

## ORIGINAL ARTICLE

## Dissemination patterns of scientific abstracts presented at the first and second African Conference of Emergency Medicine

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## ABSTRACT

**Introduction:** Evidence based medicine is the standard of modern health care practices. Ongoing biomedical research is needed to expand existing knowledge and improve quality of care, but it needs to reach clinicians to drive change. Journal articles and conference presentations are dissemination tools. The aim of the study was to establish the publication rate of scientific abstracts presented at the first and second African Conference of Emergency Medicine. The secondary objectives were establishing non-publication dissemination and the factors associated with publication and non-publication. Determining non-publication dissemination patterns and the factors associated with reasons for publishing or non-publication were also investigated.

**Methods:** Presenters of the 129 scientific abstracts from the first and second African Conference of Emergency Medicine were invited to participate in an online survey. The survey was followed by a manual literature search to identify published manuscripts of authors that did not complete the survey, to determine the most accurate publication rate.

**Results:** Thirty-one presenters responded (24%), of which 18 published in a peer-reviewed journal. An additional 25 publications were identified by the literature search. The overall publication rate was 33.3% (26.9% from 2012 and 40.3% from 2014). Oral presentations were more likely to be published ( $p = 0.09$ ). Sixteen manuscripts (37.2%) were published in the African Journal of Emergency Medicine. Presentations at local academic meetings were the most used platform beyond publication (43%). The main reason to publish was to add to the body of knowledge (100%), while lack of time (57%) was the major obstacle for not publishing.

**Conclusion:** The overall publication rate for the first and second Africa Conferences of Emergency Medicine is comparable to other non-African Emergency Medicine conferences. The increasing publication trend between conferences might reflect the development of regional research capacity. Emergency Medicine providers in Africa need to be encouraged to participate in high quality, locally relevant research and to distribute those findings through accessible formats.

## African relevance

- Disseminating African emergency care research helps to improve the local knowledge economy.
- Publications from research presented at African emergency care conferences are not known.
- There are several barriers to publication in this setting that need to be overcome.

## Introduction

Evidence-based medicine drives modern health care practices. At

the core of evidence-based medicine lies clinical research, that together with clinical expertise offer effective and safe patient-centred management. Ongoing research is needed to advance diagnostic tools, to develop new treatment modalities, and to improve existing practices. It plays an integral part in expanding existing knowledge and subsequently improvement of quality of care [1–3].

Dissemination of research findings is an important part of the research process. The dissemination plan can be described as a structured and planned process where research findings are communicated with a specific audience and where the results are scrutinized and discussed with the aim to incorporate the latest findings into clinical practice [3]. It is therefore imperative that study results are shared with relevant

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stakeholders in a specific field as this will facilitate and strengthen the process of evidence-based medicine [1,3–5].

Various dissemination tools are available to distribute research outputs e.g. peer-reviewed articles, research reports, press releases or social media platforms. Each tool has certain strengths and weaknesses in reaching audiences; therefore, in order to reach the broadest audience possible more than one tool should be used to complement one another [6]. Conference presentations are an important part of the dissemination strategy since professionals attend conferences mostly for educational opportunities and to network with peers [7]. But, as with every other dissemination tool, conference presentations are limited in reaching a wide-ranging audience. Conferences are typically very costly to attend as the registration fees are high and travelling to and from the conference is expensive. Local professionals or those with adequate financial resources are often the only ones to attend conferences. For this reason, additional dissemination tools need to be used to reach a larger relevant audience.

The publication of research findings in peer reviewed journals still remains one of the most important mechanisms to distribute research findings [8]. Although access to journals might be limited in Africa, most researchers in Africa do use online bibliographic databases (e.g. PubMed) on a regular basis to access original research articles [9]. Research quality is vital for manuscript publication acceptance and publication rate of conference presentations may be seen as a surrogate indicator of the quality of the scientific abstracts presented at a conference [10]. The publication rate of scientific abstracts presented at Emergency Medicine conferences outside Africa range between 15% and 35% [11–15]. It is not known what the publication rate is of scientific abstracts presented at Emergency Medicine conferences in Africa.

The aim of this study was to determine the publication rate of scientific abstracts presented specifically at the first and second African Conferences of Emergency Medicine. The secondary objectives were to determine dissemination patterns of abstracts presented and the reasons for publishing or not publishing.

## Methods

An online survey was completed followed by a manual literature search. The study was approved by the Human Research Ethics Committee at the University of Cape Town and the executive committee of the African Federation for Emergency Medicine (AFEM).

The inaugural African Conference of Emergency Medicine was held in Accra, Ghana in 2012. It was attended by 439 delegates of which 366 (83%) were from Africa. Overall, 67 scientific abstracts were presented by 58 presenters; 57 posters and 10 oral presentations. The second African Conference of Emergency Medicine was held in 2014, in Addis Ababa Ethiopia. This conference was attended by 497 delegates from 29 different countries, the majority again from Africa. In total, 48 presenters presented 42 posters and 20 oral presentations. Both conferences were organized under the auspices of the African Federation for Emergency Medicine.

All presenters of the 129 scientific abstracts from the first and second African Conference of Emergency Medicine were eligible for inclusion. Sampling was based on the scientific abstract; presenters with more than one abstract thus received a questionnaire for each abstract presented.

A list of the scientific abstracts was obtained from the relevant scientific committee of the conference. All presenters were invited via e-mail to participate in the survey. An online survey tool (Survey Monkey®) was used and the invitation included a personalized link to an online questionnaire. The survey was only available in English. Participants had four weeks to complete and return the survey; non-responders were reminded at 1-week intervals until they responded, or the deadline expired.

Variables collected as part of the survey included: demographic

information (age, country, profession, highest qualification), publication status of the scientific abstract, name of scientific journal (if applicable), reason(s) for publication or non-publication, and dissemination of results other than publishing.

The survey was followed by a manual literature search to identify published manuscripts of authors that did not complete the survey. This was done to determine the most accurate publication rate and to cross check information obtained through the survey. Electronic databases searched were PubMed, Science Direct, Scopus, the EBSCOHost research databases (including CINAHL) and Google Scholar. Authors' names and exact abstract titles were used as search terms, both individually and as a combination. Keywords were also derived from abstract titles if the initial search failed to identify a publication. If a publication was identified, the methodology was compared to the presented abstract to ensure fit.

All data were imported onto an access-controlled spreadsheet (Microsoft Excel®, Microsoft Corporation, Redmond, WA). Identifying information of authors (e.g. names) was replaced by unique study numbers once all data were collected for the specific scientific abstract. A code sheet with the de-identifying data was stored separately from the coded data. A weekly back up was done on access controlled external hard drives.

Analysis was done using Microsoft Excel® and OpenEpi (*Open Source Epidemiologic Statistics for Public Health, version 3.01, www.openepi.com/*). Summary statistics have been used to describe all variables. Distributions of variables are presented with frequency tables. Comparisons were done using the  $\chi^2$  test and two-tailed p-values are reported. A p-value of 0.05 was used to describe significant findings.

## Results

Responses were received for 31 of the 129 abstracts (response rate 24.03%). Four surveys were excluded; three were incomplete and one survey was duplicated for the same abstract. Eighteen (58.1%)

**Table 1**  
Characteristics (at time of conference) of presenters that responded.

	All responders n (%)	Responders who published n (%)
<i>Gender</i>		
Male	18 (58.1)	11 (61.1)
Female	13 (41.9)	7 (38.9)
	<b>31 (100)</b>	<b>18 (100)</b>
<i>Age (years)</i>		
≤ 30	6 (19.4)	4 (22.2)
31–40	16 (51.6)	10 (55.6)
> 40	9 (29.0)	4 (22.2)
	<b>31 (100)</b>	<b>18 (100)</b>
<i>Qualification</i>		
PhD	14 (45.2)	9 (50.0)
Master's degree	12 (38.7)	8 (44.4)
Bachelor's Degree	3 (9.7)	1 (5.6)
Other	2 (6.5)	0 (0)
	<b>31 (100)</b>	<b>18 (100)</b>
<i>Profession</i>		
Specialist Emergency Medicine	16 (51.6)	12 (66.7)
Specialist other than Emergency Medicine	2 (6.5)	0 (0)
Emergency Medicine Trainee	7 (22.6)	2 (11.1)
Other <sup>a</sup>	6 (19.4)	6 (33.3)
	<b>31 (100)</b>	<b>18 (100)</b>
<i>Country of employment</i>		
Africa	16 (51.6)	7 (38.9)
International	15 (48.4)	11 (61.1)
	<b>31 (100)</b>	<b>18 (100)</b>

<sup>a</sup> Include general practitioners, medical students, nurses, allied health practitioners, support personnel.

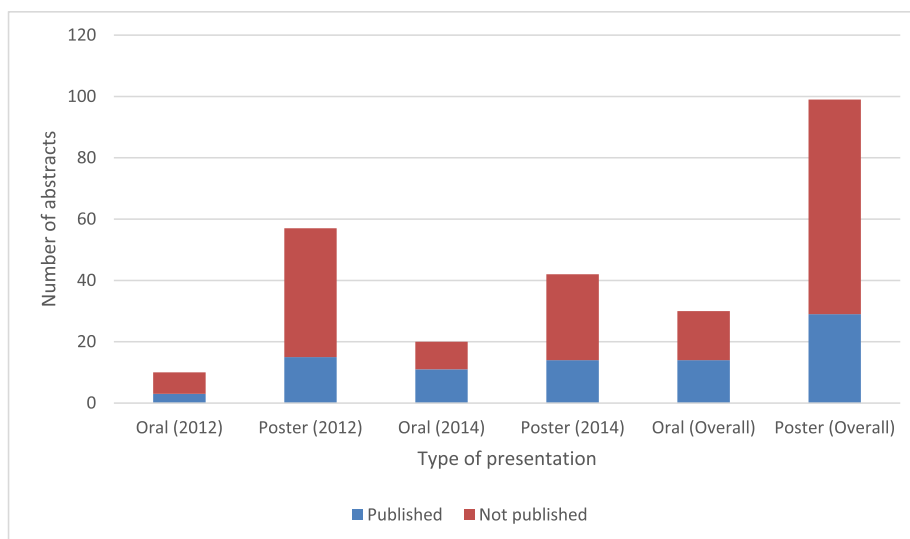


Fig. 1. Distribution of publication versus non-publication of scientific abstracts presented at the first and second African Conference of Emergency Medicine.

responders indicated that their scientific abstracts were published in academic journals (Table 1). Most responders were male and 51% were aged between 31 and 40 years. Specialist emergency physicians responded more frequently. The other professions included general practitioners (9.7%), medical students (3.2%), allied health practitioners (3.2%) and support personnel (3.2%). The greatest number of the responders were working in United Kingdom (22.6%) followed by United States of America (19.4%) and South Africa (16.1%). Other countries included Ethiopia, Nigeria, Ghana, Australia, Canada, Kenya, Libya and Somalia.

An additional 25 publications were found by the manual literature search, resulting in an overall publication rate of 33.3% (43/129). Eighteen abstracts (26.9%) from the 2012 conference were published compared to 25 (40.3%) from the 2014 conference ( $p = 0.111$ ). Oral presentations from both conferences (14/30, 46.7%) were more likely to be published than poster presentations (29/99, 29.3%), although this difference was not statistically significant ( $p = 0.09$ ) (Fig. 1). Similarly, no statistical significance was found when the conferences were evaluated individually (2012  $p = 0.80$ ; 2014  $p = 0.12$ ).

The United States of America ( $n = 29$ ) and South Africa ( $n = 20$ ) were the countries where published authors most frequently resided at the time of the conferences. First and last authors originated equally from African and Non-African regions (Table 2). The ratio of first authors from African and Non-African countries were 1.25 in 2012 and 0.92 in 2014; for last authors it changed from 0.64 in 2012 to 1.08 in 2014.

Seventeen different peer-reviewed journals were used to distribute research results. More than a third of the abstracts (16/43; 37.2%) were published in the African Journal of Emergency Medicine. Other journals used included Emergency Medicine Journal, Prehospital and Disaster Medicine, Annals of Emergency Medicine, PLOS One and South African Medical Journal. Dissemination patterns beyond publishing in academic journals are presented in Fig. 2.

All responders that published ( $n = 18$ ) indicated that the main

reason to publish their research findings was to add to the body of knowledge. Other frequent reasons for publishing include career advancement ( $n = 14$ ), improving their research skills ( $n = 12$ ), and to become a recognized expert in their field ( $n = 11$ ) (Table 3). Lack of time ( $n = 4$ ) was mostly the reason to not publish research findings (Table 3).

### Discussion

This is the first study describing the outcome of scientific abstracts presented at Emergency Medicine conferences in Africa. About a third of scientific abstracts presented at the conferences were published in peer-reviewed journals which is comparable to those from other non-African Emergency Medicine conferences. (11–15) The publication rate is lower than the weighted publication rate of all biomedical research studies. In addition, the publication rate increased from the first to the second conference.

Emergency Medicine is a relatively new speciality in Africa. It is likely that up until recently specialist clinical training received priority over research productivity. As the number of emergency medicine specialists have increased, more emphasis, time and resources were allocated to research. The increase in published research outputs is thus expected. This hypothesis is strengthened further by the increase seen in annual African emergency medicine publication counts [16]. The establishment of the African Journal of Emergency Medicine (AfJEM), as a dedicated regional emergency care journal, appears to have played a pivotal role. Both the AfJEM and African conferences are managed through the African Federation of Emergency Medicine and so share a similar focus on African emergency care. Another contributing factor could be the pertinent role of collaborations between African and Non-African institutions, as more than two thirds of publications had either a first or last author affiliated to institutions outside of Africa (Table 2). International collaborations help to build regional research capacity with the end goal of fostering experienced African researchers that can

Table 2  
First and last author per region (at time of conference).

Region	Overall (n = 43)		2012 (n = 18)		2014 (n = 25)	
	First author n (%)	Last author n (%)	First author n (%)	Last author n (%)	First author n (%)	Last author n (%)
African	22 (51.16)	20 (46.51)	10 (55.56)	7 (38.89)	12 (48.00)	13 (52.00)
Non-African	21 (48.84)	23 (53.49)	8 (44.44)	11 (61.11)	13 (52.00)	12 (48.00)

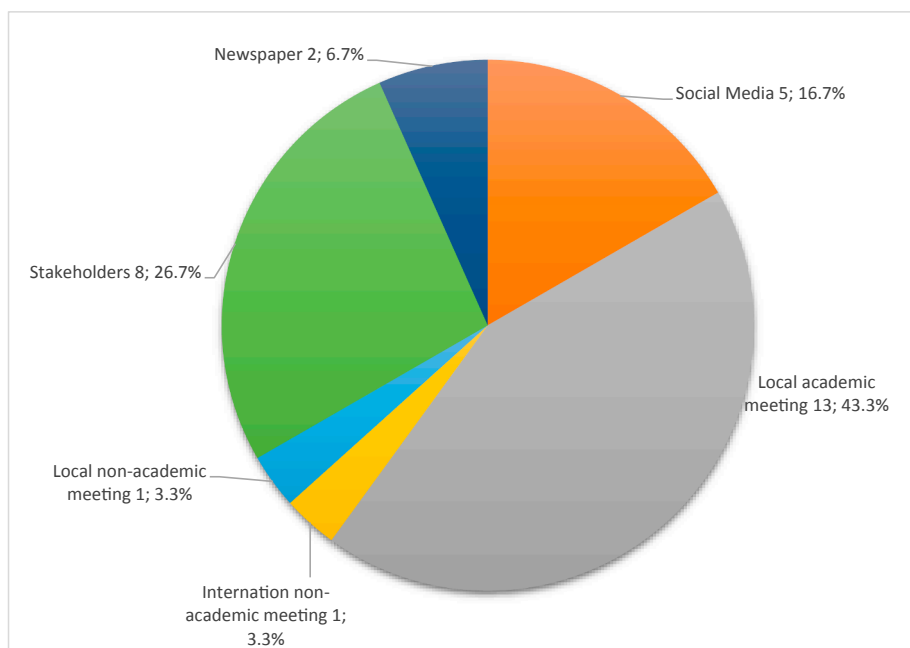


Fig. 2. Dissemination of research findings other than publications in academic journals (more than one method could have been selected per abstract).

Table 3

Reasons given for publication and non-publication by responders.

Reasons for publication	n (%)
To add to the body of knowledge	18 (100)
Career advancement	14 (77.78)
To improve my research skill	12 (66.67)
To become more recognized expert in my field	11 (61.11)
Degree requirement	6 (54.55)
Institutional requirement	6 (54.55)
Funding body requirement	1 (0.06)
Reasons for non-publication	n (%)
I do not have the time	4 (57.14)
Manuscript rejected	2 (28.57)
Study not completed	1 (14.29)

address local emergency care issues. The success of these collaborations might explain the increased number of last authors from African countries.

Research findings were often disseminated beyond the conference and its subsequent publication (Table 3). Although publication in a high impact journal is often seen as the pinnacle of dissemination, it does not necessarily reach the most appropriate audience [17]. Around half of African researchers frequently experience poor access to research due to access charges [9]. Disseminating information to the community involved should be prioritised especially as research in most African settings is only just developing. Low cost dissemination could take the form of research highlights posters in health care facilities or press releases using local newspapers and radio stations [18]. Social media can also effectively be used to sign post content or to disseminate research highlights [19].

Our survey showed that the main driving force to publish was to add to the body of knowledge. This opinion differed from a recent study that suggested that 70% of African emergency care providers get involved in research in order “to get published” [9], above “improving clinical care and patient-centred outcomes” [9]. The most common reason for failing to publish was lack of time. This finding echoes other studies [11–15,20–23]. We did not explore the reasons behind this opinion in our study, though it would be useful to understand if this is down to an individual or system problem.

The study was limited by the low response rate (24%) and therefore care should be taken to generalise the results, especially pertaining to the reasons for publishing or not publishing and the dissemination patterns beyond publication. Although an extensive database was used to search for published articles, some might have been missed, especially those from French speaking African countries. The survey was only available in English which might have limited the response due to language barrier. Nevertheless, the accuracy of the publication rate (the primary aim) was substantially strengthened by the extensive literature search although publications beyond the search date remains possible.

Conclusion

A third of scientific abstracts presented at the first and second African Conference of Emergency Medicine were published in peer reviewed journals and is comparable with non-Africa Emergency Medicine conferences. Various dissemination avenues are available to share study findings; most frequent options utilized are publication in peer-reviewed journal and presentation at conferences. The commonest reason for publication is to add to the body of knowledge whilst time constraints are often associated with non-publication. Emergency Medicine trainees and specialists in Africa need to be encouraged to participate in quality research and aim to publish in peer reviewed journals or distribute those findings through accessible formats.

Dissemination of results

Results of this study were presented at the fourth African Conference of Emergency Medicine 2018 held in Kigali, Rwanda.

Author contributions

Authors contributed as follows to the conception or design of the work; the acquisition, analysis, or interpretation of data for the work; and drafting the work or revising it critically for important intellectual content: DJvH contributed 50%, SRB 10% and MA 40%. All authors approved the version to be published and agreed to be accountable for all aspects of the work.

## Conflict of interest

Prof Stevan Bruijns is an editor of the African Journal of Emergency Medicine. Prof Bruijns was not involved in the editorial workflow for this manuscript. The African Journal of Emergency Medicine applies a double blinded process for all manuscript peer reviews. The authors declared no further conflict of interest.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.afjem.2019.01.012>.

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