



Scholarly publishing and journal targeting in the time of the Coronavirus Disease 2019 (COVID-19) pandemic: a cross-sectional survey of rheumatologists and other specialists

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Abstract

The evolving research landscape in the time of the Coronavirus disease 2019 (COVID-19) pandemic calls for greater understanding of the perceptions of scholars regarding the current state and future of publishing. An anonymised and validated e-survey featuring 30 questions was circulated among rheumatologists and other specialists over social media to understand preferences while choosing target journals, publishing standards, commercial editing services, preprint archiving, social media and alternative publication activities. Of 108 respondents, a significant proportion were clinicians (68%), researchers (60%) and educators (47%), with median 23 publications and 15 peer-review accomplishments. The respondents were mainly rheumatologists from India, Ukraine and Turkey. While choosing target journals, relevance to their field (69%), PubMed Central archiving (61%) and free publishing (59%) were the major factors. Thirty-nine surveyees (36%) claimed that they often targeted local journals for publishing their research. However, only 18 (17%) perceived their local society journals as trustworthy. Occasional publication in the so-called predatory journals (5, 5%) was reported and obtaining support from commercial editing agencies to improve English and data presentation was not uncommon (23, 21%). The opinion on preprint archiving was disputed; only one-third believed preprints were useful. High-quality peer review (56%), full and immediate open access (46%) and post-publication social media promotion (32%) were identified as key anticipated features of scholarly publishing in the foreseeable future. These perceptions of surveyed scholars call for greater access to free publishing, attention to proper usage of English and editing skills, and a larger role for engagement over social media.

Keywords COVID-19 · Rheumatology · Open access publishing · Social media · Archiving · Preprints · Periodicals as topic

Introduction

Accurate and trustworthy publications are critical in the time of the COVID-19 pandemic. Research reports with well-formulated hypotheses and relevant outcomes might save

patient lives [1]. While the number of research reports is still the most important metric of scholarly accomplishment, there is increasing competition among researchers to gain credits through prioritizing their ideas, preprint archiving, and publishing more, sometimes with erroneous results and misleading conclusions [2]. Some of the latest erroneous COVID-19 publications on the effects of antirheumatic drugs, such as hydroxychloroquine, attracted numerous citations and social media comments, however, failed to survive post-publication evaluation [2].

Evidence base is central to the success of innovative ideas, and the same holds true for successful publications [3]. An external pressure to publish more can lead to mechanical research and formalism instead of comprehensive evidence synthesis and meaningful clinical observations generated from an internal will to hypothesize [3]. Poor awareness of research and publication ethics and weaknesses

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of pre-publication evaluations can further compound this challenge [4–6].

Researchers from non-mainstream science countries comprise a significant proportion of authors worldwide. Amid precarious funding, these researchers are particularly entangled in the formidable task of searching for journals that offer quality services and indexing of potentially impactful research. Language barrier and inadequate use of advanced communication platforms are additional challenges faced by numerous non-Anglophone authors worldwide [7].

Publishing practices differ in different parts of the world. The ongoing COVID-19 pandemic has further exposed researchers to the challenges of rapid online posting and unethical short-cuts in the enterprise that compromise live-saving research reporting [8]. A wider use of social media during this pandemic and research into a hitherto unexplored domain has further led us astray into a new world of publishing [9]. Research in the era of COVID-19 might irrevocably change, and perceptions and preferences of scholars from non-mainstream science countries could influence choices in the near future.

The aim of the current survey was to explore perceptions and practices of researchers regarding the state and foreseeable future of scholarly publishing.

Methods

Questionnaire design

Our questionnaire featured 30 questions, 25 of which were multiple choice, two had drop-down options, two open-ended responses, and three had a slider scale. The survey was designed to evaluate the perceptions about scholarly journals (1), preferences while choosing a target journal (2), ‘predatory’ journals (4), use of commercial editing agencies (5), preprint archiving (2), grey literature (2), social media (3), print copies of journals (1), search platforms (1), and desirable features of scholarly publishing in the foreseeable future (1). Lastly, eight questions aimed to characterize the demographic profile (2), expertise (2), experience (3), and location (1) of the respondent population.

Survey validation

Four consultants from the authors’ team participated in the assessment of face-validity. The survey underwent ten rounds of revisions. It was read five times to identify errors in grammar, syntax, and wording. When the given choices did not seem to capture all possibilities, an option of other (open-ended response) was added. The survey questions were then loaded on the SurveyMonkey platform. The final survey was preliminarily filled by five individual

respondents to identify mistakes and critically evaluate the modifications from the original survey. The functioning of the slider scale and appropriateness of the type of responses (multi-choice, checkboxes, drop-down) were also checked.

Survey logistics

The average survey time was five minutes. Respondents could change the answers before submission but not after it. All questions were mandatory. The survey was partly anonymized, with Internet Protocol (IP) addresses being the only identifier. A cover letter informed the participants of the anonymity and took consent for participation and publication. There was no particular sampling technique used, and all those who agreed to participate were included in the survey. The eligible participants were given a short period to voluntarily complete the questionnaire (July 22–July 29, 2020).

Consent

Informed consent was taken at the beginning of the survey, and no incentives were offered for survey completion.

Population selection

The questionnaire was disseminated over the *Indian Journal of Rheumatology* social-media platforms and individual accounts of the authors (Twitter, Facebook and WhatsApp). The following hashtags were employed to involve interested surveyees: #academia and #COVID-19. A model of convenience sampling was followed. IP addresses were checked to prevent duplication of responses.

Data handling and ethics clearance

The data handling was partly anonymized, and IP addresses were handled by one author (LG). The other authors had access to completely anonymized data. An exemption from ethics review was obtained from the Institute Ethics Committee of Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, India (2020-110-IP-EXP-16) in line with widely publicized guidelines [10]. We adhered to the Checklist for Reporting Results of Internet E-surveys (CHERRIES) to report the survey data [11].

Statistical analysis

Descriptive statistics (median, Q1–Q3 interquartile range) were used. Figures were downloaded from <https://www.surveymonkey.com/>.

Results

Respondent characteristics

There were 108 respondents (M:F ratio 1.04) of median age 39.5 (33.3–46) years. A significant proportion (42, 39%) were rheumatologists. Most surveyees were clinicians (73, 68%), researchers (65, 60%) and educators (51, 47%). India (42, 39%), Ukraine (16, 15%) and Turkey (14, 13%) were largely represented in this survey (Table 1). Our respondents had a median of 23 (8–60) publications (108 responses) and 15 (2–55) peer-review accomplishments (102 responses). One-half of the respondents did not use print copies of any journals during this pandemic. Seventy-eight surveyees (72%) had published at least one article in the current year (Table 2).

Perceptions about journals as sources of trustworthy information

Nearly half of the respondents (50, 46%) perceived *Nature* as a useful source of information in the time of the COVID-19 pandemic, followed by *The New England Journal of Medicine* (45, 42%) (Table 2). Local society journals, including the *Indian Journal of Rheumatology*, were perceived as trustworthy by 18 (17%).

While choosing target journals, relevance to their scientific field (75, 69%), PubMed Central archiving (66, 61%), and free publication mode (64, 59%) were the main factors considered by most respondents (Table 2). The 2-year impact factor and CiteScore were taken into account while targeting journals by 56 (52%) and 33 (31%), respectively. Only 13 (12%) valued journal presence on social media as a factor influencing their choice of a target. Thirty-nine (36%) often targeted local scholarly journals for publishing their research. Another 43 (40%) did so sometimes. Importantly, nearly three-quarters (80, 74%) used Scopus and Web of Science for research.

Predatory journals

Most of the respondents (91, 84%) were aware of the so-called predatory journals. Five (5%) had previously published in predatory journals, while another 20 (19%) were not sure. Nearly one-thirds (37, 34%) believed that predatory journals actively publish articles from their academic department/scholarly community, whereas, 46 (43%) were not sure. The respondents pointed to certain features of predatory journals (Table 2), including soft peer review (57%), charges for poor-quality services provided by the

Table 1 Characteristics of survey respondents

Speciality	N	%
Accident and emergency medicine	1	0.93%
Anaesthetics	4	3.7%
Cardiology	3	2.78%
Child psychiatry	1	0.93%
Endocrinology	3	2.78%
Gastroenterology	2	1.85%
Hematology	1	0.93%
Immunology	1	0.93%
Infectious diseases	1	0.93%
Internal medicine	2	1.85%
Neurology	4	3.7%
Paediatrics	6	5.56%
Physical medicine and rehabilitation	5	4.63%
Preventive medicine	1	0.93%
Rheumatology	42	38.89%
Venereology	1	0.93%
Gastroenterologic surgery	1	0.93%
Neurosurgery	1	0.93%
Orthopaedics	2	1.85%
Otorhinolaryngology	1	0.93%
Thoracic surgery	1	0.93%
Clinical biochemistry	1	0.93%
Laboratory medicine	2	1.85%
Pathology	2	1.85%
Pharmacology	1	0.93%
Undergraduate student	10	9.26%
Other	8	7.41%
Years post university graduation	14 (7–23.75)	
Job profile (multiple answers possible)		
Educator	51	47.22%
Clinician	73	67.59%
Researcher	65	60.19%
Laboratory physician	2	1.85%
Journal editor	16	14.81%
Country		
Australia	1	0.93%
Bulgaria	3	2.78%
Croatia	3	2.78%
India	42	38.89%
Iran	1	0.93%
Italy	1	0.93%
Japan	1	0.93%
Kazakhstan	13	12.04%
Malaysia	2	1.85%
Mexico	1	0.93%
Morocco	1	0.93%
Poland	2	1.85%
Russia	4	3.7%
Turkey	14	12.96%
Ukraine	16	14.81%

Table 1 (continued)

Speciality	N	%
United Kingdom	2	1.85%
United States	1	0.93%

journal (54%), and the absence of indexation (52%). Peer review was considered mandatory by most.

Commercial editing agencies

Obtaining support from commercial editing agencies to improve English, statistical data presentation, and graphics

Table 2 Perceptions and practices regarding scholarly journals and publication methods

Question	N	%
1 Have you used print copies of scholarly journals in the time of pandemic?		
Always	6	5.56
Usually	6	5.56
Sometimes	23	21.3
Rarely	19	17.59
Never	54	50
2 Which peer-reviewed journals do you find the most useful as sources of trustworthy information in the time of the COVID-19 pandemic? (multiple answers possible)		
<i>Science</i>	37	34.26
<i>Nature</i>	50	46.3
<i>The Lancet</i>	37	34.26
<i>The BMJ</i>	35	32.41
<i>JAMA</i>	30	27.78
<i>The New England Journal of Medicine</i>	45	41.67
Other	18	16.67
3 Which of these factors you, as a scientific author, consider when target (submit a manuscript to) a scholarly journal? (multiple answers possible)		
Bibliographic indexation	27	25
PubMed Central archiving	66	61.11
Relevance to my scientific field	75	69.44
2-year Impact Factor	56	51.85
Scopus-based CiteScore values	33	30.56
International prestige of the target journal	40	37.04
Journal presence on social media (e.g., Twitter, Facebook)	13	12.04
Quality of individual published articles	32	29.63
Manuscript turnaround times	22	20.37
Editorial credentials of the journal editors	15	13.89
Full and immediate open access upon publication	9	8.33
Free of charge publication option	64	59.26
Press attention to the journal	2	1.85
Other	1	0.93
4 Which of the following can be viewed as features of a predatory journal? (multiple answers possible)		
Soft/non-existent peer review	62	57.41
Absence of indexing on prestigious databases, such as MEDLINE/PubMed, Scopus and Web of Science	56	51.85
Processing and/or publication charges for no quality services	58	53.7
Absence of Committee on Publication Ethics (COPE) membership	35	32.41
Absence of handling editors' editorial credentials	40	37.04
Irrelevant to my scientific field yet sending sticky invitations (emails)	45	41.67
Misleading information and poor website design	37	34.26
Editorial board members from unrelated specialities	41	37.96
All of these	49	45.37
Others (too personal a tone in communications, handling fee prior to peer review)	5	4.63

of manuscripts was not unusual among the respondents (23, 21%) as well as their peers (40, 37%). While most respondents (68, 58%) did not consider such an approach acceptable, nearly one in five (20, 19%) thought this ethically permissible, and a similar number (25, 23%) were unsure. A minority of respondents (17, 16%) considered it either likely or very likely that they would resort to such agencies for publishing their manuscripts. Nearly one-half agreed that disclosure (acknowledgement) of such a non-author contribution was mandatory in published articles, however, nearly a quarter (25, 23%) were unsure.

Preprint archiving

The opinion on preprint archiving, which is common in the time of the COVID-19 pandemic, was varied. Nearly one-thirds (34, 31%) believed preprints were useful, while a sizeable proportion (41, 38%) were unsure. Over two-thirds (68, 63%) felt that pseudoscientific or untrustworthy articles might gain visibility by preprint archiving (Fig. 1a and b).

Over a third (40, 37%) of our respondents had published grey literature (e.g., blog posts, news notes, non-reviewed online items). However, the opinion on the utility of sharing scholars’ views as grey literature in the pandemic period was divided, with nearly one-third each agreeing (38, 35%),

disagreeing (35, 32%), and being unsure (35, 32%). Opinion on crediting scholars for their activities on social media and for non-reviewed grey literature items was further divided, with nearly equal proportion agreeing (32, 30%), disagreeing (49, 45%), and being unsure (27, 25%).

Use of social media

The majority of the respondents (90, 83%) employed social media for academic purposes. Importantly, post-publication promotion on social media was among the anticipated key features of scholarly publishing in the foreseeable future (35, 32%), complementary to ubiquitous full and immediate open access (50, 46%) (Table 3).

Discussion

Researchers and educators from non-mainstream science countries comprised the majority of our survey population (India, Ukraine, Turkey). While peer review was considered mandatory by most, the opinion on preprint archiving was disputed. Despite the awareness of predatory journals, these are still targeted by some authors, particularly from non-mainstream science countries. Commercial editing agencies

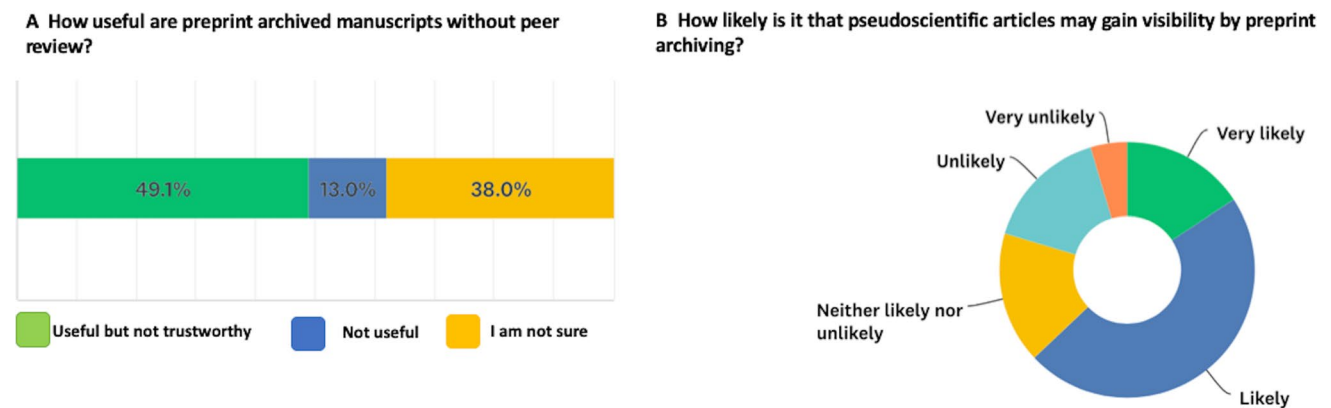


Fig. 1 Preprint archiving—perceived relevance and implications

Table 3 Perceived future of scholarly publishing

Which of the following are essential components of scholarly journal publishing in the foreseeable future? (multiple answers possible)	N	%
Full and immediate open access	50	46.3
Subscription to online and/or print journal copies	42	38.89
Print publishing	17	15.74
Quality pre-publication peer review	61	56.48
Post-publication commenting on social media	35	32.41
All of these	38	35.19
None of these	1	0.93

are also contacted by authors seeking English editing and other mediatory services that may remain unacknowledged. Although opinion on credits for social-media activities is divided, the use of Twitter and other open channels for post-publication promotion is perceived as an essential component of academic interactions in the foreseeable future.

This survey results highlight perception and practices in the realm of scientific publishing among scholars from non-mainstream science countries. A strength of our study is that a large proportion of respondents were accomplished researchers with peer review experience. The responses suggest that free-of-charge publication is an important factor for choosing target journals. Most research in non-mainstream science countries is inadequately funded, limiting the ability to meet publication and archiving charges of established gold open-access journals [12].

While online reading is routine since the advent and increased reach of the Internet, the ongoing pandemic has pushed this convention further and motivated most established publishers to provide free online access to COVID-19 articles [13, 14]. The line between print and online-only journals is now increasingly blurred, reducing the associated print costs and financial investments needed by the publishing enterprise.

While the Open Access global initiative has been a boon and added significant impetus to a free-for-all educative experience, it is important to recognise that some open-access journals may charge publication fee without offering quality services, indexing, and scholarly credit [15]. The implementation of Plan S may abrogate this concern by authorizing only quality open-access with appropriate archiving and related global visibility [16]. This will also allow publicly funded research to be freely available immediately upon publication. Although China and India, the world's largest producers of scholarly articles, have already demonstrated willingness to join this global initiative, the transition may take longer than anticipated [12, 16].

Publication activity is an important metric for academic accomplishment in most non-mainstream science countries. The urgency to publish more may put inexperienced researchers from these countries at risk of falling prey to predatory journals while reputed open-access journals are beyond access for monetary reasons. This is all the more plausible when it may be difficult to discern predatory journals in a haystack of options due to globally debatable criteria and uncertain stance of the professional community [17]. In line with the outcomes of our survey, rheumatology and other professional societies in non-mainstream science countries may consider advancing their editorial policies to publish more peer-reviewed evidence-based reports in standard English to meet the indexing criteria of MEDLINE/PubMed, Web of Science and Scopus. Efforts should be also taken to increase representation of trustworthy open-access

journals from non-mainstream science countries in globally recognized editorial associations, such as the Open Access Scholarly Publishers Association (OASPA) and the Committee on Publication Ethics (COPE).

PubMed Central archiving is a major consideration while choosing target journals during the COVID-19 pandemic by our respondents. Importantly, the respondents value the open archiving more than citation and social media metrics. However, a significant proportion of our respondents understood the importance of functionalities of bibliographic databases and social media promotion. Hence, it is likely to see more emerging and established journals on the way towards open archiving, indexing, and social media promotion in the foreseeable future.

A sizeable proportion of our respondents resorts to commercial editing services. Even though English is not the first language in many countries, it is arguably the lingua franca of the global scholarly communication. More and more non-Anglophone scholars recognize the importance of switching to English for increasing visibility of their publications [18]. While spell checks are conducted by most computer software, it is not uncommon for articles to be rejected due to grammar, syntax, and sentence structuring mistakes. The greater use of smartphones and instant messaging platforms has further denigrated student language precision, which is often reflected in the scholarly writing as well [19]. These can be particularly challenging without routine use of a language [20]. It may be worthwhile considering artificial intelligence to systematically identify common mistakes and train researchers and authors in a structured manner [21]. At the same time, it cannot be emphasized enough that whenever commercial editing services are used, this must be clearly declared by authors to maintain transparency in academic publishing [5].

The ongoing pandemic has seen a massive surge of preprints in a bid to prioritize research findings on COVID-19 [22]. Despite this trend, the future of preprint archiving seems uncertain as gauged by the responses. The unanimous preference of peer-review for validity of research reports may account for this. The scholarly community has encountered an unprecedented increase of reports on systemic affections due to COVID-19 that require rigorous evaluation by skilled specialists. Therefore, journal editors should be prepared to process submissions on multi and cross-disciplinary issues of COVID-19. They may encounter the shortage of skilled and cooperative reviewers in these challenging times [23]. Our respondents' undisputed view of the importance of peer review suggests that target journals need to revise and adjust related policies. Incentivising reviewers and offering better recognition for the arduous task may aid the evaluation process.

More active social media promotion of COVID-19 articles is envisaged as an essential part of post-publication

evaluation by our respondents. Notably, our respondents were already active on social media, which is an emergent scholarly communication and alternative metric calculation platform for professionals [24]. There was possibly a sampling bias due to an inherent limitation of our survey, which is based on involving surveyees who actively communicate and share their comments via Twitter and other social media channels. However, utilization of social media channels was the only feasible survey option during the COVID-19 pandemic. The rise in social media use during this pandemic may result in timely identification and promotion of publications vis-a-vis conventional metrics that may delay impact on education, research, and practice [25].

While post-publication promotion is essential, adhering to professional norms, responsible behaviour, credibility check, and avoidance of copyright infringement are essential [5]. In this rapidly evolving COVID-19 era of greater online academic presence, it is essential to educate scholars about the use of various open channels for disseminating credible information.

The COVID-19 pandemic has brought rheumatologists to the forefront, whether by choice or otherwise, due to the numerous attempts to repurpose drugs used in rheumatic conditions for the management of hyperinflammation in the setting of COVID-19 [26]. The notable example of possibly soft editorial and review policies that had resulted in publication of the problematic, now-retracted publication on hydroxychloroquine in COVID-19 has brought into the limelight the requirement for maintaining quality control in scientific publishing even during these difficult times [2]. In a way, the challenges of evaluating many repurposed disease-modifying antirheumatic drugs for COVID-19 are perennial concerns for rheumatology reviewers and editors, who often have to assess articles on new drugs for use in rheumatic diseases. Therefore, the perspectives in the current publishing scenario revealed by our survey are of particular relevance for rheumatologists.

We fully acknowledge the limitations of our survey posed by a relatively small sample size and short study duration. However, we hope that this exploration into a lesser known domain may pave the way for a larger global study to shape the future of publishing across academic disciplines.

Conclusion

To conclude, the perceptions and practices of scholars, particularly from non-mainstream science countries, call for greater access to free publishing and archiving, attention to proper use of academic English and editing skills, and a larger role for engagement over social media to enhance research and publishing in the time of the COVID-19 pandemic. Rheumatologists, by choice or otherwise, have an

important role to play during the COVID-19 pandemic due to their better understanding of immune aberrations, hence, should be ready to evolve and adapt to the current scenario of scientific publishing [27], which has been irrevocably changed due to the pandemic.

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Compliance with ethical standards

Conflict of interest: The authors have no potential conflicts of interest to disclose.

Research involving Human Participants and/or Animals An exemption from ethics review was obtained from the Institute Ethics Committee of Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, India (2020–110-IP-EXP-16) in line with widely publicized guidelines [Indian Council of Medical Research ethical guidelines. Available from https://ethics.ncdirindia.org/asset/pdf/ICMR_National_Ethical_Guidelines.pdf. Updated October 2017. Accessed on September 16, 2020.]

Informed consent Informed consent from participants was taken at the beginning of the survey.

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