JURNAL UPI

EDULIB
Journal of Library and Information Science
http://ejournal.upi.edu/index.php/edulib/index

EDULIB Journal of Library and Information Science

Have Some Signatories of a COVID-19 Literature Open Access Agreement Reneged on Their Promise?

Jaime A. Teixeira da Silva[1], Hilary I. Okagbue[2]
[1] Department of Mathematics , Covenant University Ota Ogun State, Nigeria.
[1] *Corresponding author email* : jaimetex@yahoo.com

ARTICLE INFO

Article history:
Received : June 15, 2022
Revised : August 23, 2022
Accepted : November 15, 2022

Keywords :
Open Access, Open Data, Open Science, Public Health, Transparency

ABSTRACT

Coronavirus disease 2019 (COVID-19) is one of humanity's greatest modern socio-medical challenges. Cognizant of the serious nature of this pandemic, and before it was characterized as such, the Wellcome Trust in the UK took the bold and important initiative to call on publishers to make any research related to COVID-19 open access (OA) and encourage them to adopt open data (OD) policies. In a public statement, many publishers of subscription-based and OA journals agreed that all literature related to COVID-19 would be OA as a service to the public, society and humanity. Despite that stated agreement, evidence indicates that not all literature pertaining to this pandemic or virus is OA. In thus study, Web of Science data (August 4, 2021) indicates that 83.7% of 2020 COVID-19-related literature (78.4% for 2021; average of 81.2%) is OA, i.e., an average of 19.8% in 2020 and 2021 was not OA. It is not clear why that literature is not OA. Signatories of that Wellcome Trust-coordinated statement should offer a public explanation, or abandon being signatories.

A. INTRODUCTION

Coronavirus disease 2019 (COVID-19) has become one of humanity's greatest modern medical challenges. Cognizant of the serious nature of this pandemic, and before it was characterized as such, the Wellcome Trust took the bold and important initiative to call on publishers to make any research related to COVID-19 open access (OA) and to adopt, on 31 January 2020, an open data (OD) approach (Wellcome Trust, 2020a). The Wellcome Trust, which is based in the UK, is a charitable foundation that provides support, including financial, to scientists and researchers globally (Wellcome Trust, 2022). The Wellcome Trust served as an organizer of a meeting of 30 vaccine experts who discussed vaccine safety, precisely when COVID-19 cases began to rise globally, in February 2020 (Plotkin et al., 2020).

B. METHODOLOGY

The following methodology was used for an analysis conducted on August 4, 2021. In WoS, the search was simply limited to "COVID-19", and was restricted to 2020 and 2021. Total number of papers were extracted. For each year, total number of OA papers was extracted and total number of non-OA papers were calculated by subtraction from total number of papers. In addition, WoS offered the unique opportunity to extract publisher-related information of these papers.

C. RESULT AND DISCUSSION

In a public statement on 16 March 2020, "more than 30" publishers of subscription-based and OA journals agreed that literature related to COVID-19 would be OA (Wellcome Trust, 2020b). However, the number ("more than 30") was revised upwards in a 21 May 2020 statement, claiming "more than 50" publishers (signatories) of the agreement, with the hyperlink linking back to the list on the 16 March 2020 (Wellcome Trust, 2020c). By our count, there are precisely 43 publishers listed as signatories in Table 1. It is not clear the precise dates when the values changed from "more than 30" to "more than 50", and why there is a discrepancy between the last statement by the Wellcome Trust and the actual number of signatories listed, i.e., 43. Unfortunately, we were unable to discover clues about these vague numbers and apparent discrepancies (>30 versus >50 versus 43) using the Internet Archive (Wayback Machine), possibly because the first archived entry is too late, i.e., from October 2020 (Internet Archive, 2022). It is precisely for this reason, i.e., fluctuating values in public statements of importance to academics, health officials and the public, that the "publication history" was recently advocated, allowing a double digital object identifier (DOI)-based record to be assigned to any academic paper or document (Teixeira da Silva and Nazarovets, 2022). As is the case here, in which the history of changes, including the dates when signatories were added, or removed, to allow for a transparent and accountable document to serve all interested and related parties.

Tabel 1. Publishers whose COVID-19 literature was open access (OA), or not, in 2020 (assessed on August 4, 2021 in Web of Science) and which are signatories (Wellcome Trust, 2020b).

Publishers	OA	% OA	Not OA	% Not OA	Total
Elsevier	14,059	95	722	5	14,781
Springer Nature	8,469	97	305	3	8,774
Wiley	8,025	88	1,046	12	9,071
Taylor & Francis	3,584	95	170	5	3,754
MDPI	2,777	100	1	0	2,778
SAGE	2,418	87	357	13	2,775
BMJ Publishing Group	2,157	92	177	8	2,334
Frontiers Media SA	2,043	100	3	0	2,046
Oxford University Press	1,848	91	188	9	2,036
Wolters Kluwer Medknow Publications	969	77	294	23	1,263
Public Library of Science	782	100	2	0	784
Cambridge University Press	752	94	45	6	797
JMIR Publications, Inc.	456	100	2	0	458
Dove Medical Press Ltd.	358	98	8	2	366
American Chemical Society	296	54	252	46	548
Hindawi Publishing Group	228	100	0	0	228
American Association for the Advancement of Science	221	89	27	11	248
American Society for Microbiology	203	97	7	3	210
Karger	202	85	36	15	238
Emerald Group Publishing	190	36	337	64	527
European Respiratory Society Journals Ltd.	183	73	66	27	249
American Thoracic Society	143	99	2	1	145
National Academy of Sciences (US)	125	97	4	3	129
PeerJ Inc.	77	100	0	0	77
IOP Publishing Ltd.	74	74	26	26	100
Humana Press Inc.	50	100	0	0	50
Royal Society of London	49	100	0	0	49

Despite that stated agreement, evidence, as is presented a bit later in this paper, suggests that not all literature pertaining to this pandemic or virus is OA. However, not all stand-alone journals or publishers are signatories of this agreement, so our working hypothesis was to assess whether all COVID-19 literature published by the Wellcome Trust-coordinated signatories (Supplementary Table 1) is OA. Thus, the OA versus non-OA nature of COVID-19 literature by these signatories is the core focus of our commentary.

Some papers about publication during the COVID-19 pandemic drew attention to changes in publishing culture and behavior that have been taking place in 2020 and 2021. These include wider data sharing related to prior coronaviruses, and more rapid publication times (i.e., period between submission and publication) relative to the pre-COVID-19 period, with 669 papers – assessed from 14 medical journals – showing a 49% earlier publication time (Horbach, 2020; (Thelwall, 2020). However, inconsistent OD policies (Shamoo, 2020; Teixeira da Silva, 2020a) were in some cases associated with, and lead to, high-profile retractions of OA COVID-19 papers, while there are risks of misinformation in potentially unscholarly or predatory publishing venues, including those that are OA (Teixeira da Silva, 2020a; Teixeira da Silva, 2020b, Teixeira da Silva et al., 2021a).

How much of the published COVID-19 literature, which now has 218,005 PubMed-indexed documents (in any category) (LitCovid, 2022), is OA? An analysis (1 January to 30 June 2020) of the early volume of published COVID-19-related literature indicates that 83% of documents in Scopus, or 89% in Web of Science (WoS), were OA (Teixeira da Silva et al., 2021b). Similar volumes, i.e., 91.4% of COVID-19-related OA articles in WoS in Jan-March 2020 was founded that from January 1, 2020 until July 31, 2021, 76.8% of COVID-19 papers were OA, according to Scopus (81.2% according to WoS), i.e., the volume of OA articles apparently dropped between 2020 and 2021 (Belli et al., 2020). Given that COVID-19-related papers are of importance to other academics, health practitioners, and even members of the general public, there is value in having that information openly accessible via OA. Given the importance of OA COVID-19 literature, we wanted to try and appreciate why 100% of COVID-19-related literature is not OA, even though 43 leading/prominent publishers and thus their journals agreed publicly to make all such papers OA (Wellcome Trust, 2020b). In the earlier (January 2020) OD-related public agreement, the first of the five clauses states that "all peer-reviewed research publications relevant to the outbreak are made immediately open access, or freely available at least for the duration of the outbreak" (Wellcome Trust, 2020a).

To try and appreciate the OA versus non-OA status of COVID-19-related literature, a more detailed bibliometric WoS-based analysis of the OA status of papers relative to these signatories (Supplementary Table 1), is provided in Supplementary Tables 2 and 3, which list the number of OA papers published in 2020 and 2021, respectively, ranked as the top 100 publishers in terms of the volume of OA and non-OA COVID-19-related papers. We wanted to appreciate 2020 (January to December) and 2021 (January to August) separately, as artificial time constructs, because we noticed quite different trends in both years. Thus, our 2020 and 2021 data sets were not averaged to get a more fine-grain year-based appreciation of the OA versus non-OA nature of the Wellcome Trusts' signatories' COVID-19-related literature.

Results from Scopus were only used for drawing broad comparisons with WoS, while WoS data was used to draw publisher-related inferences (Supplementary Tables 2 and 3). According to Scopus and WoS, total volumes were 173,429 and 148,070 papers, respectively. According to Scopus, 76.1% of 2020 COVID-19-related literature (77.5% for 2021; average of 76.8%) is OA. These values are 83.7%, 78.4%, and 81.2%, respectively according to WoS.

Tabel 2. Publishers whose COVID-19 literature was open access (OA), or not, in 2021 (assessed on August 4, 2021 in Web of Science) and which are signatories (Wellcome Trust, 2020b)

Publishers	OA	% OA	Not OA	% Not OA	Total
Elsevier	10,968	80	2,814	20	13,782
Springer Nature	8,868	96	402	4	9,270
Wiley	5,242	78	1,479	22	6,721
MDPI	5,236	100	2	0	5,238
Frontiers Media SA	2,791	100	9	0	2,800
SAGE	1,837	74	646	26	2,483
Oxford University Press	1,604	88	227	12	1,831
Taylor & Francis	1,555	42	2,165	58	3720
BMJ Publishing Group	1,553	91	152	9	1,705
Public Library of Science	1,100	100	0	0	1,100
Wolters Kluwer Medknow Publications	570	74	196	26	766
Cambridge University Press	496	86	84	14	580
JMIR Publications, Inc.	488	99	3	1	491
Dove Medical Press Ltd.	467	99	4	1	471
Hindawi Publishing Group	279	100	0	0	279
American Chemical Society	226	65	122	35	348
Karger	214	93	16	7	230
American Society for Microbiology	212	95	10	5	222
Emerald Group Publishing	188	23	637	77	825
American Association for the Advancement of Science	119	82	27	18	146
American Thoracic Society	108	96	5	4	113
National Academy of Sciences (US)	101	87	15	13	116
Royal Society of London	92	97	3	3	95
IOP Publishing Ltd.	81	80	20	20	101
PeerJ Inc.	68	99	1	1	69
Humana Press Inc.	45	100	0	0	45
eLife Sciences Publications Ltd.	33	97	1	3	34
Future Science Ltd.	32	97	1	3	33
Hindawi	28	100	0	0	28

According to WoS (Supplementary Table 2), from among the top 100 publishers (in terms of volume), IOS Press had the greatest percentage of non-OA papers in 2020 (72%), followed by Emerald Group Publishing (64%) and African Field Epidemiology Network-Afenet (54%). In 2021, the top three spots were occupied by Emerald Group Publishing (77%), American Public Health Association Inc. (75%), and Taylor & Francis (58%) (Supplementary Table 3). For example, whereas IOS Press, African Field Epidemiology Network-Afenet and American Public Health Association Inc. are not signatories, Emerald Group Publishing and Taylor & Francis are. To appreciate the volumes of OA versus non-OA COVID-19-related literature by signatories, data in Supplementary Table 1 was manually cross-linked to publisher entries in Supplementary Tables 2 and 3, to give a signatory-based list in Table 1 for 2020 and Table 2 for 2021. In the top 100 publishers, in terms of volumes of OA COVID-19-related literature, 27% were signatories in 2020 (Supplementary Table 2) (29% in 2021; Supplementary Table 3). When these were manually sorted and cross-referenced to the list of signatories (Supplementary Table 1; Wellcome Trust, 2020b), the following results and findings could be appreciated (Tables 1, 2): a) the top 10 publishers (in terms of volume) were the same, but had different ranks; b) there were two more signatories in 2021 in the top 100 than in 2020; c) evidently, the volume of literature that is OA

in OA publishers (e.g., MDPI, Frontiers Media SA, etc.) is 100%; d) in 2020, the top three publishers with least COVID-19-related literature in OA format are Emerald Group Publishing (64%), the American Chemical Society (46%), and European Respiratory Society Journals Ltd. (27%) (Table 1); e) in 2021, the top three publishers with least COVID-19-related literature in OA format are Emerald Group Publishing (77%), Taylor & Francis (58%), and the American Chemical Society (35%) (Table 2).

Tabel 3. Publishers (top 100 in terms of volume) whose COVID-19 literature was open access (OA), or not, in 2021 (assessed on August 4, 2021 in Web of Science)

	Publishers	OA	% OA	Not OA	% Not OA	Total
1	Elsevier	10.968	80	2.814	20	13.782
2	Springer Nature	8.868	96	402	4	9.270
3	Wiley	5.242	78	1.479	22	6.721
4	MDPI	5.236	100	2	0	5.238
5	Frontiers Media SA	2.791	100	9	0	2.800
6	SAGE	1.837	74	646	26	2.483
7	Oxford University Press	1.604	88	227	12	1.831
8	Taylor & Francis	1.555	42	2.165	58	3720
9	BMJ Publishing Group	1.553	91	152	9	1.705
10	Lippincott Williams & Wilkins	1.112	56	879	44	1991
11	Public Library of Science	1.100	100	0	0	1.100
12	Wolters Kluwer Medknow Publications	570	74	196	26	766
13	American Medical Association	518	94	32	6	550
14	Cambridge University Press	496	86	84	14	580
15	JMIR Publications, Inc.	488	99	3	1	491
16	Dove Medical Press Ltd.	467	99	4	1	471
17	Cureus Inc.	462	100	1	0	463
18	IEEE	308	73	115	27	423
19	Hindawi Publishing Group	279	100	0	0	279
20	American Chemical Society	226	65	122	35	348
21	Mary Ann Liebert, Inc.	226	59	159	41	385
22	Karger	214	93	16	7	230
23	American Society for Microbiology	212	95	10	5	222
24	Emerald Group Publishing	188	23	637	77	825
25	Thieme Medical Publishers	180	40	273	60	453
26	Centers Disease Control & Prevention	155	87	23	13	178
27	Baishideng Publishing Group Inc.	137	100	0	0	137
28	AME Publishing Co.	127	100	0	0	127
29	Massachusetts Medical Society	121	95	7	5	128
30	American Association for the Advancement of Science	119	82	27	18	146
31	Walter De Gruyter	116	69	52	31	168
32	Tech Science Press	112	88	15	12	127
33	American Thoracic Society	108	96	5	4	113
34	National Academy of Sciences (US)	101	87	15	13	116

35	American Society for Tropical Medicine & Hygiene	96	98	2	2	98
36	Future Medicine Ltd.	93	89	12	11	105
37	Royal Society of London	92	97	3	3	95
38	IOP Publishing Ltd.	81	80	20	20	101
39	Via Medica	74	99	1	1	75
40	American College of Physicians	73	57	55	43	128
41	European Respiratory Society Journals Ltd.	73	92	6	8	79
42	Ediciones Doyma SA	72	95	4	5	76
43	Royal Society of Chemistry	69	52	63	48	132
44	Jaypee Brothers Medical Publishers Pvt. Ltd.	68	100	0	0	68
45	PeerJ Inc.	68	99	1	1	69
46	African Field Epidemiology Network	66	86	11	14	77
47	Korean Academy of Medical Sciences	66	100	0	0	66
48	International Scientific Information, Inc.	65	98	1	2	66
49	Canadian Medical Association	64	100	0	0	64
50	Sciencedomain International	61	98	1	2	62
51	American Institute of Mathematical Sciences	60	100	0	0	60
52	Spandidos Publications Ltd.	58	98	1	2	59
53	American Physiological Society	57	97	2	3	59
54	Ivyspring International Publisher	57	100	0	0	57
55	AVES Publishing Co.	55	69	25	31	80
56	American Board of Family Medicine	53	100	0	0	53
57	Keai Publishing Ltd.	53	100	0	0	53
58	AOSIS	52	91	5	9	57
59	PAGEPress Publications	52	91	5	9	57
60	Radiological Society of North America	52	85	9	15	61
61	Taiwan Association of Aerosol Research	51	98	1	2	52
62	Ubiquity Press Ltd.	51	100	0	0	51
63	Ordem dos Médicos	47	98	1	2	48
64	American Institute of Physics	46	66	24	34	70
65	American Society of Clinical Investigation Inc.	46	81	11	19	57
66	Humana Press Inc.	45	100	0	0	45
67	Biointerface Research in Applied Chemistry	43	93	3	7	46
68	Premchand Shantidevi Research Foundation	43	84	8	16	51
69	American Academy of Pediatrics	42	84	8	16	50
70	Impact Journals LLC.	40	89	5	11	45
71	Galenos Yayincilik	38	93	3	7	41
72	American Geophysical Union	37	100	0	0	37
73	American Society of Nephrology	37	100	0	0	37
74	Copernicus Gesellschaft GmbH	37	100	0	0	37
75	Termedia Publishing House Ltd.	37	80	9	20	46
76	European Centre for Disease Prevention & Control	36	95	2	5	38
77	Journal of Infection in Developing Countries	35	100	0	0	35
78	Universidad Pablo de Olavide, Facultad de Ciencias Sociales	35	100	0	0	35

79	eLife Sciences Publications Ltd.	33	97	1	3	34
80	Instituto Nacional de Salud Pública	33	92	3	8	36
81	Future Science Ltd.	32	97	1	3	33
82	MIT Press	32	84	6	16	38
83	Cadernos de Saúde Pública	31	94	2	6	33
84	Hong Kong Academy of Medicine Press	31	100	0	0	31
85	Royal College of Physics London Editorial Office	31	100	0	0	31
86	Sciendo	31	100	0	0	31
87	Atlantis Press	30	97	1	3	31
88	South African Medical Association	30	64	17	36	47
89	Tubitak Scientific & Technical Research Council Turkey	30	86	5	14	35
90	Associação Brasileira de Pós-Graduação & Saúde Coletiva	29	100	0	0	29
91	American Public Health Association Inc.	29	25	87	75	116
92	Frontline Medical Communications	29	100	0	0	29
93	Lyson Center Civic Agriculture & Food Systems	29	100	0	0	29
94	University of California Press	29	81	7	19	36
95	Universidad Icesi	29	88	4	12	33
96	Academy of Medicine Singapore	28	93	2	7	30
97	CSIRO Publishing	28	90	3	10	31
98	Nepal Medical Association	28	93	2	7	30
99	Professional Medical Publications	28	100	0	0	28
100	Hindawi	28	100	0	0	28

Based on the lack of 100% values for OA COVID-19-related papers for several signatory publishers in 2020 (Table 1) and 2021 (Table 2), we conclude that several signatories, to differing degrees, appear to be in breach of the Wellcome Trust-organized agreement that they had made a pledged to in 2020 (Wellcome Trust, 2020b; Wellcome Trust, 2020c). Although some signatories may be in breach of this agreement, it would be interesting to learn why other non-OA publishers, or publishers with subscription journals, that decided not to become signatories ("No" in Supplementary Tables 2 and 3) did not commit to making COVID-19-related literature OA.

Are there any implications of the apparent breach in agreement?

Concerned that over time, the academic good will and social responsibility of the signatories might evaporate, and equally concerned that signatories might be in breach of their promises stated publicly, for example, charging subscription to COVID-19 literature once the pandemic wanes, the first author approached the contact listed on the signatory page, Mr. David Carr, who is the Programme Manager of the Wellcome Trust Open Research, on 12 June 2020. An inquiry was made: 1) about the repercussions, if any, for signatories whose COVID-19 literature was not OA, or if the data of such literature was not in an open data (OD) format; 2) what the role of Wellcome Trust was in this public agreement.

A kind response was received from Mr. Carr on 16 June 2020, but no response was received from PubMed. Mr. Carr emphasized the following aspects (paraphrased next): 1) the joint statement was coordinated by Wellcome; 2) compliance is not being monitored, and is thus

"non-binding"; 3) some of the signatories might be falling short of these "good practices", either for being out of their control, or due to the pressures created by the pandemic.

Academics need to debate whether there are any academic, ethical or other deontological consequences for signatories that have not made COVID-19 literature OA.

The importance of open access and open data policies for COVID-19 research, and beyond

OA and OD policies, in essence open science, are essential for the reproducibility and trust of COVID-19 (and other) literature (Haddaway et al., 2020). Despite the agreement already being in place in February of 2020, found that one of 140 papers (mostly opinion pieces) published until 14 March 2020 in five top-ranking medical journals (Annals of Internal Medicine, BMJ, JAMA, New England Journal of Medicine and The Lancet), all of which are signatories (Gkiouras et al., 2020; Wellcome Trust, 2020a), had a publicly available OD set. There appears to be a wide disparity between stated OA/OD policies and editorial practices that may undermine the integrity of a sector of the COVID-19 literature (Teixeira da Silva et al., 2021a). Consequently, publishers that are in contravention of the Wellcome Trust-organized OA and OD (not analyzed in this paper) public agreements need to reflect on their position, and adjust it – as well as editorial policies – to provide a consistent message and to remain faithful to their public pledge.

D. CONCLUSION

Our findings indicated that multiple signatories of the Wellcome Trust-organized OA and OD public agreement on COVID-19 literature were in possible violation of their stated public promise, as assessed by volumes of papers that were not OA. However, our analysis relied exclusively on WoS data. It would be interesting to also have data from other databases, like Scopus, PubMed, and Google Scholar, to better appreciate if the trends are consistent, and if the conclusion drawn is validated. Scopus does not allow publisher-related information to be easily extracted, so such an analysis remains challenging. As indicated by LitCovid, crudely about 2000 papers are being published weekly on COVID-19, so once those numbers tail off, an in-depth reanalysis of that literature, including the OA versus non-OA ratio, would have tremendous academic and bibliometric value. Finally, it would also be important to appreciate if OA journals that use an exclusive article processing charge (APC)-based model, such as Frontiers, Hindawi, MDPI or PLoS, and who are also signatories of the agreement, charged APCs for literature related to COVID-19 when other signatories that widely employ a subscription (non-OA)- or hybrid-based business model, such as Elsevier, Wiley, Taylor & Francis, Springer Nature, or SAGE journals, have not.

REFERENCES

Belli, S., Mugnaini, R., Baltà, J., & Abadal, E. (2020). Coronavirus mapping in scientific publications: When science advances rapidly and collectively, is access to this knowledge open to society? *Scientometrics*, *124*(3), 2661–2685. https://doi.org/10.1007/s11192-020-03590-7

Gkiouras, K., Nigdelis, M.P., Grammatikopoulou, M.G., & Goulis, D.G. (2020). Tracing open data in emergencies: The case of the COVID-19 pandemic. *European Journal of Clinical Investigation*, *50*(9), e13323. https://doi.org/10.1111/eci.13323

Haddaway, N.R., Akl, E.A., Page, M.J., Welch, V.A., Keenan, C., & Lotfi, T. (2020). Open synthesis and the coronavirus pandemic in 2020. *Journal of Clinical Epidemiology*, *126*, 184–191. https://doi.org/10.1016/j.jclinepi.2020.06.032

Horbach, S. P. J. M. (2020). Pandemic publishing: Medical journals strongly speed up their publication process for COVID-19. *Quantitative Science Studies*, *1*(3), 1056–1067. https://doi.org/10.1162/qss_a_00076

Internet Archive. (2022). https://web.archive.org/web/20201002135557/https://wellcome.org/press-release/publishers-make-coronavirus-covid-19-content-freely-available-and-reusable (last

accessed: February 4, 2022)
LitCovid. (2022). LitCovid. https://www.ncbi.nlm.nih.gov/research/coronavirus/ (last accessed: February 4, 2022)
Plotkin, S. A., Offit, P. A., DeStefano, F., Larson, H. J., Arora, N. K., Zuber, P., Fombonne, E., Sejvar, J., Lambert, P. H., Hviid, A., Halsey, N., Garçon, N., Peden, K., Pollard, A. J., Markowitz, L. E., & Glanz, J. (2020). The science of vaccine safety: Summary of meeting at Wellcome Trust. *Vaccine*, *38*(8), 1869–1880. https://doi.org/10.1016/j.vaccine.2020.01.024
Shamoo, A.E. (2020). Validate the integrity of research data on COVID 19. *Accountability in Research*, *27*(6), 325-326. https://doi.org/10.1080/08989621.2020.1787838
Teixeira da Silva, J.A. (2020a). Misinformation in COVID-19 media and literature, with an emphasis on open data policies. *Journal of Advocacy, Research and Education*, *7*(2), 25-29.
Teixeira da Silva, J.A. (2020b). An alert to COVID-19 literature in predatory publishing venues. *The Journal of Academic Librarianship*, *46*(5), 102187. https://doi.org/10.1016/j.acalib.2020.102187
Teixeira da Silva, J.A., Bornemann-Cimenti, H., & Tsigaris, P. (2021a). Optimizing peer review to minimize the risk of retracting COVID-19-related literature. *Medicine, Health Care and Philosophy*, *24*(1), 21-26. https://doi.org/10.1007/s11019-020-09990-z
Teixeira da Silva, J.A., & Nazarovets, S. (2022) Publication history: A double DOI-based method to store and/or monitor information about published and corrected academic literature. *Journal of Scholarly Publishing*, *53*(2), 85-108. https://doi.org/10.3138/jsp.53.2.2017-0017
Teixeira da Silva, J.A., Tsigaris, P., & Erfanmanesh, M.A. (2021b). Publishing volumes in major databases related to Covid-19. *Scientometrics*, *126*(1), 831-842. https://doi.org/10.1007/s11192-020-03675-3
Thelwall, M. (2020). Coronavirus research before 2020 is more relevant than ever, especially when interpreted for COVID-19. *Quantitative Science Studies*, *1*(4), 1381–1395. https://doi.org/10.1162/qss_a_00083
Wellcome Trust. (2020a). Sharing research data and findings relevant to the novel coronavirus (COVID-19) outbreak. https://wellcome.ac.uk/coronavirus-covid-19/open-data (last accessed: February 4, 2022)
Wellcome Trust. (2020b). Publishers make coronavirus (COVID-19) content freely available and reusable. https://wellcome.org/press-release/publishers-make-coronavirus-covid-19-content-freely-available-and-reusable (last accessed: February 4, 2022)
Wellcome Trust. (2020c). Open access: how COVID-19 will change the way research findings are shared. https://wellcome.org/news/open-access-how-covid-19-will-change-way-research-findings-are-shared (last accessed: February 4, 2022)
Wellcome Trust. (2022). Grant funding. https://wellcome.org/grant-funding (last accessed: February 4, 2022)