THE WILLINGNESS TO RECEIVE VACCINES, PSYCHOLOGICAL STATE AND THE PREVENTIVE MEASURES IN COVID-19 PANDEMIC IN UNIVERSITY STUDENTS: A COMPARATIVE STUDY IN VIETNAM AND MALAYSIA

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Abstract:

Objective: To investigate the willingness to receive COVID-19 vaccines, mental health status, and preventive measures among university students in Vietnam and Malaysia.

Methods: A cross-sectional study through the online survey was done involving university students aged >18 years old in Vietnam and Malaysia. The data collection was conducted through Google Forms. Three questionnaires were used: MoVac-COVID-19S, BSRS-5, and PCIBS.

Results: A total of 1150 complete responses were analyzed, with 626 participants from Vietnam and 524 from Malaysia. The willingness to receive COVID-19 vaccines in Malaysia was 52.55 ± 7.98 and 48.21 ± 17.52 in Vietnam (p = 0.473). Of the respondents, 46.17% and 49.24% expressed mental stress in Vietnam and Malaysia, respectively. The preventive measure among students in Vietnam (6.97±1.87) was higher than in Malaysia (5.83±1.31) (p < 0.001).

Conclusion: The study showed that about 50% of the students were willing to receive COVID-19 vaccines, and almost half had mental stress. Thus, developing programs to promote vaccines and deal with mental stress is essential.

Keywords: COVID-19 vaccine; willingness to receive; mental health; prevention measures.

1. INTRODUCTION

COVID-19 is an infection caused by SAR-CoV-2, which has stumbled in almost all countries in the world (Ciotti et al. 2020). Since April 2021, this infection surge has been reportedly linked to the highly transmissible Delta variant in Southeast Asia, including
Vietnam and Malaysia (Chookajorn et al. 2021). In Vietnam, the fourth wave of the epidemic started at the end of April 2021, and in Malaysia, the second wave began three months later. The current challenges surrounding the pandemic have caused many fears and uncertainties to the world population. Indeed, it has plunged thousands of people deeper into poverty and unstable mental wellness.

Vaccination is essential to curtail the spread of SAR-CoV-2 globally (Yamey et al. 2020). Malaysia and Vietnam had launched a national COVID-19 immunization program to vaccinate the highest possible population. Both countries had received their first vaccine supply in February 2021. The types of COVID-19 vaccines used in the two countries can be categorized into three main categories: viral vector, mRNA, and inactivated virus. As for December 2021, about 57% of Vietnamese people are fully vaccinated, and 75% of citizens received at least the first dose (Data 2021). These rates in Malaysia are 77% and 79%, respectively (Data 2021). On the other hand, the PC-Covid app in Vietnam and the MySejahtera app in Malaysia were utilized as the platform for citizens to register for COVID-19 vaccination and medical declaration.

World Health Organization (WHO) stressed that prevention measures are important, especially when unvaccinated people exist in the community (Plohl 2021). Notably, about 25% of total Vietnam and 21% of the total Malaysia population are still unvaccinated (Malaysia 2021). A study shows the majority of people who reluctant to be vaccinated due to its adverse reaction (Machingaidze 2021). So, in 2022, Vietnamese and Malaysian governments enforced restrictions such as wearing masks, frequently washing hands, and avoiding crowded places. In addition, social distancing, including the close of businesses and school events, was adopted by many countries. In addition, people, once fully vaccinated, feel relieved because they are better protected from the virus (Halbrook et al. 2021).

University students play an important role in society, as they are recognized as knowledgeable, influential, and informed to respond to public health challenges (Hossian et al. 2022). University students’ positive attitudes and behaviors toward vaccines can strongly correlate with their willingness to accept vaccines. Moreover, the focus on disease prevention measures for university students in Vietnam and Malaysia was considered a modern disease prevention strategy in this context (Barello et al. 2020). Additionally, university students, compared to the general public, are believed to be more vulnerable to the adverse effects of quarantine. Mental health disorders are always a topic of concern for young people (Wathelet et al. 2020). However, there is little evidence of the psychological or mental health impact of the pandemic on university students, who are known to be a vulnerable population (Bruffaerts et al. 2018). Therefore, understanding the attitudes and mental states of this vulnerable group is necessary so that the governments of the two countries and relevant parties can intervene promptly to avoid unfortunate consequences.

Thus, it has heightened the necessity to conduct a study on how the student community practices those prevention measures. This survey explores the willingness to get the COVID-19 vaccine among university students from 2 different countries. The
study is intended to comparatively capture the mental health state of university students and the COVID-19 vaccine.

2. METHODS

2.1. Research subjects

The research included university students aged > 18 in Vietnam and Malaysia.

2.2. Research method

- Time and place of research: This study was conducted in Vietnam from Oct 24, 2021, to Oct 28, 2021, and in Malaysia from August 4, 2021, to September 21, 2021.

- Research design: A cross-sectional study.

Sample size: We estimated the sample size based on the willingness to receive COVID-19 vaccines (Chen et al. 2021), mental health (Chen et al. 2021), and prevention measures (Chang et al. 2020) in past studies. We calculated the sample size in this study to be at least 500 participants from each country.

- Sample selection: Convenience sampling was used.

- Selection criteria: 1- Subjects were students at a university, including undergraduate or postgraduate. 2- Subjects were over 18 years old, living in Vietnam or Malaysia.

- Exclusion criteria: Subjects did not consent to participate in the study.

- Data collection: Data were collected through an online questionnaire via Google Forms. The survey was conducted on popular Internet platforms (Facebook, Twitter, Instagram, Zalo, and others). Prior to filling the questionnaire, informed consent had been added on the first page of the Google Form. The questionnaire consists of 3 primary outcomes:

1- The willingness to receive COVID-19 vaccines was measured by the the-9 item version of theMotors of COVID-19 Vaccination Acceptance Scale (MoVac-COVID-19S) (Chen et al. 2021). The MoVac-COVID19S was developed using 7 Likert scales, from 1 "Strongly disagree" to 7 "Strongly agree". A higher MoVac-COVID-19 score indicates a higher level of acceptance of COVID-19 vaccination.

2- The mental health of university students was measured by the Brief Symptom Rating Scale (BSRS-5) (Chen et al. 2005). The scale included five items with 5 points on the Likert scale: 0 "not at all" to 4 "extremely". Four mental health groups were divided based on the total score: < 5: normal; 6-9: slight mental stress; 10-14: moderate mental stress; > 14: severe mental stress (Nhat-Le Bui et al. 2022).

3- The prevention measures were measured by the Preventive COVID-19 Infection Behaviors Scale (PCIBS) (Chang et al. 2020). The PCIBS have five items on three scales, including 0 "No", 1 "Yes, because of COVID-19", and 2 "Yes, but not because of fear of COVID-19". A higher score of the PCIBS indicates performing preventive behaviors more
frequently.

The questionnaires were in Vietnamese (used in Vietnam) and English (used in Malaysia) and pre-tested among 30 students in each country for standardization and the results from these students were not included in the final analysis. During the data collection process, we limited errors through: 1) Limiting the number of responses by each student can only answer once via an email; 2) Limiting missing data through set mandatory for each question; 3) Sent the survey link randomly on groups/forums to ensure the representativeness of sample size.

2.3. Statistical analysis

We used SPSS 20 (IBM Corp, Armonk, New York, USA) software to manage and analyze data. Descriptive statistics were used to describe the characteristics of participants, the willingness to receive COVID-19 vaccines, mental health, and COVID-19 prevention measures. Student T-test and Chi-squared Test were used to compare between two countries. The statistically significant difference with p < 0.05.

3. RESULTS

3.1. Characteristics of the research subject

After collecting the data, a total of 1150 complete responses were received, with 626 participants from Vietnam had and 524 participants from Malaysia. In both countries, there was a higher proportion of females (68.09%) than males (31.91%). The mean age of participation in Vietnam was 20.08 ±2.07, in Malaysia was 22.27±3.17, and the difference is significant (p = 0.042). In Vietnam, nearly half of university students live in rented homes (42.65%) and live with families (43.13%); meanwhile, the majority of people in Malaysia lived with family (89.89%) (p = 0.017). Most participants were non-medical in fields of study (71.83%) and vaccinated (93.74%) (p = 0.039). The participants were vaccinated with the Oxford/AstraZeneca vaccine in Vietnam (71.60%) and combined vaccine in Malaysia (66.67%). Both countries had 66.51% vaccination rates with a second vaccine dose.

3.2. The willingness of receiving COVID-19 vaccines among university students in Vietnam and Malaysia

The willingness to receive COVID-19 vaccines in Malaysia (52.55±7.98) was non-significantly higher than in Vietnam (48.21±17.52). The score of the willingness towards receiving COVID-19 vaccines in Malaysia was significantly higher in Vietnam reporting in item 2 (p = 0.020), item 5 (p = 0.049), item 6 (p = 0.04), item 7 (p ≤ 0.001).

Table 1. The willingness of receiving COVID-19 vaccines among university students in Vietnam and Malaysia

<table>
<thead>
<tr>
<th>No.</th>
<th>Items</th>
<th>Vietnam (n = 626)</th>
<th>Malaysia (n = 524)</th>
<th>Total (n = 1150)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vaccination effectively against COVID-19</td>
<td>5.51 ±2.07</td>
<td>5.93 ±1.22</td>
<td>5.71 ±1.75</td>
<td>0.917</td>
</tr>
<tr>
<td>2</td>
<td>Understand the effective of</td>
<td>5.42 ±2.03</td>
<td>5.68 ±1.16</td>
<td>5.54 ±1.69</td>
<td>0.020*</td>
</tr>
</tbody>
</table>
3.3. The mental health status among university students in Vietnam and Malaysia

In Vietnam, 53.83% of participants had higher normal mental health conditions than 50.76% in Malaysia. Combined in both countries, the majority of participants were in normal health conditions (52.43%). 46.17%, 49.24%, and 47.57% expressed mental stress in Vietnam, Malaysia and in both countries, respectively.

<table>
<thead>
<tr>
<th>No.</th>
<th>Mental health group</th>
<th>Vietnam (n = 626)</th>
<th>Malaysia (n = 524)</th>
<th>Total (n = 1150)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>1</td>
<td>Normal</td>
<td>337</td>
<td>53.83</td>
<td>266</td>
<td>50.76</td>
</tr>
<tr>
<td>2</td>
<td>Slight mental stress</td>
<td>115</td>
<td>18.37</td>
<td>86</td>
<td>16.42</td>
</tr>
<tr>
<td>3</td>
<td>Moderate mental stress</td>
<td>143</td>
<td>22.85</td>
<td>96</td>
<td>18.32</td>
</tr>
<tr>
<td>4</td>
<td>Severe mental stress</td>
<td>31</td>
<td>4.95</td>
<td>76</td>
<td>14.50</td>
</tr>
</tbody>
</table>

Note: Chi-squared Test was to find out the difference between two countries. * is statistically significant difference with p-value < 0.05.

3.4. The prevention measures of COVID-19 among university students in Vietnam and Malaysia

The mean score of the prevention measures in Vietnam (6.97±1.87) was higher than in Malaysia (5.83±1.31). In Vietnam, the highest mean score was "Sanitizing and cleaning your house" (1.66±0.52), and "Avoiding crowds as much as you can" had the lowest mean score with 1.18±0.43. Besides, the mean score in Malaysia for "Keeping your house
ventilated" was the highest (1.33±0.57), and the mean score for "Wearing a face mask as much as you can" was the lowest with 0.97±0.30. There was a statistically significant difference (p < 0.05) between prevention measures among university students in Vietnam and Malaysia in all items.

**Table 3. Prevention measures among university students in Vietnam and Malaysia**

<table>
<thead>
<tr>
<th>No.</th>
<th>Items</th>
<th>Vietnam (n = 626)</th>
<th>Malaysia (n = 524)</th>
<th>Total (n = 1150)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>1</td>
<td>Avoiding crowds as much as you can</td>
<td>1.18</td>
<td>0.43</td>
<td>1.07</td>
<td>0.31</td>
</tr>
<tr>
<td>2</td>
<td>Keeping your house ventilated</td>
<td>1.56</td>
<td>0.58</td>
<td>1.33</td>
<td>0.57</td>
</tr>
<tr>
<td>3</td>
<td>Sanitizing and cleaning your house</td>
<td>1.66</td>
<td>0.52</td>
<td>1.20</td>
<td>0.50</td>
</tr>
<tr>
<td>4</td>
<td>Washing your hands as much as you can</td>
<td>1.32</td>
<td>0.62</td>
<td>1.23</td>
<td>0.46</td>
</tr>
<tr>
<td>5</td>
<td>Wearing a face mask as much as you can</td>
<td>1.23</td>
<td>0.51</td>
<td>0.97</td>
<td>0.30</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>6.97</strong></td>
<td><strong>1.87</strong></td>
<td><strong>5.83</strong></td>
<td><strong>1.31</strong></td>
</tr>
</tbody>
</table>

*Note: Student T-test was used to find out the difference between two countries. * is statistically significant difference with p-value < 0.05.*

4. DISCUSSION

Overall, both Malaysian and Vietnamese students acknowledged that COVID-19 vaccines play an important role in preventing the COVID-19 pandemic. However, compared to the result from Taiwan, the mean score was higher than Vietnam and smaller than Malaysia, ranging from 5.42 to 5.94 (Chen et al. 2021). In Vietnam, strict adherence effectively limited the coronavirus transmission within the country (Wang et al. 2021). Therefore, vaccination for most Vietnamese people was not expected as much as in countries that were hit hard by COVID-19 like Malaysia (Nguyen et al. 2021). This could be explained by the fact that in Vietnam, students were not prioritized for vaccination due to limited vaccine resources. They were instructed to prevent COVID-19 by following other non-pharmacologic prevention measures and learning online.

More than half of the students in Vietnam (53.83%) and Malaysia (50.76%) have normal health conditions during the pandemic. However, students from both countries still suffered from severe mental stress, 14.5% and 4.95% for Malaysia and Vietnam, respectively. It came from changes in lifestyle, financial problems, and uncertainty about the future of the pandemic and lockdowns (Sundarasen et al.). Students are still not familiar with online learning (Tran et al. 2021). Furthermore, taking classes in front of computers, laptops, or smartphones for 6-8 hours per day could lead to stress (Sundarasen et al.). Pressure could also come from financial issues since parents might lose jobs due to the pandemic. Moreover,
students from Vietnam also have part-time jobs. This epidemic would prevent them from making more income (Tran et al. 2021).

Both Vietnamese and Malaysian students appeared to practice COVID-19 preventive behaviors quite frequently. These results correlated with previous studies regarding the attitude toward COVID-19 prevention measures. In Vietnam, 65.81% of students maintained positive compliance with government laws and regulations in the COVID-19 prevention measure (Tran et al. 2021). More than 90% of students in Malaysia understand the importance of quarantine after traveling or being exposed to COVID-19 patients, self-hygiene, and the essential non-medical measures (Rahman et al. 2020). Furthermore, there is a difference between the COVID-19 prevention measure score of the two countries, partly explained by the majority of participants in Vietnam being medical students (43.45%), significantly more than the number of medical students participating in Malaysia (9.92%). Because medical students are better able to critically evaluate health-related claims than other students of the same age (Aranza et al. 2021), medical students also trust experts and adhere to preventive measures recommended by the government than for students in other majors (Marendić et al. 2023).

There are some limitations in our study. First, the study design is a cross-sectional study with a modest sample size, so confirming the effects and causes of acceptance of COVID-19 vaccination, mental health, and preventive measures is difficult. Second, this is an online survey, and non-random sampling reduced the representativeness of the results. Third, the MoVac-COVID19S and the PCIBS were newly developed. Thus, more future studies are needed to test the reliability of these scales. Finally, the prevention measure used in this study was self-report. Therefore, some variance bias could influence the result and related factors of COVID-19 prevention measures.

5. CONCLUSION

The present study described the willingness among university students in Vietnam and Malaysia to receive COVID-19 vaccines, mental health, and prevention measures. The willingness to receive COVID-19 vaccines score was 50.19±14.17, and there is no statistically significant difference for both countries. Almost half of the students have mental stress. Students in Vietnam have taken significant better preventive measures than in Malaysia.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The research was approved by the Ethics Committee in Biomedical Research of VNU School of Medicine and Pharmacy according to the decision number: 01/2021/CN-HDDD; and the University of Malaya Research Ethics Committee (UMREC), according to the decision number: UM.TNC2/UMREC_1480.

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SỰ SẴN SÀNG TIÊM VẮC XIN, TRANG THÁI TÂM LÝ VÀ CÁC BIÉN PHÁP PHÒNG CHỐNG COVID-19 CỦA SINH VIÊN ĐẠI HỌC: NGHIÊN CỨU MÔ TẢ CẤT NGANG TẠI VIỆT NAM VÀ MALAYSIA

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Tóm tắt

Mục tiêu: Điều tra mức độ sẵn sàng tiêm vắc xin COVID-19, thực trạng sức khỏe tâm thần và các biện pháp phòng chống COVID-19 của sinh viên đại học ở Việt Nam và Malaysia.

Phương pháp: Nghiên cứu mô tả cắt ngang thông qua khảo sát trực tuyến đã được thực hiện với đối tượng nghiên cứu là sinh viên đại học > 18 tuổi ở Việt Nam và Malaysia. Việc thu thập dữ liệu được thực hiện thông qua Google Form. Ba bộ câu hỏi đã được sử dụng: MoVac-Covid19S, BSRS-5 và PCIBS. Thông kê mô

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tà và thống kê suy luận đã được sử dụng, sự khác biệt có ý nghĩa thống kê với p < 0,05.

*Kết quả:* Tổng cộng có 1150 câu trả lời hoàn chỉnh đã được phân tích với 626 người tham gia từ Việt Nam và 524 người từ Malaysia. Tỷ lệ sẵn sàng tiêm vắc xin COVID-19 ở Malaysia là 52,55±7,98 và 48,21±17,52 ở Việt Nam (p = 0,473). Trong số đối tượng nghiên cứu, lần lượt có 46,17% và 49,24% có vấn đề về sức khỏe tâm thần ở Việt Nam và Malaysia. Điểm số các biện pháp phòng bệnh của sinh viên Việt Nam (6,97±1,87) cao hơn Malaysia (5,83±1,31) với p < 0,001.

*Kết luận:* Nghiên cứu của chúng tôi cho thấy khoảng 50% sinh viên sẵn sàng tiêm vắc xin ngừa COVID-19 và gần nửa số sinh viên bị căng thẳng về tinh thần. Vì vậy, điều quan trọng là phải phát triển các chương trình quảng bá để khuyến khích sự tham gia của sinh viên các trường đại học ở Việt Nam và Malaysia.

*Từ khóa:* Vắc-xin phòng ngừa COVID-19; sẵn sàng tiêm vắc-xin; sức khỏe tâm thần; các biện pháp phòng ngừa.