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## **Investigating gender differences in journal selection decisions: a survey of academic researchers**

### **Abstract**

This article examines the impact of gender on researchers' journal selection decisions, and thereby seeks to contribute to previous research on the impact of gender on academics' career progression and publishing performance. Prior research suggests that female academics suffer from lower levels of career progression and publishing than male academics. Researchers suggest various explicit factors that might influence this scenario, including bias in hiring, choice of discipline, and under-representation of women in the academic workforce. However, no previous research has explored the factors associated with the publishing process itself that may also come into play. Using an international survey, this article explores gender differences in relation to several groups of journal choice factors including: expectations regarding the reviewing process, university policies and norms, familiarity with the journal, confidence, and publishing objectives. Whilst both genders agree on the importance of some factors, it is also evident that women are more alert to issues of authority, expectations placed on them regarding publishing high quality articles, and career progression than are men, suggesting that women know what they need to do to succeed, although recent research still reports significant gender differences in output of scholarly publications.

**Keywords:** Journal selection, Gender, Gender gap, Academic publishing, Peer-review process

### **Key points:**

- A hidden gender divide is embedded in researchers' decisions regarding the choice of journal in which to publish.
- This research complements other studies on the explicit gender divide related, for instance, to bias in hiring, choice of discipline, and under-representation of women in the academic workforce.
- Both genders rate the importance of factors such as the reliability of the reviewing process, the usefulness of reviewers' feedback and the reputation and prestige of the journal, as important.
- Women acknowledge to a greater extent than men expectations from their university regarding publishing high quality articles.

## INTRODUCTION

The notion of a gender gap in relation to the opportunities offered and the career progression achieved by women as compared with men is long standing. There is a considerable body of research that has explored and sometimes disputed the existence of such a gender gap, and, indeed, there is some evidence to suggest that the gap has decreased in recent years. One of the key performance indicators and facilitators to career progression for academics is achievement in research productivity and publishing (Lerchenmueller & Sorenson, 2018). Lundine *et al.* (2018, p.1754) refer to the ‘gendered system of academic publishing’. Others suggest that there is a bias in the hiring of academic staff and that this impacts on women’s publishing and career profiles (Berrelaar, 2016), possibly leading to under-representation of women in the academic workforce (Simon *et al.*, 2019). Gomez Cama, Jorge and Andrades (2016) argue that the cultural context, which may vary significantly between countries and regions, impacts significantly on women’s representation in academia, whilst Filandri and Pasqua (2019) suggest that there is a structural gender gap in career advancement in universities. Other authors have suggested that other explicit factors, such as choice of discipline (e.g. Science or Nursing) and preferences for research methodologies (quantitative vs qualitative) may contribute to the slower career progression of women (Thelwall *et al.*, 2019a).

Furthermore, some researchers suggest that the gender gap in universities either does not exist or is very small. For example, in a study in Denmark, Nielsen (2016) generates evidence that challenges the assumption of a widespread performance gap in favour of male research, whilst Fox and Paine (2019) suggest that in ecology and evolution, women and men experience similar levels of rejection and there is a negligible difference in their citation rates. In addition, Madison and Fahlman (2020) refute any assertions that women are held to higher standards, in terms of their publishing output, than men, when being considered for promotion, since they were able to demonstrate that men had significantly more publications and citations than women in both medicine and social science. However, this finding could also be viewed as evidence of disadvantage. Two other studies lend interesting perspectives to the debate. Thelwall *et al.* (2019b) examine gender and research publishing in India, and suggest that although India has a much lower share of female first authors, there is a smaller variation in gender differences. Lundine *et al.* (2019) argue that, since the production of knowledge is part of a socially constructed system, it is like all social constructed systems, influenced by gender. Focussing on how gender influences editorial practices in peer reviewed health science journals, their findings suggest that editors adopted a ‘gender-blind’ stance, viewing this as

‘being objective’. In other words, they did not see it as part of their role to address any structural inequalities in the publishing process. Complementing this, other studies have shown that in some disciplines women are under-represented as peer reviewers and as editorial board members (Fishman *et al.*, 2017; Lerback & Hanson, 2017; Wing *et al.*, 2010; Ioannidou & Rosania, 2015). In conclusion, whilst there is a significant body of research that examines gender disparities in academic publishing, this research has two significant limitations relating to: (1) the discipline specific scope of most of the studies; (2) the methodological focus on analysis of existing datasets, variously relating to publication, authorship gender and academic role.

The research on gender gaps and bias discussed above typically examines explicit influencers of gendered research achievement, but overlooks the influencers of research achievement that may be embedded in researchers’ journal selection decisions. Making the optimal journal selection decision may have a very significant impact on the perceived strength of an academic’s publishing profile, and, in turn, on their opportunities for career progression. Hence, researchers’ journal decision processes should be considered alongside the explicit factors that may contribute to academics’ career progression. Academics’ careers can be significantly influenced by the academic journals in which they choose to publish their research, such that it is important to explore the process associated with journal selection.

Alongside the increasing importance of choosing the optimum journal, journal choice is becoming ever more challenging as the publishing landscape becomes more complex, with the advent of new (open access) publishing models, increased pressure to publish in ‘high ranking’ journals, and the increased internationalisation and inter-disciplinarity of research. Previous studies have investigated the factors that influence journal choice, but the number and relative importance of the factors included varies between studies. In one of the first studies to explore journal choice, Rowlands and Nicholas (2005) found that the four most important journal attributes were: reputation of the journal, readership, impact factor and speed of publication (in that order). Mabe and Mulligan (2011) identified refereeing speed, peer review quality, journal reputation and impact factor as the four most important journal choice factors. Tenopir *et al.* (2016), in a large study across four North American research universities examined the impact on journal choice of eight journal attributes: quality and reputation of the journal, fit with the scope of the journal, audience, impact factor, likelihood of acceptance, time from submission to publication, editor or editorial board, and open access. They found open access to be the least important attribute, whilst the most highly rated attributes were ‘quality and reputation’

of the journal and article ‘fit with the scope’ of the journal. Specifically in the context of publishing in open access journals, authors valued rigorous peer review, followed by rapid publication, but were concerned about the commercial re-use of their work (Rowley *et al.*, 2017). On the other hand, Solomon and Björk (2012), in a study on open access journals, found that the top three choice factors were: fit with scope, quality/impact, and speed of review. Gaston *et al.* (2019) found that impact factor affected level of submission, over time, and that negative peer review reputation correlated with a decrease in submissions, and concluded that editors and publishers should invest in peer review in order to maintain submission numbers. In addition to research that seeks to rank journal choice factors there is also a body of research that explores the processes associated with some of these factors, particularly, publishing delay (e.g. Björk & Solomon, 2013; Björk, 2018), and peer review (Björk & Catani, 2016; Rowley *et al.*, 2017).

In general, studies on the factors affecting journal choice variously focus on different collections of factors, suggesting that there is a need for studies that adopt a more holistic approach. In addition, there is evidence that the relative ranking of these factors is subject to a wide range of contextual and disciplinary issues (Gaston *et al.*, 2019; Solomon & Björk, 2012; Mijewickrema & Petras, 2017). This study draws on these previous studies to develop a more comprehensive list of potential journal choice factors.

This research then bridges the two bodies of prior research in order to explore the extent to which gender influences the relative importance of journal choice factors, possibly with consequences for the relative career advancement of men and women. We propose that the process associated with choice of journal may be an additional factor that contributes to academic achievement, and, in turn, career progression. This research is the first to focus on the effect of gender on journal selection decisions. In addition, in contrast to most of the prior research on the gender gap in universities, this research takes an approach that is both cross-disciplinary and international in scope. More explicitly, this article aims to:

1. Identify the effect of gender on a wide range of journal choice factors.
2. Contribute to understanding the role of gender in journal choice decisions, and the potential consequences of those decisions.

## **METHODOLOGY**

### **Process**

This research uses an international survey, facilitated by the academic publishers Taylor & Francis. Adopting a survey approach facilitated the gathering of a significant dataset across countries and disciplines, providing evidence of value for Taylor & Francis and other publishers, as well informing the management of research and publication in universities and other settings.

The *'Factors Influencing Researchers' Journal Selection Decisions Survey* was composed of four sections ('Journal characteristics that influence your journal choice'; 'Your perspectives regarding what is expected of you in terms of scholarly publication'; 'Your experience of, and engagement with, scholarly publication'; and, 'About you'). These sections contained 49 Likert scale style questions, which were informed by the various prior studies identified in the Introduction above. There are, however, significant differences between these studies as to the factors included, and in the measurement items adopted. Hence, whilst previous research informed both the factors and their measurement items, in this instance it was particularly important to develop measurement items specific to this study. Hence the authors, all of whom have significant experience in this field, undertook a number of whiteboard-based brainstorming sessions. All of the questions used a ten-point scale from 1 (not at all important) to 10 (extremely important) to measure the participants' views of the relative importance of the various factors. The questionnaire, hosted on SurveyGizmo, was piloted with Taylor & Francis staff and academics from a variety of universities and disciplines, to check for accuracy, clarity and questionnaire logic. Invitations to participate in the survey and two reminder emails were sent to academics on the Taylor & Francis mailing list using Salesforce Marketing Cloud, between July and August 2019. Contacts for the survey were drawn from an existing Taylor & Francis database. All participants who took part in the survey did so willingly; there was no compulsion for them to complete the survey. No follow-up questions were asked and all personal data was removed before analysis of the results. Participants who opted to take part in the survey were asked to provide their names and contact details for follow-up questions, but access to all personal data was restricted to the investigating team and was removed before analysis of the results.

## **Participants**

The survey was sent to 73,000 corresponding authors of journal articles, some of whom were also reviewers and/or editors, adopting a non-probability sampling technique. Ultimately, 1085 questionnaires were deemed acceptable for analysis corresponding to a response rate of 1.5% which is in line with response rates seen on other surveys sent by Taylor & Francis to a general sample of authors. A small minority of the questionnaires had one or two unanswered questions, but were included on the basis that these respondents had completed at least 47 of the 49 questions, and hence offered useful sights. The inclusion of these questionnaires accounts for the slight differences in the total numbers in responses between questions that are evident in Tables 1 and 2.

## **Data Analysis**

Data were entered into IBM SPSS Statistics 26. The dataset was initially inspected for errors and out-of-range values in each variable. Confidence intervals were calculated for each question to ensure that the response sample provided adequate representation of the population.

First, the demographic statistics were analysed, in order to profile the sample, and, in particular, to show the distribution of respondents' publishing experience by discipline, age, researcher role, and years since PhD for the sample as a whole, and more specifically for both men and women (Table 1). Next, to extend the demographic profile, the extent of respondents' publishing experience, in terms of its length, publishing productivity in the last five years, and number of journals published in, in the last five years were also considered (Table 2). Finally a number of factors that might potentially influence journal selection were analysed. These factors fell into the following categories: the influence of journal characteristics on journal selection, the influence of university and national policies on journal selection, and the influence of respondents' familiarity, confidence and objectives on journal selection (Table 3). All three tables show data for both men and women as well as for the total across both groups. For Table 3, one-way between-groups analysis of covariance (ANCOVA) was conducted in order to identify the factors in the journal choice process where there is a significant difference between men and women in terms of their importance in the journal choice process. Preliminary checks were conducted to ensure that there were no violations of the assumptions of linearity, homogeneity of variance and regression slope, and reliable measurement of the covariate. Analysis was conducted for each of the potentially confounding variables, length of publishing experience, discipline, and age, in each case embracing all of the 49 statements.

The results of these three separate analyses showed that there is no difference in the results regarding the relative importance of the various choice factors between men and women. As an example, Table 3 reports the ANCOVA results (F and p values) for age as covariate. Since the significant differences between gender groups are the same for the other confounding variables, length of publishing experience, and discipline, F and p values for these variables are not reported in Table 3.

## **FINDINGS**

### **Demographic Profile**

This section provides a summary of the demographic profile of the respondents, showing both the overall profile and the data for men and women separately. In general terms, the sample comprises 62% men and 38% women, although numbers vary a little between questions. Table 1 shows discipline, age, researcher role, and years since PhD, whilst Table 2 reports on the length of respondents' publishing experience, their publishing productivity in the last five years, and the number of different journals in which they had published in the last five years. First, the sample has a relatively higher number of academics working in Science and Technology and Social Sciences than in Medicine and Healthcare and Humanities and Arts. There was a predominance of men in science and technology, with a reasonably even gender balance for the other three discipline groups. As for age, 60.8% were between 26 and 45, with 29.4% between 46-65, suggesting that the sample is focussed on early and mid-career academics and researchers. In broad terms, this is borne out by the profile regarding academic roles, with 49.4% of the sample being in standard academic roles (including Dean, Professor, Assistant Professor, Associate Professor, Reader, Lecturer) with most of the remainder being split between researcher roles and PhD students. Overall, there were rather more responses from men than from women. In terms of the period since respondents completed their PhD, there was a good spread, although just under half (48.8%) had completed their PhD in the last ten years.

Table 2 focusses on publication experience, including the length of respondents' publishing experience, their publishing productivity, and the number of different journals in which the respondents had published in the last five years. There is a good spread of length of publishing experience, and publishing productivity. 12.0% of respondents have published more than 20 articles in the last five years, whilst 57.5% had published six or more articles in the last five years. In terms of the number of different journals in which respondents had published in the



last five years, there is evidence that many respondents have ‘favourite’ journals. For these journals, they may know the editor, reviewers and other authors.

**TABLE 1** Profile of sample.

<b>Discipline</b>	<b>Male No. (%)</b>	<b>Female No. (%)</b>	<b>Total No. (%)</b>
Humanities & Arts	63 (9.7)	56 (13.8)	119 (11.3)
Medicine & Healthcare	119 (18.2)	84 (20.7)	203 (19.2)
Science & Technology	264 (40.5)	96 (23.7)	360 (34.1)
Social Science	159 (24.4)	135 (33.3)	294 (27.8)
Other	47 (7.2)	34 (8.5)	81 (7.6)
<b>Total</b>	<b>652 (100.0)</b>	<b>405 (100.0)</b>	<b>1057 (100.0)</b>
<b>Age</b>	<b>Male No. (%)</b>	<b>Female No. (%)</b>	<b>Total No. (%)</b>
Under 26	17 (2.6)	11 (2.7)	28 (2.7)
26-35	201 (30.8)	144 (35.7)	345 (32.7)
36-45	180 (27.6)	116 (28.8)	296 (28.1)
46-55	112 (17.2)	77 (19.1)	189 (17.9)
56-65	78 (12.0)	43 (10.7)	121 (11.5)
Over 65	64 (9.8)	12 (3.0)	76 (7.2)
<b>Total</b>	<b>652 (100.0)</b>	<b>403 (100.0)</b>	<b>1055 (100.0)</b>
<b>Researcher Role</b>	<b>Male No. (%)</b>	<b>Female No. (%)</b>	<b>Total No. (%)</b>
Standard Academic roles	352 (54.1)	168 (41.9)	520 (49.4)
Researcher roles	147 (22.6)	113 (28.2)	260 (24.7)
PhD students	92 (14.1)	77 (19.2)	169 (16.1)
Other	60 (9.2)	43 (10.7)	103 (9.8)
<b>Total</b>	<b>651 (100.0)</b>	<b>401 (100.0)</b>	<b>1052 (100.0)</b>
<b>Years since PhD</b>	<b>Male No. (%)</b>	<b>Female No. (%)</b>	<b>Total No. (%)</b>
0-2	114 (17.6)	102 (25.2)	216 (20.5)
3-5	92 (14.2)	59 (14.6)	151 (14.2)
6-10	88 (13.6)	61 (15.1)	149 (14.1)
11-20	89 (13.7)	54 (13.4)	143 (14.0)
More than 20	117 (18.1)	36 (8.9)	153 (14.4)
Not applicable - No PhD	148 (22.8)	92 (22.8)	240 (22.8)
<b>Total</b>	<b>648 (100.0)</b>	<b>404 (100.0)</b>	<b>1052 (100.0)</b>

**TABLE 2** Respondents' publishing experience.

<b>Length of publishing experience</b>	<b>Male No. (%)</b>	<b>Female No. (%)</b>	<b>Total No. (%)</b>
Pre 1990	96 (14.7)	27 (6.7)	123 (11.4)
1991-2000	93 (14.3)	45 (11.1)	138 (13.1)
2001-2010	160 (24.5)	115 (28.4)	275 (26.0)
2011-2015	142 (21.8)	86 (21.2)	228 (21.5)
2016 or later	161 (24.7)	132 (32.6)	293 (28.0)
Total	652 (100.0)	405 (100.0)	1057 (100.0)
<b>Publishing productivity in last 5 years</b>	<b>Male No. (%)</b>	<b>Female No. (%)</b>	<b>Total No. (%)</b>
1-5	238 (36.6)	204 (50.5)	442 (41.9)
6-10	182 (28.0)	109 (27.0)	291 (27.6)
11-20	133 (20.5)	62 (15.3)	195 (18.5)
More than 20	97 (14.9)	29 (7.2)	126 (12.0)
Total	650 (100.0)	404 (100.0)	1054 (100.0)
<b>Number of Journals published in, in the last 5 years</b>	<b>Male No. (%)</b>	<b>Female No. (%)</b>	<b>Total No. (%)</b>
1-3	187 (28.8)	164 (40.7)	351 (33.4)
4-6	256 (39.4)	145 (36.1)	401 (38.1)
7-9	105 (16.2)	57 (14.2)	162 (15.4)
10+	102 (15.6)	36 (9.0)	138 (13.1)
Total	650 (100.0)	402 (100.0)	1052 (100.0)

### **The impact of gender on the factors that affect journal choice**

Table 3 embraces the responses to all of the questions relating specifically to journal choice. It reports on (a) the influence of journal characteristics on journal selection, (b) the influence of university and national policies on journal selection, and (c) the influence of respondents' familiarity, confidence, and objectives with regard to scholarly publication. The primary focus of this section is on any gender differences with regard to the factors that men and women take into account when making their journal choice. Table 3 shows the result of one-way between-groups analysis of covariance (ANCOVA) on the 49 statements in the questionnaire, clustered according to the sub-sections in the questionnaire. Questions where there is a statistically significant difference ( $p < .05$ ) between women and men are highlighted in grey.

### ***Journal characteristics***

The questions on journal characteristics are clustered into four groups: expectations regarding the reviewing process, authority, other aspects of the journal, and perceived discoverability. In terms of 'Expectations regarding the reviewing process', the items with the highest means are '*reliability of the reviewing process*', and '*usefulness of the reviewers' feedback*'. The only item where there was a significant gender difference was '*speed of reviewing process*', which was seen to be more important for men than for women. With regard to the items under 'Authority', the two most important items were '*reputation of the journal in my academic community*' and '*prestige of the journal*'. The gender difference was significant for '*reputation of the journal in my academic community*' and '*impact factor of the journal*'. With regard to 'Other aspects of the journal', the two most important items were '*the scope of the journal within your discipline*' and '*the availability of information on readership levels of the journal once it is published*'. The two items with the most significant disagreement between genders were '*the scope of the journal within your discipline*' and '*the community of the learned or professional society associated with the journal*'. For 'Perceived discoverability', both '*discoverability of the journal's articles in full-text databases*' and in Google Scholar, have high rankings, but there was disagreement between genders regarding the importance of '*open access publication*', with women viewing perceived discoverability of open access publications as significantly more important than did men.

### ***University and national policies***

The next group of questions concerned the importance of university policies and national policies respectively in influencing journal choice. In relation to 'My university's policies' respondents took most notice of expectations regarding '*the ranking of the journals to which I submit my articles*' and '*the ranking of my articles*'. They were least interested in their university's policies on '*open access*', although women were significantly more inclined to be concerned about both '*open access*' and '*the number of articles that I am expected to publish in a given period*', than were men. With regard to 'Norms prescribed by national policy bodies' the highest ranking items were '*journal ranking*' and '*research evaluation*', and interestingly there was no significant disagreement on the basis of gender.

### ***Experience of publication***

The final group of questions centres on respondents' experience of publication, and includes their familiarity with journal publication, their confidence in their journal choice, and the objectives that drive journal choice. These three areas are those where differences between the attitudes of men and women were most in evidence. Overall scores on the items under familiarity are generally low, with the highest ranked journal choice factor being '*that I have published in a journal before*' and the lowest being '*that I am or have been a member of the editorial board for this journal*'. Comparing these responses with the profile of the sample in terms of their publishing experience (Table 2) which shows a good spread of length of publishing experience with, for instance 58.1% having published six or more articles in the last five years. The relatively low ranking of these scores is a reminder that many authors, even after several years of publishing experience, do not have reviewing or editorial experience. Comparing the items under 'familiarity' on the basis of gender, the means for all items for women are lower than those for men, and for four items relating to editorial roles and reviewing experience, there is a significant difference between men and women. This suggests that fewer women than men are embedded in and have some opportunity to influence publishing processes. In contrast, women are significantly more confident than men that their '*research is in scope for the journal*'. In addition, women's journal choice was influenced by their confidence that they were likely to be published in a journal. In addition, they are also more confident '*with their ability to write in the language of the journal*', and, in support of their assertions, have significantly less experience than men of '*journal article rejection*'. Finally, women have means significantly higher than those for men for four of the five statements on 'Objectives' including those relating to: '*publishing in high quality articles*', '*aspiring to career progression*', and '*establishing themselves as a member of an academic community*'. On the other hand, men also have relatively high scores in the objectives category suggesting that the sample for this study were seeking to enhance their publication and research profiles, possibly with a view to promotion.

## **DISCUSSION**

This research seeks to contribute to understanding of the role of gender in influencing achievement and progression in higher education, by focussing on researchers' decision-making processes regarding journal choice. Prior research has identified a number of possible

factors that might influence the career progression of women in universities, including: bias in hiring academic staff (Berrwelaar, 2016), under-representation in the academic workforce (Simon *et al.*, 2019), cultural context (Gomez Cama, Jorge & Andrades, 2016), structural gaps in career advancement for women (Filandri & Pasqua, 2019) and choice of discipline (Thelwall *et al.*, 2019a). Other researchers have focussed more closely on whether the publishing process has any embedded bias (Fox & Paine, 2019; Madison & Fahlman, 2020), and whether editors adopted a ‘gender blind’ approach (Lundine *et al.*, 2019).

Three main groups of insights emerge from this research. First, both men and women agree on the importance of a number of journal choice factors. In relation to their expectations regarding the reviewing process there is agreement that ‘*the reliability of the reviewing process*’ and ‘*the usefulness of reviewers’ feedback*’ are important. With regards to the authority of the journal, there is agreement on the importance of ‘*the reputation of the journal in my academic community*’, and ‘*the prestige of the journal*’. There is also agreement on the importance of some other aspects of the journal: ‘*the scope of the journal within your discipline*’, and ‘*that I am confident that my research is in scope for the journal*’. In addition to these journal characteristics, respondents agree that their publishing objectives influence their journal choice, ranking the following objectives as most important: ‘*that I am expected to publish high quality articles*’ and, ‘*that I aspire to publish as many high quality articles as possible*’. The consensus in respect of these points is not particularly surprising given that researchers are working in a higher education system in which publishing in good quality journals is expected, and is a necessary pre-requisite for promotion (Lerchenmueller & Sorenson, 2018; Van den Besselaar & Sandstrom 2016; Fishman *et al.*, 2017).

Notwithstanding the evidence of a consensus on the importance of a number of factors relating to journal choice, men and women prioritise some of the factors that both genders agree are important, to varying extents. Women are significantly more alert to issues of authority, such as the impact factor of the journal, and the reputation of the journal in their academic community, than are men. Women also regard the following characteristics of the journal as significantly more important in journal choice than do men: the scope of the journal within their discipline; the interdisciplinarity of the journal; and, the community of the learned or professional society associated with the journal. In addition, women are more likely than men to take note of university policies regarding the number of articles that they are expected to publish in a given period, and open access publication. They also acknowledge expectations regarding publishing high quality articles, career progression, and establishing themselves as a

member of an academic community, more than do men. Previous researchers have suggested that women's lack of career progress in universities is often associated with socio-political factors, including family obligations (Cubillo & Brown, 2003; Gomez Cama, Jorge & Andrades, 2016). Others point to a structural gender bias in academia that favours men (Filandri & Pasqua, 2019). The findings from this study suggest that women researchers are well aware of these potential challenges to the development of their research profile and career development. They are 'towing the line' and paying more attention than do men to the expectations placed upon researchers who seek to develop their career. Women understand what they need to do to succeed, but maybe '*Being good isn't good enough*' (Filandri & Pasqua, 2019, p.1), since recent articles still report significant gender differences in output of scholarly publications (Clark & Horton, 2019; Madison & Fahlman, 2020; Simon *et al.*, 2019; Thelwall *et al.*, 2019b). According to the UK news media (The Guardian and Nature) this situation has been exacerbated recently by the coronavirus pandemic, during which there are assertions that there is a decline in submission of articles from women, whilst articles from men have increased. In addition, women report having abandoned research projects and struggling to find time to enter competitions for funding. Female academics in most families are taking the major responsibility for the additional coronavirus child care (Fazackerley, 2020).

The third main group of insights arise in relation to familiarity and confidence. With respect to all of the statements regarding familiarity, men regarded them as more important than did women. For example, when choosing a journal, men regarded it as more important than did women '*that they had experience in editorial roles*' and that they had '*acted as a reviewer for a journal*' to which they were considering submitting. This may be because women are less embedded in the research and scholarly publication process than their male colleagues (Fishman *et al.*, 2017; Lerback & Hanson, 2017; Wing *et al.*, 2010; Ioannidou & Rosania, 2015) and are under-represented as authors and editors (Fishman *et al.*, 2017). Supporting this, women also regarded confidence as more important than did men in journal choice; it might not be that the women were confident, but rather that they regard confidence as more important because they were not confident in their journal choice. Lack of confidence is likely to be associated with being less embedded in the research community, having lower levels of experience in publishing (Van den Besselaar & Sandstrom, 2016), and the underrepresentation of women in senior positions (Gomez Cama, Jorge & Andrades, 2016). In addition, differences in approaches to and involvement in academic networks between men and women are likely to contribute to women being less embedded in the research and scholarly publication process

than men (Cecchini, Nielsen & Utoft, 2019; Van den Brink & Benschop, 2014). In contrast, men are significantly more concerned than women with the speed of the reviewing process, and view experience with editorial and reviewing roles as more important than do women; they see reviewing experience as particularly important in guiding their journal choice, and also recognise that previous experience of article rejection contributes to their confidence in journal choice.

## **LIMITATIONS**

One limitation of the survey is that respondents all had a prior association with Taylor & Francis. This might have influenced the factors that they regarded as more or less important. On the other hand, Taylor & Francis is a large international academic journal publisher, with an inter-disciplinary portfolio of journals. The nature of the contact database also affects the geographical spread of respondents. In this study, the geographical distribution of respondents is such that data has been collected from academics in a wide range of countries; this could be regarded as both a strength and a weaknesses. More specifically, 20.4% of the respondents are from the United States, 6.4% each from India and the United Kingdom, and 4.9% from Australia. Other well represented countries were Italy, Germany, China, Canada, and Spain. In addition, the use of a non-probability sampling technique can lead to the results being potentially not representative of the population. Also, the study was conducted only with Taylor & Francis' corresponding (submitting) authors, hence not taking into account other authors associated with an article; further research could address this issue. Also, a more balanced distribution of responses across different disciplines would have contributed to a clearer picture of the gender gap, and allow for more extended consideration of the differences between disciplines in approaches to journal choice. Finally, 59.5% of respondents had published their first academic journal article in 2011 or later; this suggests that there may be some bias in the sample towards respondents who are relatively early in their career. However, this could also be viewed as a strength of the survey, since these younger researchers represent the future and hence their attitudes towards journal publication are particularly important.

## **CONCLUSION**

This article reports on a research project that investigates the impact of gender on researchers' journal choice factors when they are choosing a scholarly journal in which to publish their research. Previous research has demonstrated that universities, in general, and research and

scholarly publication exhibits gender inequity. Much of the research in this area relies on quantitative analysis of large data sets. This study, on the other hand, collects data on researchers' journal choice processes through an international online survey. This study has demonstrated the existence on a gender divide, which parallels the explicit gender divides investigated by other authors. It demonstrates that there are significant differences between men and women in the relative importance that they assign to journal choice factors, particularly in relation to: reviewing speed, the importance of impact factors, journal reputation, journal scope, interdisciplinarity, open access publication, university policies, and familiarity with the journal.

Notwithstanding the value and uniqueness of the contribution of this study, there is significant scope for further research into the often hidden facets of the gender divide in scholarly communication. A priority for future research should be re-balancing the research in this area by conducting further studies that collect data from researchers as to their attitudes and behaviours regarding a variety of facets of scholarly publication. Quantitative studies, such as this one, have dominated research into scholarly communication; they have the benefit of being able to explore the relationships between a range of variables and/or factors, often using a large, international, and sometimes inter-disciplinary dataset. However, quantitative studies need to be complemented by more qualitative studies that offer a wide range of insights into journal choice decisions and other aspects of the processes and politics of the landscape of scholarly communication. Another interesting avenue of research would be the relative engagement of men and women in the review process, in particular, the gender distribution of both invitations to review, and the acceptance of those invitations.

## REFERENCES

- Björk, B. C., & Solomon, D. (2013). The publishing delay in scholarly peer-reviewed journals. *Journal of informetrics*, 7(4), 914-923. <https://doi.org/10.1016/j.joi.2013.09.001>
- Björk, B. C., & Catani, P. (2016). Peer review in megajournals compared with traditional scholarly journals: does it make a difference?. *Learned publishing*, 29(1), 9-12. <https://doi.org/10.1002/leap.1007>
- Björk, B. C. (2018). Publishing speed and acceptance rates of open access megajournals. *Online Information Review*. <https://doi.org/10.1108/OIR-04-2018-0151>
- Cecchini, M., Nielsen, M. L., & Utoft, E. H. (2019). Gender Dynamics in Academic Networks-a Narrative Review. *Kvinder, Køn & Forskning*, (1-2), 86-98. <https://doi.org/10.7146/kkf.v28i1-2.116119>



- Clark, J., & Horton, R. (2019). What is The Lancet doing about gender and diversity?. *The Lancet*, 393(10171), 508-510. [https://doi.org/10.1016/S0140-6736\(19\)30289-2](https://doi.org/10.1016/S0140-6736(19)30289-2)
- Cubillo, L., & Brown, M. (2003). Women into educational leadership and management: international differences?. *Journal of educational Administration*, 41(3), 278-291. <https://doi.org/10.1108/09578230310474421>
- Fazackerley, A. (2020, 12 May). Women's research plummets during lockdown – but articles from men increase. *The Guardian*. Retrieved from <https://www.theguardian.com/education/2020/may/12/womens-research-plummets-during-lockdown-but-articles-from-men-increase>
- Filandri, M., & Pasqua, S. (2019). 'Being good isn't good enough': gender discrimination in Italian academia. *Studies in Higher Education*, 1-19. <https://doi.org/10.1080/03075079.2019.1693990>
- Fishman, M., Williams II, W. A., Goodman, D. M., & Ross, L. F. (2017). Gender differences in the authorship of original research in pediatric journals, 2001-2016. *The Journal of pediatrics*, 191, 244-249. <https://doi.org/10.1016/j.jpeds.2017.08.044>
- Fox, C. W., & Paine, C. T. (2019). Gender differences in peer review outcomes and manuscript impact at six journals of ecology and evolution. *Ecology and Evolution*, 9(6), 3599-3619. <https://doi.org/10.1002/ece3.4993>
- Gaston, T. E., Ounsworth, F., Senders, T., Ritchie, S., & Jones, E. (2020). Factors affecting journal submission numbers: Impact factor and peer review reputation. *Learned Publishing*, 33(2), 154-162. <https://doi.org/10.1002/leap.1285>
- Cama, M. G., Jorge, M. L., & Peña, F. J. A. (2016). Gender differences between faculty members in higher education: A literature review of selected higher education journals. *Educational Research Review*, 18, 58-69. <https://doi.org/10.1016/j.edurev.2016.03.001>
- Ioannidou, E., & Rosania, A. (2015). Under-representation of women on dental journal editorial boards. *PLoS One*, 10(1). <https://doi.org/10.1371/journal.pone.0116630>
- Lerback, J., & Hanson, B. (2017). Journals invite too few women to referee. *Nature*, 541(7638), 455-457. <https://doi.org/10.1038/541455a>
- Lerchenmueller, M. J., & Sorenson, O. (2018). The gender gap in early career transitions in the life sciences. *Research Policy*, 47(6), 1007-1017. <https://doi.org/10.1016/j.respol.2018.02.009>
- Lundine, J., Bourgeault, I. L., Clark, J., Heidari, S., & Balabanova, D. (2018). The gendered system of academic publishing. *The Lancet*, 391(10132), 1754-1756. [https://doi.org/10.1016/S0140-6736\(18\)30950-4](https://doi.org/10.1016/S0140-6736(18)30950-4)
- Lundine, J., Bourgeault, I. L., Glonti, K., Hutchinson, E., & Balabanova, D. (2019). "I don't see gender": Conceptualizing a gendered system of academic publishing. *Social Science & Medicine*, 235, 112388. <https://doi.org/10.1016/j.socscimed.2019.112388>
- Mabe, M., & Mulligan, A. (2011). What journal authors want: Ten years of results from Elsevier's author feedback programme. *New review of information networking*, 16(1), 71-89. <https://doi.org/10.1080/13614576.2011.574495>

- Madison, G., & Fahlman, P. (2020). Sex differences in the number of scientific publications and citations when attaining the rank of professor in Sweden. *Studies in Higher Education*, 1-22. <https://doi.org/10.1080/03075079.2020.1723533>
- Nielsen, M. W. (2016). Gender inequality and research performance: moving beyond individual-meritocratic explanations of academic advancement. *Studies in Higher Education*, 41(11), 2044-2060. <https://doi.org/10.1080/03075079.2015.1007945>
- Rowlands, I., & Nicholas, D. (2005, December). Scholarly communication in the digital environment. In *Aslib proceedings*. Emerald Group Publishing Limited. <https://doi.org/10.1108/00012530510634226>
- Rowley, J., Johnson, F., Sbaffi, L., Frass, W., & Devine, E. (2017). Academics' behaviors and attitudes towards open access publishing in scholarly journals. *Journal of the Association for Information Science and Technology*, 68(5), 1201-1211. <https://doi.org/10.1002/asi.23710>
- Simon, L., Candamo, F., He, P., Karhade, D. S., Pirooz, Y., Spinella, M. K., ... & Donoff, R. B. (2019). Gender differences in academic productivity and advancement among dental school faculty. *Journal of Women's Health*, 28(10), 1350-1354. <https://doi.org/10.1089/jwh.2018.7619>
- Tenopir, C., Dalton, E., Fish, A., Christian, L., Jones, M., & Smith, M. (2016). What motivates authors of scholarly articles? The importance of journal attributes and potential audience on publication choice. *Publications*, 4(3), 22. <https://doi.org/10.3390/publications4030022>
- Thelwall, M., Bailey, C., Tobin, C., & Bradshaw, N. A. (2019a). Gender differences in research areas, methods and topics: Can people and thing orientations explain the results?. *Journal of Informetrics*, 13(1), 149-169. <https://doi.org/10.1016/j.joi.2018.12.002>
- Thelwall, M., Bailey, C., Makita, M., Sud, P., & Madalli, D. P. (2019b). Gender and research publishing in India: Uniformly high inequality?. *Journal of Informetrics*, 13(1), 118-131. <https://doi.org/10.1016/j.joi.2018.12.003>
- Van Den Besselaar, P., & Sandström, U. (2016). Gender differences in research performance and its impact on careers: a longitudinal case study. *Scientometrics*, 106(1), 143-162. <https://doi.org/10.1007/s11192-015-1775-3>
- Van den Brink, M., & Benschop, Y. (2014). Gender in academic networking: The role of gatekeepers in professorial recruitment. *Journal of Management Studies*, 51(3), 460-492. <https://doi.org/10.1111/joms.12060>
- Wijewickrema, M., & Petras, V. (2017). Journal selection criteria in an open access environment: A comparison between the medicine and social sciences. *Learned Publishing*, 30(4), 289-300. <https://doi.org/10.1002/leap.1113>
- Wing, D. A., Benner, R. S., Petersen, R., Newcomb, R., & Scott, J. R. (2010). Differences in editorial board reviewer behavior based on gender. *Journal of Women's Health*, 19(10), 1919-1923. <https://doi.org/10.1089/jwh.2009.1904>

**TABLE 3** One-way between-groups analysis of covariance (ANCOVA) on gender (highlighted in grey are all the statistically significant differences between men and women).

<b>Journal characteristics</b>	<b>Statement</b>	<b>F</b>	<b><i>p</i></b>	<b>Male mean</b>	<b>Female mean</b>	<b>Mean Difference</b>	<b>Total mean</b>
<b>Expectations regarding reviewing process</b>	Speed of reviewing process	6.623	0.010	7.71	7.38	0.34	7.58
	Speed with which your article appears online	0.765	0.382	6.93	6.81	0.12	6.87
	Speed with which your article appears in print	0.419	0.518	5.80	5.65	0.16	5.74
	Supportiveness of the reviewing process	0.734	0.392	7.52	7.63	-0.11	7.55
	Reliability of the reviewing process	0.068	0.795	8.38	8.37	0.01	8.38
	Usefulness of reviewers' feedback	0.142	0.707	8.35	8.40	-0.05	8.37
	Helpfulness of editor's comments	0.197	0.658	8.05	8.12	-0.07	8.08
<b>Authority</b>	Authority of reviewers	0.185	0.667	6.94	6.86	0.08	6.91
	Reputation of the Editor	1.468	0.226	6.92	6.72	0.20	6.84
	Reputation of the members of the editorial board	0.057	0.811	6.54	6.48	0.06	6.51
	Impact factor of the journal	5.174	0.023	8.03	8.32	-0.28	8.14
	The extent to which the editorial board is international	0.994	0.319	5.91	6.07	-0.16	5.96
	The reputation of the journal in my academic community	5.787	0.016	8.58	8.82	-0.24	8.67
	The prestige of the journal publisher	0.150	0.698	6.75	6.83	-0.08	6.75
<b>Other aspects of the journal</b>	The prestige of the journal	0.698	0.404	8.44	8.37	0.07	8.39
	Editor located in your country	0.324	0.570	2.60	2.49	0.11	2.56
	Editorial board members located in your country	0.053	0.818	2.63	2.61	0.01	2.62
	The opportunity to retain copyright and other intellectual property rights	0.663	0.416	5.44	5.57	-0.13	5.51
	The scope of the journal within your discipline	10.046	0.002	8.03	8.40	-0.37	8.16
The interdisciplinarity of the journal	7.389	0.007	6.09	6.52	-0.43	6.25	

Perceived Discoverability	The community of the learned or professional society associated with the journal	6.619	0.010	6.33	6.71	-0.38	6.48	
	The availability of information on readership levels of my article once it is published	1.096	0.295	6.54	6.40	0.14	6.49	
	The availability of information on the countries in which people who read my article are located	2.235	0.135	5.21	4.93	0.28	5.13	
	The opportunity to deposit research data	2.096	0.148	4.89	4.59	0.30	4.77	
	Discoverability of the journal's articles in full-text databases	1.883	0.170	7.94	7.76	0.17	7.87	
	Discoverability of the journal's articles in Google Scholar	0.413	0.521	7.87	7.79	0.07	7.83	
	Open access publication	7.371	0.007	6.23	6.72	-0.48	6.42	
	<b>University and National Policies</b>		<b>F</b>	<b>p</b>	<b>Male mean</b>	<b>Female mean</b>	<b>Mean Difference</b>	<b>Total mean</b>
	My university's policies regarding...	...the ranking of my articles	0.001	0.970	6.67	6.72	-0.04	6.68
		...the ranking of the journals to which I submit my articles	0.001	0.993	7.20	7.23	-0.03	7.20
...the number of articles that I am expected to publish in a given period		6.161	0.013	6.42	6.91	-0.49	6.61	
...open access		4.689	0.031	4.79	5.21	-0.42	4.97	
Norms prescribed by my national policy bodies relating to...	...journal ranking	0.058	0.809	6.93	7.03	-0.10	6.97	
	...open access	1.946	0.163	5.06	5.31	-0.26	5.17	
	...research evaluation	0.036	0.850	6.68	6.75	-0.06	6.71	
<b>Experience of publication</b>		<b>F</b>	<b>p</b>	<b>Male mean</b>	<b>Female mean</b>	<b>Mean Difference</b>	<b>Total mean</b>	
Family	That I have communicated previously with the editor or members of the editorial board	0.024	0.877	4.67	4.62	0.04	4.64	

	That I have published in a journal before	1.518	0.218	5.48	5.21	0.26	5.37
	That I am or have been a member of the editorial board for this journal	6.868	0.009	3.29	2.82	0.47	3.10
	That I have had experience in editorial roles, in general	12.707	<0.001	3.76	3.08	0.68	3.51
	That have acted as a reviewer for this journal	5.146	0.024	4.30	3.87	0.43	4.13
	That I have had experience of reviewing in general	7.456	0.006	4.86	4.34	0.52	4.65
	That I am a member of the society that publishes the journal	0.033	0.856	3.70	3.67	0.03	3.68
<b>Confidence</b>	That I am confident that my research is in scope for the journal	5.036	0.025	8.38	8.61	-0.23	8.45
	That I am confident that my research is likely to be published by the journal	5.412	0.020	7.97	8.23	-0.26	8.04
	That I am confident with my ability to write in the language of the journal	4.888	0.027	7.79	8.09	-0.30	7.90
	That I have previous experience of journal article rejection	3.109	0.078	5.92	5.60	0.33	5.76
<b>Objectives</b>	That I am expected to publish high quality articles	5.119	0.024	8.14	8.44	-0.30	8.24
	That I aspire to career progression	8.224	0.004	7.51	8.06	-0.54	7.70
	That I want to establish myself as a member of an academic community	7.807	0.005	7.59	8.07	-0.48	7.75
	That I aspire to publish as many high quality articles as possible	1.661	0.198	8.00	8.22	-0.22	8.07
	That having an article published in a journal puts me in a better position to attract research funding	4.573	0.033	7.30	7.73	-0.43	7.44