Research Methodology

The following procedures were conducted to answer the research questions stated in the introduction section of the main article. PRISMA Extension for Scoping Reviews (PRISMA-ScR)[1] was utilized as a guideline methodology to develop a comprehensive scoping review.

1. **Search execution:** This research used a keyword search query to retrieve datasets from the following electronic databases: ACM, IEEE, Scopus, and Google Scholar. As shown in Figure 1, the search procedure for this scoping review was extensive. The search execution was performed between December 13 and 15, 2021 using the following keyword search query:

   ("Telehealth" OR "Telemedicine*") AND ("Coronavirus" OR "COVID-19" OR "SARS-CoV-2") AND ("Intervention*" OR "Service*" OR "Application*")*

   As Google Scholar yields numerous results that are both relevant as well as irrelevant, only the first 100 listed studies were considered. This step resulted in 738 papers. Figure 2 shows the distribution of initial primary studies per library.

2. **Automatic search restrictions/duplicate removal**: In this phase, the search in all the digital databases was restricted to the period between 2020 and 2021 (The novel virus was first discovered in Wuhan, China in December 2019). In addition to the search by period, other restrictions were applied according to the alternative options available in each digital library. For instance, date and subject area in the case of Scopus library, and the date and first 100 in the case of Google scholar library. Table 1 shows the number of studies retrieved in each digital database after applying these restrictions. In total, 451 studies were retrieved. Furthermore, 152 duplicates were detected and excluded. Hence, this step resulted in 299 papers with unique titles and abstracts.

3. **Screening based on title and abstract:** The results of previous phases were further filtered based on the paper's title and abstract. 275 studies with irrelevant titles and abstracts were detected and removed. This stage resulted in 124 unique full-text studies.

4. **Filtering based on the full text:** the outcome of the previous phases was further screened based on other exclusion and inclusion criteria. Excluded papers are non-English papers, conference abstracts, proposals, theses, dissertations, and white papers. Moreover, articles that merely mentioned telehealth interventions during COVID-19 but did not actively discuss them (i.e., papers that did not explicitly focus on the topic) were withdrawn. Included papers are academic research articles that include journals, conference papers, symposiums, and workshops from top quoted publishers. Finally, twenty-seven (27) most relevant articles were retained as primary sources. Table 2 lists the publication venues of the included articles, while Figure 3 shows the publication types of the retained papers. Moreover, to reduce personal bias and improve the authenticity of the identified articles and their findings, this process was cautiously conducted by the three co-authors of this paper. Hence, only articles accepted by at least two co-authors were kept.

Table 1: Number of papers identified in the restricted electronic search

Source	Search applied on	Retrieved
Scopus	date & subject area	143
IEEEXplore	date	135
ACM	date	73
Google Scholar	date & top 100	100
Total		451

Table 2: Publication venue of the selected papers

#	Venue	Type	# of publications
1	IEEE	Journal	8
2	IEEE	Conference	3
3	IEEE	Symposium	1
4	ACM	Journal	2
5	ACM	Conference	4
6	ACM	Workshop	1
7	JMIR	Journal	2
8	BMJ	Journal	1
9	JAMA	Journal	1
10	New England Journal of Medicine	Journal	1
11	Medknow Publications	Journal	2
12	SciELO Brasil	Journal	1
	Total		27

Furthermore, Table 2 shows that twelve (12) out of the twenty-seven (27) selected papers are from the Institute of Electrical and Electronics Engineers (IEEE), while seven (7) are from the Association for Computing Machinery (ACM). Journal of Medical Internet Research (JMIR), and Medknow Publications consist of two publications each. The remaining venues comprising the British Medical Journal (BMJ), the Journal of the American Medical Association (JAMA), the New England Journal of Medicine, and SciELO Brasil has one publication each.

According to the Google Scholar metrics, all the selected venues (except Medknow Publications, and SciELO Brasil) are from the top quoted publishers. This characteristic gives these papers credibility and shows how impactful they are. All the selected papers are either journal, or conference, or symposium, or workshop articles, meaning that publications that may affect the quality of the review such as: theses, dissertations, conference abstracts, and/or proposals were excluded. Even though Medknow Publications and SciELO Brasil are not among the top quoted publishers, we decided to include two papers from Medknow Publications, and one paper from SciELO Brasil in-order to cover some demographic locations specifically Middle East and South America. Furthermore, considering that all the selected papers were published between 2020 and 2021, the research theme can be regarded as a trending topic. Furthermore, it seems that this trend will not decline soon since government projects and institutional interest in the idea of remote healthcare are increasing. Therefore, we believe that this topic is worth reviewing.

ACM = 163 IEEE = 200
Scopus = 275
Google Scholar = 100
Total = 738

287 excluded after applying restricted electronic search:
ACM: n = 90
IEEE: n = 65
Scopus: n = 132

451 retrieved studies

152 duplicates

299 unique titles and abstracts

175 studies excluded after scanning titles and abstracts

124 unique full-text studies

97 publications were excluded after scanning full text

27 final selected papers

Identification

Screening

Eligibility
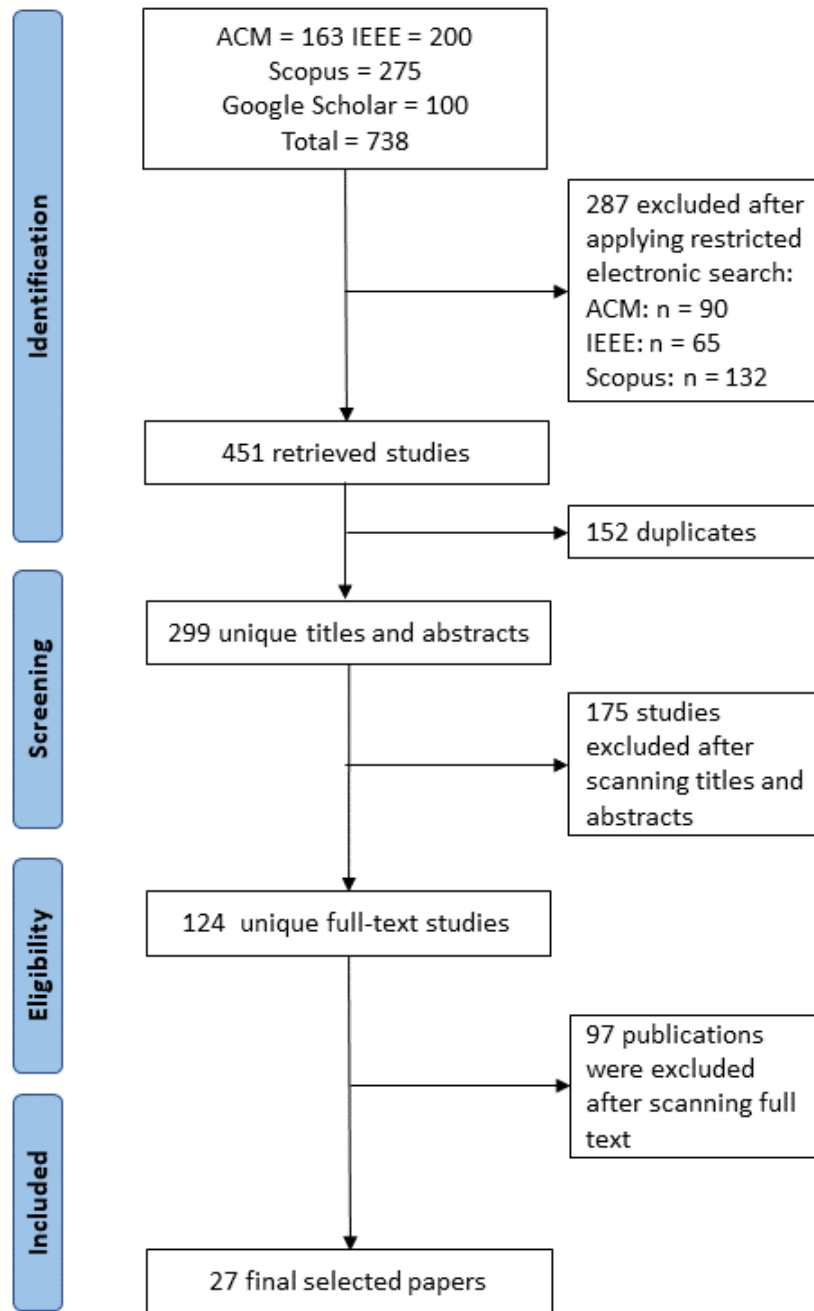
Included

Figure 1: PRISMA Chart for included studies
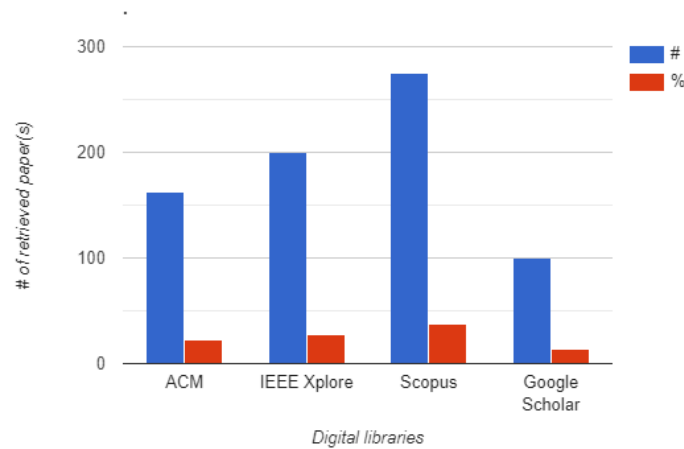
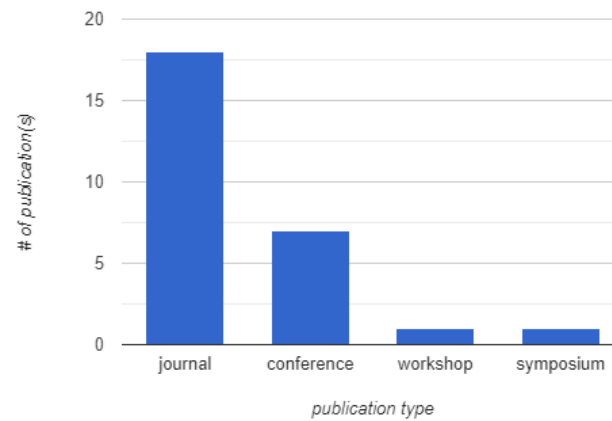**Figure 2:** The distribution of the initial list of studies per library

Figure 3: Publication type of the selected papers

References:

[1] Andrea C Tricco, Erin Lillie, Wasifa Zarin, Kelly K O'Brien, Heather Colquhoun, Danielle Levac, David Moher, Micah DJ Peters, Tanya Horsley, Laura Weeks, et al. Prisma extension for scoping reviews (prisma-scr): checklist and explanation. Annals of internal medicine, 169(7):467–473, 2018.