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A Study of Japanese University Students' Perceptions of Their Appearance and Their Tendency to Wear Masks During School During the COVID-19

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ABSTRACT

Purpose of the study: This study aims to shed light on the effects of COVID-19 on university students. Specifically, the author clarifies the habit of wearing masks, a characteristic among Japanese, and their self-perceptions regarding their appearance post-COVID.

Methodology: The author hypothesizes that students who have not had the opportunity to see the real faces of their classmates since entering university will have great resistance to removing their masks in public. The hypothesis will be tested and analyzed by conducting a questionnaire survey of 357 students in Japan to investigate their perceptions of their faces during FY2023.

Main Findings: As of May 2023, 357 students (191 males and 166 females) in Japanese universities underwent Cross tabulation and Chi-Square analysis to examine shifts in their attitudes toward appearance and mask-wearing habits. The study revealed significant differences in attitudes and mask-wearing tendencies between the two genders ($p < .001$, $p = 7.6E\text{-}07$, $x^2 = 24.5$).

Novelty/Originality of this study: It has been discovered through this study that a greater number of female students continue to wear masks even when it is no longer mandated. This difference in behavior between genders is statistically significant, confirming the hypothesis. The survey also uncovered the reasons behind this behavior, including habituation, changes in self-perception, and the influence of the surrounding.

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1. INTRODUCTION

The COVID-19 pandemic brought significant changes for Japanese university students, including online lectures and limitations on extracurricular activities. Attempts were made to enhance educational activities during the pandemic not only in universities but also in the field of education [1, 2]. One of the lifestyle changes was the mandatory wearing of masks[3, 4, 5], which became an individual decision on March 12, 2023[6]. Still, many Japanese university students were required to wear masks during these three years. The pandemic has affected other daily behaviors such as eating habits [7], sleeping patterns [8], and consumption behavior [9]. Numerous studies have been conducted worldwide to examine the impact of the pandemic on people and their psychological well-being, particularly with regard to stress [10, 11]. In Japan, [12] reported that the pandemic had caused significant anxiety and stress for many people, especially university students who have been greatly affected by the restrictions on their daily lives. University life in Japan typically involves various activities such as socializing with friends, participating in clubs and circles, working part-time, as well as attending classes, and completing assignments [13]. Most students expected to enter university in 2023 had to

adjust to online classes due to the pandemic during their first or second year in high school. Even after entering university, they had to attend online and in-person lectures, with limited opportunities for in-person discussions with fellow students in some courses. Moreover, they were required to wear masks, refrain from talking while eating or drinking, and avoid large group gatherings for club activities. These changes have made it difficult for students to have a similar university experience compared to those who attended prior to the pandemic. It is understandable that youth may become more conscious of their facial features, as facial attractiveness has been considered a significant factor in social life even before the pandemic [14, 15]. Therefore, it is possible that the extreme psychological stress of the pandemic may have further intensified their self-perceptions about their own appearance. [16] suggests that in September 2020, seeing others wearing masks encouraged people to wear masks themselves. [17] shows that wearing an act not only prevents infection but also leads to behavior in sympathy with others who wear masks. In addition, [18] found that females showed a greater awareness of their faces than males, and both genders were more conscious of their facial appearance than their body image. In a survey of university entrants, almost 40% of subjects expressed a desire to continue wearing masks in public, citing a sense of safety and privacy.

The author is concerned about Japanese university students continued use of masks in public, even though the mandatory mask-wearing rules have been eased due to COVID-19. The aim of this study is to investigate if there are any differences in mask-wearing behavior and perceptions between genders among Japanese university students. By surveying 357 university students in Japan, the author seeks to confirm whether there is a significant difference between genders in the decision to wear a mask. The study will also examine why wearing masks is a cultural norm in Japan and how perceptions of mask-wearing have changed for both genders since the pandemic. The author considers that these results will be helpful in providing educational advice on mask-wearing for university students post-COVID.

2. RESEARCH METHOD

This section describes the methodology used to analyze Japanese university students' characteristics, psychology, and potential behavior after the pandemic. The methodology of this study is divided into the following five steps.

- Step 1: Formulate a hypothesis based on the problem.

- Step 2: Prepare the questions needed to test the hypotheses. The content of these questions is primarily related to the impact of wearing face masks and using web conferencing tools on college students' self-perceptions about their faces and mask-wearing. These questions mainly focus on how wearing face masks affects university students' behavior after COVID and their self-perception regarding their faces. Subjects can be single-choice, multiple-choice, or open-ended. Previous studies have utilized a logic tree [19, 20] to establish hypotheses and the necessary reasons for their verification. This method of logical thinking is ideal for theoretically verifying hypotheses without any omissions or duplications in the questionnaire items. The author chose to adopt the logic tree method for preparing questions in this questionnaire based on its suitability. In this procedure, at step 2: Cronbach's α [21] is not calculated because it has not yet obtained answers from the subjects. The α is often used in factor analysis, a different analysis method from this study. Moreover, the value of the α tends to be high regardless of the reliability depending on the number of question items, and in recent studies, there has been a tendency to move away from its use [22]. Therefore, it is not mentioned here.

- Step 3: Data was collected through a Google Form survey of prospective students for the 2020-2023 school year. The author will distribute an online questionnaire to over 300 subjects who are attending Japanese universities between 2020 and 2023. This data is collected from students at three universities in Tokyo, Saitama, and Chiba prefectures, and is planned to be distributed in protest to students in each grade. Response data will be acquired as electronic data in CSV files via Google form.

- Step 4: To test H_1, gender cross-tabulations, and x^2 test was conducted on the data of subjects to specific questions to determine whether or not the hypothesis is accepted or rejected. The author intends to utilize an Excel add-in tool to analyze data and retrieve outcomes.

- Step 5: Based on the test results, the author was able to elucidate that Japanese youth tend to wear masks because they are too conscious of their faces and provide educational support.

First, the author presents the hypothesis to test. The increase in the number of adolescents experiencing psychological distress due to dissatisfaction with their faces is a problem that requires attention due to behavioral changes after the pandemic. A similar survey conducted by the author last year has already shown that nearly 40% of male and female subjects answered that they would like to continue wearing masks after COVID convergence, except in unavoidable situations such as eating. This finding suggests that students who have not had the opportunity to see the true faces of their fellow students since entering college during the pandemic have great resistance to removing their masks in public. The author will test this hypothesis in this study to determine the impact of the practice of mask-wearing on students. Therefore, this study aims to provide suggestions for improving negative perceptions of appearance among students who have been critical of their faces due to post-

pandemic behavioral changes. Although there are few precedents for research findings that focus specifically on Japanese university students' perceptions, the author believes that conducting this study is significant in addressing issues that may lead to a greater impact on the growing psyche of youth. The conclusions drawn from this study must contribute to their education. To this end, the study hypothesizes the following.

H_1: There is a significant difference between genders in terms of their self-perception regarding wearing masks caused by COVID.

The rationale for composing H_1: This hypothesis suggests that there may be significant differences in mask-wearing habits between genders due to factors such as shaving, makeup, and other personal habits. In particular, the author considered that more females than males have become accustomed to their appearance when wearing masks and are unable to remove them, or are worried about the difference in their looks when they put off their masks. In addition, masks of various colors and shapes appeared after the pandemic, and it is assumed that a certain number of females consider masks part of fashion. Therefore, the author expects that an overwhelmingly higher percentage of females continue to wear masks today. Based on the collected data, the cross-tabulations and x^2 test to verify H_1 as well as the results. See Figure 1 for the questionnaire algorithm.

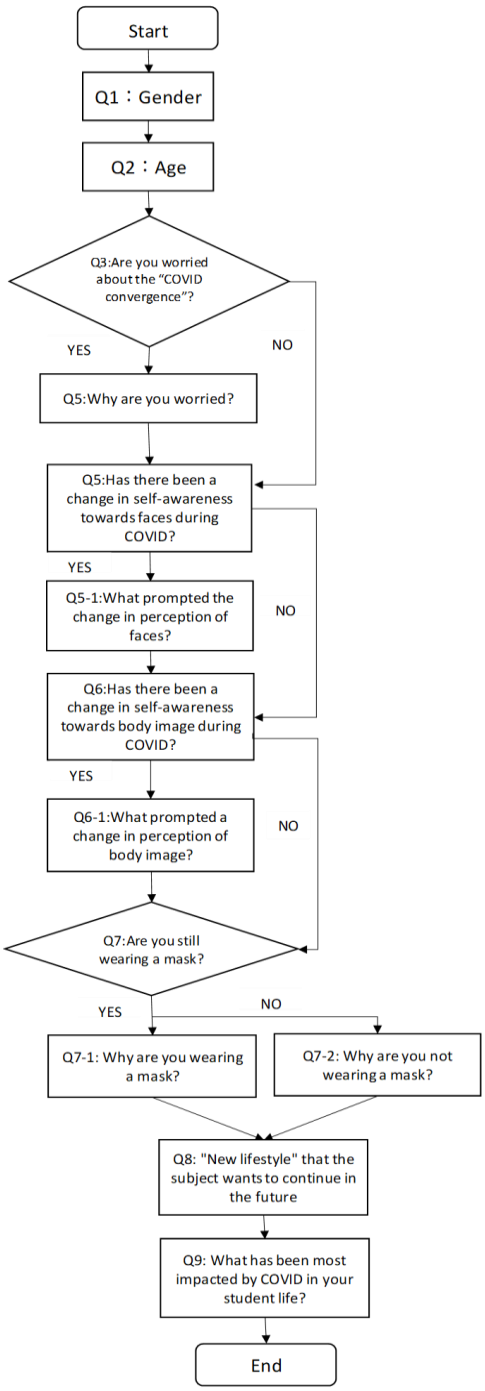

Figure 1. Algorithm of the questionnaire survey

The online survey used hypotheses to develop questionnaire items based on the "New Lifestyle" publication by Chiba Prefecture [23] and previous studies [24, 25], such as [26] research on the relationship between mask-wearing and self-perception. The questions included options for respondents to choose when, where, and why they wear masks, with choices related to physical or psychological burdens. The questions were distributed using Google Forms, and response data were collected. The target population was university students attending universities in Tokyo, Saitama, and Chiba Prefecture as of May 2023. The study recruited 357 students (male: 191; female: 166, M_{age}= 18.6). The survey was conducted across five days from April 24 to May 11, 2023. This survey mainly involved students who were joining the class of 2023 in the university, and over 90% of the participants were aged between 18 and 19.

3. RESULTS AND DISCUSSION

In this section, the author presents two results. The first is a validation of the hypothesis presented by the author in the previous section. For this verification, cross-tabulations and x^2 tests were conducted. The second shows the results of the gender distribution of the reasons why the subjects continue to wear the mask or not. In 3.1, The author presents the results of verifying the hypothesis.

3.1. Results of testing hypothesis H_1 by conducting a x^2 test after cross-tabulation of mask-wearing habits among genders

First, a cross-tabulation of the collected data what performed, to test the hypothesis that there is a difference in mask-wearing habits between the genders. The author then tested hypothesis H_1 using a test. Students were asked, "After 12. March 2023 still wear a mask, even if it is no longer mandatory in Japan?". A cross-tabulation is conducted since this is about the proportion of males and females out of all respondents who have either changed or not changed their perceptions about their faces. The result is presented as a cross-tabulation of row ratios. The result is shown in Table 1.

Table 1. The result of cross-tabulation among gender on whether they still wear masks after COVID convergence (n = 357)

	Mask-wearing status as of May 2023		
	Total	Wearing a mask	NOT wearing a mask
	357	288	69
	100.0%	80.7%	19.4%
Male***	191	138	53
	100.0%	72.3%	27.7%
Female***	166	150	16
	100.0%	90.4%	9.6%

*** indicate significance at the .001 levels, respectively.

This analysis reveals that 72.3% (138 out of 191) of male students and 90.4% (150 out of 166) of female students still wear masks even after COVID converged and mask-wearing was no longer mandatory at the discretion of individuals. Table 1 shows that the difference in the percentage of female students who still wear masks is 18.1%, which is higher than that of male students. In addition, a test was conducted to verify hypothesis H_1, which states a significant difference in mask-wearing status between males and females. The results show substantial differences between male and female students in whether or not they are still wearing masks after COVID convergence ($p < .001$, $p = .000$, $x^2 = 24.5$). Cramer's *V* [27] was calculated in addition to the P value to measure the effectiveness of the chi-square test conducted in this study. According to [28], Cramer's *V*, one of the effect sizes for the x^2 test, indicates that the standard effect size is .10 for small, .30 for medium and .50 for large in the range of 0 to 1. In the present study, $V = .29$, indicating that gender and mask-wearing behavior are generally related, independent of sample size. Thus, this study adopted H_1.

From this point on, the author discusses why Hypothesis H_1 was adopted. There are several possible reasons for this outcome. Firstly, more students may wish to continue wearing masks to conceal dissatisfaction with their faces, as they have become accustomed to wearing them during the pandemic. Alternatively, some students may feel compelled to keep their masks on because those around them also wear them. Additionally, some students may have lost interest in their appearances due to wearing masks, for example, by no longer wearing makeup or shaving. Students who began university before 2023, may not have seen their classmates' real faces, leading to discomfort when taking off their masks. Overall, the author considered that there are many potential reasons for the adoption of Hypothesis H_1.

The next section shows the gender distribution of students who continue to wear masks and the reasons for their continued use.

3.2. Why do Japanese university students still wear masks even if the pandemic status changes

As mentioned earlier, there is a significant difference in the tendency to wear masks between the genders, with a higher percentage of female students than male students still wearing masks. In this section, the author presents the responses and their percentages that were supported as reasons for continuing to wear masks even now that they are not mandatory. See Figure 2 below for the reasons for wearing masks and their percentages.

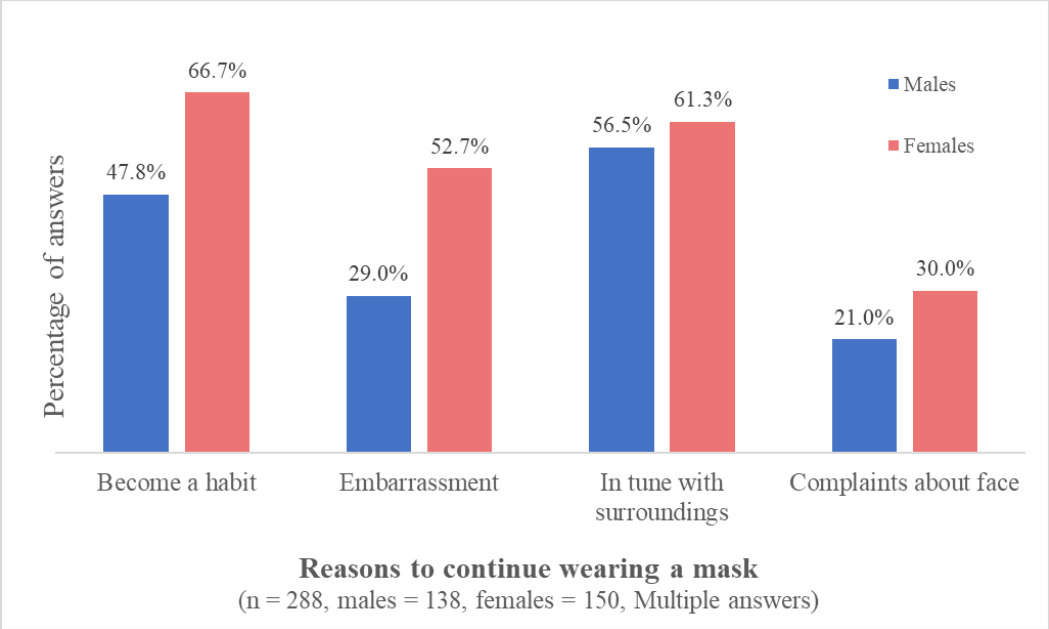

Figure 2. Reasons for wearing masks among genders

First, the most popular response from males as a reason for still wearing a mask was " In tune with surroundings (56.5%)". This is not because there is strong peer pressure among male students, but rather because their relationship with their surroundings is directly related to their reasons for wearing a mask due to their daily makeup habits and lack of interest in beauty. It is known that nowadays Japanese males also tend to wear makeup and become more conscious of beauty [29, 30, 31], it has been clarified that male students prioritize tuning with their surroundings over their own physical appearance, including their attractiveness or lack thereof.

Second, the most popular response among females was "Because it has become a habit (66.7%)," suggesting that wearing masks had become a part of the student's lives during the three years of the pandemic, even before their perceptions of their faces had changed. The variety of colors and styles of masks has increased, and it is possible that wearing masks in daily life has become a habit that has replaced the use of makeup. It appears that wearing black masks, which were previously deemed unhygienic, is now more accepted due to the pandemic [32]. The study also found that the "Becoming a habit" trend is not only limited to university students but is also prevalent among many Japanese individuals.

The author discusses results to understand the reasons behind why both males and females wear masks and identify any trends. Fig. 2 shows two significant points. Firstly, male students wear masks in tune with their surroundings, habitually or consciously. This can be inferred from the fact that being in tune with surroundings (56.5%) and becoming a habit (47.8%) were selected as reasons for wearing at a higher rate than female students. Furthermore, in the previous section, Table. 1 showed that a lower percentage of male students wear masks (72.3%) compared to female students. This suggests that the environment around them may influence the decision to remove their masks or the habit may simply fade over time. Prior to the pandemic, it was noticeable that female students tended to wear more makeup and placed greater emphasis on their appearance. However, in the midst of the pandemic, many female students opted to attend online meetings without wearing masks and even contemplated cosmetic surgery due to their dissatisfaction with their physical appearance. This could imply that a larger proportion of female students wear masks as a means to conceal their dissatisfaction with their facial features, compared to male students. Furthermore, with the rise in virtual meetings, individuals had more occasions to observe the contrast between their masked and unmasked appearances. As a result, the author believes that most female students still wear masks, with a rate exceeding 90 %, as illustrated in Table 1. The study's results only examined the differences in mask-wearing between genders and the reasons behind it, which

is a limitation. It will be possible to clarify the changes in perceptions and behavior of university students post-COVID-19 by analyzing other answers.

As students begin their job search and enter the workforce, it is uncertain if wearing masks while communicating with other people will continue indefinitely. Nevertheless, it is important to prioritize social interactions by appropriately removing masks in appropriate settings and avoiding hiding behind them due to facial dissatisfaction. Based on the results of this study, the author believes that it is necessary to tell male students not to be too in tune with their surroundings and female students that showing their faces to others is not something to be embarrassed about. The author adopted hypothesis H_1($p < .001$, $p = 7.6\text{E-}07$, $x^2 = 24.5$), suggesting that perceptions and appearance behaviors vary based on gender. Therefore, in the realm of university education, it's necessary to provide tailored recommendations based on these attributes. However, it should be noted that this research has a limitation. The author was unable to categorize students based on their year of admission and study their knowledge about wearing masks and facial coverings. The state of student life and mask-wearing frequency are likely to be affected by the current status of the COVID-19 outbreak. In the future, it's essential to investigate how Japanese university students' perceptions and behaviors have changed in different clusters beyond gender during the pandemic. For example, it is clustering the attributes of the subjects according to their responses, or cross-tabulating and testing new hypotheses among the questions.

4. CONCLUSION

In this study first, the author formulated hypothesis H_1. The author conducted an online survey in 2023, targeting Japanese university students to gather data on changes in behavior related to mask-wearing and self-perception of one's face after the pandemic. The results showed that more female than male students continue wearing masks even when it's not mandatory. This difference in behavior between genders was statistically significant, and the hypothesis was validated. The survey also revealed the reasons why students continue to wear masks, including habituation, changes in self-perceptions, and the influence of their surroundings. These findings shed light on the characteristics of Japanese university students. The outbreak of COVID-19 in Japan has caused a shift in attitudes towards the disease, with many now considering it as severe as the flu. Educators need to ensure that young people do not become highly dissatisfied with their real-life faces or that wearing masks does not impede their communication with their surroundings. The novelty of this study is that it focused on the awareness and behavior of university students after the convergence of COVID-19. Many of the existing studies were conducted during the pandemic from 2020 to 2022. However, the pandemic situation of infectious diseases has changed since then, and the range of activities of university students has changed since the beginning of 2020. Focusing on how students have changed their lifestyle over the past three years after the end of COVID-19, this study is unique and novel in that it clarifies the wearing of masks and the reasons for them. The author intends to conduct a future study by surveying over 400 current Japanese university students to understand how their perceptions and behaviors toward appearance have changed in the post-COVID era. In addition, the author speculates that by presenting the findings clarified in this study to other lectures, it will be possible for faculty members to recommend maskless communication to students in charge of their own lectures.

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