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RESEARCH ARTICLE

A Multidisciplinary Study of Faculty Knowledge and Attitudes Regarding Predatory Publishing

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ABSTRACT

Introduction: Not enough is known about what faculty understand about predatory journals, how they learn about them, and how they feel about them, which has led to insufficient education and guidance on the phenomenon.

Method: A survey was sent to all publishing faculty at a mid-sized doctorate-granting university, and it received 109 responses. The survey covered faculty professional history, departmental culture and environment, criteria for journal selection, and knowledge of and experiences with predatory journals.

Results: Almost all faculty had at least heard of predatory publishing and believed it to be a problem. Faculty reported that, most of the time, they learned about it through colleagues and/or the literature in their field. Yet faculty expressed uncertainty about the impact that predatory journals have on their field and expressed hesitance in penalizing colleagues for publishing in them.

Discussion: Faculty understanding of fraudulent journals—and of predatory publishing overall—may be too basic for efficient application in complex situations such as exploring new publication opportunities and evaluating scholarship. This leads to incongruencies between faculty values and the courses of action they pursue.

Conclusion: It is important to form a fuller picture of faculty relationships with journal publication in order to respond appropriately to their needs. The results from this study inform how academic libraries might work with colleges and other entities on campus to provide early and ongoing professional development.

Keywords: predatory journals, faculty, journal scholarship, publication fraud

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IMPLICATIONS FOR PRACTICE

1. Although faculty may be aware of the existence of predatory practices in journal publication, the means by which they learn about them may provide insufficient training and lead to misconceptions that limit legitimate publishing opportunities.
2. Librarians should develop an understanding of the degree to which faculty believe that predatory journals are a problem, the impacts that predatory journals have, and the suitable consequences of publishing in them.
3. Assumptions should not be made regarding what faculty believe should be labeled as “predatory” and the perceived motivations of authors who publish in such journals.
4. Journal selection and submission processes should be addressed early and often in researchers’ careers so that they can make informed decisions regarding scholarship.

INTRODUCTION

The swift evolution of academic publishing models has presented a wide range of challenges to those in the information professions, and—as with any area reliant on technology—fraudulent activity has become a significant concern. Committers of fraud are known to feed on the ignorant and the preoccupied—consequently evoking notions of “predator,” “prey,” and “feeding”—and thus the phenomenon of predatory journal publication was conceptualized and labeled.¹ To defend scholarly authors, a great deal of effort has been expended to educate them and prevent the loss of their content and money to low-quality, inaccessible outlets. These efforts are increasingly difficult, as the number of predatory journals has grown exponentially in the past decade (Shen & Björk, 2015), and it has proven impossible to keep trusted resources and databases completely clear of these titles (Nelson & Huffman, 2015; Somoza-Fernández et al., 2016; Demir, 2020).

Much of the literature regarding predatory publishing originates outside of the field of library and information science and has been editorial and anecdotal in nature (Cobey et al., 2018),

¹ We acknowledge that some language associated with fraudulent publishing—most notably terms such as “predatory,” “blacklist,” and “whitelist”—is problematic. We have made efforts to avoid references to “blacklists,” “whitelists,” and other terms that are pejorative or have racist connotations. However, although the term “predatory” has been disputed for its inaccuracy and bias, its entrenched use has consistently prevailed over alternative labels and will continue to be used in this article for clarity. Predatory publishing can encompass a broad range of practices that span from poor methods to harmfully dishonest acts. This research focuses on the portion of the spectrum wherein publication outlets promise or promote indicators of quality on which they do not fully deliver.

although the empirical research in this area is increasing. With the rising interest in scholarly communication and the number of librarians who focus on the needs of faculty and other professional researchers, the field has recently taken a vested interest in how predatory publishing is presented to and understood by the greater scholarly community. A more holistic understanding of this complex issue will help to create targeted, effective support for patrons—especially current and future faculty in academia. This study sought to build an understanding of these aspects by investigating the following: (1) faculty knowledge and education regarding predatory journal practices, (2) the perceived effects of predatory publishing, and (3) the extent to which faculty believe predatory publishing is an enduring concern requiring further educational initiatives. Librarians are uniquely positioned to conduct multidisciplinary studies about scholarship and publication that provide context for concerns that span all fields of study. It is essential that librarians understand what faculty know and value, how they are currently learning about publication, and whether and how they prefer assistance.

It is an opportune time to expand the study of predatory publishing because reliance on Jeffrey Beall's lists of "potential, possible, or probable predatory" publishers and standalone journals has become impossible (Basken, 2017; Kimotho, 2019) and because the body of investigators seeking solutions for stakeholders has become more diverse. Foundational elements for which a consensus has been lacking for years—such as the definition of "predatory" itself and the characteristics that are associated with these publishers—are becoming more concrete and reliable. Thanks to a symposium of stakeholders held in April 2019, a thoroughly vetted definition was established: "Predatory journals and publishers are entities that prioritize self-interest at the expense of scholarship and are characterized by false or misleading information, deviation from best editorial and publication practices, a lack of transparency, and/or the use of aggressive and indiscriminate solicitation practices" (Grudniewicz et al., 2019, p. 211). This definition is broader than past descriptions in that it does not confine "self-interest" to financial gain, nor does it confine "best editorial and publication practices" to peer review, thus establishing a definition that is less likely to deteriorate as publishing practices evolve. Similarly, it presents broad examples of how self-interest might be advanced without attempting to provide an exhaustive list of red flags. Such progress is still imperfect, and the opportunity for bias remains, but the departure from the oversimplification that resulted in earlier descriptions and lists of journals allows for a more thoughtful and sustainable approach to addressing issues in publishing—one that affirms the spectrum of publication outlets and opens the discussion to include traditional publication enterprises as well.

This acknowledgement of the nuance involved in evaluating journals is a significant step in understanding the phenomenon of predatory journals. Previously, the lack of consensus on the definition and characteristics of "predatory" has limited the impact and relevance of

bibliometric research into authors and publishers involved in such practices (Tsigaris & Teixeira da Silva, 2019), and it may have led to deficient education of journal article authors. Furthermore, studies that have relied on survey instruments or other methods of self-reporting have found that it is not uncommon for participants to disagree with the classification of journals in which they have published. Thus, it is logical that the research regarding predatory publishers is moving toward a deeper understanding of the knowledge and values of researchers and fields of study that may be affected by these publishers.

LITERATURE REVIEW

Authors in predatory journals

A keen interest has been taken in the characteristics and identities of authors who publish in predatory journals. Although some research proposes the motives and intentions of authors, examining these aspects empirically has been outside of the scope of many studies, and instead, researchers have focused on the characteristics that help to identify who might be “at risk” of publishing in predatory journals rather than the underlying cause. Characteristics most often focused on include the author’s experience in publishing, their field of study, and their country of affiliation. Many of these areas have not been comprehensively investigated in a multidisciplinary fashion owing to the immense undertaking that data collection would require.

Shen and Björk (2015) offered some insight into the breakdown of disciplines by examining topics at the journal level. Their findings indicated that engineering and biomedicine were significantly represented disciplines; however, the largest category was that of “general”—likely because of the broad, multidisciplinary scope of many predatory journals. The history of predatory publishing and anecdotal evidence substantiate that focus should be placed on the hard sciences, but more research is needed to reach a more granular understanding of the disciplines, especially those outside of the sciences.

More clues about authors are provided when researchers limit their investigation to specific disciplines or countries; however, generalizations about experience are less pragmatic. Xia et al. (2015) found that authors who published in pharmaceutical-focused journals on Beall’s list tended to have fewer publications and less experience, and studies in the areas of the social sciences and humanities came to similar conclusions (Alrawadieh, 2018; Shehata & Elgllab, 2018). However, Bagues et al. (2019) found that Italian authors who have published in predatory journals had a higher number of publications in a shorter amount of time, and Pyne’s study of a small Canadian business school found that “only 10 percent of those who were assistant professors . . . have predatory publications compared with 68.8 percent of associate

professors and 100 percent of full professors” (2017, p. 151). However, population limitations of these latter two studies make it impossible to generalize that experience was a substantial factor for researchers publishing in predatory journals. Overall, we cannot conclude that authors in predatory journals are necessarily less experienced in publishing (Perlin et al., 2018; Wallace & Perri, 2018).

Many studies have found that a majority of the content in predatory journals was authored by researchers from countries outside of North America and Europe, with India often found to be the most prolific (Shen & Björk, 2015; Kurt, 2018; Demir, 2020). Explanations for this occurrence have typically mentioned the use of nationally sanctioned journal lists, reliance on quantity-based reward and penalty systems, bias in article acceptance, and lack of author experience or awareness.² Even though these factors may encourage predatory activity to gravitate toward certain hotspots, Demir (2018) and Shen and Björk (2015) both found that countries in North America, Europe, and parts of Asia were also well represented in predatory journal authorship. Thus, the growing industry of predatory publishing is not relegated as a regional phenomenon, particularly as globalization and competition increase in academia (Moher et al., 2017). Furthermore, countries that are not significantly contributing to predatory publishing should have a vested interest in how their body of research may be affected if the phenomenon expands unchecked.

Faculty knowledge and attitudes

The current research into predatory journal authorship contains clues as to scholars’ knowledge and attitudes, particularly when the methodology included author surveys or interviews (Xia et al., 2015; Shehata & Elgllab, 2018). However, this topic has not been studied in depth at this time, and the relevant data were often supplemental to more central research questions. Research that has concentrated on knowledge of and attitudes toward predatory publishing generally exists outside of the library and information science literature and focused on defined groups of authors. Noga-Styron et al. (2017) studied researchers in the fields of criminology and criminal justice, and Christopher and Young (2015) studied prospective veterinary and medical authors. Not surprisingly, most studies along these lines originated from and about fields in the health sciences (Beshyah et al., 2018; Cobey et al., 2019; Richtig et al., 2019a, 2019b). Increasingly, similar studies have been appearing in library and information science

² National publishing cultures and requirements vary widely, and it is imperative to understand the context in which researchers operate to comprehend the prevalence of predatory journals within a country. For instance, in 2010, India introduced the Academic Performance Indicator, a system many academics now critique for contributing to the proliferation of predatory journals in their country (Priyadarshini, 2018).

arenas (AlRyalat et al., 2019; Webber & Wiegand, 2019; Swanberg et al., 2020; Wang et al., 2020).

The study by Swanberg et al. (2020) most closely aligns with the methodology and aims of our research. They found that most respondents from their pool of 183 university and medical faculty had heard of the term “predatory OA [open access] journal” (70.5%) but that few had received training on the subject (13.3%). When asked about the characteristics of legitimate versus predatory open access journals and to assess a provided journal webpage, participants demonstrated that they may lack the level of proficiency to apply the terminology. Only 60.0% of participants correctly identified a provided journal in their discipline as predatory, and the investigators did not find any links between ability and rank, training, or publication history. The study found that almost all participants thought that researchers and evaluation committees should be concerned about predatory journals. Only 38.8% and 19.4%, respectively, reported using librarians or the library website to help them assess journal quality.

In more narrowly defined populations, familiarity with the term “predatory journal” or related phrases varied widely. Noga-Styron et al. (2017) found that only 49% of members belonging to either of two criminology/criminal justice professional organizations had heard of the terms “Scholarly Open Access List” and/or “Predatory Journal.” Two other studies found that 69.7% of oncologists surveyed (Richtig et al., 2019a) and 29.4% of dermatologists surveyed (Richtig et al., 2019b) had prior knowledge of predatory journals. Christopher and Young (2015) recorded that 23.0% of workshop attendees (primarily medical and veterinary graduate students and residents) were aware of the term, while definitions provided by participants in a separate question contained many “practices considered poor but not predatory” (p. 6). Not surprisingly, other studies that focused on student populations found low levels of familiarity. Wang et al. (2020) found that only 18.4% of Chinese doctoral students were aware of the term, and AlRyalat et al. (2019) found that only 7.0% of (primarily undergraduate) biomedical students were aware of it.

Despite the varying levels of knowledge regarding predatory publishing, there is evidence to support that participants believe its existence is a problem that should be addressed. Swanberg et al. (2020) found that nearly all participants thought this issue should be a concern of both those in their field and those who serve on promotion and tenure review committees. Still, there is disagreement about what constitutes a predatory journal and which titles deserve the label, complicating how such an issue could and should be addressed. Cobey et al. (2019) found that only about one-third of authors who had published in a presumably predatory journal would not publish in the same journal again, and nearly half responded that they were “not aware that the journal was predatory and continue to think it is not predatory.” Factors that might affect faculty attitudes include whether they have had experience with

journals falsely labeled as predatory as well as whether they have had direct experience publishing in a predatory outlet versus only hearing about the phenomenon secondhand.

Author motivation and collusion

Whether researchers are aware of and knowledgeable about predatory practices helps to provide context around the motivations of those who submit to and end up being published in predatory outlets. Several studies provide evidence as to why authors have published their work in predatory journals and, particularly, why they may have done so intentionally. Alrawadieh (2018) and Bagues et al. (2019) found that participants unintentionally had their work published in predatory journals, whether owing to hijacked journals, journals with titles mimicking reputable ones, or misleading metrics and websites. The studies by Cobey et al. (2019) and Kurt (2018) found that 96.1% and 70.8% of respondents, respectively, were unaware that the journal they published in could be considered predatory.

At the same time, there is evidence to support that authors knowingly submit their work to fraudulent outlets to assuage publishing pressure, attain rewards, pad their publication record, or publish an oft-rejected manuscript (Alrawadieh, 2018; Demir, 2018). Pyne (2017) found that both predatory publications and higher quantities of research publications were positively rewarded financially. Bagues et al. (2019) described scenarios in which evaluation systems legitimately allowed for this, relying on standard lists or indices that included presumably predatory titles. A participant from Demir's qualitative work stated, "Unfortunately, I submitted a manuscript of mine to a journal, which I more or less knew to be fake If you asked if it is right, I would say I think what is legal is right" (2018, p. 1,304). The requirements of certain systems, such as that in Nigeria, have led some authors to take shortcuts (Omobowale et al., 2014; Xia et al., 2015). Furthermore, if a university or system does not recognize a journal as predatory, or does not discourage publishing in predatory journals, scholars determine the outlet to be acceptable (Kurt, 2018).

There was frequently a group of participants in these studies who claimed to have done their due diligence and chosen a journal based on factors such as the reputation of the editorial board, the referral of authors who had previously published in them, or other frequently accepted quality markers. These participants objected to the classification of journals they chose as "predatory" (Alrawadieh, 2018; Cobey et al., 2019). They described rigorous peer-review processes (Bagues et al., 2019), whereas others articulated further action in which they contacted journal editors to verify legitimacy (Alrawadieh, 2018). Thus, it is significant to note that some scholars may purposefully submit to "presumably predatory publications" because they determined the journal to be of adequate quality. This aligns with those who call into question the validity of lists that attempt to keep an inventory of problem journals

(Teixeira da Silva & Tsigaris, 2018). A broader picture of who publishes in predatory journals includes both the vulnerabilities of the uninformed and the benefits to the opportunists, and it accounts for researchers who contest predatory status.

Consequences of predatory publishing

The potential consequences of predatory publishing outlets can be categorized into two areas: the impact on the literature and advancement of a field and the impact on the career and reputation of the author—and, by extension, the institutions with which they are affiliated. Although alleged impacts have been enumerated in a variety of articles (Eve & Priego, 2017; Richtig et al., 2018), they are difficult to quantify or attribute directly to predatory practices. Current conversations focus on the negative impacts of predatory practices, but not all consequences are undesirable, as publishing in predatory journals is at least occasionally a successful antidote to the “publish or perish” tension experienced by faculty.

Certainly, the lack of adequate peer review and editing is a top concern for scholarly literature, as is evidenced by the prevalence of sting operations (Bohannon, 2013; Taylor, 2019), which demonstrate that there are publishing outlets spreading varying degrees of poor science. When even well-intentioned researchers publish their work in outlets with sub-standard quality checks and accessibility, there are further implications in the availability of funding, human capital, study subjects, and the overall publishing industry. Shen and Björk (2015) estimated the market size of predatory journal publishing to be 74 million US dollars (USD), providing one—albeit now dated—quantification of predatory publishing. Alternatively, Moher et al. (2017) described the waste of live research participants, reporting that over 2 million humans and 8,000 animals were involved in the subset of research that they deemed to be published in predatory journals. They further estimated that “at least 18,000 funded biomedical-research studies are tucked away in poorly indexed, scientifically questionable journals” (p. 24). Perhaps most tangible is the case studied by Linacre et al. (2019) that described monetary damages of 50 million USD caused by OMICS Publishing Group alone between 2011 and 2017, a case in which the United States federal court system ruled in favor of the Federal Trade Commission’s allegations (Federal Trade Commission, 2019) and set legal precedent for judicial action against predatory practices of academic journals. These studies illuminate some distinct, measurable implications of predatory publishing for progress in fields most affected by predatory practices, often because the articles are not findable by other researchers.

There is less solid evidence in the literature to verify that individual scholars have experienced adverse consequences specifically for publishing in predatory journals, despite the anecdotal sentiment that this conclusion is warranted. Although it is expected that authors experience some degree of lost time, money, and effort, it is difficult to quantify these elements or

generalize long-term effects. The majority (65.9%) of biomedical authors who published in predatory journals reported no related adverse career affects, although an unspecified minority reported reprimands or reputational damage (Cobey et al., 2019). Pyne (2017) found that publishing in predatory journals did not bar faculty from being hired, being promoted, or achieving tenure at one Canadian business school. Instead, this and other studies indicate that some faculty benefit from publishing in predatory journals and lax evaluation policies and procedures (Demir, 2018; Perlin et al., 2018; McQuarrie et al., 2020).

On the other hand, Bagues et al. (2019) did find that Italian candidates seeking promotions in academia with publications in predatory journals were less likely to obtain positive evaluations, although this depended on the research experience of evaluators—underlining that knowledge of predatory publishing is relevant for both those who produce research and those who assess it. Most other accounts of consequences have been anecdotal, speculative, or isolated in nature, such as the firsthand account described by Maistry (2019). In fact, the most concrete and influential career outcome resulting from association with predatory publishing is likely that of Jeffrey Beall himself, who was simultaneously lauded for bringing attention to the issue and vilified for biased and unilateral judgments. Ultimately, the negative attention and litigious threats allegedly led to the dissolution of his blog in January 2017 (Basken, 2017). Due to legal restrictions concerning the disclosure of personnel information, varying perspectives in controversial situations, and the possibility of multiple contributing factors, it is unlikely that any research could concretely prove punitive actions against authors that resulted directly from having published in a predatory journal.

The growing literature seeking to understand the relationship between predatory publishing and researchers (particularly faculty in higher education) suggests that initial assumptions and beliefs about the phenomenon are incomplete. A firmer foundation of understanding must be established before librarians can take effective action toward supporting their constituents in journal publication. This study aimed to establish a scalable investigation into author perceptions of journal quality, selection, and publication.

METHODS

This investigation was a sequential exploratory mixed method study that used interviews to inform the creation of a survey instrument (Webber & Wiegand, 2019). In this second phase, we surveyed faculty at the University of Northern Colorado. This institution is a public, doctorate-granting body in the United States composed of approximately 500 faculty belonging to programs in six academic units: Education & Behavioral Sciences, Humanities & Social Sciences, Monfort College of Business, Natural & Health Sciences, Performing & Visual Arts, and University Libraries. The target population for data

collection was faculty who were required to conduct research and publish as part of their workload requirements. The resulting population included the ranks of full professor, associate professor, assistant professor, and lecturer.

We received permission and Institutional Review Board approval to conduct a census survey of the faculty in early spring 2019. The survey was constructed and distributed via email to 512 faculty using Qualtrics survey software. We worked with a research consulting entity housed within the university to deploy the survey to maximize anonymity between respondents and the University Libraries, the academic unit that we represent. Fees for working with the consultants were paid through a small research grant from the university. We offered participants a chance to receive one of three \$25.00 Visa gift cards as compensation for their time, and we sent three rounds of reminders to those who had not yet participated. The survey was open for 5 weeks.

The survey contained 56 primarily closed-ended questions that culminated in a key section on faculty thoughts and experiences with predatory journals. Preceding survey sections provided context and were organized into demographics, faculty professional history, departmental culture and environment, and faculty criteria for journal selection (see relevant survey questions discussed in this article in the Appendix). Question content and wording were based on a small sample of semi-structured interviews with faculty of the same population in 2018. The term “predatory journals” was deliberately excluded from the survey title and invitation materials, and it was not introduced until the final section of the survey so as not to prejudice respondents’ answers to other survey questions. Survey completion time was between 10 and 20 minutes for most participants.

RESULTS

In the data cleaning process, we removed responses from participants who did not reach the end of the survey or who indicated that scholarship was not a component of their work assignment. Overall, we received a total of 109 valid survey responses, resulting in a 21.3% response rate. Because participants were permitted to skip individual questions, response rates that differ from this overall total are listed in the results that follow. There were no valid responses representing the lecturer rank, possibly owing to inconsistent scholarship requirements for lecturers on our campus; thus, this specific population ($n = 50$) was excluded from further analysis.

Demographics

Respondents answered several questions to approximate their experience publishing in higher education. The largest group of faculty represented in the survey held the rank of full professor (40.4%). The remaining respondents were evenly split between the ranks of associate

professor (29.4%) and assistant professor (30.3%). Overall, the sample averaged 14.5 years of employment in higher education, with about one-third of the faculty reporting fewer than 10 years (35.8%). All but one individual had published at least one peer-reviewed article in their career. The mean number of peer-reviewed articles published per individual was 5.8 in the past 5 years ($n = 107$) and 16.8 over an entire academic career ($n = 108$).

A substantial number of respondents (67.9%) reported earning their highest degree from an institution with a Carnegie Classification of R1 (“Doctoral University – Very high research activity”), and nearly all reported that their highest degree attained or in progress was a doctoral degree (96.3%). Despite these similarities, faculty reported great variability in the preparation they received in graduate school as related to evaluating and selecting journals for manuscript publication. When asked whether they were taught about evaluating journals for publication potential, over half of the respondents replied with “not at all” (26.6%) or “a little” (26.6%) on a four-point scale (not at all, a little, a moderate amount, a lot).

Of the five colleges and the University Libraries, the majority of participants represented Humanities & Social Sciences (35.8%) and Natural & Health Sciences (33.0%). Education & Behavioral Sciences constituted 17.4% of the participants, while the remaining groups all had fewer than 10 respondents each: University Libraries at 6.4%, Performing & Visual Arts at 5.5%, and Monfort College of Business at 1.8%. Participants were further asked to identify to which academic program they belonged to allow for a more detailed analysis of data by discipline; however, the relatively small number of respondents hindered such scrutiny. Therefore, we only report results at the college level (see Table 1 for a breakdown of participating faculty by college and rank compared with that of the university).

		University ($n = 460$)	Response ($n = 109$)	Difference
Rank	Assistant	29.78%	30.28%	+0.49%
	Associate	26.30%	29.36%	+3.05%
	Full	43.91%	40.37%	-3.55%
College	Education & Behavioral Sciences	22.39%	17.43%	-4.96%
	Humanities & Social Sciences	21.09%	35.78%	+14.69%
	Monfort College of Business	6.74%	1.83%	-4.90%
	Natural & Health Sciences	30.00%	33.03%	+3.03%
	Performing & Visual Arts	16.30%	5.50%	-10.80%
	University Libraries	3.48%	6.42%	+2.94%

Table 1. Proportion of Survey Respondents by Rank and College Compared with Overall University Makeup. A plus sign (+) indicates that a group is overrepresented, and a minus sign (-) indicates that a group is underrepresented.

Knowledge

After reviewing a provided description of predatory journals (see Appendix), only 13.8% of respondents claimed that they had not been at all familiar with the terminology (Figure 1). The majority reported being either moderately familiar (27.5%) or very familiar (30.3%) with the term. Of those who were at least slightly familiar with predatory journals ($n = 93$), 66.7% reported learning about them from colleagues and 47.3% from reading literature or articles on the topic (Figure 2). Only 24.7% learned about predatory journals in graduate school, while a mere 10.8% learned about them from professional development through the University Libraries. It was not uncommon for respondents to report learning about predatory publishers through other means (18.3%), most often citing the many email solicitations they received directly from predatory publishers. Additionally, respondents reported that other researchers in their field were aware of predatory publishing, with 61.5% marking “agree” or “strongly agree” on a five-point Likert scale. Despite this awareness, 80.7% of respondents agreed or strongly agreed that researchers needed help in identifying predatory journals, whereas 67.0% agreed or strongly agreed that they were able to recognize predatory journals themselves.

A majority of respondents expressed interest in learning more about predatory journals and predatory publishing (53.2%). In order to plan educational efforts on our campus, faculty were asked what formats they would prefer ($n = 105$). In accord with the earlier question regarding how respondents learned about predatory publishing previously, the most popular choices for learning more were through peers (63.8%) and the literature (59.0%). Less popular formats were webinars (46.7%), talking with a librarian (44.8%), face-to-face workshops

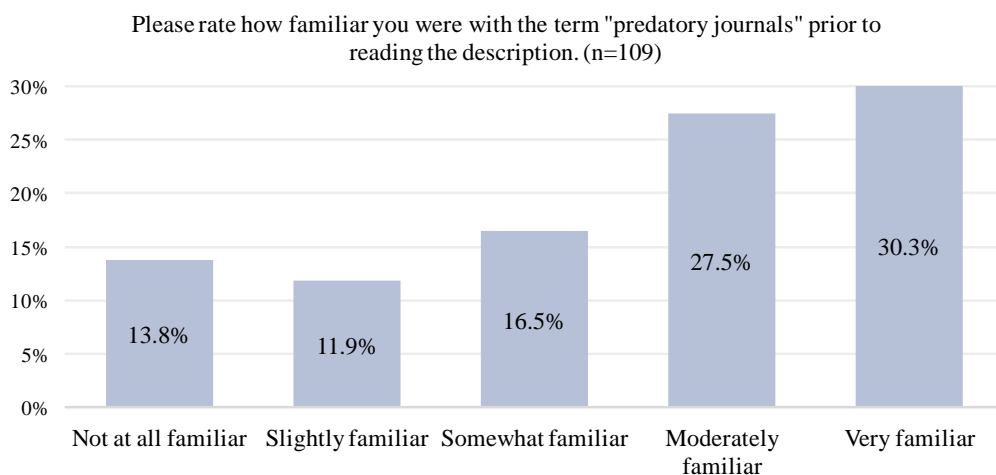


Figure 1. Reported Familiarity with the Term “Predatory Journals” Prior to Reading the Description Provided

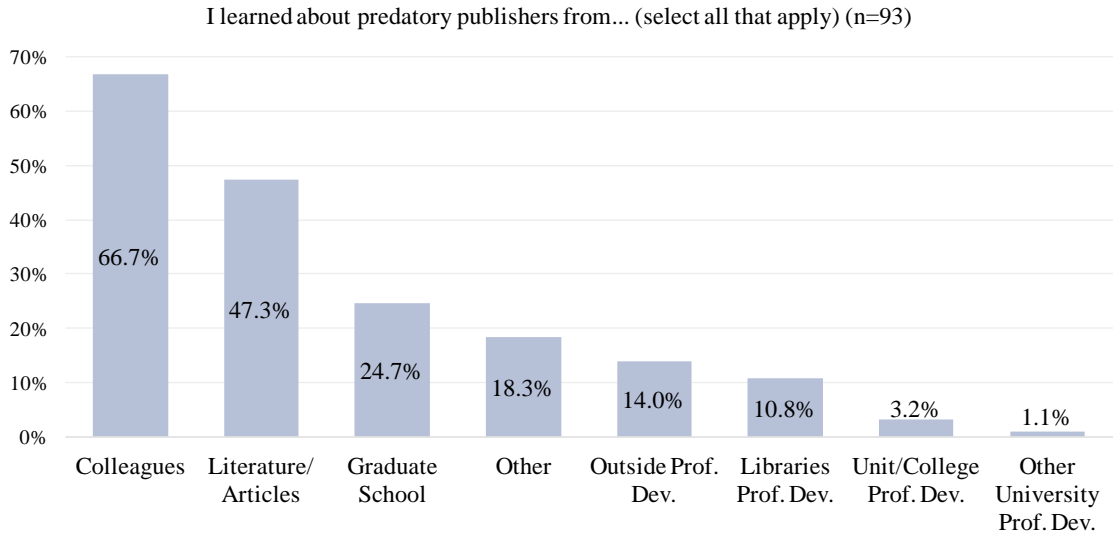


Figure 2. How Faculty Learned about Predatory Publishers

or presentations (39.1%), discussions with supervisors (21.9%), or seeking professional development through a professional organization (20.0%).

Due to the common association between predatory publishing and publishing fees, we also asked participants about their experience with and knowledge of fees (Figure 3). For most respondents, it was not common to see fees associated with publishing an article (65.7%, $n = 108$). Of those who reported fees as being common (26.9%), amounts were most often reported as being between 500 and 1,999 USD (65.5%, $n = 29$). When all respondents were

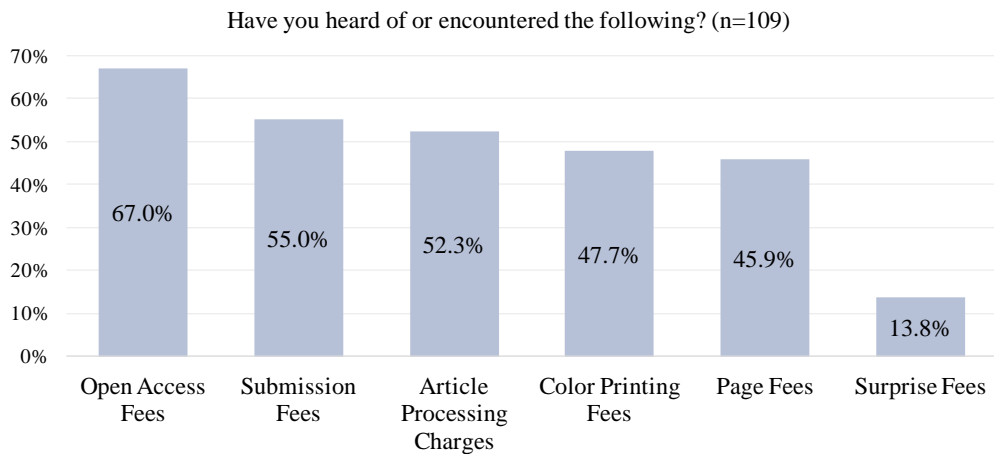


Figure 3. Faculty Who Reported Having Heard of or Encountered Certain Costs Associated with Article Publication

asked about their familiarity with different types of fees, respondents were most likely to have heard of or encountered open access fees (67.0%) and least likely to have heard of or encountered surprise fees (13.8%). Despite its limitations, the term “surprise fees” was used in a way that was open to interpretation to inquire about whether respondents had experienced unexpected fees in the publishing process.

Finally, 27.4% ($n = 84$) of participants indicated in an open text field that they would never accidentally publish in a predatory journal because of the nature of their field, their process for selecting journals in which to publish, or refusal to pay to publish. Twenty percent indicated that they did not know what they would do if they had made this discovery (20.2%), 40.5% asserted that they would attempt to have the article taken down, and 16.7% determined that they would take no further action. An additional 13.1% indicated that they would seek help from others (including librarians) regarding the steps they should take.

Attitudes

Although no respondents thought that predatory journals had a solely positive impact on the literature in their field or an author’s reputation or career, a considerable number reported that they thought there was some positive impact (Figure 4). Almost one-fifth of responses indicated that participants thought there was some positive impact on the literature (18.7%, $n = 107$), and one-quarter thought there was some positive impact on the author’s reputation or career (25.5%, $n = 106$). Some examples of positive impacts of predatory publishing provided by respondents in an open text field are shown here:

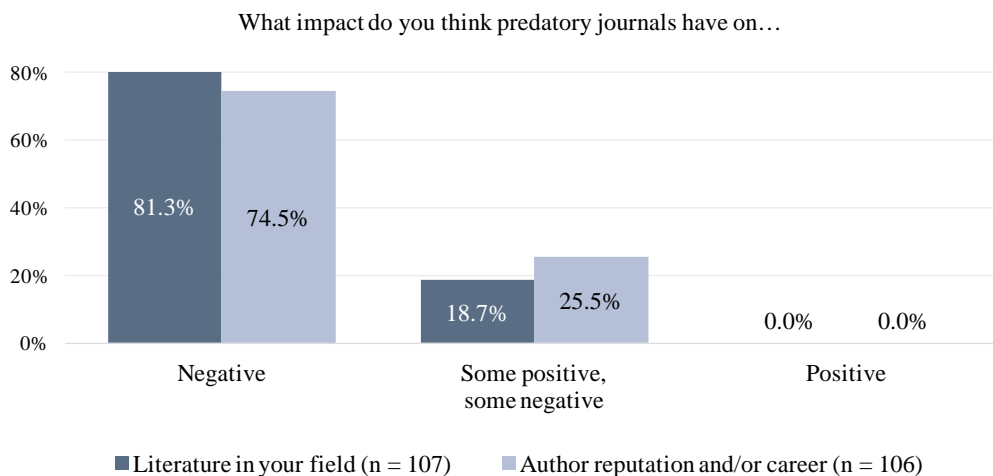


Figure 4. The Impact Faculty Believe Predatory Journals to have on the Literature in their Field and an Author’s Reputation and/or Career

- “These journals have some good articles, but more bad than good articles.”
- “At least the authors are writing and practicing scholarly craft. There are so few spots in top-tier journals, and those journals may take over a year from submission to publication (too long to be of use in a time crunch).”
- “I think it has brought an awareness among editorial boards of the ‘reasonableness’ and transparency of some peer reviews. This is to the extent that several major publishers now have very detailed guidelines for how they want individual journals’ peer reviews to be structured.”

Fourteen percent ($n = 107$) agreed that it would be more advantageous to publish in a predatory journal than to have no publication at all.

In regard to evaluating application materials for hiring, tenure, or promotion, a strong majority of respondents believed that the presence of an article in a predatory journal in materials either should negatively affect the individual’s outcome or should be a point of commentary, discussion, or education (Figure 5). The severity of consequences believed to be warranted

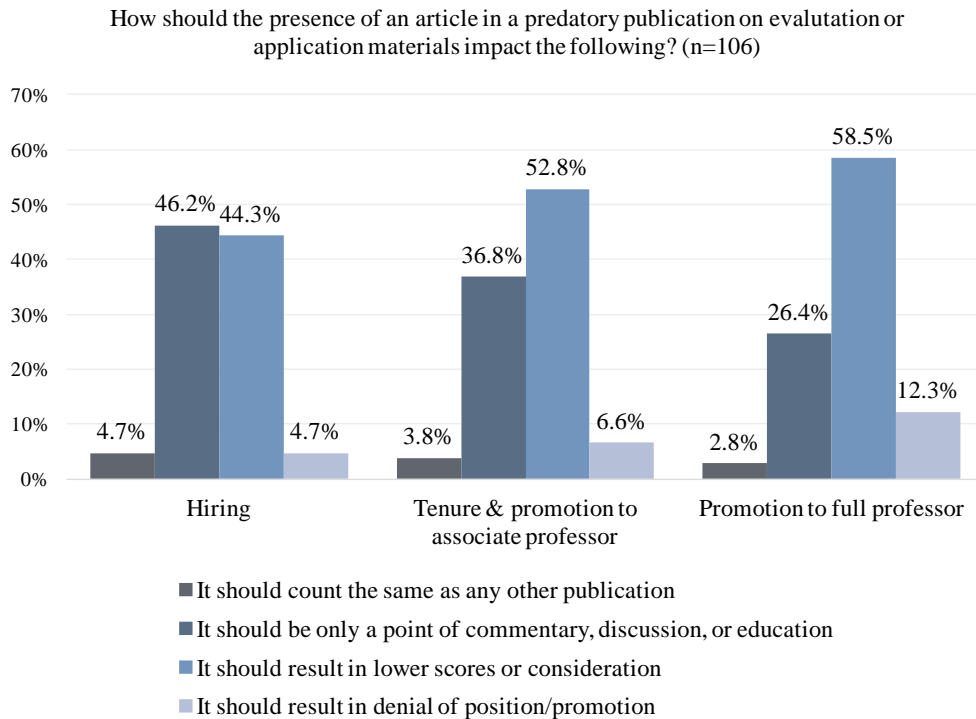


Figure 5. How Faculty Believe the Presence of an Article in a Predatory Publication on Evaluation or Application Materials should Impact Applicant ($n = 106$)

increased slightly with the level of the application (though the type of position was not specified for hiring); 4.7% ($n = 106$) said it should result in denial of a position/promotion when it came to hiring compared with 6.6% who said it should result in denial of tenure and promotion to associate professor and 12.3% who said it should result in denial of promotion to full professor. Accordingly, only 5.1% of respondents ($n = 98$) who had participated in the formal performance evaluations of peers' scholarship reported penalizing a colleague because of the presence of a predatory journal on their evaluation materials, and 12.2% reported that they recognized a predatory journal on evaluation materials but did not penalize the individual.

Despite this, respondents felt that researchers should be taught about the consequences of publishing in predatory journals (91.7%), and only 23.9% felt that a scholar's evaluation of articles and publication venues was sufficient to address predatory journals. Rather, many agreed that it is important to actively combat predatory journals (78.9%). Nearly all (87.2%) felt that predatory publishing will continue to be a problem in the future.

DISCUSSION

Although it was not within the scope of this study to truly test the knowledge of faculty, data indicated that the faculty at our institution are aware of the concept of predatory publishing. Surveyed participants were moderately confident about their own strategies for journal selection and their abilities to detect and avoid predatory publishers. However, they expressed less confidence in the knowledge and abilities of their peers and colleagues and asserted that measures should be taken to mitigate and avoid predatory publishers. In light of the findings of Swanberg et al., we might also have reason to believe that there is a “mismatch between ability and self-reported confidence” (2020, p. 215).

Furthermore, we conclude, similarly to Swanberg et al. (2020), that misconceptions are common regarding publication fees, open access publishing, and traditional publishing models. At our institution, misconceptions most related to publication fees may be attributable to our higher proportion of programs in the social sciences, where fees are less common. Though some publication fees are legitimate, even these were deemed unconventional and were rejected by many participants. Comments elucidated an association between fees and “pay to play” publication:

- “I am not sure why anyone would pay for publishing their work.”
- “I would NEVER pay a fee to publish.”
- “Paying author fees is not acceptable in my field—in fact, paying to publish something would discredit that article in the eyes of peers...”

Moreover, although our study was careful to avoid equating predatory publishing with the open access model, comments indicated that some faculty equate open access, predatory publishing, and publication fees:

- “OA [open access] journals vary widely, but even those with impact factors are suspect.”
- “I don’t submit to open access, so the situation [accidentally submitting work to a predatory journal] wouldn’t arise.”

Because most faculty reported learning about predatory publishing from colleagues or through self education, it is not surprising that misconceptions and gaps in knowledge would arise. Predatory publishing is nuanced and evolving, as is the publication industry as a whole. Even the literature in one’s field that seeks to warn scholars of predatory practices might oversimplify the topic for digestibility and lack the perspective of an information professional. Nevertheless, further study could reveal that the more recently a faculty member attended graduate school, the more exposure they have had to journal evaluation and selection, as graduate schools may have begun addressing the issue of predatory publishing more consistently. Inclusion in graduate curricula would diminish inconsistent understandings that may be disproportionately based on opinion and bias.

Misconceptions were also revealed when respondents’ comments addressed author intentions and research quality, which has significant repercussions for faculty evaluations. The following statement expressed concern over the quality of the researcher or article: “Why would anyone choose to publish there rather than in a respected journal? There must be something wrong with the article or methods.” However, others keenly expressed that authors might publish in predatory journals either because they are naïve or because they are doing so deliberately—and that it is difficult to tell the difference in evaluation situations. This is congruent with comments suggesting that one publication in a predatory journal is an innocent mistake, whereas multiple such publications indicate a motivation to game the system. The “learn by doing” nature of publication may contribute to the sentiment that, although publishing in a predatory journal is bad, mistakes made and learned from should not have a lasting impact on one’s career. One participant stated, “I do not believe that publishing in a predatory journal should impact the individual faculty member (unless it happens routinely)—there is a reason that these journals are considered PREDATORY and the faculty is a ‘victim’ in this situation.” Thus, respondents expressed that researchers need help in identifying predatory journals and should be taught about the consequences of publishing in them, which may indicate a reflection of their own journey to understanding the research process and publication ethics. Administering consequences depends also on the knowledge and experience of the researchers

on evaluation committees. The recognition that predatory publications may or may not be identified during evaluation (along with the leniency mentioned earlier) explains why there are seemingly few cases of authors whose careers have been negatively impacted by publishing in predatory journals while fraudulent publishers proliferate.

Numerous phrases, such as “in my field,” indicated that there are differences in how predatory publishing affects, is understood by, and is acted upon by researchers owing to the prevalence of predatory publishing in the literature of various disciplines. While the perceived threat of predatory publishing in one’s discipline plays a role, the relatively low level of education through graduate coursework, formal workshops, or similar environments explains why faculty across disciplines believe predatory publishing to be a problem but are hesitant to enact consequences. More work is certainly necessary to understand how disciplinary and institutional dynamics influence both the decisions of researchers and the actions of evaluation committees as they relate to publication in predatory journals.

LIMITATIONS

This research is limited in that the population studied cannot be generalized to a larger population of faculty. Self-selection bias may have drawn participation by individuals who know or care more about academic scholarship. In a survey concerning “predatory publishing,” it is difficult to provide clear questions while excluding inherently negative language. Such language may have prejudiced participants or prompted a belief that they should have previous knowledge of the issue. Furthermore, the response size is too small to adequately inform correlations between faculty attitudes and the many influences that affect them. Although this study investigated experience and field of study as possible explanations for the differences in knowledge and attitudes among faculty, the data collected from our single institution did not proportionately represent our population, and the data are insufficient to assert decisive conclusions. Thus, our ensuing research expands this survey to study a larger population across multiple institutions.

CONCLUSION

Many faculty members are aware of the existence of predatory publishers and believe it needs to be addressed. However, misconceptions and oversimplification of the issue are apparent. Demands on scholarly authors’ time likely causes them to overlook nuanced indications of problems in journal outlets and render it difficult to form an agile response to the evolving publication industry. Although many faculty reported learning about predatory publishing from colleagues and the literature, a more comprehensive understanding may be achieved through more formalized education that is targeted toward the realities of publishing in a particular field. This may alleviate pressure to publish by increasing awareness of acceptable journals in which to publish

and increase faculty confidence in publishing, evaluating, and consuming scholarship. While we know that early-career researchers are not the only ones affected by predatory publishers, it would be prudent to start this education at the graduate level to establish reliable journal selection strategies and an ongoing habit of staying current with trends in scholarly publishing. Thus, we recommend that future research seek to identify factors that affect cultural and contextual understanding of the relationship between predatory publishing and scholarly authors, and that librarians and faculty educate one another in addressing this issue. Further inquiries should also expand the multidisciplinary study of faculty knowledge of predatory publishing, as well as effective modes of educating researchers about journal selection.

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Appendix

SURVEY QUESTIONS

The survey instrument was a 56-item questionnaire. Not all questions were analyzed for this article. This appendix includes questions analyzed and reported in this manuscript. Questions below appear in the order they appeared to participants.

In your time in higher education, what is the highest level of faculty rank you have achieved? (If a previous institution used different terminology, please choose that which most closely resembles a rank at UNC.)

- Adjunct
- Lecturer
- Senior Lecturer
- Instructor
- Assistant Professor
- Associate Professor
- Full Professor
- I do not have faculty rank at UNC.

How many years have you been employed in higher education in a role in which you were required to conduct research and publish (or produce equivalent types of scholarship/creative works in your field)?

- A Qualtrics slider question allowed participants to choose from 0 to 50 years by increments of one year.

What is the highest degree you have attained? Include degrees in progress.

- Bachelor's Degree
- Master's Degree
- Doctoral Degree
- Other _____

By Carnegie Basic Classification, what research level is the institution from which you received your highest degree (or the one you are pursuing)? (Carnegie Classification Institution Lookup).

- Doctoral Universities – Very high research activity (R1)
- Doctoral Universities – High research activity (R2)
- Doctoral/Professional Universities (D/PU - previously R3)
- Master’s Colleges and Universities – Larger programs (M1)
- Master’s Colleges and Universities – Medium programs (M2)
- Master’s Colleges and Universities – Smaller programs (M3)
- Other [open text box]

Please identify the college with which you are primarily affiliated.

- Education & Behavioral Sciences
- Humanities & Social Sciences
- Monfort College of Business
- Natural & Health Sciences
- Performing & Visual Arts
- University Libraries
- Other _____

With which department/program/school are you affiliated? Please provide the smallest identifiable unit.

- _____

How many peer-reviewed articles have you published in the last 5 years?

- A Qualtrics slider question allowed participants to choose from 0 to 30.

How many peer-reviewed articles have you published during your entire academic career?

- A Qualtrics slider question allowed participants to choose from 0 to 100.

Have you ever participated in formal performance evaluations of your peers' scholarship?

- No
- Yes

Have you heard of or encountered the following?

	Yes	No
Article processing charges (APCs)	<input type="radio"/>	<input type="radio"/>
Open access fees	<input type="radio"/>	<input type="radio"/>
Surprise fees	<input type="radio"/>	<input type="radio"/>
Color printing fees	<input type="radio"/>	<input type="radio"/>
Page fees	<input type="radio"/>	<input type="radio"/>
Submission fees	<input type="radio"/>	<input type="radio"/>

In my field, it is common to see fees associated with publishing an article.

- No
- Yes
- Unsure

I typically see fees per article in the range of: [This question appeared only if participants responded "Yes" to the previous question.]

- <\$100
- \$100-\$299
- \$300-\$499
- \$500-\$999
- \$1,000-\$1,999
- \$2,000+

[In the last section of the survey, respondents were presented with the following definition of predatory journals. Our survey launched in February 2019 prior to the Grudniewicz et al. definition being published in a December 2019 issue *Nature*.]

The final section of this survey concerns predatory journals. The main purpose of predatory journals is to profit monetarily through author fees. These journals tend to promise or promote indicators of quality that they don't fully deliver on, such as peer review, copy editing, reputable editorial boards, impact factors, etc. Predatory journals often exploit the Open Access model, but not all predatory journals are Open Access. Predatory journals are also known as:

- scam journals
- fake journals
- hoax journals
- faux journals
- exploitative journals

Please rate how familiar you were with the term “predatory journals” prior to reading the description above.

- Not at all familiar
- Slightly familiar
- Somewhat familiar
- Moderately familiar
- Very familiar

I learned about predatory publishers from... (select all that apply) [This question appeared only if participants did not respond to the previous question with “Not at all familiar.”]

- Graduate School
- Colleagues
- Literature/articles on the topic
- Professional development through the UNC Libraries
- Professional development offered through my unit or college at UNC
- Professional development elsewhere through UNC. Please specify: _____
- Professional development outside of UNC
- Other _____

If you accidentally submitted an article to a predatory journal, and after publication discovered that it was a predatory journal, what steps would you take? Please explain. If you would do nothing, please explain.

- _____

Researchers in my field are aware of predatory publishing.

- Strongly disagree
- Disagree
- Unsure
- Agree
- Strongly agree

For a new faculty member needing publications, would it be more advantageous to publish in a predatory journal than to have no publication at all?

- Strongly disagree
- Disagree
- Unsure
- Agree
- Strongly agree

What impact do you think predatory journals have on the literature in your field?

- Negative impact
- Some positive, some negative impact
- Positive impact

Please explain the effects you think predatory journals have on the literature in your field.

- _____

What impact do you think publications in predatory journals have on an author’s reputation and/or career?

- Negative impact
- Some positive, some negative impact
- Positive impact

Please explain the effects you think publications in predatory journals have on an author’s reputation and/or career.

- _____

How should the presence of an article in a predatory publication on evaluation or application materials impact the following?

	It should count the same as any other publication	It should be only a point of commentary, discussion, or education	It should result in lower scores or consideration	It should result in denial of position/promotion
Hiring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tenure & promotion to associate professor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promotion to full professor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Have you ever penalized a colleague in their evaluation because you recognized that they listed an article(s) from a predatory journal(s) in their evaluation materials?

- I have recognized a predatory journal on an individual’s evaluation materials and penalized them
- I have recognized a predatory journal on an individual’s evaluation materials but not penalized them
- I have never recognized a predatory journal on an individual’s evaluation materials
- I have not participated in formal performance evaluations of my peers

Indicate your level of agreement with the following statements:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Researchers should be taught about predatory journals and understanding the consequences of publishing in them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Researchers need help in identifying predatory journals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important to actively combat predatory journals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to recognize predatory journals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want to know more about predatory journals/publishing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Predatory publishing will continue to be a problem in the future.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A scholar's evaluation of articles and publication venues is sufficient to address predatory journals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

To learn more about predatory publishing, I would: (Select all that apply)

- Attend/view a webinar
- Attend a face-to-face workshop/presentation
- Research on my own in the literature or on the web
- Talk to a peer/colleague
- Talk to my supervisor
- Talk to a librarian
- Seek professional development from my professional organization
- Other _____