Assessing the utility of an institutional Publications Officer: A pilot assessment

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Abstract

Background. The scholarly publication landscape is changing rapidly. We investigated whether the introduction of an institutional publications officer might help facilitate better knowledge of publication topics and related resources, and effectively support researchers to publish.

Methods. In September 2015, a purpose-built survey about researchers' knowledge and perceptions of publication practices was administered at five Ottawa area research institutions. Subsequently, we publicly announced a newly hired publications officer (KDC) who then began conducting outreach at two of the institutions. Specifically, the publications officer gave presentations, held one-to-one consultations, developed electronic newsletter content, and generated and maintained a webpage of resources. In March 2016, we re-surveyed our participants regarding their knowledge and perceptions of publishing. Mean scores to the perception questions, and the percent of correct responses to the knowledge questions, pre and post survey, were computed for each item. The difference between these means or calculated percentages was then examined across the survey measures.

Results. 82 participants completed both surveys. Of this group, 29 indicated that they had exposure to the publications officer, while the remaining 53 indicated they did not. Interaction with the publications officer led to improvements in half of the knowledge items (7/14 variables). While improvements in knowledge of publishing were also found among those who reported not to have interacted with the publications officer(9/14), these effects were often smaller in magnitude. Scores for some publication knowledge variables actually decreased between the pre and post survey (3/14). Effects for researchers' perceptions of publishing increased for 5/6 variables in the group that interacted with the publications officer.

Discussion. This pilot provides initial indication that, in a short timeframe, introducing an institutional publications officer may improve knowledge and perceptions, surrounding publishing. This study is limited by its modest sample size and temporal relationship between the introduction of the publications officer and changes in knowledge and perceptions. A randomized trial examining the publications officer as an effective intervention is needed.

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67 **Background**

68 In 1994, Doug Altman stated that “we need less research, better research, and research done
69 for the right reasons” (Altman, 1994). More than 20 years later these sentiments are still
70 profound. Increasingly researchers have doubts about the way science gets conducted and
71 reported. The irreproducibility of research has been highlighted as a central concern (Baker,
72 2016; Begley & Ioannidis, 2015; Begley & Ellis, 2012; Buck, 2015; Collins & Tabak, 2012;
73 Freedman, Cockburn, & Simcoe, 2015). This concern has been echoed in fields outside of
74 biomedicine, including psychology (Open Science Collaboration, 2015). Similarly, concerns
75 about selective reporting, publication bias, incomplete reporting, data sharing, and spin in
76 writing have been expressed (Boutron, Dutton, Ravaud, & Altman, 2010; Chan, Hrobjartsson,
77 Haahr, Gøtzsche, & Altman, 2004; Dwan, Gamble, Williamson, & Kirkham, 2013; Glasziou,
78 Meats, Heneghan, & Shepperd, 2008; Kilkenny et al., 2009; Saini et al., 2014). These problems
79 have far reaching and multiplicative consequences: they have the potential to, directly or
80 indirectly, delay knowledge and the discovery of novel interventions to treat or cure diseases.
81
82 Globally, there is some action. Several large funders have implemented open access and/or
83 open data sharing policies. Open access and data sharing requirements help to ensure that
84 research is published and that it is easily accessible, so that unnecessary duplication can be
85 avoided and data can be used for secondary research purposes. This has the potential to
86 enhance transparency and to optimize funder investments in the research. Journals have also
87 acknowledged problems in the conduct and reporting of biomedical research. The Lancet ran a
88 special series in 2014 entitled *Research: Increasing value, reducing waste*, which addressed this

issue, and potential solutions (Al-Shahi Salman et al., 2014; Chalmers et al., 2014; Chan et al., 2014; Glasziou et al., 2014; Ioannidis et al., 2014). Several journals have also moved to adopt reporting guidelines – checklists of essential information to report in a manuscript – in an effort to mitigate incomplete reporting (Shamseer, Hopewell, Altman, Moher, & Schulz, 2016). Evidence suggests that endorsement and use of reporting guidelines is indeed associated with improvements in the quality of reporting (Percie du Sert, 2011; Stevens et al., 2014; Turner, Shamseer, Altman, Schulz, & Moher, 2012).

While these changes may be progressive and positive, each new policy, publication tool, or change to publication practice creates new complexities and responsibilities for researchers. These changes require time and effort from researchers if they are to understand and effectively adopt them. How are researchers expected to keep pace with these changes and ensure compliance? Another consequence of newly introduced publication policies and practices is that they may generate significant burdens for research institutions and universities who are responsible for supporting their researchers' success. Recommendations for institutions to support compliance to changes in the publication landscape are plentiful. For example, in their recently adopted Statement of Principles on Digital Data Management, the Canadian Tri-Agency National Funder noted a set of seven responsibilities for institutions to support robust and open data sharing. Examples of responsibilities noted include 'promoting the importance of data management to researchers, staff and students' and 'providing their affiliated researchers with guidance to properly manage their data in accordance with both the principles outlined [above] and research community best practices, including the development

111 of data management plans.'("Tri-Agency Statement of Principles on Digital Data Management -
112 Science.gc.ca," 2015)
113
114 Who is monitoring the steps institutions are taking to provide this support? As Begley and
115 colleagues (2015) recently noted, institutions may not be upholding their responsibility to
116 provide training and resources to researchers to support the high quality, transparent, and
117 clearly reported research that is needed to help ensure the integrity of science. Indeed, as
118 stakeholders, institutions have been markedly absent from discussions on steps to take to
119 improve biomedical research. One way institutions could take responsibility for supporting
120 researchers could be through the introduction of institutional publications officers (Moher &
121 Altman, 2015). Institutional publications officers could provide support to researchers at the
122 back end of the research process. For example, they could help keep researchers up-to-date on
123 best practices related to expectations or requirements in research design and reporting of
124 publications, such as how to find and use reporting guidelines. Publications officers could also
125 help researchers keep pace with newly introduced open access policies and signpost them to
126 resources such as internal repositories, or external tools like the Open Science Framework (OSF)
127 (https://osf.io/). Outreach on how to select a journal to submit to and how to write a cover
128 letter may be of further benefit. In addition, advice on how to navigate the peer review process,
129 which has undergone a recent paradigm shift with the introduction of post-publication peer
130 review, as well as changes to the openness of peer review, could be facilitated. Publications
131 officers could work to ensure internal institutional policies related to publishing are updated to
132 keep pace with broader international changes. Finally, they could ensure that the institution

itself is kept current on tools such as research identifiers (i.e., ORCID) for tracking publications, and metrics and altmetrics for monitoring research impact.

We recently introduced a publications officer at our institution, The Ottawa Hospital Research Institute (OHRI) (Cobey, Galipeau, Shamseer, & Moher, 2016). Here, we aim to describe the effect of the first six months of outreach our publications officer provided at our institution and at the neighbouring Children's Hospital of Eastern Ontario Research Institute (CHEO RI). We describe a pilot evaluation of the role's impact to date.

Methods

Design

In September, 2015 we administered an online survey (via SurveyMonkey) to assess researchers' knowledge and perceptions of publishing. Researchers of all levels of seniority were invited to take part. This survey was a convenience sample administered at OHRI and CHEO RI (experimental sites), and to researchers at three other local institutions, namely Bruyere Research Institute, The Royal Ottawa Hospital, and The University of Ottawa Heart Institute (control sites). Study approval was given (Ottawa Health Science Network Research Ethics Board: 20150420-01H; The Royal Research Ethics Board: 2015018; Bruyere Research Ethics Board: M16-15-032) or waived by each location's research ethics board. Participants were initially recruited via e-mail, using an approved recruitment script which was sent to their institutional e-mail addresses from their respective administration. E-mails contained a link to our online survey. Participants provided online consent before accessing the survey.

155

156 Following this 'pre survey', on Sept 25th, 2015 hospital administration announced the new
157 publications officer role via e-mail (performed by KDC) at OHRI and CHEO RI. The publications
158 officer, our intervention, then provided approximately six months of active outreach at these
159 two sites. A 'post survey', assessing publication attitudes and perceptions, was then circulated
160 by the research team via e-mail. This e-mail was sent in March and was sent to all respondents
161 to the 'pre survey'. Participants were told who the primary investigator was (DM) and that the
162 purpose of the study was to examine researchers' knowledge and perceptions of publishing.
163 Participants took part in the study voluntarily, but were informed that they would be entered
164 into a draw to win an iPad mini after each of the two surveys (if they completed these).

165

166 *Survey items*

167 The surveys used were purpose-built for this study and also included items intended for longer
168 term monitoring not described in this report. Researchers' institutions and email addresses
169 were collected on the first survey so that we would be able to re-contact them to complete the
170 second survey. Participants were asked to respond to 14 multiple choice survey items designed
171 to assess their knowledge of journalology (i.e., publication science) topics. As an example, one
172 item asked participants 'What is Creative Commons?' and another 'What are reporting
173 guidelines?'. For a full description of knowledge questions asked and possible responses, please
174 see Appendix 1. In addition, participants were asked to respond to 6 items designed to measure
175 their perceptions and intentions related to publishing (See Figure 2). Participants responded to
176 these items on a Likert scale of one to seven, with endpoints 'Not at all true' and 'Completely

177 true', respectively. An example item is 'I am confident in my understanding of publication
178 ethics'.
179
180 *Publications Officer Intervention*
181 As part of our rollout of this position, within the first six months the publications officer gave 24
182 outreach presentations across the OHRI and CHEO RI. Presentations were open to researchers
183 of all levels of seniority, and targeted both clinical and pre-clinical researchers. A webpage of
184 freely available resources to which researchers were signposted was also generated and
185 updated frequently (See: http://www.ohri.ca/journalology/). The publications officer was also
186 available for one-on-one consulting and met with 66 individuals during the study intervention
187 period who contacted her on 94 individual occasions. Table 1 offers a summary of the topics
188 discussed with researchers during consultations. Note the frequency of topics (N = 79)
189 addressed is higher than 66 as some individuals consulted the publications officer multiple
190 times, or about multiple distinct topics.
191
192 **-Please insert Table 1 here-**
193
194 *Data Analysis*
195 All data was stored securely and de-identified prior to analysis. We provide descriptive
196 summary data for those who did and did not interact with the publications officer. The
197 journalology knowledge questions, which were recoded to be dichotomous variables (i.e.,
198 participants' answers were correct or incorrect), were summarized as proportions and

199 percentages. The publications perceptions items, which were continuous variables, were
200 summarized by means and standard errors. We compared changes across the pre and post
201 survey between each group.
202
203 *Participants*
204 119 participants completed the first survey; however, 6 provided emails that were no longer in
205 service at the time of the post-survey, and 31 failed to complete the follow-up survey.
206 Therefore, participants analyzed were 82 individuals (N = 41 male, N = 40 female, N = 1 missing
207 data) based at OHRI, CHEO RI, Bruyere Research Institute, The Royal Ottawa Hospital, and the
208 University of Ottawa Heart Institute.
209
210 *Modifications from protocol*
211 While we had initially hoped to compare responses at sites receiving our publications officer
212 intervention (OHRI and CHEO RI) with those that did not, the modest response rate made this
213 unfeasible. We therefore compared participants who explicitly indicated that they had
214 interacted with the publications officer to those who indicated they had not interacted with the
215 publications officer for each of our variables of interest. Specifically, on the second survey we
216 asked participants to indicate if they had (1) visited the Centre for Journalology website
217 maintained by the publications officer; (2) Received an email or newsletter from the
218 publications officer; (3) attended a seminar held by the publications officer; (4) had a one-to-
219 one meeting with the publications officer; or (5) had any other interaction with the publications
220 officer. If participants indicated yes to any of these five options, they were considered to have

interacted with the publications officer (N = 29). Those that indicated they had not used any services were classified as not having interacted with the publications officer (N =53).

Results

The proportions of correct responses to the publication knowledge questions posed during the pre and post survey, for those who did and did not interact with the publications officer, are summarized in Table 2. While neither group had exposure to the publications officer prior to the first survey, there were differences in baseline responses between the groups. For 12/14 variables, participants who went on to interact with the publications officer had higher scores at baseline. For 13 out of the 14 variables, the proportion of correct responses was higher at the time of the post survey for the group who interacted with the publications officer.

-Please insert Table 2 here-

Table 3 summarizes the change in percentage of correct responses to each publication knowledge variable from the pre to the post survey. In general, publication knowledge tended to increase from the pre to the post survey irrespective of whether participants interacted with the publications officer or not. Participants who interacted with the publications officer improved their scores from the pre to the post-survey for 7/14 variables. This finding is in spite of the fact that this group tended to have greater baseline knowledge, meaning they had less room for improvement. Furthermore, for one variable where participants were asked what a

redundant publication was, those who interacted with the publications officer were 100% correct leaving no potential room for improvement.

In a few notable cases, exposure to the publications officer resulted in decreases in correct response percentages during the post survey (N = 3/14). For example, with the item 'How Is a journal's impact factor calculated?' participants who interacted with the publications officer responded 71.43% correct to the pre-survey, but only responded 42.86% correct to the post survey. On this same item, participants who did not interact with the publications officer improved their knowledge score by 8.70% from the pre to the post survey; however, in spite of this, knowledge on the post-survey (36.96%) nonetheless remained below the levels found among participants who interacted with the publications officer (42.86%).

-Please insert Table 3 here-

Figure 1 shows the mean values for the publication perception items for each group. Mean values to responses to these items ranged from 3.86 to 6.13 (Table 4). As with the publication knowledge questions, scores across items for the group that interacted with the publications officer were higher at baseline (6/6 variables). Those participants who interacted with the publications officer tended to increase scores from the pre to the post survey (5/6 variables), and had higher post scores on most variables (5/6), despite the fact that the change in mean scores for those who did not interact with the publications officer was greater for two variables.

-Please insert Figure 1 and Table 4 here

Discussion

One way institutions may be able to support their researchers in staying current with changes in the publication landscape is through the introduction of institutional publications officers. Here, we describe a pilot evaluation of a newly introduced publications officer role. Anecdotally, the role appears to have been positively received. This positive reception is reflected in the rapid uptake and overall number of one-to-one consultations, as well as researcher attendance and feedback at seminars. This experience suggests that the role filled a previously existing gap in services that researchers were eager to immediately address.

Our pilot findings pertaining to the effectiveness of the publications officer as a meaningful intervention provide initial empirical evidence of the potential value of this role. For 7 out of the 14 variables used to assess publication knowledge, we found that researchers had higher scores after interaction with the publications officer as compared to the control. This result occurred in spite of the fact that those who interacted with the publications officer had higher baseline scores for a number of variables. One interpretation of these findings could be that those who were already interested in journalology (as evidenced by the higher baseline scores) were able to access resources previously unavailable (or unknown) to them and, in the process, increased their knowledge. This could indicate the value of a publications officer for researchers who are already knowledgeable in journalology-related topics, not only for those who are novices in this domain.

For three of the journalology knowledge items, participants who interacted with the publications officer actually decreased their scores from the pre to the post survey. It is not immediately clear why their knowledge scores decreased. However, it is worthwhile noting that in spite of these decreases, the absolute post scores were still higher in the group that interacted with the publications officer. Concerning participants' perceptions of publishing, among those that interacted with the publications officer, scores tended to improve. Findings for those who did not interact with the publications officer were more inconsistent, with scores on some variables improving quite considerably, and others reducing. It is worthwhile to note that many of the mean values for responses to these items in both groups, even at the post survey measures, were below 5.5. Given the inherent importance of many of these concepts in order to publish according to best practice, the relatively low confidence rates in perceptions related to publishing is troubling. Shifting perceptions, in contrast to shifting knowledge of particular facts, may require longer periods of time to achieve robust impact.

This study is not without limitations. Firstly, our sample size was modest and underpowered to consider use of inferential testing of many hypotheses. A limitation of this work is that we failed to employ a randomized design. As a consequence, and as suggested by the baseline differences in knowledge scores we obtained, it may be that there was a selection bias such that participants who knew more about journalology subsequently were more likely to seek out and interact with the publications officer. Failure to randomly assign participants to interact with the publications officer limits our ability to draw causal inferences. Future work using a larger pool of participants' with random assignment is therefore warranted. In addition, it is

difficult to know whether any effects of the publications officer intervention carried over into the control group. Given the close proximity of researchers (all based in Ottawa), this is certainly possible and may explain the increases in knowledge observed in the control group. There are known collaborations between the various sites. It is possible, for example, that those in the control group actually did have exposure to outreach services by the publications officer, especially the webpage and electronic newsletters which were widely distributed at OHRI and CHEO RI, but that they did not recognize that these explicitly related to the publications officer when surveyed. Alternatively, some may also have indirectly gained knowledge from having interactions with colleagues who had exposure to the publications officer.

Finally, outreach material and presentations given by the publications officer were not all specifically developed to address each of the knowledge based questions used herein. It will be important to determine how effective the various types of outreach provided by the publications officer are at increasing knowledge and strengthening perceptions in future evaluations. This will allow the services of the publications officer to be specified over time to become most effective. An in depth evaluation of the degree and quality of interaction participants had with the publications officer was also not conducted as part of this pilot study but could prove valuable.

Writing a high quality transparent manuscript, navigating through the journal submission and peer review process, and eventually publishing are important components of the research continuum. Ensuring that researchers have internal resources available to them to make sure

that they are adhering to best practices and compliant with any relevant publishing policies is essential to upholding scientific integrity. Since starting in the role, our Publications Officer has engaged with senior administration locally. This engagement has led to a refresh of three institutional policies (Authorship Guideline, Data Sharing Guideline, and Publication Guideline) and discussions about how the role can provide novel insights or services for the institution. For example, in response to the development of an automated TrialsTracker tool (Powel-Smith & Goldacre, 2016), the publications officer is now establishing an internal audit program at OHRI to help ensure that clinical trials registered on clinicaltrials.gov, which are completed have their results publicly reported. The publications officer role may be an efficient and relatively inexpensive resource that institutions can implement to add value to, and ensure the quality of, their publications. Further research on the role and its impact, addressing the design limitation noted herein, is warranted in order to clarify and improve the impact of the publications officer positions.

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Table 1. Types of questions, and their frequency, received by the publications officer during her first six months of providing one-to-one consultations at OHRI and CHEO RI.

Topic	Frequency (%)
Open Access (e.g., available funding, how to be compliant, institutional repository)	17 (21.52)
Predatory Journals (e.g., how to know if a journal is predatory; what to do after submitting to a predatory journal)	14 (17.72)
Submission process (e.g., where to submit, how to select a journal, help with cover letter)	13 (16.46)
Writing (e.g., use of reporting guidelines, feedback on writing, available writing tools)	12 (15.19)
Peer Review (e.g., responding to reviewers, making sense of reviewer comments)	6 (7.59)
Publication Ethics (e.g., duplicate publications, copyright, plagiarism)	5 (6.33)
Authorship (e.g., authorship disputes, who qualifies for authorship)	4 (5.06)
Other (e.g., remit of publications officer role; ORCID identifier)	8 (10.13)

Table 2. Proportion and percent correct of responses to the publication knowledge questions by study group for the pre and post survey measures. The rightmost column indicates whether the group who interacted with the publications officer (PO) has a higher post score.

		Did not interact with PO			Interacted with PO			Difference in post score
Survey Question		N	Frequency Correct	% Correct	N	Frequency Correct	% Correct	
What is Journalology?	Pre	53	27	50.94	21	15	71.43	✓ 20.49
	Post	53	27	50.94	21	15	71.43	
Enabling free access to a research publication, for instance, through an institutional repository, is often referred to as:	Pre	47	5	10.64	21	4	19.05	✓ 36.98
	Post	47	5	10.64	21	10	47.62	
What is Creative Commons?	Pre	47	9	19.15	21	7	33.33	✓ 10.44
	Post	47	13	27.66	21	8	38.10	
Which of the following is true of open access publications?	Pre	47	12	25.53	20	9	45.00	✓ 18.83
	Post	47	17	36.17	20	11	55.00	
How is a journal's impact factor calculated?	Pre	46	13	28.26	21	15	71.43	✓ 5.90
	Post	46	17	36.96	21	9	42.86	
Approximately how much money is estimated to be wasted annually, globally, in health research?	Pre	42	5	11.90	20	3	15.00	✓ 27.71
	Post	42	6	14.29	20	8	40.00	
Roughly what percent of biomedical conference presentations are subsequently published as full length research articles?	Pre	43	26	60.47	21	11	52.38	✓ 7.31
	Post	43	28	65.12	21	15	71.43	
What are reporting guidelines?	Pre	45	38	84.44	21	19	90.48	✓ 15.56
	Post	45	38	84.44	21	21	100.00	
Which of the following is *always* true of predatory journals?	Pre	42	19	45.24	19	8	42.11	✓ 10.78
	Post	42	22	52.38	19	12	63.16	
Which of these is not an example of publications bias?	Pre	39	24	61.54	20	15	75.00	✓ 8.33
	Post	39	26	66.67	20	15	75.00	
Which one(s) of these impact factors includes all articles indexed in the Web of Science?	Pre	46	11	23.91	21	9	42.86	✓ 10.25
	Post	46	15	32.61	21	9	42.86	
When findings from a research study do not agree with your initial hypothesis, it is acceptable/recommended to	Pre	45	33	73.33	20	17	85.00	✗ =-6.67
	Post	45	30	66.67	20	12	60.00	
Reporting guidelines are useful for (check all that apply):	Pre	39	16	41.03	19	12	63.16	✓ 11.60
	Post	39	16	41.03	19	10	52.63	
A redundant publication is:	Pre	44	25	56.82	19	19	100.00	✓ 20.45
	Post	44	35	79.55	19	19	100.00	

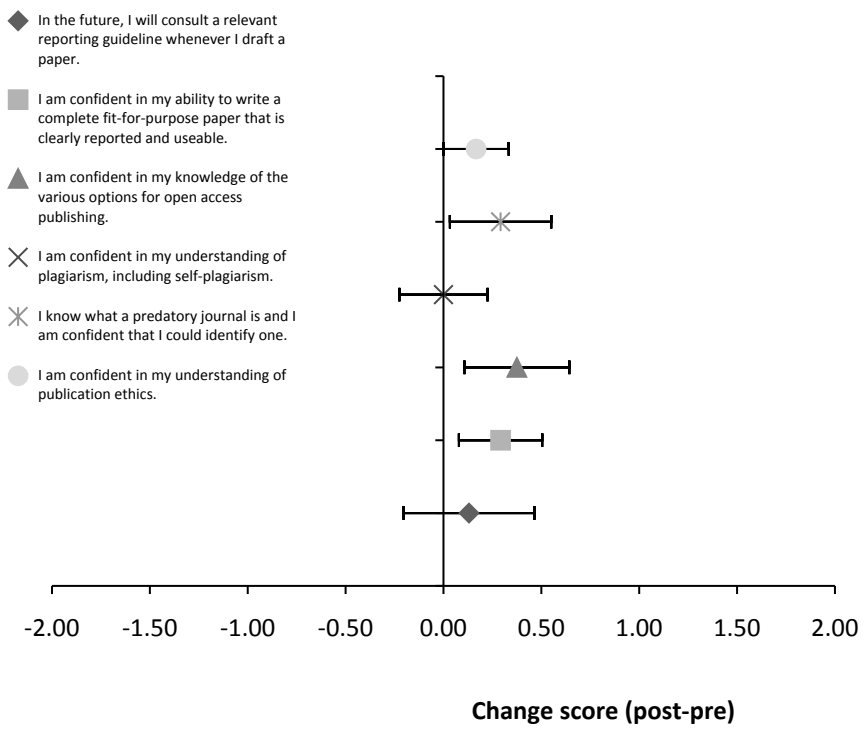
449 **Table 3.** Difference in percentage of correct responses (post – pre survey) for each group.
450 '*'indicates 100% on post survey

	Did not interact with PO	Interacted with PO
Survey Question	Change in % correct (Post-Pre)	Change in % correct (Post-Pre)
What is Journalology?	0	0
Enabling free access to a research publication, for instance, through an institutional repository, is often referred to as:	0	28.57
What is Creative Commons?	8.51	4.76
Which of the following is true of open access publications?	10.63	10
How is a journal's impact factor calculated?	8.70	-28.57
Approximately how much money is estimated to be wasted annually, globally, in health research?	2.38	25.00
Roughly what percent of biomedical conference presentations are subsequently published as full length research articles?	4.65	19.05
What are reporting guidelines?	0	9.52*
Which of the following is *always* true of predatory journals?	7.12	21.05
Which of these is not an example of publications bias?	5.13	0
Which one(s) of these impact factors includes all articles indexed in the Web of Science?	8.70	0
When findings from a research study do not agree with your initial hypothesis, it is acceptable/recommended to	-6.67	-25.00
Reporting guidelines are useful for (check all that apply):	0	-10.53
A redundant publication is:	22.73	0*

451

Figure 1. Mean (±SE) change in publication perceptions between the post and pre survey for participants who did (a), and did not (b), interact with the publications officer (PO).

(a)



(b)

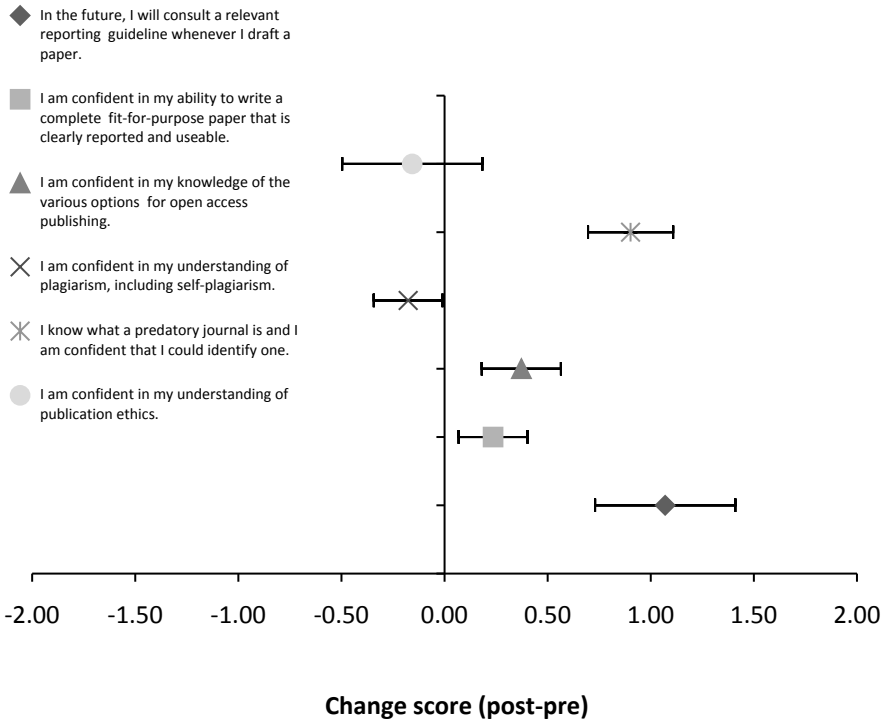


Table 4. Mean scores for responses for the publication perception items for participants who did, and who did not, interact with the publications officer (PO).

Question		Did not interact with PO			Interacted with PO		
		N	Mean	SD	N	Mean	SD
In the future, I will consult a relevant reporting guideline whenever I draft a paper.	Pre	43	4.81	2.14	23	5.48	1.47
	Post	43	5.88	1.38	23	5.61	1.90
I am confident in my ability to write a complete fit-for-purpose paper that is clearly reported and useable.	Pre	51	4.75	1.90	24	5.33	1.46
	Post	51	4.98	1.68	24	5.62	.88
I am confident in my knowledge of the various options for open access publishing.	Pre	51	3.86	1.96	24	4.46	1.53
	Post	51	4.24	1.78	24	4.83	1.49
I am confident in my understanding of plagiarism, including self-plagiarism.	Pre	51	5.53	1.22	24	6.13	.95
	Post	51	5.35	1.37	24	6.13	.74
I know what a predatory journal is and I am confident that I could identify one.	Pre	51	3.92	1.93	24	5.58	1.67
	Post	51	4.82	1.76	24	5.88	1.23
I am confident in my understanding of publication ethics.	Pre	51	5.33	1.44	24	5.79	1.02
	Post	51	5.18	1.51	24	5.96	.95

Appendix 1

Journalology Knowledge

Participants responded to the items below to assess their knowledge of journalology. The same items were used during the pre and post survey.

1. What is Journalology?
   a) The study of scientific journalism
   b) The study of scientific publication
   c) The study of journalists
   d) The study of journals
   e) The study of open access
   f) None of these options
   g) Other, please specify _____
   h) Don't know

2. Enabling free access to a research publication, for instance, through an institutional repository, is often referred to as:

a) Blue open access
b) Green open access
c) Platinum open access
d) Hybrid open access
e) Don't know
f) Other, please specify _____

3. What is Creative Commons?

a) An open-access journal
b) A website where people can share their work
c) An organization offering copyright licences
d) A computer program that allows authors work collaboratively on a paper
e) Other, please specify _____
f) None of the above

4. Which of the following is true of open access publications?

a) The author always retains copyright
b) The publisher always retains copyright
c) Open access journals are more likely than subscription journals to allow authors to retain copyright

d) Open access journals are less likely than subscription journals to allow authors to retain copyright
e) None of the above

5. How is a journal's impact factor calculated?

a) It is the average number of citations to recent articles published in a particular journal in the past 2 years.
b) It is the average number of times articles published in a journal have been cited in the past two years, excluding papers which have not been cited at all
c) It is the average number of times articles published in a journal have been cited in the past two years, excluding self-citations
d) It is the average number of times articles published in a journal have been cited in the past two years, excluding self-citations and papers which have not been cited at all
e) Other, please specify _____
f) None of the above

6. Approximately how much money is estimated to be wasted annually, globally, in health research?
a) 5 Billion
b) 50 Billion
c) 200 Billion
d) 500 Billion
e) Other, please specify _____
f) There is no estimate of waste

7. Roughly what percent of biomedical conference presentations are subsequently published as full length research articles?
a) 90%
b) 80%
c) 70%
d) 60%
e) 50%
f) Other, please specify
g) There is no estimate

8. What are reporting guidelines?
a) Guidance for reporters who cover health research
b) Guidance for researchers conducting a research study
c) Guidance for authors writing up reports of their research

d) Guidance for editors on how to run a journal
e) Other, please specify _____
f) None of the above

9. Which of the following is *always* true of predatory journals?
a) They don't host online submission platforms
b) They don't peer review
c) They never actually 'publish' papers
d) **They collect money from authors**
e) All of the above

10. Which of these is not an example of publications bias?
a) Publishing only the results that are in line with your predictions
b) Failing to publish results from a study that had no statistically significant results
c) Omission of some study results to send a focused message
d) Failing to publish a study's results
e) None of the above

11. Which one(s) of these impact factors includes all articles indexed in the Web of Science?
a) Thomson Reuters Journal Citation Reports
b) Global Impact Factor
c) Universal Impact Factor
d) Index Copernicus Value
e) Other, please specify _____
f) None of the above

12. When findings from a research study do not agree with your initial hypothesis, it is acceptable/recommended to:
a) Collect more data before attempting to publish
b) Publish only the agreeable findings in order to stay focused on what's most important from the study
c) Modify the results so that the findings are favourable and a journal will publish them
d) Publish all the data, but write the discussion in a way that makes the negative findings not look so bad, so that people will still see the benefits.
e) Double check that the design and analyses performed were sound and, if so, proceed with publication
f) Don't bother with publication
g) Other, please specify _____
h) None of the above

13. Reporting guidelines are useful for (check all that apply):
a) Designing participant consent forms
b) Writing a manuscript for consideration for publication
c) Conducting peer reviews of manuscripts
d) Decision-making by journal editors (acceptance/rejection of a manuscript)
e) Interviews with reporters when discussing one's research
f) The media when reporting on new research
g) Other, please specify _____
a) They are not useful

14. A redundant publication:
a) Is the copying of ideas from another source
b) Is a novel replication of a previously published result
c) Is a publication which is identical to or overlaps substantially with another publication
d) Is a publication which fails to declare conflict of interest
e) All of the above