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The Hybrid Model has more Article Processing Charges than Open-Access: An Analysis of Top 50 Psychiatry Journals

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Abstract

Background: Article processing charges (APCs) are a major concern for the researchers globally. We aimed to assess the differences of APCs between open-access and hybrid models and the association of APCs of the top 50 psychiatry journals.

Methods: We used the Scimago Journal Rank (SJR) website to acquire the free information. The associations of APCs of the top 50 psychiatry journals and the differences in APCs between open-access and subscription models were assessed. Additionally, we gathered data on the APCs from the websites of other journals.

Results: Out of 50 journals examined, only one used a subscription model. Elsevier published the majority (14), followed by Wiley (8), Springer (6), and Cambridge University Press (4). 45 journals had an APC, with 12 using open-access and 33 using hybrid models. The mean APC was $3711.4 (±1007.7) USD, with open-access averaging $3086.7 (±1231.7) USD and hybrids averaging $3938.5 (±821.8) USD. APC and Scimago Journal Rank (SJR) scores had a moderate correlation (rs = 0.54; p= 0.001).

Conclusions: Psychiatry journals have seen more open-access publications in the past decade, resulting in higher article processing charges. Hybrid journals charge more for open-access publications than purely open-access journals. Regulating APCs is important to ensure quality research is published.

Keywords

Article processing charges, Journals, Open-access, Hybrid model, Subscription modelPsychiatry

INTRODUCTION

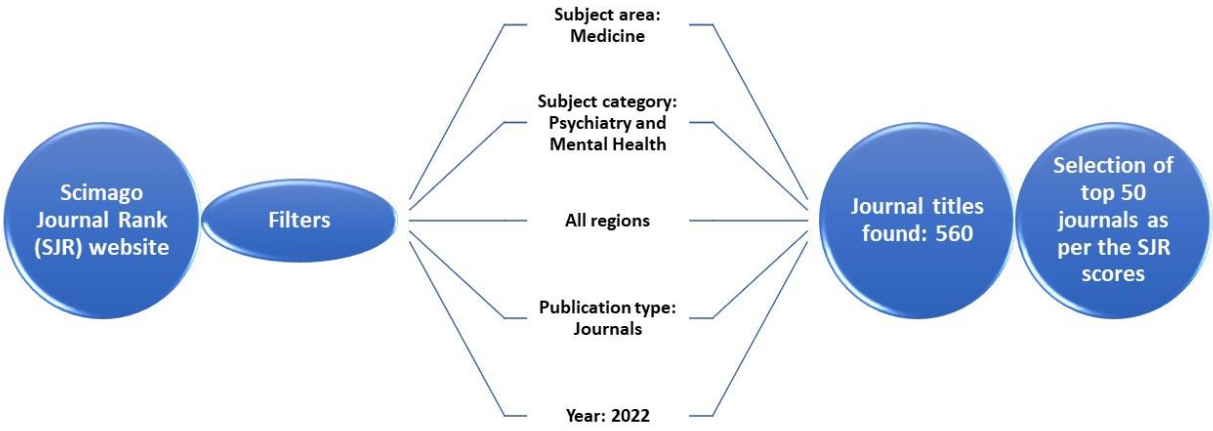
Scientific journals broadly operate in one of three modes: a purely subscription mode; a purely open-access mode; and a combination of the previous two, namely, a hybrid mode. In recent years, there has been an increasing trend for open-access journals that require authors to pay the APCs for the publishing of their manuscript which is then made freely accessible to readers (Björk and Solomon, 2012; Laakso et al., 2011). Over the past two decades, the open-access scientific publication model has evolved significantly despite most scientific journals being subscription-based even in the late 1990s (Björk and Solomon, 2012; Laakso et al., 2011; Schimmer et al., 2015; Solomon et al., 2013). Articles published in open-access journals are more frequently cited than those published in subscription journals (Solomon et al., 2013). Also, articles published in open-access journals that fund publishing with APCs are more cited than other open-access journals that do not fund publishing (Björk and Solomon, 2012).

As open-access articles are frequently cited, over time, they may increase the impact factor and rank higher among scientific journals (Pisoschi and Pisoschi, 2016). An increased impact factor and a better ranking of the journal may attract more submissions, and subsequently, the publishing house further increases the APCs. This vicious cycle goes results in the publishing houses getting richer exhausting the finances/ funding of the researchers (American Journal Experts, 2017; Beall, 2012; Enserink, 2012; Krawczyk and Kulczycki, 2021). Entry of predatory journals (journals that charge a fee for publication without a peer-review) has significantly contami-

nated research publishing (Beall, 2012; Krawczyk and Kulczycki, 2021). Unfortunately, there is no mechanism to control this process of publication. As a result of the challenges of working in such a publication process, there are multiple instances of editors and editorial board members resigning from their posts (Dyer, 2023; Kincaid, 2023; Mudur, 2023; Sanderson, 2023).With this background, we aimed to assess the differences of APCs between open-access and subscription models (if any), and the association of APCs to journal ranking.

METHODS

We accessed the freely available information at the Scimago Journal Rank (SJR) website (Scimago Journal Rank, 2023). SJR collates the information from the *Scopus* database. We searched the database using the following filters: Subject area- Medicine; Subject Category- Psychiatry and Mental Health; All regions; Publication type- Journals; Year- 2022. A total of 560 journal titles were available with the journals organized according to the rank of their SJR score (Figure 1). In addition, we collected the H index of the journal; the total documents in the past 3 years; the total citable documents in the past 3 years; and the total cites in the past 3 years. We considered APCs of the journals as a dependent variable and we collected information about the APCs from individual journal websites. The extracted data was cleaned in Microsoft Excel for Windows version 10 and analyzed by Statistical Package for the Social Sciences (SPSS) version 28. We considered the APCs in USD, converting those that were not available into USD. We performed the *Spearman rho* test to assess the correlation between APCs and other variables as the data was non-parametric. We performed the independent *t-test* for comparing the means of APCs of the subscription model and open access journals. As data was collected from publicly available sources, we did not seek ethical approval.



RESULTS

Among the 50 journals, only one published in the purely subscription model (*American Journal of Psychiatry*), 14 by Elsevier, followed by Wiley (n=8), Springer (n=6), Cambridge University Press (n=4), BMJ (n=2), Routledge (n=2), Sage (n=2), Karger (n=1), Lippincott (n=1), and Oxford University Press (n=1). The remaining nine journals were published by various academic societies and associations. Among the selected top 50 journals, APCs were noted in 45 journals and analysed. Among these 45 journals, 12 had the open-access model and the rest had hybrid models. The mean (±SD) APCs were 3711.4 (±1007.7) USD which was 3938.5 (±821.8) USD for the hybrid model and 3086.7 (±1231.7) USD for the open-access model. The difference was statistically significant (p= 0.0104). We also found a moderate correlation between APCs and the SJR scores (rs = 0.54; p= 0.001) indicating APCs of the journal depend on the SJR score (Table 1). No other significant association was noted.

Table 1. The correlation between APC and other factors (n=45)

	Correlational analysis	p-value
SJR score	rs = 0.54	0.001
H index of the journal	rs = 0.24	0.108
Total documents in past 3 years	rs = 0.19	0.206
Total citable documents in past 3 years	rs = 0.09	0.517
Total cites in past 3 years	rs = 0.25	0.091

APC: Article Processing Charges
SJR: Scimago Journal Rank

DISCUSSION

Over past several decades research publications in psychiatry have grown exponentially (Andreassen et al., 2023). To keep pace with the increasing research submissions, there has been an introduction of several new journals in the field of psychiatry and allied sciences (Andreassen et al., 2023; Bornmann et al., 2021). Research publications give each researcher a unique identity, helping them get academic promotions and research grants as well as improve their institution´s ranking in terms of academic reputation in the field of research and development, there is a race among the researchers to publish (Patra and Sarkar, 2013; Rawat and Meena, 2014; Schimanski and Alperin, 2018)promotion, and tenure (RPT. In this race, many researchers try to find an easy route to publication by choosing journals that claim a faster review and publish research quickly at the cost of article submission or APCs (Kurt, 2018; Mertkan et al., 2021). Our study of the top 50 psychiatry journals found a significant positive correlation between the SJR score and article processing charges (APCs), indicating higher SJR score journals have higher APCs. A study evaluated 535 open access journals launched independently by the publishers. The findings of this study suggest that higher APCs are levied for open-access journals that are more frequently cited and publish more articles (Asai, 2020). According to this research, major subscription journal publishers often do not establish higher manuscript processing fees for their open-access publications (Asai, 2020). In our study, among the top 50 journals of psychiatry, there is significantly higher APCs charged by the hybrid journals than the open-access journals. Research evidence suggest that journals increase their APCs with the increase in their journal´s ranking and its impact factors (Asai, 2021). Being attracted by the impact factors, authors tend to pay more resulting in financial exhaustion (American Journal Experts, 2017; Beall, 2012; Krawczyk and Kulczycki, 2021). In 2012, the SJR website showed that of the top 50 psychiatry journals, 6 were open-access. However, the number of open-access journals in the top 50 psychiatry journals have doubled in the past 10 years (Scimago Journal Rank, 2023).

Over past decade, there has been an increased use of *Sci-Hub* by researchers across the globe to access most scientific articles, that are otherwise only available with a costly subscription fee, freely (Himmelstein et al., 2018). Now, researchers are accessing articles through Sci-Hub resources, and thus, are able to cite them, which would not have been possible otherwise. This resulted in an increase of citations of subscription model articles downloaded through Sci-Hub (Correa et al., 2022). Though Sci-Hub provided free access to researchers who cannot afford to purchase or procure the articles; it caused significant financial loss to the big publishing industries (McNutt, 2016). It might be a perceived threat to the financial gain from the subscription model as the authors did not pay publication costs and the readers could read the article for free. Possibly, it tempted the publishing houses to move towards the open-access model, where the authors pay the APCs immediately after acceptance of their manuscript and the articles are freely available to readers (Hagve, 2020; *Journal of Applied Clinical Medical Physics*, 2016; Sindwani and Chandra, 2018; Vervoort et al., 2021). So, the readers don't feel the need to search for any other resources; the journals take the credit for providing free articles to the global readers while taking huge sums from the authors. As there is a lot of money involved in the business of academia, the publishing houses choose favourable financing strategies for financial gain (Hagve, 2020).

APCs could be a good traffic control measure for journal submission sites. Only the researchers, who can pay the APCs, submit their work to open-access journals (Jain et al., 2021). The door of submission is closed to those who are incapable of paying irre-

spective of the quality of their research work. These researchers would struggle publishing their research in the subscription model journals and settle with an open-access journal with low APCs or even with a predatory journal. A majority of journals exempt the APCs and some journals offer relaxation or discounts in APCs for researchers from low-and middle-income countries (Edem et al., 2021; Jain et al., 2021). However, the research submissions from these countries are significantly less in number (Edem et al., 2021). The majority of research submissions have to face the barrier of APCs. Many researchers are already struggling with non-funded projects: thus, they do not have the funds to pay for APCs (Edem et al., 2021).

Journal published by societies and universities tend to charge lower APCs compared to those journals published independently by publishing houses (Solomon and Björk, 2012). Many psychiatry societies (e.g., World Psychiatric Association, Indian Psychiatric Society) and universities (e.g., Shanghai Mental Health Center) publish open access journals and do not charge authors APCs (Indian Psychiatric Society, 2023; Shanghai Mental Health Center, 2023; World Psychiatric Association, 2023). Publication of research papers should be evaluated on the basis of merit and not on the financial status of the researcher to pay the APCs. This will help in the growth of science worldwide. Unfortunately, the marketing of journals over-shadows science.

CONCLUSION

The number of open access journals among the top 50 psychiatry journals doubled over the past 10 years. Better journal ranking is associated with higher APCs. Hybrid journals charge more APCs for open-access publication than purely open-access journals. There is a need to regulate the APCs to promote publication of quality research.

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