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DISCUSSION PAPER

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COVID-19 and nursing research across five countries/regions: Commonalities and recommendations

Eun-Ok Im[1] | Reiko Sakashita[2] | Eui Geum Oh[3] | Hsiu-Min Tsai[4] | Ching-Min Chen[5] | Chia-Chin Lin[6] | Linda McCauley[1]

[1]School of Nursing, Nell Hodgson Woodruff School of Nursing, Emory University, Atlanta, Georgia, USA

[2]College of Nursing art and Science, University of Hyogo, Hyogo, Japan

[3]College of Nursing, Yonsei University, Seoul, South Korea

[4]Department of Nursing, Chang Gung University of Science and Technology, Taoyuan City, Taiwan

[5]Department of Nursing, National Cheng Kung University, Tainan, Taiwan

[6]School of Nursing, University of Hong Kong, Hong Kong, CN, China

Correspondence
Eun-Ok Im, School of Nursing, Nell Hodgson Woodruff School of Nursing, Emory University, 1520 Clifton Rd, Atlanta, GA 30322, USA.
Email: eun.ok.im@emory.edu

Abstract

With the recent impact by the COVID-19 pandemic, nursing research has gone through unexpected changes across the globe. The purpose of this special report is to present the commonalities in the impact of the COVID-19 pandemic on nursing research across four countries, including the United States, South Korea, Japan, and Taiwan, and one region, that is, Hong Kong, and to make recommendations for future nursing research during the immediate postpandemic period and future pandemic situations. To identify the commonalities, seven researchers/leaders from the five countries/regions had discussions through 3 days of an international workshop. The content for this discussion paper derived from: (a) the exemplars/cases of the COVID-19 impact on the research process, (b) researchers/leaders' presentations on the COVID-19 impact, and (c) memos from the workshop. The materials were analyzed using a simple content analysis. The commonalities included: (a) "a heavy emphasis on teaching and fluctuating productivity," (b) "increased funding opportunities and governmental support," (c) "gendered experience complicated by professional differences," (d) "delays and changes/modifications in research process," (e) "limited research settings and difficulties in getting access," and (f) "increased online dissemination activities with positive changes in the image of nursing." With all collective wisdom that nurse researchers have obtained during the COVID-19 pandemic, nursing research will evolve again for the successful future of the nursing discipline.

KEYWORDS

Asia, COVID-19, global, nursing research, pandemics

1 | INTRODUCTION

Across the globe, the COVID-19 pandemic has been a serious threat to the health of all people from December 2019 when the first case was reported (Centers for Disease Control and Prevention [CDC], 2020). Many organizations, including the World Health Organization (WHO), the CDC, and nonprofit and for-profit entities, have collaborated to assist all the countries and regions across the globe to adequately and promptly prepare for and respond to COVID-19 (CDC, 2020). Despite these efforts, the control of COVID-19 has been a tremendous challenge to everyone throughout countries and regions with distinct cultures. Nurses, in particular, have been on the front line of this battle with the pandemic continuously and worked closely in various settings to care for the increasing number of COVID-19 positive patients (Lake, 2020).

Nursing research has been a major part of the nursing discipline to generate and advance nursing knowledge across the globe

(Meleis, 2011). After the first nursing research study by Nightingale was conducted at the battlefield of the Crimean War in 1859 (Moody, 1990), nursing research has gone through a number of evolutionary and revolutionary changes throughout nursing history (Stolley et al., 2000). Until the 1950s, nursing research was mainly conducted only in the areas of nursing education and administration. Yet, the scope of nursing research has expanded to collaboration with interdisciplinary researchers across various settings, and many new areas, such as nursing informatics, data science, and precision health have emerged (Stolley et al., 2000). Nurses globally have witnessed these evolutionary and revolutionary changes throughout nursing communities with different cultures.

With the recent impact by the COVID-19 pandemic, nursing research has gone through unexpected tremendous changes across countries and regions (Chen et al., 2020). The COVID-19 situations in individual countries and regions, however, varied depending on their unique contexts. For instance, Taiwan has effectively controlled the pandemic, and had only few domestic cases diagnosed with COVID-19 and a lower mortality rate compared with other countries/regions. Subsequently, most Taiwanese people have been maintaining their normal daily life and activities, and there have been no drastic changes in nursing research. On the contrary, in Japan, about 81.9% of nurse researchers reported that their research activities had been hampered by the COVID-19 pandemic (Japan Academy of Nursing Science, 2021).

The purpose of this special report is to present the commonalities in the impact of the COVID-19 pandemic on nursing research across five countries/regions, including the United States, South Korea, Japan, Taiwan, and Hong Kong, and to make recommendations for future nursing research during the immediate postpandemic period and future pandemic situations. First, the basis for this discussion paper is provided with details on the approach that was used to provide the evidence to support our discussion points. Second, the commonalities in the impact of the COVID-19 pandemic on nursing research across five countries/regions are discussed with supporting evidence. Finally, recommendations for future nursing research are made.

2 | THE PROCESS FOR DEVELOPING THE CONTENT

To identify the commonalities in the impact of the COVID-19 pandemic on nursing research across the countries/regions, seven researchers/leaders from the five different countries/regions had discussions through 3 days of an international workshop in November 2020 that was hosted by a US university in a Southern region. The researchers/leaders were invited based on their leadership positions (deans, nursing directors, and presidents). A total of 10 researchers/leaders in academia, hospitals, organizations, and governmental agencies were invited based on the recommendations by five deans/former deans at schools of nursing across the countries. Among them, seven researchers/leaders agreed to participate in the workshop. Before the workshop, the researchers/leaders compiled/provided the cultural exemplars/cases of the COVID-19 impact on nursing research in their own countries/regions in tables. The tables were structured by research methodology component, including study design, settings and samples, instruments/measurements, interventions, data collection methods, and data analysis process. The researchers/leaders collected the information on the impact of COVID-19 in these components of research methodology and summarized the information in the tables. The researchers/leaders also conducted literature reviews in their own countries/regions and provided the references supporting the COVID-19 impact that they included in the tables (including both general and culture-specific). Each researcher/leader provided about 10–15 pages of tables with the information and references. At the workshop, the researchers/leaders made presentations about the COVID-19 impact on nursing research in their own countries/regions and had group discussions through four closed sessions. To identify the evidence to support our discussion points, all the presentation files, discussion memos from the workshop, and the tables with supporting references were analyzed using a simple content analysis. The unit of analysis was individual phrases. First, line-by-line coding was done on all the materials. Then, categorization was done by grouping the codes in several categories to reflect similar issues. Finally, the categories were compared and grouped to extract the themes reflecting commonalities in the impact of the COVID-19 on nursing research. The themes were discussed through a series of discussions in the closed sessions and finalized upon unanimous agreement by all the researchers/leaders. Then, all the reviewers/leaders reviewed the themes one by one to make recommendations for future nursing research during the immediate postpandemic periods and future pandemic situations. The recommendations were summarized and finalized upon the unanimous agreement by all the researchers/leaders. Then, after the workshop, all the researchers/leaders reflected on the impact that they presented and discussed, and provided their updates on the impact. Also, a series of email discussions were conducted among the researchers/leaders to refine the themes and recommendations. Then, the themes and recommendations were reviewed and approved by all the researchers/leaders. The evidence from this content analysis and the literature reviews were used to support the discussion points that were made below.

3 | COMMONALITIES ACROSS THE COUNTRIES/REGIONS

3.1 | "A heavy emphasis on teaching and fluctuating productivity"

Across countries/regions, a heavy emphasis was given to teaching efforts during the COVID-19 pandemic. For instance, in Japan, most nurse researchers were faculty members in university settings whose first priority was education. Thus, during the COVID-19 pandemic, faculty members spent a disproportionate amount of time on

education, such as video-lecturing using Zoom and checking on the safety of students. In a recent survey by the Japan Academy of Nursing (Japan Academy of Nursing Science, 2021), 65.2% of the participants said that their research time was significantly reduced and 88.9% of nursing researchers were unsure about their own research activities due to uncertainty about the future. Also, in the United States, most nurse researchers were faculty members in university settings, and their teaching efforts had dramatically increased during the COVID-19 pandemic due to the adjustment of teaching methods and re-assignments of clinical rotations. Yet, in Hong Kong, about 30% of faculty members in nursing were on the research track, and about 70% of them were on the teaching track. Those on the research track did not have heavy teaching loads during the COVID-19 pandemic.

With the heavy teaching burden among nurse researchers, significant fluctuations in productivity were noted in many countries. Although there were an increasing number of manuscript submissions in the United States, Hong Kong, and Taiwan, the researchers/leaders from South Korea, and Japan reported a large decrease in the number of manuscript submissions in their major journals. For example, in the Korean Journal of Adult Nursing, one of the top nursing journals in South Korea, the number of manuscript submissions had halved from the February–March 2020 period to the April–May 2020 period (from 30 to 14). The decrease between the same periods of 2019 was from 31 to 21.

3.2 | "Increased funding opportunities and governmental support"

Across the countries/regions, researchers/leaders noticed increased funding opportunities for COVID-19 related research. For instance, in the United States, the National Institutes of Health had published an increasing number of funding opportunities during the COVID-19 pandemic period; by December 2020, about 100 funding opportunities were announced through the notices of special interest, requests for applications, program announcements, and program announcements with special receipt, referral, and/or review. Also, in South Korea, the government provided increased grant opportunities specific for the diagnosis, treatment, epidemiology, and care related to COVID-19. A total of 60 grants with $20 million dollars had been announced. In Japan, the government invested 1.5 billion dollars on COVID-19-related research through various agencies, including the Japanese National Institute of Infectious Diseases, the Japan Agency for Medical Research and Development, and the Japan Ministry of Health, Labour and Welfare (Prime Minister of Japan and His Cabinet, 2020).

In the United States and Taiwan, junior faculty members rarely benefited from the increasing funding opportunities during the COVID-19 pandemic. For instance, in the United States, despite the increasing funding opportunities during the COVID-19 pandemic, very few nurse researchers, especially junior researchers, applied for the funding opportunities due to their lack of competence in shifting their focus to any topics and populations related to the COVID-19. The research mentoring tended to focus on development of coherent research programs in terms of topics, populations, and research methods, which might prohibit junior faculty members from shifting their focus in their topics, populations, or research methods to fit with COVID-19. However, in Hong Kong, Japan, and South Korea, nursing faculty members including junior faculty members did not report any difficulties in shifting their focus of research to COVID-19-related topics, which was a contrast to those in the United States and Taiwan.

The funding situation, furthermore, differed depending on the countries/regions due to their different cultural and academic contexts. For example, because the research studies that were funded by the Japanese government tended to be medical studies with a focus on development of diagnostic methods, therapeutic methods, and vaccines (Prime Minister of Japan and His Cabinet, 2020), nurse researchers in Japan rarely received large budget grants as principal investigators. Yet, there were more opportunities for nurse researchers in Japan to receive funding from local governments, universities, and the private sector during the pandemic if the topics were related to people's health and lives (although the amount of funding was generally <1 million yen). Indeed, some faculty members including adjunct faculty members in Japan received this kind of small research grant during the pandemic.

3.3 | "Gendered experience complicated by professional differences"

All the researchers/leaders across the countries/regions remarked about the gendered experience of nurse researchers during the COVID-19 pandemic. Across the countries/regions, nurse researchers tended to be women, which reflected the current gender composition of nurses in general across the countries/regions. For instance, 82% of registered nurses were female in the United States (Equitable Growth, 2017); about 85% were female in Hong Kong (Department of Health the Government of Hong Kong Special Administrative Region, 2021); and over 90% were female in Japan (Japan Ministry of Health Labour and Welfare, 2018) and in Taiwan (Taiwan Department of Gender Equality, 2021). With a high percentage of women among nurse researchers, the pandemic harshly affected nurse researchers because women were usually the ones who took care of their household tasks, children, and elderly due to gender stereotypes and roles across the countries/regions.

In Asian countries/regions (including South Korea, Japan, Taiwan, and Hong Kong) especially, their gender stereotypes and roles based on strong long-time patriarchal cultures made women researchers suffer more from multiple roles while working at home. For instance, in Japan, even in dual-earner households, 80% of men did not do housework and 70% did not take care of children (Japan Gender Equality Bureau Cabinet Office, 2020). Women's burden of housework and childcare had increased under the COVID-19 pandemic (The Shizuoka Shimbun, 2020). In their traditional cultures

across Asian countries/regions, women were mainly in charge of household tasks and their activities were restricted in their homes (Dibble et al., 2019; Spector, 2012). Although multiple religions are currently practiced in all countries/regions, individual countries had their unique histories of national religions in the past (e.g., Confucianism in Taiwan and Korea, and Shintoism in Japan), which had great influences on traditional gender roles in their patriarchal cultures. For example, in Korean traditional culture, women were called Ansaram (inside person), and men were called Bakatsaram (outside person). In other words, women were in charge of all the household matters (e.g., cooking, preparing clothes, cleaning, etc.), child-care, and elder-care that happened inside their houses. Men were in charge of all the matters that happened outside their houses (e.g., breadwinning). Even in these modern days, women are still mainly in charge of household tasks, child-care, and elder-care even when they are employed (working outside their homes). Thus, these traditional gender roles made women researchers in charge of all the household tasks, child-care, and elder-care while working at home, which had detrimentally affected nurse researchers in their research productivity in general.

With the awareness of the difficulties facing women researchers, governmental and institutional supports had often been provided to them across the countries/regions. For instance, in Taiwan, to encourage and support women to devote themselves to scientific and technological research careers, the Taiwan Ministry of Science and Technology specifically provided research funding to "encourage women to engage in scientific and technological research projects" in 2020 (Taiwan Ministry of Science and Technology, 2020). In the United States, some universities provided child-care services for their faculty members during the pandemic. Yet, it was reported that not many faculty members used the child-care services. The situation was worse for nurse researchers working with COVID-19 patients in clinical settings. Across the countries/regions, stigmatization of nurses working with COVID-19 patients was often reported, subsequently complicating their research experience during the pandemic.

In addition to the gender differences, professional differences in the impact of the pandemic were noticed across the countries/regions. In Taiwan culture, compared with other health professions including medicine, nurses were more involved in direct communication and care of COVID-19 patients; nurses in hospitals needed to plan educational training programs, create health education videos for the readiness of epidemic prevention materials, make administrative protocols to protect the safety of personnel, and accomplish interdisciplinary practice (Hu et al., 2020). Similar differences were noted in South Korea, Japan, and Hong Kong. These increased roles of nurses during the pandemic complicated the gendered experience of nurse researchers that was described above. However, few studies on nurses were conducted by nurse researchers during the pandemic. The researchers/leaders from the United States pointed out that the funding priorities of nursing research funded by governmental agencies rarely included studies on nurses themselves. For example, the National Institute of Nursing Research (NINR) rarely funded studies about nurses themselves; rather, the priorities had been given to nursing clients.

3.4 | "Delays and modifications in research process"

Across the countries/regions except Taiwan, the researchers/leaders witnessed drastic delays in the overall research process and modifications in study designs, data collection methods, interventions, and data analysis process during the COVID-19 pandemic. Table 1 summarizes the current status of ongoing funded nursing studies in individual universities or institutes of the researchers/leaders who participated in this paper. First of all, across all the countries/regions except Taiwan, the researchers/leaders witnessed delays in overall administrative processes related to research projects (e.g., funding administration and institutional review board [IRB] approval) during the COVID-19 pandemic. For instance, in the United States, individual universities needed to make policies related to campus closures and subsequent safety measures on the campus. Then, they needed to make other necessary changes in research administrative processes required for the campus closures (e.g., policies related to biomarker labs, policies related to research staff members on the campus, policies related to human subject protection in research, policies related to communication during the pandemic, etc.). With these changes, the researchers/leaders in the United States needed to make modifications in their research protocols, which consequently delayed the overall research process.

During the pandemic, nurse researchers across all the countries/regions needed to make modifications in study designs, data collection methods, interventions, and data analysis process. The researchers/leaders from the United States talked about limitations in designing new studies under the pandemic (e.g., no in-person clinical trials; Cole et al., 2018; Ueda et al., 2020). Also, ongoing studies needed to be redesigned while adjusting to the new research environments under the pandemic (e.g., from in-person clinical trials to online home trials; Cole et al., 2018; Ueda et al., 2020). They experienced inconsistent policies related to research across different schools within the same university and across different universities. There were increasing usages of online platforms. Under the pandemic, it became impossible to perform some measurements (e.g., in-person measurements of weight and height) and in-person interventions. The usages of mails and phone calls in data collection and interventions had also increased drastically.

The circumstances were similar in other countries/regions. In Japan, researchers experienced limitations in designing new studies under the COVID-19 pandemic (e.g., no in-person clinical trials or no in-person fieldwork with communities; Japan Academy of Nursing Science, 2021). All the ongoing studies needed to be redesigned to fit with the changing research environments (e.g., from in-person interviews to remote interviews by phone, data collection while keeping social distance, data collections through online; Enago Academy, 2021). About 72.4% of nurse researchers reported that

TABLE 1 Delays in nursing research across the locations

	A University in the United States N (%)	B University in Taiwan[a] N (%)	C University in South Korea N (%)	D University in Japan N (%)	E University in Hong Kong N (%)
# Of ongoing funded nursing studies	23 (100)	32 (100)	37 (100)	28 (100)	69 (100)
# Of nursing studies stalled/stopped	16 (60.6)	0 (0)	3 (8.1)	25 (89.3)	28 (41)
# Of nursing studies with protocol changes	13 (56.5)	13 (40.01)	10 (27.0)	17 (60.7)	13 (19)
# Of nursing studies with delays in recruitment	16 (60.6)	10 (31.2)	24 (64.9)	21 (75.0)	44 (64)
# Of nursing studies with difficulties in progress	17 (73.9)	0 (0)	2 (5.4)	25 (89.3)	42 (61)

[a]The number of funded studies in B University in Taiwan is the number of the funded nursing studies by Ministry of Science and Technology (MOST).

their research was totally stopped or delayed by the difficulty in meeting and recruiting research subjects (Japan Academy of Nursing Science, 2021). They had also seen an increasing number of studies using online platforms (Japan Academy of Nursing Science, 2021). Longitudinal research was no longer possible due to the reorganization of hospital wards in response to the pandemic crisis (Japan Academy of Nursing Science, 2021). In South Korea, nurse researchers faced unexpected difficulties in conducting studies that directly involved human subjects. Especially in qualitative studies, research participants were not willing to show their faces on Zoom meetings due to the possibility of disclosing their identities to unknown people. Thus, they were asked to wear masks or sunglasses to cover their faces during the Zoom meetings. Or interviews were conducted through phone calls.

Frequent delays in data analysis process were also noted in some countries/regions. For instance, in the United States, Hong Kong, and Japan, obvious delays in data analysis process were noted by the researchers/leaders from the countries. The researchers/leaders from the United States mentioned that most delays in data analysis were in the data analyses of biomarkers that were greatly influenced by the access to the biomarker labs. The leader/researcher from Hong Kong mentioned about the difficulties in remote usages of data analysis software due to software license issues in their countries. In Japan, data analysis was delayed because some universities were locked down and faculty members subsequently could not use the analysis software. However, in Taiwan and South Korea, the researchers/leaders did not notice obvious delays in data analysis process because most nursing studies tended not to involve biomarkers and because their data analysis software licenses allowed the remote usages of the software.

3.5 | "Limited research settings and difficulties in getting access"

Due to the COVID-19 pandemic, limitations in access to all research settings were noted across the countries/regions. In the United States, the researchers' access to clinics and hospitals was strictly limited due to the safety and quarantine measures with social distancing and the requirements of personal protective equipment. In Hong Kong, the order of "work from home" was made by all the universities, while public hospitals and long-term care facilities restricted visitors. All the visitors to hospital authority hospitals had been banned since the end of January 3, 2020. Research facilities, such as clinics and sports centers at Hong Kong University, were closed temporarily during the pandemic. In South Korea, data collection was mostly prohibited from clinics, hospitals, and community centers. Even when data collection was permitted, there were difficulties in getting the institutions' or facilities' cooperation. Due to the pandemic situation, some ongoing community health programs were discontinued, which subsequently restricted the data collection among community participants.

Nurse researchers in Japan had more limited access to clinics, institutes, communities, and home settings compared with those in other countries/regions (Japan Academy of Nursing Science, 2021). Data collection was not allowed in most hospitals, clinics, and home settings. Subsequently, the number of potential participants in all settings decreased drastically with a decreasing number of newly diagnosed cases of diseases/conditions. Because of the pandemic, people were hesitant to seek medical care, which subsequently delayed the diagnosis of diseases/conditions. In addition, a heavy burden on hospital staff nurses was frequently reported because research studies during the pandemic intensely involved hospital nurses and many studies with similar objectives and content were duplicated among hospital nurses. Due to this heavy burden, it became difficult to get cooperation in nursing research from those involved in patient care. Furthermore, many research settings, such as medical institutions or facilities, were closed due to reduced business operations. Also, there were changes in hospital ward systems to cope with the pandemic, which made some studies be discontinued.

In Taiwan, there were fewer limitations in research settings and difficulties getting access to research settings compared with the other countries/regions. The researchers/leaders from Taiwan described their recent national study supported by their government, which successfully solicited the participation of a large population despite the COVID-19 pandemic. Yet, following the Taiwan government regulations, hospitals and long-term settings had to control visitors' entry and exit (e.g., visits allowed only at a fixed time every day with a limit of two people per patient). Those who needed accompanying family members or visitors needed to fill out specific registration forms and get an approval to allow their family members or visitors to have access to hospitals and long-term facilities. Subsequently, data collection in hospitals and long-term care facilities was somewhat limited.

4 | INCREASED ONLINE DISSEMINATION ACTIVITIES WITH POSITIVE CHANGES IN THE IMAGE OF NURSING

Across all the countries/regions, there had been an increasing number of online workshops, seminars, and conferences to disseminate research findings. For instance, in the United States, all nursing conferences had been converted from an in-person format to an online format. In fall, 2020, the Council for the Advancement of Nursing Science State of the Science Congress on Nursing Research was held virtually. The American Academy of Nursing 2020 Policy Conference was also held virtually. In Japan, most nursing meetings had been converted from an in-person format to an online format. Among 46 nursing academic societies, 41 annual meetings were converted from an in-person format to an online format, four were canceled, and one was converted to a journal format. In South Korea, the Korean Academy of Nursing celebrated its 50th anniversary through a virtual conference, and the annual conferences of all seven subspecialty areas in the Korean Academy of Nursing were virtually held in 2020. In Taiwan, the 2020 Taiwan international nursing conference endorsed by International Council of Nurses was held in a hybrid format, which was successfully completed with 2177 participants in total.

During the COVID-19 pandemic, the image of nurses had been positively changed across the countries/regions, subsequently changing the image of nursing research. For instance, in Taiwan, the visibility of nursing had greatly increased during the pandemic through systematic efforts by the Taiwan Nurses Association. In South Korea, a male critical care nurse who majored in Fine Art disseminated his paintings illustrating nurses working with the COVID-19 patients through social media. His artworks were positively spotlighted by Korean news and media, which subsequently improved the image of nurses and increased the awareness of nurses' values.

5 | RECOMMENDATIONS FOR FUTURE NURSING RESEARCH

On the basis of the commonalities in the impact of the COVID-19 pandemic on nursing research across the five countries/regions that were discussed above, recommendations for future nursing research during the immediate postpandemic period and during other unexpected pandemic situations are made as follows. Table 2 summarizes the recommendations with rationales. First, to effectively deal with the common impact reflected in the theme of "heavy emphasis on teaching and decreased productivity," all the researchers/leaders echoed that the universities and schools of nursing need to provide necessary administrative support, human resources, and technological support that fit with their contexts. Some targeted support (e.g., pilot grants supporting nurses' studies on nursing topics, such as depression, isolation, etc.) would be needed. During the COVID-19 pandemic, most COVID pilot studies aimed at the development of vaccines and treatment strategies. Subsequently, very few nursing studies were funded, and very few nurse scientists received funding. More research investment is needed on nursing priorities (e.g., nurses' mental health issues during the pandemic, safety measures for nurses working with the COVID-19 positive cases) across the countries/regions. Also, modified teaching modes due to the pandemic would require additional research in the areas related to the changes in research education, which would be essential in the immediate postpandemic period. These efforts could prepare nursing researchers to adapt easily to the new changes in research environments and logistics and could promote nursing research in the areas of high nursing priorities.

Second, as the theme of "increased funding opportunities and governmental support" indicated, there were increasing funding opportunities for research in general during the pandemic. Yet, as mentioned above, nursing studies were hardly funded by this type of increased funding opportunities. In future pandemic situations, as nursing schools in Hong Kong did, nursing schools need to provide a pool of funding for nurse researchers to conduct self-funded studies

TABLE 2 Themes reflecting the commonalities and related recommendations with the rationales

Commonalities	Recommendations	Rationales for recommendations
"A heavy emphasis on teaching & fluctuated productivity"	• Need to provide necessary administrative support, human resources support, and technological support • Need to provide some targeted support (e.g., pilot grants supporting nurses' studies on nursing topics, such as depression, isolation, etc.) • Needs to invest more on nursing priorities (e.g., nurses' mental health issues during the pandemic, safety measures for nurses working with the COVID-19 positive cases)	• Could promptly adapt to the new changes in research environments and logistics • Could promote nursing research in the areas of high nursing priorities
"Increased funding opportunities and governmental support"	• Need to provide a pool of funding for nurse researchers to conduct self-funded studies related to the pandemic situations • Need to advocate for nursing studies in interdisciplinary funding agencies, including governmental agencies and hospital agencies • Need to mentor junior faculty members especially in the competence of shifting their research focus to fit with available funding opportunities	• Could support nurse researchers who are frequently left behind due to low priorities given to nursing topics by funding agencies • Could prepare junior faculty members and researchers to successfully get funded in changing funding environments
"Gendered experience complicated by professional differences"	• Need to conduct more studies on differences in the impact of the COVID-19 by gender and profession • Need to conduct more studies on the children of nurses working with positive cases (e.g., stigmatization)	• Could provide the knowledge basis to efficiently and fairly support nursing profession and workforce during unexpected pandemic situations
"Delays and changes/modifications in research process"	• Need to be open to new technologies and innovation for future usages during pandemic situations • Need to develop new models of nursing and new devices/instruments for nursing care during pandemic situations through continuous studies in the areas of nursing priorities by collaborating with multidisciplinary and international teams • Need to mentor junior researchers with necessary knowledge and skills to work with multidisciplinary teams in pandemic situations • Need to start research initiatives in the field of infectious diseases with subsequent necessary changes in nursing education curriculum	• Could prepare nurse researchers to have expertise and experience in innovative approaches/methods • Could prepare nursing profession and workforce to be equipped with competencies and efficiencies to deal with future pandemic situations • Could prepare nurse researchers to be equipped with research competencies to continue research during future pandemic situations
"Limited research settings & difficulties in getting access"	• Need to flexible in selecting research settings and data collection procedures • Need to investigate on research integrity of the new methods of data collection (e.g., potential selection bias, unauthentic cases, elderly with difficulties in using online technologies)	• Could prepare nurse researchers to be equipped with research competencies to continue research during future pandemic situations
"Increased online dissemination activities with positive changes in the image of nursing"	• Need to make continuous research efforts through seminars, workshops, and conferences to improve the visibility and image of nursing during pandemic situations	• Could further improve the visibility and image of nursing

related to the pandemic situations. Also, nurse researchers/leaders need to advocate for nursing studies in interdisciplinary funding agencies, including governmental agencies and hospital agencies, especially during the immediate postpandemic period so that nursing priorities would not be left behind in future unexpected pandemic situations. In addition, nurse researchers/leaders need to be active in raising the awareness on research issues related to nursing care during pandemic situations (e.g., mental health issues, nurses' burnout). Furthermore, mentoring junior faculty members especially in the competence of shifting their research focus to fit with available funding opportunities would be essential during the immediate postpandemic period so that they could be trained and prepared for

future situations with changing research needs and priorities. These efforts could support nurse researchers who are frequently left behind due to low priorities given to nursing topics by funding agencies and could prepare junior faculty members and researchers to successfully get funded in changing funding environments.

Third, as the theme of "gendered experience complicated by professional differences" indicated, women researchers tended to be affected harshly by the COVID-19 pandemic because of gender stereotypes and roles. Since nurse researchers are more likely to be women, the impact of the COVID-19 on their productivity would be greater than other male-dominated professions, such as medicine. Furthermore, professional differences embedded in the cultural contexts of individual countries/regions would complicate the gendered experience of nurse researchers. During the immediate postpandemic period, nurse researchers/leaders need to raise the awareness of gender differences and professional differences in their own cultural contexts. More studies on differences and equity by gender and profession in the impact of the COVID-19 would increase the awareness on the gendered experience of nurse researchers that could be complicated by professional differences during pandemic situations. Also, more studies on the children of nurses working with COVID-19 patients during pandemic situations need to be conducted (e.g., stigmatization of children in child-care). These efforts could provide the knowledge basis to efficiently and fairly support nursing profession and workforce during future unexpected pandemic situations.

Fourth, as the theme of "delays and changes/modifications in research process" indicated, nurse researchers frequently experienced delays in research process and needed to make necessary modifications in their study designs, data collection mode, interventions, and data analysis process because of new national and institutional policies related to the COVID-19 pandemic (e.g., social distancing and no in-person contact). During the immediate postpandemic period, nurse researchers/leaders need to be open to new technologies and innovation and trained to be prepared with expertise and experience in innovative approaches/methods for future usages during unexpected situations. Also, nurse researchers/leaders need to develop new models of nursing and new devices for nursing care during pandemic situations so that nursing could be prepared for future unexpected pandemic situations. In addition, nurse researchers/leaders need to collaborate with multidisciplinary teams to initiate the development of instruments and tools for nursing care during pandemic situations through continuous nursing studies with nursing priorities. Also, nurse researchers/leaders need to mentor junior researchers with necessary knowledge and skills to work with multidisciplinary teams in pandemic situations. For instance, as the theme of "increased funding opportunities and governmental support" indicated, very few nurse researchers could benefit from the increasing funding opportunities because of lack of nurse researchers in the field of infectious diseases except HIV. Thus, during the immediate postpandemic period, nurse researchers/leaders need to start research initiatives in the field of infectious diseases with necessary changes in nursing education curriculum. These efforts could prepare nursing profession and workforce and nurse researchers to be equipped with competencies and efficiencies to deal with future pandemic situations.

Fifth, as the theme of "limited research settings and difficulties in getting access" indicated, nurse researchers had difficulties in recruiting research participants and collecting data due to limitations in research settings and difficulties in getting access to the research settings. To be prepared for future unexpected pandemic situations, nurse researchers need to be trained to be flexible in selecting research settings and data collection procedures. During the immediate postpandemic period, nurse researchers need to make further investigations on research integrity of the new methods of data collection that were adopted and used during the COVID-19 pandemic (e.g., potential selection bias, unauthentic cases, elderly with difficulties in using online technologies). These efforts could prepare nurse researchers to be equipped with research competencies to continue research during future pandemic situations.

Finally, as the theme of "increased online dissemination activities with positive changes in the image of nursing" indicated, the COVID-19 pandemic situation actually increased the visibility of nursing via increased online dissemination activities through virtual conferences, workshops, and seminars and through positive collective efforts to improve the image of nursing (e.g., artworks). During the immediate postpandemic period, by using the momentum obtained from the increased visibility and improved image of nursing in general, nurse researchers/leaders need to further collaborate with multiple disciplines across the globe through seminars, workshops, and conferences to further improve the visibility and image of nursing research. In future pandemic situations, developing collaborative proposals across disciplines and countries/regions would facilitate nurse researchers' international and interdisciplinary collaborative efforts as well.

All the discussion points that are made in this paper need to be carefully interpreted due to some limitations in the evidence that was provided. First, the findings reported in this paper were limited only to the five countries/regions. Furthermore, the findings could be applied only to the specific time point and geographical countries/regions that this discussion was conducted (e.g., limited to the five countries/regions, limited to the period from January 2020 to December 2020). Although we tried to balance the specific examples from all the countries/regions, there existed an imbalance in the specific examples because of researchers/leaders' characteristics and unique situations of individual countries/regions. Finally, the literature reviews included in this paper tended to be selective because: (a) we included only the literature available in individual countries/regions in English and other languages; (b) no consistent approach of literature searches was used across the countries/regions because the databases in individual countries/regions were unique; and (c) individual leaders/researchers intentionally selected the literature to support the discussion points made in this paper.

6 | CONCLUSIONS

In this paper, commonalities in the impact of the COVID-19 pandemic on nursing research across five countries/regions were discussed, and several recommendations for future nursing research were made. With the unexpected COVID-19 pandemic, nurse researchers needed to make changes in many areas of the research process across the countries/regions, and the discussion about these changes provided some directions for future nursing research. With all the collective wisdom that nurse researchers/leaders have obtained during the COVID-19 pandemic, nursing research will evolve again for the successful future of the nursing discipline.

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DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no data sets were generated for this discussion paper.

ORCID

Eun-Ok Im https://orcid.org/0000-0002-7253-7996

REFERENCES

Centers for Disease Control and Prevention. (2020). *Coronavirus disease 2019 (COVID-19)*. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/global-covid-19/index.html

Chen, S.-C., Lai, Y.-H., & Tsay, S.-L. (2020). Nursing perspectives on the impacts of COVID-19. *Journal of Nursing Research*, *28*(3), e85. https://doi.org/10.1097/NRJ.0000000000000389

Cole, A. P., Friedlander, D. F., & Trinh, Q.-D. (2018). Secondary data sources for health services research in urologic oncology. *Urologic Oncology*, *36*(4), 165–173. https://doi.org/10.1016/j.urolonc.2017.08.008

Department of Health, the Government of Hong Kong Special Administrative Region. (2021). *Health manpower survey*. Retrieved from https://www.dh.gov.hk/english/statistics/statistics_hms/statistics_hms.html

Dibble, S., Kwan, S., & Lipson, J. (2019). *Culture & clinical care* (3rd ed.). Amazon.

Enago Academy. (2021). *To continue academic research even in the Corona*. Retrieved from https://www.enago.jp/academy/academia-coping-with-covid-19-crisis/

Equitable Growth. (2017). *More U.S. men are becoming nurses but not entering other traditionally female occupations*. Retrieved from https://equitablegrowth.org/more-u-s-men-are-becoming-nurses-but-not-entering-other-traditionally-female-occupations/

Hu, C. K., Hsieh, T. E., Chung, P. T., Chou, A. N., Liao, Y. M., Chen, L. C., & Wu, H. C. (2020). Experience of nursing staffs in the negative pressure ward of a southern Taiwan medical center during COVID-19 pandemic. *The Kaohsiung Journal of Nursing*, *37*, 1–10.

Japan Academy of Nursing Science. (2021). *Impact on research activities of members of the Japanese Society of Nursing Science (JANS)*. Retrieved from https://www.jans.or.jp/uploads/files/committee/covid19chosa%20sokuho%2020200911rev%202.pdf

Japan Gender Equality Bureau Cabinet Office. (2020). *The White paper on gender equality*. https://www.gender.go.jp/about_danjo/whitepaper/h29/zentai/html/honpen/b1_s03_02.html

Japan Ministry of Health, Labour and Welfare. (2018). *Overview of statistics for doctors, dentists, and pharmacists in 2018*. Retrieved from https://www.mhlw.go.jp/toukei/saikin/hw/ishi/18/index.html

Lake, E. T. (2020). How effective response to COVID-19 relies on nursing research. *Research in Nursing & Health*, *43*(3), 213–214. https://doi.org/10.1002/nur.22025

Meleis, A. I. M. P. (2011). *Theoretical nursing: Development and progress* (5th ed.). Lippincott Williams & Wilkins.

Moody, L. E. (1990). *Advancing nursing science through research* (Vol. 1). Sage Publications Inc.

Prime Minister of Japan and His Cabinet. (2020). *The 1st special committee on international contribution to international infectious disease emergency*. http://www.kantei.go.jp/jp/singi/kokusai_kansen/kokusaikouken_senmon/dai1/siryou3-2(2).pdf

Spector, R. E. (2012). *Cultural diversity in health and illness* (8th ed.). Prentice Hall.

Stolley, J. M., Buckwalter, K. C., & Garand, L. (2000). The evolution of nursing research. *Journal of the Neuromusculoskeletal System: JNMS: A Journal of the American Chiropractic Association Inc.*, *8*(1), 10–15.

Taiwan Department of Gender Equality, Executive Yuan, Taiwan. (2021). *Gender Equality Index Dataset*. Retrieved from https://www.gender.ey.gov.tw/gecdb/Stat_Statistics_Query.aspx?sn=HTNhFkjq7pOBrjyN9kiBuA%3d%3d&statsn=GU0SlokzkIbRm4j2MOkVcw%3d%3d&d=&n=97537

Taiwan Ministry of Science and Technology. (2020). *Project solicitation area*. https://www.most.gov.tw/folksonomy/rfpList?pageNum=2%26pageSize=18%26l=ch

The Shizuoka Shimbun. (2020). *Women's burden of housework and childcare "has increased" in the life of the Corona disaster*. https://www.at-s.com/news/article/women/report/766359.html

Ueda, M., Martins, R., Hendrie, P. C., McDonnell, T., Crews, J. R., Wong, T. L., McCreery, B., Jagels, B., Crane, A., Byrd, D. R., Pergam, S. A., Davidson, N. E., Liu, C., & Stewart, F. M. (2020). Managing cancer care during the COVID-19 pandemic: Agility and collaboration toward a common goal. *Journal of the National Comprehensive Cancer Network: JNCCN*, *18*(4), 366–369. https://doi.org/10.6004/jnccn.2020.7560

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