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日本看護科学学会
Japan Academy of Nursing Science

Survey of Members of the Japan Academy of Nursing Science (JANS): Impacts of COVID-19 on Research Activities and Support Expected from JANS - 2nd Survey Report -

(Survey Period: March 1–31, 2022)

COVID-19 Nursing Research Countermeasures Committee

Survey Report

Version 1, August 18, 2022.

Version 2, December 18, 2023

Survey summary

Objective: This survey was conducted to examine the long-term impact of the approximately two-year novel coronavirus (COVID-19) pandemic on the research activities of members of the Japan Academy of Nursing Science (JANS) and the type of support that is required from the Academy.

Methods: Within the period March 1–31, 2022, an online questionnaire was conducted among JANS members, with the approval of the Institutional Review Board of the University of Miyazaki, Faculty of Medicine (Approval number: O-0733-6).

Results and Discussion (including a comparison with the first survey, which was conducted from July 1, 2020, to August 10, 2020):

- Consent was obtained from 899 out of 10,041 members (response rate: 9.0%).
- A comparison of response trends revealed in the first and second surveys indicated that the percentage of respondents who stated that the time they spent on research activities was “less” or “much less” decreased from 65.2% to 54.4%, while the proportion who indicated that their research activities were impacted “more” or “much more” decreased from 81.9% to 69.3%; however, over half the respondents reported continued negative impacts on their research activities.
- In the second survey, high-percentage items representing factors that impacted research activities included “difficulty with in-person contact with study participants” (67.6%), “difficulty securing means of transport for domestic travel and business trips” (68.2%), and “difficulty entering research facilities/institutions” (66.9%). Among all the obstacles, the prominence of both difficulties conducting research in clinical settings and challenges in communicating with other researchers was the same as in the first survey.
- Similar to the first survey, approximately 80% of respondents in the second survey reported experiencing anxiety regarding their research activities, and based on the content of the free responses, difficulties changing their research style and the increased research-related mental burden—given the prolonged continuation of the pandemic and risk of infection—are thought to have been impactful.
- Some respondents devised various ingenuities such as setting research themes, selecting methodologies, and forming research teams to meet the needs of nursing subjects and adjust to the difficult social circumstances of the COVID-19 pandemic. Many respondents indicated effectively utilizing Information and Communications Technology (ICT), collecting data and conducting interventions, and collaborating with other researchers. Such experiences may have sustained the researchers through their activities and enabled them to develop new ones. Moreover, sharing novel ideas and knowledge through this survey report may provide researchers who are anxious regarding their future research activities with pertinent clues for resolving their research-related issues and facilitate self-motivation.
- In the second survey, among the initiatives implemented by JANS committees to support members’

research activities, member interest in online JANS seminars (79.0%), a Japanese journal rapid peer review system (62.0%), and an English journal rapid peer review system (56.0%) were particularly useful. In light of these results, demand for learning and implementing new research ideas, creating an environment facilitating the sharing of actual research activities, disseminating research results, and support for researchers' career advancement through the accumulation of achievements was perceived during the (post-)COVID-19 period. Conversely, initiatives in which member interest was low included study abroad grants for young researchers (29.1%) and grants for young researchers to attend international conferences (34.7%). Despite the difficulty of overseas travel, the primary underlying factors were thought to be the low percentage of youth respondents and low awareness of JANS' efforts to support young researchers. As such, it is necessary to increase public awareness of JANS' support for young researchers, not only among the young researchers themselves but also among senior researchers who support their younger counterparts and promote the utilization of that support.

- Based on the results of the current survey, JANS hopes to further enhance its efforts in the future, disseminate robust research practices and achievements, and attract members to such initiatives.

Acknowledgments: We would like to express our sincere gratitude to all JANS members for their cooperation with this survey despite their busy schedules in daily clinical practice, education, research, and university management.

Background

The COVID-19 virus spread rapidly worldwide and was declared a pandemic in early 2020, producing a wide range of serious ongoing impacts at all levels of society, affecting both individuals and entire populations. The Japanese scientific community was forced to conform to rigorous behavioral restrictions, such as working from home due to stay-at-home advisories, remote teaching, and the suspension of research activities, including the issuance of state of emergency orders. According to a survey conducted by ResearchGate within the global scientific research community in March 2020 [1], compared to before COVID-19, 46% of respondents "spent more time researching and reading articles," 46% "spent more time writing manuscripts and submitting them for publication," and 61% "spent less time teaching." However, 52% of respondents indicated that they "spent less time on experiments and surveys," suggesting a reduced effort invested in "creating knowledge" in the community.

Despite the above findings, regional differences in the effects of COVID-19 are expected, even within the same scientific community. It has been previously indicated that the burden of educating undergraduate students, particularly through practicums, was heavier for university faculty members in the nursing field than in other fields, and that a high percentage of women's research activities have been negatively impacted by life events [2]. It is thought that the severity of these obstacles to engaging in research is increasing due to the impacts of COVID-19. Therefore, examining the impact of COVID-19 on research activities as experienced by the nursing practice community and establishing necessary research support measures need to be addressed urgently.

JANS conducted its first online questionnaire survey for members in July 2020 to investigate the support needed by members to conduct research during the COVID-19 pandemic. The results of the survey indicated that members were majorly impacted by COVID-19 and experienced a slowdown in their research activities [3,4]. Approximately 1.5 years have passed since the administration of the first survey, with rising concerns that the research obstacles identified in the first survey had persisted or changed, thereby exerting long-term impacts on current research activities. Notably, the first survey revealed that even during the COVID-19 pandemic, there were individuals and fields whose research activities were not as easily impacted and even cases where research activity was promoted due to the flexibility of remote settings. It remains unclear whether these changes are temporary ones brought about by major shifts in the research environment or whether they will continue to have a positive impact and eventually become accepted as a new research style. Hence, it is pertinent to accurately capture the positive impacts brought about by COVID-19 for promoting future nursing research.

With this aim in mind, this study conducted a second online questionnaire survey of JANS members to investigate the long-term effects of the approximately two-year COVID-19 pandemic on research activities and to determine the type of support required from the Academy.

Outline of methods

Study design: Cross-sectional online survey

Participants: JANS members who consented to participate in the survey

Survey period: March 1–31, 2022

Ethical considerations: This survey was conducted with the approval of the Institutional Review Board of the University of Miyazaki (Approval no. O-0733-6). Survey questionnaires were distributed via the online member management system. The data of participants who checked the consent box to agree to participate in the survey were included in the analysis.

Analysis: Descriptive statistics are presented for all items as a first report. For categorical variables represented in single-choice items, stacked bar charts of the various options are presented. For categorical variables with multiple options, stacked bar charts of “Yes” and “No” are presented. Free responses were classified according to their meaning and content, and after deleting personally identifiable information, a category name reflective of the content was assigned. Additionally, any statement that did not correspond to a question in the survey was excluded from the analysis.

Members：COVID-19 Nursing Research Countermeasures Committee Members

Junko Sugama (Chairperson)	Professor, Fujita Health University
Mari Ikeda	Professor, The University of Tokyo
Kana Kazawa	Lecturer, Hiroshima University
Yoko Shimpuku	Professor, Hiroshima University
Makiko Tanaka	Professor, Yamaguchi Prefectural University
Ai Tomotaki	Lecturer, Tokai University
Gojiro Nakagami	Professor, The University of Tokyo
Hiroki Fukahori	Professor, Keio University
Shinichiro Yokota	Lecturer, The University of Tokyo
Naoki Yoshinaga	Professor, University of Miyazaki

Results

The results of the survey are presented in graphs and other figures after the questionnaire items below.

Q1. Participant attributes

Consent was obtained from 899 of 10,041 members (response rate: 9.0%).

During the survey period, announcements were made on the Academy's website (10,041 members at the time of the survey), and cooperation requests were sent via e-mail to 9,985 members (of whom 9,661 received the email) who had registered their e-mail addresses.

Respondent attributes are listed below:

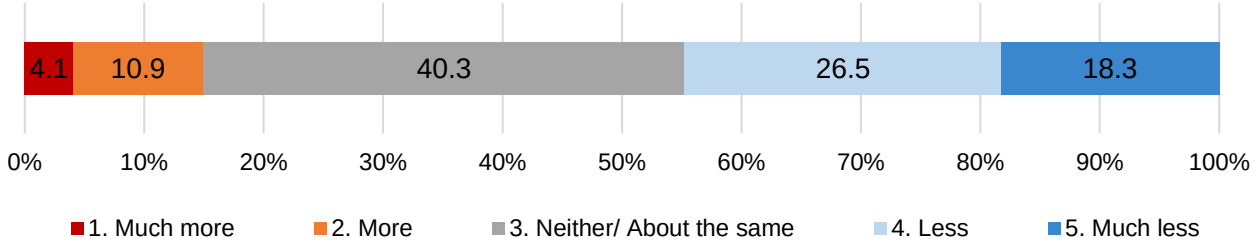
Attributes		n (%)
Gender (n = 807)	1. Male	104 (12.9%)
	2. Female	695 (86.1%)
	3. Other	2 (0.2%)
	4. Prefer not to answer	6 (0.7%)
Age (n = 812)	1. < 25 years	2 (0.2%)
	2. 25 – 34 years	59 (7.3%)
	3. 35 – 44 years	186 (22.9%)
	4. 45 – 54 years	272 (33.5%)
	5. 55 – 64 years	263 (32.4%)
	6. > 65 years	30 (3.7%)
Membership division (n = 819)	1. Hokkaido	32 (3.9%)
	2. Tohoku (Aomori, Iwate, Miyagi, Akita, Yamagata, Fukushima)	52 (6.3%)
	3. Kanto A (Ibaraki, Tochigi, Gunma, Saitama)	62 (7.6%)
	4. Kanto B (Chiba, Kanagawa)	91 (11.1%)
	5. Tokyo A (Chiyoda Ward, Chuo Ward, Minato Ward, Taito Ward, Bunkyo Ward, Kita Ward, Arakawa Ward, Adachi Ward, Katsushika Ward, Sumida Ward, Edogawa Ward, Koto Ward, Shinagawa Ward, Ota Ward, Tokyo Islands)	53 (6.5%)
	6. Tokyo B (Shibuya Ward, Meguro Ward, Setagaya Ward, Shinjuku Ward, Nakano Ward, Suginami Ward, Toshima Ward, Itabashi Ward, Nerima Ward, Tama region)	48 (5.9%)

Attributes		n (%)
Membership division (continued) (n = 819)	7. Koshinetsu (Niigata, Nagano, Yamanashi)	29 (3.5%)
	8. Hokuriku (Toyama, Ishikawa, Fukui)	48 (5.9%)
	9. Tokai (Shizuoka, Aichi, Gifu, Mie)	99 (12.1%)
	10. Kinki A (Osaka, Hyogo)	109 (13.3%)
	11. Kinki B (Shiga, Kyoto, Nara, Wakayama)	48 (5.9%)
	12. Chugoku (Tottori, Shimane, Okayama, Hiroshima, Yamaguchi) / Shikoku (Tokushima, Kagawa, Ehime, Kochi)	75 (9.1%)
	13. Kyushu (Fukuoka, Saga, Nagasaki, Kumamoto, Oita, Miyazaki, Kagoshima, Okinawa) / Okinawa	73 (8.9%)
Main workplace (n = 815)	1. Nursing university (national)	134 (16.4%)
	2. Nursing university (prefectural/municipal)	205 (25.2%)
	3. Nursing university (private）	348 (42.7%)
	4. Non-nursing university	18 (2.2%)
	5. Research institute	3 (0.4%)
	6. Medical, public health, or social welfare institution (e.g., hospitals, clinics, visiting nurse stations)	67 (8.2%)
	7. Other	24 (2.9%)
	8. I am not working anywhere / I am not affiliated with any institution.	16 (2.0%)
Position at workplace (n = 805)	1. Professor	209 (26.0%)
	2. Associate professor	148 (18.4%)
	3. Lecturer	163 (20.2%)
	4. Assistant professor	163 (20.2%)
	5. Teaching associate	18 (2.2%)
	6. Nursing manager (e.g., nursing department director, head nurse, assistant head nurse)	29 (3.6%)
	7. Clinical nursing professional	38 (4.7%)
	8. Other	37 (4.6%)
Current employment type (n = 817)	1. Full-time	762 (93.3%)
	2. Part-time	38 (4.7%)
	3. Other	17 (2.1%)

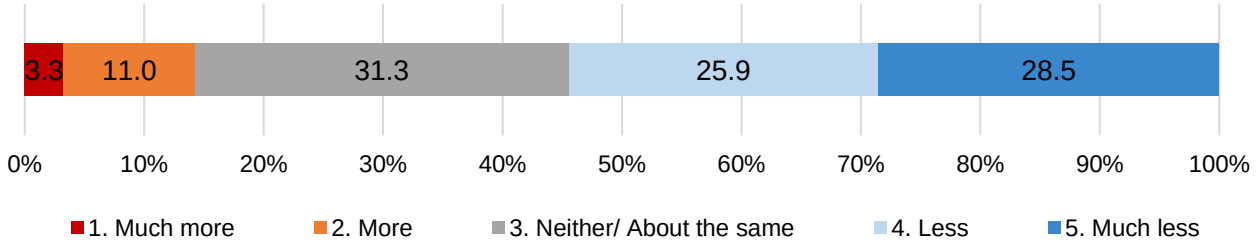
Attributes		n (%)
Currently a graduate student (n = 819)	1. Not applicable	630 (76.9%)
	2. Graduate student at a nursing university (PhD)	141 (17.2%)
	3. Graduate student at a nursing university (Master's)	11 (1.3%)
	4. Graduate student in a non-nursing university program (PhD)	22 (2.7%)
	5. Graduate student in a non-nursing university program (Master's)	4 (0.5%)
	6. Other	11 (1.3%)
Highest degree (n = 833)	1. PhD degree	432 (51.9%)
	2. Master's degree	376 (45.1%)
	3. Bachelor's degree	15 (1.8%)
	4. Foundation degree / Associate degree / Diploma	7 (0.8%)
	5. Other	3 (0.4%)
Currently a researcher within eight years of obtaining a PhD degree (n = 400)	1. Yes	212 (53.0%)
Cohabiting with a partner or spouse (n = 812)	1. Yes	500 (61.6%)
	2. No	281 (34.6%)
	3. Prefer not to answer	31 (3.8%)
Involved in childcare (n = 818)	1. Yes	275 (33.6%)
Involved in the care of older adults or other family members (n = 818)	1. Yes	144 (17.8%)

II. The following items are about your research activities in the past three months (December 2021 to February 2022) while experiencing the social impacts of the COVID-19 pandemic.

Q2_1. How much has your motivation to engage in research activities changed during the COVID pandemic? (n = 789)

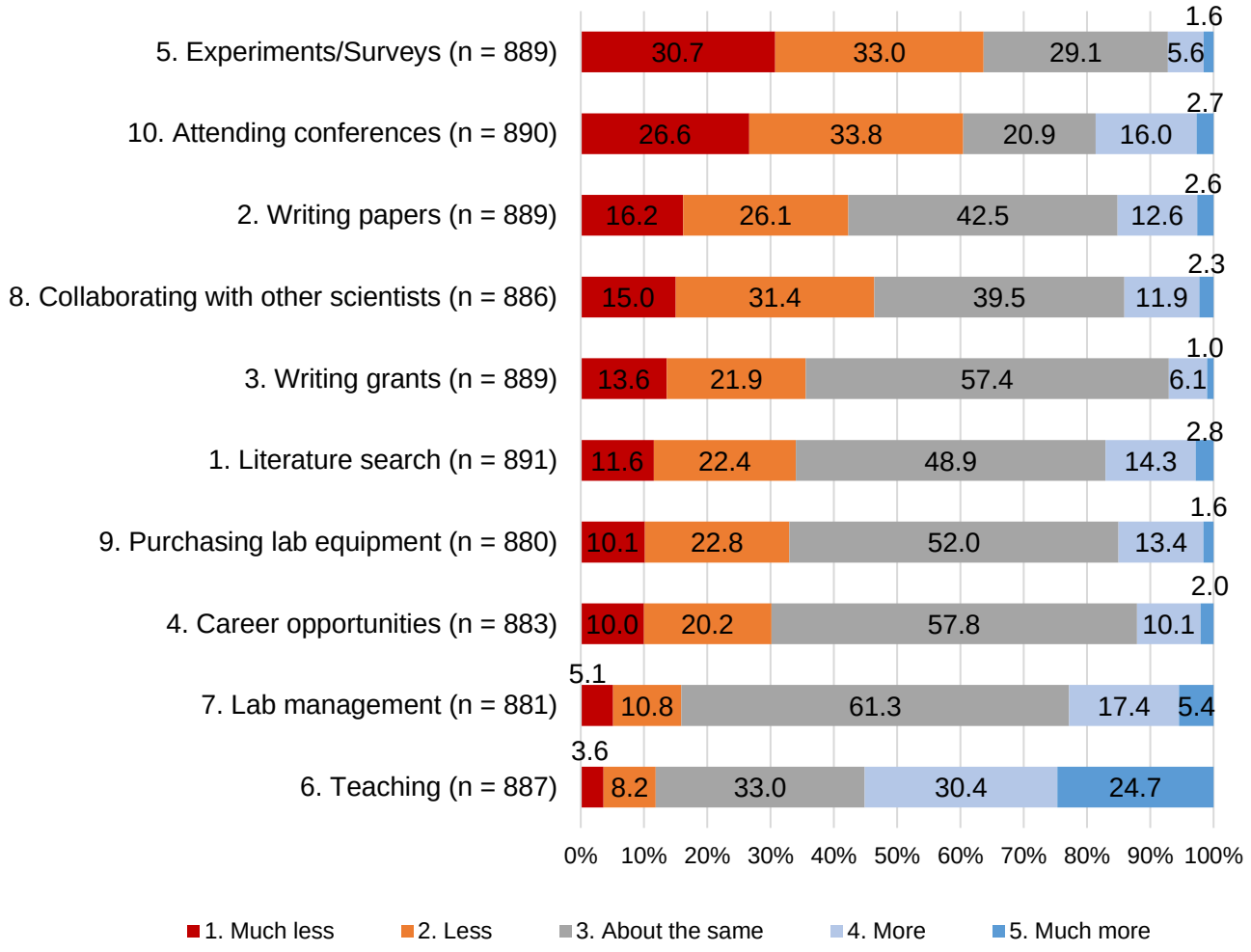


Q2_2. How much has the total time that you spend on your research activities changed during the COVID-19 pandemic? Please select the option that best describes your situation (n = 764).



Q2_3. The following is an item from a questionnaire survey conducted by ResearchGate, a social networking service for researchers. How has the time you spend on the following activities changed during the COVID-19 pandemic? Please select the option that best describes your situation. (Reference: [ResearchGate survey]: https://www.researchgate.net/institution/ResearchGate/post/5e81f09ad785cf1ab1562183_Report_COVID-19_impact_on_global_scientific_community)

Research activities	1. Much less	2. Less	3. About the same	4. More	5. Much more
1. Literature search	1	2	3	4	5
2. Writing papers	1	2	3	4	5
3. Writing grants	1	2	3	4	5
4. Career opportunities (activities for career development such as collecting information and writing documents related to employment, new career opportunities, or promotions)	1	2	3	4	5
5. Experiments/Surveys	1	2	3	4	5
6. Teaching	1	2	3	4	5
7. Lab management	1	2	3	4	5
8. Collaborating with other scientists	1	2	3	4	5
9. Purchasing lab equipment (including materials, office supplies, and software)	1	2	3	4	5
10. Attending research-related conferences and events	1	2	3	4	5



≫ Participants who responded “4. More” or “5. Much more” to any of the items were encouraged to indicate the reasons or innovations/measures they implemented.

A total of 51 responses were obtained, which were classified into the following six categories based on their content:

- **Research plan in preparation for the renewed spread of COVID-19 and plan execution**

A total of 23 responses were obtained to this effect. Responses included ones where researchers expected an imminent next wave of COVID-19 infection and drafted/revised their research plans accordingly. In addition, some responses indicated that researchers conducted ICT- or mail-based data collection and researcher meetings in consideration of the COVID-19 infection risk, while also devoting time to literature review, data analysis, and manuscript writing during periods when the number of new infections was high.

- **Setting research themes suited to the social conditions of the COVID-19 pandemic**

A total of four responses were obtained to this effect, which included responses where researchers set COVID-19-related research themes or used nursing robots.

・ **Improving research efficiency using ICT**

A total of 25 responses were obtained to this effect, such as “Not having to travel due to online conferences and virtual meetings was time efficient,” “There were more opportunities to participate in web-based meetings and conferences,” and “Ensuring opportunities for online and in-person interactions between researchers helped to maintain research activities.”

・ **A research-friendly workplace culture**

A total of three responses were obtained to this effect, including “The workplace environment has changed such that it is easier to conduct research” and “My superior helped me maintain my research activities.”

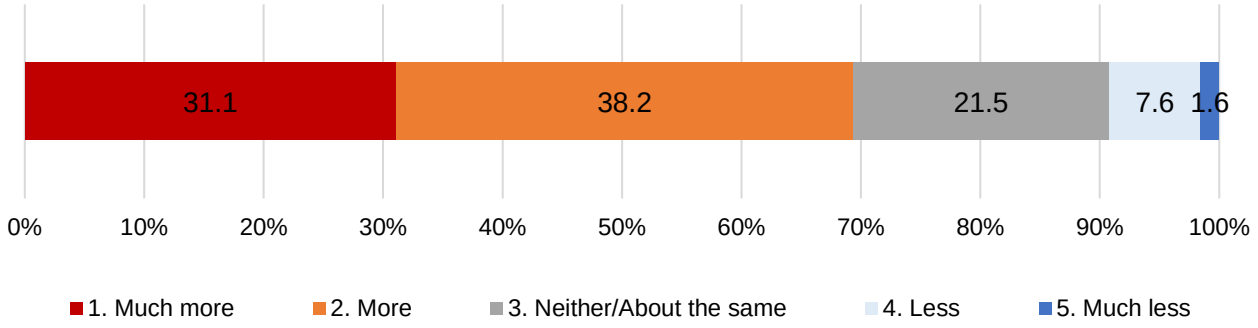
・ **Personal life changes**

A total of two responses were obtained to this effect, including “There were fewer opportunities to go out” and “I was on maternity leave,” indicating a relative increase in research time.

・ **Other**

Only one response was obtained to this effect: “Not only did I get vaccinated and implement infection countermeasures, I also conducted research involving patients in hospitals, so the hospital itself was a research facility, and I think there was some understanding.”

Q2_4. How much were your overall research activities impacted amidst the COVID-19 pandemic? Please select the option that best describes your situation in the past three months (December 2021 to February 2022) (n = 890).



≫ Participants who selected “4. Less” or “5. Much less” were encouraged to explain the reasons or the measures taken.

A total of 63 responses were obtained, which were classified into the following four categories based on their content:

・ **Adopting research methodologies other than the in-person approach**

A total of 31 responses were obtained to this effect, such as “I shifted my attention to remote activities, secondary analysis, experiments, etc.,” “I was able to adjust my research methods to e-

mail-based to administer questionnaires," and "Research meetings were held online, and interviews were conducted virtually rather than in-person."

- **Focusing on data analysis and manuscript writing**

A total of nine responses were obtained to this effect, such as "I mainly focused on manuscripts" and "I focused on the secondary analysis of existing data and writing manuscripts on which progress had stalled."

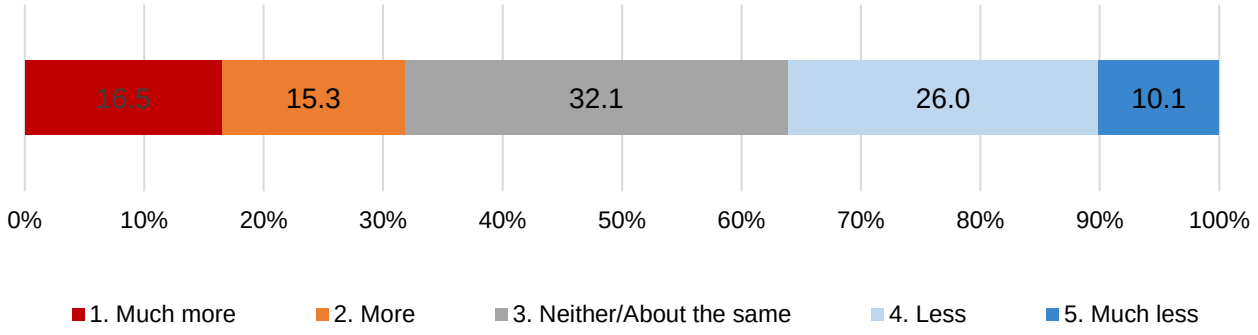
- **Adjusting and securing research time**

A total of 11 responses were obtained to this effect, such as "I conducted my research activities during non-work hours (holidays)," "I set aside time to concentrate on continuing my research activities," and "Meetings were held online, so I had more time to conduct research in the laboratory."

- **Other**

A total of 12 responses were obtained to this effect, which included responses indicating that the respondents were able to conduct research while observing infection control measures at their affiliated medical institutions and that respondents undertook research in fields unrelated to COVID-19.

Q2_5. From the start of the COVID-19 pandemic (i.e., from February 2020 onward) to the present, how much were your overall research activities impacted by events other than the COVID-19 pandemic (e.g., employment, transfer, school, leave of absence including maternity leave)? Please select the option that best describes your situation (n = 889).



≫ Participants who selected "1. Much more" or "2. More" were encouraged to specify the kinds of events other than the COVID-19 pandemic (e.g., employment, transfer, school admissions, leave of absence including maternity leave) that exerted an impact.

A total of 185 responses were obtained, which were classified into the following nine categories based on their content:

- **Workplace/job changes**

A total of 97 responses were obtained to this effect. Some responses pertained to employment, transfers, and job changes, such as “I got a new job in a new workplace” and “It took time to learn my new field since my field changed.” Other responses were related to increased academic and miscellaneous duties, as well as difficulty in securing research funds and challenges in improving the physical environment to support research due to resignations.

- **Academic pursuits (including being accepted into a new course of study, withdrawing from school, and studying abroad)**

A total of 29 responses were obtained to this effect, such as “Being accepted to a PhD program impacted me significantly” and “There was an overlap with my commitment to writing my doctoral dissertation.” Additionally, some respondents indicated having shorter commute times to graduate school because almost all lectures were held online due to COVID-19 countermeasures; however, some respondents also reported that the pandemic impacted their ability to effectively advance their research in terms of understanding the lectures and receiving guidance from their instructors.

- **Mental/physical illness**

A total of six responses were obtained to this effect, indicating that some respondents suffered chronic illness and mental disorders.

- **Increased time spent on family care (including delivery, childcare, medical treatment, and long-term care) and bereavement**

A total of 46 responses were obtained to this effect, indicating that some respondents were impacted by maternity leave, temporary closure of nursery/elementary schools, and long-term care and parental care.

- **Family members’ workplace/job changes**

A total of two responses were obtained to this effect, indicating that the respondents were affected by a spouse’s job change or transfer.

- **The research friendliness of the workplace climate including relationships with colleagues and superiors**

A total of six responses were obtained to this effect, such as “My superior in the workplace to which I was transferred had active research, and I was encouraged to engage in research too.” There was also mention of obstacles to research activities due to inconducive relationships with colleagues or superiors.

- **Workplace staffing changes and labor shortage**

A total of seven responses were obtained to this effect. Some respondents indicated increased work duties due to the resignation or transfer of staff.

- **No impacts due to events other than COVID-19**

Only one response was obtained to this effect.

- **Other**

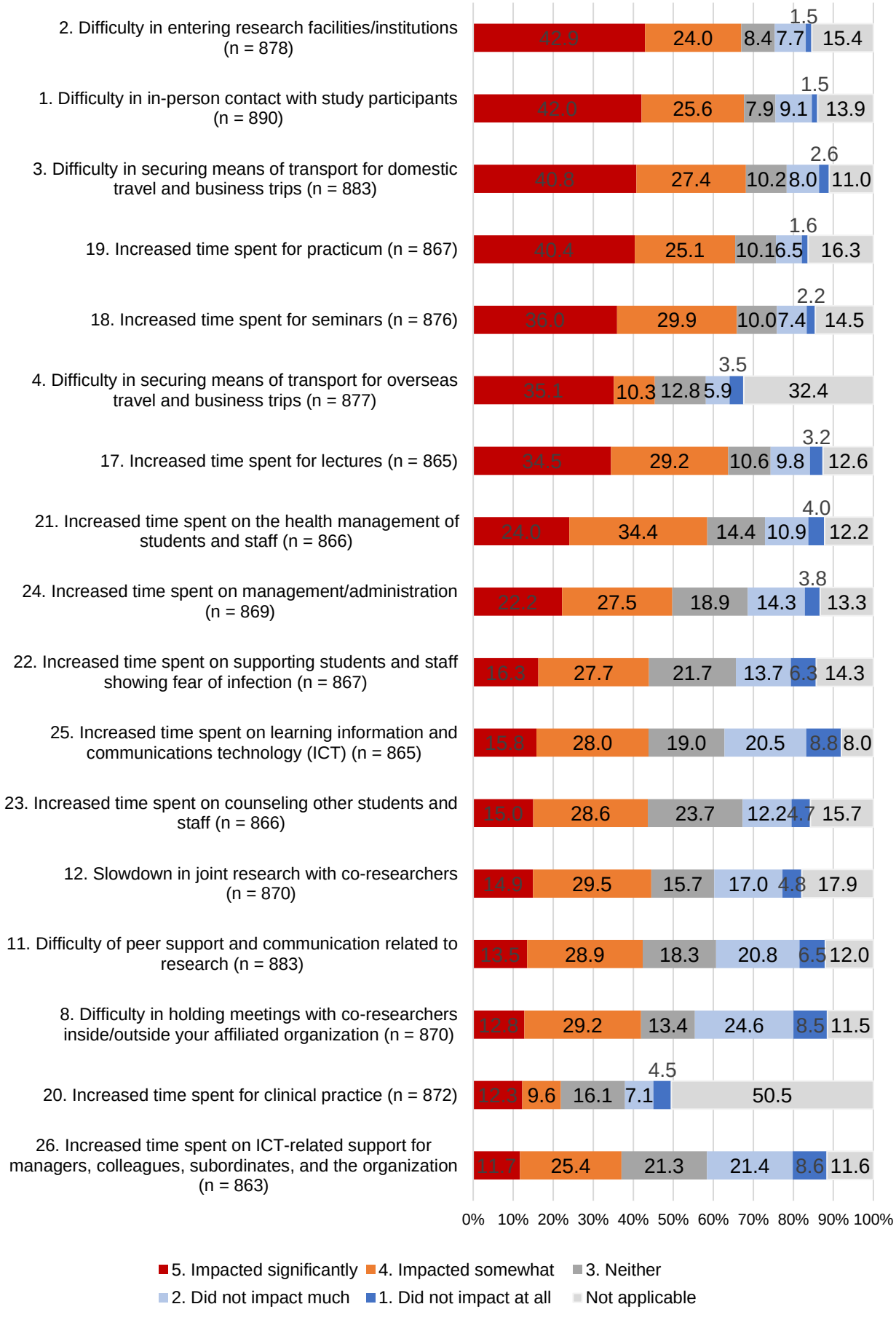
A total of four responses were obtained to this effect. Respondents cited “earthquake,” “funding through a research grant,” “changes in the teaching curriculum at their affiliated university,” and “moving residence” as additional factors.

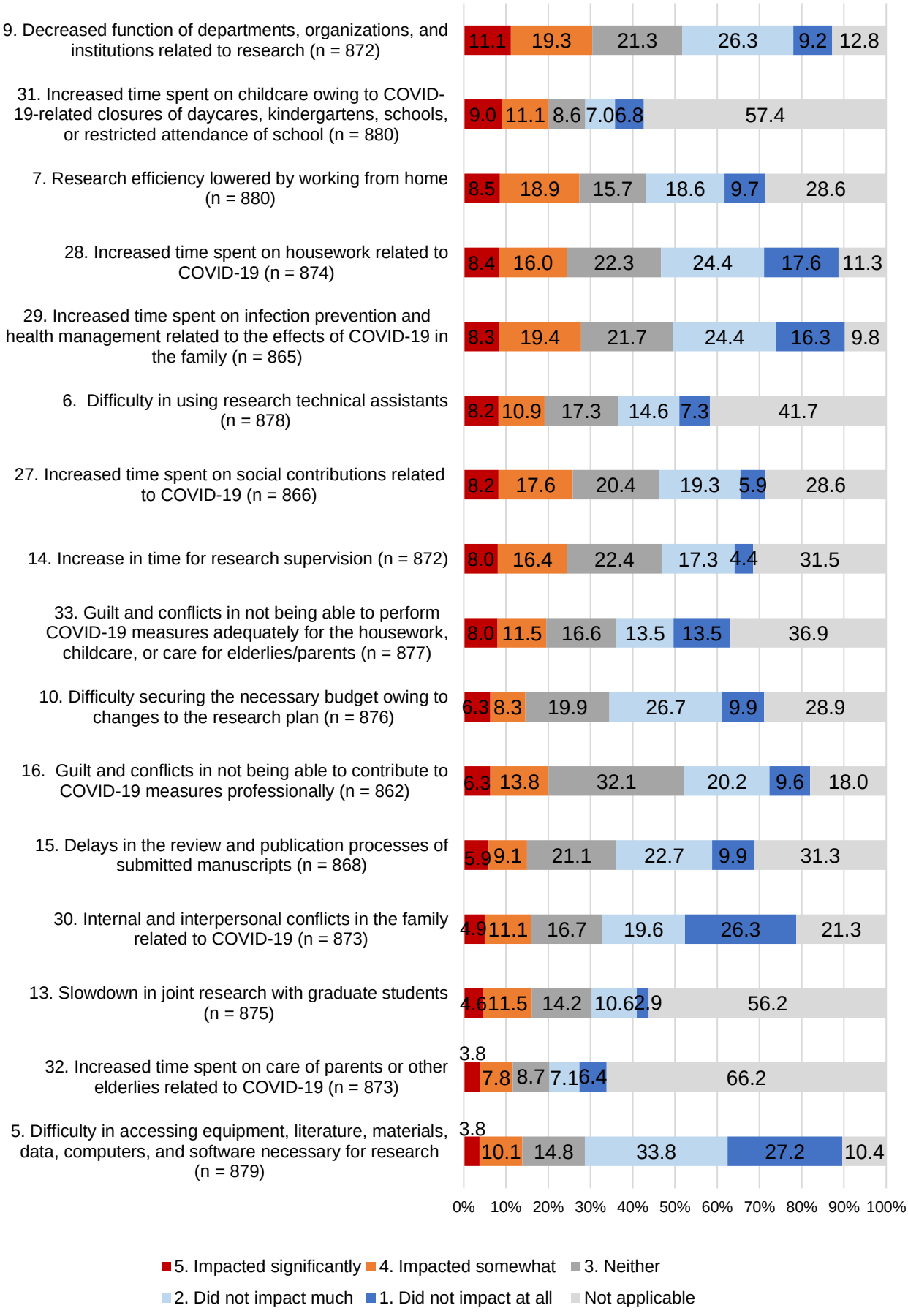
Q2_6. The following are items related to factors that may have impacted your research activities during the COVID-19 pandemic. To what extent did these factors impact your research activities? Please select the option that best describes your situation based on the past three months (December 2021 to February 2022).

Factors that impacted research activities	Not applicable	1. Did not impact (my research activities) at all	2. Did not impact (my research activities) much	3. Neither	4. Impacted (my research activities) somewhat	5. Impacted (my research activities) significantly
1. Difficulty with in-person contact with study participants	1	2	3	4	5	6
2. Difficulty entering research facilities/institutions	1	2	3	4	5	6
3. Difficulty securing means of transport for domestic travel and business trips	1	2	3	4	5	6
4. Difficulty securing means of transport for overseas travel and business trips	1	2	3	4	5	6
5. Difficulty accessing equipment, literature, materials, data, computers, and software necessary for research	1	2	3	4	5	6
6. Difficulty accessing support from technical research assistants (including doctoral research assistants)	1	2	3	4	5	6
7. Research efficiency lowered by working from home	1	2	3	4	5	6
8. Difficulty holding meetings with co-researchers inside/outside your affiliated organization	1	2	3	4	5	6
9. Decreased function of departments, organizations, and institutions related to research (administration, ethics review boards, organizations participating in the research project, partners in outsourcing surveys and research)	1	2	3	4	5	6
10. Difficulty securing the necessary budget owing to changes to the research plan	1	2	3	4	5	6
11. Difficulty with peer support and communication related to research	1	2	3	4	5	6
12. Slowdown in joint research with co-researchers	1	2	3	4	5	6

Factors that impacted research activities (continued)	Not applicable	1. Did not impact (my research activities) at all	2. Did not impact (my research activities) much	3. Neither	4. Impacted (my research activities) somewhat	5. Impacted (my research activities) significantly
13. Slowdown in joint research with graduate students	1	2	3	4	5	6
14. Increased time for research supervision	1	2	3	4	5	6
15. Delayed review and publication of submitted manuscripts (Japanese/English)	1	2	3	4	5	6
16. Guilt and conflict regarding the inability to contribute to COVID-19 measures professionally	1	2	3	4	5	6
17. Increased time spent on lectures (including preparation and assessment)	1	2	3	4	5	6
18. Increased time spent on seminars (including preparation and assessment)	1	2	3	4	5	6
19. Increased time spent on practicums (including preparation and assessment)	1	2	3	4	5	6
20. Increased time spent on clinical practice	1	2	3	4	5	6
21. Increased time spent on the health management of students and staff (e.g., checking health status)	1	2	3	4	5	6
22. Increased time spent supporting students and staff who fear infection	1	2	3	4	5	6
23. Increased time spent counseling students and staff (regarding employment, mental health, economic support)	1	2	3	4	5	6
24. Increased time spent on management/administration (meetings, committee activities, open campus, career workshops)	1	2	3	4	5	6
25. Increased time spent learning how to use information and communications technology (ICT)	1	2	3	4	5	6

Factors that impacted research activities (continued)	Not applicable	1. Did not impact (my research activities) at all	2. Did not impact (my research activities) much	3. Neither	4. Impacted (my research activities) somewhat	5. Impacted (my research activities) significantly
26. Increased time spent on ICT-related support for managers, colleagues, subordinates, and the organization (e.g., installation of and support for using online meeting systems)	1	2	3	4	5	6
27. Increased time spent on social contributions related to COVID-19 (e.g., academic society committee activities, public lectures)	1	2	3	4	5	6
28. Increased time spent on housework related to COVID-19	1	2	3	4	5	6
29. Increased time spent on infection prevention and health management related to the effects of COVID-19 in the family	1	2	3	4	5	6
30. Internal and interpersonal familial conflicts related to COVID-19	1	2	3	4	5	6
31. Increased time spent on childcare owing to the COVID-19-related closure of daycares, kindergartens, and schools or restricted school attendance	1	2	3	4	5	6
32. Increased time spent caring for parents or other elderlies due to COVID-19 (closure of day services and short-stay facilities)	1	2	3	4	5	6
33. Guilt and conflict regarding the inability to adequately implement COVID-19 measures adequately due to housework, childcare, or elderly/parent care (e.g., household infection prevention measures)	1	2	3	4	5	6


2. Difficulty in entering research facilities/institutions (n = 878)
42.9 24.0 8.4 7.7 1.5 15.4
1. Difficulty in in-person contact with study participants (n = 890)
42.0 25.6 7.9 9.1 1.5 13.9
3. Difficulty in securing means of transport for domestic travel and business trips (n = 883)
40.8 27.4 10.2 8.0 2.6 11.0
19. Increased time spent for practicum (n = 867)
40.4 25.1 10.1 6.5 1.6 16.3
18. Increased time spent for seminars (n = 876)
36.0 29.9 10.0 7.4 2.2 14.5
4. Difficulty in securing means of transport for overseas travel and business trips (n = 877)
35.1 10.3 12.8 5.9 3.5 32.4
17. Increased time spent for lectures (n = 865)
34.5 29.2 10.6 9.8 3.2 12.6
21. Increased time spent on the health management of students and staff (n = 866)
24.0 34.4 14.4 10.9 4.0 12.2
24. Increased time spent on management/administration (n = 869)
22.2 27.5 18.9 14.3 3.8 13.3
22. Increased time spent on supporting students and staff showing fear of infection (n = 867)
16.3 27.7 21.7 13.7 6.3 14.3
25. Increased time spent on learning information and communications technology (ICT) (n = 865)
15.6 28.0 19.0 20.5 8.8 8.0
23. Increased time spent on counseling other students and staff (n = 866)
15.0 28.6 23.7 12.2 4.7 15.7
12. Slowdown in joint research with co-researchers (n = 870)
14.9 29.5 15.7 17.0 4.8 17.9
11. Difficulty of peer support and communication related to research (n = 883)
13.5 28.9 18.3 20.8 6.5 12.0
8. Difficulty in holding meetings with co-researchers inside/outside your affiliated organization (n = 870)
12.8 29.2 13.4 24.6 8.5 11.5
20. Increased time spent for clinical practice (n = 872)
12.3 9.6 16.1 7.1 4.5 50.5
26. Increased time spent on ICT-related support for managers, colleagues, subordinates, and the organization (n = 863)
11.7 25.4 21.3 21.4 8.6 11.6
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
5. Impacted significantly
4. Impacted somewhat
3. Neither
2. Did not impact much
1. Did not impact at all
Not applicable


9. Decreased function of departments, organizations, and institutions related to research (n = 872)
11.1 19.3 21.3 26.3 9.2 12.8
31. Increased time spent on childcare owing to COVID-19-related closures of daycares, kindergartens, schools, or restricted attendance of school (n = 880)
9.0 11.1 8.6 7.0 6.8 57.4
7. Research efficiency lowered by working from home (n = 880)
8.5 18.9 15.7 18.6 9.7 28.6
28. Increased time spent on housework related to COVID-19 (n = 874)
8.4 16.0 22.3 24.4 17.6 11.3
29. Increased time spent on infection prevention and health management related to the effects of COVID-19 in the family (n = 865)
8.3 19.4 21.7 24.4 16.3 9.8
6. Difficulty in using research technical assistants (n = 878)
8.2 10.9 17.3 14.6 7.3 41.7
27. Increased time spent on social contributions related to COVID-19 (n = 866)
8.2 17.6 20.4 19.3 5.9 28.6
14. Increase in time for research supervision (n = 872)
8.0 16.4 22.4 17.3 4.4 31.5
33. Guilt and conflicts in not being able to perform COVID-19 measures adequately for the housework, childcare, or care for elderlies/parents (n = 877)
8.0 11.5 16.6 13.5 13.5 36.9
10. Difficulty securing the necessary budget owing to changes to the research plan (n = 876)
6.3 8.3 19.9 26.7 9.9 28.9
16. Guilt and conflicts in not being able to contribute to COVID-19 measures professionally (n = 862)
6.3 13.8 32.1 20.2 9.6 18.0
15. Delays in the review and publication processes of submitted manuscripts (n = 868)
5.9 9.1 21.1 22.7 9.9 31.3
30. Internal and interpersonal conflicts in the family related to COVID-19 (n = 873)
4.9 11.1 16.7 19.6 26.3 21.3
13. Slowdown in joint research with graduate students (n = 875)
4.6 11.5 14.2 10.6 2.9 56.2
32. Increased time spent on care of parents or other elderlies related to COVID-19 (n = 873)
3.8 7.8 8.7 7.1 6.4 66.2
5. Difficulty in accessing equipment, literature, materials, data, computers, and software necessary for research (n = 879)
3.8 10.1 14.8 33.8 27.2 10.4
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
5. Impacted significantly
4. Impacted somewhat
3. Neither
2. Did not impact much
1. Did not impact at all
Not applicable

Q2_7. Please note any other factors that have impacted your research activities (due to the COVID-19 pandemic) in the past three months (December 2021 to February 2022).

A total of 158 responses were obtained, which were classified into the following 20 categories based on their content:

- **Suffering from physical and mental disorders and decreased research motivation**

A total of 15 responses were obtained to this effect. Responses indicating physical and mental disorders such as “Poor physical condition,” “Feelings of depression,” and “Decreased motivation” to engage in research activities were recorded.

- **Hesitation to ask medical professionals and patients in clinical practice to participate in research**

A total of three responses were obtained to this effect, such as “Since my subjects were clinical nurses, I felt uncomfortable requesting research cooperation while they were so busy with COVID-19.”

- **Difficulty obtaining research cooperation from medical professionals in clinical practice**

A total of 17 responses were obtained to this effect, including responses indicating that obtaining research cooperation was difficult due to the increased workload at hospitals and long-term care facilities.

- **Difficulty contacting study participants**

A total of 16 responses were obtained to this effect, including responses indicating difficulty in contacting study participants due to infection risk and the inability to conduct in-person surveys because of the “participants’ anxiety regarding visits.”

- **Inability to enter research facilities/institutions**

A total of 15 responses were obtained to this effect. Responses included “Entry restrictions for outsiders were imposed on facilities relevant to the survey, rendering data collection impossible” and “I could not visit the office due to infection countermeasures.”

- **Modified research plans due to unpredictable changes in the spread of COVID-19**

A total of seven responses were obtained to this effect, such as “It took time to adjust schedules, so there were occasionally times when I had to cancel a plan just before the event” and “There were situations that I thought would proceed that ended up becoming difficult because of the unpredictability of the COVID-19 situation.” Some respondents indicated that their research plans had to be changed.

- **Difficulty securing materials, equipment, and samples necessary for research**

A total of six responses were obtained to this effect, such as “The use of facilities such as libraries was restricted, and I was no longer able to browse freely,” “There was less literature I could read from home,” and “The delivery of materials and measurement tools used in experiments was delayed.”

- **Difficulty holding meetings and exchanging information with researchers inside/outside respondents’ affiliated organization**

A total of nine responses were obtained to this effect, such as “Even project components that operate smoothly when people are able to meet directly to negotiate or consult do not progress because it takes time to schedule online meetings” and “Conferences and meetings were hosted online, and informal

information exchange is not possible."

- **Increased workload due to more opportunities to remotely participate in meetings and training**

A total of two responses were obtained to this effect. Respondents indicated that remote meetings allowed for participation without breaks, which led to the tight scheduling of successive meetings, resulting in more work and a sense of being busier.

- **Increased time spent on student education**

A total of 25 responses were obtained to this effect. Respondents indicated increased time spent preparing and implementing alternative practicums due to the inability to conduct conventional clinical practicums and in-person exercises, as well as more "meetings about changing the lecture exercises and practicum method."

- **Increased time spent on management and operation and student health checks**

A total of 15 responses were obtained to this effect, with mention of activities related to infection control on an organization-wide scale and "student COVID-19 measures (e.g., nighttime infection reporting, measures for close student contacts, information gathering for contact tracing)."

- **Increased workload due to leaves of absence in respondents' affiliated organizations**

A total of three responses were obtained to this effect, with mention of increased workload due to covering for leaves of absence precipitated by COVID-19 infections or the otherwise poor physical condition of staff at respondents' affiliated organizations.

- **Lack of understanding in workplace with regard to research activities**

A total of two responses were obtained to this effect, with mention of a workplace environment where research activities are difficult to conduct, and certain related tasks are not acknowledged as work duties.

- **Insufficient ICT in workplace**

A total of two responses were obtained to this effect, with mention of a subpar ICT environment, such as limited access to technologies for facilitating online meetings.

- **Slowdown in institutional review board activity and peer review**

A total of three responses were obtained to this effect. Respondents indicated delays in institutional review boards' ethics reviews at affiliated organizations, as well as delays in the peer review of submitted manuscripts.

- **Increased opportunities for social contribution**

A total of eight responses were obtained to this effect, including "Local governmental support for COVID-19 countermeasures," "Health center support," and "requests for training instructors from hospitals."

- **Increased childcare time due to school closure**

A total of six responses were obtained to this effect, including "Constraints on research time due to school closure caused by an infection outbreak at my child's elementary school" and "School closure or quarantining due to COVID-19." Some respondents also indicated that their children were in close contact with an infected person and were unable to attend school, leave home, or use a sitter or childcare

alternative.

- **Increased time spent on home health care**

A total of nine responses were obtained to this effect, such as increased time spent on health care within the home due to family members' COVID-19 infection or otherwise poor physical condition.

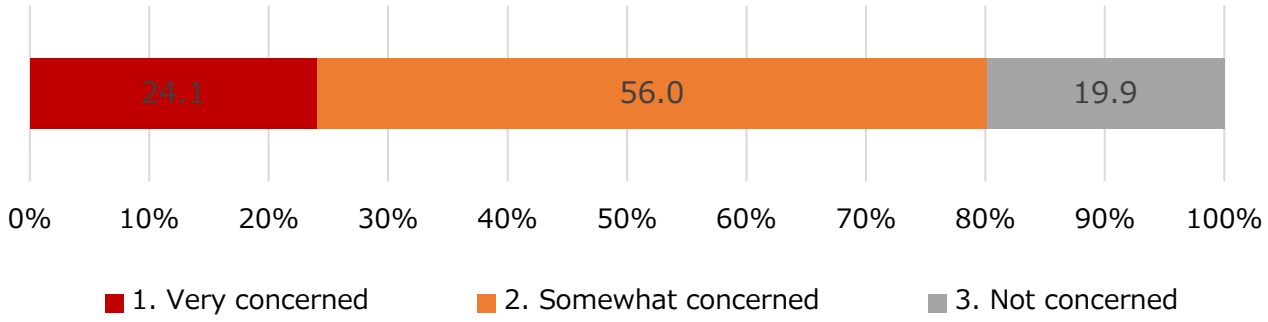
- **None in particular**

A total of 21 responses were obtained to this effect.

- **Other**

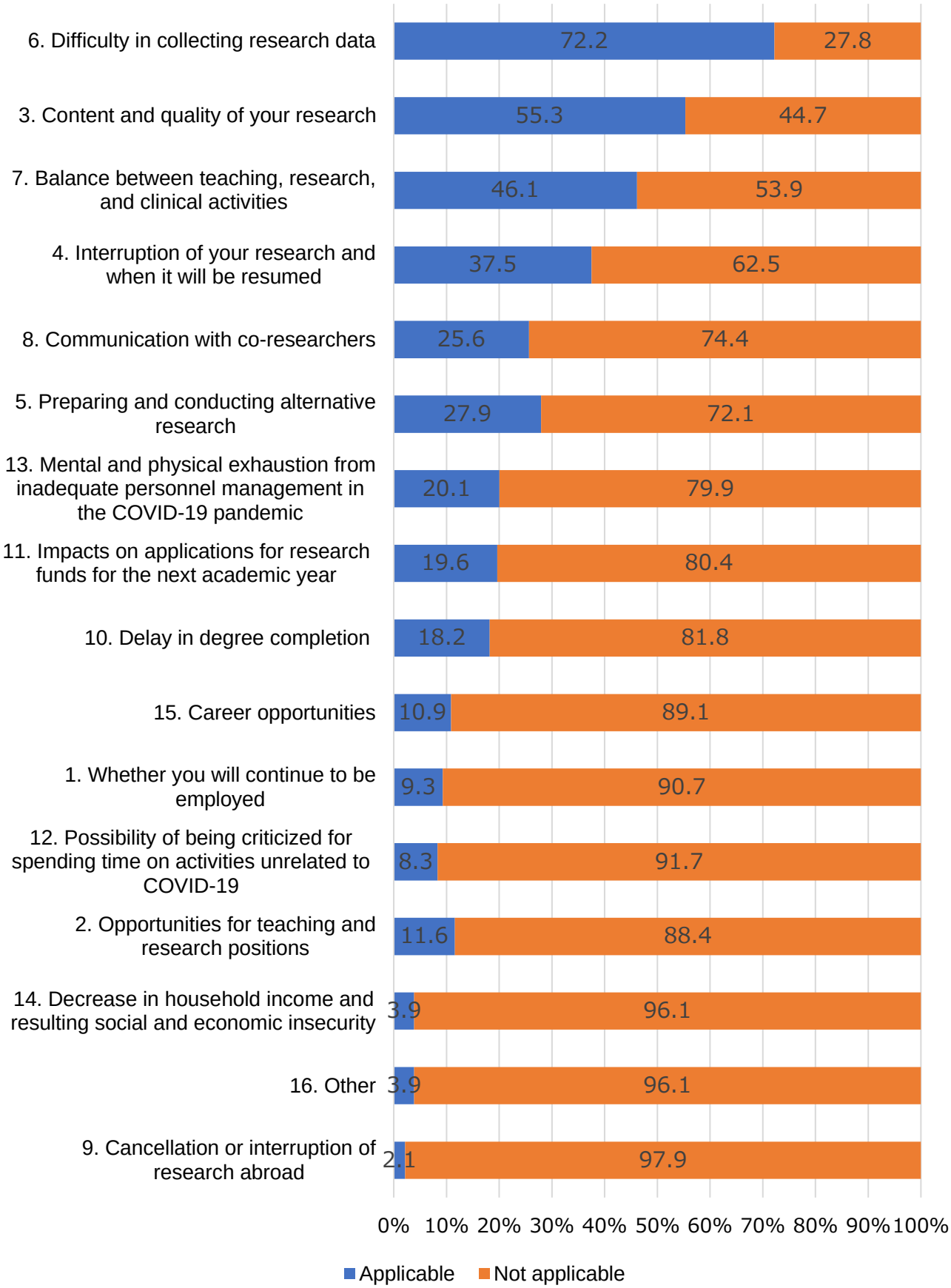
A total of 12 responses were obtained to this effect. Respondents reported difficulties in mobility related to conference participation and surveys, decreased opportunities for chance encounters with researchers outside their affiliated organization, and delayed receipt of materials mailed to researchers overseas.

Q2_8. Do you have concerns and anxieties about your research activities amidst the COVID-19 pandemic? Please select the option that best describes your situation (n = 872).



≫ Please answer the following if you selected “1. Very concerned” or “2. Somewhat concerned” above. What specific concerns or anxieties do you have? (Select as many items as needed.)

1. Whether your employment will continue
2. Opportunities for teaching and research positions
3. The content and quality of your research
4. Interruption of your research and when it will resume
5. Preparing and conducting alternative research
6. Difficulty collecting research data
7. Balancing teaching, research, and clinical activities
8. Communication with co-researchers
9. Cancellation or interruption of research abroad
10. Delayed degree completion
11. Impacts on applications for research funds for the upcoming academic year
12. The possibility of being criticized for spending time on activities unrelated to COVID-19
13. Mental and physical exhaustion due to inadequate personnel management amidst the COVID-19 pandemic
14. Decreased household income and resulting social and economic insecurity
15. Career opportunities
16. Other


6. Difficulty in collecting research data
72.2
27.8
3. Content and quality of your research
55.3
44.7
7. Balance between teaching, research, and clinical activities
46.1
53.9
4. Interruption of your research and when it will be resumed
37.5
62.5
8. Communication with co-researchers
25.6
74.4
5. Preparing and conducting alternative research
27.9
72.1
13. Mental and physical exhaustion from inadequate personnel management in the COVID-19 pandemic
20.1
79.9
11. Impacts on applications for research funds for the next academic year
19.6
80.4
10. Delay in degree completion
18.2
81.8
15. Career opportunities
10.9
89.1
1. Whether you will continue to be employed
9.3
90.7
12. Possibility of being criticized for spending time on activities unrelated to COVID-19
8.3
91.7
2. Opportunities for teaching and research positions
11.6
88.4
14. Decrease in household income and resulting social and economic insecurity
3.9
96.1
16. Other
3.9
96.1
9. Cancellation or interruption of research abroad
2.1
97.9
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Applicable
Not applicable

≫ Participants who selected “16. Other” were encouraged to add a free response.

A total of 36 responses were obtained, which were classified into the following 11 categories based on their content:

- **Maintaining research motivation**

A total of four responses were obtained to this effect, mainly related to respondents’ strategies to maintain their motivation to engage in research activities.

- **Career advancement or schooling**

A total of four responses were obtained to this effect. Respondents indicated anxiety over their apprehension that COVID-19 would make it difficult to accumulate achievements, thus impacting their career advancement, as well as anxiety regarding the feasibility of studying abroad.

- **Constraints on research methodologies due to infection controls**

A total of six responses were obtained to this effect, such as “Infection control comes first, so in-person or field research is limited. Therefore, I think research methods will be biased, and the scope of research will be narrowed” and “I am worried that I will contract COVID-19 if I go to the clinic to collect data.”

- **Effective use of research funds**

A total of three responses were obtained to this effect, such as “I was worried about whether my research would progress as expected using the research funds I had acquired.”

- **Domestic and international mobility difficulties**

A total of four responses were obtained to this effect, such as “Although we are implementing remote measures, when conducting field research overseas, there are times when it is necessary to physically go onsite” and “Impacts on participation and presentations in the context of international conferences.” Another respondent stated that “My presentation at a conference was designed for an in-person conference, but since it was during a practicum, I could not travel out of the prefecture, and I may have to withdraw my presentation.”

- **Smooth communication with collaborators**

A total of three responses were obtained to this effect, such as “Anxiety about smooth communication with domestic and international collaborators” and concerns about the inability to talk in-person.

- **Delayed ethics review and peer review of submitted manuscripts**

A total of three responses were obtained to this effect, such as “Ethics review has become extremely difficult” and “Negative impacts due to delayed peer review on the part of international journals.”

- **Familial health management or long-term care of family members**

A total of three responses were obtained to this effect related to the health management and long-term care of family members. Respondents expressed anxiety over their reduced ability to utilize long-term care insurance services during the COVID-19 pandemic.

- **Personal and familial infection risk**

A total of four responses were obtained to this effect. Respondents reported anxiety about their personal infection risk in the course of research activities and the impact on research activities due to family members' infection.

- **None in particular**

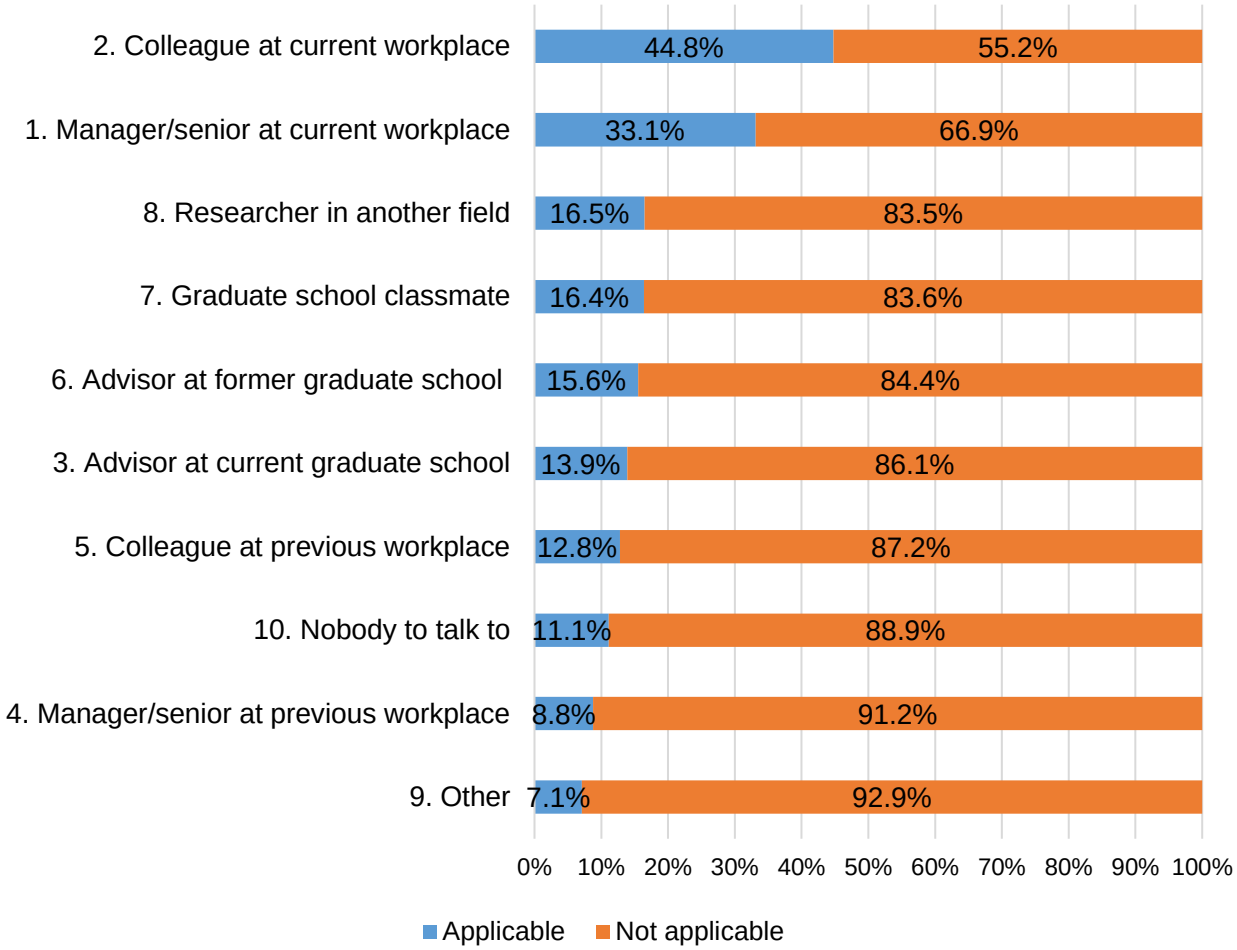
Only one response was obtained to this effect.

- **Other**

A total of five responses were obtained to this effect. Respondents reported increased time spent on education, securing research fields, and issues other than COVID-19.

Q 2_9. Do you have somebody that you can talk to about your research activities amidst the COVID-19 pandemic? Please select all that apply. (Multiple items can be selected.)

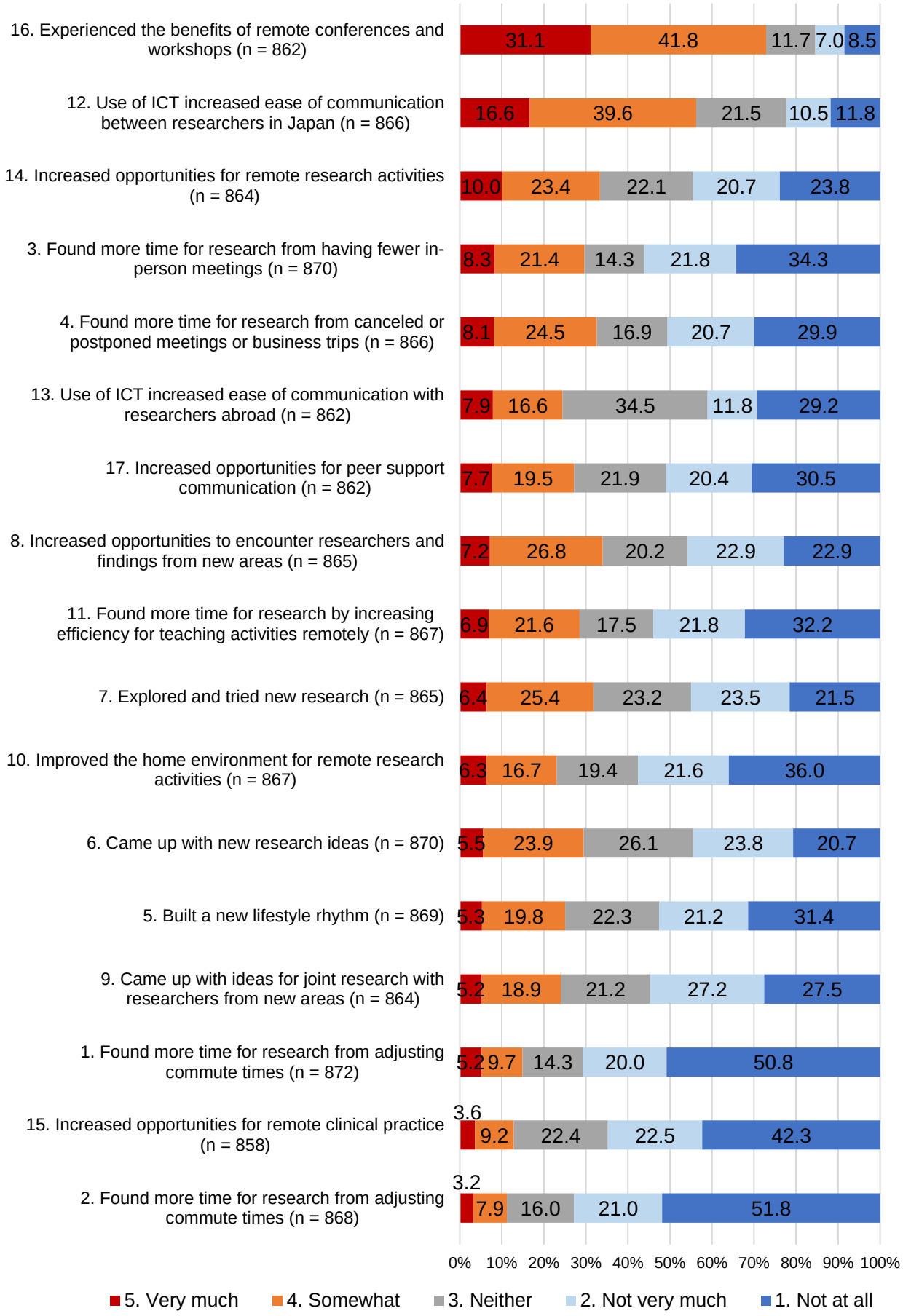
1. Manager/senior at current workplace
2. Colleague at current workplace
3. Advisor at current graduate school
4. Manager/senior at previous workplace
5. Colleague at previous workplace
6. Advisor at former graduate school
7. Graduate school classmate
8. Researcher in another field
9. Other
10. Nobody to talk to



≫ Participants who responded “9. Other” were encouraged to add a free response.
The responses included staff from other departments within the organization, educational researchers and clinical practitioners outside the organization, advisors or peers from graduate school, peers with the same specialty, family, and friends.

Q2_10. The following item is about positive changes you might have experienced in your research activities amidst the COVID-19 pandemic. To what extent did you experience positive research-related changes in the past three months (December 2021 to February 2022)? Please select the option that best describes your situation.

Positive changes in research activities during the COVID-19 pandemic	1. Not at all	2. Not very much	3. Neither	4. Somewhat	5. Very much
1. Found more time for research owing to shortened commute time	1	2	3	4	5
2. Found more time for research by adjusting commute time (delayed or earlier commute)	1	2	3	4	5
3. Found more time for research due to fewer in-person meetings	1	2	3	4	5
4. Found more time for research due to canceled or postponed meetings or business trips	1	2	3	4	5
5. Built a new lifestyle rhythm	1	2	3	4	5
6. Came up with new research ideas	1	2	3	4	5
7. Explored and tried new research	1	2	3	4	5
8. Increased opportunities to encounter researchers and findings from new areas	1	2	3	4	5
9. Came up with ideas for joint research with researchers from new areas	1	2	3	4	5
10. Improved the home environment to accommodate remote research activities	1	2	3	4	5
11. Found more time for research by increasing efficiency through remote teaching	1	2	3	4	5
12. Use of ICT increased ease of communication among researchers in Japan	1	2	3	4	5
13. Use of ICT increased ease of communication with researchers abroad	1	2	3	4	5
14. Increased opportunities for remote research activities	1	2	3	4	5
15. Increased opportunities for remote clinical practice	1	2	3	4	5
16. Experienced the benefits of remote conferences and workshops	1	2	3	4	5
17. Increased opportunities for peer support communication (online casual communication and parties for colleagues or graduate students)	1	2	3	4	5


16. Experienced the benefits of remote conferences and workshops (n = 862)
31.1
41.8
11.7
7.0
8.5
12. Use of ICT increased ease of communication between researchers in Japan (n = 866)
16.6
39.6
21.5
10.5
11.8
14. Increased opportunities for remote research activities (n = 864)
10.0
23.4
22.1
20.7
23.8
3. Found more time for research from having fewer in-person meetings (n = 870)
8.3
21.4
14.3
21.8
34.3
4. Found more time for research from canceled or postponed meetings or business trips (n = 866)
8.1
24.5
16.9
20.7
29.9
13. Use of ICT increased ease of communication with researchers abroad (n = 862)
7.9
16.6
34.5
11.8
29.2
17. Increased opportunities for peer support communication (n = 862)
7.7
19.5
21.9
20.4
30.5
8. Increased opportunities to encounter researchers and findings from new areas (n = 865)
7.2
26.8
20.2
22.9
22.9
11. Found more time for research by increasing efficiency for teaching activities remotely (n = 867)
6.9
21.6
17.5
21.8
32.2
7. Explored and tried new research (n = 865)
6.4
25.4
23.2
23.5
21.5
10. Improved the home environment for remote research activities (n = 867)
6.3
16.7
19.4
21.6
36.0
6. Came up with new research ideas (n = 870)
5.5
23.9
26.1
23.8
20.7
5. Built a new lifestyle rhythm (n = 869)
5.3
19.8
22.3
21.2
31.4
9. Came up with ideas for joint research with researchers from new areas (n = 864)
5.2
18.9
21.2
27.2
27.5
1. Found more time for research from adjusting commute times (n = 872)
5.2
9.7
14.3
20.0
50.8
15. Increased opportunities for remote clinical practice (n = 858)
3.6
9.2
22.4
22.5
42.3
2. Found more time for research from adjusting commute times (n = 868)
3.2
7.9
16.0
21.0
51.8
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
5. Very much
4. Somewhat
3. Neither
2. Not very much
1. Not at all

Q2_11. Please identify any other positive changes to your research activities that you have experienced. A total of 100 responses were obtained, which were classified into the following nine categories based on their content:

- **Creating and starting new research ideas**

A total of six responses were obtained to this effect, such as “I had the idea for nursing research on the theme of nursing activities amidst the unprecedented situation of the COVID-19 pandemic,” “I had opportunities to undertake systematic reviews, for which I did not have much experience,” and “I conducted online questionnaire surveys and gained a certain degree of know-how.”

- **Improved research motivation through opinion exchange and interaction with researchers in other fields**

A total of three responses were obtained to this effect, such as “I got to know researchers in other fields and received stimulating advice” and “I am proceeding with research with people with whom I could not connect until now.”

- **Building joint research teams**

A total of two responses were obtained to this effect, with mentions of “Multi-center joint research” and “More requests for joint research and research cooperation.”

- **Decreased transportation cost burden**

A total of five responses were obtained to this effect, such as “There is no need to spend on travel and meeting expenses, etc.” and “Because I was able to conduct international interviews online, business trip and time costs have decreased considerably.”

- **Increased research time due to less outings and working from home**

A total of four responses were obtained to this effect, such as “Research time became flexible, especially while working from home.” Respondents also reported having more research time due to the lower incidence of social events such as drinking parties, hometown visits, and children’s events.

- **Improved research efficiency using ICT (including meetings, participation in conferences and training, and data collection)**

A total of 45 responses were obtained to this effect, such as “Academic society meetings began to be held online, and I was able to participate in multiple conferences on my own schedule” and “I was surprised that there ended up being so many meetings that didn’t need to be done in person; there was no transit time, and meetings became easier to manage in terms of time.” Another response was “The COVID-19 pandemic front-loaded research schedules, and it became possible to implement flexible schedules for risk management and to consider alternatives for research methods during periods of high infectivity.”

- **Improved ICT literacy (self and others)**

A total of three responses were obtained to this effect, with mentions of “improved ICT skills” and “an increased number of people who can use ICT.”

- **None in particular**

A total of 24 responses were obtained to this effect.

- **Other**

A total of ten responses were obtained to this effect. The responses included reflecting on changes in the respondents themselves, for example, “It was an opportunity to re-examine myself as a medical professional with national qualifications and review my career.” Respondents also reported an improved work-life balance. Furthermore, respondents mentioned changes in the workplace environment, such as “improvement in the workplace ICT environment due to remote measures.”

Q2_12. Please describe any innovations you have implemented to smooth your research progress during the COVID-19 pandemic.

A total of 146 responses were obtained, which were classified into the following ten categories based on their content:

- **Innovative research themes**

A total of 12 responses were obtained to this effect. Responses regarding innovations in research theme setting due to difficulties in conducting in-person surveys and interventions as well as COVID-19-related theme setting were reported, such as “We organized research content to enable basic research, since clinical research became difficult” and “Support utilizing online tools became a major theme.” Respondents also reported using the findings of intra-university and online practicums to inform research topics, since clinical practice was no longer possible during the COVID-19 pandemic.

- **Research methodology selection and modification**

A total of 63 responses were obtained to this effect, such as “Changes in research subjects,” “Shifting from in-person to online training,” and “Implementation of online interviews.” Responses also included data collection with the aid of doctoral research assistants, the implementation of infection control measures during doctoral research assistants’ hospital visits, and the investigation of PCR testing costs.

- **Innovations in research team composition**

A total of four responses were obtained to this effect, such as “Research teams were as compact as possible” and “We employed human resources who could provide local research support.”

- **Research collaboration among organizations**

A total of six responses were obtained to this effect, such as “Access to facilities was difficult when trying to advance human-focused research, so we requested a single representative of a cooperating facility to provide activity assistance” and “We were able to help secure research facilities through graduates and other contacts.”

- **Research schedule/task management**

A total of 12 responses were obtained to this effect, such as “We clarified our discussion content, set tasks, determined who would do what until when, and monitored progress through online meetings,” “We adjusted research implementation periods,” and “We conducted multiple literature reviews with an eye to when survey administration could be resumed.”

- **ICT-assisted research meetings**

A total of 34 responses were obtained to this effect, such as “Meetings with collaborators could be held during holidays via Zoom, and schedule adjustments were better accommodated” and “Close communication was possible via e-mail and SNS.”

- **ICT-assisted data management and work with collaborators**

A total of two responses were obtained to this effect, namely, “Data sharing via shared folders” and “I was able to utilize the cloud and engage in document sharing.”

- **Reviewing lifestyle and the research environment**

A total of five responses were obtained to this effect, such as “I reviewed my time management every

week," "I tried to create even a few minutes of research time by sleeping less or going to work early in the morning," "I tried to create an environment where I could concentrate while working at home," and "I started using a cloud service for data management, so that I could write seamlessly between the laboratory and my home."

- **None in particular**

A total of 19 responses were obtained to this effect.

- **Other**

A total of five responses were obtained to this effect, such as "We expressed our gratitude for the staff's hard work writing research requests and their general cooperation during the COVID-19 pandemic," "There were many opportunities to share information with other researchers," and "Spending time writing papers and reviewing the literature relating to previous research results."

Q2_13. Please describe any new activities that you conducted in collaboration with researchers and practitioners during the COVID-19 pandemic.

A total of 65 responses were obtained, which were classified into the following seven categories based on their content:

- **Understanding issues in clinical practice and setting-related research themes**

A total of six responses were obtained to this effect, such as "Currently surveying 'problems with COVID-19 countermeasures in clinical practice' as a research theme" and "Planning a COVID-19 impact survey using practical data." Specifically, respondents indicated planning and implementing research on infection measures in dialysis rooms, the impact of the COVID-19 pandemic on people with disabilities, and the mental health of health care workers.

- **Provision of useful evidence to medical and long-term care professionals**

A total of ten responses were obtained to this effect, such as "Providing evidence for COVID-19 infection measures in facilities for the older people," "Creation of guidelines," and "Launching consultation services for medical professionals."

- **Provision of useful information to local residents and innovations for gatherings**

A total of three responses were obtained to this effect, which included "I gave lectures on living in an evacuation center while implementing infection control measures," "I started a support activity group for so-called double-carers engaged in both childcare and long-term care," and another response mentioning the online implementation of patient communication salons.

- **Research guidance for clinical professions**

A total of two responses were obtained to this effect, with one mention of the provision of support for research formulation and implementation.

- **Support for health centers and the administration of COVID-19 countermeasures**

A total of six responses were obtained to this effect, such as "We held online conferences with hospitals, certified nursing specialist, and researchers and discussed how to deal with COVID-19-positive

individuals," "Support for health center work duties (e.g., active epidemiological surveys)," and "vaccination support."

- **None in particular**

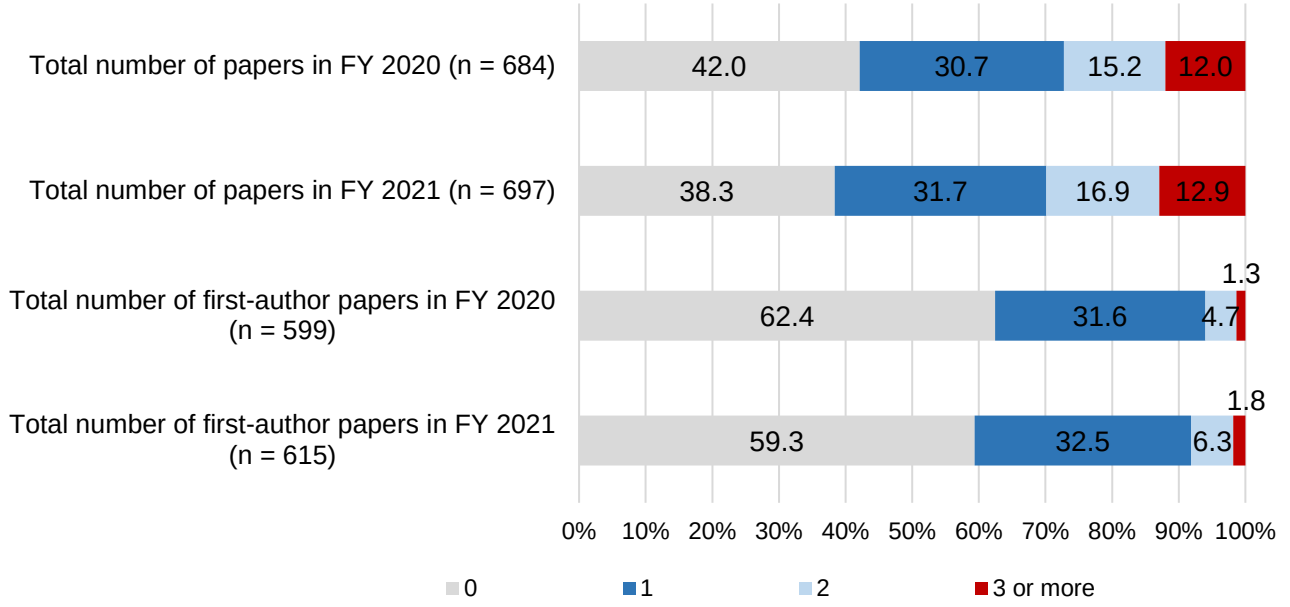
A total of 33 responses were obtained to this effect.

- **Other**

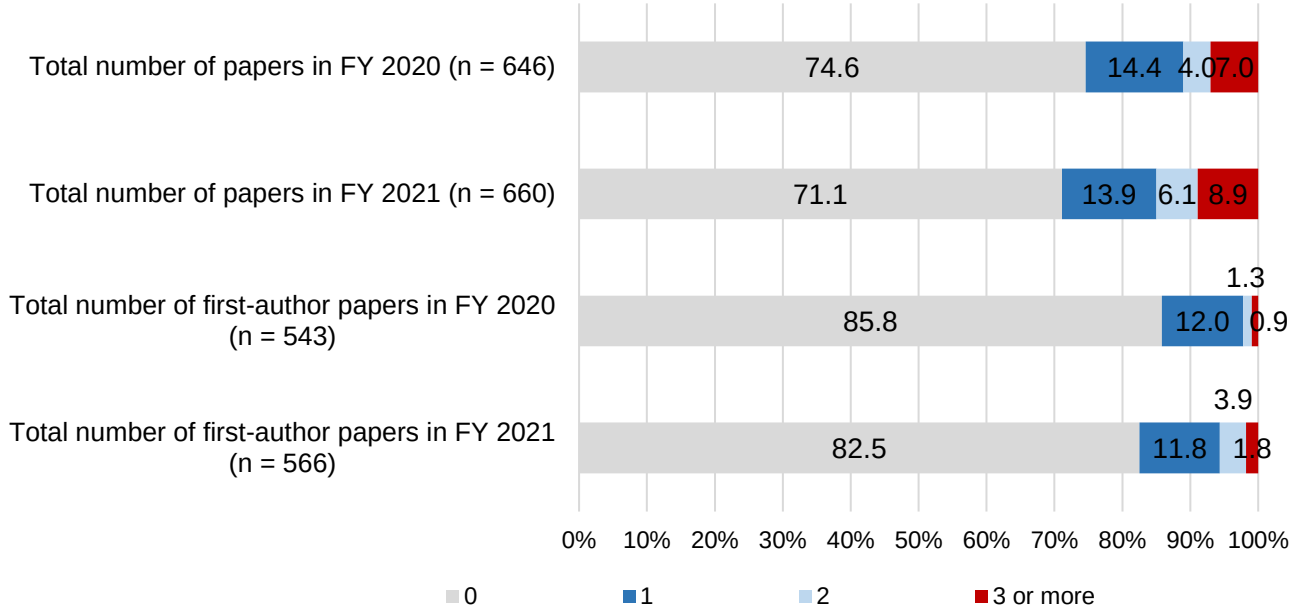
A total of eight responses were obtained to this effect, such as "A new review team was created," "Establishment of an advanced practice nurses promotion council and the implementation of regular meetings," and "The planning and hosting of online workshops."

III. Research publication status over the past two years

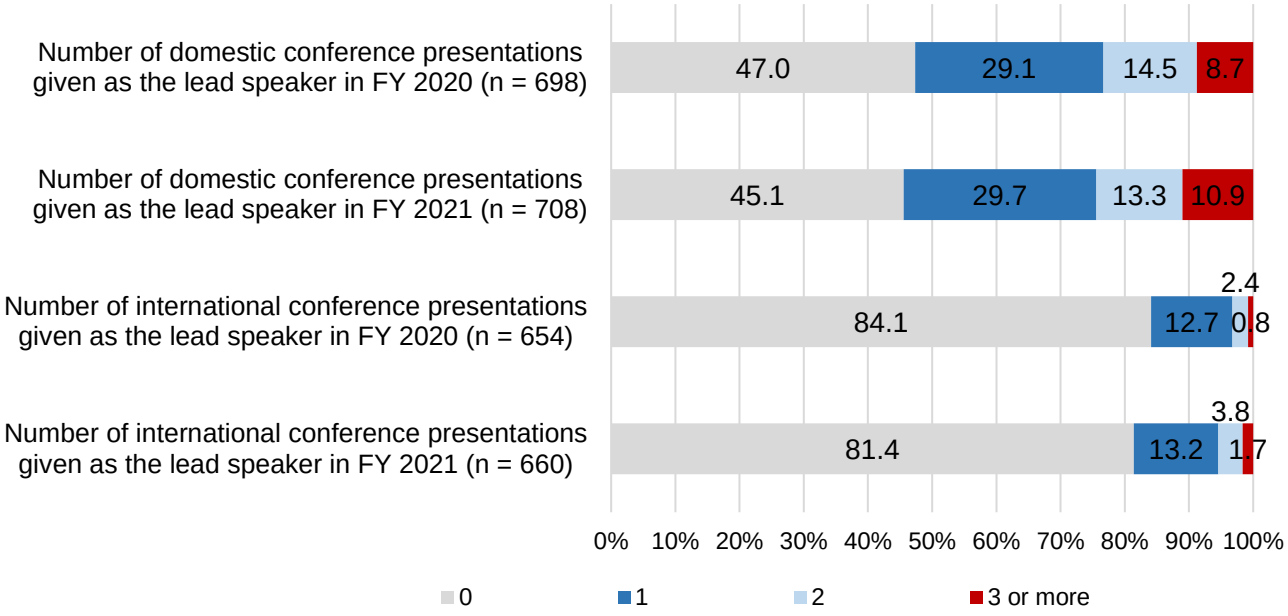
Q3_1. Number of peer-reviewed papers (in Japanese) (including accepted papers)



Q3_2. Number of peer-reviewed papers (in English) (including accepted papers)



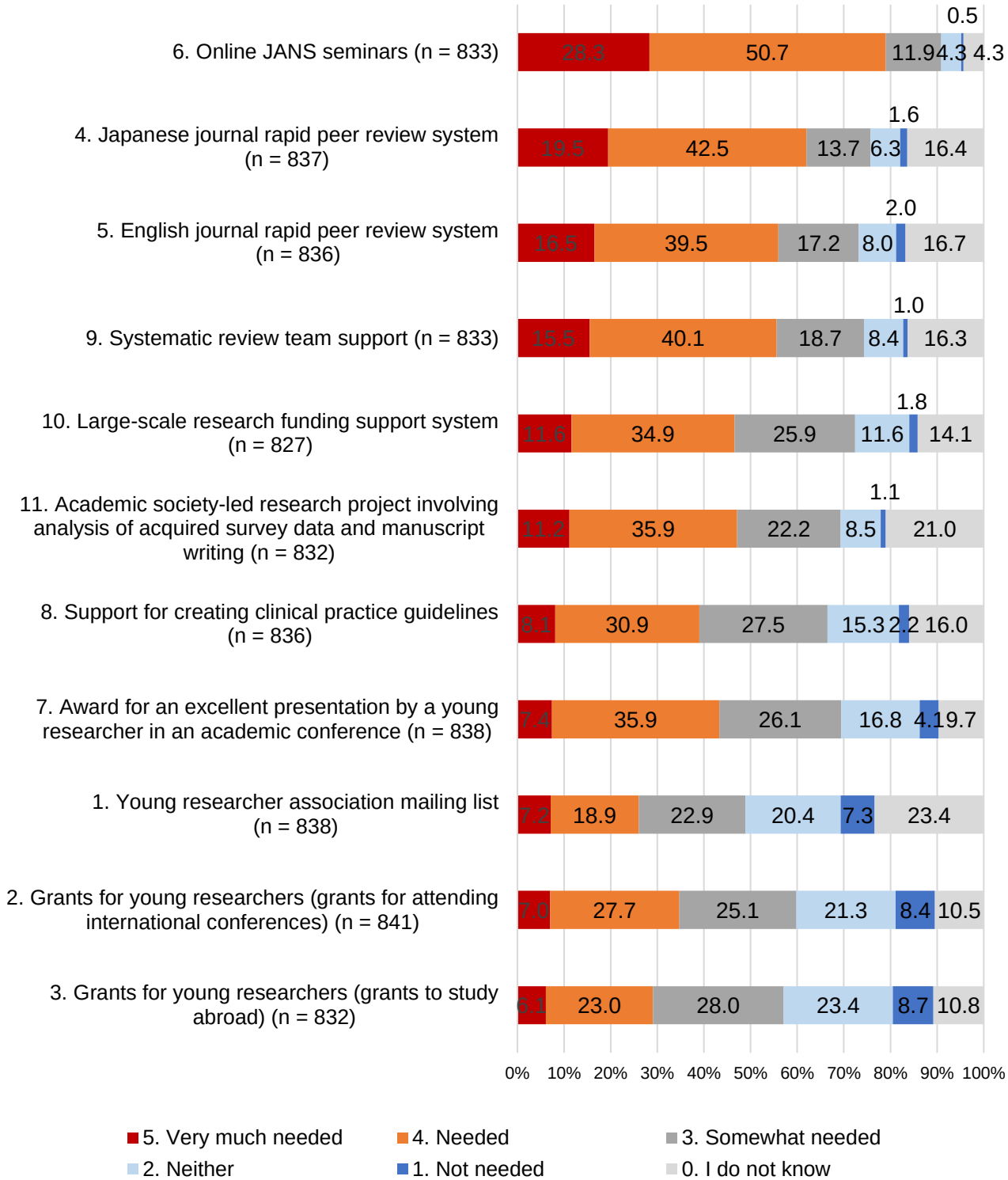
Q3_3. Number of presentations given at domestic conferences as the lead speaker (including presentations at symposiums, keynote speeches, and presentations scheduled to occur by the end of March 2022)



IV. Initiatives implemented by JANS committees

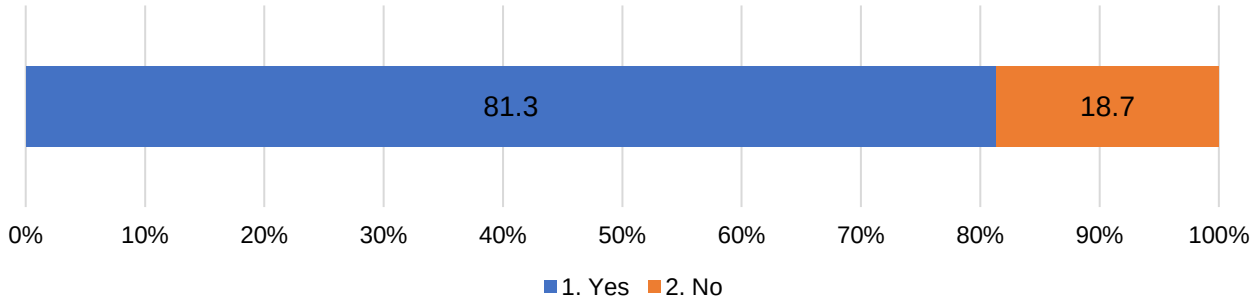
Q4_1. The JANS is discussing providing support for members' research activities during the COVID-19 pandemic. What kind of support do you want? Please select the option that best describes your thoughts regarding the type of support that you need.

JANS' support for members' research activities	0. I do not know	1. Not needed	2. Neither	3. Somewhat needed	4. Needed	5. Very much needed
1. Young researcher association mailing list	0	1	2	3	4	5
2. Grants for young researchers to attend international conferences	0	1	2	3	4	5
3. Grants for young researchers to study abroad	0	1	2	3	4	5
4. Japanese journal rapid peer review system	0	1	2	3	4	5
5. English journal rapid peer review system	0	1	2	3	4	5
6. Online JANS seminars	0	1	2	3	4	5
7. Award for an excellent presentation by a young researcher in an academic conference	0	1	2	3	4	5
8. Support for creating clinical practice guidelines	0	1	2	3	4	5
9. Systematic review team support	0	1	2	3	4	5
10. A large-scale research funding support system	0	1	2	3	4	5
11. Academic society-led research project involving analysis of acquired survey data and manuscript writing	0	1	2	3	4	5


6. Online JANS seminars (n = 833)
28.3
50.7
11.9
4.3
0.5
4.3
4. Japanese journal rapid peer review system (n = 837)
19.5
42.5
13.7
6.3
1.6
16.4
5. English journal rapid peer review system (n = 836)
16.5
39.5
17.2
8.0
2.0
16.7
9. Systematic review team support (n = 833)
15.5
40.1
18.7
8.4
1.0
16.3
10. Large-scale research funding support system (n = 827)
11.6
34.9
25.9
11.6
1.8
14.1
11. Academic society-led research project involving analysis of acquired survey data and manuscript writing (n = 832)
11.2
35.9
22.2
8.5
1.1
21.0
8. Support for creating clinical practice guidelines (n = 836)
8.1
30.9
27.5
15.3
2.2
16.0
7. Award for an excellent presentation by a young researcher in an academic conference (n = 838)
7.4
35.9
26.1
16.8
4.1
9.7
1. Young researcher association mailing list (n = 838)
7.2
18.9
22.9
20.4
7.3
23.4
2. Grants for young researchers (grants for attending international conferences) (n = 841)
7.0
27.7
25.1
21.3
8.4
10.5
3. Grants for young researchers (grants to study abroad) (n = 832)
6.1
23.0
28.0
23.4
8.7
10.8
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
5. Very much needed
4. Needed
3. Somewhat needed
2. Neither
1. Not needed
0. I do not know

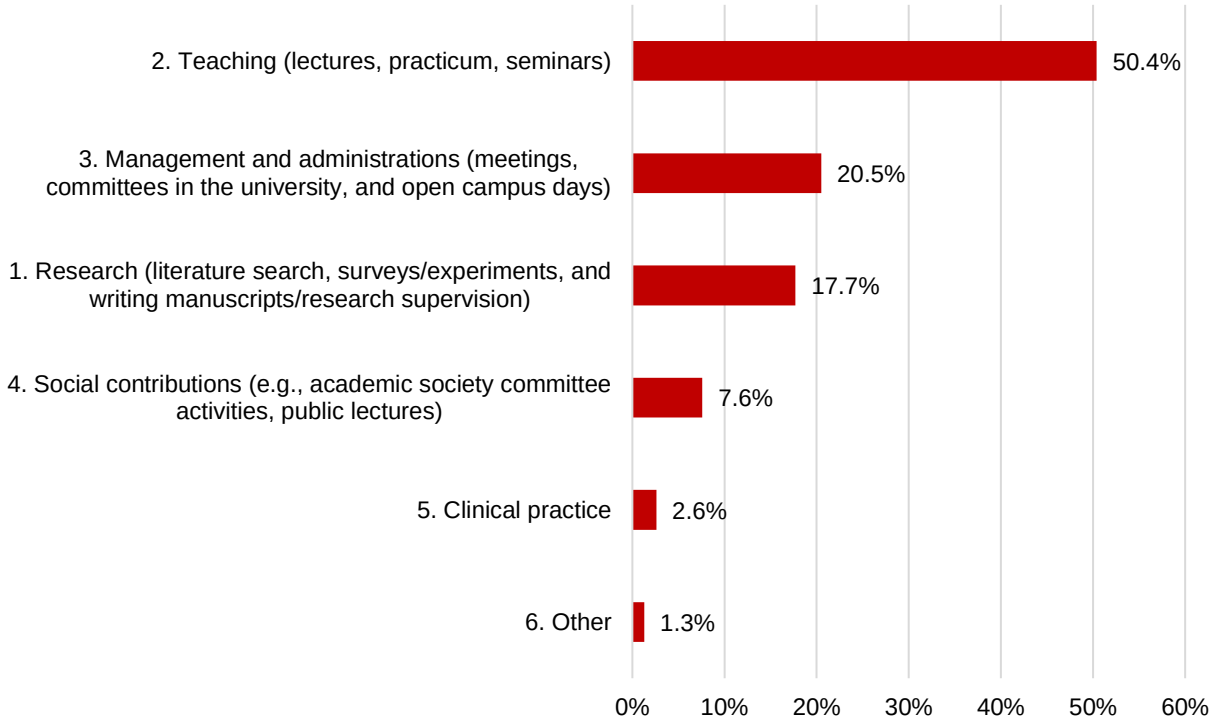
V. Allocation of work time among full-time employees at a nursing university.

Q5_1. Are you currently a full-time employee at a nursing university? (n = 815)



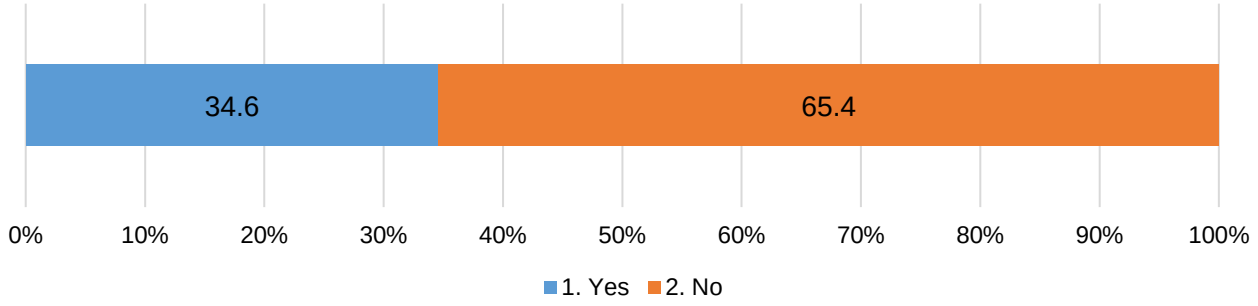
Q5_2. How have you allocated your work time in the past three months (December 2021 to February 2022) amongst your research, education, management and operation, and social responsibility activities? Please indicate your allocations in percentages (%) so that they add up to a total of 100%.

*Means noted in parentheses (As these are means for various items, the total does not equal 100%.)
Calculated using only data from respondents whose total allocations equaled 100% (n = 640)



≫ Participants who responded “6. Other” were encouraged to add a free response.
The responses included club activity guidance, mental support for students, peer support and consultation, community activities relating to COVID-19 (health checks and vaccination), job search, housework, and childcare.

Q5_3. Are you in a leadership position (e.g., professor, field director) in relation to young faculty members? Please answer according to your own judgment (n = 682).



≫ Participants who responded “1. Yes” were encouraged to specify their innovations for securing research opportunities for young researchers during the COVID-19 pandemic (given that the results of the first survey indicated that the research activities of young faculty members, such as assistant professors and assistants, were unlikely to be impacted by the COVID-19 pandemic).
A total of 107 responses were obtained, which were classified into the following nine categories based on their content:

- **Modifying work duties and shortening meeting times to secure research time**

A total of 48 responses were obtained to this effect, with mentions of shortening meeting durations and adjusting work duties. Responses such as “I usually tell myself to work on my own research topics during times when I am not preparing for classes or supporting students” were obtained.

- **Securing joint research opportunities**

A total of seven responses were obtained to this effect, such as “Getting others involved in my research projects and participating in research methodologies and researcher networks,” “Choosing research coordinators and collaborators for the research I am working on based on the research theme toward which a particular faculty member is inclined,” and “Providing collaborative research opportunities.”

- **Regular meetings and reading sessions**

A total of 20 responses were obtained to this effect, such as “Regularly checking research progress regarding the themes we are working on,” “Timely communication and progress monitoring,” and “Monthly abstract reading sessions.”

- **Support for manuscript writing and submission**

A total of eight responses were obtained to this effect, with mentions of “Manuscript writing support” and “Manuscript submission support.”

- **Support for obtaining research funding**

A total of 14 responses were obtained to this effect, such as “Support for obtaining Grants-in-Aid for Scientific Research” and “Support for preparing documents to obtain external funding.” Responses regarding the provision of consistent support, from research funding acquisition support to manuscript submission support, such as “We provided consultations to the extent possible, from preliminary surveys for scientific research grant applications to guidance for sub-investigators, and for the planning, analysis, and submission of manuscripts, even after selection for a scientific research grant as funding” were obtained.

- **Support for participation (including giving presentations) at domestic and international conferences**

A total of six responses were obtained to this effect, such as “Recommended to participate in conferences” and “Encouraged to present at conferences.” Another response was “International abstract writing guidance and the provision of an e-poster template.”

- **Support for applying to graduate school and the pursuit of other academic achievements**

A total of three responses were obtained to this effect, such as “Encouragement to complete a PhD program” and “Secure time for research activities, with maximal consideration of young faculty currently enrolled in a PhD program.”

- **None in particular**

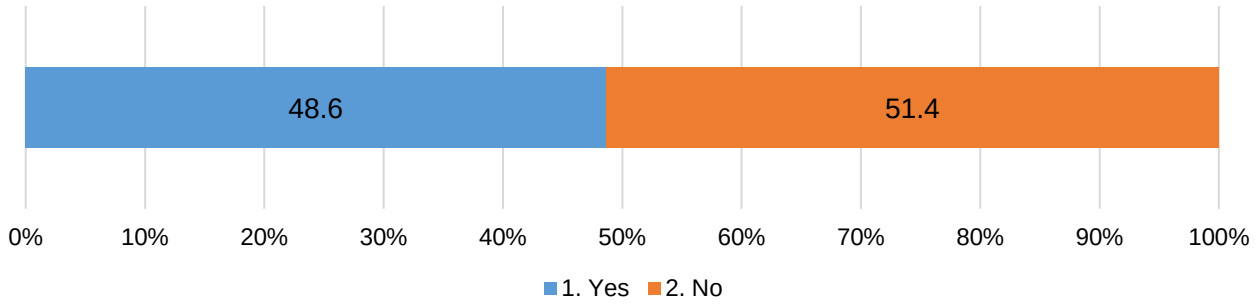
A total of 11 responses were obtained to this effect.

- **Other**

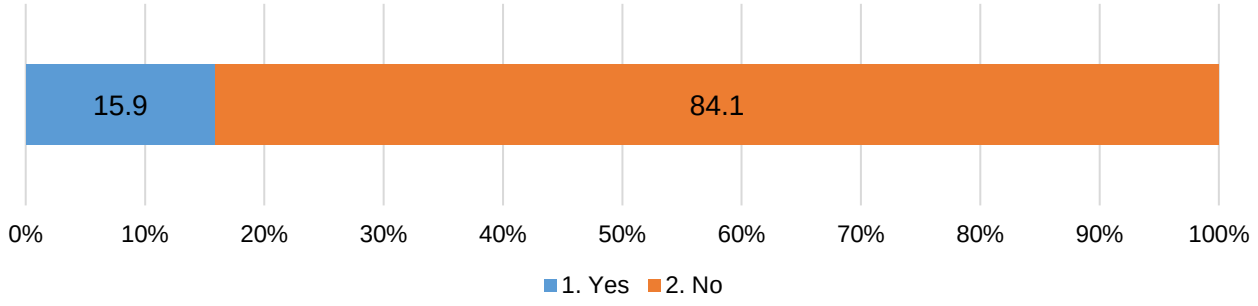
A total of 11 responses were obtained to this effect. Responses relating to direct support for young faculty members, such as “Receiving research guidance alongside graduate students,” “Provision of support similar to normal times,” and “Switching to themes and methods that are feasible during the COVID-19 pandemic,” were obtained. In addition, responses relating to support and sustainability, such as “The presence of support system at universities” and “Establishing a system where a specially appointed professor who is skilled at research gives research consultations to young faculty members,” were obtained.

VI. Research performance status of KAKENHI and other research funds during the COVID-19 pandemic

Q6_1. Have you received KAKENHI (Ministry of Education, Culture, Sports, Science and Technology/Japan Society for the Promotion of Science Grants-in-Aid for Scientific Research) as the principal investigator for the present fiscal year (FY 2021) (includes ongoing research projects started in earlier years) (n = 814)?



Q6_2. Have you obtained any other research funds (e.g., Health and Labour Sciences Research Grants from the Ministry of Health, Labour and Welfare of Japan, Japan Agency for Medical Research and Development [AMED] grants, private grants, competitive research grants within your own organization) for the present fiscal year (FY 2021) as a principal investigator (including ongoing research projects)? This does not include basic expenses (i.e., non-competitive research expenses) allocated by your organization (n = 810).



VII. Recent mental health status and attitude toward life

Q7_1. The following is about your mental health. How often have you felt the following in the past 30 days? (K6 mental health screening scale-Japanese version)

During the past 30 days, about how often did you feel …	0. None of the time	1. A little of the time	2. Some of the time	3. Most of the time	4. All of the time
1. ...nervous?	0	1	2	3	4
2. ...hopeless?	0	1	2	3	4
3. ...restless or fidgety?	0	1	2	3	4
4. ...so depressed that nothing could cheer you up?	0	1	2	3	4
5. …that everything requires considerable effort?	0	1	2	3	4
6. ...worthless?	0	1	2	3	4

*A higher score indicates a stronger depressive tendency and a higher degree of anxiety.

Analysis of the data of respondents who answered all six items (n = 816)

Median (interquartile range) value of the total score of all respondents: 5.0 (1.0–9.0) points

Percentage of all respondents with a total score of nine points or higher (i.e., high possibility of depression or anxiety disorder): 27.0%

Analysis of the data of respondents in nursing universities by attribute (n = 672)

The results of comparing the total K6 scores by attribute indicated that the K6 scores of lecturers, assistant professors, and teaching associates were statistically significantly higher than those of professors and associate professors. There were no differences by employment type.

Median (interquartile range)

Professor/Associate professor (n = 330)	Lecturer/Assistant professor/Teaching associate (n = 338)	p-value
4.0 (1.0–8.8)	5.0 (2.0–10.0)	0.044

Mann-Whitney U test

Median (interquartile range)

Full time (n = 648)	Part time/Other (n = 17)	p-value
5.0 (2.0–9.0)	5.0 (2.0–6.0)	0.638

Mann-Whitney U test

Analysis of the data of respondents belonging to medical, health, and welfare organizations (e.g., hospitals, clinics, home-visit nursing stations) by attribute (n = 66)

The results of comparing the total K6 scores by attribute indicated that the K6 scores of nursing managers tended to be lower compared to those of others; however, no statistically significant differences were observed. There were no differences by employment type.

Median (interquartile range)

Nursing manager (e.g., nursing department director, head nurse, assistant head nurse) (n = 29)	Clinical nursing professional (n = 37)	p-value
2.0 (0.0–6.0)	4.0 (2.0–9.0)	0.097

Mann-Whitney U test

Median (interquartile range)

Full time (n = 55)	Part time / Other (11)	p-value
3.0 (0.0–9.5)	4.0 (1.0–5.0)	0.882

Mann-Whitney U test

Q7_2. The following is about how you feel about your life. Please select the number that best describes your feelings for each of the following, (A) to (C). (University of Tokyo Health Sociology version of the SOC3 scale)

	1. Highly applicable						7. Not applicable at all
(A) I believe that I can find solutions to everyday difficulties and problems.	1	2	3	4	5	6	7
(B) I believe that the difficulties and problems that arise in life are worth confronting and addressing.	1	2	3	4	5	6	7
(C) I think that I can understand and predict the difficulties and problems that arise in daily life.	1	2	3	4	5	6	7

A lower score indicates the ability to not only successfully overcome various difficulties but also to use those experiences as a form of self-support. A study that randomly sampled and surveyed Japanese people aged between 20 and 40 years showed that this survey subject group tended to have a lower SOC score (i.e., the tendency to successfully overcome various difficulties and the ability to use those experiences as a form of self-support), with an average score of 14.8–15.0 points for men and 14.7–15.0 points for women [5].

An analysis using the data of respondents who answered all three items or responded to each item:

Median (interquartile range) of total score: 8.0 (6.0–11.0) points (n = 818)
Median (interquartile range) for item (A): 2.0 (2.0–4.0) points (n = 831)
Median (interquartile range) for item (B): 2.0 (1.0–3.0) points (n = 828)
Median (interquartile range) for item (C): 3.0 (2.0–4.0) points (n = 827)

Discussion

The current survey aimed to determine the impact of the approximately two-year COVID-19 pandemic on the research and education activities and practices of members of the Japan Academy of Nursing Science (JANS) and to identify the challenges faced by members and the innovations they generated and implemented under these difficult circumstances. The results of this survey will serve as valuable sources to inform suggestions when investigating the mitigation of adverse impacts and planning the Academy's support for nursing researchers during and after the COVID-19 pandemic.

Long-term impact of the COVID-19 pandemic on research activities

A comparison of response trends between the first and second surveys suggests that the percentage of respondents who indicated that the time they spent on research activities decreased "somewhat" or "very much" decreased from 65.2% to 54.4%, while the proportion of those who indicated that their research activities were impacted "more" or "much more" decreased from 81.9% to 69.3%; however, there were continued negative impacts on research activities for over half the respondents [3]. Additionally, in the second survey, among the factors that impacted research activities, items with particularly high percentages included "difficulty with in-person contact with study participants" (67.6%), "difficulty securing means of transport for domestic travel and business trips" (68.2%), and "difficulty entering research facilities/institutions" (66.9%). Among all obstacles to research reported, the difficulty in conducting research in clinical settings and challenges in communicating with other researchers were as prominent in the second survey as in the first. Furthermore, in both surveys, 80% of the respondents reported experiencing anxiety over their research activities, and the content of the free responses suggests that the difficulties associated with changing one's style of conducting research and the increased mental burden regarding research activities given the risks of both the pandemic's persistence and re-infection were impactful.

In the second survey, the results of the analysis of respondents' mental health (K6 score) data by attribute indicated that individuals involved in organizational management (professors and associate professors belonging to nursing universities and nursing managers at medical, health, and welfare organizations) tended to have a lower K6 score (i.e., a lower tendency toward depression and anxiety) than others (lecturers, assistant professors, and teaching associates belonging to nursing universities and nursing staff working in clinical practice at medical, health, and welfare organizations). An underlying factor regarding this finding is that individuals belonging to the latter group were more impacted by the increased time requirements for nursing education and clinical practice during the COVID-19 pandemic. A second factor is that the latter group is presumed to include a higher proportion of younger researchers, many of whom are in the process of improving their research expertise, building researcher networks, and developing their careers. Therefore, it is believed that they are likely to experience greater anxiety regarding their research activities amidst the prolonged COVID-19 pandemic.

Some respondents devised various ingenuities such as setting research themes, selecting methodologies, and forming research teams to meet the needs of nursing subjects and adapt to the social

circumstances of the COVID-19 pandemic. Many respondents indicated that they used ICT effectively, collected data and conducted interventions, and collaborated with researchers. Such experiences may have enabled the researchers to continue engaging in research activities. This survey report aims to provide pertinent clues to researchers who are feeling anxious and demotivated about their future research directions. The findings may also serve as an opportunity for the organization to continue accumulating and disseminating research evidence pertaining to nursing subjects amidst the social circumstances of the COVID-19 pandemic while re-affirming the importance of creating an environment that supports research activities.

As discussed above, the results of analyzing the data of the two detailed surveys conducted by JANS may inform specific measures to maintain and promote researchers' activities, including in the context of affiliated organizations and conferences.

Support measures for mitigating the negative impacts on nursing researchers' research activities and promoting engagement in research during and after the COVID-19 pandemic

Following the results of the first survey, which investigated the impact of the COVID-19 pandemic on JANS members as of January 2020, JANS held online seminars and workshops in an attempt to meet members' needs, established and disseminated a rapid academic journal peer review system, and provided support for acquiring research grants and building researcher networks. Furthermore, as part of open source efforts regarding JANS members' survey data, researchers were recruited—from the unique perspective of the data collected during the first survey—to proactively implement the research steps, from analysis to manuscript submission, and conduct joint research to build a network of JANS committees and members, write manuscripts, and report research results (via presentations at JANS academic meetings and in Japanese and English papers) [6][7][8][9].

In the second survey, among the JANS-led initiatives implemented by committees with the hope of supporting JANS members' research activities, member interest in the following areas was particularly high: online JANS seminars (79.0%), a Japanese journal rapid peer review system (62.0%), and an English journal rapid peer review system (56.0%). As mentioned above, since most researchers who participated in the second survey reported experiencing anxiety regarding their research activities, a demand for learning about research and obtaining new research ideas, creating an environment that facilitates the sharing of actual research activities, disseminating research results, and support for researchers' career advancement through the accumulation of achievements was perceived during the post-COVID-19 period.

However, initiatives in which members' interest was low included study abroad grants for young researchers (29.1%), grants for young researchers to attend international conferences (34.7%), and a young researcher association mailing list (26.1%). Despite the difficulty of overseas travel, the primary factors behind this finding were thought to be the low percentage of young survey respondents and low awareness of JANS' efforts to support young researchers. It is, therefore, necessary to increase the public awareness of JANS' support for young researchers, not only among young researchers themselves but also among senior researchers who support them and promote the utilization of that support. Furthermore,

out of the 11 initiatives undertaken by JANS, only six were rated as “needed” or “very much needed” by more than 40% of survey respondents. These initiatives were launched in response to the needs clarified in previous surveys of JANS members. Therefore, in the future, we would like to share our good practices (including role models) and achievements, increase the attractiveness of our initiatives and boost members’ interest in them, and ultimately, further enhance our efforts to support our members.

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Chairperson of the Nursing Ethics Committee: Professor. Megumi Teshima
Chairperson of the Selection Committee for Outstanding Manuscript Awards and the Young Researcher Grant Selection Committee: Professor. Satoko Kamei
Chairperson of the Public Relations Committee: Professor. Naohiro Hohashi
Chairperson of the Expert Committee on Support Activities for Disaster Nursing: Professor. Akiko Kondo
Chairperson of the Research Conflict of Interest Committee and the Research Institutional Review Board: Professor. Tomoko Inoue
Chairperson of the Academy Rules Committee: Associate Professor. Miyuki Ishibashi

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