




ORIGINAL ARTICLE

Nurses' experiences of providing care during the COVID-19 pandemic in Taiwan: A qualitative study

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ABSTRACT: *In the event of a contagious disease outbreak that reaches the level of a pandemic, the responsibility of providing care for patients increases for front-line nurses. However, being in a nursing role exposes professionals to a range of risks, including but not limited to contagion and mental health impacts. This qualitative study aimed to explore in-depth nurses' experiences of providing care in the time of the COVID-19 global pandemic. The study followed the COREQ guidelines. Purposive sampling was applied to recruit participants. Semi-structured face-to-face interviews were used to collect the data from 16 nurses across five hospitals in Taiwan in 2020. Contents were analysed using Colaizzi's seven-step method. The essential structure that was identified was 'Providing care cautiously and being alert to the changing environment', which reflects the progress of Taiwanese nurses in providing care during the global COVID-19 pandemic. The essence of the phenomenon is presented through three themes: (i) facing the emerging challenge, (ii) struggling with uncertainty, fear, stigma, and workload, and (iii) adapting to changes in the environment: learning and innovation. The findings identified multi-dimensional impacts of nursing experiences during the COVID-19 pandemic, and the study yielded evidence and practices that can be used to guide and support adequate interventions to support nursing professionals. By understanding the various aspects of nurses' experiences, policymakers and administrators can better address nursing care providers' professional and mental health needs during a pandemic.*

KEY WORDS: COVID-19, nurses, pandemic, qualitative study, Taiwan.

INTRODUCTION

The 2019 coronavirus disease (COVID-19), caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has led to a rapid and dramatic global crisis (Wiersinga *et al.*, 2020) and was declared a global

pandemic on March 11, 2020 by the World Health Organization (WHO). Early in the outbreak, which began in China, Taiwan was expected to be one of the most affected geographic regions, given its proximity to and close interactions with China (Wang *et al.*, 2020). At the time of this writing (March 1, 2021), WHO reported 113 695 296 confirmed cases including 2 526 007 deaths (World Health Organization, 2021). As of the end of January 2021, Taiwan Centers for Disease Control (CDC) had reported 955 confirmed cases including nine deaths (Taiwan CDC, 2021) out of a total population of 23 548 633 (Taiwan Ministry of the Interior, 2021).

Taiwan seems to have kept the virus well under control, perhaps owing to its experience combatting the

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SARS outbreak in 2003. The Taiwanese government and citizens have learned how viral respiratory diseases can spread and recognize the positive impact of strategies to reduce the risk of disease transmission. Adequate strategies, such as mask wearing, for COVID-19 were implemented quickly (Su & Han, 2020). During the SARS epidemic, the number of probable cases in Taiwan was 663, of which 121 healthcare workers (63 nurses) accounted for 35.3%; the death toll was 180, of which 17 healthcare workers (four nurses) accounted for 21.1% (Hsieh *et al.*, 2006). Thus, COVID-19 presents a challenge for healthcare workers again, especially front-line nurses. Considering the widespread impact and unprecedented nature of the COVID-19 pandemic, the need for nurses has never been greater (Jackson *et al.*, 2020), but their own physical and mental health must be attended to.

BACKGROUND

Because of the pandemic, healthcare facilities and providers were overwhelmed, and many providers even became critically ill and died (Anders & Lam, 2021). Studies (Nicolás *et al.*, 2021; Oakley *et al.*, 2020; Pate *et al.*, 2021) concerned applicable ways to combat or safely manage COVID-19 among patients and nurses, as well as organizationally, in the clinical environment. However, less discussed has been healthcare workers' emotional distress and related mental health. As Khalid *et al.* (2016) described, they feared for their personal safety and well-being and that of their colleagues and family members when faced with a pandemic disease. Added pressures, such as increased workload, physical burnout, inadequate personal protective equipment, infection risk, and frequent difficult ethical decisions regarding care priorities have led to severe psychological stresses in healthcare workers (Mokhtari *et al.*, 2020). This is especially the case for nurses working on the front lines, in close contact with hospitalized patients as well as hospital visitors. They are exposed to contaminated environments, potentially infected patients, families, and colleagues, confirmed patients, and all risks that may impact their mental health.

Scholars (Okechukwu *et al.*, 2020) confirm that the COVID-19 pandemic has affected nurses' mental health, including psychological distress and fear. Epidemics are marked by fear, depression, and post-traumatic stress disorder (PTSD) resulting from the threat to safety (Galea *et al.*, 2020). Because caring is the core of a nurse's professional identity, mental health-focused studies are necessary. To address nurses' needs, it is essential

to understand their situation and then to make additional provisions for a safe and supportive work environment so that they can competently care for patients. The purpose of this study was to explore Taiwanese nurses' experiences of providing care during a pandemic. We hope the results may inform an international audience about the impacts on mental health nursing education, practice, and research.

METHODS

The study's theoretical basis is Husserl's phenomenology, a descriptive approach allowing participants' experiences to be captured as closely as possible to the way in which the phenomenon is experienced within nurses' lived context (Sadowski & McIntosh, 2015). Using a series of reductions made through 'bracketing', phenomenological enquiry employs the intuition of the researcher. In its reliance on multiple imagined variations of the phenomenon, it yields the essences of the phenomenon under study and thus establishes a new knowledge of the lived experience (Neubauer *et al.*, 2019). The study is presented in accordance with the Standards for Reporting Qualitative Research (COREQ) checklist (Tong *et al.*, 2007).

Participants and ethical considerations

The study was approved by the Institutional Review Board (IRB) in Taiwan. Following IRB, the first author conducted interviews in a private, quiet environment of each participant's choice. Snowball sampling and purposive sampling were combined to enrol eligible informants (Sjöström & Dahlgren, 2002); full-time nurses working during the pandemic. Data saturation was reached after 16 interviews (i.e. when no new information came forth, data collection was ended). All of the participants were registered nurses who might have had experiences of taking care of confirmed or suspected COVID-19 patients in negative pressure isolation rooms. They worked in five hospitals located in central and southern Taiwan. Participants' characteristics are shown in Table 1. Most were female (87.5%) and married (62.5%). They ranged in age from 25.5 to 55.6 (mean = 35.4, SD = 9.8 years). Their mean length of employment and standard deviation was 10.4 ± 9.3 years. Their clinical settings covered haematology and oncology, respiratory care, internal medicine, surgical medicine, ICU (intensive care unit), and ER (emergency room).

Participants were interviewed either once or twice for 30–60 min each, to obtain in-depth reflections

TABLE 1 *Participants' characteristics*

Participant	Gender	Age	Marital status	Clinical setting	Responsible position	Years in nursing profession	Situation of providing care to COVID-19 patients
1	Female	40	Married	Haematology and oncology	Staff nurse	14	Suspected cases
2	Female	35.6	Married	Respiratory care ward	Staff nurse	7	None
3	Female	25.8	Unmarried	Internal medicine	Staff nurse	2	Confirmed cases
4	Female	26.2	Unmarried	Surgical medicine	Staff nurse	2.8	Suspected cases
5	Female	28.7	Unmarried	Internal medicine	Staff nurse	5.1	None
6	Male	29.2	Married	Intensive care unit	Nurse practitioner	5.2	None
7	Female	55.6	Married	Respiratory care ward	Head nurse	30	Confirmed cases
8	Female	45.2	Married	Haematology and oncology	Head nurse	20	Suspected cases
9	Female	41.4	Married	Intensive care unit	Head nurse	13	Suspected cases
10	Female	38.6	Unmarried	Haematology and oncology	Nurse practitioner	15	Confirmed cases
11	Female	32.2	Unmarried	Internal medicine	Staff nurse	7.3	None
12	Female	55	Married	Intensive care unit	Staff nurse	30	None
13	Male	29.3	Married	Intensive care unit	Staff nurse	3.2	None
14	Female	28.5	Married	Respiratory care ward	Staff nurse	2.4	None
15	Female	25.5	Unmarried	Gynaecology	Staff nurse	2	None
16	Female	30	Married	Internal medicine	Staff nurse	7	None

about the topic. Written, informed consent was obtained, and participants were informed that they could withdraw from the study at any time without penalty. The participants were assured that interview responses would remain confidential and that their names would not be identified in publications; all agreed to be quoted anonymously. Participants are identified by a prefix (N, for 'nurse') and number (N1, N2). All of the interviews started with the open-ended question and followed a semi-structured interview guide that had been previously pilot-tested: (a) Please talk about your experience of providing care during the COVID-19 pandemic; (b) How do you think and feel when you provide care for patients and their families? Please share all your thoughts and feelings.

Data collection and data analysis

All interviews were conducted between June and December 2020. In order to maintain consistency, the first author, who is experienced in qualitative research, conducted the interviews, and she and another researcher took field notes during the interviews. Interviews were digitally recorded, immediately transcribed verbatim, and analysed based on Colaizzi's seven-step

method (Colaizzi 1978; Morrow *et al.*, 2015) by (i) reading verbatim transcripts several times to become familiar with the collected data; (ii) identifying significant statements of direct relevance to the phenomenon related to nursing care experiences; (iii) formulating meanings from the significant descriptions; (iv) clustering the identified meanings into themes; (v) developing an exhaustive description of the phenomenon; (vi) producing an essential structure from the description; and (vii) returning the fundamental structure statement to all participants to seek verification.

Trustworthiness

This qualitative study established rigour through confirmability (auditability), credibility, and fittingness (transferability) (Lincoln & Guba, 1985). Semi-structured interviews were conducted by the first author who had qualitative research training and experience, allowing participants to describe their experiences and clarify their responses, and thus improving credibility and confirmability. The researcher's background also aided her in providing detailed contextual information and thick description to increase transferability. An audit trail, member checking, and peer

debriefing also enhanced dependability and trustworthiness (Baillie, 2015).

RESULTS

The essential structure, 'Providing care cautiously and being alert to the changing environment', reflects the progress of Taiwanese nurses in providing care and is presented through three main themes: 'Facing the emerging challenge', 'Struggling with uncertainty, fear, stigma, and workload', and 'Adapting to changes in the environment: learning and innovation'. There are three subthemes under each theme (Table 2).

Theme 1: Facing the emerging challenge

With the first confirmed case, healthcare workers in Taiwan began addressing the COVID-19 threat. Measures included hardware aspects: checking and arranging medical resources such as ventilators and masks (surgical and N95), protective clothing, and negative pressure isolation rooms; software aspects; and strengthening the promotion of anti-epidemic strategies. As N2 said, 'Just like a war was about to strike, we were checking to see if there were enough supplies. Using anti-epidemic strategies, we resolutely faced the upcoming challenges'.

Three subthemes were identified, as follows.

Cautious care and alertness to the environment

Nursing care was performed with exceptional caution and heightened alertness to the epidemic environment. Observing epidemic information and policy changes

and following instructions from supervisors, nurses altered and enforced practices, such as limiting visitors according to the outbreak level. N3 said, 'We have to be alert to visitors, their health, and their travel history to avoid exposing patients in the ward to the virus'. Nurses also attended even more than usual to cleanliness and hygiene when caring for patients. N5 said, 'I remind myself many times to wash my hands after caring for a patient and before providing care for another one to ensure cleanliness and hygiene. Although I did this before, I worried I may forget if I was too busy'.

Conscientious use of medical supplies

At the beginning of the pandemic, supplies were insufficient, and public demand depleted goods such as toilet paper and masks. However, policy and community health education was helpful. As N8 stated, 'Originally there was free access to masks in the unit. One day we started to ration one per day, then two per day. However, if the mask was wet or dirty, we could sign our name and get another one. In other words, we used only the necessities and saved as much as we could'.

The challenge of sensitivity and trust

To help avoid spreading the virus, members of healthcare teams distanced themselves from one another. N7 said, 'Before, we ate lunch and chatted together afterwards. However, now we use clapboard to protect each other from saliva spray while eating. We don't talk, eat quickly, and leave early'.

Nurses also dealt with a heightened degree of distrust in their professional relationships. Some questioned their colleagues' procedures. As N1 stated, 'I knew she took care of the suspected patient in the negative pressure isolation rooms. I'd be sensitive to the staff she touched, and worry that she ignored cleaning and disinfected incompletely'. They also worried about visitors. N4 said, 'We screened for temperature and travel, occupation, contact, and cluster history (TOCC); I worried they were not honest with me'. Similar distrust occurred between nurses and patients or families. N10 said, 'My current patient was very concerned that I had just taken care of the patient in the negative pressure isolation ward. She refused to let me take care of her because she worried I may spread the virus to her'.

Theme 2: Struggling with uncertainty, fear, stigma, and workload

Participants described that unanticipated situations, unclear information, uncertain systems, and safety

TABLE 2 Themes and subthemes

Theme	Subtheme
1. Facing the emerging challenge	Cautious care and alertness to the environment Conscientious use of medical supplies The challenge of sensitivity and trust
2. Struggling with uncertainty, fear, stigma, and workload	Life was threatened Workload Stigma
3. Adapting to changes in the environment: learning and innovation	Being appreciated and receiving adequate support Cleaning and hygiene behaviours are incorporated into daily habits Adapting, continuing learning, innovation, and humour

standards were the major experiences during the COVID-19 crisis. N9 said, 'The disease led to such harm and uncertainty. We knew from global news that there were many cases of infection and believed it would affect us, because it is a global community'. During the pandemic, many visitors came from other countries. N12 said, 'Even though the visitors had to provide their National Health Insurance (NHI) card to show their travel history, and have their temperature checked before entering the hospital, I still worried they may have an unknown contact history. We didn't even know whether a patient we had touched was a source of infection or not'. N14 said, 'The detection instrument and strategies were different from country to country. One visitor said he had no problem since he did detection in a country where the epidemic was serious. I still worried about it because the virus is very treacherous and changeable'.

Some hospitals made advance preparations due to the uncertain nature of the epidemic. N15 said, 'I and my colleagues had to be trained in case the epidemic became serious'. There was also uncertainty among nurses about being transferred to the areas where the epidemic was most serious. N12 said, 'I remembered before when our hospital called for volunteers to care for SARS patients, and there were no volunteers. We finally drew lots, and we were all afraid that we would be the one who had to go work in the danger zone'.

Three subthemes led to the abstract theme.

Life was threatened

Prior to the pandemic, participants believed their work potentially exposed them to a variety of viruses and bacteria. However, most nurses were more afraid of infection during the pandemic; being quarantined would separate them from their families, or worse, they could be hospitalized themselves. N6 said, 'We didn't know where to hide as we lived with the virus day after day'. N14 said, 'It terrified me so much when we got media reports about hospital staff becoming infected and dying in other countries'.

Workload

COVID-19 caused nurses a heavier workload. They had to adapt to circumstances, equipping themselves when providing care for a suspected or confirmed patient, staying up-to-date on new knowledge and skills related to the evolving pandemic, receiving new required training, and paying attention to other practice changes necessitated by the virus. N3 said, 'Before I took care of the suspected COVID-19 patient, I had to spend 10–15 min to equip myself. I had to do all of my nursing activities for that

patient at the same time. If I forgot one thing, I'd have to prepare myself all over again'.

Moreover, in order to reduce potential environmental contamination and personnel exposure, many hospitals implemented isolation and triage measures requiring additional training. N11 said, 'We had to conduct actual exercises after work in case the epidemic became serious'. N4 said, 'I was exhausted after working all day, and I had to perform practical exercises after work, which was even more exhausting'.

Stigma

Participants understood patient care as their responsibility regardless of the condition of the patients or the circumstances of the epidemic, and found meaning in helping others. However, they were sometimes stigmatized or ostracized because of their profession. N13 said, 'At the beginning of pandemic, we ordered a lunch box as before, but no store was willing to send it. They may have thought the hospital was dangerous and healthcare providers were, too'. If nurses took care of COVID-19 patients or even suspected or probable COVID-19 patients, their relatives were sometimes also ostracized. One informant (N16) said, 'I never doubted my job before. I was proud of being a nurse. However, I never thought my job would bring so much trouble and shame to my family. My daughter's teacher asked her not to come to kindergarten because her mother is a nurse in the hospital. Some of the parents worried that my daughter would spread the COVID-19 virus to them'. Another (N10) said, 'When I went to the salon to have my hair done, the boss said they were not open for business that day. I felt that I was being isolated by others. It confused my daughter and me. Am I a helping or a hurting person'?

Theme 3: Adapting to changes in the environment: learning and innovation

Nurses needed to make ongoing accommodations as knowledge about COVID-19 grew. Adaptations included protecting themselves with sufficient equipment and implementing further protections for patients, family members, and the community; gaining social supports; and following scientific and policy plans from both the Department of Health and hospital administration. Three subthemes emerged from the data.

Being appreciated and receiving adequate support

After the government and media vigorously promoted the work of healthcare providers in the epidemic, the

public's attitude became more positive. One participant (N15) said, 'Now companies or enthusiastic people often send drinks and hand creams to our department. Some stores also offer discounts for us healthcare providers'. Another (N5) said, 'Healthcare providers working in COVID-19 virus prevention or care are rewarded favorably'.

Cleaning and hygiene behaviours are incorporated into daily habits

Wearing masks and implementing hand hygiene throughout the workday is typical in the nursing routine. However, participants reported increased vigilance in cleaning and hygiene during the pandemic. As one (N1) said, 'I protect myself and others by wearing a mask during my work except when eating'. Another (N2) said, 'I bathe myself after work, so I can go back home and avoid infecting my family'.

Adapting, continuing learning, innovation, and humour

Online meetings or video transmissions became popular for discussions, meetings, chatting, and even continuing education during the pandemic. Nurses saw this as a benefit. As N6 stated, 'I gained a lot of time because of not needing to attend public seminars or continuing education in person'. During an epidemic, knowledge and information necessarily advances. One participant (N9) said, 'Viruses are constantly mutating. Knowledge and technology must also improve to find the best way to deal with them'.

Innovation and improvisation had to occur in real time. As N8 stated, 'At the beginning, when the protective clothing was in short supply, we used raincoats to make it ourselves. We also used transparencies to create facial masks. We created isolation boards for lunch'.

Finally, humour can mitigate the tension of work during a pandemic. One participant (N7) said, 'Distribution of masks is what I am most excited about. Every time the pattern and color are different; it's a small bright spot. I look forward to getting a leopard pattern next time'!

DISCUSSION

This study explored the experiences of nurses providing care during a pandemic in Taiwan. Providing care cautiously and being alert to the changing environment was identified as the essential structure, which illustrates nurses' progress in encountering a pandemic. It encompasses the three main themes to elucidate the

nurses' role, situation, and struggles during the COVID-19 pandemic as embedded in the context of their experience.

In the theme of 'Facing the emerging challenge', participants noted that providing care was their responsibility no matter the patients' circumstances. Nurses resolutely faced anticipated and actual challenges brought on by the virus. This finding differed from Wu and Yang's study (2006), in which nurses felt helpless to fulfil the obligations of clinical practice during the 2003 SARS outbreak. At that time, healthcare workers' anxiety levels rose in reaction to cases of healthcare workers falling ill or dying (Schwartz et al., 2020). Seventeen years later, nurses had the courage to face the challenges of a similar epidemic.

Nurses provided care even more cautiously than before. They were alert to the heightened supply and safety concerns resulting from COVID-19, using supplies judiciously and screening visitors. This heightened vigilance could result in conflicts and diminishment of interpersonal trust.

In the theme of 'Struggling with uncertainty, fear, stigma, and workload', this study found that nurses were emotionally impacted by working during the pandemic. Since the virus mutates quickly, the data were lacking on the prevalence of the disease among asymptomatic populations, its spectrum of presentation, and its full characteristics. These uncertainties resulted in nurses' fears of contagion and being carriers of the virus. This finding is consistent with those of other studies (Lima *et al.*, 2020; Xiang *et al.*, 2020) in which front-line healthcare workers were shown to be vulnerable to the emotional impacts of the coronavirus. Thus, providing nurses with mental supports is essential. Furthermore, the study found that nurses and their families experienced stigmatization. This finding corresponds to Rezaee *et al.*'s (2020) study, which found that family and friends of nurses who had cared for COVID-19 patients may discount or disregard their professional dignity, which in turn undermines their respect in the community. Thus, the community and general public need to be educated about nurses' roles and sacrifices. Schubert *et al.* (2021) also found that healthcare workers exposed to potential hazards and diseases such as COVID-19 may suffer from stigmatization, which can result in additional high psychological stress.

In the theme of 'Adapting to changes in the environment: learning and innovation', this study found that nurses learned to adjust in a rapidly changing environment, developed innovations and effectively improvise

in providing care and protecting themselves, and strove to gain a positive perspective towards the pandemic. Huggins (2004) indicated that updating knowledge and skills in response to changing work circumstances is essential to delivering good care. Participants welcomed the online educational offerings. This finding is similar to the results of Ferrel and Ryan's study (2020), which showed the necessity of making available online classes that would typically take place in person. As Palozzi *et al.* (2020) further suggest, emerging telemedicine strategies that allow for distanced doctor–patient interactions may further benefit patients by improving the efficiency of certain healthcare processes. Nurses need to learn new communication technologies (García-González *et al.*, 2020) to effectively participate in telemedicine as necessary.

In this study, nurses showed the value of innovation in protecting not only patients but also themselves. This finding is consistent with Dearmon *et al.*'s (2013) ideas about nurses opening up to new ways of thinking and working to allow for new interventions.

Because facing adversities, such as an insecure environment, can compromise the quality of healthcare provided by nurses (Ramalisa *et al.*, 2018), participants also did well to use humour in facing challenges. This finding relates to Kuiper's (2012) identification of positive character traits, such as humour, as strong predictors of recovery from depression following treatment.

LIMITATIONS OF THIS STUDY

We snowballed willing informants to participate in this study and thus recruited 16 participants who had experiences of caring for patients during the COVID-19 pandemic. We did not specifically recruit nurses who took care of confirmed or suspected COVID patients, in consideration of the associated labelling and their mental well-being at the time of recruitment; nevertheless, all participants had experiences of caring for patients in the COVID-19 climate. Thus, limitations of the study include representation of the wider nursing population, along with the small sample size of participants.

CONCLUSIONS

The findings illustrate themes of nurses' experiences of providing care in Taiwan during the COVID-19 pandemic. Their progress in facing an epidemic also emerged from the evidence. Many findings in this study were tied to workplace circumstances. Promoting nurses' quality of care and mental health requires a

culture of safety, positive perceptions, and productive work environments. Nurses need to be well educated about pandemic-specific care needs and supported in personal and patient safety. The new knowledge produced by this study may support the management of nursing roles during an infectious disease outbreak, policymaking, hospital supportive measures, and hospital equipment and manpower arrangements, all of which require efficiency and clear, equitable communication. Nursing administrators and policymakers also have to be aware of the conflicts and stressors that an epidemic brings upon nurses. These point to the need for mental health counselling for nurses and education for the general public. The latter will increase respect for nurses and create opportunity for the community to care for them as well.

More studies are needed to examine the impact of nurses' scope of practice on their roles and professionalism internationally. Thus, future research could be implemented with nurses in different regions. With an understanding of nurses' experiences during an epidemic, administrators and policymakers can create a system of support that allows for the best patient care possible.

RELEVANCE FOR CLINICAL PRACTICE

This study has implications for understanding front-line nurses' experiences in responding to a pandemic and related mental health impacts. The findings of this study are related to nurses' dynamic processes, including facing challenges; struggling with uncertainty, fear, stigma, and workload; and adapting to changes in the environment. The findings show that providing care during pandemics affects the mental health of healthcare professionals, especially nurses. To improve nurses' mental health, it is necessary to monitor and address psychological, sociological, and emotional problems and needs brought about or exacerbated by a pandemic. Providing practical supports such as adequate supplies and safe facilities and materials can help to keep nurses' minds on care, as can providing soft supports such as psychological counselling to deal with the negative emotions. Finally, high-quality care can be fostered by encouraging nurses' ongoing learning and innovation to adapt to the changing environment in a pandemic.

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AUTHOR CONTRIBUTIONS

The paper was co-authored by Yi-Chen Wu (YCW) and Chien-Yu Wu (CYW). Regarding authors' contributions: Hwey-Fang Liang (HFL) and YCW conceptualized and designed the study. HFL, YCW, and CYW acquired data and analysed it. YCW and CYW contributed to the interpretation of data. HFL and YCW drafted the manuscript, and CYW finalized the manuscript. All authors read and approved the final manuscript.

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ETHICAL APPROVAL

The study was approved by the ethics committee of the Institutional Review Board of the Chang Gung Medical Foundation (202000491B0A3). Informed consent was obtained from all participants.

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