

Scholarly publishing literacy and perceptions of predatory publishing among educational partners at a chiropractic college: a case report

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Background: Chiropractors must find, appraise, and apply high quality, peer-reviewed information sources to make evidence-based clinical practice decisions. This case report describes perceptions of scholarly publishing practices, with a focus on predatory and deceptive publishing, among chiropractic educational partners at one chiropractic college.

Case Presentation: An anonymous, online, cross-sectional survey was administered to a convenience sample of 2,476 faculty, staff, and students. The 35-item questionnaire elicited publishing experience, critical appraisal skills, knowledge of scholarly and predatory publishing, and perceptions of chiropractic journals and information resources. Respondents (n=204, 111 students, 36 faculty, 16 administrators, and 41 staff) provided usable survey responses, though skipped items were common. Twenty-six percent had published one or more peer-reviewed publications. Most self-rated themselves as novice or intermediate in their ability to perform literature searches (87%) or critically appraise research articles (82%). Forty-six percent to 69% had not read or were unsure of the quality of scientific evidence for 11 chiropractic-related journals. Fifty-seven percent were unsure or unfamiliar with predatory journals and 51% lacked confidence in recognizing these journals. Predatory practices identified included insufficient or fast peer review, editorial board and impact factor issues, publication fees, plagiarized articles, and unsolicited request for paper submissions. Sixty-one percent requested training or resources on identifying quality academic journals for publication or research.

Conclusion: Chiropractic educational partners were unfamiliar with most chiropractic journals and had little familiarity with predatory publishing. Targeted training on identifying quality academic publications, conducting literature reviews and critically appraising research articles is recommended.

Keywords: Predatory Journals as Topic; Scholarly Communication; Information Literacy; Chiropractic; Education, Professional; Libraries, Medical; Library Surveys



See end of article for supplemental content.

BACKGROUND

Chiropractors need the ability to locate, evaluate, and use high quality, peer-reviewed information sources to make evidence-based clinical practice (EBCP) decisions [1–3]. Chiropractors must have sufficient information literacy skills, including knowledge of scholarly publishing practices and core chiropractic journals and reference materials [4,5]. The profession has struggled against anti-science sentiments from its founding and more recently saw unproven claims raised purporting protective mechanisms of chiropractic treatment during the COVID-19 pandemic [6,7]. While original research and scholarship generated by chiropractic faculty and students is an area of growing emphasis [8–12], chiropractic educational partners may lack research expertise and scholarly writing skills [13–15].

Chiropractic educational partners have engaged in numerous initiatives to increase practitioner and student knowledge and skills with EBCP, noting favorable gains in attitudes and use [2]. However, persistent barriers remain, including perceived lack of time, insufficient clinical evidence, and issues with locating, critically appraising, or interpreting the literature [2,4,16–23]. These barriers may lead chiropractors and students to rely on lower quality information sources, like websites and trade publications, instead of peer-reviewed sources of scientific evidence [2].

Faculty across higher education institutions often face intense pressures to publish [24,25] which may lead some faculty to publish their works within predatory journals [26,27]. Grudniewicz et al. within *Nature* offered a comprehensive, consensus definition of predatory journals, describing them as “characterized by false or

misleading information, deviation from best editorial and publication practices, a lack of transparency, and/or use of aggressive and indiscriminate solicitation practices” [28]. Predatory publishing is a persistent problem that promotes poor scientific practices and lowers editorial standards across academic fields [29].

In this case report, the authors describe a project designed to understand the training and support needs of potential health science library users at one U.S.-based chiropractic college regarding scholarly publishing, with an emphasis on journal quality and predatory publishing. Our team sought to answer the following questions:

1. What experiences have chiropractic educational partners in our institution had with scholarly publishing, including predatory publishing?
2. What resources do faculty, students and staff in our institution use and consider as reputable sources of information about chiropractic?

CASE PRESENTATION

This single-institution, cross-sectional survey evaluated perceptions of scholarly publishing literacy among educational partners at Palmer College of Chiropractic campuses in Iowa, Florida and California. The Doctor of Chiropractic program enrolls on a trimester basis, with hundreds of new student users introduced to the David D. Palmer Health Sciences Library each term. The library has two locations and is home to the largest collection of chiropractic works in the world, which includes books, journals, audiovisual materials, models, tools, and databases to support EBCP.

This project was timely and needed for several reasons. First, library resources were undergoing re-organization related to shifts in campuses and academic programs. Secondly, scholarly publishing was encouraged on multiple levels. Chiropractic students could participate in research honors programs and were encouraged to co-author research papers and case reports in collaboration with faculty. Academic and clinical faculty and staff members could receive financial incentives for authorship of scholarly publications but reported difficulties with selecting appropriate journals for their manuscripts. Thus, we hoped to identify knowledge gaps regarding predatory publishing and chiropractic journal quality.

We submitted the protocol to the Palmer College of Chiropractic Institutional Review Board, which deemed the project exempt. The 35-item online survey was adapted from prior research on publication literacy in academic health sciences [30,31] and designed within SurveyMonkey (San Mateo, CA, USA) using a feature that prevented recipients from completing the survey more than once. Most items were multiple choice, with some open-ended questions provided. The survey asked respondents to rank relevant journals based on perceived

quality of scientific evidence. Journal titles were selected based on history within the profession [5]; availability in the library collection; topical focus on chiropractic or spine care; impact factor (IF) as an indicator of rank within the field [32]; and known sources for faculty publications. Each question was optional, and survey completion was voluntary. Six librarians pre-tested the survey to ensure its clarity and flow (Appendix A). No incentives were offered. Descriptive statistics were summarized, including the number and percentages of responses. Skipped items ranged from 0 to 78 respondents for the quantitative questions, with more items skipped in the final third of the survey, suggesting survey fatigue [33]. Open-ended questions were coded by 2 authors (JS, SAS) using a conventional approach to content analysis [34].

We emailed survey invitations to a convenience sample of 2,476 potential library users from July to August 2024. In total, 210 people responded to the invitation, consent was received for 208 surveys, with 204 containing usable data (8.2% response rate). Respondents included 111 chiropractic students, 36 faculty (including 1 resident), 41 staff members, and 16 administrators.

What Experiences Have Chiropractic Educational Partners Had with Scholarly Publishing, Including Predatory Publishing?

Chiropractic educational partners in our institution described themselves as novice (24%), intermediate (32%), advanced (33%), or expert (10%) in their knowledge of chiropractic. Respondents rated their ability to perform literature reviews as novice (44%), intermediate (43%), advanced (10%), and expert (3%). Novice (36%), intermediate (46%), advanced (14%), and expert (4%) ratings were reported for critically appraising research articles. While 74% reported no publishing experience, 53 respondents had published at least 1 peer-reviewed journal article, including 7 staff, 9 administrators, 11 students, and 26 faculty.

When asked if they were familiar with predatory journals, 43% of respondents said yes, 42% said no, and 15% were unsure; among those replying no/unsure, 76% were students, 54% staff, 22% faculty, and 13% administrators. Respondents were divided evenly between confidence (49%) or not confident (51%) about identifying a predatory journal, with non-confidence reported by 64% of students, 50% staff, 35% faculty, and 13% administrators. 21% of respondents had received an email invitation to submit papers, 12% had colleagues/friends recommend articles, 7% were invited to join editorial boards, and 6% had read articles. The majority had not used Think, Check, Submit (93%) to assess if a journal title was predatory [35].

Table 1 depicts the characteristics of predatory journals identified in a survey checklist and described in open-ended responses. Respondents identified many characteristics ascribed to deceptive publications, such as

no/insufficient peer-review (71%), no/fake editorial board (68%), promise of fast publication (59%), high publication fees (55%), no/use of fake impact factors (53%), publication of plagiarized articles (53%), and unsolicited requests for articles (52%). Open-ended responses (n=120) added the characteristics of low quality of journal content, misinformation or ulterior motives for publishing decisions, and unethical practices.

What resources do faculty, students and staff in our institution use and consider as reputable sources of information about chiropractic?

Chiropractic academic journals were the most popular information sources for research or professional development (71%). DynaMed/medical platforms (54%) and health sciences journals (53%) also were referenced.

Table 1

Characteristics of predatory journals identified by chiropractic educational partners

Predatory journal characteristic	% Respondents		Open-ended response example
	Survey Items	Open-Ended	
No/insufficient peer-review	70%	25%	Journal that charges you but does not perform proper evaluation of the submitted work
No/fake editorial board	68%	0	--
Promise of fast publication	59%	3%	A business disguised as a journal that charges high publication costs in return for fast publication times due to a lack of proper peer-review.
High fees/publication on payment	55%	34%	A journal enticing authors to publish on their journals for a fee to receive peer review status or accelerate the publication of an article.
No/fake impact factors	53%	0	--
Plagiarized articles	53%	0	--
Unprofessional layout	53%	0	--
Unsolicited request for articles	52%	12%	Bush league journals that seek out authors to include in their publications (and charge fees).
Articles with poorly written English	48%	0	--
Low content quality	0	21%	Journal prioritizes collection of fees from authors at the expense of conducting appropriate peer review and/or ensuring the scientific integrity and/or quality of published articles (if they are published at all).
Misinformation or ulterior motive	0	18%	Journal that goes out of their way to spread misinformation
Unethical	0	6%	Journal that looks legit, but has practices that draw in articles, and then say you have to pay to get it published or does not properly cite the articles in it.
Publication schedule [#]	1%	0	--
Reputable publisher [#]	1%	0	--
Indexed in MEDLINE [#]	0.7%	0	--
Not sure/do not know	16%	17%	I have never heard the term predatory journal.
Skipped item	n=64	n=10	

[#]Item included as example of standard academic publishing practice

Within these publications and platforms, systematic reviews/meta-analyses (63%), case reports/series (56%), clinical practice guidelines (51%), clinical trials (51%), and review articles (50%) were the most frequently consulted sources. When evaluating resources for quality, respondents' top criteria were reported as the journal itself (64%), study design (57%), and publication status (i.e., peer-reviewed vs pre-print) (51%). Most (86%) correctly defined open-access as a manuscript published in a journal with peer-review and which is freely distributed online. Only 54% selected the correct definition of an article pre-print as a manuscript published in a digital version, but which has not gone through the peer-review process.

News about chiropractic, that is, information about the profession that is not necessarily based on research, was sourced from scientific journals and research databases (66%), social media (39%), professional or governmental websites (37%), DynaMed/medical platforms (32%), televised reports (10%), and Research Square/pre-print platforms (2%), while 'other' sources included professional associations, conferences, institutional communications, chiropractic educational institution websites, holistic health magazines, blogs, or podcasts. Nearly half (48%) reported checking 2 to 5 references before sharing information with colleagues, while 19% checked at least 1 additional resource.

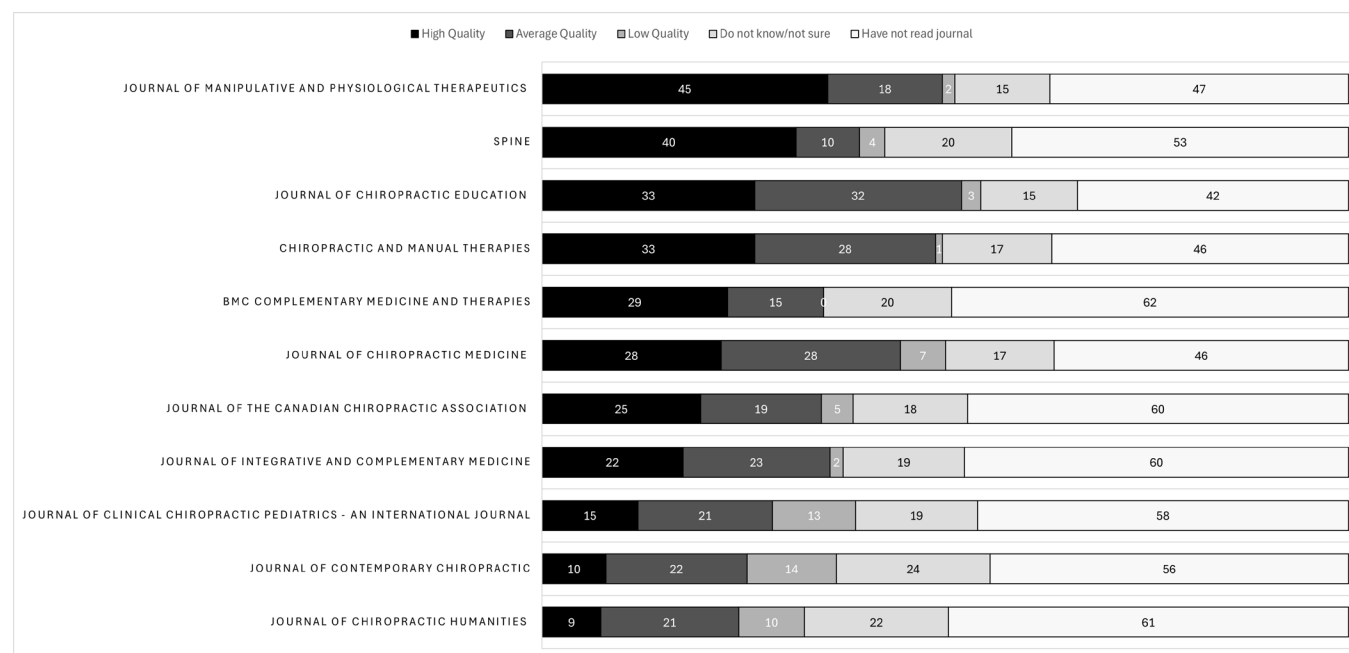
Figure 1 depicts chiropractic journals rated on the perceived quality of scientific evidence. Journals rated as

higher quality by greater than 30% of respondents were *Journal of Manipulative and Physiological Therapeutics* (IF 1.5), *Spine* (IF 4.6), *Journal of Chiropractic Education* (IF 0.7), and *Chiropractic and Manual Therapies* (IF 2), which generally aligned with the journal impact factors. Journals ranked of average or lower quality were often indexed only in the *Index of Chiropractic Literature* [36] and did not have IF ratings. These findings indicated respondents' unfamiliarity with many chiropractic journals (46% to 69% having no-to-little knowledge of various journals), with 61% interested in receiving training on how to identify quality academic journals.

DISCUSSION

This case report explored perceptions of scholarly publishing literacy among educational partners at one chiropractic college. Only 26% of respondents reported authorship of a peer-reviewed publication, although this included students, staff, faculty and administrators. Most respondents, especially students, considered themselves at the novice or intermediate level of ability in conducting literature searches and critically reviewing journal articles, which is similar to other studies within chiropractic [2,13,17]. Informal and formal training initiatives, support, and mentorship in scholarly activities may be helpful to develop these skill sets, as was noted in a recent scoping review of faculty scholarship in chiropractic [8]. Chiropractic educational partners were somewhat inexperienced with deceptive publishing practices, as

Figure 1 Chiropractic journal titles rated on the quality of their scientific evidence



only 43% were familiar with predatory journals and 49% expressed confidence in recognizing such publications. Swanberg and colleagues reported similar knowledge gaps as 40% of university and medical faculty in their institution could not correctly identify predatory journals [37]. Faculty across academic settings report high concerns and low familiarity with predatory publishers [38,39]. Although lacking confidence, respondents correctly identified common characteristics of predatory journals [40]. Librarians can instruct educational partners about the characteristics of predatory publishers, including the strategies used by such journals to solicit articles and the problems when such articles are integrated into clinical practice guidelines and similar reviews [37,41,42]. Librarians also can ensure that library collections do not contain these journals [43].

According to the 2018 Council on Chiropractic Education (CCE) Accreditation Standards meta-competency 6 “Information and Technology Literacy”, doctor of chiropractic programs have the curricular objective to prepare students to “locate, critically appraise and use relevant scientific literature and other evidence” with the outcome that “students will be able to use relevant scientific literature and other evidence to inform patient care” [44]. Chiropractic students have reported deficits in their research literacy, such as in their ability to access peer-reviewed journals, identify study designs, and select successful search strategies [13,45]. Respondents displayed low level of familiarity with many chiropractic journals (46% to 69%), as was noted in other recent publications [27,46]. Further, only 2 titles received quality rankings from the majority of faculty and administrators. While respondents reported using a variety of information sources, many had a high reliance on case reports, non-peer-reviewed resources, and social media. Not surprisingly, 61% of respondents expressed interest in training and resources on information literacy and scholarly publishing.

Health sciences librarians working in chiropractic academic institutions may be well placed to lead such efforts, as chiropractic students are receptive to educational interventions offered within the library setting [13,45,47]. Librarians in our institution have implemented initiatives aimed at increasing student and faculty awareness of high-quality publications, including regular newsletters highlighting recently published chiropractic research in prominent health sciences journals. Workshops and resources on scholarly publishing, including predatory publishing and how to select information resources may be warranted. Although not specifically surveyed in this study, we also foresee the need to incorporate information on artificial intelligence (AI) literacy into these tools and trainings [48].

One strength of this case report was its focus on scholarly publication literacy, including knowledge of predatory publishing practices, among chiropractic educational

partners, a population for which limited information is available. This survey had its limitations. Our response rate was 8.4%, which is consistent with low responses reported in similar surveys in health sciences settings [37,49]. Incentives, shorter surveys, survey administration timing, or tailored project information to subgroups might improve response rates. Targeted deployment, such as types of staff invited, may have improved the response. Selection bias is present in any convenience sample, so our results might reflect those with an interest in scholarly publication. Our team modified published survey instruments [30,31]. This modification could have benefited from pre-testing with students to ensure comprehension of item wording and to decrease the overall number of items, which might have led to fewer skipped questions. Future studies might build upon this single-institution case report to explore scholarly publication literacy at chiropractic training programs worldwide, which could increase generalizability.

ACKNOWLEDGEMENTS

The authors thank Christine Deines for her support of this project. We also thank Onnica Marquez, Rosemary Riess, Brenda Ross, Leslie Ross, and May Wu for pre-testing the survey instrument.

Departmental funds were received from David D. Palmer Health Sciences Library of Palmer College of Chiropractic to pay for the cost of SurveyMonkey.

DATA AVAILABILITY STATEMENT

Data associated with this article are available in the Open Science Framework at <https://osf.io/sm8nw/>.

Registration: Open Science Framework, <https://osf.io/dspra>.

AUTHOR CONTRIBUTIONS

Jennifer Smith: Conceptualization; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Writing – original draft; Writing – review & editing. Edward Murphy: Conceptualization; Formal analysis; Investigation; Methodology; Writing – review & editing. Stacie Salsbury: Conceptualization; Formal Analysis; Investigation; Methodology; Supervision; Visualization; Writing – Review & Editing.

REFERENCES

1. Odhwani AS, Sarkar PK, Giggelman GF, Holmes MM, Pohlman KA. Self-perceived evidence-based practice competencies: a survey of faculty and students at a chiropractic institution. *J Chiropr Educ*. 2021 Mar 1;35(1):22–7. <https://doi.org/10.7899/JCE-18-24>.

2. Bussi res AE, Al Zoubi F, Stuber K, French SD, Boruff J, Corrigan J, Thomas A. Evidence-based practice, research utilization, and knowledge translation in chiropractic: a scoping review. *BMC Complement Altern Med*. 2016 Jul 13;16:216. <https://doi.org/10.1186/s12906-016-1175-0>.
3. Walker BF. The new chiropractic. *Chiropr Man Therap*. 2016 Jun 30;24:26. <https://doi.org/10.1186/s12998-016-0108-9>.
4. LeFebvre R, Peterson D, Haas M. Evidence-based practice and chiropractic care. *J Evid Based Complementary Altern Med*. 2012 Dec 28;18(1):75-79. <https://doi.org/10.1177/2156587212458435>.
5. Mansholt BA, Stites JS, Derby DC, Boesch RJ, Salisbury SA. Essential literature for the chiropractic profession: a survey of chiropractic research leaders. *Chiropr Man Therap*. 2013 Sep 27;21(1):33. <https://doi.org/10.1186/2045-709X-21-33>.
6. Keating JC. Chiropractic: science and antiscience and pseudoscience side by side. *Skept Inq*. 1997;37-43.
7. Ax n I, Bergstr m C, Bronson M, C t  P, Nim CG, Goncalves G, H bert JJ, Hertel JA, Innes S, Larsen OK, Meyer AL, O'Neill S, Perle SM, Weber KA 2nd, Young KJ, Leboeuf-Yde C. Misinformation, chiropractic, and the COVID-19 pandemic. *Chiropr Man Therap*. 2020 Nov 18;28(1):65. <https://doi.org/10.1186/s12998-020-00353-2>.
8. Anderson B, Shannon K, Baca K, Crouse J, Ferguson A, Margrave A, Meyers M, Percuoco K, Schneider P, Smith J, VanNatta M, Wells B, Nightingale L, Salisbury SA. A scoping review to identify barriers and facilitators of research participation among chiropractic faculty. *J Chiropr Educ*. 2024 Mar 4;38(1):50-59. <https://doi.org/10.7899/jce-23-7>.
9. Tunning MJ, Derby DC, Krell-Mares KA, Barber MR. Building a chiropractic academy of educators: a needs assessment of selected faculty educators. *J Chiropr Educ*. 2017 Oct 1;31(2):102-8. <https://doi.org/10.7899/jce-16-14>.
10. Weis CA, Howarth SJ, Grondin D, Southerst D, Fillery M, D'Arcy J, Bradaric-Baus C, Mior S. Assessing research culture and capacity amongst faculty at a north American chiropractic institution: an explanatory mixed methods study. *Chiropr Man Therap*. 2024 Nov 20;32(1):35. <https://doi.org/10.1186/s12998-024-00558-9>.
11. Adams J, Kawchuk G, Breen A, De Carvalho D, Eklund A, Fernandez M, Funabashi M, Holmes MM, Johansson MS, de Luca K, Moore C, Pag  I, Pohlman KA, Swain MS, Wong AYL, Hartvigsen J. Leadership and capacity building in international chiropractic research: introducing the chiropractic academy for research leadership (CARL). *Chiropr Man Therap*. 2018 Feb 6;26:5. <https://doi.org/10.1186/s12998-018-0173-3>.
12. Coulter ID, Herman PM. The research crisis in American institutions of complementary and integrative health: one proposed solution for chiropractic profession. *Chiropr Man Therap*. 2019 Jun 17;27:32. <https://doi.org/10.1186/s12998-019-0251-1>.
13. Ward KL, Gatti BLD, Osenga A, Odierna DH, Smith M. Information literacy of matriculating chiropractic students assessed via research readiness survey. *J Chiropr Educ*. 2023 Mar 1;37(1):20-25. <https://doi.org/10.7899/jce-21-48>.
14. de Luca K, Tuchin P, Bonello R. A web-based survey of the motivations and challenges faced by emerging researchers in the chiropractic profession. *J Chiropr Educ*. 2015 Oct;29(2):151-8. <https://doi.org/10.7899/jce-14-35>.
15. Palmgren PJ, Bolander Laksov K. Exploring chiropractic students' experiences of the educational environment in healthcare professional training: a qualitative study. *BMC Med Educ*. 2015 Aug 5;15(1):128. <https://doi.org/10.1186/s12909-015-0417-z>.
16. Albisser A, Schweinhardt P, Bussi res A, Baechler M. Self-reported attitudes, skills and use of evidence-based practice among Swiss chiropractors: a national survey. *Chiropr Man Therap*. 2022 Dec 20;30(1):59. <https://doi.org/10.1186/s12998-022-00462-0>.
17. Walker BF, Stomski NJ, Hebert JJ, French SD. Evidence-based practice in chiropractic practice: A survey of chiropractors' knowledge, skills, use of research literature and barriers to the use of research evidence. *Complement Ther Med*. 2014 Apr;22(2):286-95. <https://doi.org/10.1016/j.ctim.2014.02.007>.
18. Leach MJ, Palmgren PJ, Thomson OP, Fryer G, Eklund A, Lilje S, et al. Skills, attitudes and uptake of evidence-based practice: a cross-sectional study of chiropractors in the Swedish Chiropractic Association. *Chiropr Man Therap*. 2021 Jan 11;29(1):2. <https://doi.org/10.1186/s12998-020-00359-w>.
19. Schneider MJ, Evans R, Haas M, Leach M, Hawk C, Long C, et al. US chiropractors' attitudes, skills and use of evidence-based practice: A cross-sectional national survey. *Chiropr Man Therap*. 2015 May 4;23(1):16. <https://doi.org/10.1186/s12998-015-0060-0>.
20. Bussi res AE, Terhorst L, Leach M, Stuber K, Evans R, Schneider MJ. Self-reported attitudes, skills and use of evidence-based practice among Canadian doctors of chiropractic: a national survey. *J Can Chiropr Assoc*. 2015 Dec;59(4):332-48.
21. Walker BF, Stomski NJ, Hebert JJ, French SD. A survey of Australian chiropractors' attitudes and beliefs about evidence-based practice and their use of research literature and clinical practice guidelines. *Chiropr Man Therap*. 2013 Dec 17;21(1):44. <https://doi.org/10.1186/2045-709x-21-44>.
22. Haas M, Leo M, Peterson D, LeFebvre R, Vavrek D. Evaluation of the Effects of an Evidence-Based Practice Curriculum on Knowledge, Attitudes, and Self-Assessed Skills and Behaviors in Chiropractic Students. *Journal of Manipulative and Physiological Therapeutics*. 2012 Nov 1;35(9):701-9. <https://doi.org/10.1016/j.jmpt.2012.10.014>.
23. Banzai R, Derby DC, Long CR, Hondras MA. International web survey of chiropractic students about evidence-based practice: a pilot study. *Chiropr Man Therap*. 2011 Mar 3;19(1):6. <https://doi.org/10.1186/2045-709x-19-6>.
24. Partridge BL, Scott ZE, Roecker CB, Walters SA, Daniels CJ. Burnout amongst chiropractic faculty, practitioners, and trainees: a scoping review. *Chiropr Man Therap*. 2024 Oct 7;32(1):29. <https://doi.org/10.1186/s12998-024-00550-3>.
25. Major CA, Visconti S, Novak M, Ross K, Burnham KD. Relationship between satisfaction of work-related needs and forms of motivation for the pursuit of scholarly activity by chiropractic faculty. *J Chiropr Educ*. 2024 Oct 23;38(2):142-147. <https://doi.org/10.7899/jce-24-4>.

26. Zhao L. Riding the wave of open access: providing library research support for scholarly publishing literacy. *Aust Acad Res Libr*. 2014 Jan 2;45(1):3–18. <https://doi.org/10.1080/00048623.2014.882873>.
27. Lawrence D. Editorial: taking the path of least resistance: 40+ years of editing chiropractic research. *J Contemp Chiropr*. 2024 May;7(1):91–95.
28. Grudniewicz A, Moher D, Cobey KD, Bryson GL, Cukier S, Allen K, Arden C, Balcom L, Barros T, Berger M, Ciro JB, Cugusi L, Donaldson MR, Egger M, Graham ID, Hodgkinson M, Khan KM, Mabizela M, Manca A, Milzow K, Mouton J, Muchenje M, Olijhoek T, Ommaya A, Patwardhan B, Poff D, Proulx L, Rodger M, Severin A, Strinzel M, Sylos-Labini M, Tamblyn R, van Niekerk M, Wicherts JM, Lalu MM. Predatory journals: no definition, no defence. *Nature*. 2019 Dec 12;576(7786):210–212. <https://doi.org/10.1038/d41586-019-03759-y>.
29. Beall J. Predatory journals threaten the quality of published medical research. *J Orthop Sports Phys Ther*. 2017 Jan;47(1):3–5. <https://doi.org/10.2519/jospt.2017.0601>.
30. Kabulo KDM, Kanmounye US, Ntshindj SM, Yengayenga K, Takoutsing BD, Ntenga P, Jokonya L, Ntalaja J, Esene I, Musara A, Nday G, Kalau WA, Kaluile Ntenga Kalangu K. Vulnerability of African neurosurgery to predatory journals: an electronic survey of aspiring neurosurgeons, residents, and consultants. *World Neurosurg*. 2022 May;161:e508–e513. <https://doi.org/10.1016/j.wneu.2022.02.051>.
31. Nicolalde B, Añazco D, Jaramillo-Cartwright MJ, Salinas I, Pacheco-Carrillo A, Hernández-Chávez S, Moyano G, Teran E. Scientific literacy and preferred resources used by Latin American medical students during the COVID-19 pandemic: a multinational survey. *F1000Res*. 2022 Mar 21;11:341. <https://doi.org/10.12688/f1000research.109398.2>.
32. Dong P, Loh M, Mondry A. The "impact factor" revisited. *Biomed Digit Libr*. 2005 Dec 5;2(1):7. <https://doi.org/10.1186/1742-5581-2-7>.
33. Ghafourifard M. Survey fatigue in questionnaire based research: the issues and solutions. *J Caring Sci*. 2024;13(4):148–9. doi: 10.34172/jcs.33287.
34. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res*. 2005 Nov;15(9):1277–88. <https://doi.org/10.1177/1049732305276687>.
35. Cortegiani A, Shafer SL. "Think. Check. Submit." to avoid predatory publishing. *Crit Care*. 2018 Nov 14;22(1):300. <https://doi.org/10.1186/s13054-018-2244-1>.
36. Harvey PJ. The Index to Chiropractic Literature: twenty-five years of progress. *Chiropr Hist*. 2008 Jun 1;28(1):83–93.
37. Swanberg SM, Thielen J, Bulgarelli N. Faculty knowledge and attitudes regarding predatory open access journals: a needs assessment study. *J Med Libr Assoc*. 2020 Apr;108(2):208–218. <https://doi.org/10.5195/jmla.2020.849>.
38. Oermann MH, Waldrop J, Nicoll LH, Peterson GM, Drabish KS, Carter-Templeton H, Owens JK, Moorman T, Webb B, Wrigley J. Research on predatory publishing in health care: a scoping review. *Can J Nurs Res*. 2023 Dec;55(4):415–424. <https://doi.org/10.1177/08445621231172621>.
39. Webber N, Wiegand S. A multidisciplinary study of faculty knowledge and attitudes regarding predatory publishing. *J Librar Scholar Commun*. 2022 Jul 29;10(1). <https://doi.org/10.31274/jlsc.13011>.
40. de Leeuw E. 'Collaborate now with worldwide physicians and scientists!' – the obscenity of predatory science. *Health Promot Int*. 2020 Aug 1;35(4):633–638. <https://doi.org/10.1093/heapro/daaa078>.
41. Ross-White A, Godfrey CM, Sears KA, Wilson R. Predatory publications in evidence syntheses. *J Med Libr Assoc*. 2019 Jan;107(1):57–61. <https://doi.org/10.5195/jmla.2019.491>.
42. Buitrago Ciro J, Bowker L. Investigating academic library responses to predatory publishing in the United States, Canada and Spanish-speaking Latin America. *AJIM*. 2020 July 6;72(4):625–52. <https://doi.org/10.1108/AJIM-03-2020-0089>.
43. Wilson P. Unsolicited solicitations: identifying characteristics of unsolicited emails from potentially predatory journals and the role of librarians. *J Med Libr Assoc*. 2022 Oct 1;110(4):520–524. <https://doi.org/10.5195/jmla.2022.1554>.
44. The Council on Chiropractic Education CCE Accreditation Standards: Principles, Processes & Requirements for Accreditation [Internet]. The Council on Chiropractic Education; 2018. [cited 24 Apr 2025]. https://www.cce-usa.org/uploads/1/0/6/5/106500339/2018_cce_accreditation_standards.pdf.
45. Ward KL, Johnson DF, Delli Gatti BL, Smith M. Evaluating students' research literacy knowledge, confidence, and attitudes at the beginning and end of a doctor of chiropractic program. *J Chiropr Educ*. 2024 Mar 4;38(1):38–41. <https://doi.org/10.7899/jce-23-19>.
46. Song YP, Liu JL, Zong CZ, Zhang FS, Ren YF, Ching YL, Wang YX, Li WX, Zhao H, Huang YR, Gao K. A bibliometric study on trends in chiropractic research from 1920 to 2023. *Complement Ther Med*. 2024 Jun;82:103038. <https://doi.org/10.1016/j.ctim.2024.103038>.
47. Tukhareli N. Library as a therapeutic landscape promoting health and well-being to chiropractic students: a descriptive report. *J Chiropr Humanit*. 2024 Dec 1;31:48–54. <https://doi.org/10.1016/j.jechu.2024.08.001>.
48. Hicks A. Already invested or absolutely incandescent? AI, scholarly publishing and information literacy. *J Info Lit*. 2024 Dec 3;18(2):1–5. <https://doi.org/10.11645/18.2.679>.
49. Conlogue BC, Gilman NV, Holmes LM. Open access and predatory publishing: a survey of the publishing practices of academic pharmacists and nurses in the United States. *J Med Libr Assoc*. 2022 Jul 1;110(3):294–305. <https://doi.org/10.5195/jmla.2022.1377>.



SUPPLEMENTAL FILES

Appendix A: Survey Instrument

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Received April 2025; accepted June 2026



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ISSN 1558-9439 (Online)