HPV vaccination. A scale was constructed based on the theory of planned behaviour and information were collected through a questionnaire administered to the university students in this study,participents (N=100,81%women) completed a survey evaluating social norms, attitudes, self-efficacy, and intentions regarding the HPV vaccine.The data collected were analysed using SPSS and the relationships between the variables were analysed using correlation analysis, analysis of variance and linear regression analysis. It was concluded that 'attitude', 'subjective norms' and 'perceived behavioural control' all influenced behavioural intention to receive the HPV vaccine and had a significant positive relationship with each other.

Keywords: HPV vaccination, Theory of planned behaviour, College students

1. Introduction

Cervical disease is perhaps of the most widely recognized gynecological harm on the planet, and as per World Wellbeing Association (WHO) there are about a portion of 1,000,000 new instances of cervical disease every year around the world, while 131,500 are in China, where the occurrence and death pace of cervical malignant growth positions first in quite a while of the female conceptive framework and is the second most common cancer in ladies. In 1992 WHO pronounced that high-risk human papillomavirus (HPV) contamination is a significant reason for cervical malignant growth.HPV is clinically characterized into okay and high-risk types relying upon the gamble of creating cervical disease [1]. Low-risk HPV infections mainly cause benign lesions such as warts and flat warts, while high-risk HPV infections can lead to malignant tumours of the reproductive tract, including cervical cancer, posing a significant threat to the health of both sexes. More and more young

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people are becoming aware of how to prevent HPV and are being educated about HPV prevention and opting for HPV vaccination. However, many young people around the world are still unaware of the importance of HPV vaccination and the dangers it poses. For example, after the HPV vaccine was launched in China, the KAP and worthiness of the HPV immunization among Chinese college understudies has improved significantly,but there is still a lack of awareness of some core issues and confidence in the vaccine is still low [2]. In this article, it analyse a sample of Chinese university students using a questionnaire and the TPB theoretical model [3] to explore the factors influencing Chinese university students' willingness to receive HPV preventive vaccines and help analyse the increase in vaccine acceptance and vaccination rates.

2. Literature Review

2.1. Human Papilomavirus (HPV)

HPV is a physically communicated contamination that can cause genital moles as well as cervical and different malignant growths (like oropharyngeal and butt-centric diseases). The most elevated paces of HPV contamination have been found in ladies matured 20-24 years. Two HPV immunizations have been supported by the Public Wellbeing Association for use in ladies matured 9-26 years [4]. Meanwhile, HPV infection rates among US women aged 20-24 years were as high as 44.8%, counting 30% of generally safe (non-oncogenic) HPV types and 28% of high-risk (oncogenic) HPV types [5]. Forthcoming investigations of HPV predominance in US school ladies after their fifth sexual experience with a male accomplice have shown a 1-year pervasiveness of 28.5% and a 3-year commonness of almost half [6,7]. Among men, much less research has been reported on the incidence or prevalence of HPV.Be that as it may, a new enormous worldwide investigation of men matured 18-70 years showed a half predominance of HPV disease in men, with a 38% commonness of non-oncogenic and 30% of oncogenic types [8]. However, according to studies, the majority of research and information on HPV vaccine is reported in developed countries and the research results and theories are relatively mature, while the dissemination of information on HPV vaccine in developing countries and some backward regions is not satisfactory [9], particularly college understudies don't have an unmistakable comprehension of the unfavorable impacts of HPV and the significance of HPV inoculation.In order to increase the awareness of HPV vaccination among university students in developing countries, an analysis was conducted from university students' subjects in conjunction with the theory of planned behaviour.

2.2. The Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) was created by Ajzen in 1995 in light of the Attitude-Behaviour Relationship Theory [3]. TPB consists of five elements: attitudes, subjective norms, perceptions, behavioural control, behavioural intentions, and actual behaviour, and explains how attitudes, subjective norms and perceived behavioural control act on people's behavioural intentions and then on actual behaviour. Previous studies have shown that behavioural attitudes, subjective norms, and behavioural control are the main influences on people's intention to receive the HPV vaccine [10]. Based on these theories, following 4 hypotheses were proposed:

1: Attitude is a positively correlated factor influencing university students' propensity to be immunised.

2: Subjective social norms, is the element that influence and positively associated with college students' willingness to be exposed to vaccination.

3: Behavioural control is the factor that influence and positively associated with college students' willingness to be immunised.

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4: Health insurance status as an element influencing ungraduated students' intentions to get vaccinated.

3. Methods

This study conducted a questionnaire survey on Chinese university students' intention to receive HPV vaccination through Questionnaire Star, which was distributed on 8 September 2022 and collected on 9 September for 2 days, with a total of 110 samples collected and 100 valid samples. Gender, age, grade, and insurance status were used as control variables in the questionnaire. The female sample was 81% and the male sample was 19%, with the majority of the sample being juniors (78%) and the mean age being approximately 20 years old. Those who filled out the questionnaire were queried about their age, grade and gender, their insurance status, vaccine awareness and whether they had ever had sex, with attitudes, perceived behavioural control and supervisor norms all using the same scale as the previous study [10].

3.1. Attitudes toward the HPV Vaccine

For perspectives, members were approached to demonstrate their mentalities towards HPV inoculation: (1) idiotic or reasonable, (2) incapable or viable, and (3) differ or concur. Worthiness was scored on a 7-point scale (1=disagree,7=agree) OK unwavering quality of the scale in the ongoing poll (α=0.856)

3.2. Subjective Social Norms

In terms of subjective norms, participants were asked to give their level of agreement with three different subjective social norms of parents, friends and doctors, and participants were asked separately whether parents, friends and doctors influenced their willingness to be vaccinated, scored on a 7-point scale (1=disagree, 7=agree), (α=0.823)

3.3. Self-Efficacy

In terms of perceived behavioural controls, participants were asked to self-measure using four items: their level of agreement that having health insurance in the past year, having a health check-up, recommendations from healthcare professionals, and their gender influenced their willingness to be exposed to vaccination on a 7-point scale (1=disagree, 7=agree), (α=0.858)

The data were analysed using SPSS, with frequency and reliability analyses of the control variables independent variables, bivariate correlation analysis of the independent and dependent variables, internal correlation analysis of some of the dependent variables, and finally regression analysis of the dependent variables, and these scales all showed excellent reliability in the current study.

4. Results and Discussion

The population demographics of the participants are shown in the tables 1 and 2. 110 participants completed the questionnaire, of which 100 were valid, most were female (81%), most were in their third year of study (78%), and the average age was 20.61 (SD=1.032). More than half had health insurance (75%), but most had no previous relationship experience (69%) or sexual activity (84%). Only about a third of the participants had had a medical check-up in the past year (39%), but almost all used heard about the HPV vaccine (96%) in addition, most of them had been recommended the HPV vaccine (71%).

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Table 1: Participants' age statistics.

	N	min	max	mean	SD
age	100	18	35	20.61	1.032

Table 2: Participants' basic statistics.

Name	options	frequency	percentage	Cumulative percentage
Grade	freshman	3	3.00	3.00
	sophomore	7	7.00	10.00
	junior	78	78.00	88.00
	senior	5	5.00	93.00
	postgraduate	6	6.00	99.00
	doctor	1	1.00	100.00
Gender	male	19	19.00	19.00
	female	81	81.00	100.00
Health insurance status	insured	75	75.00	75.00
	uninsured	25	25.00	100.00
Currently in a relationship	yes	31	31.00	31.00
	no	69	69.00	100.00
Have you had a health catch in the past year	yes	39	39.00	39.00
	no	61	61.00	100.00
Have you had sexual activity	yes	16	16.00	16.00
	no	84	84.00	100.00
Sexual orientation	heterosexual	80	80.00	80.00
	homosexual	3	3.00	83.00
	bisexual	6	6.00	89.00
	Not sure	11	11.00	100.00
Have you heard about the HPV vaccine	yes	96	96.00	96.00
	no	4	4.00	100.00
Have you been recommended the HPV vaccine	yes	71	71.00	71.00
	no	29	29.00	100.00
		100	100.0	100.0

As can be seen from table 3, the correlation coefficient value between participants' attitudes towards vaccination and willingness to vaccinate was 0.630, while the correlation coefficient value between participants' assessment of vaccine effectiveness and willingness to vaccinate was 0.685, furthermore, both showed importance at the 0.01 level, consequently demonstrating that there was a

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huge positive connection among's mentalities and readiness to inoculate against HPV, with more positive attitudes being more more likely to be vaccinated.

Table 3: The study on the relationship between's inoculation intentions and attitudes.

		Inoculation intentions
Do you have a positive or negative attitude towards vaccination	Correlation coefficients	0.630
	p-value	0.000
Do you think vaccination is effective or ineffective	Correlation coefficients	0.685
	p-value	0.000
* p<0.05 ** p<0.01		

Each of the above examinations showed a 0.01 degree of importance with eagerness to inoculate, demonstrating that there was a huge relationship between's apparent conduct control and readiness to immunize, and that the more able and certain they had an outlook on inoculating themselves, the more probable they were to inoculate and the more probable they were to do as such.

The table 4 shows that the relationship between's the ability of college understudies to get the HPV immunization and the standards of their PCPs, guardians and companions was explored utilizing the Pearson connection coefficient. The particular examination uncovered that the connection coefficient between readiness to get HPV inoculation and specialists' standards was 0.218 and showed an importance at the 0.05 level, consequently demonstrating a critical positive relationship between's eagerness to get HPV immunization and specialists' standards. The relationship coefficient between eagerness to get HPV immunization and guardians' standards was 0.208 and was critical at the 0.05 level, subsequently showing a huge positive connection between's readiness to get HPV inoculation and guardians' standards. The relationship coefficient between readiness to get HPV inoculation and companions' standards was 0.272 and was huge at the 0.01 level, in this manner demonstrating a critical positive connection between's eagerness to get HPV immunization and companions' standards. Contrasting this information, the review proposes that among the college understudy populace, the standards of companions and specialists will generally be more valuable than the standards of guardians.

Table 4: The study on the relationship between inoculation intentions and three social norms.

		Inoculation intentions
Social norms-doctor	Correlation coefficients	0.218*
	p-value	0.029
Social norms-parents	Correlation coefficients	0.208*
	p-value	0.038
Social norms-friends	Correlation coefficients	0.272**
	p-value	0.006
* *p*<0.05 ** *p*<0.01		

The table 5 shows that the relationship between HPV immunization and wellbeing check-ups in the previous year, medical coverage bought, and medical care supplier's proposal was examined

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utilizing connection examination and the Pearson connection coefficient was utilized to show the strength of the relationship. That's what the particular investigation showed

The connection coefficient between HPV immunization and wellbeing examination in the previous year was 0.183, near 0, and the p-esteem was 0.068>0.05. The connection coefficient between HPV immunization and past health care coverage buy was 0.137, near 0, and the p-esteem was 0.174>0.05, in this manner showing that the connection between the ability to get HPV inoculation and There was no relationship between's the readiness to get HPV inoculation and cooperation in wellbeing check-ups and health care coverage among the taking part college understudies. Nonetheless, the connection coefficient between HPV inoculation and medical services proficient's suggestion was 0.217 and showed an importance at the 0.05 level, hence demonstrating that there was a huge positive relationship between's medical care proficient's proposal and eagerness to get HPV immunization, with most understudies liking to heed the guidance of medical services experts instead of wellbeing check-ups and health care coverage.

Table 5: The study on the relationship between willingness to be vaccinated and health insurance status.

		Vaccination intentions
Visited healthcare provider last year	Correlation coefficients	0.183
	p-value	0.068
Health insurance status	Correlation coefficients	0.137
	P-value	0.174
Healthcare provider recommended HPV vaccine	Correlation coefficients	0.217*
	p-value	0.030
* p<0.05 ** p<0.01		

The researches have shown that people with more positive attitudes are more probably to be vaccinated, and that positive attitudes are positively associated with willingness to get the vaccine; people who are more confident in their vaccination are more likely to get the vaccine. Among the university students sampled, the opinion of friends was more important to them, and they were more likely to accept advice from friends or doctors than from parents. Health insurance and regular medical check-ups did not have much influence on the participants' acceptance of HPV vaccination, but rather the advice of healthcare professionals was more useful to them. From the above discussion, the hypothesis that "attitudes, subjective social norms, and perceived behavioral control are factors influencing college students' intentions to get HPV vaccination and are positively associated with them" is valid, while the hypothesis that "health insurance status is a factor impacting college students' intentions to receive HPV vaccination" is not valid.

5. Conclusion

In conclusion, the purpose of this study was to examine the elements influencing college students' willingness to receive HPV vaccine and to improve HPV vaccination rates and HPV vaccine knowledge among college students in order to reduce the incidence of HPV among college students in developing countries through the theory of planned behaviour. Questionnaire collection and SPSS data analysis revealed that attitude, supervisory norms, and behavioural control were the main influencing factors for university students to receive HPV vaccination and were positively correlated

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with each other. There are still some shortcomings in this study, including the fact that the questionnaire was only distributed for two days, the valid sample size was only 100, and it was only distributed in some parts of China and not in other developing countries, which has demographic limitations.

References

[1] *Wei ZS, Lu Y.M. (2018). Analysis of HPV and vaccine awareness and willingness to vaccinate among undergraduate students in a university. China School Medicine. 32(12):890-894.*

[2] *Li C. et al. (2019). Current Status And Issues With The HPV Vaccine. China Academic Journal Electronic Publishing House,35,5-7.*

[3] *Yu Y. et al. (2021). Changes in knowledge and acceptability of HPV vaccine among Chinese female students after the launch of HPV vaccine, ChineseHealthEducation,37(05),434-439+443.*

[4] *Krawczyk, A. L., Perez, S., Lau, E., Holcroft, C. A., Amsel, R., Knäuper, B., & Rosberger, Z. (2012). Human papillomavirus vaccination intentions and uptake in college women. Health Psychology, 31(5), 685–693.*

[5] *Dunne EF, Unger ER, Sternberg M, McQuillan G, Swan DC, Patel SS, Markowitz LE. (2007). Prevalence of HPV infection among females in the United States. JAMA,297:813–9.*

[6] *Giuliano AR, Lee JH, Fulp W, Villa LL, Lazcano E, Papenfuss MR, Abrahamsen M, Salmeron J, Anic GM, Rollison DE, Smith D. (2011). Incidence and clearance of genital human papillomavirus infection in men (HIM): A cohort study. Lancet, 377:932–40.*

[7] *Richardson H, Kelsall G, Tellier P, Voyer H, Abrahamowicz M, Ferenczy A, Coutlée F, Franco EL. (2003). The natural history of type-specific human papillomavirus infections in female university students. Cancer Epidemiol Biomarkers Prev,12: 485–90.*

[8] *Winer RL, Feng Q, Hughes JP, O'Reilly S, Kiviat NB, Koutsky LA. (2008). Risk of female human papillomavirus acquisition associated with fifirst male sex partner. Infect Dis,197: 279–82.*

[9] *Bruni L, Diaz M, Barrionuevo-Rosas L, et al. (2016). Global estimates of human papillomavirus vaccination coverage by region and income level: a pooled analysis. Lancet Glob Health ,4: e453–63.*

[10] *Ajzen I. The theory of planned behavior. Organ Behav Hum Decis Process. 1991; 50: 179–211.*

[11] *Stout, M.E., Christy, S.M., Winger, J.G. et al. (2020). Self-efficacy and HPV Vaccine Attitudes Mediate the Relationship Between Social Norms and Intentions to Receive the HPV Vaccine Among College Students. J Community Health 45, 1187–1195.*