

Result of Large-scale Survey concerning Work and Life of Scientific & Technological Professionals under Emergency Declaration due to COVID-19 in Japan and Proposals to Japanese Government

EPMEWSE:

Japan Inter-Society Liaison Association Committee
for Promoting Equal Participation of Men and Women
in Science and Engineering

(Persons in charge: Dr. Misa Shimuta and Dr. Mihoko
Nojiri)

As COVID-19 caused a nation-wide suspension of research in Japan, we undertook a survey to know how the work and life of scientists and engineers are disrupted. Our aim of the survey was to correctly capture the situation of researchers working from home and to lead the government to quick support for scientists and engineers, by making timely requests for prospective improvements.

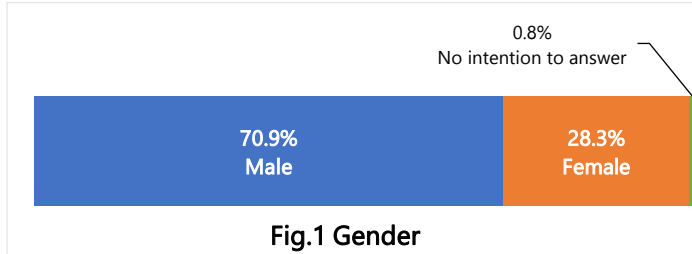
We sincerely appreciate the cooperation of respondents in completing the answers. The wrap-up of this survey is available on our website although personal information of respondents is kept confidential.

We asked fourteen questions (anonymous) using Google Form for four weeks from May 15th to June 13th, 2020. The questionnaire was primarily in Japanese but its English translation was provided. The total number of respondents was 11,112. Most of the respondents were in the fields of science and technology but a few of them were outside of STEM. The English version of the questionnaires is presented at the end of this report.

Remark: In question 7.2 and question 10, there were errors in the English version of the questionnaire. However, since the number of respondents who answered the questionnaire using the English version is presumably very small, it is considered to have little effect on the results hence the results have been published without correction.

Results of Survey

Question 1. Gender (Required).



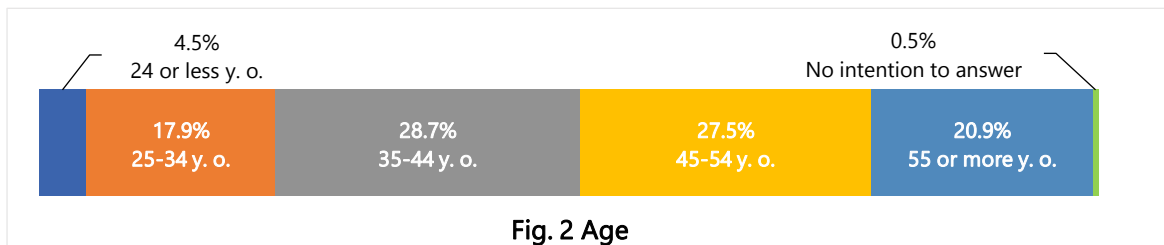
The total number of respondents was 11,112.

Male: 7,882 (70.9%)

Female: 3,140 (28.3%)

No intention to answer: 90 (0.8%)

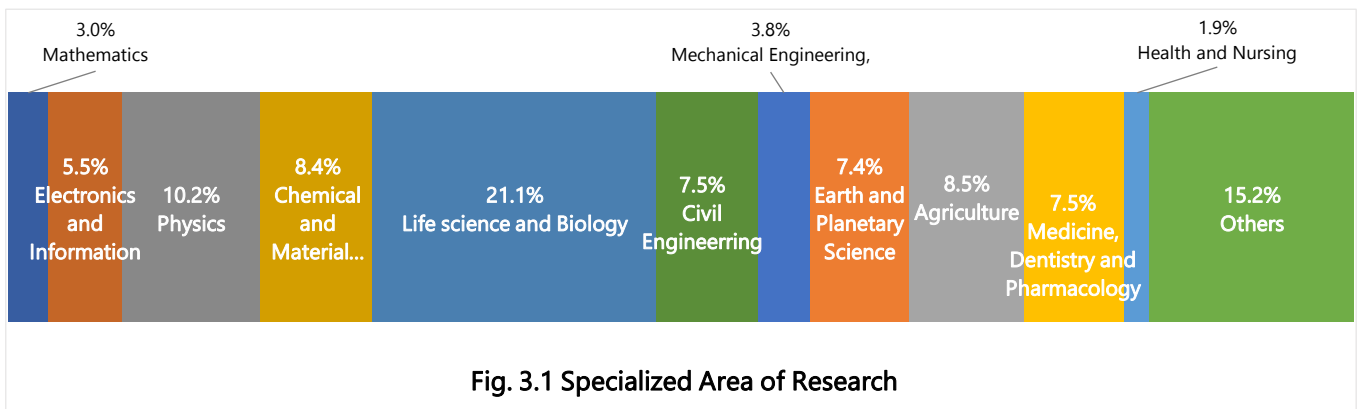
Question 2.1. Your age as of May 16, 2020. (Required).



Question 2.2. Location of your office (Specify a prefecture).

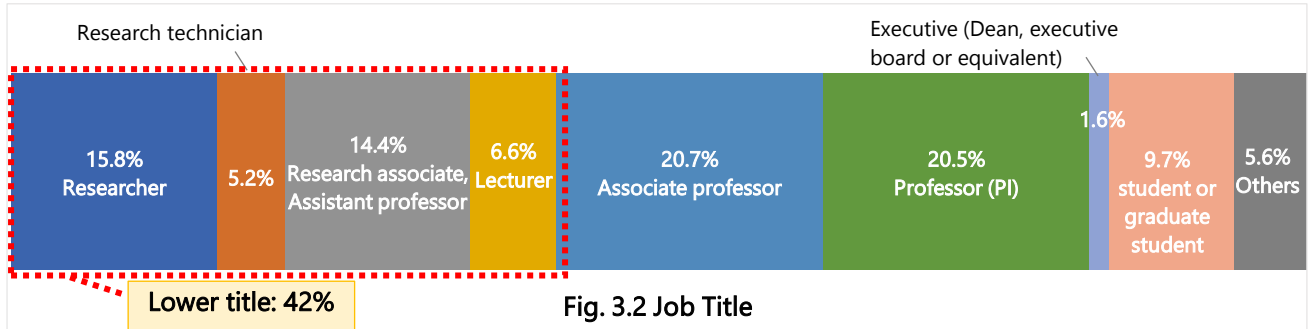
(under analysis)

Question 3.1. Your specialized field of research (Required, check the closest one).

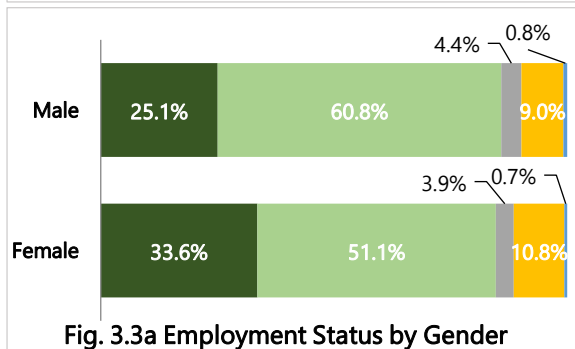
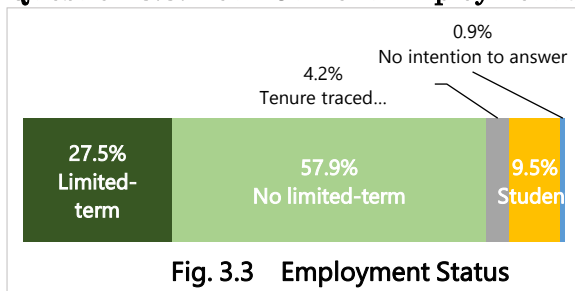


Researchers of various areas responded. "Others" includes non-STEM areas.

Question 3.2. Your current job title (Required, check the closest one).



Question 3.3. Your Current Employment Status (Required, check the closest one)

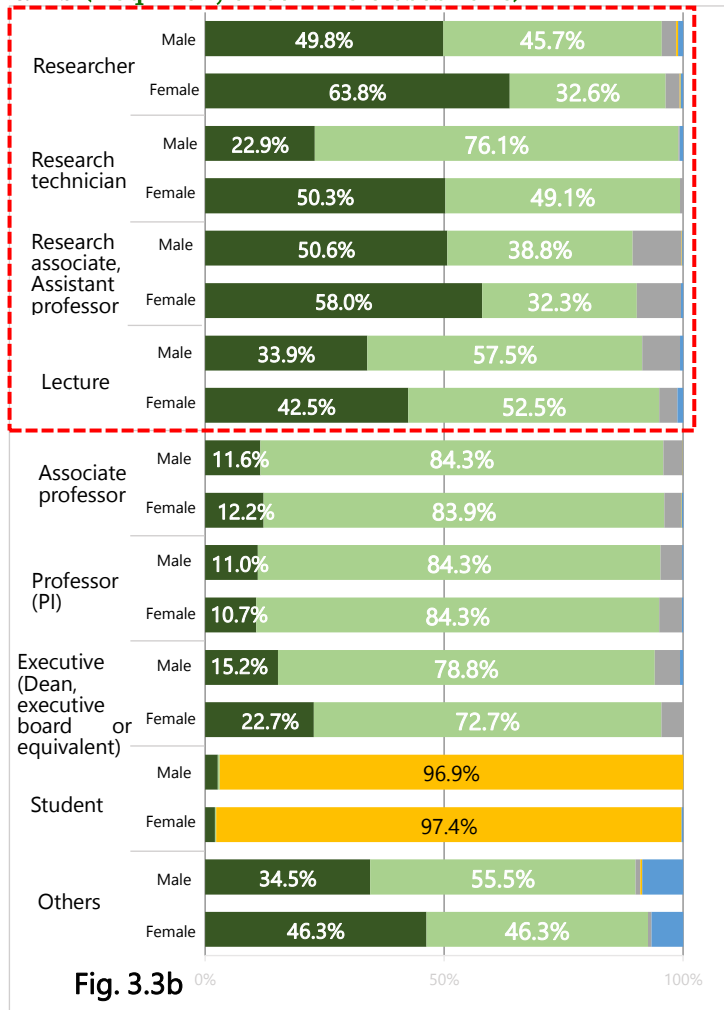


Limited-term: including appointed, postdoc, temporary staff

No limited-term: including regular employment, self-employment

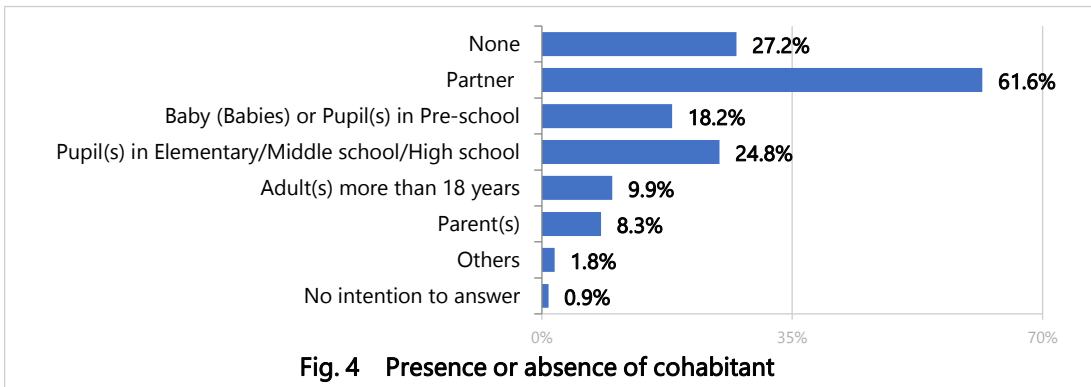
Tenure tracked employment: Being allowed undergo review for a no limited-term employment

Student: Student or graduate student

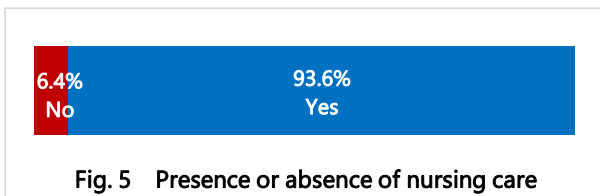


As in Fig. 3.3b, the percentage of limited-term employment is higher in females than in males in every tier of job titles, especially in lower job titles (from Researcher to Lecture).

Question 4. Your family living with you (Required, check all that apply).

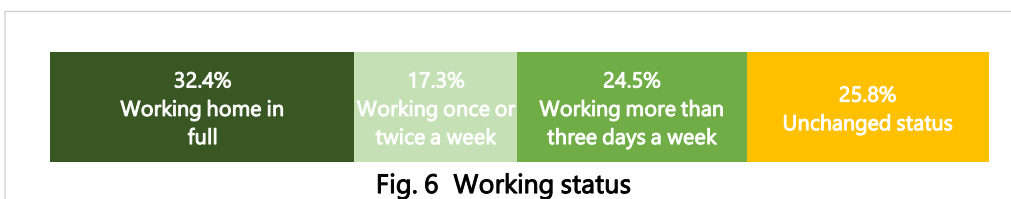


Question 5. Do you have a family member under nursing care? (Required)



What changes have you faced seen since the state of emergency was declared?

Question 6. What is your current working status under suspension? (Required, check the closest one).



74.2 % of respondents were working mostly from home.

Question 7.1 How does it change your current working time under suspension? (The number of respondents: 11,089).



Question 7.2 Have you changed your research subject under suspension?

(The number of respondents: 11,050).



Fig. 7.2 Changes in Research subject

Question 7.3. How does it turn out the quality of your current research activity under suspension? (The number of respondents: 11,050).



Fig. 7.3 Quality of Research

The figure below (Figure 7.3a) shows the results of the cross-analysis by field of research specialty and research quality.

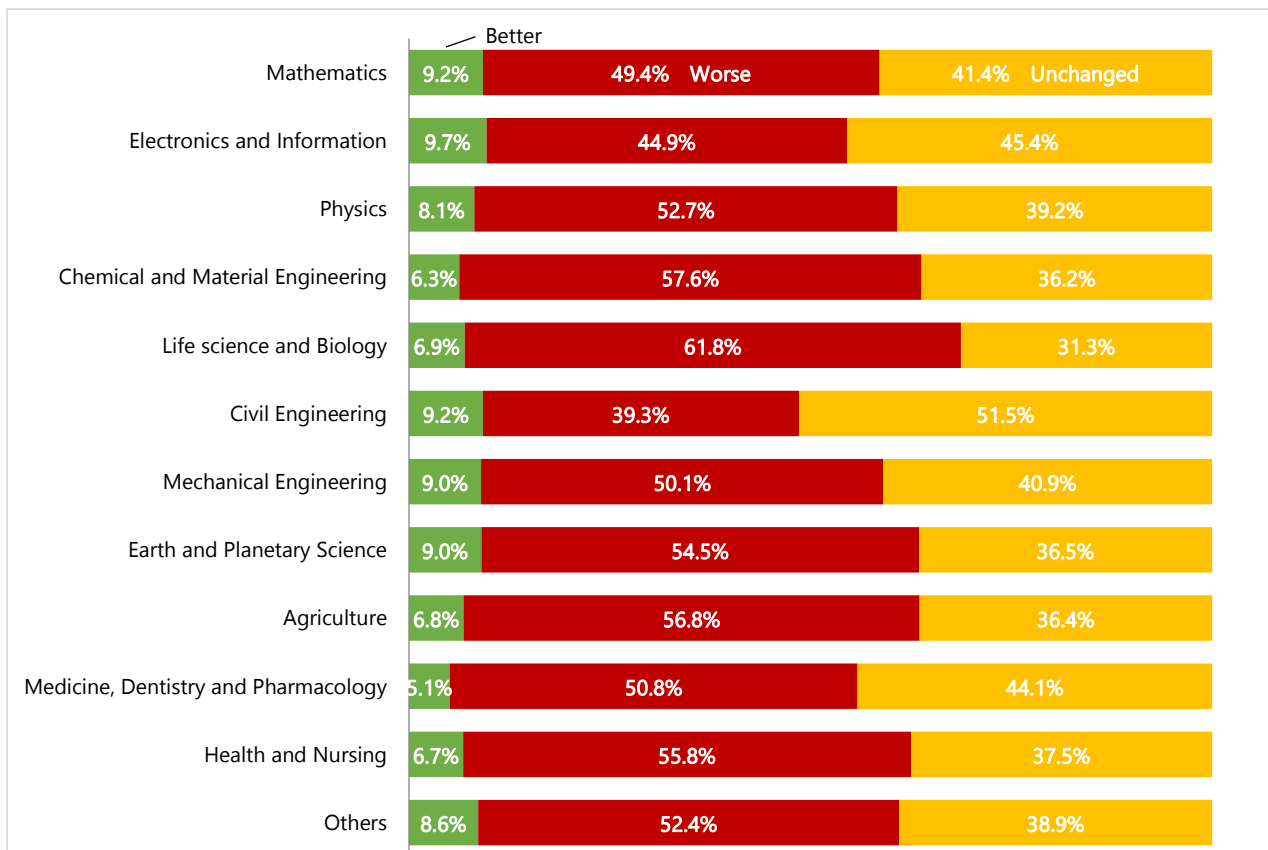


Fig. 7.3a Quality of Research by Field of Research Specialty

Question 7.4. Do you feel anxious about the status of your research under suspension?
 (The number of respondents: 11,072).

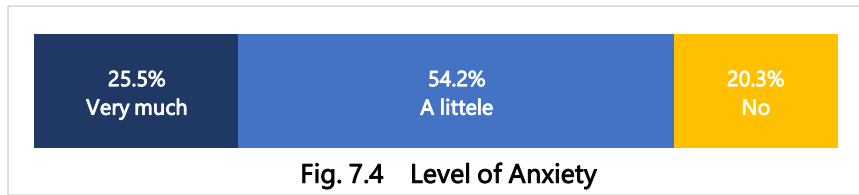


Fig. 7.4 Level of Anxiety

79.7% of respondents felt anxious (a little/very much).

The cross analysis (Fig 7.4a) indicated that about 87.9% of the students (graduate students) and 83.0% of limited-term employee were anxious due to the lock down.

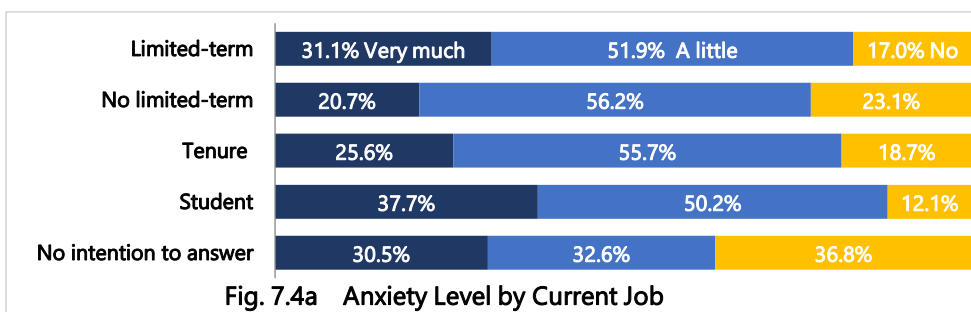


Fig. 7.4a Anxiety Level by Current Job

Figure 7.4 b shows a cross-analysis of research quality and anxiety. Anxiety was high among those who reported that the quality of research has declined.

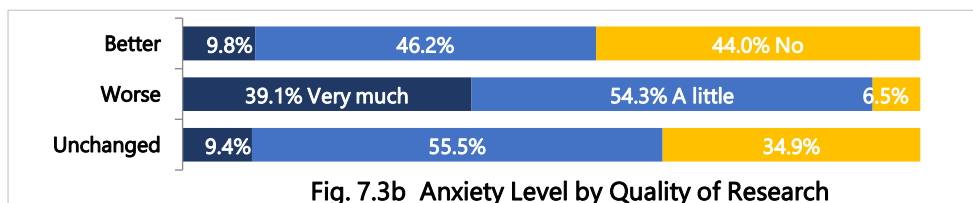


Fig. 7.3b Anxiety Level by Quality of Research

Question 7.5. What is the reason for your anxiety? (Check all that apply)
 (The number of respondents: 8,922)

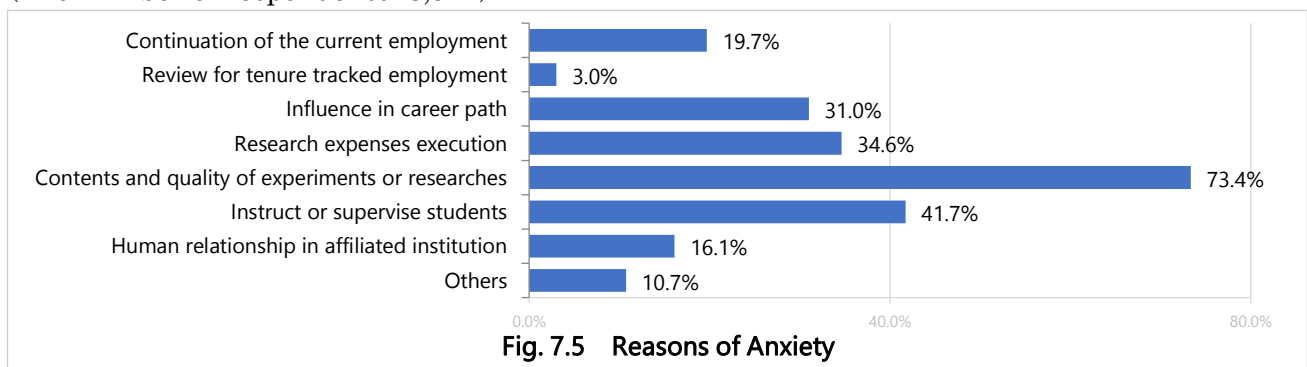
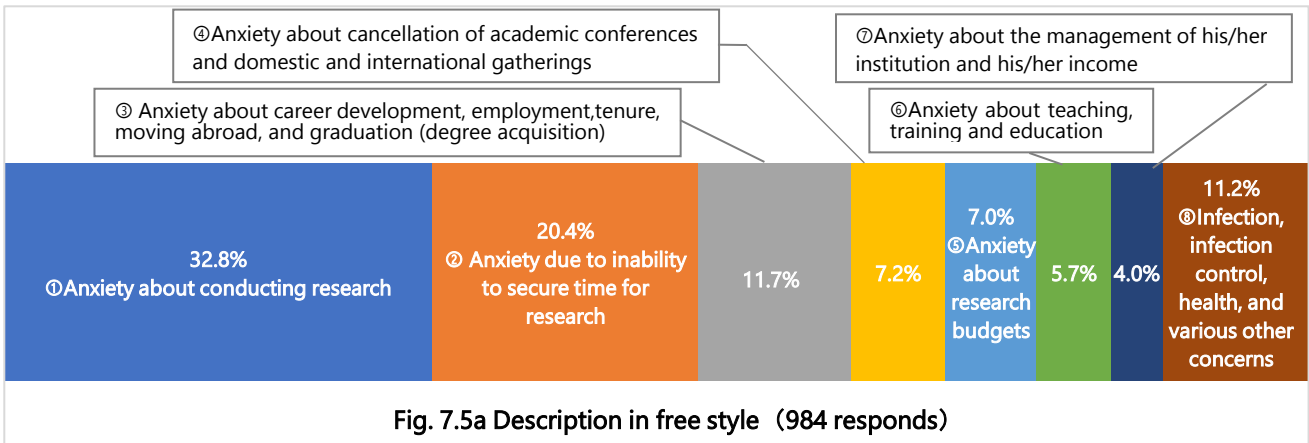
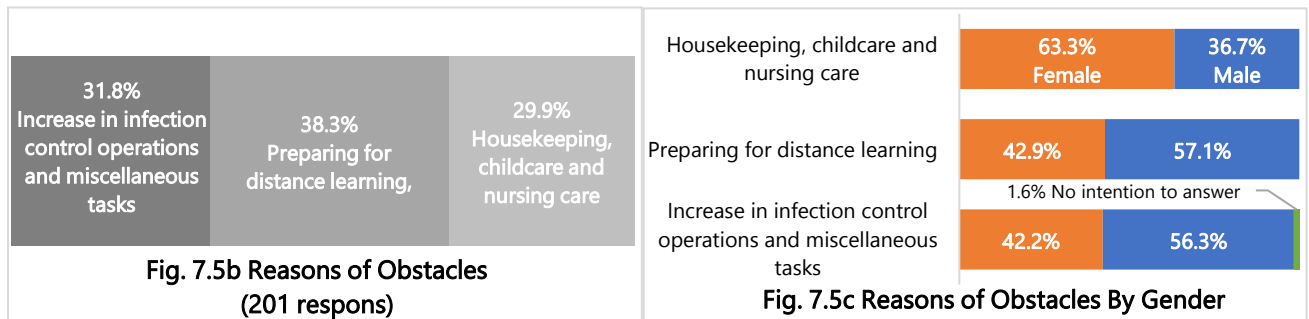


Fig. 7.5 Reasons of Anxiety

If you chose "other" in Figure 7.5, please specify (free answer) (984 responses through May 25).



We categorized free descriptions into eight groups. (Figure 7.5a). Respondents most frequently reported anxiety about conducting research (323 responses). In this category, the most common complaint was interruption of fieldwork due to restrictions on travel, followed by uncertainty about continuity and quality of research due to restrictions on facilities, equipment, and research content. Respondents in life science and biology brought up serious statements, like: “Due to severe restrictions on the use of the laboratory, we lost the recombinant strains that we had spent a great deal of money to create.” and “We had to sacrifice all animals, including special strains, at the time of the outbreak.”



The second most common reason for anxiety was due to inability to secure research time (201 responses) was categorized into three reasons: infection control duties, preparation for distance learning, and increased housekeeping, childcare, and nursing care (Figure 7.5b). Females were particularly likely to report that they were unable to secure research time due to increased housekeeping, childcare, and nursing care (Figure 7.5c). Nursing care includes elder care.

Questions from 8-1 to 8-5 were only for those who were involved in education.

Question 8.1. How does it change your current working time for education, under suspension?

(The number of respondents: 7,205).



Fig. 8.1 Time spent on education

Question 8.2. How does it turn out the contents of education?

(The number of respondents: 7,101)



Fig. 8.2 Educational contents

Question 8.3. How does it turn out the quality of education?

(The number of respondents: 7,075)



Fig. 8.3 Quality of Education

In the analysis of quality of education by field of specialization, more respondents reported that the quality of research declined in fields where there was a lot of research using facilities such as practical work and experiments (62.2% in Agriculture and 58.1% in Life Sciences and Biology) than in other fields.

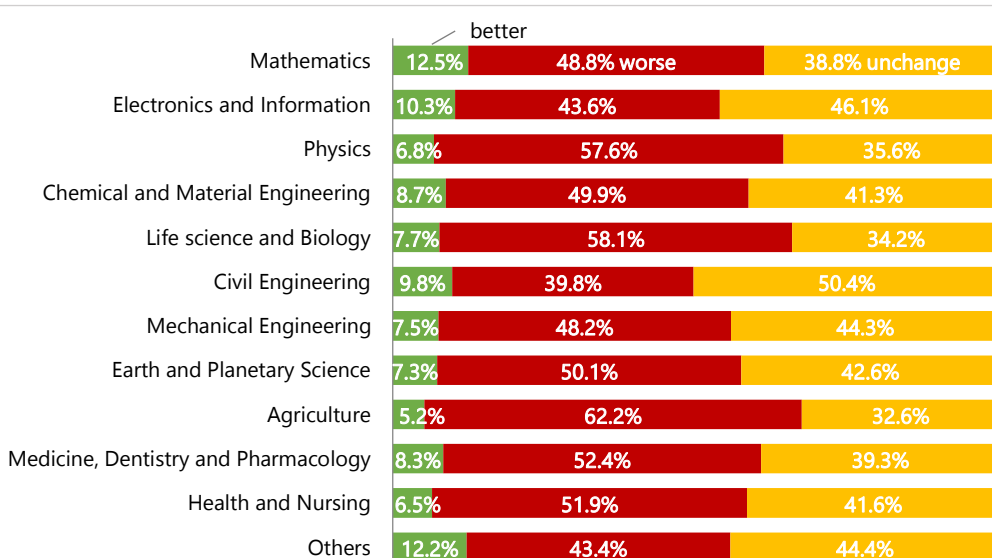
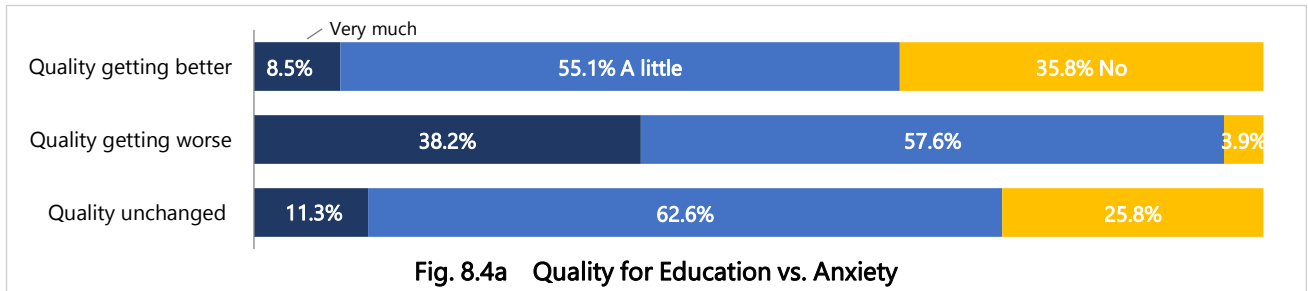
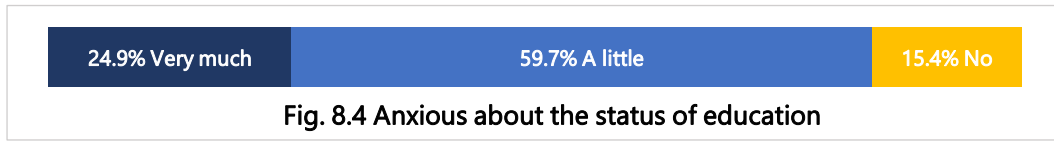


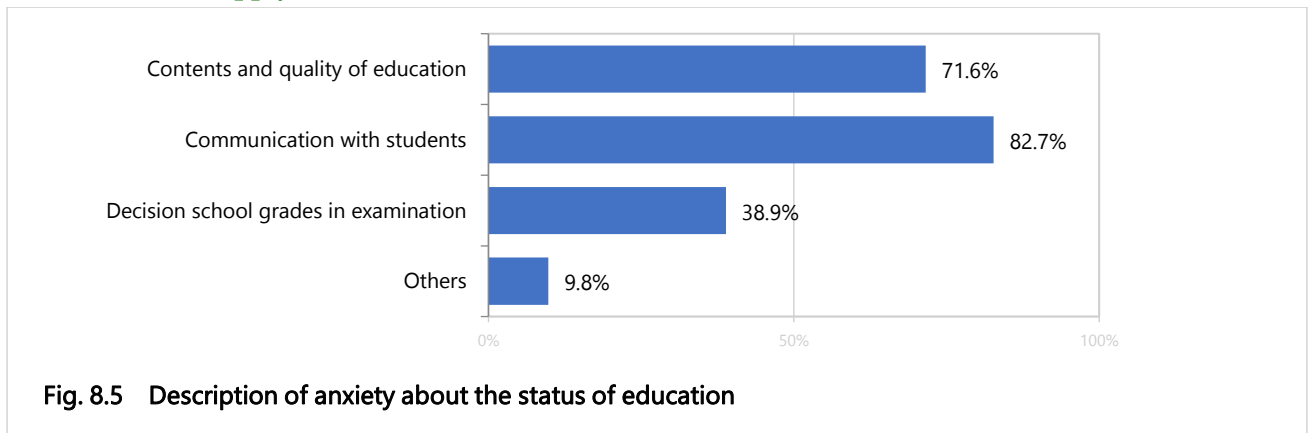
Fig. 8.3a Quality of education by specialist field

Question 8.4. Do you feel anxious about the status of education, under suspension?
 (The number of respondents: 7,113)



84.6% of the respondents felt anxious about education (a little/very much) (Fig. 8.4). The anxiety was higher in those who think that their quality of education got worse (Fig. 8.4a).

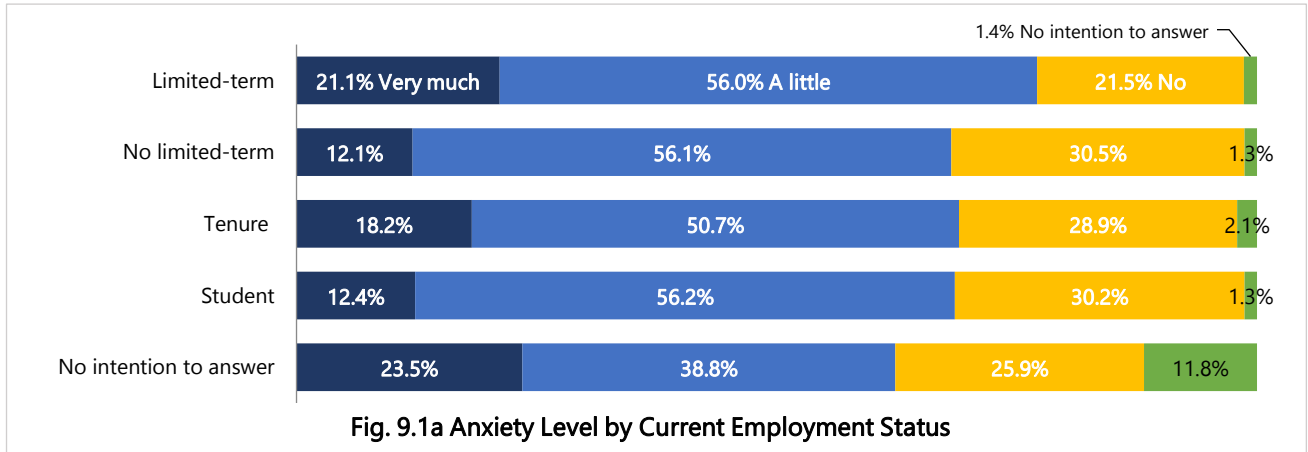
Question 8.5. What is the reason for your anxiety about the status of education?
 (Check all that apply) (The number of respondents: 6,060)



Insufficient communication with graduate students was the most frequent reason for anxiety (83%) (Fig. 8.5).

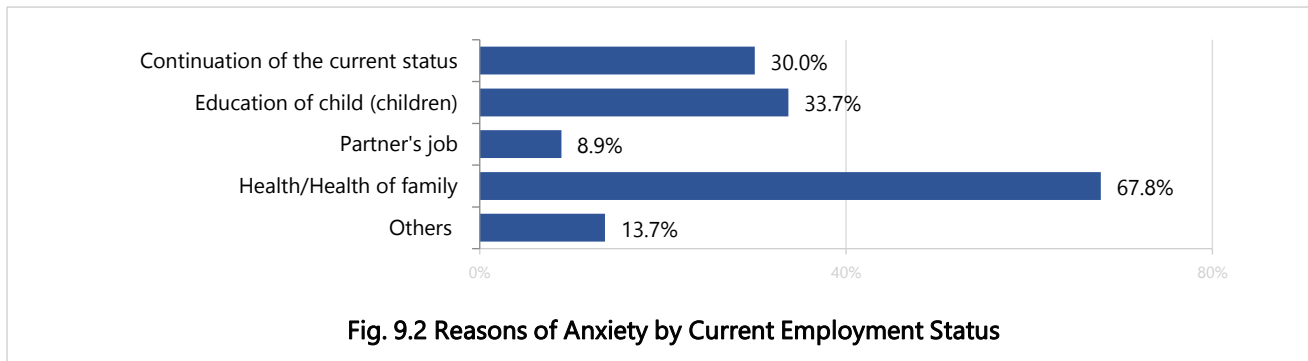
If you chose "other" in Figure 8.5, please specify (free answer)
 (under analysis)

Question 9.1. Do you feel anxious about your life, outside research/education, under suspension? (The number of respondents: 10,928)



Outside of research and education/teaching, researchers in limited-term employment felt more anxious than those having permanent jobs (Fig. 9.1, Fig. 9.1a). **Please note that female ratio is higher in the limited-term employment than in the permanent employment (Fig. 3.3b).**

Question 9.2. What is the reason for your anxiety about your life, outside research/education, under suspension? (Check all that apply) (The number of respondents: 7,739).



If you chose "other" in Figure 9.2, please specify (free answer)
(under analysis)

Question 10. What are problems in your current work? (Check all that apply)

(Ratios were calculated per the number of respondents, 11,112.)

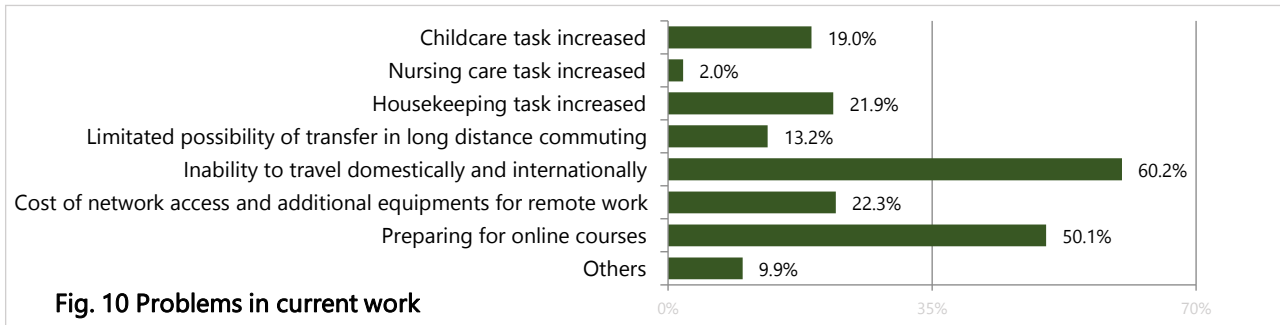


Fig. 10 Problems in current work

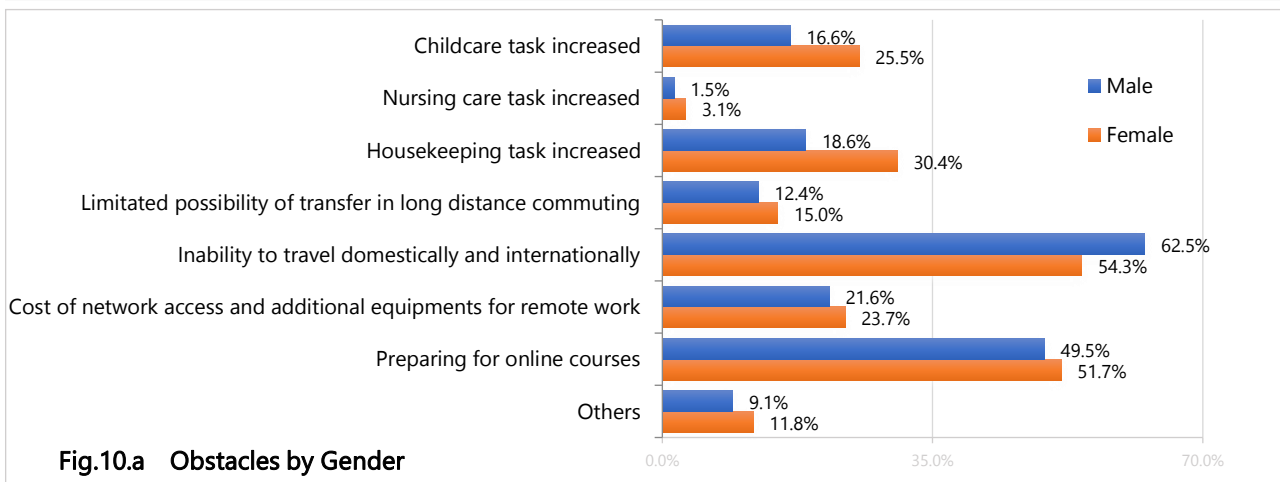


Fig.10.a Obstacles by Gender

The most frequently raised obstacle in work was the restriction of travel. The second was necessity for preparing for online education courses.

The obstacles differed by gender as female researchers more often chose housekeeping, childcare, and nursing care of elder persons than male researchers (Fig. 10a).

If you chose "other" in Figure 10, please specify (free answer)

(under analysis)

Question 11. What kind of support do you request under suspension? (Check all that apply)

(Ratios were calculated per the number of respondents, 11,112).

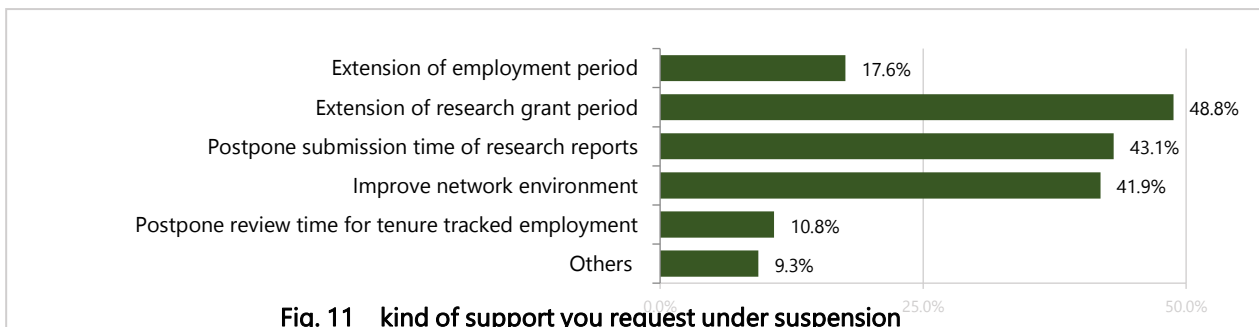


Fig. 11 kind of support you request under suspension

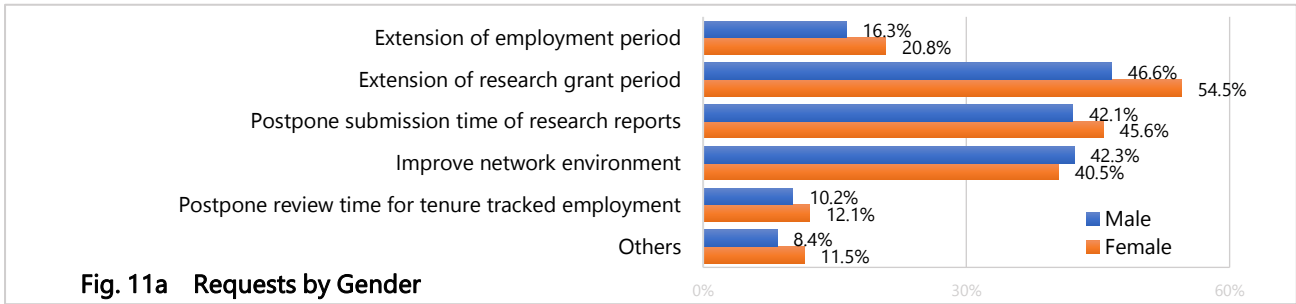


Fig. 11a Requests by Gender

Both males and females selected extension of the research grant period most frequently. Females express needs for extension of grant period, employment period and deadlines of reports more frequently than males do (Fig. 11a).

If you chose "other" in Figure 11, please specify (free answer)
(under analysis)

Question 12. What kind of support do you request in working style in a near future? (Check all that apply) (Ratios were calculated per the number of respondents, 11,112.)

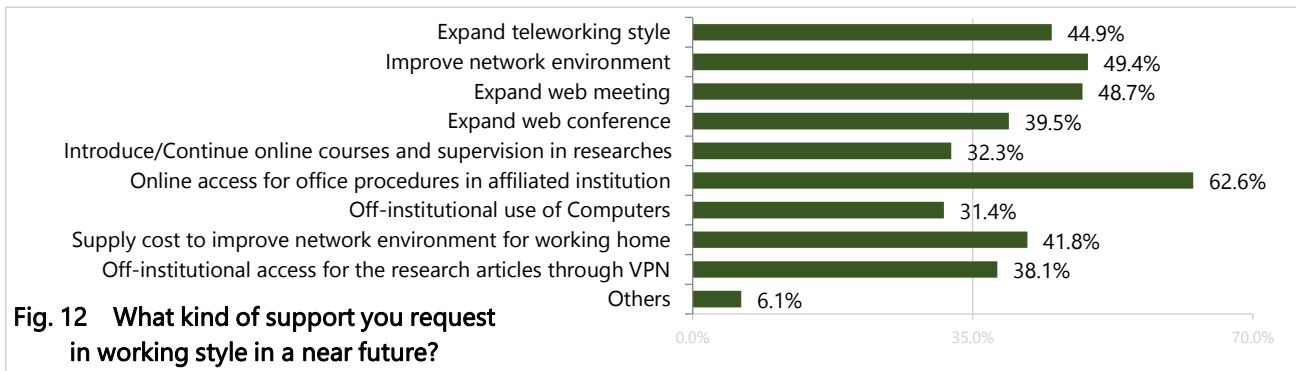


Fig. 12 What kind of support you request in working style in a near future?

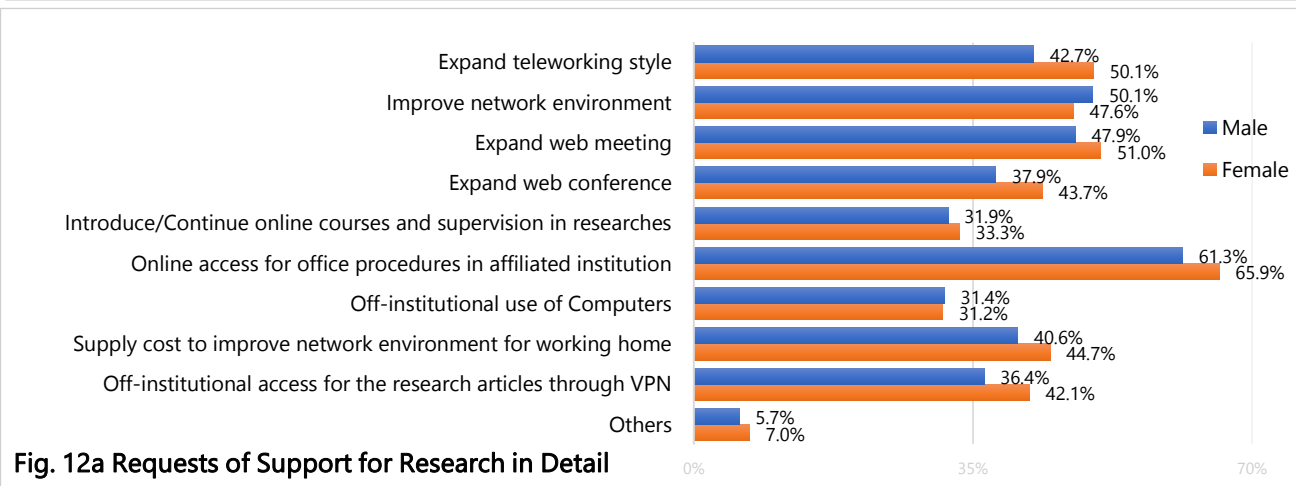


Fig. 12a Requests of Support for Research in Detail

We see the requests differ by gender. Females requested online access for office procedures, expansion of teleworking and web meetings more often than males did (Fig. 12a)

If you chose "other" in Figure 12, please specify (free answer)
(under analysis)

Question 13. Do you want to continue working home from the viewpoint of the work-life balance in ordinary period? (The number of respondents is 10,988)



Fig.13 Do you want to implement telecommuting?

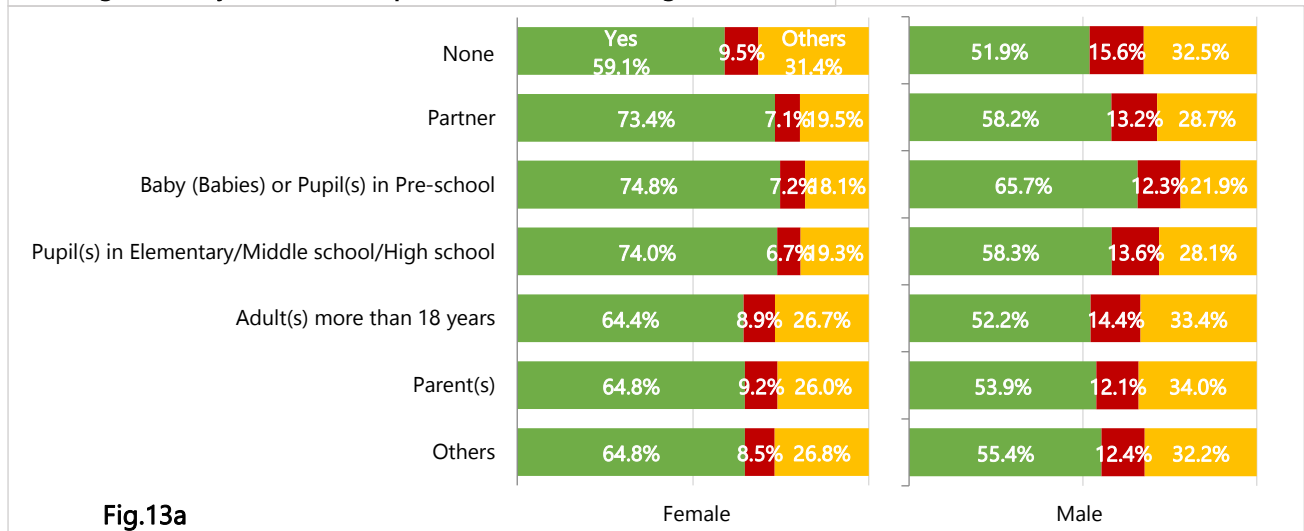


Fig.13a

This question asked whether one would like to continue working from home even after the end of the pandemic of COVID-19. Regardless of genders, most researchers (59.4%) replied “yes” (Fig. 13). However, it was noteworthy that female researchers with young families wanted telework more than their male counterparts (Fig. 13a below).

Question 14. For the respondents choosing Yes in the questionnaire 13, what is the main reason for? (Check all that apply) (The number of respondents is 6,402).

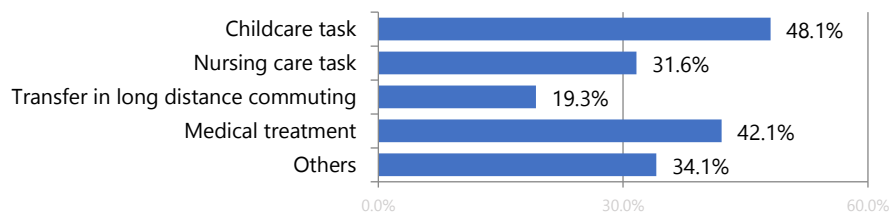


Fig. 14 When would you like to work from home?

If you chose "other" in Figure 14, please specify (free answer)
(under analysis)

Survey Wrap-Up

- (1) Due to various restrictions under the emergency declaration, about 80% of respondents have anxiety for research and education.
- (2) Limited-term employees and students are most anxious.
- (3) Increased childcare/nursing/housekeeping has caused obstacles in work, especially against female researchers.
- (4) The majority of both female and male respondents want to continue working from home even after the end of the COVID-19 pandemic.

Requests to Japanese government from EPMEWSE

Taking the above results into consideration, EPMEWSE requests the following measures to the Japanese Government.

- (I) **Extend the period of** employment and research grant
- (II) **Postpone the deadline** of research reports and reviews for tenure track
- (III) **Support** jobs of researchers who were obliged to return to Japan
- (IV) **Expand** web meeting/conference/official teleworking by improving network environment
- (V) **Reform** awareness to improve the environment of female's status in working

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--- Questionnaires ---

Please send only once your answers even if you belong to several academic societies/ organizations. We apologize that there are errors in English translation in Questionnaire 7.2 and Questionnaire 10.

1. Gender (Required)

Male Female No intention to answer

2-1. Your age at May 16, 2020

24 or less years 25-34 years 35-44 years 45-54 years 55 or more years

2-2. Location of your office (Choose the most frequent prefecture)

3-1. Your specialized area of research (Check the closest one)

Mathematics Electronics and Information Physics
 Chemical and Material Engineering Life science and Biology Civil Engineering
 Mechanical Engineering Earth and Planetary Science Agriculture
 Medicine, Dentistry and Pharmacology Health and Nursing Others

3-2. Your Current Job Title (Check the closest one)

Researcher Research technician Research associate, Assistant professor
 Lecturer Associate professor Professor (PI) Executive (Dean, executive board or equivalent) student or graduate student Others

3-3. Your Current Employment Status (Check the closest one)

Limited-term (Including appointed, postdoc, temporary staff)
 No limited-term (Including regular employment, self-employment)
 Tenure tracked employment (Being allowed undergo review for a no limited-term employment)
 Student or graduate student
 No intention to answer

4. Your family living with you (Check all that apply)

N/A
 Partner
 Baby (Babies) or Pupil(s) in Pre-school



- Pupil(s) in Elementary/Middle school/High school
- Adult(s) more than 18 years
- Parent(s)
- Others
- No intention to answer

5. Do you have a family member under nursing care?

- Yes No

6. What is your current working status weekly under suspension? (Check the closest one)

- Working home in full Working once or twice a week
- Working more than three days a week
- Unchanged status

7-1 How does it change your current working time under suspension?

- Increased Decreased Unchanged

7-2 Have you changed your research subject under suspension?

- Yes No

7-3 How does it turn out the quality of your current research activity under suspension?

- Better
- Worse
- Unchanged

7-4 Do you feel anxious about the status of your research under suspension?

- Very much A little No

7-5 What is the reason for your anxiety? (Check all that apply)

- Continuation of the current employment
- Review for tenure tracked employment
- Influence in career path
- Research expenses execution
- Contents and quality of experiments or researches
- Instruct or supervise students
- Human relationship in affiliated institution
- Others (describe)

(8-1, 8-2, 8-3, 8-4, 8-5: questionnaires to whom involved in education)

8-1 How does it change your current working time for education, under suspension?

- Increased Decreased Unchanged

8-2 How does it turn out the contents of education?

- Contents unchanged
 Contents changed

8-3 How does it turn out the quality of education?

- Quality getting better
 Quality getting worse
 Quality unchanged

8-4 Do you feel anxious about the status of education, under suspension?

- Very much
 A little
 No

8-5 What is the reason for your anxiety about the status of education?

(Check all that apply)

- Contents and quality of education
 Communication with students
 Decision school grades in examination
 Others (describe)

9-1 Do you feel anxious about your life, outside research/education, under suspension?

- Very much
 A little
 No
 No intention to answer

9-2 What is the reason for your anxiety about your life, outside research/education, under suspension? (Check all that apply)

- Continuation of the current status
 Education of child(children)
 Partner's job



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- Health/Health of family
- Others (describe)

10. What are problems in your current work ? (Check all that apply)

- Childcare task increased
- Nursing care task increased
- Housekeeping task increased
- Limited possibility of transfer in long distance commuting
- Cost of network access and additional equipments for remote work
- Preparing for online courses
- Others (describe)

11. What kind of support do you request under suspension?

(Check all that apply)

- Extension of employment period
- Extension of research grant period
- Postpone submission time of research reports
- Improve network environment
- Postpone review time for tenure tracked employment
- Others (describe)

12. What kind of support do you request in working style in a near future?

(Check all that apply)

- Expand teleworking style
- Improve network environment
- Expand web meeting
- Expand web conference
- Introduce/Continue online courses and supervision in researches
- Online access for office procedures in affiliated institution
- Off-institutional use of Computers
- Supply cost to improve network environment for working home
- Off-institutional access for the research articles through VPN
- Others (describe)

13. Do you want to continue working home from the viewpoint of the work-life balance in ordinary period?



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- Yes
- No
- Others (describe)

14. For the respondents choosing Yes in the questionnaire 13, what is the main reason for?

- Childcare task
- Nursing care task
- Transfer in long distance commuting
- Medical treatment
- Others (describe)