Experiences with remote communication in adult intensive care units during the COVID-19 pandemic: a systematic review protocol

Ana Filipa Cardoso^{1,2,3} • Miguel Grilo Pires^{1,4} • Elisabete Cioga^{1,4} • Inês Abalroado^{1,4} • Diana Santos^{1,2,4} • Filipa Margarida Duque^{1,2} • Ricardo Loureiro^{1,2} • Helena Felizardo^{1,2} • António Manuel Fernandes^{1,2,3} • Rosa Silva^{2,3,5} • Filipa Ventura^{1,2} • Elaine Santana^{1,2} • Daniela Cardoso^{1,2,3} • Luís Loureiro^{1,2}

¹Nursing School of Coimbra (ESEnfC), Coimbra, Portugal, ²Health Sciences Research Unit: Nursing (UICISA:E), Nursing School of Coimbra (ESEnfC), Coimbra, Portugal, ³Portugal Centre for Evidence Based Practice: A JBI Centre of Excellence, Health Sciences Research Unit: Nursing, Nursing School of Coimbra, Coimbra, Portugal, ⁴Centro Hospitalar e Universitário de Coimbra (CHUC), Coimbra, Portugal, and ⁵Nursing School of Porto (ESEP), Porto, Portugal

ABSTRACT

Objective: The objective of this review is to explore the lived experiences of critically ill adults, their families, or health care professionals with remote communication in intensive care units (ICUs) during the COVID-19 pandemic.

Introduction: Family visiting restrictions in ICUs during the COVID-19 pandemic imposed significant challenges to communication between critically ill adults, their families, and the health care team. Evidence shows that several communication strategies were developed and implemented in ICUs during the COVID-19 pandemic to promote family engagement; however, the experiences of critically ill adults, their families, and health care professionals with these strategies are scattered across primary qualitative studies.

Inclusion criteria: This review will consider qualitative studies that include critically ill adults, their families, or health care professionals, focusing on their experiences with remote communication strategies in ICUs during the COVID-19 pandemic.

Methods: This review will be conducted in accordance with JBI methodology. The search strategy will aim to locate both published and unpublished qualitative studies in English, Spanish, and Portuguese. Studies published after January 2020 will be included. Study selection, critical appraisal, and data extraction will be performed independently by 2 reviewers. Data will be presented in narrative format and synthesized using the JBI metaaggregation process. A ConQual Summary of Findings will be presented.

Review registration: PROSPERO CRD42022383603

Keywords: communication; COVID-19; family; intensive care units

JBI Evid Synth 2023; 21(00):1-10.

Introduction

amily members are increasingly recognized as essential partners in addressing adult patients' complex cognitive, emotional, social, and practical needs in intensive care units (ICUs). Family members may also act as decision-makers, advocate on behalf of their relatives, and provide support or care during the patient's ICU stay. The physical presence

of families in the ICU can also facilitate more timely dialogue between them and the health care team.¹

There is increasing evidence that critical illness

There is increasing evidence that critical illness has a significant impact on patients' family members, 1,3 namely increased risk for psychological symptoms, such as post-traumatic stress disorder (long-term effects), anxiety, and depressive symptoms during and after the ICU experience. 4,5

On March 11, 2020, the World Health Organization declared COVID-19 a global pandemic,⁶ which led to the implementation of exceptional contingency policies by many health care institutions to

Correspondence: Ana Filipa Cardoso, fcardoso@esenfc.pt The authors declare no conflict of interest.

DOI: 10.11124/JBIES-23-00002

PROOF

SYSTEMATIC REVIEW PROTOCOL

A.F. Cardoso et al.

promote security and mitigate infection spread. These policies included severe restrictions to family visiting hospitals and extended to most ICUs.^{2,4,7}

These visiting restrictions during the COVID-19 pandemic led to an abrupt halt in successful initiatives to expand family presence and involvement in the care of ICU patients.¹ Evidence shows that it caused an inevitable separation between critically ill patients and their families,² affected communication with the health care team,⁸ and forced changes within the family.^{5,6}

Kentish-Barnes *et al.*⁵ examined the experiences of bereaved family members after the death of a loved one in an ICU during the first wave of the COVID-19 pandemic, revealing that family members struggled to cope while separated from their loved one and their support networks. Due to restricted access to ICUs, family members experienced discontinuity and interruptions in the relationships with their loved ones, which were associated with feelings of powerlessness, abandonment, and unreality.⁵

Even though family communication is recognized as a central component of critical care,^{2,8} effective communication between patients, their families, and the health care team in ICUs was significantly challenged during the COVID-19 pandemic.^{8–10} While communication and visits shifted from in-person towards exclusively remote interactions via telephone or video calls,¹¹ relatives were often unable to communicate face-to-face or remotely with their loved ones because critically ill adults were deeply sedated and receiving mechanical ventilation.

In these circumstances, the members of the ICU team bridged the connection between critically ill patients and their families. However, communication between relatives and the health care team was often difficult due to the heavy workload of the medical ICU staff⁸ and the use of personal protective equipment, requiring new ways for patients and families to connect.¹²

Evidence shows that communication between families and health care teams was irregular or inconsistent, focusing solely on sharing medical information, rather than providing much-needed emotional support. Family members experienced difficulties establishing rapport and bonding with the ICU team, as well as understanding the clinical information.⁵ Family absence not only had a negative influence on the transfer of information, but also

had the potential to reduce access to patients' past medical history, as family members are often the best keepers of continuity-of-care information.¹³ This evidence raises awareness of the need for tailored interventions regarding family support.

Several guidelines encourage a family-centered approach in ICUs³ and recommend structured interventions to support and empower family members and caregivers of critically ill adults.¹⁴ During the COVID-19 pandemic, the lack of family presence in ICUs disrupted the delivery of person- and family-centered care² and required a shift from face-to-face clinical encounters to video-based communications.¹⁵

Given the communication challenges between families and health care teams during the COVID-19 pandemic, families had a strong need for information and support. Several ICUs developed, implemented, and evaluated communication strategies to enhance communication between families, their loved ones, and the health care team, and mitigate the effects of isolation and distancing.¹⁰ An increasing number of studies have addressed these interventions.

In a systematic review, Fernández-Martínez *et al.*¹⁰ reported a variety of interventions developed in ICUs during the COVID-19 pandemic to promote effective communication, mainly through the use of telecommunication systems, such as telephone calls, video calls, applications like FaceTime and Skype, applications developed by the hospitals themselves through tablet or mobile devices, and video surveillance cameras or room microphones to directly connect the family to the patient's room.¹⁰

Checklists when establishing contact with families by telephone or video were also used to share information. More recent studies reported the use of videoconferencing¹⁶ or video calls.^{7,17} Other methods to engage families were also found, such as the creation of liaison groups to encourage family engagement with health care teams, including ICU family liaison services,¹⁶ family support teams,⁸ or video diaries.¹⁸

Some evidence points out that virtual communication between families and health care professionals in ICUs is a useful alternative to in-person meetings.¹⁹ It may have answered the family's need for support during the COVID-19 pandemic as well as in a post-COVID world. However, remote family support should be tailored to the relatives' needs⁸ and cannot replace physical visits.^{8,19,20}

PROOF

SYSTEMATIC REVIEW PROTOCOL

A.F. Cardoso et al.

Distance communication has both advantages and challenges when compared with in-person visits. ²⁰ Kennedy *et al.* ¹⁹ found that many health care team members were worried about conveying empathy and establishing trust with families through telehealth communication. Families, however, typically felt that clinicians' empathy was readily apparent and reported that they trusted the clinicians even without the ability to meet them in person. ¹⁹ In contrast, Kentish-Barnes *et al.* ⁵ reported that distance communication was insufficient for family members who experienced an increased feeling of solitude. ⁵

Otte *et al.*²⁰ also found that nurses considered video calls an advantage because they provided a window into people's homes and everyday lives that telephone calls or in-person visits could not. Additionally, video calls were a helpful tool in providing a private space for relatives and patients to be together, which was needed. Nurses also experienced several challenges, including establishing an adequate internet connection and problems with the loud-speaker function.²⁰

There were also difficulties with the limited time and capacity to deal with technical problems or ethical issues related to filming. 19,20 Although the nurses were optimistic about these alternatives, none of them felt they could replace a face-to-face visit, and they all preferred the presence of relatives in the ward.¹⁹ In addition to the evidence on the strategies and their effectiveness, qualitative studies have been conducted on the perceptions, experiences, and perspectives of critically ill adults, their families, or health care professionals about being distant and having to communicate using remote communication strategies. 19-23 Since policymaking and evidence-based care should also be informed by evidence on end-users' experiences, there is a need to synthesize the lived experiences of critically ill patients, their families, and health care professionals with remote communication strategies during the COVID-19 pandemic. This synthesis is particularly relevant because these strategies may be used in future similar situations and equity, quality, and access to care and support must be ensured.

A preliminary search of CINAHL, MEDLINE, the Cochrane Database of Systematic Reviews, PROSPERO, and *JBI Evidence Synthesis* was conducted. This search found a systematic review by Fernández-Martínez *et al.*, ¹⁰ who reported a variety

of interventions to promote effective communication in ICUs during COVID-19, namely the use of telecommunication systems. However, it did not address the lived experiences of critically ill adults who had to communicate with their relatives or health care professionals using remote strategies.

It is necessary to address these gaps by appraising and synthesizing the available evidence on the lived experiences of critically ill adults, their families, or health care professionals who had to communicate remotely in ICUs during the COVID-19 pandemic.

Review question

What are the lived experiences of critically ill adults, their families, or health care professionals who had to communicate remotely in ICUs during the COVID-19 pandemic?

Inclusion criteria

Participants

This review will consider studies including critically ill adults (aged 18 years or over) admitted to ICUs where visits were restricted, regardless of the type, level, or reason. Studies examining the experiences of family members, such as members of their nuclear family or other significant people (caregivers and/or friends), or ICU nurses or doctors will also be considered for inclusion.

For the scope of this review ICU will be considered as:

an organized system for the provision of care to critically ill patients that provides intensive and specialized medical and nursing care, an enhanced capacity for monitoring, and multiple modalities of physiologic organ support to sustain life during a period of life-threatening organ system insufficiency. Although an ICU is based in a defined geographic area of a hospital, its activities often extend beyond the walls of the physical space to include the emergency department, hospital ward, and follow-up clinic.²⁴ (para.1)

Phenomena of interest

This review will consider studies that report the lived experiences of critically ill adults, their family members, or health care professionals who had to communicate remotely using different resources, such as telephone calls, video calls, or video diaries. These communication strategies can be used between



A.F. Cardoso et al.

critically ill adults and family members or between family members and health care professionals. For the scope of this review, lived experiences will be considered the personal knowledge of a certain conscious phenomenon gained through direct participation and involvement in the phenomenon and the meanings people bring to them.²⁵

Context

This review will consider studies that have been developed in any ICU during the COVID-19 pandemic.

Types of studies

This review will consider qualitative studies, including designs such as phenomenology, discourse analysis, or descriptive studies that focus on the phenomena. The gray literature will also include academic papers, thesis and dissertations, research and committee reports, government reports, and conference papers.

Methods

The proposed systematic review will be conducted in accordance with the JBI methodology for systematic reviews of qualitative evidence²⁶ and in line with the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA).²⁷

Search strategy

The search strategy will aim to locate both published and unpublished studies. An initial limited search of MEDLINE (PubMed) and CINAHL (EBSCOhost) was undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy for MEDLINE (PubMed; see Appendix I). The search strategy, including all identified keywords and index terms, will be adapted for each included information source.

The databases to be searched include CINAHL Complete (EBSCOhost), MEDLINE Complete (PubMed), Academic Search Complete (EBSCOhost), Psychology and Behavioral Sciences Collection (EBSCOhost), Scopus, and Web of Science Core Collection. The sources of unpublished studies and gray literature to be searched include Google Scholar (the first 10 pages of results), Repositório Científico de

Acesso Aberto de Portugal (RCAAP), DART-Europe, and MedNar. The reference lists of all studies selected for critical appraisal will be screened for additional studies. Studies published in English, Spanish, and Portuguese after January 2020 will be included since the first cases of COVID-19 were reported in December 2019. The language restrictions will be imposed as recent evidence highlights that "restricting systematic reviews to English-language publications appears to have little impact on the effect estimates." ^{28(para/4)}

Study selection

Following the search, all identified citations will be collated and uploaded into Mendeley v.1.19.4 (Mendeley Ltd., Elsevier, Netherlands) and duplicates removed. Following a pilot test, titles and abstracts will be screened by 2 independent reviewers for assessment against the inclusion criteria for the review. Potentially relevant papers will be retrieved in full and their citation details imported into the JBI System for the Unified Management, Assessment and Review of Information (JBI SUMARI; JBI, Adelaide, Australia).²⁹

The full text of selected citations will be assessed in detail against the inclusion criteria by 2 independent reviewers. Reasons for exclusion of full-text studies that do not meet the inclusion criteria will be recorded and reported in the systematic review. Any disagreements that arise between the reviewers at each stage of the study selection process will be resolved through discussion or with a third reviewer. The results of the search will be reported in full in the final systematic review and presented in a PRISMA flow diagram.²⁷

Assessment of methodological quality

Eligible studies will be critically appraised by 2 independent reviewers for methodological quality using the standard JBI critical appraisal checklist for qualitative research.²⁶ Authors of papers will be contacted to request missing or additional data for clarification, where required. Any disagreements that arise between the reviewers will be resolved through discussion or with a third reviewer. The results of critical appraisal will be reported in narrative format and in a table. Regarding critical appraisal, all studies, regardless of the results of their methodological quality,²⁶ will undergo data extraction and synthesis (where possible).

PROOF

SYSTEMATIC REVIEW PROTOCOL

A.F. Cardoso et al.

Data extraction

Data will be extracted from studies included in the review by 2 independent reviewers using the standardized IBI data extraction tool.²⁶ The data extracted will include specific details about the populations, context, culture, geographical settings, study methods, and the phenomena of interest relevant to the review objective. The data extraction level will be determined when studies are selected and reported in the review methods.²⁶ Findings and their illustrations will be extracted verbatim and assigned a level of credibility. Any disagreements that arise between the reviewers will be resolved through discussion or with a third reviewer. Authors of papers will be contacted to request missing or additional data, where required. Two independent reviewers will chart the first 5 to 10 studies using the data extraction form and determine whether the data extraction approach is consistent with the research question.²⁶

Data synthesis

Qualitative research findings will, where possible, be pooled using JBI SUMARI with the meta-aggregation approach.³⁰ This will involve the aggregation or synthesis of findings to generate a set of statements that represent that aggregation through assembling the findings and categorizing them based on similarity in meaning. These categories will then be synthesized to produce a single comprehensive set of synthesized findings that can be used as a basis for evidence-based practice. Where textual pooling is not possible, the findings will be presented in narrative format. Only unequivocal and credible findings will be included in the synthesis.

Assessing confidence in the findings

The final synthesized findings will be graded according to the ConQual approach for establishing confidence in the output of qualitative research synthesis and presented in a Summary of Findings.³¹ The Summary of Findings includes the major elements of the review and details how the ConQual score is developed. The title, population, phenomena of interest, and context for the specific review will be included in the summary. Each synthesized finding from the review will then be presented, along with the type of research informing it, a score for dependability and credibility, and the overall ConQual score.³¹

Author contributions

AFC and DC contributed to the conceptualization of the review. AFC contributed to the supervision, methodology, and writing of the original draft. DC, MGP, EC, IA, DS, FMD, RL, HF, AMF, RS, FV, ES, LL contributed to the methodology, and the writing (review and editing).

References

- Honarmand K, Mehta S. Consequences of visitor restriction policies in the intensive care unit during the COVID-19 pandemic. Can J Anesthes 2021:68(10):1465–70.
- Fiest KM, Krewulak KD, Hernández LC, Jaworska N, Makuk K, Schalm E, et al. Evidence-informed consensus statements to guide COVID-19 patient visitation policies: results from a national stakeholder meeting. Can J Anesthes 2022;69(7): 868–79.
- 3. Davidson JE, Aslakson RA, Long AC, Puntillo KA, Kross EK, Hart J, *et al.* Guidelines for family-centered care in the neonatal, pediatric, and adult ICU. Crit Care Med 2017;45 (1):103–28.
- Ashana DC, Cox CE. Providing family-centered intensive care unit care without family presence—human connection in the time of COVID-19. JAMA Netw Open 2021;4(6): e2113452–.
- Kentish-Barnes N, Cohen-Solal Z, Morin L, Souppart V, Pochard F, Azoulay E. Lived experiences of family members of patients with severe COVID-19 who died in intensive care units in France. JAMA Netw Open 2021;4(6):e2113355.
- Rolling updates on coronavirus disease (COVID-19). WHO; 2020 [cited 2023 Mar 11]. [No longer available online].
- 7. Langer T, Depalo FC, Forlini C, Landini S, Mezzetti A, Previtali P, et al. Communication and visiting policies in Italian intensive care units during the first COVID-19 pandemic wave and lockdown: a nationwide survey. BMC Anesthesiol 2022;22(1):187.
- 8. Klop HT, Nasori M, Klinge TW, Hoopman R, de Vos MA, du Perron C, et al. Family support on intensive care units during the COVID-19 pandemic: a qualitative evaluation study into experiences of relatives. BMC Health Serv Res 2021;21(1):1060.
- Fiest KM, Krewulak KD, Makuk K, Jaworska N, Hernández L, Bagshaw SM, et al. A modified Delphi process to prioritize experiences and guidance related to ICU restricted visitation policies during the coronavirus disease 2019 pandemic. Crit Care Explor 2021;3(10):e0562.
- Fernández-Martínez E, Mapango EA, Martínez-Fernández MC, Valle-Barrio V. Family-centred care of patients admitted to the intensive care unit in times of COVID-19: a systematic review. Intens Crit Care Nurs 2022;70:103223.
- 11. Interim infection prevention and control recommendations for patients with suspected or confirmed coronavirus disease 2019 (COVID-19) in healthcare settings. CDC; 2020



A.F. Cardoso et al.

- [cited 2020 03 11]. Available from: https://stacks.cdc.gov/view/cdc/86043.
- 12. Fang J, Liu YT, Lee EY, Yadav K. Telehealth solutions for inhospital communication with patients under isolation during COVID-19. West J Emerg Med 2020;21(4):801.
- Rose L, Yu L, Casey J, Cook A, Metaxa V, Pattison N, et al. Communication and virtual visiting for families of patients in intensive care during the COVID-19 pandemic: a UK national survey. Ann Am Thorac Soc 2021;18(10):1685–92.
- McAdam JL, Fontaine DK, White DB, Dracup KA, Puntillo KA. Psychological symptoms of family members of high-risk intensive care unit patients. Am J Crit Care 2012;21(6): 386–94.
- 15. Finset A. How does the Covid-19 pandemic affect providerpatient relations? Patient Educ Counsel 2021;104(3):437.
- Chua CKZ. New strategies to improve communication in the intensive care unit during the COVID-19 pandemic. Critic Care 2022;26(1):191.
- Sanfilippo F, La Via L, Schembari G, Tornitore F, Zuccaro G, Morgana A, et al. Implementation of video-calls between patients admitted to intensive care unit during the COVID-19 pandemic and their families: a pilot study of psychological effects. J Anesthes Analg Critic Care 2022;2(1):38.
- 18. Rodgers S, Gillespie D, Kean S, McCulloch C, Donaghy E, Tocher J, et al. Exploring the use of video diaries for family members of intensive care patients, by Sheila Rodgers [internet]. University of Edinburgh; 2021 [cited 2023 01 31]. Avail able from: https://blogs.ed.ac.uk/covid19perspectives/2021/07/22/exploring-the-use-of-video-diaries-for-family-mem bers-of-intensive-care-patients-by-sheila-rodgers/.
- 19. Kennedy NR, Steinberg A, Arnold RM, Doshi AA, White DB, DeLair W, *et al.* Perspectives on telephone and video communication in the intensive care unit during COVID-19. Ann Am Thorac Soc 2021;18(5):838–47.
- 20. Otte HR, Østergaard D, Meyhoff CS, Clausen NE, Bendixen G, Linderoth G. Introducing video calls in an intensive care unit during the COVID-19 lockdown: a qualitative study. Dan Med J 2022;69(6):A09210717.
- Sasangohar F, Dhala A, Zheng F, Ahmadi N, Kash B, Masud F. Use of telecritical care for family visitation to ICU during the COVID-19 pandemic: an interview study and sentiment analysis. BMJ Qual Saf 2021;30(9):715–21.
- 22. Fritz C, Claude L-A, Hamada S, Trosdorf M, de la Barre H, Yavchitz A, et al. Daily telephone call during the COVID-19

- pandemic: perceptions of families and providers. Am J Crit Care 2022;31(1):77–81.
- 23. Hochendoner SJ, Amass TH, Curtis JR, Witt P, Weng X, Toyobo O, *et al.* Voices from the pandemic: a qualitative study of family experiences and suggestions regarding the care of critically ill patients. Ann Am Thorac Soc 2022;19(4): 614–24.
- 24. Marshall JC, Bosco L, Adhikari NK, Connolly B, Diaz JV, Dorman T, et al. What is an intensive care unit? A report of the task force of the World Federation of Societies of Intensive and Critical Care Medicine. J Crit Care 2017;37: 270–6.
- Sibeoni J, Verneuil L, Manolios E, Révah-Levy A. A specific method for qualitative medical research: the IPSE (Inductive Process to analyze the Structure of lived Experience) approach. BMC Med Res Methodol 2020;20(1):216.
- Lockwood C, Porrit K, Munn Z, Rittenmeyer L, Salmond S, Bjerrum M, et al. Systematic reviews of qualitative evidence. JBI Manual for Evidence Synthesis [internet]JBI; 2020 [cited 2023 03 11]. Available from: https://synthesismanual.jbi. global.
- Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. Int J Surg 2021; 88:105906.
- Dobrescu Al, Nussbaumer-Streit B, Klerings I, Wagner G, Persad E, Sommer I, et al. Restricting evidence syntheses of interventions to English-language publications is a viable methodological shortcut for most medical topics: a systematic review. J Clin Epidemiol 2021;137:209–17.
- Munn Z, Aromataris E, Tufanaru C, Stern C, Porritt K, Farrow J, et al. The development of software to support multiple systematic review types: the Joanna Briggs Institute System for the Unified Management. Assessment and Review of Information (JBI SUMARI) JBI Evid Implement 2019;17(1): 36–43
- 30. Lockwood C, Munn Z, Porritt K. Qualitative research synthesis: methodological guidance for systematic reviewers utilizing meta-aggregation. JBI Evid Implement 2015;13(3): 179–87
- 31. Munn Z, Porritt K, Lockwood C, Aromataris E, Pearson A. Establishing confidence in the output of qualitative research synthesis: the ConQual approach. BMC Med Res Methodol 2014;14(1):1–7.



A.F. Cardoso et al.

Appendix I: Search strategy

MEDLINE (PubMed)

Search conducted on August 13, 2023.

Query	Results
((((("critically ill"[Title/Abstract] OR patient*[Title/Abstract] OR famil*[Title/Abstract] OR caregiver*[Title/Abstract] OR "care giver"[Title/Abstract] OR relative*[Title/Abstract] OR friend*[Title/Abstract] OR carer*[Title/Abstract] OR spouse*[Title/Abstract] OR wices[Title/Abstract] OR mother*[Title/Abstract] OR wices[Title/Abstract] OR mother*[Title/Abstract] OR sister*[Title/Abstract] OR brother*[Title/Abstract] OR norther*[Title/Abstract] OR mother*[Title/Abstract] OR mother*[Title/Abstract] OR mother*[Title/Abstract] OR "healthcare team"[Title/Abstract] OR "healthcare professional"[Title/Abstract] OR "healthcare professional"[Title/Abstract] OR "Spouses"[Mesh] OR "Spouses"[Mesh] OR "Gregivers"[Mesh] OR "Family"[Mesh:NoExp] OR "Parents"[Mesh] OR "Slolings"[Mesh] OR "Spouses"[Mesh] OR "Caregivers"[Mesh] OR "Health Personnel"[Mesh:NoExp] OR "Nurses"[Mesh] OR "Nursing Staff"[Mesh] OR "Spouses"[Mesh] OR "Caregivers"[Mesh] OR "Critical care"[Title/Abstract] OR "Critical care"[Title/Abstract] OR "Critical care"[Title/Abstract] OR "Critical care"[Title/Abstract] OR "Stroke units"[Title/Abstract] OR "intensive therapy"[Title/Abstract] OR "burn units"[Title/Abstract] OR "furn units"[Title/Abstract] OR "coronary care units"[Title/Abstract] OR "coronary care units"[Title/Abstract] OR "coronary care units"[Title/Abstract] OR "coronary care units"[Title/Abstract] OR "Grespiratory care units"[Title/Abstract] OR "Grespiratory care units"[Title/Abstract] OR "Respiratory Care Units"[Mesh])) AND (experience*[Title/Abstract] OR perspective*[Title/Abstract] OR perspective*[Title/Abstract] OR smartphone*[Title/Abstract] OR telecommunication*[Title/Abstract] OR telecommunication*[Title/Abstract] OR wideo*[Title/Abstract] OR smartphone*[Title/Abstract] OR video*[Title/Abstract] OR smartphone*[Title/Abstract] OR video*[Title/Abstract] OR "grounded studies"[Title/Abstract] OR "foronary in disease"[Title/Abstract] OR "grounded studies"[Title/Abstract] OR "grounded research"[Title/Abstract] OR "grounded studies"[Title/Abstract] OR	102
((((("critically ill"[Title/Abstract] OR patient*[Title/Abstract] OR famil*[Title/Abstract] OR caregiver*[Title/Abstract] OR "care givers"[Title/Abstract] OR relative*[Title/Abstract] OR friend*[Title/Abstract] OR carer*[Title/Abstract] OR spouse*[Title/Abstract] OR wiser*[Title/Abstract] OR wiser*[Title/Abstract] OR sister*[Title/Abstract] OR wiser*[Title/Abstract] OR mother*[Title/Abstract] OR sister*[Title/Abstract] OR mother*[Title/Abstract] OR mother*[Title/Abstract] OR mother*[Title/Abstract] OR mother*[Title/Abstract] OR mother*[Title/Abstract] OR "healthcare professionals"[Title/Abstract] OR "healthcare professionals"[Title/Abstract] OR "framily"[Mesh:NoExp] OR "Parents"[Mesh] OR "Siblings"[Mesh] OR "Spouses"[Mesh] OR "Caregivers"[Mesh] OR "Health Personnel"[Mesh:NoExp] OR "Murses"[Mesh] OR "Stroke units"[Title/Abstract] OR "critical care"[Title/Abstract] OR "fulle/Abstract] OR "formunits"[Title/Abstract] OR "fulle/Abstract] OR generative fulle/Abstract] OR generative fulle/Abstract] OR "fulle/Abstract] OR generative fulle/Abstract]	102
(((((("critically ill"[Title/Abstract] OR patient*[Title/Abstract] OR famil*[Title/Abstract] OR caregiver*[Title/Abstract] OR "care givers"[Title/Abstract] OR "care giver"[Title/Abstract] OR relative*[Title/Abstract] OR friend*[Title/Abstract] OR carer*[Title/Abstract] OR spouse*[Title/Abstract] OR carer*[Title/Abstract] OR care	102



A.F. Cardoso et al.

(Continued)	
Query	Results
Abstract] OR husband*[Title/Abstract] OR wives[Title/Abstract] OR wife[Title/Abstract] OR parent*[Title/Abstract] OR father*[Title/Abstract] OR mother*[Title/Abstract] OR sister*[Title/Abstract] OR brother*[Title/Abstract] OR nurse*[Title/Abstract] OR doctor*[Title/Abstract] OR physician*[Title/Abstract] OR "healthcare team"[Title/Abstract] OR "healthcare professionals"[Title/Abstract] OR "forticial lilness" [Mesh] OR "Family"[Mesh:NoExp] OR "Parents"[Mesh] OR "Siblings"[Mesh] OR "Physicians" [Mesh]) OR "Caregivers" [Mesh] OR "Internet" [Mesh] OR "Caregivers" [Mesh] OR "Caregivers" [Mesh] OR "Internet" [Mesh] OR "Caregivers" [Mesh] OR	
(((((("critically ill"[Title/Abstract] OR patient*[Title/Abstract] OR famil*[Title/Abstract] OR caregiver*[Title/Abstract] OR "care giver"[Title/Abstract] OR relative*[Title/Abstract] OR friend*[Title/Abstract] OR carer*[Title/Abstract] OR spouse*[Title/Abstract] OR wisbarat] OR husband*[Title/Abstract] OR wives[Title/Abstract] OR wives[Title/Abstract] OR parent*[Title/Abstract] OR family*[Title/Abstract] OR sister*[Title/Abstract] OR brother*[Title/Abstract] OR nurse*[Title/Abstract] OR doctor*[Title/Abstract] OR physician*[Title/Abstract] OR "healthcare professional*[Title/Abstract] OR "healthcare professional*[Title/Abstract] OR "Spouses*[Mesh] OR "Caregivers*[Mesh] OR "Health Personnel*[Mesh:NoExp] OR "Parents*[Mesh] OR "Siblings*[Mesh] OR "Spouses*[Mesh] OR "Caregivers*[Mesh] OR "Health Personnel*[Mesh:NoExp] OR "Nursing Staff*[Mesh] OR "Stroke unit*[Title/Abstract] OR "Critical care*[Title/Abstract] OR "Critical care*[Title/Abstract] OR "Stroke unit*[Title/Abstract] OR "Critical Care*[Title/Abstract] OR "Intensive Care*[Title/Abstract] OR "Critical care*[Title/Abstract] OR "Intensive Care*[Title/Abstract] OR "Intensive therapy*[Title/Abstract] OR "Intensive Care*[Title/Abstract] OR "Intensive therapy*[Title/Abstract] OR "Intensive Care*[Title/Abstract] OR "Surn units*[Title/Abstract] OR "Coronary care units*[Title/Abstract] OR "Coronary care units*[Title/Abstract] OR "Coronary care units*[Title/Abstract] OR "Respiratory care units*[Title/Abstract] OR "Respiratory care units*[Title/Abstract] OR "Coronary Care*[Title/Abstract] OR "Cronary Care*[Title/Abstract] OR "Cronary Care*[Title/Abstract] OR "Cronary Care*[Title/Abstract] OR "Respiratory Care*[Title/Abstract] OR "Cronary Care*[Title/Abstract] OR "Crona	104
(((((("critically ill"[Title/Abstract] OR patient*[Title/Abstract] OR famil*[Title/Abstract] OR caregiver*[Title/Abstract] OR "care givers"[Title/Abstract] OR famil*[Title/Abstract] OR caregiver*[Title/Abstract] OR spouse*[Title/Abstract] OR spouse*[Title/Abstract] OR husband*[Title/Abstract] OR wise[Title/Abstract] OR mife[Title/Abstract] OR parent*[Title/Abstract] OR father*[Title/Abstract] OR nother*[Title/Abstract] OR nurse*[Title/Abstract] OR nurse*[Title/Abstract] OR mother*[Title/Abstract] OR mise[Title/Abstract] OR mise[Mesh] OR mis	104



A.F. Cardoso et al.

(Continued)	
Query	Results
Abstract]) OR ("Intensive Care Units" [Mesh:NoExp] OR "Burn Units" [Mesh] OR "Coronary Care Units" [Mesh] OR "Respiratory Care Units" [Mesh]))) AND (experience* [Title/Abstract] OR perspective* [Title/Abstract] OR perception* [Title/Abstract])) AND (("remote communication" [Title/Abstract] OR telephone* [Title/Abstract] OR video* [Title/Abstract] OR smartphone* [Title/Abstract] OR telecommunication* [Title/Abstract] OR phone* [Title/Abstract] OR video* [Title/Abstract] OR internet [Title/Abstract] OR virtual [Title/Abstract]) OR ("Digital Technology" [Mesh] OR "Internet" [Mesh] OR "Communication" [Mesh] OR "Telecommunications" [Mesh]))) AND ((COVID-19 [Title/Abstract] OR Sars-Cov-2 [Title/Abstract] OR "coronavirus disease" [Title/Abstract] OR "severe acute respiratory syndrome coronavirus 2" [Title/Abstract] OR "COVID-19" [Mesh:NoExp] OR "SARS-CoV-2" [Mesh]])) AND ((Qualitative [Title/Abstract] OR ethnograph* [Title/Abstract] OR phenomenol* [Title/Abstract] OR ethnonurs* [Title/Abstract] OR "grounded theory" [Title/Abstract] OR "grounded study" [Title/Abstract] OR "grounded research" [Title/Abstract] OR "grounded analysis" [Title/Abstract] OR "grounded analysis" [Title/Abstract] OR hermeneutic* [Title/Abstract] OR "discourse analysis" [Title/Abstract] OR "content analysis" [Title/Abstract] OR "thematic analysis" [Title/Abstract] OR "discourse analysis" [Title/Abstract] OR interview* [Title/Abstract] OR "focus groups" [Title/Abstract] OR "ethnological research" [Title/Abstract] OR ethnomethodolog* [Title/Abstract] OR interview* [Title/Abstract] OR "lived experience" [Title/Abstract] OR hermeneutics [Title/Abstract] OR heuristic* [Title/Abstract] OR "narrative analysis" [Title/Abstract] OR "lived experience" [Title/Abstract] OR "narrative analysis" [Title/Abstract] OR "lived experience" [Title/Abstract] OR "Focus Groups" [Mesh] OR "Narration" [Mesh] OR "Personal Narratives as Topic" [Mesh]))	
(Qualitative[Title/Abstract] OR ethnograph*[Title/Abstract] OR phenomenol*[Title/Abstract] OR ethnonurs*[Title/Abstract] OR "grounded theory"[Title/Abstract] OR "grounded study"[Title/Abstract] OR "grounded studies"[Title/Abstract] OR "grounded research"[Title/Abstract] OR "grounded analysis"[Title/Abstract] OR "grounded analysis"[Title/Abstract] OR hermeneutic*[Title/Abstract] OR heuristic*[Title/Abstract] OR "action research"[Title/Abstract] OR "content analysis"[Title/Abstract] OR "thematic analysis"[Title/Abstract] OR "discourse analysis"[Title/Abstract] OR "focus group"[Title/Abstract] OR "focus group"[Title/Abstract] OR "focus groups"[Title/Abstract] OR "ethnological research"[Title/Abstract] OR ethnomethodolog* [Title/Abstract] OR interview*[Title/Abstract] OR emic[Title/Abstract] OR ethnomethodolog* [Title/Abstract] OR semiotic[Title/Abstract] OR "lived experience"[Title/Abstract] OR "lived experiences"[Title/Abstract] OR discourse[Title/Abstract] OR "narrative analysis"[Title/Abstract]) OR "Qualitative Research"[Mesh] OR "Interviews as Topic"[Mesh] OR "Focus Groups"[Mesh] OR "Narration"[Mesh] OR "Personal Narratives as Topic"[Mesh])	791,452
"Qualitative Research" [Mesh] OR "Interviews as Topic" [Mesh] OR "Focus Groups" [Mesh] OR "Narration" [Mesh] OR "Personal Narratives as Topic" [Mesh]	164,694
Qualitative[Title/Abstract] OR ethnograph*[Title/Abstract] OR phenomenol*[Title/Abstract] OR ethnonurs*[Title/Abstract] OR "grounded theory" [Title/Abstract] OR "grounded studies" [Title/Abstract] OR "grounded research" [Title/Abstract] OR "grounded analysis" [Title/Abstract] OR "grounded analysis" [Title/Abstract] OR hermeneutic*[Title/Abstract] OR heuristic*[Title/Abstract] OR "action research" [Title/Abstract] OR "content analysis" [Title/Abstract] OR "thematic analysis" [Title/Abstract] OR "discourse analysis" [Title/Abstract] OR "focus group" [Title/Abstract] OR "focus group" [Title/Abstract] OR "focus groups" [Title/Abstract] OR "focus groups" [Title/Abstract] OR "focus groups" [Title/Abstract] OR ethnological research" [Title/Abstract] OR ethnomethodolog* [Title/Abstract] OR interview*[Title/Abstract] OR emic[Title/Abstract] OR ethnomethodolog* [Title/Abstract] OR semiotic[Title/Abstract] OR "lived experiences" [Title/Abstract] OR discourse[Title/Abstract] OR "narrative analysis" [Title/Abstract] OR "lived experiences" [Title/Abstract] OR "narrative analysis" [Title/Abstract]	763,137
(COVID-19[Title/Abstract] OR Sars-Cov-2[Title/Abstract] OR "coronavirus disease"[Title/Abstract] OR "severe acute respiratory syndrome coronavirus 2"[Title/Abstract]) OR ("COVID-19"[Mesh:NoExp] OR "SARS-CoV-2"[Mesh])	372,508
"COVID-19"[Mesh:NoExp] OR "SARS-CoV-2"[Mesh]	239,823
COVID-19[Title/Abstract] OR Sars-Cov-2[Title/Abstract] OR "coronavirus disease"[Title/Abstract] OR "severe acute respiratory syndrome coronavirus 2"[Title/Abstract]	361,734
("remote communication" [Title/Abstract] OR telephone* [Title/Abstract] OR video* [Title/Abstract] OR smartphone* [Title/Abstract] OR telecommunication* [Title/Abstract] OR phone* [Title/Abstract] OR video* [Title/Abstract] OR internet [Title/Abstract] OR virtual [Title/Abstract]) OR ("Digital Technology" [Mesh] OR "Internet" [Mesh] OR "Communication" [Mesh] OR "Telecommunications" [Mesh])	914,562
"Digital Technology" [Mesh] OR "Internet" [Mesh] OR "Communication" [Mesh] OR "Telecommunications" [Mesh]	551,109
"remote communication"[Title/Abstract] OR telephone*[Title/Abstract] OR video*[Title/Abstract] OR smartphone*[Title/Abstract] OR telecommunication*[Title/Abstract] OR phone*[Title/Abstract] OR video*[Title/Abstract] OR internet[Title/Abstract] OR virtual[Title/Abstract]	461,806
experience*[Title/Abstract] OR perspective*[Title/Abstract] OR perception*[Title/Abstract]	2,006,041
("Intensive Care" [Title/Abstract] OR "Critical care" [Title/Abstract] OR ICU[Title/Abstract] OR "Stroke unit" [Title/Abstract] OR "Stroke units" [Title/Abstract] OR "Stroke units" [Title/Abstract] OR "Stroke units" [Title/Abstract] OR "Coronary care Units" [Mesh:NoExp] OR "Burn Units" [Mesh] OR "Coronary Care Units" [Mesh] OR "Respiratory Care Units" [Mesh] OR "Coronary	281,516



A.F. Cardoso et al.

(Continued)	
Query	Results
"Intensive Care Units" [Mesh:NoExp] OR "Burn Units" [Mesh] OR "Coronary Care Units" [Mesh] OR "Respiratory Care Units" [Mesh]	77,691
"Intensive Care" [Title/Abstract] OR "Critical care" [Title/Abstract] OR ICU[Title/Abstract] OR "Stroke unit" [Title/Abstract] OR "Stroke units" [Title/Abstract] OR "Stroke units" [Title/Abstract] OR "Coronary care units" [Title/Abstract] OR "Coronary care units" [Title/Abstract] OR "Coronary care unit" [Title/Abstract] OR "Coronary care units" [Title/Abstract] OR "Coronary care units" [Title/Abstract] OR "Coronary care unit" [Title/Abstract] OR "Coronary care units" [Title/Abstract] OR	26,561
("critically ill"[Title/Abstract] OR patient*[Title/Abstract] OR famil*[Title/Abstract] OR caregiver*[Title/Abstract] OR "care giver"[Title/Abstract] OR relative*[Title/Abstract] OR friend*[Title/Abstract] OR carer*[Title/Abstract] OR spouse*[Title/Abstract] OR husband*[Title/Abstract] OR wives[Title/Abstract] OR wife[Title/Abstract] OR parent*[Title/Abstract] OR father*[Title/Abstract] OR mother* [Title/Abstract] OR sister*[Title/Abstract] OR brother*[Title/Abstract] OR nurse*[Title/Abstract] OR doctor*[Title/Abstract] OR physician*[Title/Abstract] OR "healthcare team"[Title/Abstract] OR "healthcare professionals"[Title/Abstract] OR "healthcare professionals"[Title/Abstract] OR "Spouses"[Mesh] OR "Caregivers"[Mesh] OR "Health Personnel"[Mesh:NoExp] OR "Nurses"[Mesh] OR "Nursing Staff"[Mesh] OR "Physicians"[Mesh])	11,403,954
"Critical Illness" [Mesh] OR "Family" [Mesh:NoExp] OR "Parents" [Mesh] OR "Siblings" [Mesh] OR "Spouses" [Mesh] OR "Caregivers" [Mesh] OR "Health Personnel" [Mesh:NoExp] OR "Nurses" [Mesh] OR "Nursing Staff" [Mesh] OR "Physicians" [Mesh]	696,809
"critically ill" [Title/Abstract] OR patient* [Title/Abstract] OR famil* [Title/Abstract] OR caregiver* [Title/Abstract] OR "care giver" [Title/Abstract] OR relative* [Title/Abstract] OR friend* [Title/Abstract] OR carer* [Title/Abstract] OR spouse* [Title/Abstract] OR husband* [Title/Abstract] OR wives [Title/Abstract] OR wife [Title/Abstract] OR parent* [Title/Abstract] OR father* [Title/Abstract] OR mother* [Title/Abstract] OR sister* [Title/Abstract] OR physician* [Title/Abstract] OR "healthcare team" [Title/Abstract] OR "healthcare professional" [Title/Abstract] OR "healthcare professionals" [Title/Abstract] OR "healthcare	11,213,196