

Attitudes of Physicians and Scientists to Peer Reviewing for Biomedical Journals: A Survey from the Middle East and Africa

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Abstract

Introduction: Peer review is vital to the scientific publishing process. However, the present system has been criticized and accused of bias, lack of transparency, and failure to detect significant breakthroughs. Peer reviewers usually work pro bono, and their efforts are not formally acknowledged. Some journals have difficulty finding appropriate reviewers who can complete timely reviews, resulting in significant publication delay. **Materials and Methods:** An online survey of a convenience sample of clinicians and biomedical scientists from the Middle East (107) and Africa (69) was conducted to explore why reviewers decline to review and to ascertain their opinions on reviewer incentives. Items were scored on 5-point Likert scales, with low scores indicating low importance or low agreement. **Results:** One hundred and seventy two respondents provided adequate responses for analysis. Factors rated most highly in importance for the decision to accept to review a paper included contribution of the paper to the subject area (69.8%), the relevance of the topic to own work (66.0%), and desire to keep up to date with research (63.8%). The most highly rated factor that was important in the decision to decline to review was conflict with other workloads (69.4%), followed by low quality of submissions and tight time scale (65.8% for both), and lack of interest (65.1%). Most respondents agreed that financial incentives would not be effective when time constraints are prohibitive. However, reviewers agreed that nonfinancial incentives might encourage reviewers to accept requests to review: annual acknowledgment on the journal's website (78.5%), more feedback about the outcome of the submission (74.3%) and quality of the review (73.0%), appointment of reviewers to the journal's editorial board (69.1%), and being offered free subscription to the journal content (68.7%). **Conclusions:** Reviewers are more likely to accept to review a manuscript when it is relevant to their area

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of interest. Lack of time is the principal factor in the decision to decline. Reviewing should be formally recognized by academic institutions, and journals should acknowledge reviewers' work.

Keywords: Developing regions, medical journalism, peer review, research, scholarly publishing

INTRODUCTION

Editorial peer reviewing did not become general until sometime after World War II. Editorial peer review procedures did not spread in an orderly way; they were not developed from editorial boards and passed on from journal to journal.^[1,2] The importance of peer reviewing articles submitted to scientific journals has become an essential part of scientific publishing.^[3,4] It has been criticized for being ineffective, slow and expensive with consequent calls to its reform.^[5] Nonetheless, it remains the gold standard for scholarly publishing today evidenced by its wide practice and requirement to enter international databases.

Reviewers are unpaid, and their efforts are not formally acknowledged. However, journal editors depend on them to inform publication decisions and to improve the quality of submitted manuscripts that are potentially publishable.^[3,4] Editors of journals have frequently complained of difficulty finding appropriate reviewers. This can result in publication delay and may even lower the quality of manuscripts.^[5,6]

Some studies attempted to find ways of improving the quality of peer reviews. Reported interventions that have been attempted include providing formal feedback, the conduct of training workshops, and the use of self-taught training materials.^[7,8] Furthermore, requesting permission from reviewers before sending manuscripts for review has been shown to lead to a higher number of refusals than when manuscripts were sent without seeking permission.^[9] However, those who agree to review after a request have reportedly completed their reviews more quickly than those who had not been initially asked. Another study also revealed that re-contacting late reviewers resulted in a review within 7 days in about two-thirds of cases.^[10]

In particular, editors of emerging journals based in developing regions have even greater difficulty

finding appropriate reviewers who are willing and capable of completing reviews efficiently and timely.^[5] This situation can sway authors away from future submissions to these journals with resulting lower opportunity to develop these journals and further widen the north-south gap of research work and proportionate contribution to global literature productivity. An audit of a major Saudi journal's workflow identified the poor and slow response of reviewers to slow editorial processes.^[6] Furthermore, when asked about their choice of target journals, authors from the two developing regions valued constructive feedback, which influenced their decision to submit their manuscript.^[11] Concerns were voiced about the peer reviewing processes in Africa.^[12] However, no formal assessment of the attitudes of physicians and scientists to peer reviewing for biomedical journals has been done for the Middle East and Africa region. Therefore, we have conducted this survey of academics, practicing clinicians, and biomedical scientists from two developing regions (the Middle East and Africa) to determine their potential as reviewers and reasons for acceptance versus decline the past and future requests to review submitted work.

MATERIALS AND METHODS

Survey design

The study is based on a web-based survey of a pooled database of physicians in the Middle East and Africa regions conducted over 12 weeks of August to October 2019. For the creation, dissemination, and analysis of the questionnaire, Survey Monkey® (SVMK Inc., San Mateo, California, USA) was used. The questionnaire was electronically sent to a convenience sample of physicians. The primary target respondents consisted of doctors and biomedical scientists. All target study populations received an initial e-mail and six subsequent reminders (for non- and partial responders) at biweekly intervals. A unique

e-mail-specific electronic link to the survey questionnaire was provided. The survey server automatically blocked repeat submissions from the same link.

The survey questionnaire

The questionnaire content had three domains. The first includes consent, respondents' demography, respondents' professional profile, and respondents' clinical practice profile. The second attempted to assess the involvement/experience in clinical and academic research and publishing was documented. The third domain was the reviewers' survey questionnaire modified from a previously published work of similar objectives.^[13] This domain covered four questions, namely, (a) how important were considered are certain listed factors in deciding to accept to review an article? (b) How vital are listed factors in deciding to decline to review an article? (c) How much do respondents agree with a given list of statements about financial incentives? and (d) How much do respondents agree that the following incentives would encourage reviewers to accept requests to review?. The questionnaire was user friendly, with a simple format and clear instructions. It prevented any deviations from the response options that were predefined for each question using a multiple-choice format with a single possible or multiple possible answers built in the logic of the survey software. The questionnaire was beta-tested by twenty physicians before launch. The survey was conducted in English and French, being the two languages used in most professional communications in these regions. The full version of the survey is available [Supplementary Material: Appendix 1].

Study population

The Middle East and Africa regions are well-recognized geopolitical and economic entities; that include many countries and comprise a significant part of the world population. There is no single master database for all physicians and biomedical scientists. Therefore, a large convenience sample included practicing physicians identified on academic databases of health-related bodies, professional groups, and recent continuous professional development events and/or by contributing to the medical literature in

the subject, predominantly endocrinologists and internists with a particular interest in endocrinology. Due to the pool's heterogeneity, respondents were asked to identify themselves in terms of specialties, age group, duration, and volume of practice [Table 1], to enable characterization of demographic and professional profiles similar to previously published survey-based studies from the region.^[14,15] Only respondents practicing in these two regions were included in the analysis. No data were captured on the nonresponders.

Table 1: The demographic, professional, and academic profile of respondents

| The survey questions and possible responses | Results, n (%) |
|---|----------------|
| Regions of residence and practice (172) | |
| The Arabian Gulf | 78 (45.3) |
| Subsaharan Africa | 35 (20.3) |
| North Africa | 33 (19.2) |
| Rest of the Middle East | 26 (15.1) |
| Sex (172) | - |
| Man | 117 (68.0) |
| Women | 55 (32.0) |
| Age group (years) (172) | - |
| <40 | 22 (12.8) |
| 41-50 | 48 (27.9) |
| 51-60 | 64 (37.2) |
| >60 | 38 (22.0) |
| The highest academic/professional qualification (172) | |
| Board/specialty certificate/MRCP or equivalent | 82 (47.7) |
| Doctorate (e.g., PhD) | 71 (41.3) |
| Master (e.g., MA MSc MBA) | 12 (7.0) |
| Bachelor (any BSc or BA) | 4 (2.3) |
| Diploma/certificate | 3 (1.7) |
| Specialty (172) | - |
| Medicine | 89 (51.7) |
| Pediatrics/obstetrics and gynaecology | 27 (15.7) |
| Basic Sciences | 20 (11.6) |
| Surgery | 16 (9.3) |
| Primary care/family medicine | 13 (7.6) |
| Clinical sciences | 7 (4.1) |
| Professional career track (172) | - |
| Academic | 58 (33.7) |
| Clinical and scientific | 114 (66.3) |
| Academic titles (115)* | - |
| Professor | 51 (44.3) |
| Associate professor/reader | 25 (21.7) |
| Assistant professor/senior lecturer | 27 (23.5) |
| Lecturer/assistant lecturer | 12 (10.4) |
| Professional clinical grades (147)* | - |
| Senior (consultant) | 112 (76.2) |
| Midgrade (specialist, fellow/senior registrar) | 34 (13.1) |
| Junior - registrar/resident | 1 (0.7) |

*Academic titles and clinical positions were not mutually exclusive. Hence the total exceeds 172

Data management and statistical analysis

Survey responses were anonymously collected and stored electronically by the survey service, accessible in a password-protected manner. No data were captured on those who did not respond, declined to participate, or provided remarkably incomplete responses. The survey management service tools were used for the initial examination of results and descriptive analysis. Summary statistics were prepared for responses to each question. Since not every participant answered all questions, the percentage adjustment was used for respondents providing a given answer was calculated individually for each question, using the number of respondents to that question as to the denominator. Data are presented for the whole group of respondents and were not stratified by regions limited by the sample size.

RESULTS

Respondents characteristics and their reviewing experience

We received 214 responses, of which 172 were adequate for analysis. The responses came from the Middle East (104; 60.4%); sub-Saharan Africa (35; 20.3%) and North Africa (33; 19.2%). Countrywide, they were in decreasing order from the UAE (40), Saudi Arabia (21), Iraq (14), Egypt (13), Nigeria (12), South Africa and Libya (9 each), Tunisia and Morocco (7 each), Oman (6), Kuwait (5), Qatar (4), Lebanon, Kenya, Jordan, and Ethiopia (3 each), Palestine (2), and one each from Algeria, Bahrain, Botswana, Burkina Faso, Ghana, Madagascar, Mali, Namibia, Syria, Uganda, and Zambia. There were more males (68.0%) than females (32.0%); two-thirds (65.1%) were in the 41–60-year age group. The majority were medically qualified (86.0%). A high proportion of the respondents (89.0%) held medical board/specialty certificates or doctorate degrees [Table 1].

Two-thirds were practicing clinicians; 76% of the clinicians were in senior positions, and of those with academic titles, 66.0% were either at full or associate professorship level. Over half (51.7%) of the respondents practiced general medicine or one of its subspecialties [Table 1]. Nineteen (11.0%) of the

respondents had current, recent, or past involvement in research, publishing, or editing/reviewing activities. However, others were involved in research in some capacity (63.5%), publishing (48.8%), and/or peer reviewing (50.0%). Nearly 37.8% of the respondents reported publishing 1–5 articles in the last 5 years. Publication and peer-reviewing activities involved national, regional, and international journals [Table 2]. Interests of respondents are presented graphically in [Figure 1].

Reasons for accepting or declining to review

The most highly rated factor important in the decision to accept to review was the contribution of the paper to the subject area (69.7%), the relevance of the topic to one's own work or interests (65.0%), and the desire to keep up-to-date on current research (63.4%) and the opportunity to learn something new from the paper. The least important factors to consider accepting requests are the reputation of the authors of the paper and any monetary payment [Table 3].

On the other hand, the most highly rated factor important in the decision to decline to review was conflict with other workloads (69.3%), quality of the manuscript (66.5%), the tight deadline for completing the review (65.5%), and low interest in the paper (64.8%). Factors rated as least important (i.e., proportion of respondents [%] scoring the statement as either not at all or slightly important) were having to use the online review system (58.9%), dislike of open peer review process (56.3%), absence from work (48.6%), and having previously reviewed several papers on the same topic (48.3%). The concern that subsequent requests to review could become burdensome (40.6%) and length of the manuscript (36.1%) were also expressed [Table 4].

Opinions on the use of incentives in general

The survey yielded more agreement (68.6%) than disagreement (12.6%) that financial incentives will encourage reviewers to accept requests to review. Furthermore, 62.3% agreed that financial incentives imply a contractual obligation that reviewers would be more likely to meet, but 61.8% agreed that some small financial incentives alone would not encourage reviewers to accept reviews, and 44.4% thought

Table 2: The respondents publishing and reviewing experience

| The survey questions and possible responses | Results, n (%) |
|---|----------------|
| Current, recent, or past involvement in research, publishing, or editing/reviewing activities (172) | |
| None | 19 (11.0) |
| Research in any capacity | 109 (63.5) |
| Publishing | 84 (48.8) |
| Peer-reviewing | 86 (50.0) |
| Did you publish in a medical or biomedical journal in the last 5 years (articles) | |
| None | 39 (22.7) |
| 1-5 | 65 (37.8) |
| 6-10 | 31 (22.7) |
| 11-15 | 14 (8.1) |
| 16-20 | 13 (7.6) |
| >20 | 10 (5.6) |
| In which journals research was published? (143) | |
| National | 63 (44.1) |
| Regional | 60 (42.0) |
| International | 121 (84.6) |
| Any peer reviewer; what type of journal was served? (121) | |
| National | 58 (47.1) |
| Regional | 56 (46.3) |
| International | 83 (68.6) |

Table 3: Respondent's views on the important factors in the decision to accept to review a manuscript

| Statement | Very or extremely important, n (%) | Moderately important, n (%) | Not at all or slightly important, n (%) |
|--|------------------------------------|-----------------------------|---|
| The contribution of the paper to the subject area | 101 (69.7) | 34 (23.4) | 10 (6.9) |
| The relevance of the topic to my own work or interests | 95 (65.0) | 33 (22.6) | 18 (12.3) |
| Desire to keep up-to-date on current research | 92 (63.4) | 36 (24.8) | 17 (11.8) |
| The opportunity to learn something new from the paper | 85 (59.1) | 46 (31.9) | 13 (9.0) |
| Reputation of the journal | 84 (57.9) | 37 (25.5) | 24 (16.6) |
| Sense of professional duty | 77 (53.1) | 44 (30.3) | 24 (16.5) |
| Being able to use the online review system | 67 (46.9) | 43 (30.1) | 33 (23.1) |
| Academic reward (e.g., career enhancement) | 45 (31.5) | 53 (37.1) | 45 (31.5) |
| The reputation of the authors of the paper | 39 (27.1) | 37 (25.7) | 68 (27.2) |
| Monetary payment | 26 (18.1) | 38 (26.4) | 80 (55.6) |

Responses are reordered by the "very or extremely important" response in decreasing order. Responses on a 5-point Likert Scale: Not at all important, slightly important, moderately important, very important, and extremely important

that financial incentives would not be significant when time constraints are prohibitive. There was no agreement that financial incentives could compromise the quality of reviews (30.8% agree vs. 44.1% disagree) [Table 5].

Opinions on what incentives encourage reviewers to accept

We found the highest agreement that the following incentives would encourage reviewers to accept requests to review: annual acknowledgment of all reviewers on the journal's website, more feedback about quality of the review, more feedback on the outcome of the submission, appointment of best reviewers to editorial boards, published acknowledgment

of reviewer's contribution to the manuscript, free access or subscription to this journal, and consultancy-equivalent fee for time spent [Table 6]. However, there was less agreement that publication of the review with the article, the option of adding the reviewer's name at the end of the published article, small or substantial financial incentives and gifts would act as incentives for reviewers [Table 6].

DISCUSSION

Peer review is the foundation of academic publication and a necessary step in the scrutiny of any scholarly work. It represents attentive and unbiased assessment of scholarly work submitted for formal scrutiny. Peer

Table 4: Respondents' reasons for declining requests to review

| Statement | Very or extremely important, <i>n</i> (%) | Moderately important, <i>n</i> (%) | Not at all or slightly important, <i>n</i> (%) |
|--|---|------------------------------------|--|
| Conflicts with other workloads | 99 (69.3) | 25 (17.5) | 19 (13.3) |
| Quality of the manuscript | 95 (66.5) | 20 (14.0) | 28 (19.6) |
| Tight deadline for completing the review | 93 (65.5) | 25 (17.6) | 24 (16.9) |
| Insufficient interest in the paper | 94 (64.8) | 28 (19.3) | 23 (15.8) |
| The reputation of the journal | 68 (47.6) | 39 (27.3) | 36 (25.2) |
| Lack of formal recognition of reviewer contribution | 68 (46.9) | 37 (25.5) | 40 (27.6) |
| Having conflicting interests | 67 (46.6) | 35 (24.3) | 42 (29.2) |
| Having to review too many manuscripts for other journals | 63 (43.4) | 44 (30.3) | 38 (26.2) |
| Having to review too many manuscripts for this journal | 51 (43.0) | 37 (26.1) | 44 (31.0) |
| Knowing someone more appropriate to review the manuscript | 61 (42.3) | 48 (33.3) | 35 (24.3) |
| Comments not taken into account in the past reviewing experience | 58 (40.2) | 38 (26.4) | 48 (33.4) |
| Delay in accessing the manuscript | 50 (35.2) | 42 (29.6) | 50 (35.2) |
| Concern that subsequent requests to review could become burdensome | 50 (35.0) | 35 (24.5) | 58 (40.6) |
| Length of the manuscript | 50 (34.8) | 42 (29.2) | 52 (36.1) |
| Absence from work | 41 (28.8) | 32 (22.5) | 69 (48.6) |
| Having previously reviewed several papers on the same topic | 34 (23.4) | 41 (28.2) | 70 (48.3) |
| Having to use the online review system | 25 (17.7) | 33 (23.4) | 83 (58.9) |
| Dislike of the open peer review process | 20 (13.9) | 43 (29.9) | 81 (56.3) |

Responses are reordered by the “very or extremely important” response in decreasing order. Responses were captured on a 5-point Likert Scale: Not at all important, slightly important, moderately important, very important, and extremely important for more precision. Results are presented on a 3-point Scale by the amalgamation of 1+2 and 4+5 for clarity

Table 5: Respondent's views on the impact of financial incentives in general

| Statement | Agree or strongly agree, <i>n</i> (%) | Neither agree nor disagree, <i>n</i> (%) | Disagree or strongly disagree, <i>n</i> (%) |
|---|---------------------------------------|--|---|
| Financial incentives encourage reviewers to accept requests to review | 98 (68.6) | 27 (18.9) | 18 (12.6) |
| Financial incentives imply a contractual obligation that reviewers would be more likely to meet | 89 (62.3) | 30 (21.0) | 24 (16.8) |
| Small financial incentives alone would not encourage reviewers to accept reviews | 89 (61.8) | 24 (16.7) | 31 (21.6) |
| Financial incentives will not be effective when time constraints are prohibitive | 64 (44.4) | 37 (25.7) | 43 (29.8) |
| Financial incentives bias which journals referees review for | 62 (43.4) | 43 (30.1) | 38 (26.6) |
| Financial incentives could improve the quality of reviews | 62 (43.1) | 35 (24.3) | 47 (32.6) |
| Financial incentives could compromise the quality of reviews | 44 (30.8) | 36 (25.2) | 63 (44.1) |

Responses are reordered by the “agree or strongly agree” response in decreasing order. Responses were captured on a 5-point Likert Scale: Strongly disagree, disagree, neither agree nor disagree, agree, or strongly agree. Results are presented on a 3-point Scale by the amalgamation of 1+2 and 4+5

review has emerged as a vital basis for scientific publishing and a defining indicator of journal quality and scholarly work integrity.^[16,17] Journals depend on independent reviewers to enhance the quality of submitted manuscripts and guide their publication decision-making process. Simply put, peer review has become a critical cornerstone in fine academia and a driving force for the quality enhancement of published scholarly activities.^[18]

Our formal, up-to-date assessment of the clinical and scientific community's attitudes toward peer reviewing represents its first of a kind in these two developing regions. Our results shed critical light onto the motivators and deterrents to peer reviewing

among physicians in the regions, in addition to providing crucial rationale for acceptance or decline of the peer review process. Our responses gathered from a rich sample of senior and high-level clinicians and academics provide a concise framework for guiding future efforts aimed at improving the quality of scholarly work published in our regional journals. The survey is very timely due to the highly competitive publishing opportunities for researchers from the developing regions partly due to the linguistic bias on the international scene.^[19] Furthermore, having a constituency of authors and reviewers is essential for the advance of both emerging journals and local authors.^[5]

Table 6: Respondents' views on the incentives that would encourage reviewers to accept requests to review?

| Statement | Agree or strongly agree, <i>n</i> (%) | Neither agree nor disagree, <i>n</i> (%) | Disagree or strongly disagree, <i>n</i> (%) |
|---|---------------------------------------|--|---|
| Annual acknowledgment of all reviewers on the journal's website | 115 (79.3) | 19 (13.1) | 11 (7.6) |
| More feedback from the editor about the quality of the review | 108 (75.1) | 18 (12.5) | 18 (12.5) |
| More feedback about the outcome of the submission | 105 (72.9) | 28 (19.4) | 11 (7.7) |
| Appointment of best reviewers to editorial boards | 102 (70.9) | 27 (18.8) | 15 (10.4) |
| Published acknowledgment of the reviewer's contribution to the manuscript | 101 (69.6) | 20 (13.8) | 24 (16.5) |
| Free access or subscription to this journal | 98 (68.6) | 29 (20.3) | 16 (11.2) |
| Consultancy-equivalent fee for time spent | 96 (66.2) | 29 (20.0) | 20 (13.7) |
| Adding the reviewer's name at the end of the published paper | 92 (64.4) | 19 (13.3) | 32 (22.4) |
| Annual gift for the most regular or best reviewers | 75 (51.7) | 30 (20.7) | 40 (27.6) |
| Publication of the review with the article | 65 (45.8) | 30 (20.8) | 48 (33.3) |
| Small financial incentives (e.g., £50) | 59 (40.7) | 39 (26.9) | 47 (32.5) |
| Substantial financial incentives only | 53 (37.1) | 46 (32.2) | 44 (30.8) |
| Token gift e.g., compact disc after each review | 45 (31.0) | 48 (33.1) | 52 (35.9) |

Responses are reordered by the "agree or strongly agree" response in decreasing order. Responses were captured on a 5-point Likert Scale: Strongly disagree, disagree, neither agree nor disagree, agree, or strongly agree for more precision. Results are presented on a 3-point Scale by the amalgamation of 1+2 and 4+5 for clarity

Our results indicate that reviewers were more likely to accept a request to review a manuscript when the paper was relevant to their area of interest. Participants regarded reviewing as a part of their professional duty. They considered it an opportunity to learn something new in their area of interest and stay up-to-date with the latest literature. On the other hand, lack of time was the principal factor in their decision to decline. Respondents reported "conflict with other workloads" and "tight deadlines for completing the review" as major demotivators. As for incentives, nonfinancial ones took the lead, with "acknowledgment of all reviewers on the journal's website," "feedback about the quality of review," and "appointments of best reviewers to editorial boards" reported by majority as main incentives to accept peer-review requests. Additionally, many felt that adequate financial compensations in the form of consultancy-equivalent fees would be reasonable incentives to peer reviewing, rather than small financial rewards or token gifts. Many but not all of these findings are similar to the previous report.^[13]

The lack of formal recognition of reviewers has been a major concern for those who do it regularly.^[20] To overcome a few of the preexisting impediments to accepting a peer-review post, many journals have taken initiative in providing incentives to reviewers.^[21] These included offering continuing professional development (CPD) credits. However, the latter may only be relevant to those in medical

posts. Therefore, stemming from our analysis, and considering that many scientific outlets cannot afford to pay consultancy fees to reviewers, an inexpensive, but worthwhile investment for journals in the peer review process is appropriate. Such include posting annual acknowledgment lists of reviewers on journals' websites, sending appreciation notes to most valued and/or regular reviewers, appointment of best reviewers to editorial boards, and at the very least, providing formative feedback about the editorial outcome of the papers reviewed.^[21] Reviewers in the present study were more favorable to the idea of feedback about their reviews. This should be a routine practice particularly as this can be automated in the online submission systems where reviewers own and other reports are shared anonymously.

Active engagement of journal editors with reviewers is also essential for future sustenance of the latter's contributions. Peer reviewers are generally expected to perform a significant number of tasks related to the review, some of which might reveal incongruities between their position and that of the journal's. Editors' understanding of the role of peer reviewers differs across journals and is typically shaped by the journal's context, characteristics, reputation, and prestige.^[22] For instance, in a study of semi-structured interviews with journal editors exploring the latter's understanding of reviewers' formal roles and tasks, there was a general agreement on expected technical

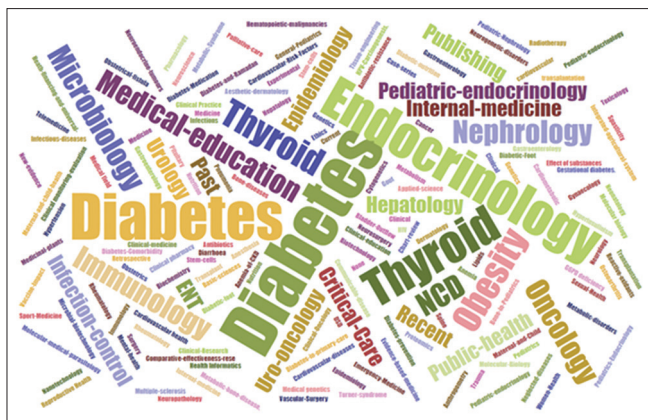


Figure 1: Word cloud representation made from respondents' free-text responses to question Q13 asks what your current, recent, or past research interests are. The size and density of the font represent the frequency of the statement of the words

tasks of peer reviewers, but expectations regarding the level of depth differed. In addition, most editors agree that authorship experience is necessary for high-quality reviews, while formal training in peer reviewing is not. Therefore, early and active engagement with reviewers to clarify expected roles and tasks is essential for ease of the review process.

Other key parties to successful facilitation and conduction of high quality peer reviewing are academic institutions. Providing structured didactics or workshops on the roadmaps to high-quality peer reviewing would aid in jump starting the novice of reviewers, while fine tuning the experts of them. Several recent papers have proposed specific guidance to such orientation in order to aid in thoughtful and more in depth reviews of scholarly work.^[23,24] Examples include advice on familiarization of journal style and identification of differences between educational and scientific research. Furthermore, guidance should be provided on recognition of potential conflicts of interest and bias in addition to allowing adequate time for self-reflection. Furthermore, familiarizing reviewers with the recently recognized linguistic bias phenomenon in academic peer reviewing is critical. Preregistered and exploratory analyses of recent data suggest that scholars may give abstracts lower ratings of scientific quality when the writing does not conform to international academic English standards.^[19] The suggestion that this linguistic bias may occur in academic peer reviewing makes the

issue, particularly relevant for junior reviewers, who may not yet fully recognize the jewels of a novel scientific finding through the fog of poor linguistics.

The study was limited to a sample of reviewers with internet and e-mail access as our survey was administered online. The selection was based on a convenience sampling of a large database. This could have introduced selection bias. We deliberately did not make any special distinction between specialties as we wished to study the responses of potential reviewers from all disciplines to increase the generalizability of findings across biomedical reviewers. Furthermore, we did not exclude those who did not publish before and those who did not have reviewing experience as all of these are the potential pool of future reviewers.

CONCLUSIONS

This study explored the involvement of potential peer reviewers from two developing regions in the peer review process, their perceptions, and drivers to undertake a review or decline it, and their opinions regarding financial and nonfinancial incentives. Findings are similar but not identical to previous reports. Reviewing should be formally recognized by academic institutions in the Middle East and Africa. Training to undertake this role should be provided by journals and institutions. Emerging journals should take the lead in building their cohorts of reviewers within their regions rather than expecting reliance on the global pool, which is already saturated by requests from established journals. More journals should formally and publicly acknowledge the contribution of their reviewers and individual manuscripts by granting CPD or CME credits and taking account of the toll of these activities on the individuals' weekly schedules and academic promotions.

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Authors' contributors

SAB designed the study and adapted the various sections of the questionnaire, coordinated data collection. All authors jointly analyzed the data, wrote the paper, and approved the final version.

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Nil.

Conflicts of interest

There are no conflicts of interest.

Compliance with ethical principles

Ethical approval was granted by the IRB of Sheikh Khalifa Medical City, Abu Dhabi, UAE. Participants provided electronic informed consent before getting access to the survey questions. All data were retrieved and analyzed anonymously.

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Appendix 1: The survey questions and possible responses

I. Consent: The Demographic and professional profile of respondents

Q1. Consent to participate (yes, no, never again [opt-out])

Q2. In which region do you reside and practice normally? (The Arabian Gulf, Rest of the Middle East, North Africa, Sub-Saharan Africa). Please indicate the country (Free Text)

Q3. Please indicate your sex (man/women)

Q4. Please indicate your age group (years) (21-30; 31-40; 41-50; 51-60; 61-70; Over 70)

Q5. What is the field of your primary qualification (medical and dental, pharmacy, nursing, biomedical science; other scientists)

Q6. What is your highest academic/professional qualification [Bachelor (any BSc or BA), Master (e.g., MA MSc MBA), Doctorate (e.g., Ph.D.), board/specialty certificate/MRCP or equivalent, diploma, certificate]?

Q7. What is your specialty? [medicine (all), surgery (all), pediatrics, women health, obstetrics and gynaecology, primary care/family medicine, basic sciences, clinical sciences, nursing, dentistry (all)]

Q8. What are your professional career track - As near as possible (Academic: Full-time university employee), clinical and scientific in health care and research. (Note chooses from Q9-Q11 appropriately)

Q9. For academics - What is your academic title? (professor, associate professor/reader, assistant professor/senior lecturer, lecturer, assistant lecturer)

Q10. For practicing clinicians - What is your professional title? (Senior (consultant), midgrade (specialist), fellow/senior registrar, junior - registrar/resident)

Q11. For scientists and other professions - What is your professional-grade/level? (Senior, Middle grade, Junior)

II. Publishing and reviewing experience

Q12. Current, recent, or past involvement in research, publishing, or editing/reviewing activities: None, Research in any capacity, publishing, peer-reviewing

Q13. What are your research interests? current, recent, or past

Q14. Did you publish in a medical or biomedical journal in the last 5 years? (None, 1-5 articles, 6-10 articles, 11-15 articles, 16-20 articles, >20 articles)

Q15. Where did you publish? (national, regional, international journals)

Q16. If you have acted as a peer reviewer: What type of journal you served? (national, regional, international journals)

III. The peer reviewing survey questionnaire (Note: The following four questions aim to establish your views and practices regarding the peer-reviewing process)

Q17. How important was (would be) each of the following factors in your decision to accept a review? (Matrix: Not at all important, slightly important, moderately important, very important, extremely important) (Statements: The opportunity to learn something new from the paper; the contribution of the paper to the subject area. The relevance of the topic to my own work or interests; Desire to keep up-to-date on current research, Academic reward (e.g., career enhancement); Sense of professional duty; The reputation of the journal; Reputation of the authors of the paper; Being able to use the online review system, Monetary payment)

Q18. How important was (would be) of the following factors in your decision to decline to review? (Matrix: Not at all important, slightly important, moderately important, very important, extremely important): (Statements: Insufficient interest in the paper, having to review too many manuscripts for this journal, having to review too many manuscripts for other journals, length of the manuscript, quality of the manuscript, tight deadline for completing the review, conflicts with other workloads, having conflicting interests, knowing someone more appropriate to review the manuscript, having previously reviewed several papers on the same topic, comments not taken into account in the past reviewing experience, a concern that subsequent requests to review could become burdensome. Dislike of the open peer-review process. The reputation of the journal. Lack of formal recognition of reviewer contribution. Having to use the online review system, absence from work, Delay in accessing the manuscript)

Q19. How much do you agree with the following statements about financial incentives? (Matrix: Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree; Statements: Financial incentives bias which journals referees review for, financial incentives will not be significant when time constraints are prohibitive, Small financial incentives alone would not encourage reviewers to accept reviews, Financial incentives imply a contractual obligation that reviewers would be more likely to meet. Financial incentives encourage reviewers to accept requests to review, and financial incentives could improve the quality of reviews; financial incentives could compromise the quality of reviews)

Q20. How much do you agree that the following incentives would encourage reviewers to accept requests to review? (Matrix: Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree; statements: Small financial incentives, e.g., £50, consultancy-equivalent fee for time spent, substantial financial incentives only, Free access or subscription to this journal, more feedback from the editor about the quality of the review, more feedback from the editor about the outcome of the submission, token gift, e.g., compact disc after each review, annual gift for the most regular or best reviewers, the appointment of best reviewers to the journal's editorial board, Published acknowledgment of reviewer's contribution to the manuscript, publication of the review with the article, annual acknowledgment of all reviewers on the journal's website)