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The North-South information highway: case studies of publication access among health researchers in resource-poor countries

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Background: Less than 2% of scientific publications originate in low-income countries. Transfer of information from South to North and from South to South is grossly limited and hinders understanding of global health, while Northern-generated information fails to adequately address the needs of a Southern readership.

Methods: A survey of a new generation of health researchers from nine low-income countries was conducted using a combination of email questionnaires and face-to-face interviews. Data were gathered on personal experiences, use and aspirations regarding access and contribution to published research.

Results: A total of 23 individuals from 9 countries responded. Preference for journal use over textbooks was apparent, however a preference for print over online formats was described among African respondents compared to respondents from other areas. Almost all respondents (96%) described ambition to publish in international journals, but cited English language as a significant barrier.

Conclusion: The desire to contribute to and utilise contemporary scientific debate appears to be strong among study respondents. However, longstanding barriers remain in place and innovative thinking and new publishing models are required to overcome them.

Keywords: access to literature; developing countries; open access; academic publishing

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BACKGROUND

The idiom of ‘knowledge being power’ is applicable in a vast number of fields, yet rarely more so than in the context of academia, where the discussion of existing knowledge and the development and refinement of ideas forms the basis of academic work. The equally well-known concept of a ‘publish or perish’ culture in academic life stems directly from the perception that progress can only be made by contributing to, sharing and competing with the knowledge of peers. Within the context of limited access to information and barriers to publishing, this reality adds another level to existing North-South inequalities; the ability of researchers from resource-poor countries to fully participate in global academia is limited by the availability of information, expertise, equipment and financial resources. Less

than 2% of publications between 1992 and 2001 referenced within the Science Citation Index and the Social Sciences Citation Index originated in low-income countries, and only one-fifth of these were from sub-Saharan Africa (1).

Capitalising on academia’s need to publish, publishers have a seemingly endless supply of authors and, to an extent, readers. However, the academic publishing industry faces increasing risks from reduced library spending, demands to digitalise content and dissent from authors, libraries and academics regarding increasing subscription costs, which has led to falling revenue in recent years (2, 3). This has coincided with a demand for open-access journals, with subscription fees increasingly being replaced by alternative financing mechanisms, commonly an author-pays model (2, 4–8). Under the

author-pays model, journal production fees are typically met by the author's employer or research funder and rarely by the individual researcher themselves; however, in resource-poor settings this can mean that individual research funds may be cut to compensate for publication charges (9). Nevertheless, journals based on the author-pays model typically offer fee waiver or subsidy schemes in cases of financial hardship or for authors from developing countries.

Perceptible efforts have been made to address the challenges faced by academics in less-developed regions by European and American multinational publishing firms that dominate global academic publishing. Most notably in the field of health, progress in improving access to information in low-income countries, facilitated by growing internet access, has improved the flow of global health information. Additional efforts have been made to improve access to literature through philanthropic initiatives offering developing countries free or greatly subsidised access to large collections of otherwise subscription-only literature (10). Meanwhile, the International Network for the Availability of Scientific Publications (INASP) operates the Program for the Enhancement of Research Information (PERI), which strengthens research capacities in developing countries by reinforcing local efforts to produce, disseminate and gain access to scholarly information and knowledge (11). Other initiatives include HINARI, AuthorAID, Africa Journals Online, FAME, BIREME & SciELO, each of which is contributing to the growing movement towards greater access to information and support for local journal publishing in resource-poor settings (10, 12–16). Together, these initiatives have, at least in part, been responsible for a rapid growth in the number of article downloads over recent years, illustrating growing awareness and uptake of such programmes (17).

Nevertheless, the flow remains unbalanced – transfer of health information from South to North, and perhaps more importantly from South to South, is still grossly limited (18, 19). Northern-generated information has been criticised for failing to fully reflect the information and market needs of a Southern readership, and open-access schemes intended to improve global information provision may perpetuate dependency of developing-nation researchers on foreign aid and charitable subsidies. Instead of promoting and publicising indigenous research, the content of much literature, open access or otherwise, can be of limited relevance to developing countries and there exists an imbalance of research in favour of Northern-produced or Northern-led research (20).

Whilst there is much literature on the potential technical fixes that might narrow the information gap, very few attempts have been made to ask health researchers working in resource-poor settings for their views and experiences of such challenges. One attempt,

conducted by *The Lancet* in 2000, surveyed international editorial advisors (comprising senior academics with obvious insights into academic publishing) and describes some of the challenges faced by researchers, concluding that information flow, research, publication capacities and indeed health are intimately linked (21).

By surveying end-users in 2005 from settings where access to literature and to publication is potentially limited, the present authors gathered the views and experiences of those at the early stages of their academic careers (Masters- and PhD-level researchers in public health) in order to capture some of the experiences of a new generation of computer literate and internet-savvy practitioners and researchers.

METHODS

Taking advantage of international links within the Umeå International School of Public Health, Sweden, in 2005 study participants were recruited using arbitrary convenience sampling methods. Inclusion criteria were residence in a resource-poor setting and participation in health-related research activities.

Given the geographically dispersed nature of the sample and in order to maximise response, a mixed-methods approach (drop-and-collect self-completion surveys; email self-completion surveys; face-to-face structured interviews) was used to gather information on participants' views and experiences of access and contribution to medical literature (22). The use of interviews as well as self-completion questionnaires provided an opportunity for the researchers to develop a first-hand understanding of context as well as a chance to probe further in open-ended responses. Detailed descriptions of the methods and study populations are described in detail elsewhere (23) (attached as a separate file to this paper - see Supplementary files under Reading Tools online).

Completed questionnaires and interview schedules were analysed using simple frequency analysis and qualitative thematic analysis, and attempts were made to make some general inferences.

RESULTS

In total, 49 individuals from Asia, Africa and South America were contacted and asked about their views and experiences (39 using self-completion questionnaires and 10 for interview). Follow-up contact and reminder letters were sent to non-respondents, after which a total of 23 individuals responded (46.9%; 16 males and 7 females): 15 from Africa (Ethiopia, Kenya, Malawi, Tanzania and Uganda); 7 from Asia (Bangladesh, Indonesia and Vietnam); and 1 from Latin America (Nicaragua). Some gender bias was indicated in the response rate, with approximately 80% response from males compared to 25% response from females.

Journal Use

Respondents from all settings described more frequent use of periodicals than reference text books, reflecting a widespread appreciation of the more timely content on specialised subjects that journals offer (24, 25). This desire for up-to-date content was also illustrated in respondents' preference for online journals over print. Seventy percent of respondents described online journal access as their preferred method, citing reasons such as more easily searchable content, remote access and the ability to save and print relevant articles. Importantly, however, almost one-third of respondents—all from Africa—described a preference for printed, hard-copy periodicals.

More than half of the respondents ($n=12$, 52%) expressed dissatisfaction with their access to print and online journals, directly relating this to inadequate university and research budgets. According to one respondent, providing access to relevant journals was simply not a priority for their employer. Respondent experiences from Tanzania showed that journal collections catalogued under 'new' or 'most recent' headings could be up to five years out of date and, given the desperate need for any information, there was a tendency for any material to be displayed, including promotional pamphlets in a variety of languages.

Publication

Almost all respondents ($n=22$, 96%) stated that they were expected to publish their own research papers in peer-reviewed journals as part of their work, yet more than half ($n=12$, 52%) had yet to submit any work. Of the individuals who had submitted work to a scientific or medical journal, more than one-fifth had their submissions rejected. When asked about their motivation for selecting a particular journal when submitting a manuscript, the most common reason given was the journal's reputation, although the opportunity to reach an international audience was also cited.

More than half of the individuals who had published or submitted articles stated that they had problems writing the articles in English and were required to edit and re-submit their work having reviewed language errors, often at an additional cost as external language editing was sometimes required. Additional barriers highlighted were: perceptions that their work was not deemed relevant for an international journal; inability to compete with many submissions within the same field; lack of experience in preparing manuscripts; unreasonably high expectations from editors and reviewers; lack of a professional reputation within the academic community; and insufficient access to existing information on the research subject.

Thirteen respondents (56%) were opposed to the author-pays model of publishing. Seventeen respondents

(78%) stated that they would be unwilling or unable to pay a fee to publish their work, although 4 of these individuals stated that they would be willing to publish in an author-pays journal if their employer or funder paid the fees.

DISCUSSION

This small series of case studies reflects recognition among study respondents of their need to use and contribute to global knowledge in order to advance professionally. However, according to individuals surveyed, opportunities for information exchange is hindered by a persistent lack of access to up-to-date information and the skill set needed for publication.

The focus on researchers at the early stages of their academic careers is a particular strength of this study. Although no claims of representativity can be made based on the methods employed in this study, expressed views were relatively consistent between respondents, both within and between settings. This implies that personal experiences did not differ greatly between settings, and results may be of relevance to wider populations of health researchers in resource-poor contexts. Nevertheless, some important differences in experiences were observed between settings.

The almost unanimous preference for printed over online articles among respondents from Africa compared to those from other settings is striking. This difference perhaps reflects the weaker penetration and capacity of information technology systems in Africa compared to Asia and Latin America, as well as the ease with which researchers from different settings use computers and internet searches. This preference merits further investigation and, if found to be representative of wider views in Africa, warrants serious consideration by publishers should they decide to migrate to online-only platforms.

Several respondents described the unavailability of up-to-date literature as a primary challenge. Institutional libraries in the poorest parts of the world often rely on donations of printed periodicals rather than direct subscription, resulting in second-hand, out-dated titles, irrelevant publications and inappropriate foreign language materials, and this appeared to be the case in the current study. Therefore longstanding concerns that donor programmes intended to improve access to resources in low-income countries may actually supply irrelevant materials do not seem to be resolved (18, 21, 26, 27). The impact of new open-access initiatives on this issue will be an important outcome measure of their overall effectiveness.

Contrary to the findings from South Asia in Horton's study (21), whereby it was implied that publication might be perceived as a low priority for career progress, in the current study the reported ambition to publish reflects respondents' recognition of publication as a high priority

for personal and professional development. Whether this is an artefact caused by sampling a population associated with an academic institution where publication is highly prioritised (Umeå University), or a reflection of wider professional development ambitions in resource-poor settings, is unknown. The fact that the majority of respondents cited international journals as a target for their work further suggests an acute awareness and desire to participate in global health debates. Targeting such journals is likely to enhance real or perceived pressures to publish work in English. Whilst this will undoubtedly increase the accessibility of one's work, it also presents further barriers that must be overcome by researchers for whom English is a foreign language. As reported by several of the study respondents, the necessary skills and training to write and submit suitable academic publications in English is lacking.

Current open-access and aid-based initiatives are invaluable and have undoubtedly improved access to information. However, based on views expressed by study respondents, the author-pays model of open access appears to fall short of successfully overcoming unidirectional information flow. The fact that more than three-quarters of respondents stated that they would be unwilling or unable to pay author fees suggests that contributions from southern academics could remain limited. This resistance to the author-pays model is similar to findings from a study of published academics from more developed regions (28). Further investigation into the knowledge and attitudes of academics from resource-poor settings in relation to open-access and author-pays models is important in order to see whether reluctance or inability to pay to publish is based on a matter of principle, a lack of awareness of fee-waiver schemes or a poor understanding of open-access concepts. Whatever the cause, however, there is a danger that this unwillingness or inability to pay to publish may perpetuate the imbalance of a North to South information flow, in that academics in resource-poor countries are still not contributing to academic literature and are most likely to only access those journals that are open access rather than a broad—and therefore balanced—range of scientific titles.

Simultaneously addressing biases in information flow whilst building capacity for research and publication are key to international development in general and to health in particular (21). Building upon this series of case studies, there is a need for more in-depth, systematic research into the issues of access to publication, conducted on larger samples. Nevertheless, a powerful message from the preliminary findings presented here is a need for more direct editorial support, coupled with efforts to improve access to academic literature, in order to open up bidirectional information flow. More innovative thinking around the entire publication process is

therefore needed. Along the lines of AuthorAID and INASP (11, 13), models offering author mentoring schemes (scientific as well as editorial) combined with low publication fees and open access platforms whilst maintaining scientific rigour are likely to play a significant role in addressing the gross inequality between North and South. Publisher-led market research into the needs and desires of end-users and contributors from resource-poor settings may guide current developments in academic publishing in the right direction.

Such initiatives will most likely be led by independent publishing companies and new titles. Given that they are unlikely to be lucrative business ventures (at the outset at least), the new commercial pressures may be quite different from those that contributed to the evolution of Northern-led academic publishing. Whether this results in more equitable distribution and production of academic literature will be interesting to see. Meanwhile, as new information highways are opened, experienced editors and authors from all settings have vital roles to play in supporting them and creating international solidarity. All must assume responsibility for directing the flow of global health information in both directions and this should be seen as a vital part of effective scientific communication, enabling effective global public health action.

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