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Concerns and desires of healthcare workers caring for patients with COVID-19 between April and July 2020 in Japan: a qualitative study of open-ended survey comments.

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Concerns and desires of healthcare workers caring for patients with COVID-19 between April and July 2020 in Japan: a qualitative study of open-ended survey comments.

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Abstract

Objectives: The prolonged effects required of COVID-19 pandemic continue to have a serious impact on healthcare workers (HCWs). We described and compared the experiences of HCWs during the first wave from March to May 2020 of the COVID-19 pandemic, and during the lull from June to July 2020 in Japan.

Design: The survey was conducted at a tertiary emergency hospital in Tokyo, in April and July 2020. We asked HCWs to provide comments or perceptions about their experiences during COVID-19 pandemic. We used inductive content analysis for the analysis.

Participants: Participants were physicians, nurses, pharmacists, radiological technologists, and laboratory medical technologists, who worked in the departments where they directly cared for patients with COVID-19.

Setting: The web-based survey was conducted.

Results: One hundred two participants in the first survey and 154 participants in the second survey filled in the open-ended comments. Three themes were extracted: concerns, requests, and gratitude. There were four subthemes supporting the theme concerns: hospital infection control system, fear of spreading infection to others, uncertainty about when the pandemic would end, and being treated as a source of the infection. The requests expressed were many (n = 53) and diverse and nearly doubled (n = 106) by the second survey. The theme requests arrayed into seven subthemes: compensation, staffing, information, facilities, leave time, PCR tests, and equitable request. The theme gratitude had two subthemes: information and emotional support, and material support. The fears and desires of HCWs included a sense of two types of uncertainty-related concerns and requests differed greatly depending on the time of the survey.

Conclusions: There were differences in concerns and requests between the two time-points and

appropriate support was needed for each stage.

Strengths and limitations of this study

- This is the first study to qualitatively explore front-line healthcare workers' experiences in Japan during COVID-19 pandemic.
- This study described and compared the experiences of HCWs during the first wave from March to May 2020 of the COVID-19 pandemic, and during the lull from June to July 2020.
- The study sample was limited in acute care settings of a single institution.
- This was a short-term study with three months period between two surveys; therefore, long-term experiences should be explored in the future.

Keywords

Coronavirus disease 2019 (COVID-2019)

Pandemic outbreak

Healthcare workers

Qualitative study

Words count

2498 words

Introduction

Health care workers (HCWs) on the front lines of a new coronavirus (COVID-19) pandemic are required to work under stressful conditions.¹ In Japan, the first case with COVID-19 was recorded on January 16, 2020.² We then experienced a rapid spread of the infection mainly in urban areas, and a state of emergency was declared between April 7 and May 25, 2020.² At that time, HCWs were forced to work with limited resources with the risk of infection for themselves. According to a survey conducted by Matsuo et al. in April 2020 at a tertiary emergency medical hospital in Tokyo, more than 40% of nurses met the criteria for burnout.³ After the emergency declaration, the infection rate began to decline during the late spring and early summer, however, the infection curve gradually increased again during the summer months constituting the second wave. Since then, the prolonged effects required of this pandemic continue to have a serious impact on HCWs.

There is a growing body of descriptive research focusing on the experiences of HCWs working under such serious conditions. Primary care physicians were more concerned about being unable to provide medical care if they were infected than about becoming sick themselves.⁴ Joo et al. examined nurses' experiences, which identified the following barriers to COVID-19 care: (a) limited information about COVID-19, (b) unpredictable challenges and difficult practice, (c) inadequate support, (d) family concerns, and (e) emotional and psychological stress.⁵ On the other hand, the changes in the perception of COVID-19 by HCWs have not been explored thus far. Consequently, this study attempted to clarify the experiences of HCWs by analysing the open-ended comments in questionnaires that were administered twice to HCWs working in a

hospital treating COVID-19 pandemic patients. We compared the concerns and desires at two time-points. The research questions were: (1) Were there similarities and differences in concerns and desires between the two time-points and if so (2) what characterized adequate support needed for each stage?

The purpose of this study was to describe the changes in the open-ended responses from the questionnaires administered to HCWs treating patients with COVID-19 during the first wave in April 2020 and in July 2020, when the disease had subsided and before the second wave arrived. The study was part of a larger study.

Methods

Participants

A purposive sample of HCWs, from a tertiary emergency medical hospital, St. Luke's International Hospital in Tokyo Japan, included physicians, nurses, pharmacists, radiological technologists, and laboratory medical technologists, who worked in the departments where they directly cared for patients with COVID-19. The departments were emergency departments, intensive care units, general wards, general internal medicine departments, infectious disease departments, and respiratory medicine departments.

Data collection

The web-based survey was created using SurveyMonkey, an online survey application. We administered the first online cross-sectional survey in April 2020 and the second survey in July 2020. The survey included responses regarding demographic characteristics, professional history, work-related characteristics, types of anxiety,

changes compared with before the pandemic, and types of supported needed. The results of these closed-ended questions were reported elsewhere.³ The final question was an open-ended one, where we asked participants to provide comments or perceptions about their experiences during COVID-19 pandemic.

Data analysis

We used inductive content analysis for the analysis. This approach allowed us to analyse our data without any pre-determined themes.⁶ The advantage of an inductive approach is that the results become data-driven.⁷ Because we had no preconceived ideas this approach sharpened our ability to discern both differences and similarities in the data.⁷ First, we read and re-read the comments to get a general meaning and sense of the data. We then divided the texts into units of meaning, interpreted them, compared them, and categorized them into tentative subthemes, using the qualitative research software NVIVO12Pro. Subsequently, we arranged, edited, and formulated the sub-themes into descriptive themes. This process was shared and discussed among the research team until consensus was reached.

Results

Of total of 488 HCWs to whom we sent the first survey in April 2020, 369 (75.6%) responded. Of 369 respondents, 102 participants (27.6%) wrote comments for the open-ended question, which were included in the analysis. Of 672 respondents in the second survey, 154 participants (22.9%) wrote comments for the open-ended question, which were included the analysis.

The contents were divided into concerns, requests and gratitude. The following is a

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description of each theme, subtheme and characteristics observed depending on the time period of the survey. The number of data units extracted is shown in Table 1, and the raw narrative data is shown in Table 2.

Concerns

Hospital's infection control system

The largest number ($n = 42$) of statements was about the hospital's infection control system. In the first survey, many complaints were expressed about the overwhelming lack of personal protective equipment (PPE). The first survey described respondents' anxiety about the possibility that they might not be adequately protected; the second survey described their distress because respondents' prolonged refraining from banquets and conversations, and at being pried into their private affairs if they were infected.

Fear of spreading the infection to others

Fear of infection was mentioned in 12 cases. Of these, 10 were concerned that they would be infected, and two were concerned that they would spread the infection to others. There was no mention of this concern in the second survey.

Uncertainty of the end of the infection

Concern about the uncertainty of the end of the infection was mentioned in 10 cases. This concern was also noted in the first survey only.

Treated like a source of infection

There were four complaints about being treated like a source of infection by those around them. This concern was also noted in the first survey only.

Requests

The requests expressed were many (n = 53) and diverse. They nearly doubled (n = 106) by the second survey.

Compensation

The most common request was for compensation (n = 52). Since the first survey was conducted before the government's decision to provide benefits for workers responding to the new coronavirus infection, most of the respondents requested hazard pay. The second survey was conducted after the benefits had been paid. It contained comments evaluating the benefits and, from those positions that had not been paid, requesting payment.

Staffing

The next most common request (n = 31) was for staffing of the wards. In the first survey, many entries were about the lack of staff to deal with COVID-19 patients and the confusion in dealing with them. In the second survey, with the establishment of specialized wards, the ward functions were reorganized in the hospital, and the burden of caring for patients with different or unfamiliar diseases was described. There were also requests for improving the: allocation of radiologists, night shift system, and consideration for pregnant staff.

Information

There were 20 requests for information: in the first survey, concerns were expressed about the lack of sharing of information about the infection situation in the hospital and about administrative policies they should follow; in the second survey, some staff who had been transferred to new departments due to the reorganization of ward functions expressed a desire to share information about COVID-19 infection control. There was

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also a request for information about the prospect of lifting the restrictions on eating out and travel, which had been in place for a while time in the community but was still in place in the hospital.

Facilities

In the first survey, most of the requests were for a place to stay for staff who could not return home for fear of infecting their families. In the second survey, the requests were for an environment for using e-learning, checking the physical condition of visitors, establishing clear transport lanes when transporting patients and better control of temperature and humidity because it was hot when using PPE.

Leave time

Participants in wards that were COVID-19 compliant stated a desire for longer leave times to care for elderly family members and children. There was also mention of the need to provide special leave for staff who were deployed to support other departments or who were pregnant. Both of these requests were stated more frequently in the second survey.

PCR Testing

At the time of the first survey, respondents who wanted to take the PCR test were not able to do so; therefore, it emerged as a desire to take it; at the second survey, they described clarification of procedures and testing standards. Clarification of procedures and standards for inspections were also noted.

Equitable Respect

In the first survey, staff not directly caring for COVID-19 patients, but who were involved in logistical support, asked for acknowledgement and respect for their efforts. In the second survey, they talked about the inequity of the busier departments not being

able to pick up various donated items such as lunch boxes. Respondents continued to request respect for those departments providing logistical support.

Gratitude

Initially respondents did not talk about feeling grateful. However, in the second survey it was the first theme that emerged.

For information and emotional support

In the second survey, they expressed gratitude for: the information provided by the infection control department on a regular basis, consultations available 27/7, the extension of time for newcomer education, letters from volunteers, and the administrative staff who maintained the environment of the outpatient waiting room.

For material support

In the second survey, they expressed their gratitude for the support provided by donations, such as free vouchers for beauty salons and clothing. They also described their appreciation for the childcare support provided by the hospital and the support from other departments.

Discussion

We described and compared the experiences of HCWs during the first wave from March to May 2020 of the COVID-19 pandemic, and during the lull in hospital admissions from June to July 2020 at a tertiary hospital in Tokyo Japan.

We found that the fears and desires of hospital staff included a sense of uncertainty. According to Mishel, uncertainty occurs in a situation in which one is unable to assign a definite value to objects or events and/or is unable to predict outcomes accurately.⁸

There were two intermingled sources of uncertainty: the disease itself and the hospital work system. The descriptions of these two types of uncertainty-related concerns and requests differed greatly depending on the time of the survey.

The first uncertainty is about the infection itself and about how many citizens will be infected, the risk to themselves and to their families and colleagues. Respondents' comments can basically be considered as an expression of the desire to regain control over the situation. Responding staff wanted the number of infected and suspected infected patients to be shown on the website every day. This is thought to be an expression of the desire to gain peace of mind by accurately grasping the trends in their immediate environment. Other researchers also found that the lack of information and the failure to properly update that information can cause anxiety among health care workers during the COVID-19 pandemic.^{9,10} Since they had little knowledge about the virus during the first wave, fear of infection and uncertainty about the disease was rampant among the HCWs. This uncertainty was in the context of a lack of testing for HCWs, causing worries that they were spreading the virus between colleagues, patients and the public and was similar to HCWs experiences in the United Kingdom.¹¹

The second sense of uncertainty comes with the fact that the hospital environment is changing dramatically to treat infectious diseases. This was expressed at a time when the number of patients being admitted to medical institutions was increasing, and the functions of the wards were being reorganized to cope. This reorganization was accompanied by staff reassignments and patient ward changes, which resulted in significant changes in staff care, procedures, and relationships. Their previous knowledge and procedures would not be applicable and various predictions could not be

made. Digby et al. analysed responses to open-ended questions from HCWs in Melbourne Australia and also extracted themes of changing working conditions, working in the changed hospital environment, and of personal isolation and uncertainty.¹² Fryk et al. reported that HCWs were inexperienced managing patients suspected of viral hemorrhagic fever creating uncertainty and anxiety.¹³ Their working environment had changed and the skills and standards of judgment that have been developed up to that point were no longer applicable.¹³

At a stage when the route of infection is not known in detail, it is important to ensure that staff members have a safe place to rest, as they may find it difficult to do so for fear of spreading the infection to their families. Once a certain amount of information about the infectious disease itself has been obtained and patients have been admitted to the hospital, it is necessary to create a system that enables the sharing of outlooks and procedures regarding operations. These systems need to be prepared in advance. In addition to developing procedures, regular formal and informal exchange of information is also required. Our findings that work-related barriers to the control the COVID-19 pandemic were supported by several other research studies.¹⁴⁻¹⁶ To overcome these barriers, HCWs need to share objectives and to strengthen fellowship under the leadership of team coordination.^{17,18} Shift patterns need to be created by incorporating the opinions and views of staff members.¹⁹ The leaders are also expected to take a broader perspective and assess the capacity of each staff member in order to prevent exhaustion from overwork.^{17,20}

Gratitude was highlighted in the second survey. Mishel (1988) stated that when coping

strategies are effective for an uncertain event appraised as either a danger or an opportunity, adaptation will occur.⁸ The expression of gratitude may indicate that they have successfully adapted to uncertainty. Sun et al. suggested that even with early negative emotions in terrible circumstances, nurses gradually had a feeling of gratitude to others, which were brought by respect from patients, supports of colleagues, and spending time with their families.²¹ Under the circumstances where adequate supports from colleagues were available, HCWs felt more appreciated, and became to feel that they wanted to contribute more.²² Some studies also reported positive feelings that HCWs had during COVID-19 pandemic: good opportunities for personal growth and resilience, team unity, gaining experiential knowledge, and reflection on one's life.^{23,24}

Limitations

There are some limitations of this study. First, it was conducted in a single institution on only frontline HCWs in acute care settings thereby reducing generalizability. Secondly, in order to minimize the further spread of COVID-19, we adopted on-line open-ended questions with no opportunities for further probing, as would be the case in face-to-face individual interviews. In addition, this was a short-term study with only three months period between two surveys. Long-term experiences should be explored in the future.

Conclusions

We described and compared the experiences of HCWs during the spring 2020 first wave, and during summer lull of the COVID-19 pandemic in Japan. There were differences in concerns and desires between the two time-points and appropriate support was needed for each stage.

Acknowledgements

We thank all participants of this survey.

Author Statement

All authors contributed towards the concept and design of the study. TM, DK, and FT conducted the acquisition of the data through conducting the web-based surveys. MK who is an expert in qualitative analysis conducted the qualitative analysis, with YA contributing the analysis. MK and YA prepared the first draft of the manuscript, with all authors contributing towards the review and approval of the final draft.

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Conflicts of Interest

The authors declare that there is no conflict of interest.

Patient consent for publication

Not required.

Ethical approval

This study was approved by the institutional review board of St Luke’s International Hospital in Tokyo, Japan (Number: 20-R003). We sent a letter of informed consent to

the participants via email, and the questionnaire completion was considered as their consent. Study participants were assured of anonymization of personal information obtained from them.

Data availability statement

All data relevant to the study are included in the article.

For peer review only

References

1. Reger MA, Piccirillo ML, Buchman-Schmitt JM. COVID-19, mental health, and suicide risk among health care workers: looking beyond the crisis. *J Clin Psychiatry*. 2020;81: 20com13381.
2. Japanese Ministry of Health, Labour and Welfare. Open data. <https://www.mhlw.go.jp/stf/covid-19/open-data.html>
3. Matsuo T, Kobayashi D, Taki F, *et al*. Prevalence of health care worker burnout during the Coronavirus Disease 2019 (COVID-19) Pandemic in Japan. *JAMA Netw Open*. 2020;3: e2017271.
4. Verhoeven V, Tsakitzidis G, Philips H, *et al*. Impact of the COVID-19 pandemic on the core functions of primary care: will the cure be worse than the disease? A qualitative interview study in Flemish GPs. *BMJ Open* 2020;10: e039674.
5. Joo JY, Liu MF. Nurses' barriers to caring for patients with COVID-19: a qualitative systematic review. *Int Nurs Rev* 2021; 42:760-71.
6. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res* 2005; 15:1277-88.
7. Graneheim UH, Lindgren BM, Lundman B. Methodological challenges in qualitative content analysis: A discussion paper. *Nurse Educ Today* 2017; 56:29-34.
8. Mishel MH. Uncertainty in illness. *Image J Nurs Sch*. 1988;20(4):225-32.
9. Fawaz M, Samaha A. The psychosocial effects of being quarantined following exposure to COVID-19: A qualitative study of Lebanese health care workers. *Int J Soc Psychiatry* 2020; 66:560-5.
10. Sougou NM, Diouf JB, Diallo AA, *et al*. Risk perception of COVID-19 pandemic among health care providers: qualitative study conducted at the King Baudoin

- Hospital in Guédiawaye, the first hospital faced with managing a community-acquired COVID-19 case in Senegal. *Pan Afr Med J* 2020;37(Suppl 1):23.
11. Hoernke K, Djellouli N, Andrews L, *et al.* Frontline healthcare workers' experiences with personal protective equipment during the COVID-19 pandemic in the UK: a rapid qualitative appraisal. *BMJ Open* 2021;11: e046199.
 12. Digby R, Winton-Brown T, Finlayson F, *et al.* Hospital staff well-being during the first wave of COVID-19: Staff perspectives. *Int J Ment Health Nurs* 2020; 30:440-50.
 13. Fryk JJ, Tong S, Marshall C, *et al.* Knowledge, attitudes and practices of healthcare workers within an Australian tertiary hospital to managing high-consequence infectious diseases. *Infect Dis Health* 2020; S2468-0451(20)30084-5.
 14. Fan J, Hu K, Li X, *et al.* A qualitative study of the vocational and psychological perceptions and issues of transdisciplinary nurses during the COVID-19 outbreak. *Aging (Albany NY)* 2020; 12:12479-92.
 15. Okediran JO, Ilesanmi OS, Fetuga AA, *et al.* The experiences of healthcare workers during the COVID-19 crisis in Lagos, Nigeria: A qualitative study. *Germes* 2020; 10:356-66.
 16. Xu Z, Ye Y, Wang Y, *et al.* Primary care practitioners' barriers to and experience of COVID-19 epidemic control in China: a Qualitative Study. *J Gen Intern Med* 2020; 35:3278-84.
 17. Alanezi F, Aljahdali A, Alyousef SM, *et al.* Investigating healthcare practitioners' attitudes towards the COVID-19 outbreak in Saudi Arabia: A general qualitative framework for managing the pandemic. *Inform Med Unlocked* 2021; 22:100491.
 18. Fernández-Castillo RJ, González-Caro MD, Fernández-García E, *et al.* Intensive

care nurses' experiences during the COVID-19 pandemic: A qualitative study. *Nurs Crit Care* 2021; doi: 10.1111/nicc.12589.

19. Gao X, Jiang L, Hu Y, *et al.* Nurses' experiences regarding shift patterns in isolation wards during the COVID-19 pandemic in China: A qualitative study. *J Clin Nurs* 2020; 29:4270-80.

20. Catania G, Zanini M, Hayter M, *et al.* Lessons from Italian front-line nurses' experiences during the COVID-19 pandemic: A qualitative descriptive study. *J Nurs Manag* 2020; doi: 10.1111/jonm.13194.

21. Sun N, Wei L, Shi S, *et al.* A qualitative study on the psychological experience of caregivers of COVID-19 patients. *Am J Infect Control* 2020; 48:592-8.

22. Travers JL, Schroeder K, Norful AA, *et al.* The influence of empowered work environments on the psychological experiences of nursing assistants during COVID-19: a qualitative study. *BMC Nurs* 2020; 19:98.

23. Aughterson H, McKinlay AR, Fancort D, *et al.* Psychosocial impact on frontline health and social care professionals in the UK during the COVID-19 pandemic: a qualitative interview study. *BMJ Open* 2021;11: e047353.

24. Eftekhar Ardebili M, Naserbakht M, Bernstein C, *et al.* Healthcare providers experience of working during the COVID-19 pandemic: A qualitative study. *Am J Infect Control* 2020; S0196-6553(20)30896-8.

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Table 1. Number of descriptions of each theme

Themes	1 st Survey	2 nd Survey
Concerns	67	5
Hospital's infection control system	29	5
Fear of spreading the infection to others	12	5
Uncertainty of the end of the infection	11	0
Treated like a source of infection	4	0
Others	11	0
Requests	53	106
Compensation	12	41
Staffing	24	15
Information	6	14
Facilities	5	12
For leave	2	12
For PCR tests	2	6
Equitable request	2	6
Gratitude	0	13
For information and emotional support	0	2
For material support	0	11

Table 2. Themes, subthemes, and related codes

Theme	Subtheme	Code in the text, 1st survey	Code in the text, 2nd survey
Concerns	Hospital's infection control system	I'm worried that the lack of masks, shields, gloves, etc. used at work will increase the chance of infection. For example, using one mask for three days.	I feel there is a contradiction in the fact that restrictions on eating together and conversations with staff who work together on a regular basis are still in place, while the rest of the world has lifted its self-restraint.
	Fear of spreading the infection to others	I see patients who deteriorate rapidly, and I take even the slightest chance that this will happen to me. Risking the life of an elderly family member living with me due to a virus I brought.	None
	Uncertainty of the end of the infection	I have no idea when the situation will be resolved, and I am worried about what will happen if a nosocomial infection occurs.	None
	Treated like a source of infection	I'm embarrassed that I'm receiving so many COVID19 patients that I'm sometimes treated as a source of infection by other departments and the general public.	None
Requests	Compensation	Hazmat services for COVID patients or suspected COVID patients.	There was no allowance for the assistants who handled the COVID, including supplies, cleaning, and installation, as well as the co-medical staff. I would like to receive allowances for people other than doctors and nurses.
	Staffing	Insufficient staffing to care for critically ill patients.	Only the COVID and medical wards were given human resource support, and the surgical wards were quite difficult.

	Information	The status of infection in the hospital is not communicated at all. The hospital only sends out e-mails to enforce rules and requests, but does not communicate the direction and guidelines of the hospital at all.	I thought it would be easier to understand the current situation in my office if the status of COVID patients or suspected patients in inpatient and outpatient settings was posted on the intranet on a daily basis.
	Facilities	Providing a place to stay to isolate them from the rest of the family.	I need masks and gowns to control the temperature and humidity in the hot Ns [nurse's] station. Secure a place to eat, work on medical records, and participate in meetings using Teams.
	For leave	Not being able to take breaks.	Leave is not allowed even in wards where you are not directly involved; mental fatigue can be found in all areas and professions.
	For PCR tests	We would like to have an environment where PCR tests are easily available	Clarification of standards for conducting PCR tests.
Gratitude	For information and emotional support	None	We were very fortunate to have people from other departments who responded immediately to our ad hoc calls for support when we needed it.
	For material support	None	The support through donations was very much appreciated. It was very encouraging.

Research checklist based on standards for reporting qualitative research (SRQR) guideline

Concerns and desires of healthcare workers caring for patients with COVID-19 between April and July 2020 in Japan: a qualitative study of open-ended survey comments.	
Items	Current study
Item 1. Title: Concise description of the nature and topic of the study. Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended.	✓
Item 2. Abstract: Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions.	✓
Item 3. Problem Formulation: Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement.	✓
Item 4. Purpose or research question: Purpose of the study and specific objectives or questions.	✓
Item 5. Qualitative approach and research paradigm: Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., post-positivist, constructivist/interpretivist) is also recommended; rationale.	✓
Item 6. Researcher characteristics and reflexivity: Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results and/or transferability.	✓
Item 7. Context: Setting/site and salient contextual factors; rationale.	✓
Item 8. Sampling strategy: How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale.	✓
Item 9. Ethical issues pertaining to human subjects: Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues.	✓
Item 10. Data collection methods: Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale.	✓
Item 11. Data collection instruments and technologies: Description of	✓

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instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection, if/how the instrument(s) changed over the course of the study.	
Item 12. Units of study: Number and relevant characteristics of participants, documents, or events included in the study; level of participation.	✓
Item 13. Data processing: Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding and anonymization / de-identification of excerpts.	✓
Item 14. Data analysis: Process by which inferences, themes, etc. were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale.	✓
Item 15. Techniques to enhance trustworthiness: Techniques to enhance trustworthiness and credibility of data analysis, (e.g., member checking, triangulation, audit trail); rationale.	✓
Item 16. Synthesis and interpretation: Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory.	✓
Item 17. Links to empirical data: Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings.	✓
Item 18. Integration with prior work, implications, transferability, and contribution(s) to the field: Short summary of main findings, explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field.	✓
Item 19. Limitations: Trustworthiness and limitations of findings	✓
Item 20. Conflicts of interest: Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed.	✓
Item 21. Funding: Sources of funding and other support; role of funders in data collection, interpretation, and reporting.	✓

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Acad Med. 2014;89(9):1245-1251.

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Concerns and desires of healthcare workers caring for patients with COVID-19 in April and July 2020 in Japan: a qualitative study of open-ended survey comments.

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3,555

Contributorship statement

All authors contributed towards the concept and design of the study. TM, DK, and FT conducted the acquisition of the data through conducting the web-based surveys. MK conducted the qualitative analysis, with YA contributing the analysis. MK and YA prepared the first draft of the manuscript, with all authors contributing towards the review and approval of the final draft.

Abstract

Objectives: The prolonged effects of the COVID-19 pandemic continue to have a serious impact on healthcare workers. We described and compared the experiences of healthcare workers in Japan during the first wave of the COVID-19 pandemic from March to May 2020, and during the lull from June to July 2020.

Design: In this qualitative study, we used a web-based survey to obtain comments from healthcare workers about their experiences during the pandemic, and explored these using inductive content analysis.

49 **Setting:** A tertiary emergency hospital in Tokyo, in April and July 2020.

50 **Participants:** Participants were staff in the hospital, including physicians, nurses,
51 pharmacists, radiological technicians, and laboratory medical technicians. Many, but not
52 all, had directly cared for patients with COVID-19.

53 **Results:** In total, 102 participants in the first survey and 154 in the second survey
54 provided open-ended comments. Three themes were extracted: concerns, requests, and
55 gratitude. There were four subthemes under concerns: the hospital infection control
56 system, fear of spreading infection to others, uncertainty about when the pandemic would
57 end, and being treated as a source of infection. There were 53 requests in the first survey,
58 and 106 in the second survey. These requests were divided into seven subthemes:
59 compensation, staffing, information, facilities, leave time, PCR tests, and equitable
60 treatment. The theme on gratitude had two subthemes: information and emotional support,
61 and material support. The fears and desires of healthcare workers included two types of
62 uncertainty-related concerns, and requests were very different across the two surveys.

63 **Conclusions:** It is important to apply a balance of information to help staff adjust to their
64 new work environment, as well as support to minimize the burden of infection and impact
65 on their families.

66

67 **Strengths and limitations of this study**

- 68 - This is the first study to qualitatively explore frontline healthcare workers'
69 experiences in Japan during the COVID-19 pandemic.
- 70 - This study described and compared the experiences of healthcare workers during
71 the first wave of the COVID-19 pandemic, from March to May 2020, and during
72 the lull from June to July 2020.

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- The study sample was limited to acute care and a single institution.
- This was a short-term study with three months between the two surveys, and long-term experiences should be explored in the future.

INTRODUCTION

Healthcare workers caring for patients during a pandemic are required to work under stressful conditions.[1] In Japan, the first case of the new coronavirus disease (COVID-19) was recorded on January 16, 2020.[2] The country then experienced a rapid spread of the infection, mainly in urban areas, and a state of emergency was declared between April 7 and May 25, 2020.[2] Healthcare workers had to work with limited resources, and were at considerable risk of infection.

There is a growing body of descriptive research focusing on the experiences of healthcare workers under these conditions. For example, one study found that primary care physicians were more concerned about being unable to provide medical care if they were infected than about becoming sick themselves.[3] Joo and Liu examined nurses' experiences, and identified several barriers to COVID-19 care, including (a) limited information about COVID-19, (b) unpredictable challenges and difficult practice, (c) inadequate support, (d) family concerns, and (e) emotional and psychological stress.[4]

Matsuo and colleagues reported on the mental health of healthcare workers in the early stages of the pandemic.[5, 6] They analyzed quantitative data on the level of burnout and related factors, through a survey at a single medical institution in Japan. These studies have been cited in many other papers as providing valuable data about the early

stage of the pandemic in Japan. In this paper, we aimed to qualitatively analyze the free-text statements in the responses to the questionnaire used by Matsuo and colleagues. We hope that this will provide valuable information about risk management in the early stages of an unfolding disaster, by comparing data from the period when the number of infected people increased in the early stage of the pandemic in Japan with a quieter period a few months later.

METHODS

Participants and setting

The participants were drawn from a purposive sample of healthcare workers in a tertiary emergency medical hospital, St. Luke's International Hospital in Tokyo, Japan. By June 15, 2020, the hospital had treated more than 220 confirmed and 350 suspected COVID-19 patients, or 3.2% of the 5587 confirmed patients in Tokyo.

The participants in the first survey were physicians, nurses, laboratory medical technicians, radiological technicians, and pharmacists, all of whom worked in departments that had direct contact with patients with COVID-19, including emergency care, general internal medicine, respiratory medicine, infectious diseases, general wards, and intensive care units. The participants in the second survey were all staff in the hospital, including physicians, nurses, laboratory medical technicians, radiological technicians, pharmacists, clinical engineering technicians, physical therapists, registered dietitians, medical clerks, and receptionists.

Data collection

Data were collected through two online cross-sectional surveys of healthcare workers

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121 (Supplement 1), the first from April 6 to April 19 2020 and the second from June 15 to
122 July 6 2020 at a tertiary hospital in Tokyo, Japan, with some of the highest numbers of
123 patients with COVID-19 in Japan (Figure 1).

124 The first survey was conducted before the government’s decision to provide benefits for
125 healthcare workers responding to the new coronavirus infection. The second survey was
126 conducted after the benefits had been paid.

127

128 **Data analysis**

129 We used inductive content analysis for the analysis. This approach allowed us to
130 analyze our data without any pre-determined themes.[7] The advantage of an inductive
131 approach is that the results become data-driven.[8] With no preconceived ideas, this
132 approach sharpened our ability to discern both differences and similarities in the
133 data.[8] First, we read and re-read the comments to get a general meaning and sense of
134 the data. We then divided the texts into units of meaning, interpreted them, compared
135 them, and categorized them into tentative subthemes, using the qualitative research
136 software NVIVO12Pro. We then arranged, edited, and formulated the sub-themes into
137 descriptive themes. We analyzed the differences between the two surveys as well as the
138 details of the free-text content. Five researchers were involved in the analysis of the free
139 text: a hospital occupational physician, two infectious diseases physicians, and two
140 nurse researchers specializing in psychiatric and mental health nursing and qualitative
141 research methods. This process aimed to provide a detailed analysis of the situation
142 among healthcare workers, to contribute to planning support for the future. The two
143 survey periods were at different times, when the infection situation was different. We
144 therefore thought that the data would enable us to examine the support required at

different stages of the pandemic, with different levels of infection, and therefore varying pressure on healthcare workers. The researchers reviewed and discussed the results together to explore different perspectives.

Data trustworthiness

Guba[9] used four criteria to evaluate the trustworthiness of data: credibility, dependability, confirmability, and transferability. Anney also identified four criteria for ensuring credibility in qualitative research: prolonged engagement, triangulation, member checks, peer debriefing and negative case analysis.[10] We used these criteria to ensure trustworthiness in our study. To ensure prolonged engagement, several of our research team were employed at the hospital. They therefore understood comments and concerns about the working environment, because they themselves have been dealing with concerns about infection control, and high levels of anxiety. To deliver triangulation, we drew on the quantitative data provided from the questionnaires to confirm our interpretations of the comments. Data analysis was shared among the researchers, and we were careful to obtain agreement about the interpretation of the free text.

Ethical issues

This survey was within a single facility, and we knew that it might be possible to identify individuals from their free-text comments, especially if they had included any information about their job title or work experience. To obtain honest opinions, the research team made clear that they would ensure that participants were not personally identifiable. This study was approved by the Institutional Review

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Board of St. Luke’s International University in Tokyo, Japan (Number: 20- A078).

Patient and public involvement

No patients or members of the public were involved in the design or conduct of the study.

RESULTS

Of the 488 healthcare workers who were sent the first survey in April 2020, 369 (75.6%) responded. Of these, 102 participants (27.6%) wrote comments in response to the open-ended question. These were all included in the analysis. Among the 1672 healthcare workers, 672 (40.2%) responded to the second survey, among whom 12 were excluded from the survey because of missing values. Of whom 660 responded, and 154 (23.3%) included free-text comments, all of which were included the analysis. Of the 660 people responding to the second survey, 146 (22.1%) had also responded to the first survey. Table 1 shows the demographic characteristics of the participants.

Table 1. Demographic characteristics		
	1 st Survey n = 312	2 nd Survey n = 660
Women, n (%)	223 (71.5)	513 (77.7)
Age (years), n (%)		
21–30	156 (50.0)	237 (35.9)
31–40	81 (26.0)	203 (30.8)
41–50	43 (13.8)	138 (20.9)
51–60	28 (9.0)	70 (10.6)
>60	4 (1.3)	12 (1.8)
Occupation, n (%)		
Physician	82 (26.3)	92 (13.9)
Nurse	126 (40.4)	371 (56.2)
Laboratory medical technician	63 (20.2)	53 (3.0)

Radiological technician	22 (7.1)	22 (3.3)
Pharmacist	19 (6.1)	20 (3.0)
Clinical engineering technician	-	12 (1.8)
Physical therapist	-	13 (2.0)
Registered dietician	-	7 (1.1)
Medical clerk	-	56 (8.5)
Receptionist	-	9 (1.4)
Experience (years), n (%)		
1–2	59 (18.9)	136 (20.6)
3–6	91 (29.2)	139 (21.1)
7 or more	162 (51.9)	385 (58.3)
Frontline workers, n (%)	246 (78.8)	205 (31.1)
Involvement in COVID-19-related work, n (%)	268 (85.9)	309 (46.8)

The content of the comments was divided into three themes: concerns, requests and gratitude. The following sections contain a description of each theme and subtheme, including similarities and differences observed across the two surveys. The number of data units extracted is shown in Table 2.

Table 2. Number of descriptions of each theme

Themes	1 st Survey	2 nd Survey
Concerns	67	10
The hospital's infection control system	29	5
Fear of spreading the infection to others	12	5
Uncertainty about the end of the infection	11	0
Being treated like a source of infection	4	0
Others	11	0
Requests	53	106
Compensation	12	41
Staffing	24	15
Information	6	14
Facilities	5	12
For leave	2	12

For PCR tests	2	6
Equitable request	2	6
Gratitude	0	13
For information and emotional support	0	2
For material support	0	11

Concerns

The hospital’s infection control system

The largest number (n = 42) of statements were about the hospital’s infection control system. In the first survey, many participants complained about the overwhelming lack of personal protective equipment (PPE). Responses described anxiety about the possibility that staff might not be adequately protected:

“I’m worried that the lack of masks, shields, gloves, etc. used at work will increase the chance of infection. For example, using one mask for three days.”

The second survey described their distress at the need for prolonged measures such as refraining from eating or talking together, and the investigations into their private lives if they were infected.

“I feel there is a contradiction in the fact that restrictions on eating together and conversations with staff who work together on a regular basis are still in place, while the rest of the world has lifted restraints.”

Fear of spreading the infection to others

In the first survey, fear of infection was mentioned by 12 respondents. Of these, ten were concerned that they would be infected, and two were concerned that they would spread the infection to others.

“I see patients who deteriorate rapidly, and I don’t want to take even the slightest

213 *chance that this will happen to me.”*

214 *“[I am worried about]risking the life of an elderly family member living with me if I*
215 *take the virus home.”*

216 There was no mention of this concern in the second survey.

217

218 ***Uncertainty about the likely end of the infection***

219 Uncertainty about the end of the infection was mentioned by ten respondents in the first
220 survey, but none in the second.

221 *“I have no idea when the situation will be resolved, and I am worried about what*
222 *will happen if a nosocomial infection occurs.”*

223

224 ***Being treated like a source of infection***

225 There were four complaints in the first survey about being treated like a source of
226 infection by those around them. This issue was not raised in the second survey.

227 *“I’m embarrassed that I’m receiving so many COVID-19 patients that I’m sometimes*
228 *treated like a source of infection by other departments and the general public.”*

229

230 **Requests**

231 The respondents expressed many different requests, including 53 in the first survey, and
232 106 in the second survey.

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234 ***Compensation***

235 The most common request was for compensation (n = 52). Most of the respondents
236 requested hazard pay for individuals or hospitals.

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237 *“I think extra compensation for the general floor staff who are fighting on the*
238 *frontline, especially ICU, respiratory, and infectious diseases, is a must.”*
239 *“Hospitals that accept patients should be subsidized.”*
240 The comments changed between the first and second surveys, reflecting the provision of
241 special allowances (see Figure 1).
242 *“There was no allowance for assistants who handled COVID, including supplies,*
243 *cleaning, and installation, as well as the co-medical staff. I would like to see*
244 *allowances for people other than doctors and nurses.”*

245
246 **Staffing**

247 The next most common request (n = 31) was for improved ward staffing. In the first
248 survey, many respondents commented about the lack of staff available to care for
249 COVID-19 patients and the confusion about how to treat patients.
250 *“Insufficient staffing to care for critically ill patients.”*
251 By the second survey, specialized wards had been established, and ward functions
252 reorganized within the hospital. Responses described the burden of caring for patients
253 with different or unfamiliar diseases. There were also requests to improve the allocation
254 of radiologists and the night shift system, and consideration for pregnant staff.
255 *“Only the COVID and medical wards were given human resource support, and the*
256 *surgical wards were quite difficult [to manage].”*

257
258 **Information**

259 There were 20 requests for information. In the first survey, concerns were expressed
260 about the lack of information about the infection situation in the hospital and the

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261 required administrative policies.

262 *“The status of infection in the hospital is not communicated at all. The hospital only*
263 *sends out e-mails to enforce rules and requests, but does not communicate direction*
264 *and guidelines at all.”*

265 In the second survey, some staff who had been transferred to new departments because
266 of the reorganization of ward functions expressed a desire to share information about
267 COVID-19 infection control. Respondents also asked for information about the prospect
268 of lifting the restrictions on hospital staff’s freedom to eat out and travel, to match the
269 situation in the wider community.

270 *“I would find it easier to understand the current situation in my office if the status of*
271 *COVID patients or suspected patients in inpatient and outpatient settings were*
272 *posted on the intranet on a daily basis.”*

274 **Facilities**

275 In the first survey, most of the requests were for a place for staff to stay if they did not
276 wish to return home for fear of infecting their families.

277 *“Providing a place to stay to isolate them from the rest of the family.”*

278 In the second survey, the requests were for an environment for e-learning, checking the
279 physical condition of visitors, establishing clear transport lanes for transporting patients
280 and better control of temperature and humidity because it was hot when using PPE.

281 *“I need masks and gowns to control the temperature and humidity in the hot Ns*
282 *[nurse’s] station.”*

283 *“Secure a place to eat, work on medical records, and participate in meetings using*
284 *Teams.”*

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Leave time

Participants in wards that were COVID-19 compliant stated a desire for longer leave times to care for older family members and children. There was also mention of the need to provide special leave for staff who were deployed to support other departments or who were pregnant. Both of these requests occurred more frequently in the second survey.

“Leave is needed even in wards where you are not directly involved; mental fatigue can be found in all areas and professions.”

PCR testing

At the time of the first survey, staff who wanted to take a PCR test were not able to do so, and many expressed a desire for better access to testing.

“We would like to have an environment where PCR tests are easily available.”

The second survey included requests for clarification of procedures and testing standards, and also clarification of procedures and standards for inspections.

Equitable treatment

In the first survey, staff not directly caring for COVID-19 patients, but involved in logistical support, asked for acknowledgement and respect for their efforts. In the second survey, respondents talked about the inequity of the busier departments not being able to pick up various donated items such as lunch boxes. Respondents continued to request equitable treatment for departments providing logistical support.

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309 Gratitude

310 In the first survey, respondents did not talk about feeling grateful. However, it was the
311 first theme to emerge from the second survey. Respondents expressed gratitude for two
312 main areas.

313

314 *For information and emotional support*

315 In the second survey, gratitude was expressed for the regular information provided by
316 the infection control department, consultations being available 24/7, the extension of
317 time for education of new staff, letters from volunteers, and the administrative staff who
318 maintained the outpatient waiting room.

319 *“We were very fortunate to have people from other departments who responded*
320 *immediately to our ad hoc calls for support when we needed it.”*

321

322 *For material support*

323 In the second survey, staff expressed their gratitude for the support provided by
324 donations, such as free vouchers for beauty salons and clothing. They also described
325 their appreciation for the childcare support provided by the hospital and the support
326 from other departments.

327 *“The support through donations was very much appreciated. It was very*
328 *encouraging.”*

329

330 DISCUSSION

331 In this study, we aimed to describe and compare the experiences of healthcare workers
332 during the first wave from March to May 2020 of the COVID-19 pandemic, and during

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333 the lull in hospital admissions from June to July 2020, at a tertiary hospital in Tokyo,
334 Japan.
335
336 We found that the fears and desires of hospital staff included a sense of uncertainty.
337 According to Mishel, uncertainty occurs in a situation in which it is impossible to assign
338 a definite value to objects or events and/or predict outcomes accurately.[11]
339 There were two connected sources of uncertainty: the disease itself and the hospital
340 work system. The descriptions of these two types of uncertainty-related concerns and
341 requests differed greatly across the two surveys.
342 The first was about the infection itself and about how many people will be infected, and
343 the risk to individual members of staff and their families and colleagues. Respondents’
344 comments can basically be considered as an expression of the desire to regain control
345 over the situation. Responding staff wanted the number of infected and suspected
346 patients to be shown on the website every day. This is thought to be an expression of the
347 desire to gain peace of mind by accurately grasping trends in the immediate
348 environment. Previous researchers have also found that the lack of information and
349 failure to properly update information has caused anxiety among healthcare workers
350 during the COVID-19 pandemic.[12, 13] There was little knowledge about the virus
351 during the first wave, and therefore many healthcare workers showed fear of infection
352 and uncertainty about the disease. There were greater shortages and reuse of PPE,
353 especially N-95 masks, among ICU staff in Japan than internationally.[14] In the
354 quantitative analysis of the same survey, 31.4% (98 of 312) of staff were considered to
355 be burned out in the first survey, with PPE deficiency having a statistically significant
356 association.[5]

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4 357 The second sense of uncertainty comes from the changes in the hospital environment
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6 358 required to treat infectious diseases. The first survey was at a time when the number of
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9 359 patients being admitted to medical institutions was increasing, and the functions of the
10
11 360 wards were being reorganized to cope. This reorganization was accompanied by staff
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13 361 reassignments and patient ward changes, which resulted in significant changes in staff
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15 362 care, procedures, and relationships. Previous knowledge and procedures were often not
16
17 363 applicable, making it harder for staff. Digby et al. analyzed responses to open-ended
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19 364 questions from healthcare workers in Melbourne Australia and also found themes of
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21 365 changing working conditions, working in the changed hospital environment, and
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23 366 personal isolation and uncertainty.[15]
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29 368 Yamada found that one of the factors affecting the mental health of public health nurses
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31 369 after the Great East Japan Earthquake was the unclear nature of their work.[16] The
32
33 370 results of our study support knowledge about disaster and critical incident management
34
35 371 gained from elsewhere in Japan during the pandemic and from the Great East Japan
36
37 372 Earthquake. During both, the inability to spend time with peers and family members and
38
39 373 the increased burden of daily life increased healthcare workers' psychological distress
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41 374 and fear of the disaster itself.[17, 18] Healthcare workers expressed anxiety about
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43 375 infecting family members, especially in the first survey. It has been reported in previous
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45 376 disasters that worries and events related to family members can be a major burden on
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47 377 the mental health of healthcare workers.[19] Yonemoto highlighted the need to include
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49 378 mental health care measures for medical staff and their families in hospitals after the
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51 379 Great East Japan Earthquake.[20] Umeda examined the roles of individuals and
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53 380 organizations before, during, and after disasters in a review of studies and
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organizational reports from Japan and abroad. The roles of organizations during a disaster include providing appropriate leave, ensuring access to professional support, and determining and responding to the possibility of continuing work in the field.[21] Studies have also found that mental health education, work adjustments, and workplace considerations are necessary to maintain the mental health of healthcare workers working under disaster conditions.[20, 21] It is therefore important to apply a balance of information to help staff adjust to their new work environment, as well as support to minimize the burden of infection and impact on their families. Gratitude was highlighted in the second survey. Mishel stated that when coping strategies are effective for an uncertain event appraised as either a danger or an opportunity, adaptation will occur.[11] The expression of gratitude may indicate that people have successfully adapted to uncertainty. Sun et al. suggested that nurses often showed early negative emotions in difficult circumstances, but gradually developed a feeling of gratitude to others, brought by respect from patients, support from colleagues, and spending time with their families.[22] When adequate support was available from colleagues, healthcare workers felt more appreciated, and came to feel that they wanted to contribute more.[23] Some studies also found that healthcare workers reported positive experiences during the COVID-19 pandemic, including good opportunities for personal growth and resilience, team unity, gaining experiential knowledge, and reflection on their lives.[24, 25]

Limitations

This study had some limitations. First, it was conducted in a single institution among frontline healthcare workers in acute care settings, reducing its generalizability. Second,

to minimize the further spread of COVID-19, we used an online survey with open-ended questions. This meant there were no opportunities for further probing, which would have been possible in face-to-face individual interviews. This was also a short-term study with only three months between the two surveys. Future studies should explore experiences in the longer term.

CONCLUSIONS

This study explored experiences during the first wave of COVID-19 in Japan, in spring 2020, and during the summer lull in the pandemic. Healthcare workers were concerned about the uncertainty of the situation, including fear of infection due to lack of PPE, worry about the impact on family members, and drastic changes in their work environment. To maintain the mental health of healthcare workers during disasters, prior mental health education, work adjustments, and workplace considerations are necessary. It is important to apply a balance of information to help staff adjust to their new work environment, as well as support to minimize the burden of infection and impact on their families.

Acknowledgements

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Author Statement

All authors contributed towards the concept and design of the study. TM, DK, and FT acquired the data through web-based surveys. MK, who is an expert in qualitative analysis, conducted the qualitative analysis, with YA contributing. MK and YA prepared the first

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429 draft of the manuscript, with all authors contributing towards the review and approval of
430 the final draft.

431

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434 commercial or not-for-profit sectors.

435

436 **Conflicts of Interest**

437 The authors declare that there is no conflict of interest.

438

439 **Patient consent for publication**

440 Not required.

441

442 **Ethical approval**

443 This study was approved by the institutional review board of St Luke’s International
444 Hospital in Tokyo, Japan (Number: 20-R003). We sent a letter of informed consent to
445 the participants via email, and questionnaire completion was considered to provide
446 consent. Study participants were assured of anonymization of personal information.

447

448 **Data availability statement**

449 All data relevant to the study are included in the article.

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REFERENCES

1. Reger MA, Piccirillo ML, Buchman-Schmitt JM. COVID-19, mental health, and suicide risk among health care workers: looking beyond the crisis. *J Clin Psychiatry* 2020;81:20com13381.
2. Japanese Ministry of Health, Labour and Welfare. Open data. <https://www.mhlw.go.jp/stf/covid-19/open-data.html>
3. Verhoeven V, Tsakitzidis G, Philips H, et al. Impact of the COVID-19 pandemic on the core functions of primary care: will the cure be worse than the disease? A qualitative interview study in Flemish GPs. *BMJ Open* 2020;10:e039674.
4. Joo JY, Liu MF. Nurses' barriers to caring for patients with COVID-19: a qualitative systematic review. *Int Nurs Rev* 2021;42:760–71.
5. Matsuo T, Kobayashi D, Taki F, et al. Prevalence of health care worker burnout during the coronavirus disease 2019 (COVID-19) pandemic in Japan. *JAMA Netw Open* 2020;3:e2017271.
6. Matsuo T, Taki F, Kobayashi D, et al. Health care worker burnout after the first wave of the coronavirus disease 2019 (COVID-19) pandemic in Japan. *J Occup Health* 2021 Jan;63:e12247.
7. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res* 2005;15:1277–88.
8. Graneheim UH, Lindgren BM, Lundman B. Methodological challenges in qualitative content analysis: A discussion paper. *Nurse Educ Today* 2017;56:29–34.
9. Guba EG. Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology Journal* 1981;29:7591.
10. Anney VN. Ensuring the quality of the findings of qualitative research: looking at

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trustworthiness criteria. *J Emerg Trends Educ Res Policy Studies (JETERAPS)* 2014;5:272–81.

11. Mishel MH. Uncertainty in illness. *Image J Nurs Sch* 1988;20(4):225–32.

12. Fawaz M, Samaha A. The psychosocial effects of being quarantined following exposure to COVID-19: A qualitative study of Lebanese health care workers. *Int J Soc Psychiatry* 2020;66:560–5.

13. Sougou NM, Diouf JB, Diallo AA, et al. Risk perception of COVID-19 pandemic among health care providers: qualitative study conducted at the King Baudoin Hospital in Guédiawaye, the first hospital faced with managing a community-acquired COVID-19 case in Senegal. *Pan Afr Med J* 2020;37(Suppl 1):23.

14. Unoki T, Tamoto M, Ouchi A, et al. Personal protective equipment use by healthcare workers in intensive care unit during the COVID-19 pandemic in Japan: comparative analysis with the PPE-SAFE Survey. *Acute Med Surg* 2020;7:e584.

15. Digby R, Winton-Brown T, Finlayson F, et al. Hospital staff well-being during the first wave of COVID-19: staff perspectives. *Int J Ment Health Nurs* 2020;30:440–50.

16. Yamada H, Yamaguchi H, Yoshida H, et al. A survey report on mental and physical health and mental health measures of public health nurses dispatched to the areas affected by the Great East Japan Earthquake. *Journal of Public Health Nurses* 2015;71:140–7 (in Japanese).

17. Nukui H, Midorikawa S, Murakami M, et al. Mental health of nurses after the Fukushima complex disaster: a narrative review. *J Radiat Res* 2018;59(suppl_2):ii108–13.

18. Asaoka H, Koido Y, Kawashima Y, et al. Post-traumatic stress symptoms among

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Enseignement Supérieur (ABES).

- 500 medical rescue workers exposed to COVID-19 in Japan. *Psychiatry Clin Neurosci*
 501 2020;74:503–5 (in Japanese).
- 502 19. Kobayashi M, Misawa T, Komagata Y, et al. Stress response and related factors of
 503 nurses who participated in disaster relief activities. *Journal of Japan Society of*
 504 *Disaster Nursing* 2011;12:47–57 (in Japanese).
- 505 20. Yonemoto K. Influence of post-earthquake experiences on attitudes toward leaving
 506 and changing jobs among doctors and nurses in a disaster-affected area: findings for
 507 disaster retention management in hospitals. *Journal of the Japanese Society for*
 508 *Healthcare Management* 2016;9:13–9 (in Japanese).
- 509 21. Umeda M, Chiba R, Sasaki M, et al. A literature review on psychosocial support for
 510 disaster responders: qualitative synthesis with recommended actions for protecting
 511 and promoting the mental health of responders. *Int J Environ Res Public Health*
 512 2020;17(6):2011.
- 513 22. Sun N, Wei L, Shi S, et al. A qualitative study on the psychological experience of
 514 caregivers of COVID-19 patients. *Am J Infect Control* 2020;48:592–8.
- 515 23. Travers JL, Schroeder K, Norful AA, et al. The influence of empowered work
 516 environments on the psychological experiences of nursing assistants during
 517 COVID-19: a qualitative study. *BMC Nurs* 2020;19:98.
- 518 24. Aughterson H, McKinlay AR, Fancort D, et al. Psychosocial impact on frontline
 519 health and social care professionals in the UK during the COVID-19 pandemic: a
 520 qualitative interview study. *BMJ Open* 2021;11:e047353.
- 521 25. Eftekhari Ardebili M, Naserbakht M, Bernstein C, et al. Healthcare providers
 522 experience of working during the COVID-19 pandemic: a qualitative study. *Am J*
 523 *Infect Control* 2021;49(5):547–54.

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526 **FIGURE LEGENDS**
527 **Figure 1.** Events related to the study during the pandemic, mapped against number of
528 daily confirmed COVID-19 cases in Japan
529

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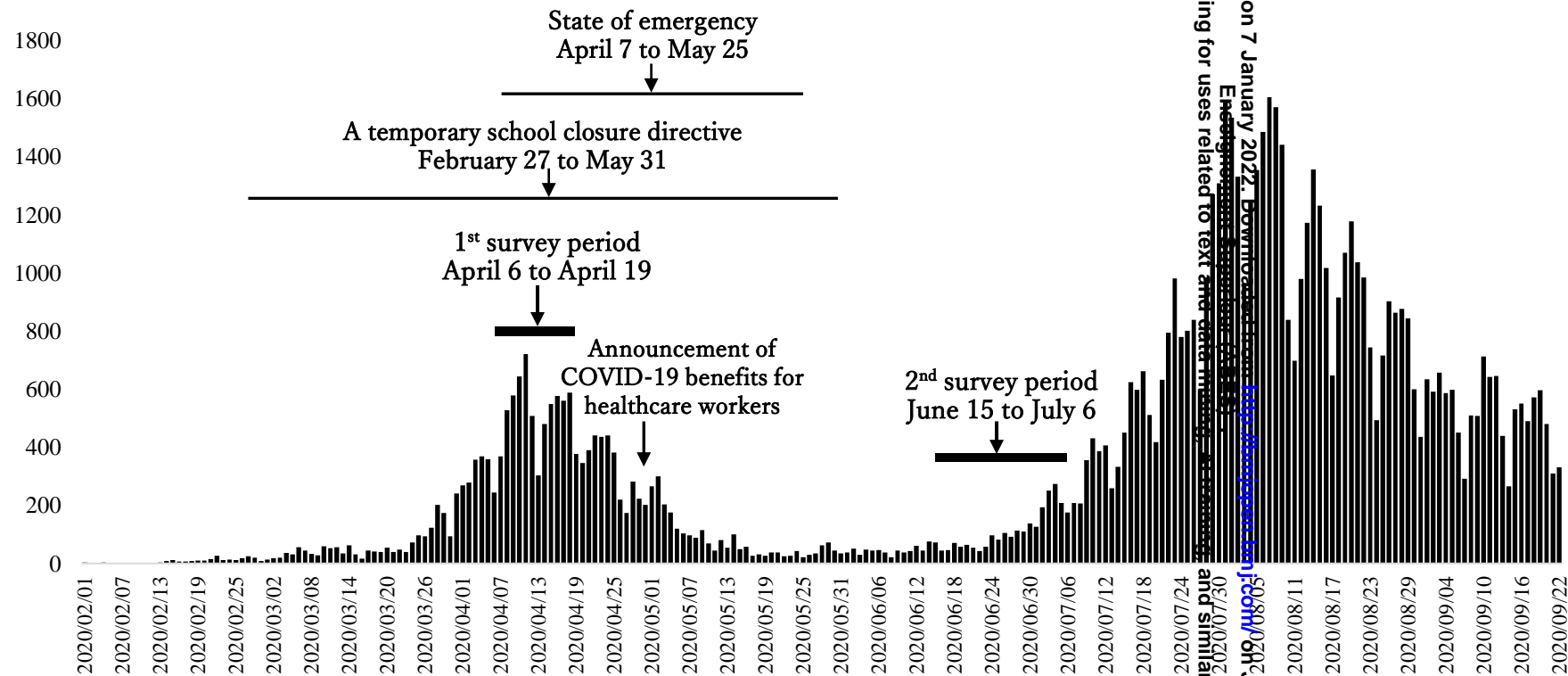


Figure 1. Events related to the study during the pandemic, mapped against number of daily confirmed COVID-19 cases in Japan

1 **1st Survey**

- 2 • Gender: Male/ Female
- 3
- 4 • Age: 20–29 / 30–39 / 40–49 / 50–59 / over 60 years
- 5 • Occupation: Physician / Nurse / Nursing assistant / Laboratory medical
- 6 technician Radiological technician / Receptionist / Other
- 7
- 8 • Department: Emergency, ICU / Ward (Internal) / Ward (Surgical) / Outpatient /
- 9 Other
- 10
- 11 • Experience, years
- 12 • Amount of contact with patients with COVID-19 (average) days/week
- 13 • Involvement with COVID-19-related work (average) days/week
- 14 • Work per week for the past month (average) hours/day
- 15 • Sleep duration per night for the past month (average) hours/day
- 16 • Time off per month (average), days
- 17 • Have you wished for a reduced workload during the past month? Yes/ No
- 18 • How much are you stressed or worried about the following aspects of COVID-
- 19 19?
- 20 Not at all / Somewhat / Quite a bit / Very
- 21 • Getting COVID-19
- 22 • Transmission to family members
- 23 • Transmission to coworkers and friends
- 24 • Transmission to patients
- 25 • The need to refrain from going out
- 26 • Unfamiliarity with PPE
- 27 • Lack of daily necessities such as surgical masks and toilet paper.
- 28 • Childcare
- 29 • Other

- Maslach Burnout Inventory–General Survey (Japanese Version)
- Changes compared with before the pandemic, Not at all / Somewhat / Quite a bit /
- Very
- Increased working hours
 - Increased workload
 - Unhealthy diet
 - Decreased sleep duration
 - Decreased exercise duration
 - Excessive caffeine/alcohol
 - Decreased relaxation time
- How much of the following support do you feel you need in your current work environment due to COVID-19? Not at all necessary / Neither necessary nor unnecessary / Somewhat necessary / Fairly necessary
- Additional day off
 - Workload reduction
 - Staff increase
 - Expectation of appreciation or respect
 - Extra bonus
 - Educational resources for stress coping
 - Childcare support
 - Counseling by specialist such as occupational physician and psychotherapist*
 - Other
- *Only those who said “Somewhat necessary” or “Fairly necessary” for item* above should move to the following question
- Is there any support that you wish you had? (Any comments)
 - Would you like any counseling? (Optional) Yes/ No

2nd Survey

- Responded to the 1st survey: Yes / No
- Gender: Male/ Female
- Age: 20–29 / 30–39 / 40–49 / 50–59 / over 60 years
- Occupation: Physician / Nurse / Nursing assistant / Laboratory medical technician
- Radiological technician / Receptionist / Other
- Department: Emergency, ICU / Ward (Internal) / Ward (Surgical) / Outpatient / Other
- Experience, years
- Amount of contact with patients with COVID-19 (average) in the last 2 weeks, days/fortnight
- Involvement with COVID-19-related work (average) in the last 2 weeks, days/fortnight
- Work per week for the past week (weekday, average), hours/day
- Work per week for the past week (days off, average), hours/day
- Sleep duration per night for the past month (weekday, average), hours/day
- Sleep duration per night for the past month (days off, average), hours/day
- Time off per month (average), days
- Have you wished for a reduced workload in the past month? Yes / No
- How much are you stressed or worried about the following aspects of COVID-19? Not at all / Somewhat / Quite a bit / Very
 - Getting COVID-19
 - Transmission to family members
 - Transmission to coworkers and friends
 - Transmission to patients
 - The need to refrain from going out
 - Unfamiliarity with PPE
 - Lack of daily necessities such as surgical masks and toilet paper.
 - Childcare
 - Income
 - Other

- Burnout Inventory–General Survey (Japanese Version)
- Changes compared with the peak of pandemic (March–April 2020)
- Deteriorated / Improved / No change
- Working hours
 - Workload
 - Healthy eating habits
 - Sleep duration
 - Exercise
 - Excessive caffeine/alcohol
 - Relaxation time
 - Factors that helped reduce physical or mental burden (multiple answers possible)
 - Reduction in infections
 - Improved working environment
 - Staffing changes
 - Getting used to dealing with the pandemic
 - Messages of encouragement at the workplace
 - Delivery of COVID-19-related information
 - PPE education opportunities
 - Support for childcare
 - Support from family members
 - Support from society
 - Mental health support
 - Support for accommodation
 - Support for special leave
 - Implementing online conferencing tools
 - Other
 - Is there any support that you wish you had? (Any comments)
 - Would you like any counseling? (Optional) Yes/ No

Research checklist based on standards for reporting qualitative research (SRQR) guideline

Concerns and desires of healthcare workers caring for patients with COVID-19 in April and July 2020 in Japan: a qualitative study of open-ended survey comments.		
Items	Current study (clean copy of the revised manuscript)	
Item 1. Title: Concise description of the nature and topic of the study. Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended.	Page 1, lines 1–3	
Item 2. Abstract: Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions.	Pages 3–4, lines 41–65	
Item 3. Problem Formulation: Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement.	Pages 5–6, lines 78–102	
Item 4. Purpose or research question: Purpose of the study and specific objectives or questions.	Page 6, lines 97–98	
Item 5. Qualitative approach and research paradigm: Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., post-positivist, constructivist/interpretivist) is also recommended; rationale.	Page 7, lines 129–138	
Item 6. Researcher characteristics and reflexivity: Researchers’ characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers’ characteristics and the research questions, approach, methods, results and/or transferability.	Page 7, lines 138–147	
Item 7. Context: Setting/site and salient contextual factors; rationale.	Page 6, lines 106–117	
Item 8. Sampling strategy: How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale.	Pages 6–7, lines 106–117, 120–126	
Item 9. Ethical issues pertaining to human subjects: Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues.	Pages 8–9, lines 164–169 Page 21, lines 443–446	
Item 10. Data collection methods: Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale.	Pages 6–7, lines 120–126, Triangulation is covered in lines 151–159 (page 8).	
Item 11. Data collection instruments and technologies: Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection, if/how the instrument(s) changed over the course of the study.	Pages 6–7, lines 120–126, and supplement 1 (survey instruments)	
Item 12. Units of study: Number and relevant characteristics of participants, documents, or events included in the study; level of participation.	Pages 6-7, lines 106–117, page 9, lines 176–183 and Table 1.	

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Item 13. Data processing: Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding and anonymization / de-identification of excerpts.	Page 8, lines 164–168
Item 14. Data analysis: Process by which inferences, themes, etc. were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale.	Pages 7–8, lines 129–147
Item 15. Techniques to enhance trustworthiness: Techniques to enhance trustworthiness and credibility of data analysis, (e.g., member checking, triangulation, audit trail); rationale.	Page 8, lines 150–161
Item 16. Synthesis and interpretation: Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory.	Pages 9–16 (Results) described the themes. Pages 16–19 (Discussion) discuss the findings
Item 17. Links to empirical data: Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings.	Pages 9–16 (Results) described quotes.
Item 18. Integration with prior work, implications, transferability, and contribution(s) to the field: Short summary of main findings, explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field.	Pages 16–19 (Discussion)
Item 19. Limitations: Trustworthiness and limitations of findings	Pages 19–20, lines 403–409
Item 20. Conflicts of interest: Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed.	Page 21, line 437
Item 21. Funding: Sources of funding and other support; role of funders in data collection, interpretation, and reporting.	Page 21, lines 433–434

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Acad Med. 2014;89(9):1245-1251.