

Viewpoint

The published research paper: is it an important indicator of successful operational research at programme level?

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Summary

Is a published research paper an important indicator of successful operational research at programme level in low-income countries? In academia, publishing in peer-reviewed scientific journals is highly encouraged and strongly pursued for academic recognition and career progression. In contrast, for those who engage in operational research at programme level, there is often no necessity or reward for publishing the results of research studies; it may even be criticized as being an unnecessary detraction from programme-related work. We present arguments to support publishing operational research from low-income countries; we highlight some of the main reasons for failure of publication at programme level and suggest ways forward.

keywords publication, operational research, programme, knowledge

Introduction

Advances in science and technology usually require building upon what is already known. In order for such advances to be made, knowledge needs to be shared. As Isaac Newton said, 'I see farther because I stand on the shoulders of giants.' Without knowing and understanding what had been discovered before, Newton (and every scientist before and since) would have had to start from nothing and rediscover everything (NAP 2009). The publication of scientific research is primarily aimed at sharing of knowledge.

Amongst academics, publishing in peer-reviewed scientific journals is highly encouraged and strongly pursued, as it is associated with academic recognition and career progression. In contrast, for those who engage in operational research at programme level, there is rarely necessity or reward for publishing the results of research studies. Furthermore, when hard effort is expended by some health workers in low-income countries to try to publish operational research (Zachariah *et al.* 2009), others may criticize this activity as being an unnecessary deviation from programme-related work in terms of time and energy.

Here, we address the question: *Is a published research paper an important indicator of successful operational research at programme level in low-income countries?*

Why is it important to publish?

There are several arguments to support the practice of publishing operational research. First, publishing in peer-reviewed scientific journals is a 'quality-control standard' in health-related research. Unless standards have been achieved in terms of scientific content, logical presentation and a persuasion of the editorial board that the current study adds to new knowledge, the paper will not be accepted for publication. The credibility of a published paper is also important when it comes to presenting the evidence base and discussing policy changes with officers in charge of institutions, key decision makers, ministries of health or international policy makers (Haines & Donald 1998).

Second, international guidelines such as those written and coordinated by WHO are becoming increasingly evidence based, relying on published literature to underpin policy, strategy and guidance statements. In the field of

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HIV/AIDS, tuberculosis and malaria, for example, these guidelines serve health workers living in low- and middle-income countries. Operational research can thus play an essential role in ensuring that guidelines reflect the situation on the ground and guide practice in a useful and relevant manner.

Third, a published paper is a critical way of sharing and disseminating knowledge. Virginia Woolf was once quoted, saying 'If you don't write about it, it never happened'. An article published today appears in paper form in a journal and electronically on the internet, where it can be referenced electronically, thus giving it a high chance of being rapidly accessed around the world. In institutions where staff turn-over is high, publication is also an easily accessible way of preserving the memory of acquired knowledge (Zachariah *et al.* 2010).

Fourth, a published article undergoes repeated revisions as a result of author contributions and the peer-review process. Thus, the finished article is often stronger and more succinct, making it 'easier to read' and understand. Our anecdotal experience is that programme-level staff read published papers of between 2000 and 3000 words but tend to overlook the long, internal or external consultant reports that are often generated to satisfy donors or funding institutions. Research publications thus facilitate external and internal dissemination of knowledge.

Fifth, preparing a study for publication teaches important individual skills such as discipline, stamina and hard work, but at the same time this process brings its own set of rewards. It enhances knowledge of the literature because authors have to find out about what is already known on the subject to shape their introduction and discussion. Structured documentation of the research question, aims,

objectives, methodology and results of the study is a valuable exercise that forces authors to confront and justify their pre-conceptions and to be clear and succinct about how the work was done. The published paper also brings credibility to the authors and their affiliated institutions, and this facilitates career development. The main arguments favouring publication of programme-related operational research in peer-reviewed scientific journals are highlighted in Table 1.

Reasons for failure to publish at programme level and ways forward

Despite the fact that many programmes and institutions invest in capacity building in operational research and acknowledge the value of publications, outputs in terms of numbers of published papers are generally very limited. An operational research capacity-building workshop in Malawi involving 25 district tuberculosis officers with close mentorship throughout resulted in only 11 (44%) officers taking the directed research through to completion and paper writing (Harries *et al.* 2003). A recent evaluation of an international training course to build programmatic capacity for tuberculosis control showed that of those who embarked on operational research projects, only 39% started projects but no scientific papers were written (Ohkado *et al.* 2010). The failure to publish research is not just confined to low-income countries: only 53% of 79 research studies conducted in largely industrialized countries and reported in conference abstracts were published in peer-reviewed journals after 9 years (Scherer *et al.* 2007).

The failure to publish research is most pronounced in low-income countries, and particularly in sub-Saharan Africa. Much of the internationally published research

Table 1 Arguments in favour of publishing research in peer-reviewed scientific journals

Programme-related benefits

Provides a credible evidence base for advocating for policy change with local decision makers, ministries of health and international policy makers.
Enhances the credibility of institutions and their influence at national and international level.
Underpins the formulation of national and international policy guidelines for health.
Facilitates dissemination and the sharing of knowledge and experiences.
Allows the preservation and advancement of knowledge that is accessible over time through world-wide electronic databases.

Individual benefits

Improves the authors' knowledge of current scientific literature.
Enhances the credibility of individuals who are involved in the publication and their influence in the international community.
In contrast to large reports, peer review prior to publication improves the scientific rigour and readability of the article.
Teaches individual skills, compels authors to confront and justify pre-conceptions, and stimulates critical reflection on a programme's impact and orientation.
Contributes to self-esteem and career development.

R. Zachariah *et al.* **The published research paper****Table 2** Main reasons for failure to publish at programme level and possible solutions

Main reasons for failure to publish	Solutions
<p><i>Lack of time and opportunity</i> The responsibility for publication is an additional responsibility for already overworked programme staff Trained staff, with MPH or similar degrees, who have the potential to write and publish move to senior management positions and are thus not able to dedicate time for publications High staff turn over Shortage of human resources</p>	<p>Give staff dedicated time (e.g. 1–2 days/week) to write their paper. Establish posts affiliated to research (e.g. senior research officer) to coordinate and support research and publications at programme level. Introduce the concept of research fellows who will continue to work within programmes and who will be mentored and have a career perspective in programmatic research. Ensure that individuals involved with research and publication have longer term contracts (e.g. 3–5 years). Ensure that research resources are complimentary.</p>
<p><i>Inadequacies of study design and quality of data</i> Too complicated, too academic/or irrelevant research question(s) from a programme perspective Poorly written study protocols and insufficient adherence to methodology; poor quality of data No ethics clearance or exemption</p>	<p>Invest in on-the-job training and supervision Provide mentoring in defining relevant and feasible research questions, designing studies and data management; ensure regular verification of data and provide feedback on data quality. Ensure that ethics is an essential part of training and attention is paid to obtain timely ethics clearance.</p>
<p><i>Conducted research does not get published</i> Inadequate writing and language skills for publication in journals Peer-review fatigue and demoralization as a result of repeated rejections; lack of skill in addressing difficult peer reviews No motivation to invest time and effort to publish in scientific journals The research does not generate novel knowledge and thus does not merit publication.</p>	<p>Invest in writing-skills training workshops for publication. Seek the support of a medical editor for mentoring ‘manuscript writing’ at programme level. Provide specific mentoring in addressing peer review and related revisions. Introduce an incentive such as a research bonus for completed research studies that get published. Poor background search of existing knowledge</p>
<p><i>Disapproval or lack of support by supervisors</i> Programme managers do not appreciate the relevance of operational research and publications and fear that it will divert resources from implementation Policy makers not being involved from the start of the study and thus feeling a lack of ownership; study authorship is not inclusive of senior managers who then side-line research or block approval for publication. Negative experience with published research involving programme staff that has had little or no impact on policy and practice, thus discouraging further research.</p>	<p>Integrate research and publication activity, related budgets and resources as part of annual programme planning Research resources should be seen as being complimentary (e.g. a research officer does not do the work of the routine nurse) Empower programme managers and key policy makers to value the study right from the beginning; include programme managers in study authorship so that they develop and maintain responsibility and ownership. Introduce yearly feedback on completed research and its implications; establish a performance framework to assess the impact of research on programme policy and practice over time.</p>
<p><i>Lack of funding and infrastructure</i> Lack of specific funding; lack of infrastructure (e.g. transport, internet, e-mail, stationary, per-diems for travel, etc.)</p>	<p>Introduce funding for operational research and publications within annual budgets Introduce the concept of small grants (e.g. 500–1500 United States Dollars) for specific research that is identified during the course of the year. Ensure that conducive infrastructure, space and other needs are provided at programme level.</p>

done in Africa has been generated by academic institutions or researchers, predominantly reflecting their own interests or focused on basic science or questions of intervention efficacy (Wolffers *et al.* 1998). Research carried out globally in tuberculosis between 1997 and 2006 showed that

Africa, which has the highest tuberculosis case rate burden in the world, contributed only 7% of global research output and publications (Ramos *et al.* 2008). This is but one example of the important gaps in knowledge that need to be covered in this region.

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The main reasons for failure to produce manuscripts and publications include: lack of dedicated time and opportunity, wrong choice of research question, poorly designed studies resulting in weak results, inadequate writing and language skills (Man *et al.* 2004), peer-review rejection fatigue, no ethics clearance or exemption, rapid staff-turn-over, disapproval from supervisors and lack of funding and infrastructure. Ways forward in addressing such hurdles include giving staff dedicated time and longer-term perspectives for career development, providing mentoring support for capacity development in partnership with institutions working in the domain, investing in writing skills training and integrating research into annual planning and budgets. These problems and the possible ways forward in addressing them are elaborated in Table 2.

The Global Fund to fight AIDS, Tuberculosis and Malaria (GFATM) allows 5–10% of each grant to be allocated for monitoring, evaluation and operations research, but this provision is rarely used (Xueref 2009). This needs to be improved by establishing more efficient and accessible mechanisms to facilitate funding for capacity building at programme level which in turn will improve the absorptive capacity (on the ground) of this fund.

Conclusion

An important way of judging whether research has been successful (or not) is whether or not the knowledge gained has been disseminated and shared. The published paper is an important tool towards achieving this goal and would seem to be a fundamental responsibility and obligation that is binding on all – academics, programme researchers and implementers alike. Research requires funds and dedicated people. We believe that the published paper is a definitive measure to show that the funds have been used and that the research has been designed, carried out, analysed and written up to a standard that is acceptable to the general scientific community. The published paper also stands a better chance of being read and accepted by decision and policy makers compared with a report. We conclude by exhorting disease control programmes in low- and middle-income countries to judge their operational research outputs by published papers, and to use this important yardstick along with others such as how these papers

impact on policy and practice and improve programme performance.

Acknowledgements

We are grateful to our many donors who support training and capacity building and encourage operational research and publications in low-income countries.

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