INTRODUCTION

Layoffs and suspension of workers have sharply increased during the COVID-19 pandemic, particularly among non-standard workers. About 40% of all workers in Japan are non-standard, including part-time and temporary workers. All students who work while attending college, university, or graduate school are in part-time or other non-standard employment. Therefore, for students who make a living from part-time income, loss of employment would have a significant impact on their lives and studies.

The deprivations of working students started even before the pandemic and their difficult student life has been noted in recent years. A major cause is the increasing cost of tuition, with the reduction of government subsidies to universities and tuition hikes in both the national and private sectors.
At the same time, benefits provided by families have been declining for the past decade. Many students borrow scholarship funds, with 47.5% of university students receiving scholarships from the Japan Student Services Organization (JASSO) and other loan-based scholarships. However, many students are hesitant to borrow because there is no guarantee that they will have a stable income after graduation due to declining wages and increasing non-standard employment in recent years. As a result of these social factors, the percentage of working students is increasing every year, and the amount of part-time work as a percentage of college students’ monthly income is also increasing.3

Non-standard work and unemployment are important social determinants of health.4 Previous research on the health of working students has shown that working part-time for long periods of time can lead to mental health problems, and it has often been noted that this can lead to lower academic performance.5 The employment situation in Japan has been relatively stable since 2010, but the deterioration in employment caused by COVID-19 was an unexpected event. Thus, the impact of the pandemic on workers’ employment and lives may not be the same as that of a usual recession.

This study investigated the employment conditions and lives of working students during the pandemic, using official statistics and a university student lifestyle survey.

2 | SUBJECTS AND METHODS

This study used publicly available aggregate data from the Labour Force Survey (Ministry of Internal Affairs and Communications), an official national statistics repository.6 Working students were defined as those employed in non-agriculture and forestry industries whose activity status was “working while attending school.” For chronological changes in the number of working students, the monthly number of working students from January 2019 to May 2020, including during the spread of COVID-19 infection, was explored by sex and age group. During this period, the Japanese government declared a nationwide state of emergency on April 16, 2020 that was lifted on May 16, 2020.

Student employment and living conditions were investigated using a survey of living conditions conducted in late May 2020 (during the declaration of a state of emergency) at a national science and engineering university in Tokyo, using the university’s online enrollment system. The number of students was 5102 (3452 undergraduates, of which 11.2% were women, 1375 were graduate students, and 275 were research students), and we obtained 2530 responses (49.5% response rate).

The survey items included respondents’ information (ie, name, ID number, sex, and student category), residence situation (ie, family home location, current residence, and household type), socioeconomic status (financial hardships such as living expenses and school fees, economic insecurity, and current or future part-time work), remote instruction (ie, class attendance and class satisfaction), university life (ie, presence of close friends on campus, membership in clubs or other extracurricular activities, and participation in clubs or extracurricular activities on campus or remotely), health status (ie, current health, anxiety and/or worry, and sports or muscle training routine), and job search (ie, anxiety or worry about job searches). Free descriptions were permitted concerning socioeconomic status, remote instruction, and job search categories.

In this study, students who responded that their financial situation was “pretty tough” or “I’m worried about the future, but for now, I think I’m alright.” were included in the “economic insecurity” group, while those who responded “no problem” were included in the “no economic insecurity” group. The study respondents included 1381 undergraduate and 423 graduate students who answered questions about economic insecurity. Based on this grouping, comparisons were made involving the above survey items. The chi-squared test was used to compare the proportions of each item between the groups. Voluntary statements concerning economic insecurity and job searches were used to categorize the students’ problems and to examine the impact of the pandemic on students’ academic activities, lives, and health.

All procedures were conducted in accordance with the Declaration of Helsinki and later amendments thereof. The study protocol was approved by the Ethics Committee of the University of Electro-Communications (approval number, 20013). Students consented to participate by choosing to not opt-out when that option was widely publicized. The opt-out material is available on the website https://www.uec.ac.jp/news/announcement/2020/20201224_2984.html.

3 | RESULTS

The number of working students in the Labour Force Survey is shown in Figure 1. The number of working students was 2.14 million in January 2020. This number decreased sharply after March, reaching 920 000 (450 000 men and 470 000 women) in April 2020, when the declaration of a state of emergency was announced nationwide. Although the number of workers was increasing in May, it remained 610 000 (32.7%) lower than in the same month in 2019. An analysis according to age group revealed significant reductions in the numbers of young working students aged 15-19 and 20-24 in April 2020, down 340 000 (−49%) and 400 000 (−45%), respectively, compared to the same month in 2019.

The findings from the survey of university living conditions are shown in Table 1. Of the 1,804 participants in this study, 741 (41.1%) were engaged in part-time work at
the time of the survey. Of the 1,063 students who were not working, 605 (56.9%) wanted to work after reopening of the university. The group of 674 respondents (37.4%) who answered that living expenses and tuition fees were “pretty tough” or “I’m worried about the future, but for now, I think I’m alright” were included in the economic insecurity group. Compared to respondents without economic insecurity, those with economic insecurity included more part-time workers (36.3% vs 49.1%), more who wanted to work after reopening of the school (50.0% vs 72.0%), more graduate students than undergraduate (20.6% vs 28.2%), and more living alone (58.5% vs 73.0%).

In terms of health status, a significantly greater percentage of the economic insecurity group reported poor self-rated health (those who answered that their current health was “not good” or “bad”) and increased anxiety and worry, compared to those without economic insecurity (10.8% vs 5.7%, \( P < .00001 \); 42.0% vs 28.2%, \( P < .00001 \)). There was no difference between the two groups regarding remote instruction, university life, or job search concerns.

There were 1,105 free descriptions. From the statements, we extracted the most frequently appearing words and phrases then categorized them based on context. The students’ voluntary statements were classified into five broad categories:

1. Income (847 descriptions): Many students were struggling to make ends meet due to a sudden decrease or disruption in their or their parents’ household income. “I’m a freshman, but I can’t even start a part-time job because of the coronavirus. My parents don’t send me much money and I’m worried about my life.” (1st year undergraduate). “My father, a stage designer, hasn’t had any work since late February, and my mother can’t work because she is taking care of her grandfather. My family is currently supported by my part-time job and my father’s savings.” (1st year master’s student). Several respondents stated that the expenses associated with taking virtual classes were a burden on their household budget. “The purchase of equipment and Internet service to use for virtual classes was expensive, and because I spent more time at home, my utility bills increased considerably. I make very little income from part-time work, so in 2 months I will run out of money to live on.” (3rd year undergraduate).

2. Job search (354 descriptions): Many students expressed concern about their future employment prospects and their current job search. “I fear that the negative effects of the spread of the new coronavirus will extend to our employment period.” (2nd year undergraduate). “The number of companies accepting internships has decreased significantly and we may not be able to participate.” (3rd year undergraduate student). “I received a job offer from a company, but I’m worried that it might be cancelled due to the recession.” (2nd year master’s student). “My friends have told me that some people have had their job offers rescinded and others have been unable to find a job because the industry they want to work in has stopped hiring altogether. I worry that the effects of the pandemic are so severe that it will not be easy for me to find a job.” (4th year undergraduate). “I can’t have the opportunity to conduct an active job search, such as going directly to the university’s job search office and proactively communicating with the staff to obtain information about graduates working at the company in which I want to work.” (5th year undergraduate).

3. Financial support (90 descriptions): Many students complained about problems related to compensation from companies for suspension of part-time work and lack of financial support from the government for needy students. “My part-time employer ordered me to take a leave of absence from work, without pay, and I have not received any income since April.” (2nd year undergraduate). “I pay my own rent, living expenses, and so forth, but my parents pay school fees, so I am not eligible for the government’s special benefit for students.” (4th year undergraduate). “I used to work at an event every spring and summer only, but when I lost that part-time job, my annual income was cut in half. However, I was not working all year round, so I am not eligible for special student benefits.” (1st year master’s student).

4. Continuing studies (82 descriptions): In some cases, students described that they had difficulty continuing their studies and balancing their research activities due to financial hardships. “My parents’ income is low, so I have to...


**TABLE 1** Socioeconomic and health status among university students (n = 1,804)

|                          | Total n = 1,804 | Economic insecurity |
|--------------------------|----------------|---------------------|
|                          | No (%)         | “Yes” n = 674       | “No” n = 1,130       | P-value |
| Employment status        |                |                     |                     |         |
| Part-time workers        | 741 (41.1)     | 331 (49.1)          | 410 (36.3)          | <.0001  |
| Unemployed workers who wish to work after they are able (to attend university) (n = 1,063) | 605 (56.9) | 247 (72.0) | 358 (50.0) | <.0001 |
| Student category         |                |                     |                     |         |
| Undergraduate            | 1381 (76.5)    | 484 (71.8)          | 897 (79.4)          | <.001   |
| Graduate                 | 423 (23.4)     | 190 (28.2)          | 233 (20.6)          |         |
| Household type (n = 806) |                |                     |                     |         |
| One-person household     | 525 (65.1)     | 270 (73.0)          | 255 (58.5)          | <.0001  |
| Living at home with family | 249 (30.9)   | 85 (23.0)           | 164 (37.6)          |         |
| Living with a sibling or friend, or in a dormitory | 32 (4.0) | 15 (4.0) | 17 (3.9) |         |
| Remote learning          |                |                     |                     |         |
| Attending all or most of the classes | 1642 (91.0) | 602 (89.3) | 1040 (92.0) | .052    |
| Satisfied with all or most of my classes (n = 1,654) | 1564 (94.6) | 554 (91.6) | 1010 (96.3) | .051    |
| University life          |                |                     |                     |         |
| I have a close friend in campus (n = 1,660) | 805 (48.5) | 292 (47.6) | 513 (49.0) | .61     |
| Member of a student activity group such as a club or a circle | 716 (39.7) | 284 (42.1) | 432 (38.2) | .11     |
| Job search               |                |                     |                     |         |
| I have concerns and worries about job searches | 248 (13.7) | 89 (13.2) | 159 (14.1) | .63     |
| Health status            |                |                     |                     |         |
| Poor self-rated health   | 137 (7.6)      | 73 (10.8)           | 64 (5.7)            | <.00001 |
| Increase of anxiety and/or worry | 602 (33.4) | 283 (42.0) | 319 (28.2) | <.00001 |
| No regular exercise habits, such as sports or gymnastics | 1174 (65.1) | 432 (64.1) | 742 (65.7) | .51     |

| Note: Economic insecurity “Yes”: Respondents who answered that tuition, living expenses, and other financial aspects are “pretty tough” or “I’m worried about the future, but for now, I’m alright.” Economic insecurity “No”: Respondents who answered that tuition, living expenses, and other financial aspects are “No problem.” The chi-squared test was used to examine differences between groups. |

5. Health (12 descriptions): With regard to health, several students commented that they were eating less frequently because of a decrease in part-time income. “My part-time job income has been drastically reduced due to the effects of the coronavirus, so I’ve been forced to cut back on food and other expenses.” (3rd year undergraduate). “My income has been reduced because of the reduced shifts at my part-time job… Anyway, I’m home all of the time now, so I’m eating one meal a day. I’ve gotten used to it, but I’m worried about my nutrition…” (4th year undergraduate).  

4 | DISCUSSION

Our results indicate that the number of working students in Japan as of April 2020 had decreased by 780,000 (−45.9%), compared to the same month in 2019. In addition, in the student lifestyle survey, about one-third of the students were aware of economic insecurity and reported concerns...
about low income, job searches, continuing studies, and financial support. Students with economic anxiety were also more likely to report poor self-rated health and increased anxiety.

In the Labour Force Survey, the total number of part-time workers as of April 2020 was 14.02 million, of which only a small percentage were working students (6.5%, 920 000). However, when comparing the percentage decrease in workers to the same month in 2019, the percentage decrease in all part-time workers was 9.5% (780 000) compared to 45% (870 000) for working students. Furthermore, the industries with the largest decline in the number of working students at the same time were the accommodation and food service industry (−460 000), wholesale and retail trade (−330 000), manufacturing industry (−170 000), lifestyle-related services industry (−110 000), and education and learning support industry (−110 000). According to a survey by the Ministry of Health, Labour and Welfare, the most common industries in which students work part-time are the sales industry (eg, supermarket), the restaurant industry (eg, restaurant chains), and the education industry (eg, cram school and tutoring), all of which are industries where the number of workers decreased significantly due to the pandemic. Based on the results of these surveys, the risk of student part-time workers losing their jobs as a result of the COVID-19 pandemic is considered to be greater than the risk in the general part-time workforce.

Large-scale unemployment of nonregular workers in Japan in recent years is attributable to the collapse of Lehman Brothers in September 2008, when nonregular workers (dispatch workers in particular) were laid off. Research on the impact of the collapse on student employment has focused on the job market for new graduates and the labor difficulties encountered by young people; few studies have explored the impact on part-time student workers.

Using official statistics from the Ministry of Health, Labor and Welfare (“Report on employment service” data), we compared the impact of the COVID-19 pandemic on the employment of part-time workers to that of the Lehman Brothers crisis. The decline in the active job vacancy/application ratio was 0.28% (falling from 1.59% to 1.31%) during the COVID-19 pandemic (February to May 2020) compared to 0.15% (from 0.91% to 0.76%) during the Lehman Brothers collapse (February to May 2009). When we compared the April 2020 job vacancy levels to those in the same month of the previous year, we found that the accommodation, food and beverage (−53.6%), manufacturing (−43.3%), education (−42.0%), and retail and sales (−35.4%) industries revealed remarkable declines in the numbers of new jobs. Six months after the Lehman Brothers collapse (April 2009), the manufacturing industry exhibited the largest decline in that number (−39.6%) (data not shown). These findings suggest that the impact of the COVID-19 pandemic on student part-time work may be greater than that of the Lehman Brothers collapse, at least soon after the crisis passed.

For working students who have lost work or have become unemployed due to COVID-19, the possibility of being able to return to work in the future is an important matter. Although the Labour Force Survey showed that the increase in the unemployment rate in May 2020 was only slightly higher than the previous month, the number of people out of work jumped to 5.97 million, such that 24.1% of part-time workers were out of work. The food service and retail industries damaged by COVID-19 include a large number of part-time workers who are now out of work. If the employment rate is slow to recover, these workers could shift to unemployed status, which would lead to a significant increase in the unemployment rate. Importantly, according to interviews conducted by the Ministry of Health, Labour and Welfare at various workplaces, the number of COVID-19-related layoffs has continued to increase since June, when the government lifted the state of emergency, which differs from the situation indicated by the Labour Force Survey. Given that employment of young people is highly sensitive to economic trends, it may take considerable time for the number of working students to recover to the pre-COVID-19 level.

In the lifestyle survey, 37.4% of students were financially insecure. About 40% of the students who responded to the survey had part-time jobs. However, considering that about 60% of the students who were not working due to COVID-19 wanted to work and were unable to do so, about 75% of the students should normally be working part-time jobs. Because the university we studied is a science and engineering university in the metropolitan area, many students leave their hometowns and live on their own, and about half of the undergraduates go on to graduate school for a master's degree. For those students, the economic impact of COVID-19 is likely to be even greater than for students attending college locally. Even among students who were not in obvious poverty at the time of the survey, many may have feared that they would face financial difficulties during their long student tenure before completing graduate school, and it is possible that these factors may have further increased financial insecurity.

In this study, students with economic insecurity were shown to have higher rates of poor self-rated health, compared to those who were financially stable. Previous research has reported that self-rated health is linked to employment status, particularly unemployment, and that poor self-rated health is associated with increased mortality and worse mental health, such as depression. In addition, the COVID-19 pandemic has resulted in financial losses and an extreme lack of the social capital normally gained in daily college life and friendships. In addition, many students might be prone to psychological stress because they do not have access to real information about their studies and job search. The survey instrument did not include a reliable questionnaire or open-ended statements that would
assess the mental and physical health of the students, so it was difficult to fully assess the mental health of the respondents. Nevertheless, persistent socioeconomic stresses, such as income instability, may increase the risks of poor mental health and other problems.

Based on the voluntary entries in this study, many working students reported that they were ordered to take a leave of absence from work by their employers as a result of COVID-19, but did not receive the leave of absence benefits required by the labour law. Leave allowances for non-employee insured workers, such as student part-time workers, are eligible for subsidies under the Emergency Employment Security Subsidy, but few retailers and restaurants take advantage of these schemes, and support for part-time workers, including students, is not widespread. To provide urgent support for disadvantaged students during the COVID-19 pandemic, the government launched a scholarship program for students in need in April 2020, and JASSO’s loan-type scholarships for households with sudden changes in household finances have been implemented. However, the number of students eligible for these scholarships is very limited. For example, graduate students are not eligible for benefit scholarships, and scholarships for a sudden change in family finances are not available to students whose incomes have fallen considerably. Thus, public support for needy students can be disparate depending on the category of student and his/her income.

There were several limitations to this study. First, because the survey was conducted at a single science and engineering university, it may not be representative of the overall situation of university students in Japan. Second, because the survey was cross-sectional and the questionnaire was general in nature, it was difficult to extract the specific effects of COVID-19. A future longitudinal study is needed. Finally, because the survey was conducted using students’ university accounts, it is possible that many students were hesitant to answer questions about their personal financial situation, which may have contributed to the low response rate.

5 CONCLUSIONS

Our results demonstrate that working students are a vulnerable group at risk for employment loss during the COVID-19 pandemic. Our study also indicates that a number of students in Japan are living precariously to pursue a higher education. The economic insecurity is having a devastating effect on their studies and possibly their health. Public support should be expanded to improve students’ academic difficulties and address the health problems caused by economic hardship.

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DISCLOSURE

The study protocol was approved by the Ethics Committee of the University of Electro-Communications (approval number, 20013). Informed Consent: N/A. Registry and Registration No. of the Study/trial: N/A. Animal Studies: N/A. Conflict of interest: The authors declare that they have no conflicts of interest.

AUTHOR CONTRIBUTIONS

ST and EY conceptualized the study; ST, MN, and MI established the methodology; ST and MN collected the data and performed the analyses; ST wrote a draft of the paper; and EY, MN, and MI reviewed and edited the paper.

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