

The open-access availability of criminological research to practitioners and policy makers

Matthew P J Ashby<sup>1</sup>

<sup>1</sup> University College London

Matthew Ashby is lecturer in crime science at the Jill Dando Institute of Security and Crime Science at University College London (UCL). He conducts research on crime analysis – particularly how crime concentrates in time and space – crime prevention and transport crime. As a former police officer, he is also interested in evidence-based policy and practice. He is an unpaid associate editor of *Crime Science*, a pure open-access journal published by Springer Nature.

This article has been accepted for publication in the *Journal of Criminal Justice Education*, published by Taylor & Francis. This version of the article is identical to the published version except for the publisher's formatting. This version date: 09 October 2020.

#### Author note

Correspondence concerning this article should be addressed to Matthew P J Ashby, 35 Tavistock Square, London WC1H 9EZ, United Kingdom; ORCID 0000-0003-4201-9239. E-mail: [matthew.ashby@ucl.ac.uk](mailto:matthew.ashby@ucl.ac.uk)

## Abstract

Criminology produces policy-relevant research and criminologists often seek to influence practice, but most criminological research is confined to expensive subscription journals. This disadvantages researchers in the global south, policy makers and practitioners who have the skills to use research findings but do not have journal subscriptions. Open access seeks to increase availability of research, but take-up among criminologists has been low. This study used a sample of 12,541 articles published in criminology journals between 2017 and 2019 to estimate the proportion of articles available via different types of open access. Overall 22% of research was available to non-subscribers, about half that found in other disciplines, even though authors had the right to make articles open without payment in at least 95% of cases. Open access was even less common in many leading journals and among researchers in the United States. Open access has the potential to increase access to research for those outside academia, but few scholars exercise their existing rights to distribute freely the submitted or accepted versions of their articles online. Policies to incentivise authors to make research open access where possible are needed unlock the benefits of greater access to criminological research.

*Keywords:* evidence-based policy, translational criminology, open access

*Word count:* 6256

The open-access availability of criminological research to practitioners and policy makers

### **Declarations**

Funding: not applicable

Conflicts of interest: not applicable

Availability of data and material: the CrimPapers dataset is available at  
<https://osf.io/8p5v3/>

Code availability: the annotated R code used in this study is available at  
<https://osf.io/8p5v3/>

### **Introduction**

Criminologists often aim to influence public policy or professional practice across criminal justice and related sectors. They not only produce knowledge that can be useful in reducing crime and ensuring that justice is both effective and fair, but many also have a clear desire that their work should help achieve those aims (Blomberg, 2019). To this end, the codes of ethics of both the Academy of Criminal Justice Sciences (2000) and the American Society of Criminology (2016) require their members to be “committed to free and open access to knowledge, to public discourse on findings, and to sharing sources of those findings whenever possible”. Similarly, the British Society of Criminology (2015) statement of ethics requires members to “promote free and independent inquiry into criminological matters and unrestricted dissemination of criminological knowledge”.

Despite these commitments and the disciplinary desire to influence practice, criminologists typically publish work only or mainly in subscription journals with limited

circulation. While by no means the only barrier to achieving evidence-based policy, restricting knowledge in this way makes it more difficult to translate research into practice.

Open-access publishing attempts to respond to this problem by providing wider access to journal articles, especially for readers without access to journal subscriptions. However, previous research has found the take-up of open access to be limited. This paper uses a large sample of recent publications in criminology journals to demonstrate that, despite its policy focus, criminology (particularly in the United States) lags substantially behind other disciplines in providing open access to research. Currently more than three quarters of criminological research is hidden from public view.

### **Access to criminological research**

Academic journals are typically the primary outlet for research dissemination in criminology, with other outlets such as edited collections and monographs having secondary roles. Access to journals is therefore essential for researchers wishing to keep pace with developments in the field. For university researchers in developed countries, access to journals has become substantially easier in the past two decades, with services such as Google Scholar and publisher websites having displaced paper journals delivered by post or kept in libraries. Staff and students at major Western universities can usually access the latest research in seconds or minutes from anywhere and at any time. This revolution in access to research for many academics has not, however, been experienced by many other people who could have benefited from it. Three groups of potential research users in particular still face substantial challenges in getting access to research.

The first disadvantaged group is staff and students at universities unable to afford a wide range of journal subscriptions. Many institutions in developing countries have little or no access to subscription journals (Chan & Costa, 2005), not least because of the 'serials

crisis' of increasing journal subscription costs (Young, 2009). Four in ten university researchers in Africa surveyed by Nicholas, Huntington, and Rowlands (2005) said they had poor or very-poor access to journals, compared to only 10% of such researchers globally. While programmes such as Global Online Access to Legal Information (GOALI) offer free or discounted access to some subscription journal articles to those in the poorest countries, they do not cover middle-income countries such as Brazil, India or Indonesia and do not cover all journals (Research4Life, 2019). There are many important and urgent crime and justice issues affecting the global south (Carrington, Hogg, & Sozzo, 2016), but scholars working in developing countries are most likely to be excluded from access to criminological research.

From this perspective, ensuring wider access to research findings is an issue of social justice (Scherlen & Robinson, 2008) – restricting access to institutions that can afford journal subscriptions systematically privileges researchers who already have substantial structural advantages over those in the global south or who work outside research-intensive institutions. Bohannon (2016 p 509) gives the example of a student in a middle-income country writing a PhD project proposal:

“every time he found the abstract of a relevant paper, he hit a paywall. ... He looked at his list of abstracts and did the math. Purchasing the papers was going to cost \$1,000 this week alone – about as much as his monthly living expenses – and he would probably need to read research papers at this rate for years to come.”

The second disadvantaged group is those criminologists who are not affiliated with a large institution that can pay for journal subscriptions. This includes independent researchers and those working in small research organisations, as well as teaching-focused criminologists and those providing in-house professional training or consulting services. Individual annual subscriptions to all the 97 criminology journals shown in Appendix A cost about \$15,900, even taking into account discounts resulting from membership of the American, British and

European societies of criminology (institutional subscriptions are typically several times higher, and often bound up in multi-journal subscription packages). This cost is likely to be well beyond most individual criminologists and many small organisations, even though scholars in such positions are often at the forefront of translating research knowledge into practice (Vrentas, Freiwirth, Benatti, Hill, & Yurasek, 2018).

The third disadvantaged group is practitioners and policy makers who wish to use research to inform their work. While evidence-based policy in criminology has a long and chequered history (Freiberg & Carson, 2010), the rise of (for example) evidence-based policing over the past decade has led to the emergence of ‘pracademics’: practitioners who have advanced academic training and make use of it in their work (Huey & Mitchell, 2016). While some large practitioner organisations – such as the National Police Library in the United Kingdom – do subscribe to relevant journals, these are the exception rather than the norm.

Providing access to research findings in journals is unlikely to be sufficient to promote evidence-based practice, since many practitioners are likely to need or prefer alternative research outputs that are tailored to their needs. However, the growing number of criminal justice practitioners with higher degrees or research experience means there are likely to be many who could benefit from access to research articles but are unable to access them by subscription (Braga, 2016). Schwabish (2020) suggested that researchers think of options for disseminating their work as a pyramid, with simple descriptions (e.g. in media interviews) at the top, supported by progressively more-detailed descriptions (e.g. policy briefs) for those who want them. In this conception, journal articles form the base of the pyramid on which the shorter descriptions depend: only a few non-academic readers may need to read the detail they provide, but their availability provides credibility through openness.

## Open access to research

Open access publishing seeks to deal with the problems of limited access to research by allowing anyone to read academic publications without charge. Open access is defined as research that is freely available “to read, download, copy, distribute, print, search, or link to the full texts of these articles ... without financial, legal, or technical barriers” (Chan et al., 2002). There are several types of open access, commonly referred to by different colours. This study considered three types: green, gold and bronze.

In *green* open access publishing (sometimes known as self archiving), articles are published in subscription journals but the authors post either the version originally submitted to the journal (known as the *pre-print*) and/or the revised version including any changes suggested by reviewers (referred to as the *post-print*<sup>1</sup>) to a website known as a repository. Repositories may be run by universities, publishers or other organisations. Many authors are unaware of their rights to post either the pre- or post-print versions of their work freely online, but *all* the criminological journals listed in Appendix A allow authors to post pre-prints and almost all allow authors to do the same with post-prints. Green open access does not involve the payment of any fees to publishers.

There are several other potential benefits of posting an early version of an article to an online repository (Sarabipour et al., 2019). Firstly, it allows other researchers to have access to emerging findings more quickly, especially researchers who cannot afford to attend the major criminological conferences where research in progress is often presented. Publically posting a pre-print also allows researchers to verifiably demonstrate much earlier in the publishing process that they have produced a particular idea or result, preventing hijacking of

---

<sup>1</sup> Some sources use alternative terms to describe pre- and post-prints: see Table 1 of Björk, Laakso, Welling, and Paetau (2014) for details.

ideas. While – as will be shown below – posting pre-prints is not typical in criminology, it has been common in other disciplines such as physics since at least the 1980s (Costello, 2019).

Green open access has some limitations. If only a pre-print is posted, it will not have benefited from peer review that may have identified if the conclusions are incorrect or misleading. However, it would be a mistake to use peer review to draw a bright line between pre-prints and published articles. Peer review is far from perfect at measuring the quality of research (Siler, Lee, & Bero, 2015) and has often failed to detect research fraud (Couzin, 2006; Pickett, 2019). An article having been accepted by a journal should be only one factor that an engaged reader uses to judge the reliability of academic research. Pre-prints should be read critically, but then so should all research (Peck & Peck, 1980).

Another potential issue with green open access is the discoverability of pre- or post-prints distributed across a large number of repositories (Rizor & Holley, 2014). A pre-print, for example, may be posted on the author's own website, a repository run by their institution, or a subject-specific repository such as SocArXiv. While this potentially makes it difficult for readers to find green open access versions of articles, various search engines exist to assist them. For example, the Unpaywall service monitors a large number of different repositories for open-access versions of published articles and provides access to the resulting database to both readers and institutions (Piwowar et al., 2018).

Finally, some – but by no-means all – journals restrict the posting of article post-prints by imposing an embargo period (often 12 months) during which post-prints may not be circulated. For further discussion of the benefits and limitations of pre-prints, see Bourne, Polka, Vale, and Kiley (2017) and Fry, Marshal, and Mellins-Cohen (2019).

In *gold* open access, the journal publisher allows anyone to freely access and redistribute the final published version of an article online. This is done in return for a fee –



known as an article processing charge (APC) – paid by the author, their institution or the body that funded the research. APCs can be substantial: as an example, the present author’s home institution paid 1,656 APCs in 2018, with a median cost of approximately \$2,180 per article, giving a total cost of around \$3.9 million (OpenAPC, 2019). These prices may appear particularly high when compared to the estimated cost of processing an article, which is commercially confidential but thought to be about \$300 (Van Noorden, 2013).

Subscription journals that also provide gold open access are known as hybrid journals, distinct from pure open access journals in which all articles require payment of an APC. A small number of journals (but none, yet, in criminology) are pure open access but do not charge APCs. This is known as *diamond* or *platinum* open access, with these journals covering their costs through a mixture of institutional grants and other fundraising (Normand, 2018).

The main limitation of gold open access is the question of who pays for APCs. Some authors may have funding from their institutions or research funding bodies, but (particularly in developing countries) this is not always the case. As with journal subscription costs, APCs are often waived for authors from the poorest countries, but typically not for those from middle-income countries, practitioners or researchers unaffiliated to institutions (Poynder, 2014). Several solutions to this affordability problem have been proposed – including universities taking journal publishing in-house (Raju, 2018) – but such proposals are at an early stage.

*Bronze* open access describes articles that are free to read on publishers’ websites but (in contrast to green or gold articles) have not been formally released as open access under a licence that allows re-use (Piwowar et al., 2018). For example, articles published in some subscription journals may be made free after a set period. Publishers may also choose to make

a selection of articles freely accessible to increase interest in a particular journal (Costello, 2019).

Bronze publishing does not involve paying an APC. However, the lack of a formal legal framework limits the degree to which it can be relied upon to provide access to criminological research. If publishers have made particular articles free for marketing reasons, they can revoke access in future. Releasing articles only after a delay gives researchers at well-funded institutions privileged access to the latest research while researchers at other institutions, independent researchers and practitioners are denied access until the embargo has expired. This delay may be particularly important in the realm of criminal-justice policy, where researchers may conduct policy-relevant research only to find its relevance diminished by the time policy makers have access to it.

### **Existing evidence on open access to research**

As far as the author is aware, only one previous empirical study has addressed questions related to open-access publishing in criminology. (Robinson & Scherlen, 2009) conducted a survey of 29 editors of criminology and related journals, finding that they universally favoured “reaching as wide an audience as possible with the journal you edit” and “scholars reaching as wide an audience as possible with their scholarship”. However, editors were more split on facilitating specific open-access practices to enable these goals: 42% did not support allowing authors to self-archive their work on their or university own websites.

In the absence of other work on open-access in criminology, it is possible to use evidence from other fields. Several cross-disciplinary studies have demonstrated that open-access articles are read more often than closed subscription articles after controlling for confounding factors (Ottaviani, 2016). Open access articles also appear to be mentioned more often in non-academic sources (Tennant et al., 2016). A randomised controlled trial by Davis

(2011) found that open access increased how often an article was downloaded but not how often it was cited, concluding that open access was likely to make little difference to access among academics while increasing the use of research by “students, educators, physicians, patients, government, and industry researchers, who all depend on the publication of scientific literature” (p 2,133). That the benefit of open access is felt mainly by readers outside academia may explain why Davis and Walters (2011) and Nicholas, Watkinson, et al. (2017) found researchers typically do not consider open access to be an important consideration in choosing where and how to publish.

Several previous studies have attempted to estimate the proportion of journal articles that are open access. These have typically found open access to be much more common in recently published articles, meaning that such estimates date quickly. The most-recent large-scale study (Piwowar et al., 2018) found that 27.9% of a random sample of 100,000 journal articles from across disciplines were open access, increasing to 44.7% for articles published in 2015 (the last year studied). This provides a benchmark against which the availability of open-access articles in criminology can be compared.

Previous studies (e.g. Archambault et al., 2014; Piwowar et al., 2018) have found that the proportion of open-access articles varied substantially between disciplines, with higher proportions in biomedical research and earth sciences but lower proportions in history and philosophy. The same studies found that bronze open access is more common than gold, which is in turn more common than green. A survey of German researchers by Eger, Scheufen, and Meierrieks (2015) similarly showed more respondents from most disciplines (including social sciences) had experience of releasing articles via gold rather than green open access. Piwowar et al. (2018) also found differences in the prevalence of open access between publishers. The present study considers these questions in the context of criminological research.

## **Data and methods**

To evaluate the availability of open-access journal articles in criminology, a database of articles was required. As a field that operates at the boundaries of other disciplines, identifying a complete list of criminology journals is difficult. CrimPapers is a service that scans the websites of 97 criminology and related journals (listed in Appendix A) to provide daily and weekly email listings of new articles. The service has operated since 2016, with journals progressively added since that date. The present study used the 13,469 articles discovered by CrimPapers between January 2017 and December 2019 to provide an up-to-date estimate of the prevalence of open access in criminology. Journals were included in the analysis if they had been indexed by CrimPapers since at least the beginning to 2018, to provide a reasonable number of articles from each journal for analysis. Using recent publications ensured that the resulting estimates of open-access prevalence are up-to-date. Any estimate of the prevalence of open access is necessarily a snapshot, since authors may upload pre- or post-prints for existing articles and publishers may change the status of bronze articles. This approach also has the limitation that it does not cover criminological articles published in journals outside criminology. However, the range of journals which occasionally publish criminological work means it would be impracticable to identify them all.

As noted above, one challenge of open access is discovering which articles are available. The Unpaywall database (Bosman & Kramer, 2018) searches more than 50,000 sources for open-access versions of any journal article that has been assigned a digital object identifier (DOI). Using the roadDOI package (Jahn, 2019) within R version 4.0.1 (R Core Team, 2019) it was possible to identify whether each record in the CrimPapers database of

criminology articles was available via green, gold or bronze open access<sup>2</sup>. The results presented here are based on data obtained from the Unpaywall database on 4 March 2020.

For most articles, DOIs were extracted from the URLs contained in the CrimPapers dataset. Some publishers do not include the DOI in their article URLs, in which case DOIs were obtained by searching for the article and journal name on Crossref, a service funded by publishers to share data about publications. Finally, DOIs for 53 articles in the *British Journal of Criminology* were determined manually from the journal website because they could not be identified via the other methods.

Unpaywall is the best available source for determining the open-access status of large numbers of journal articles, but it has limitations. It is designed to be conservative, only very rarely incorrectly recording an article as being open access, at the expense of sometimes identifying an article as closed when an open access version is available. The large number of institutional and other repositories on which pre- and post-prints can be posted means it is not possible to definitively identify all possible sources. Unpaywall does not search for articles on academic social networks such as ResearchGate or Academia.edu. Much of the content on academic social networks does not comply with the requirement for open access to be “without financial, legal, or technical barriers”: authors can remove content at any time, and the networks themselves have periodically removed large numbers of papers uploaded in violation of copyright (Van Noorden, 2017). Commerically run academic social networks may also go out of business or impose restrictions in future as part of changes in business models. Overall, the proportion of articles identified as open access should be seen as a

---

<sup>2</sup> The Unpaywall database distinguishes between gold open-access articles published in hybrid journals and in pure open-access journals. Since there are only three gold-only journals in the CrimPapers dataset, these two methods of publishing gold articles are combined in the following analysis.

conservative estimate. Since the present study matched the design of that by Piwowar et al. (2018) – which used an earlier version of the same data – their cross-disciplinary results will be used as a benchmark here.

The open access policies of journals were obtained from SHERPA (2020) via the `rromeo` R package (Grenié & Gruson, 2019), with data management using the `tidyverse` suite of packages (Wickham et al., 2019). The annotated R code used in this study and the CrimPapers dataset are available at <https://osf.io/8p5v3/>

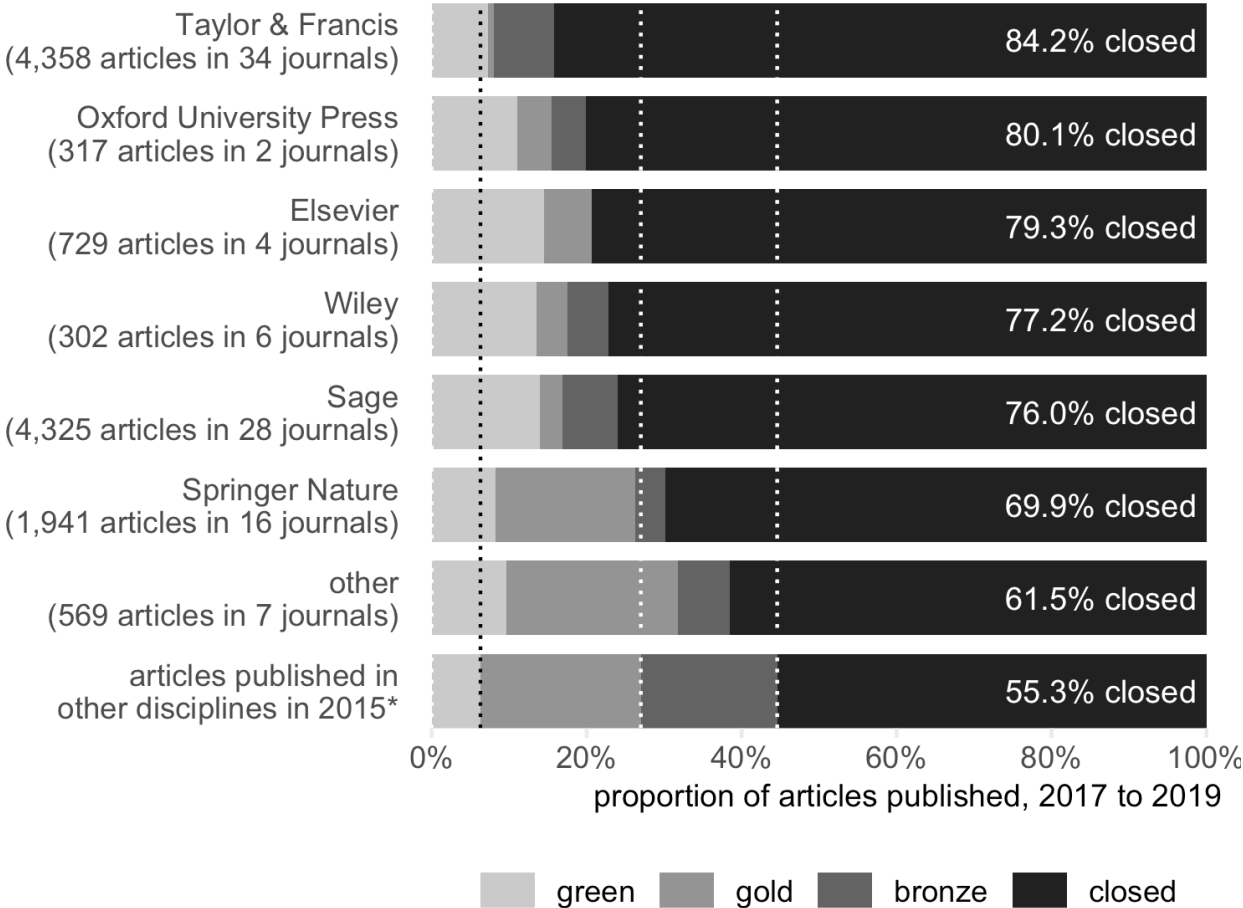
## Results

The Unpaywall database contained the open access status of 12,541 articles, 93.1% of articles published between 2017 and 2019 in the CrimPapers dataset. The remaining 6.9% of articles could not be matched to Unpaywall records because they were published in a small number of journals that do not assign DOIs to articles (2.4%), because a DOI could not be identified (4.3%) or because the identified DOI was not found in the Unpaywall database (0.2%).

Appendix A shows the number of articles included from each journal together with whether or not the journal allows authors to make a pre-print, post-print or published version of an article available online (whether immediately or after an embargo). Of the articles published in these journals between 2017 and 2019, journal policies allowed authors to make immediately available pre-prints for 99% of articles and post-prints for 95% of articles. These are the theoretical upper limits against which the actual extent of open access should be compared.

Of the articles matched to Unpaywall records, 2,814 (22.4%) were available without subscription via bronze, gold or green open access. More articles were available via green

open access (10.5%) than via gold (5.6%) or bronze (6.3%). The remaining 9,727 articles – 77.6% of all criminological research output during those three years – were unavailable to anyone without a subscription to each of the 97 journals in the dataset.



\* data from Piwowar et al. (2018)

Figure 1.: Proportion of articles that are open access by publisher compared to estimates by Piwowar et al. (2018) for other disciplines. Publishers producing fewer than 100 articles in 2017–19 shown as ‘other’.

Figure 1 shows that the proportion of articles available via open access varies by publisher. In every case the overall proportion of open-access articles is less than for the larger sample of articles from multiple disciplines studied by Piwowar et al. (2018). There are large differences between publishers, with Taylor and Francis – the largest publisher in

criminology in terms of both articles and journals – having the lowest proportion of open access articles.

Although the proportion of open-access articles overall is lower for criminology publishers than Piwowar et al. (2018) found for other disciplines, the proportion of *green* open-access articles is higher among criminology journals. The lower availability of open-access versions of articles in criminology appears to be driven by the lower frequency of gold and bronze articles. For example, Springer Nature (the publisher of two of the three gold-only open-access journals in criminology, *Crime Science* and *Health and Justice*) had a much higher proportion of gold open-access articles (18%) than other publishers (a weighted mean of 10%).



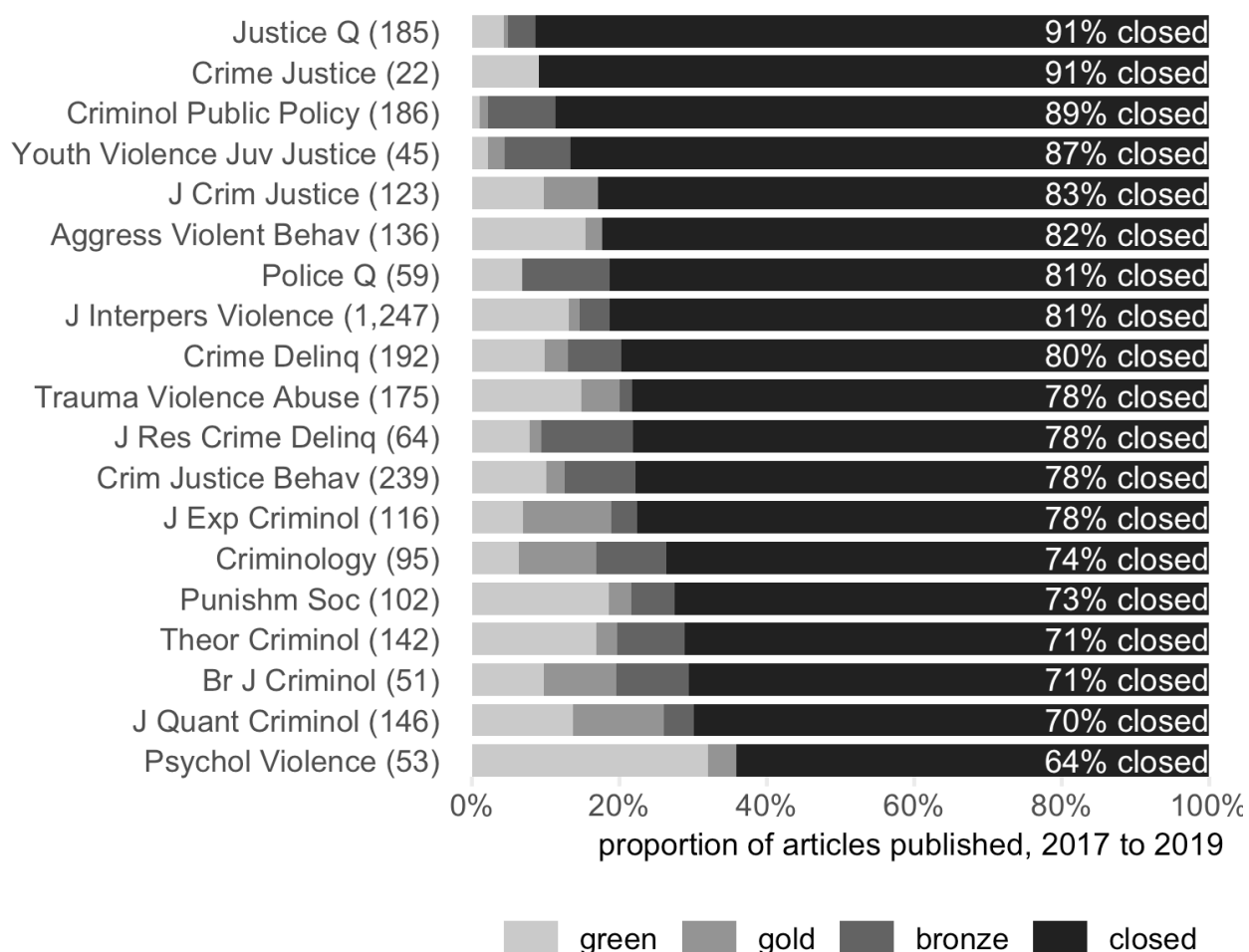


Figure 2: Proportion of articles that are open access in 20 leading criminology journals, with number of published articles in parentheses.

Figure 2 shows the proportion of open-access articles in 20 leading criminology journals<sup>3</sup>. All of these journals had a lower proportion of open-access articles than the cross-disciplinary benchmark, but there is substantial variation between journals. In *Psychology of Violence*, 36% of articles are available via open access, compared to only 9% of articles in

<sup>3</sup> These are the 20 journals with the highest five-year impact factors according to the 2018 *Journal Citation Reports* (Clarivate Analytics, 2019). Impact factors are a poor method of identifying high-impact journals (see, for example, Bornmann & Marx, 2016) but none of the alternative measures (e.g. CWTS Journal Indicators or Scimago Journal Rank) have a category for criminology journals, instead including such journals in larger law or social science categories.

*Justice Quarterly*. In almost all the leading journals, more than three quarters of articles were hidden from view without subscription.

Of the 1,321 articles available via green open access, 51% were available in the form of pre-prints, 49% in the form of post-prints and 15% in the form of the final published version (13% were available in multiple versions). As such, 61% of green open-access articles were available in a version that had undergone peer review.

Green open access versions of articles were found on 267 different websites. The most common locations to find articles were the institutional repositories of United Kingdom universities (51% of all green articles), the Semantic Scholar repository (17% of green articles) and the PubMed Central or Europe PMC repositories (15% of green articles). Although there were several times more articles with authors based in the United States than in the UK, only 11% of green articles were found in the institutional repositories of US universities.

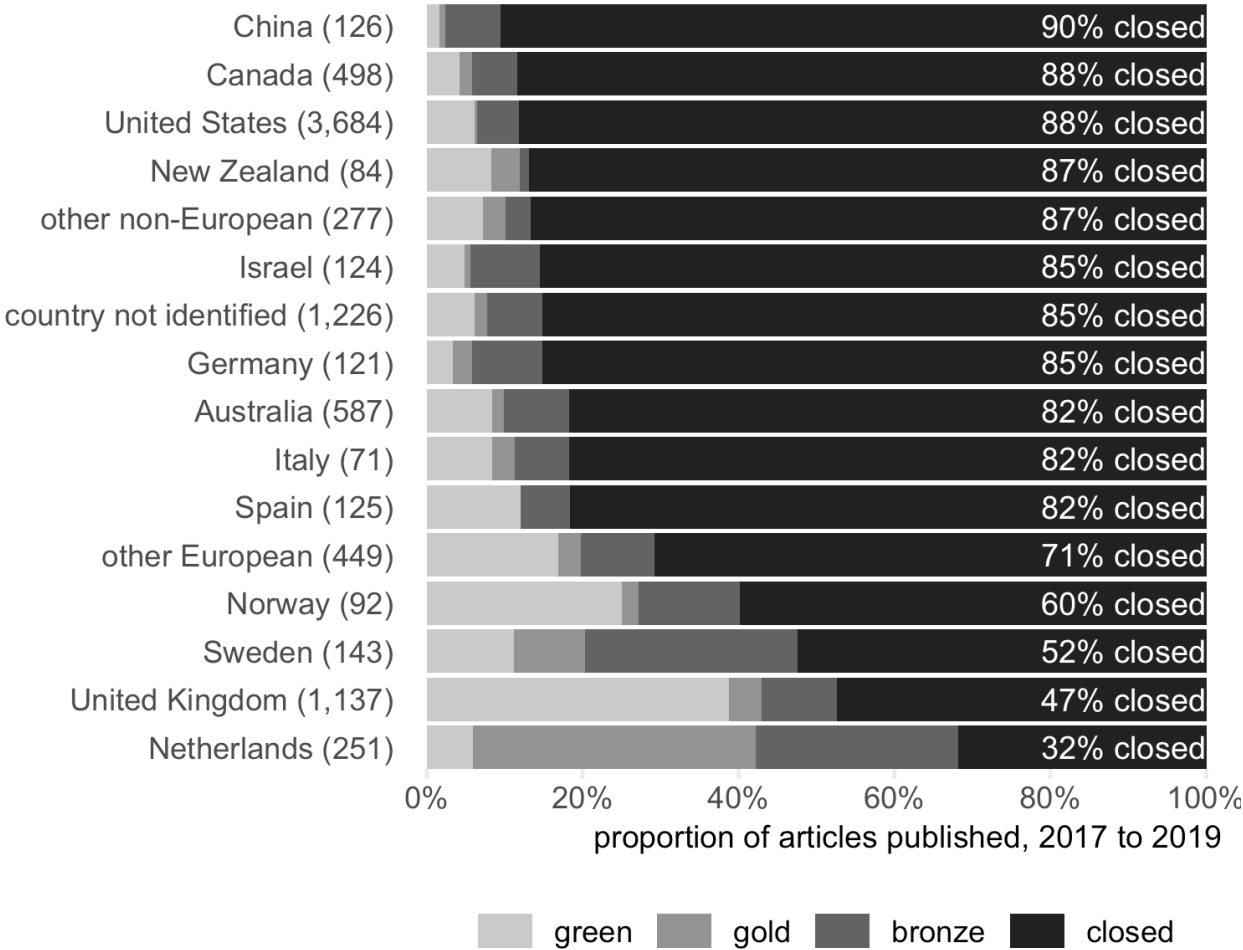


Figure 3: Proportion of articles that are open access by country of author institution, with number of published articles in parentheses. Articles with authors from multiple countries are counted for each country.

To explore differences between countries further, the institutional affiliations of authors were compared to the open-access status of articles. Unpaywall includes author names and affiliations for the 63% of Crossref records that include institutional affiliations. Affiliations are provided by authors as free text, so countries were identified by searching for country names within the text. This identified a country of affiliation for at least one author in 85% of cases for which author affiliations were available.

Figure 3 shows the proportion of open-access articles according to the country of authors’ institutional affiliations. In every country except the Netherlands and the United

Kingdom, only a small minority of articles were open access. In particular, in both the United States and Canada (two of the five countries with the most articles in the dataset) only 12% of articles were open access.

## Discussion

This study found that 22.4% of recent articles in 97 criminology journals were open access, slightly less than half of the 44.7% found by Piwowar et al. (2018) in a large sample of journal articles across disciplines. The remaining 77.6% of articles were available only on subscription. Articles in some leading journals were even less likely to be open access, with (for example) only about 1 in 12 articles in *Justice Quarterly* being open (Figure 2).

The substantial variations in the availability of articles by authors from different countries (Figure 3) may be explained by variations in national policies on open access. For example, a majority of articles with authors from the Netherlands were open access, with a particularly high proportion (36%) being gold open-access. This may be the result of policies advanced both by Dutch universities and government, including deals with publishers to facilitate gold open access (OpenAIRE, 2020). Articles by authors in the UK were most likely to be green open access (39%), very likely because UK academics must make their articles open access in order for them to be considered in the periodic Research Excellence Framework exercise that determines a proportion of university funding (Ayriss, 2017). European researchers are also particularly likely to be influenced by open-access mandates such as Plan S, in which research funders require open-access publication (Hawkes, 2019). At the other end of the scale is the United States, with only 12% of articles by US authors being open access. Since more than half of papers in the present sample had at least one US author, the lack of open access in US criminology has a disproportionate effect on the openness of the discipline as a whole.

## **Overcoming barriers to providing open access to research**

The potential benefits of open access in widening access to criminological research are substantial, particularly for excluded groups. Much has been written elsewhere about the changes publishers, funders, universities and governments can make to encourage open access, and it is possible that developments such as Plan S will change the open-access landscape in future (Rabesandratana, 2019). Less has been said about what researchers themselves can do now, either as authors of journal articles or as research leaders such as heads of departments, conference chairs or journal editors.

Laakso (2014) suggested three factors determining whether authors would deposit their manuscripts in online repositories: publishers' policies, authors' awareness of their rights under those policies and authors' attitudes towards providing open access to research. Publisher policies already allow authors to make almost all of their journal articles available without charge (see Box 1 for a brief guide). For example, 95% of the articles in the CrimPapers dataset could have been made green open access by the authors depositing the peer-reviewed post-print with an online repository, yet only a small proportion of authors did so. As a result, between 2017 and 2019 about 9,100 articles that could have been made freely available to disadvantaged groups were not.

Since almost all articles could be made open access if authors wished, the explanation for the scarcity of open access articles appears to lie in authors' awareness and attitudes. Scientists surveyed by Swan (2006) gave lack of awareness of such policies, along with perceptions that self-archiving was time consuming or difficult, as reasons for not posting work online. These latter perceptions appear to be inaccurate: the same survey found that 72% of authors who had self-archived articles found the process either "easy" or "very easy", and most said it took only "a few minutes" (Swan, 2006, p 55). Lack of awareness, both of authors' right to self archive and of the process of doing so, appears to be key.

Park (2009) found that the most important factor predicting authors' intent to publish open access was experience of having previously done so, which presupposes awareness of open access. The simplest way to increase authors' awareness is for researchers who already do make their work open access to encourage their colleagues to join them. As Suber (2004) suggested:

"Talk to them on campus and at conferences. Talk them to them in writing through the journals and newsletters that serve your field. Talk to your students, the authors of tomorrow. ... If you have provided OA to your own work, talk to your colleagues about your experience. The chief problem is getting the attention of busy colleagues and showing them that this matters for their research impact and career. Only researchers can do this for other researchers."

If writing today, Suber would almost certainly have added talking with colleagues via social media.

Raising awareness is unlikely to be enough, however. Nosek (2019) argued that while making good practice in open science possible and then easy would be enough to convince early adopters, mainstream acceptance required practices to be made normative, rewarding and (if necessary) required. For example, not knowing it was possible and believing it was not valued in their discipline were the two most-common reasons researchers surveyed by Eger et al. (2015) gave for not self-archiving their work.

Setting norms is particularly important in universities because academics (or at least those with tenure) have a high degree of autonomy (Braxton, 2010). Given the statements in the professional codes of ethics reported above, it might be thought that existing academic norms favour open access. However, Anderson, Martinson, and De Vries (2007) found a striking dissonance in a large survey of US academics: a substantial majority of respondents said their own behaviour complied with pro-social academic norms such as "scientists openly

share new findings with colleagues”, but the same respondents were very likely to say that their colleagues’ behaviour did not.

Senior academics have a particular role to play in making open access normative and rewarding. Nicholas, Rodríguez-Bravo, et al. (2017) found that early career researchers in particular believed open access to be positive in theory, but in practice were “shackled by convention” (p 215) and by pressure from senior colleagues who gave credit only for publishing in ‘high-impact’ journals rather than for activities to disseminate findings more widely. Similar results have been reported by other studies: researchers think open access is beneficial for science but often do not open up their own publications (Eger et al., 2015). Peekhaus and Proferes (2015) found that half the tenure-track academics in their sample believed tenure and promotion committees would view open-access publications less favourably, even though only one third of full professors (who are typically on such committees) actually held such views. Valuing open access in career progression is important because this is one of the factors tenure-track researchers said was most important in adopting open access (Park, 2009; Peekhaus & Proferes, 2015). By showing leadership on opening up research, senior academics may be able to help junior colleagues become more confident in doing so. This could be done, for example, by requiring scholars to provide evidence of their commitment to open access to research (and to open science practices more generally) in applications for tenure or promotion. If senior academics are genuine in their commitment to research impact, they can help achieve this by creating an environment within their departments and institutions that promotes open access.

Journal editors have additional opportunities to lead the discipline in providing open access to research. Editors could, for example, encourage authors to submit pre- and post-prints to appropriate repositories. Greater change is likely to come when criminology journals begin to adopt open-access practices from other disciplines. For example, many medical

journals automatically submit post-prints of articles to the US National Institutes of Health PubMed Central database upon acceptance, to be released after a 12-month embargo (Jamali, 2017). This not only makes open access easy, but over time makes it normative as well. Journals could also choose to provide access to older articles without subscription ('delayed' open access), as is common in some other disciplines (Laakso & Björk, 2013). The current lack of such practices in criminology goes some way to explaining why the discipline lags behind others in opening up access to research.

### **Conclusion**

Making journal articles open access is only one part of making criminological research more available and relevant to readers outside academia. It is not a substitute for translational criminology activities such as contributing to practitioner publications, writing policy briefs or interacting with practitioners in person or on social media (Laub & Frisch, 2016; Santos & Santos, 2019). The challenge of translating research into policy and practice is formidable, and much has been written both within criminology (e.g. Nichols, Wire, Wu, Sloan, & Scherer, 2019; Pesta, Blomberg, Ramos, & Ransom, 2019) and in other disciplines (e.g. Gentry, Mildren, & Kelly, 2020; Martin, Mullan, & Horton, 2019) about how to meet it. Nevertheless, open access can underpin (in the pyramid of scientific communication suggested by Schwabish, 2020) those activities by allowing non-academic readers and pracademics to delve deeper into research if they wish. Enhancing transparency through open access – so that anyone who wishes can read about methods and findings in detail – may also help defend the robustness of results in a discipline in which the credibility of research is frequently challenged by those defending unevidenced ideological positions.

Criminology is a discipline that often seeks to influence policy and practice in the criminal justice system and beyond, so future research in this area should seek to understand



why such a high proportion of criminologists do not open up access to their work to policy makers and practitioners. It would also be valuable to evaluate the effectiveness of local programs to encourage open access, such as local publicity campaigns or incorporating open-access publishing into promotion processes.

### **Note**

Journal subscription and article processing charges were converted to US dollars using exchange rates as of 1 January 2020, with \$1 being equivalent to 1.43 Australian dollars, 0.89 Euros and 0.75 British pounds.

### **Acknowledgements**

The author is grateful to Catherine Sharp of UCL Library Services for her helpful comments on a draft of this article.

**Appendix A: Criminology journal open-access policies**

Information on journal open-access policies was obtained from the SHERPA/RoMEO database (SHERPA, 2020). Information on subscription prices was obtained from journal websites in December 2019. Subscription prices for journals marked with \* are society membership prices that include journal access, prices for journals marked † are institutional subscription prices because the journal does not offer individual subscriptions.

journal	articles, 2017-19	annual subscription	can post pre-print	can post post-print	can post published version
Aggress Violent Behav	136	\$176	yes	yes	no
Am J Crim Justice	159	\$99	yes	yes	no
Asian J Criminol	65	\$99	yes	yes	no
Aust N Z J Criminol	85	\$109	yes	yes	no
Behav Sci Terror Polit Aggress	70	\$94	yes	yes	no
Br J Criminol*	51	\$59	yes	yes	no
Cambridge J Evid Based Policing	37		yes	yes	no
Child Abuse Negl	418	\$389	yes	yes	no
Contemp Justice Rev	106	\$229	yes	yes	no
Corrections	93	\$102	yes	yes	no
Crim Justice Behav	239	\$75	yes	yes	no
Crim Justice Ethics	56	\$53	yes	yes	no
Crim Justice Matters	26	\$0	yes	yes	no
Crim Justice Policy Rev	106	\$147	yes	yes	no
Crim Justice Rev	150	\$50	yes	yes	no
Crim Justice Stud	80	\$200	yes	yes	no
Crime Delinq	192	\$231	yes	yes	no
Crime Justice	22	\$68	yes	yes	yes
Crime Law Soc Change	218	\$99	yes	yes	no
Crime Media Cult	112	\$104	yes	yes	no
Crime Prev Community Saf	72	\$209	yes	yes	no
Crime Psychol Rev	13		yes	yes	no
Crime Sci	47	\$0	yes	yes	yes
Criminol Crim Justice*	126	\$59	yes	yes	no
Criminol Public Policy*	186	\$52	yes	embargo	no
Criminology*	95	\$52	yes	embargo	no
Crit Criminol	143	\$99	yes	yes	no
Crit Stud Terror†	154	\$508	yes	yes	no
Deviant Behav	436	\$166	yes	yes	no
Dignity	95	\$0	yes	yes	yes
Dyn Asymmetric Confl	58	\$84	yes	yes	no
Eur J Crim Pol Res	113	\$99	yes	yes	no
Eur J Crime Crim Law Crim Just	44	\$213	yes	embargo	no

Eur J Criminol	155	\$84	yes	yes	no
Fem Criminol	59	\$186	yes	yes	no
Glob Crime	56	\$129	yes	yes	no
Health Justice	55	\$0	yes	yes	yes
Homicide Stud	52	\$173	yes	yes	no
Howard J Crime Justice	58	\$231	yes	embargo	no
Int Crim Justice Rev	150	\$50	yes	yes	no
Int J Comp Appl Crim Justice	69	\$84	yes	yes	no
Int J Law Crime Justice	52	\$127	yes	yes	no
Int J Offender Ther Comp Criminol	360	\$151	yes	yes	no
Int J Police Sci Manag	40	\$133	yes	yes	no
Int J Speech Lang Law	28	\$105	yes	embargo	no
Int Rev Vict	71	\$174	yes	yes	no
J Aggress Maltreat Trauma	263	\$415	yes	yes	no
J Appl Secur Res	114	\$151	yes	yes	no
J Child Sex Abus	197	\$229	yes	yes	no
J Contemp Crim Justice	63	\$126	yes	yes	no
J Crim Justice	123	\$317	yes	yes	no
J Crim Justice Educ*	92	\$28	yes	yes	no
J Crime Justice†	102	\$451	yes	yes	no
J Dev Life Course Criminol	77	\$99	yes	yes	no
J Ethn Crim Justice	53	\$233	yes	yes	no
J Exp Criminol	116	\$99	yes	yes	no
J Fam Violence	261	\$99	yes	yes	no
J Gend Based Viol	7	\$156	yes	embargo	no
J Hum Traffick	106	\$80	yes	yes	no
J Interpers Violence	1,247	\$391	yes	yes	no
J Investig Psychol Offender Profiling	58	\$110	yes	embargo	no
J Offender Rehabil	95	\$390	yes	yes	no
J Police Crim Psychol	153	\$99	yes	yes	no
J Policing Intell Counter Terror	72	\$126	yes	yes	no
J Quant Criminol	146	\$99	yes	yes	no
J Res Crime Delinq	64	\$186	yes	yes	no
J Scand Stud Criminol Crime Prev	33	\$78	yes	yes	no
J Sch Violence	129	\$221	yes	yes	no
J Sex Aggress	84	\$361	yes	yes	no
Justice Q*	185	\$28	yes	yes	no
Justice Res Policy	3	\$49	yes	yes	no
Justice Syst J	62	\$50	yes	yes	no
Legal Criminol Psychol	55	\$106	yes	embargo	no
Police J	66	\$130	yes	yes	no
Police Pract Res	202	\$207	yes	yes	no
Police Q	59	\$84	yes	yes	no
Policing	266	\$372	yes	yes	no
Policing Soc	217	\$727	yes	yes	no
Prison J	101	\$149	yes	yes	no
Psychiatr Psychol Law	170	\$381	yes	yes	no
Psychol Crime Law	175	\$558	yes	yes	no

Psychol Violence	53	\$196	yes	yes	no
Punishm Soc	102	\$73	yes	yes	no
Race Justice	91	\$87	yes	yes	no
Secur J	196	\$199	yes	yes	no
Sex Abuse	115	\$181	yes	yes	no
Soc Leg Stud	155	\$133	yes	yes	no
Stud Confl Terror	264	\$607	yes	yes	no
Terror Polit Viol	302	\$362	yes	yes	no
Theor Criminol	142	\$122	yes	yes	no
Trauma Violence Abuse	175	\$153	yes	yes	no
Trends Organ Crime	83	\$99	yes	yes	no
Vict Offender	131	\$284	yes	yes	no
Violence Vict	66	\$75	yes	yes	no
Women Crim Justice	93	\$219	yes	yes	no
Youth Violence Juv Justice	45	\$145	yes	yes	no

### **Box 1: How to make an article available via green open access**

Making an article available via green open access is relatively straightforward and can be done at any time during the publication process.

1. Check the authors' rights to self-archive the pre- or post-print at <http://sherpa.ac.uk/romeo> or on the publisher's website. This may indicate, for example, that authors can distribute the pre-print without restriction but must comply with an embargo period for the post-print, or may deposit the post-print with only certain repositories.
2. Add a note to the front page of the manuscript noting that it is a pre-print that has not yet been peer reviewed.
3. Choose a licence under which to release the manuscript so that readers know what rights they have, for example, to use it in teaching. Perhaps the most widespread is the Creative Commons Attribution Licence, which allows readers to use the manuscript for any purpose as long as they cite the original authors<sup>4</sup>. A simple tool for choosing a licence is available at <https://creativecommons.org/choose>
4. Submit the manuscript to an appropriate online repository. Many universities host institutional repositories for manuscripts written by their staff or students. There are also subject-specific repositories such as SocArXiv that specialise in hosting papers in particular fields of social science. The key factor in choosing a repository should be that the article should be permanently available and free from unnecessary technical or other restrictions on access for readers (e.g. a requirement to register or to submit a request to access the full text). SocArXiv, for example, is backed by a substantial preservation fund to ensure articles remain available if the organisation ceases to operate (SocOpen, 2020). It is also important that the repository provides a persistent identifier (such as a DOI) so that the manuscript can be conveniently cited by others.
5. Repeat step 4 with any future versions of the manuscript, for example after peer review.

---

<sup>4</sup> Authors may be tempted to choose a licence which restricts commercial re-use of their manuscript, but the definition of 'commercial' in such contexts is contested and using such licences may place unexpected restrictions on readers (Creative Commons, 2009). For example, it is unclear whether using a manuscript in teaching at an institution that charges tuition would be considered commercial or not. There are various other unexpected consequences of using a non-commercial licence that generally make the Creative Commons Attribution licence preferable (see Bissell, 2009; Carroll, 2011 for details). However, at the time of writing Elsevier requires that pre-prints of articles submitted to its journals are licensed under the Creative Commons Attribution-Non-Commercial-NoDerivatives Licence.

## References

- Academy of Criminal Justice Sciences. (2000). Code of ethics. Retrieved from [https://www.acjs.org/page/Code\\_Of\\_Ethics](https://www.acjs.org/page/Code_Of_Ethics)
- American Society of Criminology. (2016). *Code of ethics*. Columbus, OH: American Society of Criminology. Retrieved from [https://www.asc41.com/ASC\\_Official\\_Docs/ASC\\_Code\\_of\\_Ethics.pdf](https://www.asc41.com/ASC_Official_Docs/ASC_Code_of_Ethics.pdf)
- Anderson, M. S., Martinson, B. C., & De Vries, R. (2007). Normative dissonance in science: Results from a national survey of u.s. Scientists. *Journal of Empirical Research on Human Research Ethics*, 2(4), 3–14. <https://doi.org/10.1525/jer.2007.2.4.3>
- Archambault, Amyot, D., Deschamps, P., Nicol, A., Provencher, F., Rebout, L., & Roberge, G. (2014). *Proportion of open access papers published in peer-reviewed journals at the European and World levels—1996–2013*. Brussels: European Commission.
- Ayris, P. (2017). Brexit - and its potential impact for open access in the UK. *Insights: The UKSG Journal*, 30(1), 4–10. <https://doi.org/10.1629/uksg.336>
- Bissell, A. N. (2009). Permission granted: Open licensing for educational resources. *Open Learning*, 24(1), 97–106. <https://doi.org/10.1080/02680510802627886>
- Björk, B.-C., Laakso, M., Welling, P., & Paetau, P. (2014). Anatomy of green open access. *Journal of the Association for Information Science and Technology*, 65(2), 237–250. <https://doi.org/10.1002/asi.22963>
- Blomberg, T. G. (2019). Making a difference in criminology: Past, present, and future. *American Journal of Criminal Justice*, 44(4), 670–688. <https://doi.org/10.1007/s12103-019-09484-6>
- Bohannon, J. (2016). Who’s downloading pirated papers? Everyone. *Science*, 352(6285), 508–512. <https://doi.org/10.1126/science.352.6285.508>
- Bornmann, L., & Marx, W. (2016). The journal Impact Factor and alternative metrics. *EMBO Reports*, 17(8), 1094–1097. <https://doi.org/10.15252/embr.201642823>
- Bosman, J., & Kramer, B. (2018). Open access levels: a quantitative exploration using Web of Science and oaDOI data. *PeerJ*, 1–45. <https://doi.org/10.7287/peerj.preprints.3520v1>
- Bourne, P. E., Polka, J. K., Vale, R. D., & Kiley, R. (2017). Ten simple rules to consider regarding preprint submission. *PLoS Computational Biology*, 13(5), 8–13. <https://doi.org/10.1371/journal.pcbi.1005473>
- Braga, A. A. (2016). The value of ‘Pracademics’ in enhancing crime analysis in police departments. *Policing (Oxford)*, 10(3), 308–314. <https://doi.org/10.1093/police/paw032>
- Braxton, J. M. (2010). Norms and the work of colleges and universities: Introduction to the special issue—norms in academia. *The Journal of Higher Education*, 81(3), 243–250. <https://doi.org/10.1080/00221546.2010.11779052>
- British Society of Criminology. (2015). Statement of ethics. Retrieved from <https://www.britsocrim.org/ethics/>
- Carrington, K., Hogg, R., & Sozzo, M. (2016). Southern Criminology. *British Journal of Criminology*, 56(1), 1–20. <https://doi.org/10.1093/bjc/azv083>
- Carroll, M. W. (2011). Why full open access matters. *PLoS Biology*, 9(11), 9–11. <https://doi.org/10.1371/journal.pbio.1001210>
- Chan, L., & Costa, S. (2005). Participation in the global knowledge commons. Challenges and opportunities for research dissemination in developing countries. *New Library World*, 106(3-4), 141–163. <https://doi.org/10.1108/03074800510587354>
- Chan, L., Cuplinskas, D., Eisen, M., Friend, F., Genova, Y., Guédon, J.-C., ... Velterop, J. (2002). Budapest open access initiative. Retrieved from <https://www.budapestopenaccessinitiative.org/read>

- Clarivate Analytics. (2019). Journal citation reports social sciences edition. Retrieved from <http://jcr.clarivate.com/>
- Costello, E. (2019). Bronze, free, or fourrée: An open access commentary. *Science Editing*, 6(1), 69–72. <https://doi.org/10.6087/KCSE.157>
- Couzin, J. (2006). And how the problems eluded peer reviewers and editors. *Science*, 311(5757), 23–24. <https://doi.org/10.1126/science.311.5757.23>
- Creative Commons. (2009). *Defining “noncommercial”: A study of how the online population understands “noncommercial use”*. San Francisco: Creative Commons.
- Davis, P. M. (2011). Open access, readership, citations: A randomized controlled trial of scientific journal publishing. *FASEB Journal*, 25(7), 2129–2134. <https://doi.org/10.1096/fj.11-183988>
- Davis, P. M., & Walters, W. H. (2011). The impact of free access to the scientific literature: A review of recent research. *Journal of the Medical Library Association*, 99(3), 208–217. <https://doi.org/10.3163/1536-5050.99.3.008>
- Eger, T., Scheufen, M., & Meierrieks, D. (2015). The determinants of open access publishing: Survey evidence from Germany. *European Journal of Law and Economics*, 39(3), 475–503. <https://doi.org/10.1007/s10657-015-9488-x>
- Freiberg, A., & Carson, W. G. (2010). The limits to evidence-based policy: Evidence, emotion and criminal justice. *Australian Journal of Public Administration*, 69(2), 152–164. <https://doi.org/10.1111/j.1467-8500.2010.00674.x>
- Fry, N. K., Marshal, H., & Mellins-Cohen, T. (2019). In praise of preprints. *Microbial Genomics*, 5(4), 5–7. <https://doi.org/10.1099/mgen.0.000259>
- Gentry, S., Mildren, L., & Kelly, M. P. (2020). Why is translating research into policy so hard? How theory can help public health researchers achieve impact? *Public Health*, 178, 90–96. <https://doi.org/10.1016/j.puhe.2019.09.009>
- Grenié, M., & Gruson, H. (2019). *rromeo: An R client for SHERPA/RoMEO API*. Retrieved from <https://CRAN.R-project.org/package=rromeo>
- Hawkes, N. (2019). Open access publishing under Plan S to start in 2021. *British Medical Journal*, 365(May 2019), 12382. <https://doi.org/10.1136/bmj.12382>
- Huey, L., & Mitchell, R. J. (2016). Unearthing hidden keys: Why academics are an invaluable (if underutilized) resource in policing research. *Policing (Oxford)*, 10(3), 300–307. <https://doi.org/10.1093/police/paw029>
- Jahn, N. (2019). *Roadoi: Find free versions of scholarly publications via unpaywall*. Retrieved from <https://CRAN.R-project.org/package=roadoi>
- Jamali, H. R. (2017). Copyright compliance and infringement in ResearchGate full-text journal articles. *Scientometrics*, 112(1), 241–254. <https://doi.org/10.1007/s11192-017-2291-4>
- Laakso, M. (2014). Green open access policies of scholarly journal publishers: A study of what, when, and where self-archiving is allowed. *Scientometrics*, 99(2), 475–494. <https://doi.org/10.1007/s11192-013-1205-3>
- Laakso, M., & Björk, B.-C. (2013). Delayed open access: An overlooked high-impact category of openly available scientific literature. *Journal of the American Society for Information Science and Technology*, 64(7), 1323–1329. <https://doi.org/10.1002/asi.22856>
- Laub, J. H., & Frisch, N. E. (2016). Translational criminology: A new path forward. In T. G. Blomberg, J. M. Brancale, K. M. Beaver, & W. D. Bales (Eds.), *Advancing criminology and criminal justice policy*. Abingdon: Routledge.
- Martin, K., Mullan, Z., & Horton, R. (2019). Overcoming the research to policy gap. *The Lancet: Global Health*, 7, S1–S2. [https://doi.org/10.1016/S2214-109X\(19\)30082-8](https://doi.org/10.1016/S2214-109X(19)30082-8)

- Nicholas, D., Huntington, P., & Rowlands, I. (2005). Open access journal publishing: The views of some of the world's senior authors. *Journal of Documentation*, 61(4), 497–519. <https://doi.org/10.1108/00220410510607499>
- Nicholas, D., Rodríguez-Bravo, B., Watkinson, A., Boukacem-Zeghmouri, C., Herman, E., Xu, J., ... Świgoń, M. (2017). Early career researchers and their publishing and authorship practices. *Learned Publishing*, 30(3), 205–217. <https://doi.org/10.1002/leap.1102>
- Nicholas, D., Watkinson, A., Boukacem-Zeghmouri, C., Rodríguez-Bravo, B., Xu, J., Abrizah, A., ... Herman, E. (2017). Early career researchers: Scholarly behaviour and the prospect of change. *Learned Publishing*, 30(2), 157–166. <https://doi.org/10.1002/leap.1098>
- Nichols, J., Wire, S., Wu, X., Sloan, M., & Scherer, A. (2019). Translational criminology and its importance in policing: A review. *Police Practice and Research: An International Journal*, 20(6), 537–551. <https://doi.org/10.1080/15614263.2019.1657625>
- Normand, S. (2018). Is Diamond Open Access the Future of Open Access? *The iJournal*, 3(2), 1–7. Retrieved from <https://thejournal.ca/index.php/ijournal/article/view/29482/21973>
- Nosek, B. (2019). Shifting incentives from getting it published to getting it right. Presentation to Queensland University of Technology. Retrieved from <https://osf.io/bxjta/>
- OpenAIRE. (2020). OpenAIRE: The Netherlands. Retrieved from <https://www.openaire.eu/item/netherlands>
- OpenAPC. (2019). *Datasets on fee-based open access publishing across German institutions*. Bielefeld University. <https://doi.org/10.4119/UNIBI/UB.2014.18>
- Ottaviani, J. (2016). The Post-Embargo Open Access Citation Advantage: It Exists (Probably), It's Modest (Usually), and the Rich Get Richer (of Course). *PLOS ONE*, 11(10), e0165166. <https://doi.org/10.1371/journal.pone.0165166>
- Park, J. H. (2009). Motivations for web-based scholarly publishing: Do scientists recognize open availability as an advantage? *Journal of Scholarly Publishing*, 40(4), 343–369. <https://doi.org/10.3138/jsp.40.4.343>
- Peck, S., & Peck, H. (1980). Caveat lector: The necessity of reading critically. *Angle Orthodontist*, 50(1), 73–74.
- Peekhaus, W., & Proferes, N. (2015). How library and information science faculty perceive and engage with open access. *Journal of Information Science*, 41(5), 640–661. <https://doi.org/10.1177/0165551515587855>
- Pesta, G. B., Blomberg, T. G., Ramos, J., & Ransom, J. W. A. (2019). Translational criminology: Toward best practice. *American Journal of Criminal Justice*, 44(3), 499–518. <https://doi.org/10.1007/s12103-018-9467-1>
- Pickett, J. T. (2019). *Why I asked the editors of Criminology to retract Johnson, Stewart, Pickett, and Gertz (2011)* (pp. 1–27). SocArXiv. <https://doi.org/10.31235/osf.io/9b2k3>
- Piwowar, H., Priem, J., Larivière, V., Alperin, J. P., Matthias, L., Norlander, B., ... Haustein, S. (2018). The state of OA: A large-scale analysis of the prevalence and impact of Open Access articles. *PeerJ*, 2018(2), 1–23. <https://doi.org/10.7717/peerj.4375>
- Poynder, R. (2014). Open access: What price affordability? *Ecancer Medical Science*, 8, ed41. <https://doi.org/10.3332/ecancer.2014.ed41>
- Rabesandratana, T. (2019). The world debates open-access mandates. *Science*, 363(6422), 11–121. <https://doi.org/10.1126/science.363.6422.11>
- Raju, R. (2018). From green to gold to diamond: Open access's return to social justice. In *Transform libraries, transform societies*. Kuala Lumpur: International Federation of Library Associations; Institutions. Retrieved from <http://library.ifla.org/id/eprint/2220>



- R Core Team. (2019). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing. Retrieved from <https://www.R-project.org/>
- Research4Life. (2019). Eligibility for access to Research4Life. Retrieved from <https://www.research4life.org/access/eligibility/>
- Rizor, S. L., & Holley, R. P. (2014). Open access goals revisited: How green and gold open access are meeting (or Not) their original goals. *Journal of Scholarly Publishing*, 45(4), 321–335. <https://doi.org/10.3138/jsp.45.4.01>
- Robinson, M., & Scherlen, A. (2009). Publishing in criminology and criminal justice: Assessing journal editors' awareness and acceptance of open access. *International Journal of Criminal Justice Sciences*, 4(2). Retrieved from <http://www.sascv.org/ijcjs/robinsonschleren.html>
- Santos, R. G., & Santos, R. B. (2019). A four-phase process for translating research into police practice. *Police Practice and Research: An International Journal*, 20(6), 585–602. <https://doi.org/10.1080/15614263.2019.1657629>
- Sarabipour, S., Debat, H. J., Emmott, E., Burgess, S. J., Schwessinger, B., & Hensel, Z. (2019). On the value of preprints: An early career researcher perspective. *PLoS Biology*, 17(2), 1–12. <https://doi.org/10.1371/journal.pbio.3000151>
- Scherlen, A., & Robinson, M. (2008). Open access to criminal justice scholarship: A matter of social justice. *Journal of Criminal Justice Education*, 19(1), 54–74. <https://doi.org/10.1080/10511250801892961>
- Schwabish, J. (2020). *Elevate the debate: A multilayered approach to communicating your research*. Hoboken, NJ: Wiley.
- SHERPA. (2020). SHERPA/RoMEO. Retrieved from <http://www.sherpa.ac.uk/romeo/>
- Siler, K., Lee, K., & Bero, L. (2015). Measuring the effectiveness of scientific gatekeeping. *Proceedings of the National Academy of Sciences of the United States of America*, 112(2), 360–365. <https://doi.org/10.1073/pnas.1418218112>
- SocOpen. (2020). SocOpen frequently asked questions. Retrieved from <https://socopen.org/frequently-asked-questions/>
- Suber, P. (2004). The primacy of authors in achieving open access. Retrieved from <http://www.nature.com/nature/focus/accessdebate/24.html>
- Swan, A. (2006). The culture of open access: Researchers' views and responses. In N. Jacobs (Ed.), *Open access: Key strategic, technical and economic aspects* (pp. 65–72). Oxford: Chandos.
- Tennant, J. P., Waldner, F., Jacques, D. C., Masuzzo, P., Collister, L. B., & Hartgerink, C. H. J. (2016). The academic, economic and societal impacts of Open Access: An evidence-based review. *F1000Research*, 5. <https://doi.org/10.12688/f1000research.8460.1>
- Van Noorden, R. (2013). Open access: The true cost of science publishing. *Nature*, 495(7442), 426–429. <https://doi.org/10.1038/495426a>
- Van Noorden, R. (2017). Publishers threaten to remove millions of papers from ResearchGate. *Nature*, 7–10. <https://doi.org/10.1038/nature.2017.22793>
- Vrentas, C., Freiwirth, J., Benatti, S., Hill, C., & Yurasek, A. (2018). Bridging the Divide Between the Research and Practitioner Sectors. *Journal of Nonprofit Education and Leadership*, 8(1), 93–103.
- Wickham, H., Averick, M., Bryan, J., Chang, W., McGowan, L. D., François, R., ... Yutani, H. (2019). Welcome to the tidyverse. *Journal of Open Source Software*, 4(43), 1686. <https://doi.org/10.21105/joss.01686>
- Young, P. (2009). *The serials crisis and open access: A white paper for the Virginia Tech Commission on Research*. Blacksburg, VA: Virginia Tech. Retrieved from <http://hdl.handle.net/10919/11317>