

Health and Medical Researcher Publishing Patterns and How Libraries Support Them.

Abstract

Changing business models in scholarly publishing mean that researchers have increased choices as to where to submit their articles. Choices are made on the basis of perceived quality of the journal, the speed of publishing, how close a match there is between the journal scope and the article topic. Additionally, there is an increasing concern as to whether the journals are predatory. This paper reports on a study which sought to understand how health researchers go about selecting where to publish and the support that they receive in this regard from librarians and related staff. The research confirms that knowledge of specific journal is still the predominant factor for researchers and that they prefer to rely on their own judgement. Librarians are providing the tools such as databases and whitelists by which better choices can be made whilst exploring new roles in advising and training researchers. Predatory journals are being selected by some, chiefly as a consequence of a lack of awareness amongst researchers and the need for some to publish swiftly and at low cost.

Introduction

Scholarly communication, and in particular scientific communication, is changing as a consequence of the digital transition and the global drive towards open science amongst other factors. These changes are manifest in the emergence of new publishing business models which in turn have led to developments such as open access journals, hybrid journals, article processing charges (APCs), transformational agreements and, less positively, so called predatory journals. The pace of this change has been slower than some would like but is inevitably leading to significant shifts in the scholarly publishing landscape. Recent estimates are that over 50% of articles published in the health discipline in 2020 are available under some kind of open access policy¹. These changes are presenting researchers with a much wider array of opportunities for publishing their articles but with parallel challenges as to what choices they make about funding and deposition of their work. Librarians in turn need to understand this landscape, to provide appropriate tools and advise accordingly. This paper reports on a piece of research undertaken in 2020 which investigated these issues from both the researcher and the librarian perspective on a wide scale. It particularly focusses on the health sector given the absolute imperative of research validity and also the global dimension of health information. The research especially considers the developing world where changes are perhaps happening more profound than elsewhere.

Literature Review

The need for effective scholarly communication has been a critical concern of research academics for many years. Indeed, the mantra of “publish or perish”, has been extant in the United States, and other Western universities, to a lesser or greater degree for many decades. Over the past 20 years or so, there has been an increasing emphasis on the formal measurement of published research outputs as a more scientific indicator of research success and reputation. For those seeking to publish research in this ever-complex landscape, the issue of how to choose where to publish articles in one worthy of research. Moreover, the existing and potential role of research support services, including libraries, in that decision making process is also of interest. And finally, this

¹ Certain data included herein are derived from Clarivate *Web of Science*. © Copyright Clarivate 2021. All rights reserved.

landscape has been further confused by the prevalence of so-called predatory journals which though offering a publishing service, provide outputs which at best, are questionable and at worst, illegal.

How researchers decide where to publish is a topic which has not been greatly researched and what has been reported (Rowley, J 2020) inevitably varies with time and (geographic) context. Thus Rowlands (2004, 2005) surveyed author practices, updated by Nicholas et al (2006) and again in 2017 (Nicholas et al, 2017) and 2019 (Nicholas et al, 2019) where the focus was on Early Career Researchers. Inter alia they highlighted the importance of indexing by Scopus or Web of Science over and above new Open Access or new formats. More recently, Niles et al (2020) explored through a survey the attitudes of a sample of academics from a stratified set of 55 institutions across the US and Canada as to their priorities for publishing in the context of review, promotion and tenure. They found a disconnect between what researchers' value and what they think peer's value. Borrego and Anglada (2016) more specifically looked at research attitudes towards article publishing and the library context, a similar theme to this paper. Researching in Catalan Universities, they determined the most important feature in the decision-making process is the journal's Impact Factor, followed by its thematic coverage. Only a quarter assigned a similar level of importance to the fact that a journal is open access. They also determined that researchers still regarded themselves as highly dependent on libraries, though they stressed the central role of the library in paying for information resources. Finally, Frandsen (2019) looked more specifically at why researchers publish in predatory journals through a literature review and reported "Summing up, the explanations for publishing in a deceptive or deceptive journal include lack of awareness and different perspectives on motivation"

Objectives

During early 2020 CIBER Research undertook an in depth, global review, the aim of which was to investigate how researchers were going about their research publishing and the role, provisions and aspirations of those who support or advise them in that task. The project was undertaken in conjunction with Cabells, an American publisher with a specific interest in tools and services to help the publishing process.

As to the specific objectives we sought to investigate, these were:

- i) The publishing activities of researchers in the health and medical disciplines trying to establish how they decide what to publish where. In other words, what are their motivations, and what tools they use to guide them in their decisions. The investigation was designed to understand what factors lead them to a specific journal title.
- ii) Understanding how intermediaries in the scholarly publishing chain, such as librarians, and research managers support these researchers in their publishing effort. This sought to answer questions such as: what tools they provide to support researchers? What are their own views as to what factors steer researchers to publish as they do? What support they provide to these researchers in their publishing efforts?

The investigation updated some of the existing research but also had a particular focus on health and medical disciplines, with a geographic spread which was centred particularly on India, China and the Middle East, Southeast Asia and parts of Europe. The United States and Canada were specifically excluded in the belief that, rightly or wrongly, the position in North America is well understood.

Additionally, we sought to dig deeper into the impact of predatory journals and the perceptions of the research community as to why people continue to publish in them, given over a decade of their existence.

Methodology

The project methodology was a standard mix of quantitative and qualitative data derived from two large scale surveys, and a series of interviews using either Zoom or email exchanges with researchers, intermediaries, experts, publishers and consultants. Two surveys were compiled, one which addressed the research community, and the other the intermediaries (defined as those supporting the scholarly publishing chain and often librarians or research managers) albeit the two surveys shared a number of common questions so as to allow a degree of comparison between views. The surveys were circulated in the early part of 2020 by a mix of direct mail, professional discussion lists and via contacts, such as publishers and publishing agents who had insights into the respective communities.

Some 286 replies were received from the research community and 260 replies from the intermediaries, which provided a robust base of evidence. Over 60 interviews were concluded and written up. The questionnaires were collated and analysed by Survey Monkey and the interviews through a thematic analysis. Table 1 shows the distribution of those interviews, across the different groups.

Agent	7
Consultant/Expert	5
Librarian	23
Publisher	10
Research Manager	6
Researcher	9
Total	60

Table 1 Interviewees by Function

Results of the surveys

The surveys covered a lot of ground in that they were serving a mixture of purposes but from the perspective of this paper we present only those charts which address the themes outlined above, for the sake of brevity. All the responses and, indeed, a considerable level of other data and information are contained within the full report of this investigation, which is available as an open-source document (Akeroyd et al 2021)

As to the researchers, the majority of respondents were what might be termed mid-career level, researchers who have published papers in the past 2 years - this being the focus of the target audience. Nearly 80% of the responses fell into this category. There were a small number of other senior research staff (8%) such as Deans or those at Professorial level. We did not specifically ask for age or career stage, but it is also likely that some of the researchers were early career or even Doctoral level. The specific question we asked relevant to our research question, was the following: "We are interested in how you go about publishing and what methods you use", the answers being provided on a Likert scale. Figure 1 shows the weighted average of the responses to this question, and it is evident that the highest importance is attached to the respondent's level of knowledge of the discipline and the journal titles relevant to that discipline.

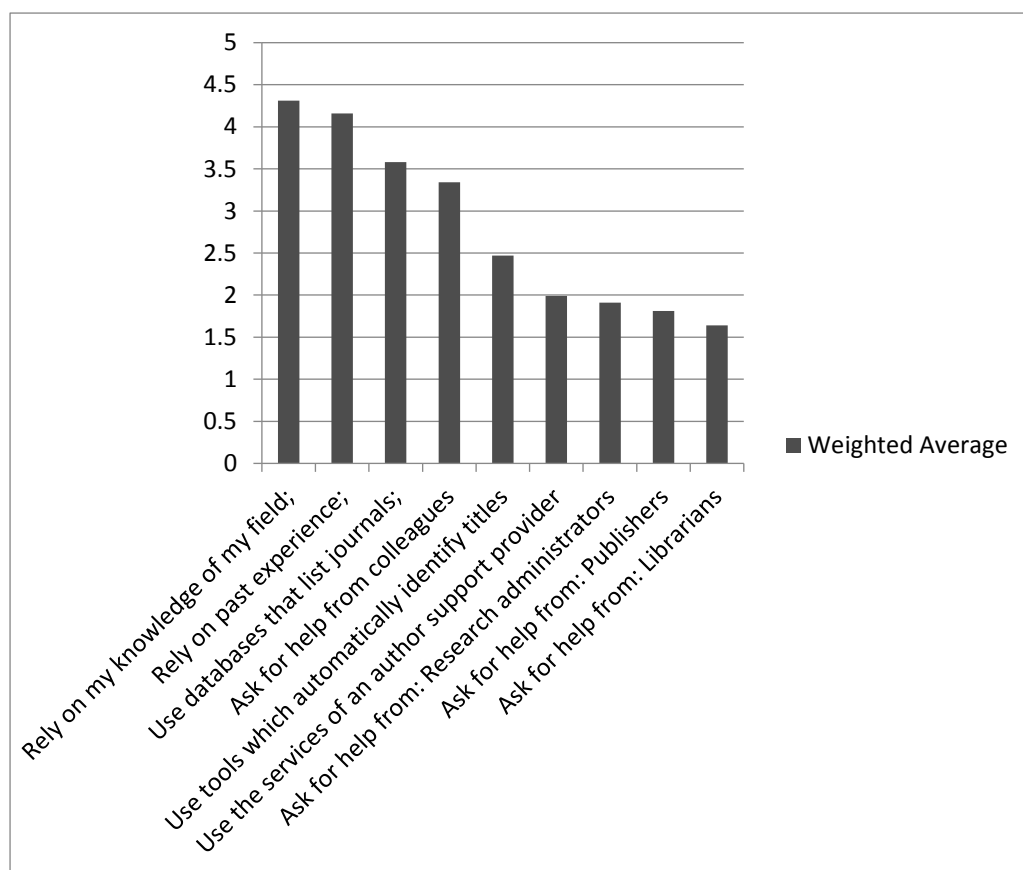


Figure 1 How you go about your publishing and what methods you use

There is some use of databases and the lists that provide guidance on journal titles and, to a lesser extent, the use of tools, such as those which provide automatic identification of journal titles (whereby a machine-readable manuscript e.g., a word file is submitted to the system and appropriate journal titles are returned - these are relatively novel services but are clearly of some interest). Interestingly, research staff did not feel that seeking help from others was an important part of the decision making, whether that be researchers, administrators or librarians.

The second question concerned what factors are important in selecting a specific journal title in which to publish and Figure 2 reports that the breakdown of responses. We can see that there is a level of importance attached to almost all the factors that we identified though perhaps inevitably the highest level was attributed to the credibility of titles. The availability of social media metrics such as Twitter was not given great importance. Whether you must pay an APC to publish was also an important consideration. This survey was not sufficiently explicit to indicate whether there was a preference for not paying an APC although that would be the expectation given that in many cases it may be the individual themselves who must pay the APC.

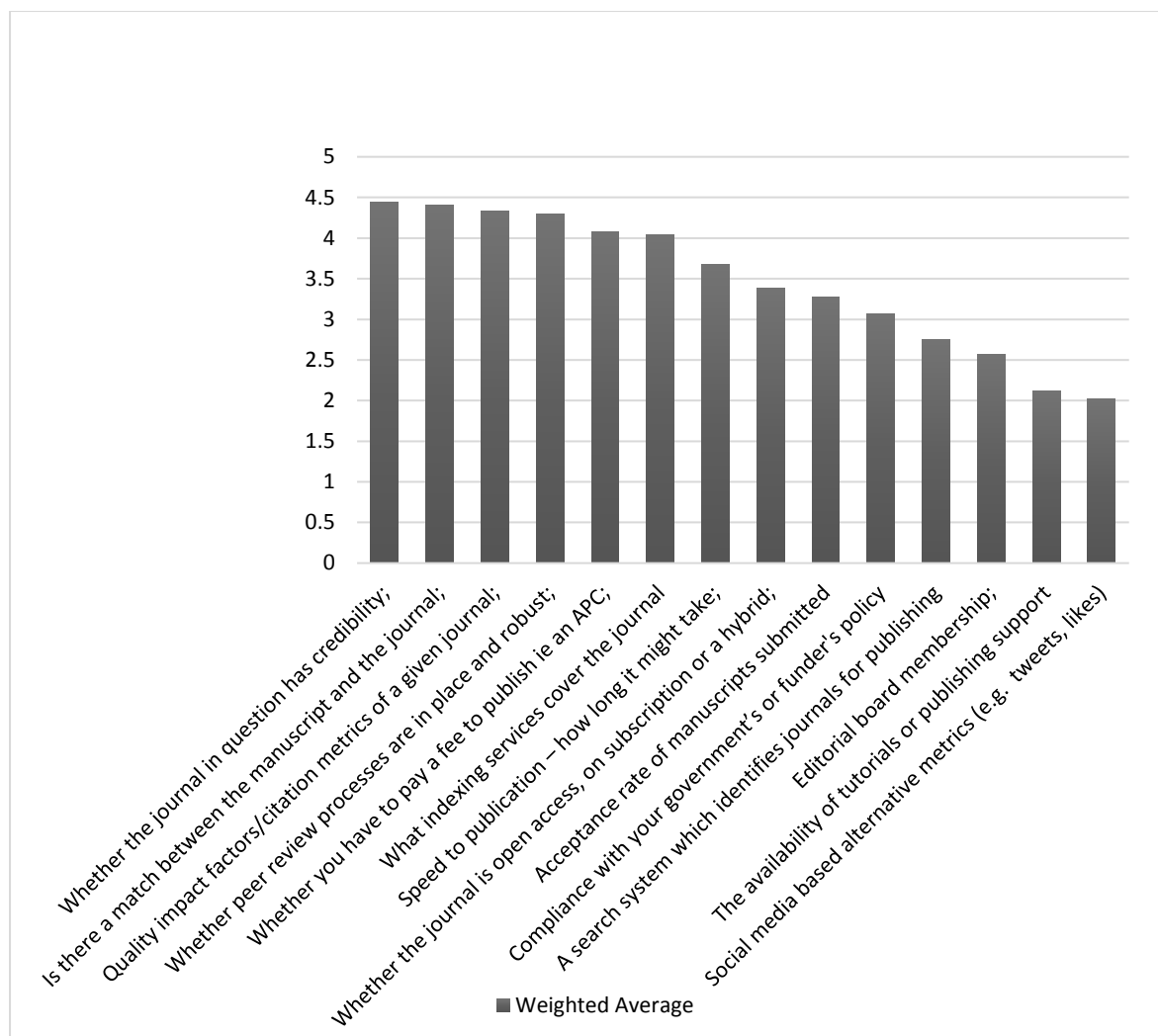


Figure 2 What factors are important in selecting a specific journal title in which to publish?

The results of the survey of intermediaries provided parallels to that of the researchers. Most of the respondents were librarians and most operating in the health or medical field, given that was the target audience. There were a wide mixture of job titles ranging from E resource librarians to information and knowledge specialists. A good percentage had the title of Research Librarian.

We asked the intermediaries for their perception as to the factors that are important in selecting a journal and these mirror the researcher's replies and the results of this are shown in Figure 3. The results are almost precisely the same as researchers with the one exception of the importance of impact factors, which seemed to be perceived as slightly less value by the intermediaries as by researchers. That maybe the consequence of a degree of scepticism about such metrics by librarians or conversely, that is just much more important to the research community.

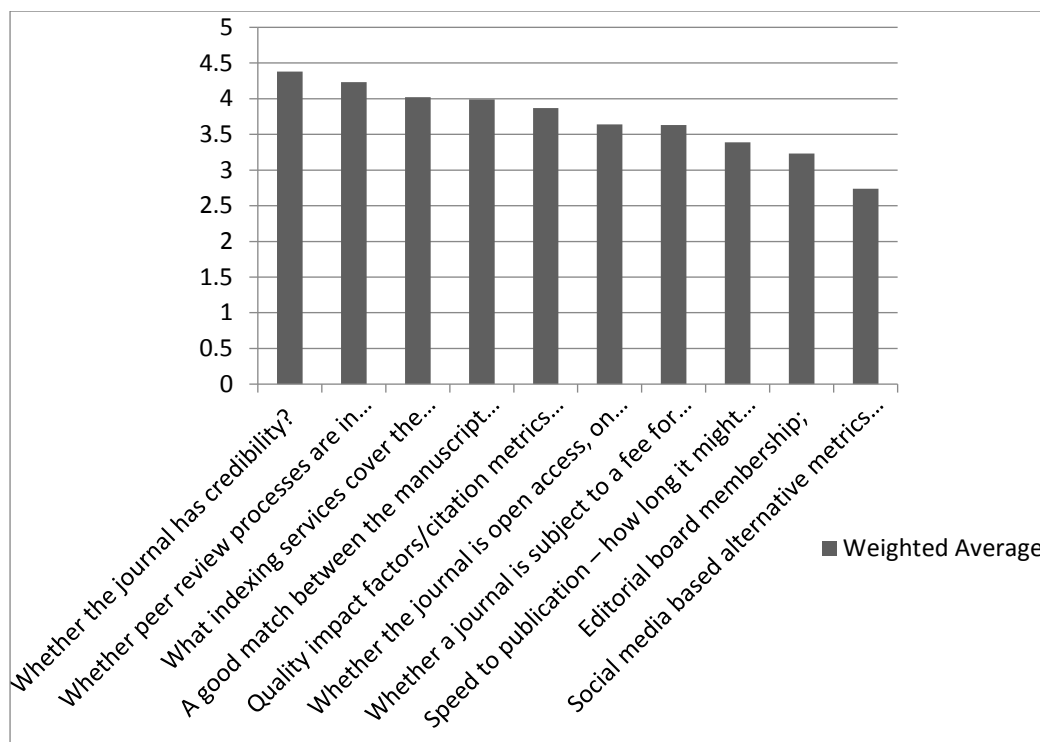


Figure 3 Intermediaries Perceptions of the Importance of Factors in Selecting a journal

We asked about the kinds of support libraries provide that might help researchers in their article publishing. Figure 4 clearly highlights that the provision of access to relevant databases, coupled with journal lists was of considerable importance, and somewhere in between was the provision of training and workshops. They also provide services such as automatic journal selection provision, brokering of author services and other services such as translation services.

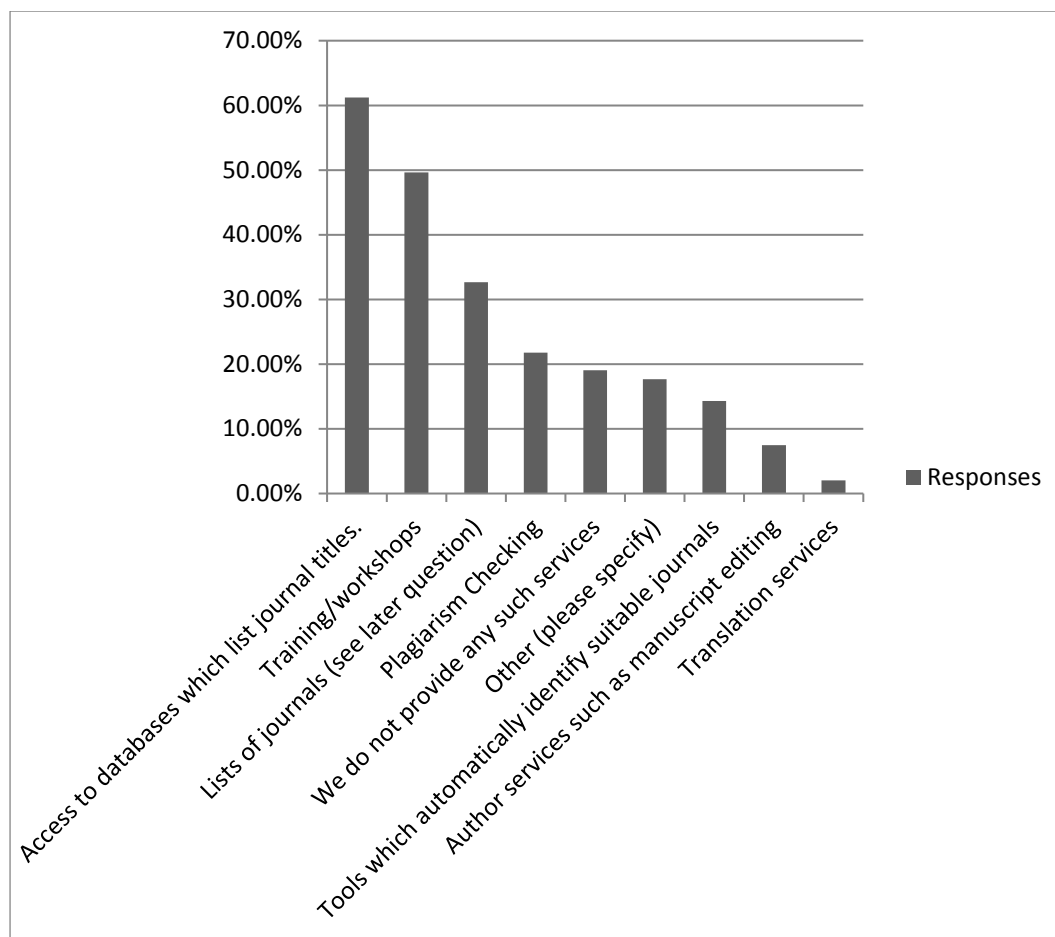


Figure 4 What sort of services do you provide to help researchers publishing their journal articles.

There was a specific question as to which database services are provided and Figure 5 provides that breakdown. Web of Science and the Directory of Open Access Journals (DOAJ) were almost equal with Scopus a close third. Other kinds of services featured but in declining levels. There are two interesting points on this chart; firstly, the prevalence of local or national lists - which sometimes mix both national and local journals – for these we have used the generic term whitelist². These are provided at national level, very often to guide researchers as to where they should be publishing, to meet research funding obligations. These will be lists of quality titles, put together by professorial committees at state level. The second interesting point is the continuing deployment of Beall’s list, despite its long-term demise (we presume it to be continuing variations of that list) and criticisms of it in the first instance.

² We use this term in a non-pejorative way

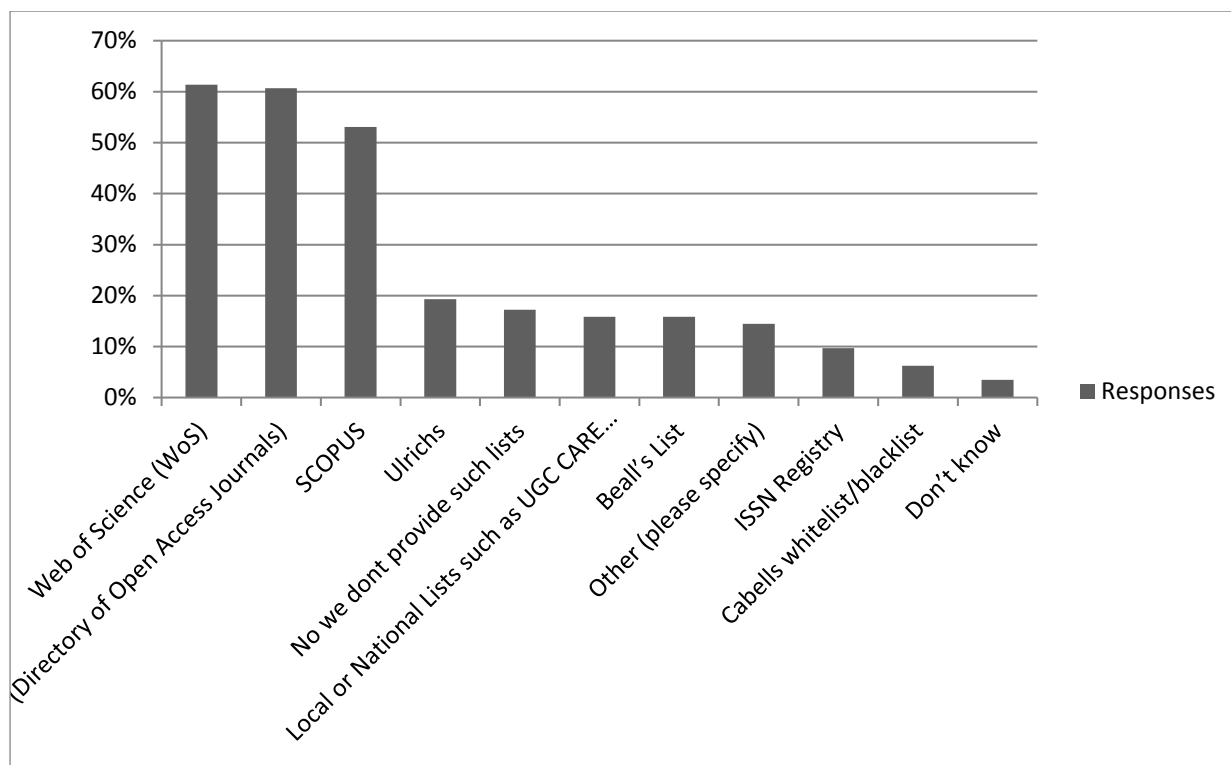


Figure 5 Do you currently provide access to services to your users which list journals?

Finally, we were interested in predatory journals and wanted a view as to how prevalent was publishing in predatory titles. Rather than ask directly – which was unlikely to elicit an answer - we asked the simple question in as to whether an individual knew someone who had published in a predatory journal, and approximately 50% of the respondents said that they did.

Further we asked the question, “*why do you think that researchers have published in predatory journals*”, and the researcher’s replies, suggest that a majority of over 70% felt the researchers who publish are in predatory journals are unaware that they are doing so. Responses also identified as drivers, the need to get published quickly, which is not always a feature of traditional publishing, and almost equally the opportunities for promotion, whether to a new grade or a new institution or just general career progression.

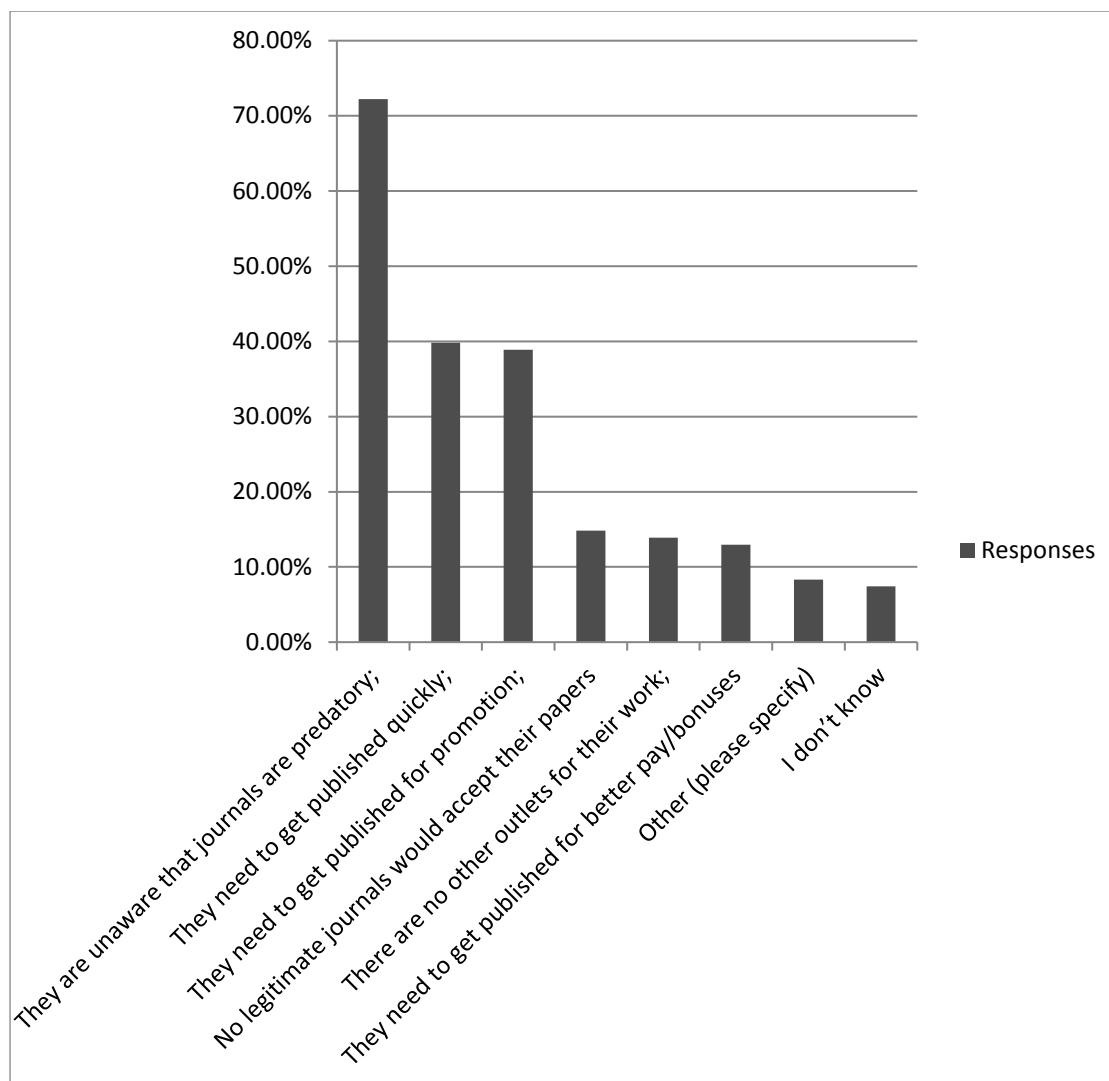


Figure 6 Why do you think researchers publish in predatory journals?

The Interviews

The interviews provided an insight into researcher behaviour and the views and actions of intermediaries. We used them to test many of the points that were made in the surveys and also to flesh out answers to questions which we felt were not adequately dealt with by the surveys. There were in fact few contradictions.

The importance of metrics such as Impact Factors was something we felt needed more in-depth investigation and attitudes certainly varied; whilst they are considered important by some, it seems less so by others, particularly in the developed world. Thus, a Paris based professor told us that *“metrics are not as important now, since France signed the San Francisco declaration and annual evaluations are not based on impact factors per se, but a wide range of criteria. However, old habits die hard. And some continue to believe in impact factors, The culture will take time to change”*. And Australia, we were told, is moving to a system, which is *“less metrics driven, but is more about industry and engagement”*. But conversely in South Africa, the funding process is such that *“if you*

publish in the first quartile of journals in a discipline, then the government would provide research funding in direct proportion". Chinese researchers continue to emphasise the importance of good metrics; "promotion and career projects in China also depends on having a good publication record in journals with a strong impact factor".

One contradiction of note was the mismatch between librarians' and others' efforts to provide support and education and researchers' needs. Thus, one academic told us *"We do not need whitelists, because we know the literature. We do not need to ask librarians either. Research managers are not relevant; only an important feature of getting grants"*. Another early career researcher was *"aware of research administrators and librarians but would not go to them for advice"*.

Findings of the Investigation

From the questionnaire survey and the qualitative data of the interviews, a number of themes emerged which we have expanded upon in our subsequent analysis and reporting. These could be summarised as the following thematic issues:

- How libraries have set about supporting researchers in their publishing and other tasks;
- The provision and availability of journal lists or directories to support publishing decisions;
- The increasing prevalence of predatory journals and the extent to which these are being used as publishing outlets and why.

We below discuss each of these themes in more detail.

Library Research Support Services

The first theme that stood out was how libraries are developing their services to researchers and what they look like. It was clear that in the UK at least and in parts of northern Europe there is an increase in the establishment of either individuals, or indeed, teams, who are charged with dealing with the needs of researchers and the research function. These are called "research support librarians" or "research support" teams or increasingly in some institutions, "scholarly communication" teams, sometimes abbreviated to the rather awkward term *schol comms*. These teams, which are often relatively newly formed, undertake a mixture of functions which they are still exploring. However, some or all of the following seem common:

- the provision of training and support to research staff on issues such as bibliometrics and impact factors;
- working with others in the institution, or the library to set up policies and strategies to manage the content of the institutional repository. This is not a matter of managing the hardware or necessarily the repository itself, but providing editorial function over the content and indeed, this, that in many cases, be tied into institutional research evaluation exercises;
- publishing activities. This might either be the associate management of a University Press, perhaps traditionally based but now increasingly focused on open access and the provision of alternative means of disseminating research outputs;
- specific help to researchers in getting the best out of their research, ensuring that it has the highest impact, and helping them or guiding them with their digital profiles;
- the management of research data associated with a research exercise, or data science more generally.

We also found that research support or *schol comms* teams were working closely with research managers, indeed, to the extent that in some organisations they were directly responsible to the research managers, perhaps as well as, or indeed even instead of, the University librarian.

Teams also tend not to have any specific procurement acquisition responsibilities albeit they potentially influence the provision of support databases or lists (although such acquisitions are increasingly being seen as cross disciplinary requiring an input from a mixture of staff, sometimes including professorial staff and even at consortia level).

Lists and Databases

Secondly, we note the provision of list and databases to support the researchers in publishing and profiling. Indeed, in some states, there is a national level of procurement of e.g., Web of Science, which may be used at ministerial level to underpin the metrics of research evaluation. So, it is entirely in the interest of researchers and research teams to ensure that they are in line with that provision. However, such international databases are very often extremely weak in dealing with what might be termed local minority language titles, which may well be of high importance in certain disciplines in certain countries. Thus, we learnt of the common existence of whitelists in many states, including for example, India and China, but also Australia, Spain and so on, which effectively drive the publishing process in that state. Thus, if a given researcher wants to be party to or recipient of state level research funding, they must look to the whitelist for their publishing output. A good example would be Sinta³ – the whitelist for Indonesia which effectively drives the publishing output of the state. By contrast, we noted the low availability of Blacklists. There was some discussion of the development of such lists in, for example China, but Beall's list was still commonly quoted and commonly deployed.

What we did establish in discussions with librarians, was a high level of scepticism about the value of any of these lists given the problems of keeping them current and establishing accepted and common criteria. Librarians were much more convinced by the value of education and the promotion of tools such as Think Check Submit as a means of achieving good publishing outcomes.

Predatory publishing

Our third theme was that of predatory publishing which was of specific interest to us. We asked several questions throughout both the surveys and interviews about it. We were interested as to how prevalent it might be in that, though it has been extensively measured in terms of outputs etc, there seems to be very little research which has focused on those who publish in predatory journals perhaps because there is inevitable reluctance on their part to acknowledge that they have done so. The most pronounced factor as to why authors publish in predatory journals, is that they are unaware that they are so doing. This might be felt surprising, given the predatory journals have been a feature of the landscape for over a decade and much has been written about them. Perhaps this is a matter of definition, so that researchers believe they are working with a reputable journal, when they are not. There is also an element of game playing in scholarly publishing; that is creating sufficient research outputs to count towards the allocation of research funding in the knowledge that those who are assessing those outputs will have very little know how in determining journal quality. They are likely for example, to be ministerial governmental bureaucrats who simply count titles.

³ <https://sinta.ristekbrin.go.id/>

Others noted the prevalence of research papers which might include citations to papers of researchers who had previously indulged in predatory publishing in order to secure their positions. That is a level of contamination or pollution of the scholarly record through older citations; this might be true for example, for major Western universities who have recruited researchers out of Asia, bringing with them their scholarly and citation records – a clear danger to the reputation of those institutions.

One driver is the considerable pressure on the publishing industry deriving from the expansion of the research base in developing countries, such as India, and the consequent need for individuals to publish in order to progress their career, or even maintain their position⁴. What seemed to be key was a huge pressure on students - say at a Doctoral level – to achieve a publishing record in peer reviewed publications, before they can be awarded their qualification, and, in turn, the award of the qualification may drive whether they have a job or not. That is, it is absolutely critical in terms of being employed to have a publishing record. Indeed, many educational qualification systems encourage, or demand published outputs in refereed or peer reviewed journals and this seems common in many countries globally. The pressure on individual researchers to reach a target by a given date might also be such as to absolutely require very tight deadlines; that is authors, above anything else, need quick publication which traditional peer review processes are unable to provide. We heard for example of one researcher who required eight publications to achieve their qualifications and had seven with a deadline of weeks to go. However, much of this is under review in many states we investigated. Thus India (Vaidyanathan, G. 2019) for example is making significant changes in their regulations whilst Mouton, & Valentine (2017) argue the need for change in South Africa.

Open Access has also clearly been a factor in predatory publishing in that transactions are often at the level of individuals exchanging relatively low amounts of money, which in turn implies less control and or a wider market. Such payments are effectively bypassing libraries or research offices or those with those who might otherwise exert financial control or audit. If an individual chooses to spend 50 or 100 euros or dollars on publishing their output, that is very hard to prevent.

And in some cases, it was felt that managers and supervisors are effectively turning a blind eye to known poor quality publishing for example to ensure the success of those for whom they are responsible. Or perhaps they themselves have been unaware of what has happened,

Discussion

We learn from the research community, that the practice of publish or perish is still very much in evidence albeit that there are some seeds of change. Thus, in many parts of the world, the need to publish is still an imperative in order to deliver on research commitments, secure new research funding and/or ensure career progression and payment. However, we have identified in different states some variations to this general principle, dependent upon the research funding landscape and the criteria used, and also the education and qualification processes, which in many countries are still dependent on achieving a publishing record. Thus, there does seem to be some decline in the emphasis on simple metrics as a means of evaluating research performance and the emergence of new criteria for research evaluation – thus for example one Australian researcher talked about multiple criteria – evidenced by Guidelines On evidencing Academic Achievement at the University

⁴ “The top-ranked universities in India grant around 2,500 science PhDs each year. ... In all, we have more than 800 chemistry PhDs a year” (Pradeep, T. (2018))”.

of Queensland⁵ (where over 40 criteria are considered) under the headings of activity, evidence of quality and impact in assessing research performance. And recently some pre-eminent Chinese universities (Tsinghua and Peking Universities, as well as the Chinese Academy of Sciences) have announced changes to their PhD programmes (Jing Liu (2021) such that a published record is not the sole prerequisite for a successful award.

The pressure on publishing systems as a consequence of increasing demand for published papers and the move to open access has resulted in the emergence of new business models and new formats on the one hand, but also highly questionable journals on the other. Universities need to respond to this and have done so through the emergence of the research administration function and the development of research library teams, particularly those with a high research profile. Such teams are part of a general restructuring of university libraries providing more emphasis on their education and training role, and less on collection management per se. Libraries are key in the support of open access policies and in the development and population of institutional repositories whilst the acquisition and procurement role is being diminished through a combination of collective and centralised purchasing. However, we also note the potential mismatch in aspiration as our research suggests that researchers do not see libraries as a major source of guidance on choosing where to publish. And whilst research managers are important, they commonly defer to librarians for any matters bibliographic or for the provision of content - that is, research managers seem more attuned to policies and research management systems rather than content.

We note the continuing prevalence and use of whitelists. Many countries are in the process of reviewing these in the light of changing publishing practices, and the need to ensure quality research outputs, which reflect not only international goals, but also the need to support local and minority language disciplines. While some major databases such as Web of Science and Scopus, continue to dominate impact metrics, new tools such as DOAJ are becoming more prevalent and of equal importance. Blacklists by contrast remain problematic. Beall's list, which was subject to heavy criticism in its day (see Kendall, G 2020), remains in surprisingly high use.

Finally, we considered predatory publishing. Our research shows that the majority perception is that those who publish in predatory journals are unaware that they are so doing, and indeed our interviews suggest that the majority who do so are typically young and inexperienced albeit there are instances where experienced researchers have turned to predatory publications. Surprisingly, the marketing of predatory publishers seems to achieve a degree of success in that it would appear that some are lured in by invitational emails. There were also instances of researchers at a more senior level engaging in predatory journals – again probably through a lack of knowledge. But in some cases, they understand what they are doing. There is a preparedness to take a risk, given one suspects, an argument that they know that those adjudicating on their research outputs have even less knowledge of journals and are merely counting titles.

However, for some, such as junior researchers or doctoral students, achieving the requisite number of research outputs in a period of time is an absolute prerequisite for them to succeed. It becomes a force of circumstance, and they will undertake whatever is needed to do so. And until and unless there are controls on that, it is likely to continue. Predatory publishing remains an area which has, in many ways, has been heavily researched but to no great end. Very little seems to have focused on the authors themselves, perhaps, for obvious reasons, their voices are largely unheard. The same

⁵ <https://staff.uq.edu.au/files/341/guidelines-academic-achievement-evidence.pdf> (See section 5).

could be said of predatory publishers who are very little addressed perhaps for the obvious reason they do not wish to be so.

Conclusions

We conclude from the research that, as to the decision as to where to publish in health and health related journals, it is primarily that the individual researcher uses their knowledge of the discipline and their past experience. There is some use of databases and related tools, often provided at state level to ensure quality of outputs. Overall, researchers seem reluctant to ask for help from anybody other than perhaps their research colleagues. Thus, there are a mixture of factors which are important in the title selection process, but these don't vary greatly. We also note three key themes which have emerged from the investigation: the growth of research support services in libraries; the continuing existence and growth of various lists and databases to inform decisions, and the continued prevalence of predatory publishing, which seems to be an increasing and global phenomenon. The latter is related in the main, to a continuing lack of understanding on the part of authors but also relates to the overwhelming need to publish, not just for career advancement but as a feature of educational qualification criteria.

Thus, our research suggests that researchers in the main continue to be wedded to traditional publishing outlets, and that the shifts in business models have not necessarily made a significant impact as to where they publish. Publish or perish remains critical. And a lack of awareness of poor-quality journals means that many researchers continue to choose them, albeit in some cases they are aware of quality issues and continue nevertheless. Librarians are perhaps more circumspect and knowledgeable and have a much wider perspective with an increasing function in terms of providing tools such as whitelists and offering advice and training. If there is one factor that stands out, it is that research evaluation policies, whether at national, university or even individual level, significantly determines the extent and breadth of publishing outputs. Those universities who have not established scholarly communications teams or even designated individual will need to do so with a target of better managing their research outputs. Finally, the developing world will need to become: much more aware of the dangers of predatory outputs, more prescriptive as to where their research is published and create evaluative frameworks which are not as dependent on simple metrics.

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