

The COVID-19 Pandemic as an Opportunity to Improve Health Care Through a Nurse-Coordinated Multidisciplinary Model in a Headache Specialist Center: The Implementation of a Telemedicine Protocol

Valeria Caponnetto, PhD, MSN, RN,^{1,2}
Raffaele Ornello, PhD, MD,¹ Eleonora De Matteis, MD,¹
Sara Consilia Papavero, BSc,³ Andrea Fracasso, MSc,³
Giovanni Di Vito, MSN, RN,² Loreto Lancia, MSN, RN,²
Fabrizio Massimo Ferrara, MSc,^{3,1} and Simona Sacco, MD¹

¹Neuroscience Section, Department of Applied Clinical Sciences and Biotechnology, University of L'Aquila, L'Aquila, Italy.
²Nursing Section, Department of Health, Life, and Environmental Sciences, University of L'Aquila, L'Aquila, Italy.
³ALTEMS: High School of Economics and Management of Health Systems, Catholic University of Sacred Heart, Rome, Italy.
[†]ORCID ID (<https://orcid.org/0000-0002-8596-7346>).

Abstract

Background: Due to coronavirus disease-19 (COVID-19) pandemic, Italian outpatient clinics were suspended in March–April 2020 and subsequently slowed down. Telemedicine was shown to be useful in headache clinics, despite absence of a detailed protocol for its development.

Objective: To describe the implementation of a structured telemedicine protocol during COVID-19 pandemic.

Materials and Methods: Since May 2020, we performed a quality improvement study in a Headache Specialist Center in central Italy. We involved patients who had in-person follow-up visits scheduled during suspension and initial reopening of clinics. Patients had two appointments with a nurse specialized in headache care and a headache physician, respectively, using Microsoft Teams[®]. The service is still active. We collected sociodemographic and clinical characteristics of patients, technical details of telemedicine visits, patient feedback, medical judgment about complexity of clinical decisions, and need for in-person re-evaluation. We also performed a Strengths–Weaknesses–Opportunities–Threats analysis to provide a realistic picture of the service.

Results: We performed 207 telemedicine visits involving 100 patients with a median age of 44 (interquartile range [IQR]: 35–56) years; 76.0% were women and lived at a median of 68 (IQR: 24–109) km from the Center. Thirty-nine (39.0%) were visited for migraine without aura. Patients mostly used a

computer (68.1% visits) with high audio-video quality in 93.2% of visits. First and second appointments lasted in median 20 (IQR: 14–25) minutes and 9 (IQR: 7–13) minutes, respectively. Interacting with patients was very easy in 66.7% of visits. Patients reported no difficulty in sharing documents and high satisfaction in 78.6% and 93.5% of visits, respectively. Perceived complexity of clinical decisions was generally low (86.5%), whereas 8.2% of cases required in-person re-evaluation.

Conclusions: Telemedicine facilitated follow-ups, ensuring multidisciplinary care and high patient satisfaction, justifying its wider adoption in headache care.

Keywords: multidisciplinary care, nurse-led education, headache, COVID-19, telemedicine, quality improvement

Introduction

Headache disorders are highly prevalent in the general population.¹ Among headache disorders, migraine is associated with the highest burden of disability and reduced function.^{2,3} Headache disorders may be effectively treated in primary care, although difficult-to-treat patients often require advanced therapies and multidisciplinary care provided by specialized centers. Moreover, patients with headache often need regular re-assessments.^{4,5}

The coronavirus disease-19 (COVID-19) pandemic had a profound direct and indirect impact on global health. During the first wave of COVID-19 pandemic in 2020, many Italian outpatient clinics were temporarily suspended in the effort to limit the spread of the disease. After reopening of clinics, daily appointments were often reduced because of the need for proper distancing and disinfection procedures. In addition, many patients were confined at home or preferred not to reach health care facilities due to fear of infection.

In this context of health crisis, telemedicine offered the opportunity to provide continued assistance to patients with headache. The potential advantages of telemedicine during the pandemic have been already described in neurology

services and headache clinics.^{6–8} Moreover, the usefulness of telemedicine was demonstrated even before the pandemic.^{9,10} However, a detailed protocol for telemedicine has not been described yet. Establishing standardized protocols for telemedicine might enhance their applicability in clinical contexts, optimize resource use, overcome issues related to patients' privacy, and improve patients' collaboration.⁷

This article aims at describing a structured service of telemedicine in a Headache Specialist Center implemented during the COVID-19 pandemic and maintained until today.

Material and Methods

STUDY DESIGN, SETTING, AND PARTICIPANTS

We performed a quality improvement study conducted in a single center through the implementation of a telemedicine protocol. Study reporting was performed according to the Standards for QUality Improvement Reporting Excellence (SQUIRE 2.0) guidelines.¹¹ The setting is the Regional Headache Referral Center¹² of Avezzano-L'Aquila, located in the Abruzzo region, central Italy. During the first wave of COVID-19 pandemic, all nonurgent outpatient visits scheduled for March and April 2020 were suspended. Reopening was possible since May 2020, when we faced the challenge to reallocate visits scheduled during suspension and to perform visits already planned from May 2020 onward. In addition, measures of sanitization and distancing forced us to reschedule the appointments and entirely reorganize the clinic because each visit required for more time. Considering those challenges and patients' fear about access to the hospital because of the pandemic, we decided to implement a telemedicine service. The service was offered to all patients who had a control visit planned during suspension, to patients who had a control visit planned during reopening, and to suitable patients who were visited in-person for the first time since May 2020. The service is still active.

PROTOCOL DEVELOPMENT AND ORGANIZATIONAL DETAILS

Work group. The telemedicine protocol was established by a multidisciplinary team including two neurologists, a research nurse, an engineer with expertise in health care informative systems, and two health care managers. A data protection officer also provided advice to set up the protocol.

Protocol features. The protocol was specifically developed to rely on the available resources to allow a quick establishment and no additional costs. In addition, the protocol was designed to comply with the European Union General Data Protection Regulation (GDPR).¹³ We used the institutional e-mail account for the initial contact with patients. Telemedicine was

performed using Microsoft Teams[®] software because this software was already adopted in our hospital to host web meetings. Moreover, to ensure a user-friendly experience for patients, along with the protocol, the focus group wrote a detailed user guide in PDF for patients, containing the instructions for software download and use to access telemedicine.

Regulatory framework and organizational details. In 2014, the Italian Government approved guidelines for general features of telemedicine and allowed health care facilities to offer the service being reimbursed by the National Health System.¹⁴ In 2020, our region Abruzzo approved specific regulations about telemedicine features.¹⁵ and, finally, a national law was approved.¹⁶ The features of our protocol comply with all those regulations; moreover, the protocol was approved by local health care authorities. Telemedicine follow-up visit was assigned a specific reservation code and was included among our health care facility services.

With regard to reimbursement in Italy, health care costs are totally covered by the National Health System for patients exempt from payment, according to their health conditions and income, whereas the other patients are required to contribute to pay for health care services. The National Health System reimbursed our health care facility for telemedicine visits as per in-person control visits that have the same cost/income. Most of headache patients are not exempt from contributing to pay for visits (for patients, the cost for a control visit is ~21 euros). Visits could be paid online or in pharmacies to avoid access to the hospital.

TELEMEDICINE PROTOCOL

The telemedicine protocol is shown in *Figure 1*.

Preliminary operations. All patients who agreed to access telemedicine were asked to provide their e-mail address and were given two appointments in consecutive days. One week before the first appointment, a nurse specialized in headache care sent each patient the PDF guide through e-mail and reminded them to set up Microsoft Teams. The nurse created a private team for each patient and included the patient's e-mail address as a guest. Afterward, the nurse contacted the patient through the chat room of the team to assess any technical issue, to avoid delays during the two appointments. Moreover, the nurse asked for a scan of the patient's documents, that is, report of the past visit at the headache Center, headache diary, and any other clinically relevant document (e.g., requested exams).

First appointment. During the first appointment, the nurse collected the patient's documents and had a video call with the

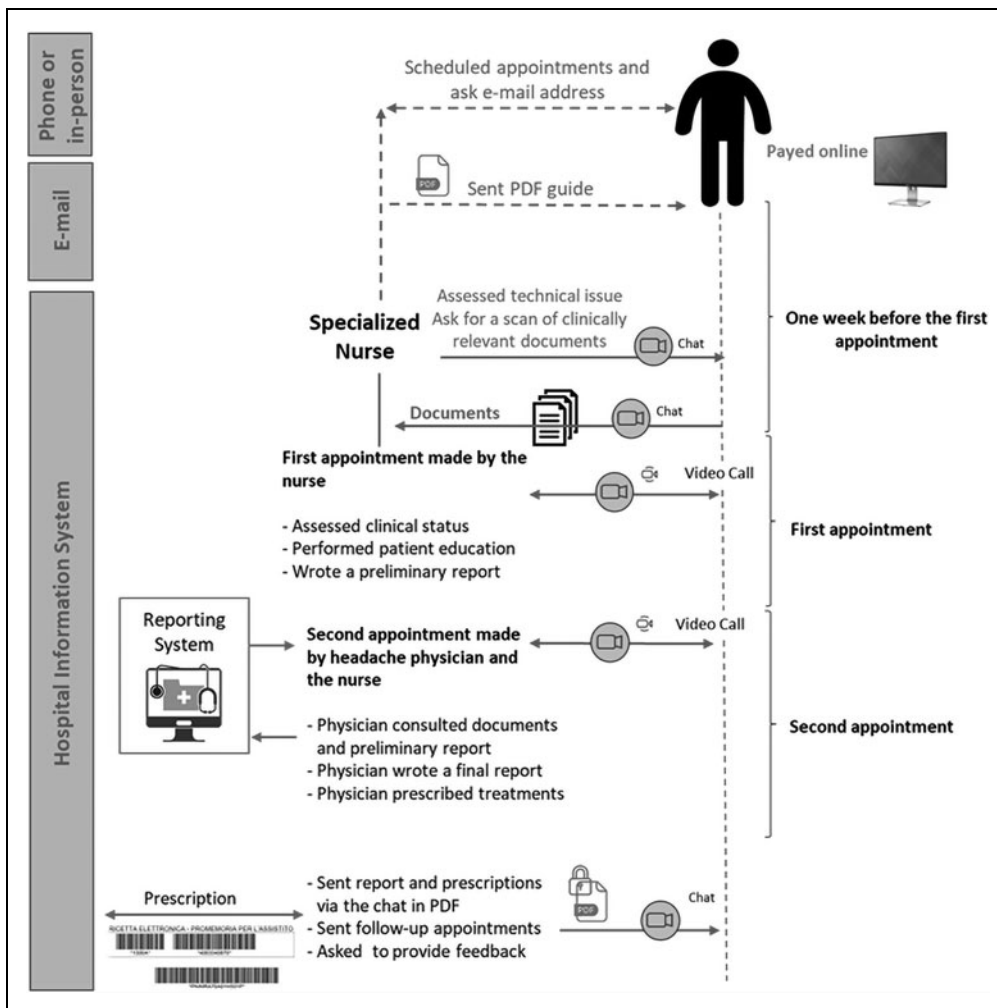


Fig. 1. Flow-chart of the telemedicine protocol.

patient to assess clinical status (trend in headache frequency and medication use, headache-related impact and disability, and adverse events) and engaged the patient in an educational session on lifestyle improvement, home therapy management, and headache monitoring through the diary. The educational session followed the North American Nursing Diagnosis Association-I (NANDA-I), Nursing Interventions Classification (NIC), and Nursing Outcomes Classification (NOC) taxonomies.^{17–20} At the end of the first appointment, the nurse wrote a preliminary report on the reporting system software of the health care facility.

Second appointment. The day after the first appointment, a headache physician and the nurse performed the final visit. The headache physician reviewed the clinically relevant documents and the preliminary report, wrote a final report in the reporting system software of the health care facility, prescribed treatments, and planned a follow-up appointment as

appropriate. For patients with conditions requiring physical examination or in need of injectable therapies, an in-person visit within the next 5 working days was scheduled.

The final report and prescriptions in PDF, along with follow-up appointments, were shared with the patient through the chat room. At the end of the second appointment, the same chat room was used to ask patients their feedback, including satisfaction with the service and level of difficulty in sharing documents.

VARIABLES AND DATA COLLECTION

The focus group established in advance the relevant data to be collected for this study. For each patient, the collected data included age, gender, address (to assess distance from the Headache Center), exemption from contributing to pay for visits according to national laws, and headache diagnosis. For each visit, the collected data included video call duration, device used (computer, smartphone, or tablet), video-audio quality (3-level Likert scale from 1 = low to 3 = high), staff judgment about difficulty in interacting with the patient (3-level Likert scale from 1 = very easy to 3 = very difficult), patient difficulty in sharing documents (3-level Likert scale from 1 = no difficulty to 3 = high difficulty), patient satisfaction (5-level Likert scale from 1 = not satisfied to 5 = totally satisfied), a medical subjective judgment on the complexity of clinical decisions (3-level Likert scale from 1 = low to 3 = high), and the need for in-person re-evaluation. We used REDCap[®] software to collect anonymized data.²¹

STATISTICAL ANALYSIS

We reported descriptive statistics as counts and proportions or median and interquartile range (IQR) using SPSS[®] version 20. The focus group performed a SWOT (Strengths–Weaknesses–Opportunities–Threats) analysis²² to provide a realistic picture about the strengths and weaknesses of the service.

Age in years, median (IQR)	44 (35–56)
Women, n (%)	76 (76.0)
Distance in kilometers, median (IQR)	68 (24–109)
Not exempt from contributing to pay for visits, n (%)	82 (82.0)
Diagnosis, n (%)	
Migraine without aura	39 (39.0)
Migraine with aura	4 (4.0)
Chronic migraine with or without medication overuse headache	40 (40.0)
Other headache disorders	17 (17.0)
IQR, interquartile range.	

ETHICS

Data collection was implemented in patients that had already provided a written informed consent for an Italian observational study about the characteristics and prevalence of headache disorders. This observational study was approved by the Ethical Committee of our healthcare facility on 27th June 2019.

Results

From May 2020 to May 2021, we performed 207 telemedicine visits involving 100 patients. Patients had a median age of 44 (IQR: 35–56) years; 76 (76.0%) were women. Patients’ median distance from our center was 68 (IQR: 24–109) km and most of them were not exempt from contributing to

pay for visits (n=82; 82.0%). All the patients were visited for headache disorders, mostly migraine without aura (n=39; 39.0%) (Table 1).

Figure 2 provides data referring to telemedicine visits. The median duration of first appointments was 20 (IQR: 14–25) minutes, whereas the median duration of second appointments was 9 (IQR: 7–13) minutes (Fig. 2A). Patients used a computer in 141 (68.1%) visits; audio–video quality was rated as high in most cases (n=193; 93.2%). Interacting with patients was very easy in 138 (66.7%) visits, moderately difficult in 39 (18.8%) visits, and very difficult in 30 (14.5%) visits. In 140 (67.6%) telemedicine visits, patients answered about difficulty in sharing documents; no difficulty was reported in 110 (78.6%) visits, low difficulty in 21 (15.0%), and high difficulty in 9 (6.4%). In 139 (67.1%) visits, patients expressed their level of satisfaction; high satisfaction about the service was reported in most visits (n=130; 93.5%). The perceived complexity of clinical decisions was generally low (n=179; 86.5%), whereas 16 (8.2%) cases required in-person re-evaluation (Fig. 2B).

As shown in Figure 3, the SWOT analysis highlighted the usefulness of telemedicine in facing organizational issues related to the COVID-19 pandemic along with its potentials for the future. However, it also identified weaknesses and threats, mainly related to patients’ perception and resource use.

Discussion

Our study showed the implementation of a structured telemedicine protocol in a Headache Specialist Center, that over 1 year allowed to ensure a regular and appropriate follow-up to a considerable number of patients with headache while

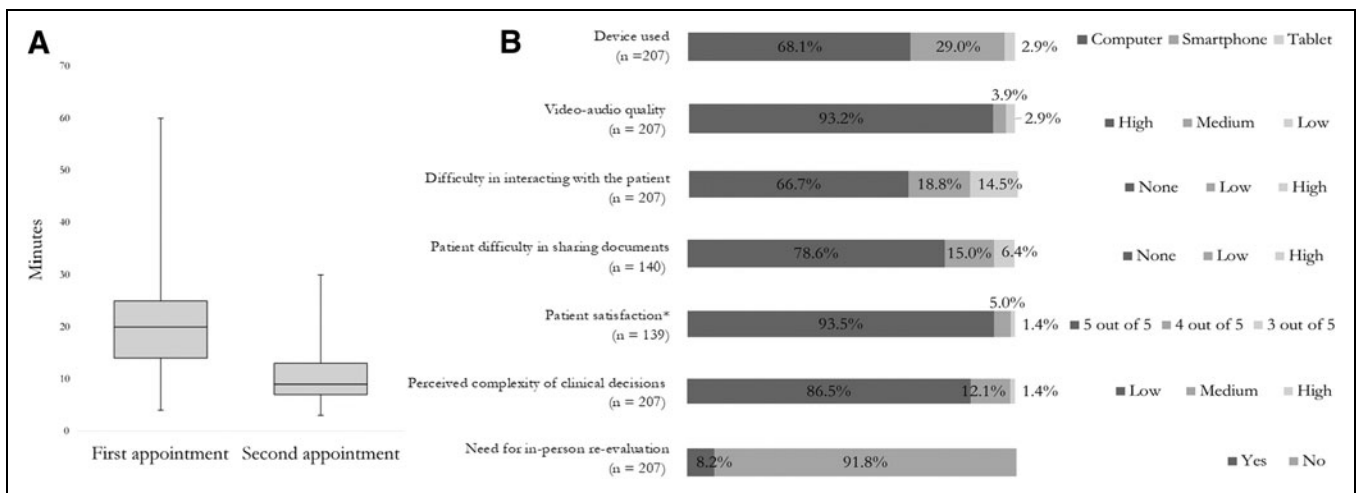


Fig. 2. Descriptive data about telemedicine visits (n=207). **(A)** Median duration of first and second appointment video call. **(B)** Technical details of the telemedicine visit, patient feedback, medical judgment about complexity of clinical decisions, and need for in-person re-evaluation. *5-level Likert scale from 1=not satisfied to 5= totally satisfied.

Downloaded by Universita degli studi dell'Aquila from www.liebertpub.com at 11/16/21. For personal use only.

<p>Strengths</p> <ul style="list-style-type: none"> • Highly appreciated by patients. • Ensured headache patients follow-up. • Avoided physical access to the healthcare facility. • Avoided patients' travel time and costs. • Reduced the possibility of informal patients' request of telephone consultations that do not allow an adequate clinical evaluation. • Allowed to increase the number of follow-up visits. • Improved access to care. <p>Opportunities</p> <ul style="list-style-type: none"> • Will ensure access to care to patients with reduced mobility. • Will reduce waiting times for access to control visits. • Will increase patients' engagement and center attractiveness. 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Unsuitable for first visits. • Unsuitable for patients with low computer literacy or without suitable access to technology. • Dedicated personnel needed for preliminary contact. • Dedicated structural resources needed. <p>Threats</p> <ul style="list-style-type: none"> • Patients could perceive telemedicine as too impersonal. • Subtle clinical aspects may be overlooked.
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Fig. 3. SWOT analysis of the telemedicine service. SWOT, Strengths–Weaknesses–Opportunities–Threats.

maintaining patients' safety during the COVID-19 pandemic. Telemedicine has already been demonstrated as not inferior to traditional visits in terms of clinical outcomes and patient feedback in patients with headache.^{23,24} The COVID-19 pandemic accelerated the use of technology in health care,^{6–8} which has been already tested with success in many fields of assistance^{10,25,26} and education.^{27,28} However, the advantages of telemedicine may extend beyond the current situation of pandemic.²⁹ In fact, the implemented protocol allowed patients' evaluation by a multidisciplinary team and a nurse-led educational intervention that may have enhanced the care of patients with headache.³⁰ Moreover, telemedicine provided the advantage of avoiding travel costs and work permissions to patients who live far from the headache Center, also considering that most of them were not exempt from contributing to pay for visits. The service allowed to increase the number of visits performed and to establish a new follow-up modality for patients with headache in addition to in-person clinics.³¹ Besides, telemedicine could allow family members and caregivers to participate to visits and thus better understand patients' experience. This could contribute to limit the stigmatization of patients with headache that may occur within communities.³² Therefore, the service is still active and will be maintained with the same protocol also after pandemic.

In our experience, telemedicine was associated with few technical difficulties. Patients showed high appreciation of telemedicine and good computer literacy, perhaps also because of their low median age.³³ Headache disorders can be particularly suitable for telemedicine as they typically affect young and middle-aged subjects.¹ Besides, patients with primary headache disorders can be effectively managed with tele-

medicine as they do not require frequent neurologic examination. In our experience, the low perceived complexity of clinical decisions and the small number of patients who needed an in-person re-evaluation suggest the adequacy of the selection of patients suitable for telemedicine.

Our study allowed to highlight that the telemedicine protocol needs for adequate structural, human resources and patients' compliance to be included in clinical practice.³⁴ In this regard, our protocol needed a dedicated nurse and adequate equipment. The software we used guaranteed the safety of communication and GDPR compliance; however, it was not intended for telemedicine. Customized software solutions could improve the easiness of the protocol and, consequently, adherence to telemedicine. Moreover, it should be considered that telemedicine could not be

suitable for patients with low computer literacy or for patients needing injectable therapies administered by trained health care professionals, including onabotulinumtoxinA and peripheral nerve blocks. Hence, an adequate multidisciplinary analysis of available resources and patients' profiles might be useful before introducing telemedicine in clinical practice. The patients' resources should also be considered, as the limited access of some patients to technology can represent a barrier to telemedicine.³⁵

The acceleration of the use of technology in health care due to COVID-19 pandemic may have led to the implementation of services based on not enough scientifically evaluated protocols.⁷ In this regard, the strengths of our study include the implementation of a standardized telemedicine protocol in our clinical practice and the preplanned data collection that allowed a reliable evaluation of the service. Moreover, the protocol complied with existing and recently promulgated Italian and European regulations and allowed to offer a new service through the National Health System. This further allowed us to maintain the service active and contributed to ensure patients' safety and equity of care. The main limitation of our study is its single Center design; moreover, despite the high patients' satisfaction and compliance, we could not assess any changes in headache outcomes, such as the decrease in headache days or analgesic consumption, with the use of telemedicine compared with usual care.

Conclusions

During reopening of outpatient clinics after the first wave of the COVID-19 pandemic, we developed a telemedicine standardized protocol that complies with Italian and European

regulations and allowed to offer a new service through the National Health System. Telemedicine allowed the use of a multidisciplinary care model, facilitated and increased the number of follow-up visits, and helped avoiding physical access to the health care facility of patients with headache while maintaining easy interaction and high patient satisfaction. Moreover, although the pandemic pushed the development of the service, we noticed its usefulness and advantages for all the involved stakeholders, also after the first wave of COVID-19. In the limelight of our experience and results, we suggest a wider adoption of standardized telemedicine protocols in headache care even after the pandemic, along with initiatives to improve the available instruments.

Authors' Contributions

All authors have met the criteria for authorship as defined by the International Committee of Medical Journal Editors. All authors approved the final version of the article.

Disclosure Statement

C.V. had a financial relationship (member of advisory board) with Novartis; O.R. has received sponsorship to attend meetings from Novartis and Teva; D.M.E., P.S., F.A., D.V.G., L.L., and F.F.M. declare no competing interests; S.S. had a financial relationship (lecturer or member of advisory board) with Abbott, Allergan-Abbvie, AstraZeneca, Eli-Lilly, Lundbeck, Novartis, NovoNordisk, Teva.

Funding Information

No funding was received for this article.

REFERENCES

- Ashina M, Katsarava Z, Do TP, et al. Migraine: Epidemiology and systems of care. *Lancet* **2021**;397:1485–1495.
- Steiner TJ, Birbeck GL, Jensen RH, et al. Headache disorders are third cause of disability worldwide. *J Headache Pain* **2015**;16:58.
- Steiner TJ, Stovner LJ, Jensen R, et al. Lifting The Burden: The Global Campaign against Headache. Migraine remains second among the world's causes of disability, and first among young women: Findings from GBD2019. *J Headache Pain* **2020**;21:137.
- Sacco S, Braschinsky M, Ducros A, et al. European headache federation consensus on the definition of resistant and refractory migraine. *J Headache Pain* **2020**;21:1–12.
- Eigenbrodt AK, Ashina H, Khan S, et al. Diagnosis and management of migraine in ten steps. *Nat Rev Neurol* **2021**;17:501–514.
- Chiang CC, Halker Singh R, Lalvani N, et al. Patient experience of telemedicine for headache care during the COVID-19 pandemic: An American Migraine Foundation survey study. *Headache* **2021**;61:734–739.
- Kristoffersen ES, Sandset EC, Winsvold BS, et al. Experiences of telemedicine in neurological out-patient clinics during the COVID-19 pandemic. *Ann Clin Transl Neurol* **2021**;8:440–447.
- McKenna MC, Al-Hinai M, Bradley D, et al. Patients' Experiences of Remote Neurology Consultations during the COVID-19 Pandemic. *Eur Neurol* **2020**;83:622–625.
- Friedman DI, Rajan B, Seidmann A. A randomized trial of telemedicine for migraine management. *Cephalalgia* **2019**;39:1577–1585.
- Hatcher-Martin JM, Adams JL, Anderson ER, et al. Telemedicine in neurology: Telemedicine Work Group of the American Academy of Neurology update. *Neurology* **2020**;94:30–38.
- Ogrinc G, Davies L, Goodman D, et al. SQUIRE 2.0 (Standards for Quality Improvement Reporting Excellence): Revised Publication Guidelines from a Detailed Consensus Process. *Perm J* **2015**;19:65–70.
- Steiner TJ, Antonaci F, Jensen R, et al. Recommendations for headache service organisation and delivery in Europe. *J Headache Pain* **2011**;12:419–426.
- Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation). **2016**.
- Presidency of the Council of Ministers. Agreement between the government, the regions and the autonomous provinces of Trento and Bolzano on the document bearing Telemedicine-National guidelines. **2014**. Available at https://www.salute.gov.it/imgs/C_17_paginaArea_2515_1_file.pdf (last accessed September 21, 2021).
- Resolution of the Abruzzo Regional Council 481 of 05 August 2020. **2020**. Available at <https://www.regione.abruzzo.it/content/dgr-n-481-del-05082020> (last accessed September 21, 2021).
- Presidency of the Council of Ministers. National indications for the provision of telemedicine. **2020**. Available at www.statoregioni.it/media/3221/p-3-csr-rep-n-215-17dic2020.pdf (last accessed September 21, 2021).
- Butcher HK, Bulechek GM, Dochterman JMM, et al. *Nursing interventions classification (NIC)-E-Book*. United States of America: Elsevier Health Sciences, **2018**.
- Herdman TH. *Nursing diagnoses 2012–14: Definitions and classification*. United States of America: John Wiley & Sons, **2012**.
- Moorhead S, Johnson M, Maas ML, et al. *Nursing outcomes classification (NOC)-E-Book: Measurement of health outcomes*. The Netherlands: Elsevier Health Sciences, **2018**.
- Wilkinson JM, Barcus L, Meneghetti O, et al. *Nursing diagnosis with NOC and NIC*. CEA, **2017**.
- RedCap. Available at <https://www.project-redcap.org> (last accessed September 21, 2021).
- Sarsby A. *SWOT analysis*. England: Lidership Library, **2016**.
- Müller KI, Alstadhaug KB, Bekkelund SI. A randomized trial of telemedicine efficacy and safety for nonacute headaches. *Neurology* **2017**;89:153–162.
- Müller KI, Alstadhaug KB, Bekkelund SI. Telemedicine in the management of non-acute headaches: A prospective, open-labelled non-inferiority, randomised clinical trial. *Cephalalgia* **2017**;37:855–863.
- Domingues RB, Mantese CE, Aquino EDS, et al. Telemedicine in neurology: Current evidence. *Arq Neuropsiquiatr* **2020**;78:818–826.
- Müller KI, Alstadhaug KB, Bekkelund SI. Acceptability, feasibility, and cost of telemedicine for nonacute headaches: A randomized study comparing video and traditional consultations. *J Med Internet Res* **2016**;18:e140.
- Dante A, La Cerra C, Masotta V, et al. Efficacy of high-fidelity simulation on learning outcomes: Immediate results for a postgraduate intensive care nursing course. In: Popescu E, Belén Gil A, Lancia L, Simona Sica L, Mavroudi A., eds. *Methodologies and Intelligent Systems for Technology Enhanced Learning, 9th International Conference, Workshops. MIS4TEL 2019. Advances in Intelligent Systems and Computing*, vol. 1008. Cham: Springer, 32–39, **2019**.

28. Dante A, Marcotullio A, Masotta V, et al. From high-fidelity patient simulators to robotics and artificial intelligence: A discussion paper on new challenges to enhance learning in nursing education. In: Kubincová Z, Lancia L, Popescu E, Nakayama M, Scarano V, Gil A., eds. *Methodologies and Intelligent Systems for Technology Enhanced Learning, 10th International Conference. Workshops. MIS4TEL 2020. Advances in Intelligent Systems and Computing*, vol. 1236. Cham: Springer, 111–118, 2020.
29. Franciosi EB, Tan AJ, Kassamali B, et al. The impact of telehealth implementation on underserved populations and no-show rates by medical specialty during the COVID-19 pandemic. *Telemed J E Health* 2021;27:874–880.
30. Main A, Abu-Saad H, Salt R, et al. Management by nurses of primary headache: A pilot study. *Curr Med Res Opin* 2002;18:471–478.
31. Beiser M, Lu V, Paul S, et al. Electronic health record usage patterns: Assessing telemedicine's impact on the provider experience during the COVID-19 pandemic. *Telemed J E Health* 2021;27:934–938.
32. Parikh SK, Young WB. Migraine: Stigma in society. *Curr Pain Headache Rep* 2019;23:8.
33. Kirkland E, Schumann SO, Schreiner A, et al. Patient demographics and clinic type are associated with patient engagement within a remote monitoring program. *Telemed J E Health* 2021;27:843–850.
34. Provenzano D, Narouze S. Telemedicine healthcare for headache medicine during COVID-19 and beyond. *Ann Head Med* 2020;2:3.
35. Strowd RE, Strauss L, Graham R, et al. Rapid implementation of outpatient teleneurology in rural Appalachia: Barriers and disparities. *Neurol Clin Pract* 2021;11:232–241.

Address correspondence to:
Valeria Caponnetto, PhD, MSN, RN
Neuroscience Section
Department of Applied Clinical Sciences and Biotechnology
University of L'Aquila
L'Aquila 67100
Italy

E-mail: valeria.caponnetto@univaq.it;
caponnettovaleria@gmail.com

Received: August 19, 2021

Revised: September 21, 2021

Accepted: September 21, 2021

Online Publication Date: November 10, 2021