SHORT COMMUNICATION

Research output after participants complete a Structured Operational Research and Training (SORT IT) course

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Eighteen months after successfully completing one of six Structured Operational Research and Training Initiative (SORT IT) courses, e-mail questionnaires assessing post-course research output were returned by 63 participants (100% response rate). Thirty-two (51%) participants had completed new research projects, 24 (38%) had published papers, 28 (44%) had presented abstracts at conferences, 15 (24%) had facilitated at further OR courses, and 21 (33%) had reviewed scientific papers. Seven (11%) had secured further research funding and 22 (35%) stated that their institutions were involved in implementation or capacity building in operational research. Significant research output continues beyond course completion, further endorsing the value of the SORT IT model.

In 2014, the International Union Against Tuberculosis and Lung Disease (The Union) and Médecins Sans Frontières (MSF), in conjunction with the Special Programme for Research and Training in Tropical Diseases (TDR) hosted at the World Health Organization, reported on post-course research output of participants after they had completed the first eight courses of the Structured Operational Research and Training Initiative (SORT IT).[1] Findings from an e-mail questionnaire survey were encouraging, and showed that a significant proportion of participants had engaged in operational research (OR) after completing the course. However, this study has several limitations, including ambiguities in some of the questions and large variations in the follow-up period, which varied from 9 months to 3 years from course completion to answering the questionnaire.

Since then, we have been more systematic in our follow-up, sending questionnaires to participants approximately 18 months after course completion and being more specific in the framing of the questions. These follow-up evaluations are important, and are necessary to assess 1) value for money and 2) whether the courses are indeed building sustainable capacity and leadership for OR in low- and middle-income countries. We now report on the follow-up of participants who completed one of six further SORT IT OR courses 18 months after course completion.

METHODS AND RESULTS

This was a cross-sectional study using self-administered questionnaires sent out and returned by e-mail.

The detailed structure and organisation of the SORT IT OR courses have been described elsewhere.[2,3] In brief, participants are enrolled in a three-module OR course run over 8–12 months. Those who complete all four course milestones, including submitting a paper to a scientific peer-reviewed journal, are certified as having successfully completed the course. Study participants included all those who had successfully completed one of six SORT IT courses 18 months previously, between June and December 2013 (Table 1). A formal questionnaire was sent to participants from the first batch of three courses in mid-December 2014, with a closing date of 31 March 2015, and to participants from the second batch of three courses in mid-March 2015, with a closing date of 30 June 2015, using the same system as previously described.[1] All questions related to output after completion of the course, and required yes/no answers, with more detailed information requested in the case of an affirmative answer. If an answer was not clear, follow-up was performed by e-mail and/or Skype.

Data were entered into an MS Excel file (Microsoft, Redmond, WA, USA), and a descriptive analysis was performed. The χ^2 test was used to compare output between categorical variables, with significance levels set at 5%. The Ethics Advisory Group of The Union, Paris, France, determined that neither ethics clearance nor participant informed consent were required for this type of study.

There were 72 (31 female) participants enrolled in the six courses, of whom 63 (88%, including 28 females) completed all four milestones, including submission of a paper to a scientific journal. Details are shown in Table 1. All 63 (100%) participants returned completed questionnaires, the detailed results of which are shown in Table 2. After the course, a slightly higher proportion of males (15/35; 43%) than females (9/28; 32%) published papers, as did those who were medical doctors (19/47; 40%) compared to those who were not (5/16, 32%). However, these differences were not statistically significant ($P = 0.38$ and $P = 0.55$, respectively). The proportion of participants who published papers was highest amongst those working in non-governmental organisations (NGOs) (12/24, 50%), followed by those working in academic-based institutions (4/10, 40%) and finally those working in the government health sector (8/28, 29%). However, the numbers were small and there were no statistically significant differences.

TABLE 1 Details of the six operational research courses and their participants

Course location	Month and year of starting	Month and year of completion	Participants enrolled n (female)	Participants completing all milestones n (female)	Participants returning questionnaires n (female)
Questionnaires sent to participants in mid-December 2014, with deadline for response 31 March 2015					
India (Chennai)	September 2012	June 2013	12 (1)	10 (1)	10 (1)
Luxembourg	July 2012	July 2013	12 (7)	11 (7)	11 (7)
France (Paris)	July 2012	July 2013	12 (6)	11 (6)	11 (6)
Questionnaires sent to participants in mid-March 2015, with deadline for response 30 June 2015					
South Pacific (Nadi, Fiji)	September 2012	August 2013	12 (6)	8 (4)	8 (4)
Nepal (Kathmandu)	February 2013	December 2013	12 (6)	11 (5)	11 (5)
Ethiopia (Addis Ababa)	February 2013	December 2013	12 (5)	12 (5)	12 (5)
Total			72 (31)	63 (28)	63 (28)

DISCUSSION

Similar to two previous studies on post SORT IT course output—one reporting on the first course ever run[4] and the other reporting on the first eight courses com-bined[1]—individual research output after completion of the courses was good and encouraging, as judged by completed OR projects, published papers, conference presentations, peer review of scientific papers and mentoring/training at further OR courses. Fewer

TABLE 2 Individual and institutional research output of participants after successfully completing a SORT IT operational research course between June and December 2013

Research outputs	n (%)
Participants successfully completing an OR course	63
Median follow-up time, months [IQR]*	17 [17–18]
Completed new research projects after the end of the course	
Participants completing new research projects	32 (51)
Total number of new research projects	112
For participants completing new research projects, median n/participant/year, n [IQR]	2 [1–3]
Publishing new papers after the end of the course	
Participants publishing papers	24 (38)
Total number of papers published†	76
For participants publishing papers, median n/participant/year, n [IQR]	1 [1–3]
Presented new posters or new papers at conferences	
Participants presenting at conferences	28 (44)
Total number of posters or papers presented‡	55
For participants presenting posters or papers, median n/participant/year, n [IQR]	1 [1–2]
Mentoring and facilitating on OR courses	
Participants mentoring on OR courses, n (%)§	15 (24)
Total number of courses mentored on	27
For participants mentoring on courses, median n/participant/year, n [IQR]	1 [1–2]
Peer review of scientific papers for journals	
Participants who peer-reviewed papers	21 (33)
Total number of papers peer-reviewed	66
For participants peer reviewing papers, median n/participant/year, n [IQR]	1 [1–3]
Participants obtaining new funding for OR	7 (11)
Participants whose institutions have taken on OR capacity building since the course was completed	22 (35)

*Time from course completion to when the study questionnaire was returned.
†All of the 76 papers published could be termed OR. The main subject matters were: tuberculosis (30); tuberculosis with HIV/AIDS or diabetes mellitus (14); female genital mutilation and sexual behaviour in Africa (8); HIV/AIDS (7); non-communicable diseases (7); neglected tropical infections (7); miscellaneous (3). The articles were published in 46 different peer reviewed journals; the principal ones are: PLOS ONE (14), Public Health Action (7); Pan African Medical Journal (3): Clinical Infectious Diseases (2); Journal of the Acquired Immune Deficiency Syndrome (2); International Journal of Tuberculosis and Lung Disease (2); Tropical Medicine and International Health (2); BMC Public Health (2): Global Health Action (2); and New England Journal of Medicine (1).
‡Of the 55 abstracts and papers presented at conferences, two overlapped with the papers published in peer-reviewed journals.
§Mainly SORT IT courses run by the International Union Against Tuberculosis and Lung Disease and MSF.
OR = operational research; IQR = interquartile range; HIV = human immunodeficiency virus; AIDS = acquired immune deficiency syndrome; MSF = Médecins Sans Frontières.

alumni obtained new research funding, which is not surprising, as most participants used routinely collected data from within their projects or programmes for their research projects, and for trainees from MSF the funding for OR is already integrated into the operational budgets.

The strengths of this study are the 100% response rate and, since the previous study,[1] the improved clarity of the questionnaire. There were some limitations. First, we asked about completed projects and published papers, and this may underestimate research output as it does not take into account projects that have just started or are ongoing. Second, it is possible that alumni undertook additional training courses after the SORT IT course that resulted in further improvements in research skills and success in publication, and we have no information about this. Third, the findings were based on self-administered questionnaires and conducted by organisers of SORT IT courses, raising questions about conflict of interest.

While we will continue to monitor and report on output 18 months after course completion, there are several areas in need of further study. It would be valuable to introduce a more qualitative component to the assessments and understand why some participants engage in further research and why some do not. We would also like to monitor output 5 years after course completion to see whether research endeavours are long-term and are embedded into health programmes and whether post-course projects and papers have resulted in changes in policy and practice. Finally, it would be useful to obtain an independent, comparative and ob-jective assessment of post-course output, as has been done with the course output.[5] The vision of the SORT IT programme is to build long-term capacity and leadership in OR,[6] and it should also be possible to monitor this, as the alumni are now actively included in a web-based OR network right from the start of the courses.

In conclusion, we have found that a significant proportion of participants successfully completing our OR courses continue to engage in a number of research-related activities 18 months beyond the course. This is an encouraging finding and endorses the long-term value of these courses.

References

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Dix-huit mois après avoir terminé avec succès l'un des six cours structurés de recherche et de formation opérationnelle (SORT IT), des questionnaires par e-mail évaluant les résultats de la recherche post formation ont été renvoyés par 63 participants (taux de réponse de 100%). Trente-deux (51%) participants ont achevé de nouveaux projets de recherche, 24 (38%) ont publié des articles, 28 (44%) ont présenté des abstracts lors de conférences, 15 (24%) ont été facilitateurs dans des cours de recherche opérationnelle ultérieurs et 21 (33%) ont révisé des articles scientifiques. Sept (11%) ont assuré le financement de leur recherche à venir et 22 (35%) ont affirmé que leurs institutions étaient impliquées dans la mise en œuvre ou le renforcement des capacités en recherche opérationnelle. Des bénéfices significatifs en termes de résultats de recherche se poursuivent au-delà de la fin du cours, ce qui confirme la valeur du modèle SORT IT.

Dieciocho meses después de haber completado con éxito uno de los seis cursos Estructurados de Capacitación e Investigación Operativa (SORT IT, por su nombre en inglés 'Structured Operational Research and Training'), los 63 participantes respondieron a un cuestionario enviado por correo electrónico (tasa de respuesta del 100%), con el cual se evaluaban los resultados en materia de investigación posteriores al curso. Treinta y dos participantes habían completado nuevos proyectos de capacitación (51%), 24 publicaron artículos (38%), 28 presentaron carteles en conferencias (44%), 15 participaron como facilitadores en nuevos cursos de investigación operativa (24%) y 21 habían realizado el examen crítico de artículos científicos (33%). Siete de los participantes consiguieron nuevos financiamientos de investigación (11%) y 22 declararon que sus instituciones participaban en la introducción o el reforzamiento de la capacidad en investigación operativa (35%). Después de haber completado el curso, se observaron resultados apreciables en materia de investigación, que confirman la utilidad del modelo SORT IT.