Mental health e-supervision for primary care doctors in Sudan using the WHO mhGAP Intervention Guide

Anne Aboaja,[1] Puja Myles[2] and Peter Hughes[3]

[1]Consultant Forensic Psychiatrist/ PhD Researcher, Centre of Population Health Sciences, University of Edinburgh, UK, email anne.aboaja@ed.ac.uk

[2]Associate Professor, Faculty of Medicine and Health Sciences, University of Nottingham, UK

[3]Consultant Psychiatrist, Springfield University Hospital, London, UK

Anne Aboaja was a volunteer supervising psychiatrist on the e-supervision programme; Peter Hughes developed and coordinated the e-supervision programme and acts as an *ad hoc* WHO mhGAP consultant and trainer.

This paper describes the evaluation of a pilot e-supervision programme, with a focus on feasibility. The findings suggest that e-supervision in mental health using the World Health Organization (WHO) Mental Health Gap Action Programme (mhGAP) Intervention Guide and case-based discussions is valued by participants and can improve the knowledge, confidence and beliefs of primary care doctors in low- and middle-income countries.

It has been suggested that where there is a shortage of psychiatrists in low- and middle-income countries (LMICs), primary care doctors might confidently undertake the task of identifying and managing some mental illnesses in a primary care setting, after receiving short-term mental health training and with ongoing supervision (Kakuma *et al*, 2011). However, inadequate training, limited knowledge, fear and negative misconceptions about mental illness have been associated with primary care health workers being reluctant or ill-equipped to assess, diagnose and treat mental illness (Kakuma *et al*, 2011). The World Health Organization (WHO) published the Mental Health Global Action Programme Intervention Guide (mhGAP-IG) as a training tool for primary care health workers (WHO, 2010).

Sudan is a low-income country with a shortage of doctors trained to meet national mental health needs (WHO, 2005, 2011; Bruckner *et al*, 2011; World Bank, 2014). An evaluation of a 1-week face-to-face mhGAP-IG course for Sudanese general practitioners (GPs) (Ali *et al*, 2012) reported subsequent improvement in knowledge and attitudes and recommended that the GPs then receive internet-based support from outside Sudan to enhance the training received.

A programme of internet-based support (e-supervision) from the UK was developed in response to this recommendation. The e-supervision programme assumed integration of mental health into primary care, complemented by a tertiary level of expertise for complex cases and hospitalisation. The Ministry of Health in Sudan nominated GPs who had undertaken the face-to-face training to participate in the e-supervision programme. E-supervision supervisors were psychiatrists identified through the Volunteer and International Psychiatry Special Interest Group within the Royal College of Psychiatrists. E-supervision sessions were expected to occur for

at least 1 hour per month, to cover the content of the WHO mhGAP-IG, and to include GP-led case-based discussions. Psychiatrists were invited to contribute to a group email discussion forum where they could share ideas and experiences relating to the e-supervision programme. The rationale was that through e-supervision, the knowledge, confidence and beliefs of the Sudanese GPs in relation to mental health would improve.

The use of face-to-face supervision in psychiatry is widely recognised as a useful training method in the management of clinical cases (Julyan, 2009). Less is known about the potential utility of e-supervision. The aim of the study was to explore its feasibility in a 6-month pilot programme (December 2011 to June 2012). This paper reports the quantitative and qualitative findings of the study relating to feasibility, potential outcomes and value.

Method

The coordinator of the programme was responsible for screening all potential participants for suitability and then assigning each Sudanese GP to a volunteer psychiatrist who would assume the role of supervisor. The coordinator informed each supervising psychiatrist of the expectations of a typical e-supervision session. After the pre-programme data (described below) had been collected from an assigned GP, the GP and supervising psychiatrist were responsible for agreeing when supervision would occur, the expectations of the GP, the expectations of the supervisor and the limits of responsibility of the supervisor. A typical e-supervision session is outlined in Table 1.

A mixed-methods evaluation design involving collection of both quantitative and qualitative data at different stages of the evaluation period was adopted.

All data were collected electronically. The mental health knowledge, confidence and beliefs

Table 1

Outline of a typical e-supervision session

Duration (min)	E-supervision session activity
5	Log on. Outline of session
50	Discussion of a mental health topic from the WHO mhGAP-IG with direct reference to the guidance and using clinical cases from the GP's clinical practice
5	Review of session and agree topic for next session
–	Close session

Table 2

Examples of statements to test knowledge, confidence and beliefs of Sudanese GPs

Aspect of training	Example of statement	Response
Knowledge	In women of child-bearing age with bipolar disorder, the mood stabiliser valproate is the first-line treatment	True/false
Confidence	I feel confident in managing the treatment of depression	Five-point Likert scale (strongly disagree to strongly agree)
Beliefs	I am scared of people with mental illness	Five-point Likert scale (strongly disagree to strongly agree)

of the GPs were measured at the start of the programme and 6 months later. GP data were collected through a self-administered knowledge questionnaire comprising 20 true/false statements about psychiatry based on the WHO mhGAP-IG in both English and Arabic (Table 2). They were also given a questionnaire of statements requiring a five-point Likert scale response for agreement, ranging from strongly disagree to strongly agree, to assess their confidence in managing different mental disorders and their beliefs about mental health (Table 2).

The GPs were asked to complete the same questionnaires 6 months after they had commenced the e-supervision programme. GPs who failed to complete both questionnaires and who had not commenced e-supervision by 31 December 2011 were excluded from the evaluation.

Three GPs, randomly sampled from those who had completed 6 months of e-supervision, and three psychiatrists, similarly sampled, were invited to participate in a semi-structured online interview in order to provide subjective qualitative data on their experiences of the e-supervision programme. Questions covered the experience of the supervision pilot, whether the WHO mhGAP-IG was used in every session, how much time was spent on the pilot each month and what problems were encountered.

Anonymised data from the psychiatrists' email discussion forum were extracted to provide additional information on the qualitative experiences of the e-supervision programme.
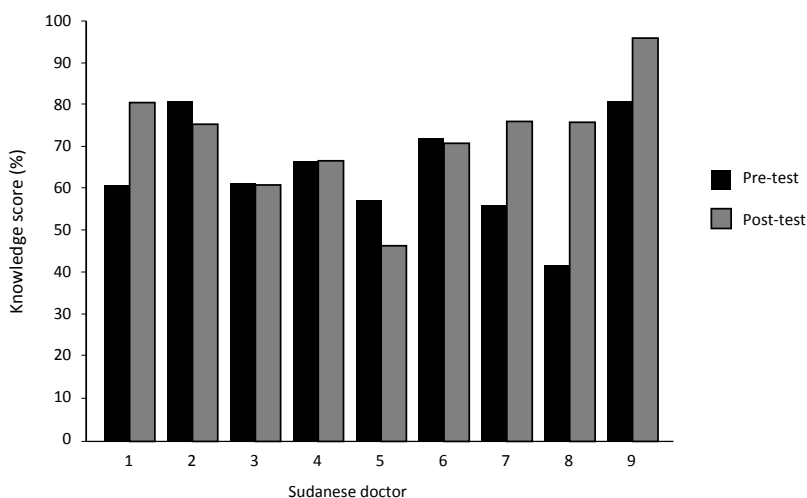
Quantitative data were analysed using Stata version 11.0. Paired *t*-tests were used to assess the significance of differences in knowledge over time. Wilcoxon signed rank tests were used to assess differences in confidence and beliefs over time. Missing data for answers to individual knowledge questions were treated as incorrect answers and scored accordingly. Items with missing data for questions assessing confidence and beliefs were excluded from the analyses. Framework analysis was used to analyse qualitative data to identify barriers to the delivery of the programme and any additional benefits.

Results

Seventeen of the 29 GPs who had been nominated for and who subsequently agreed to commence the e-supervision proceeded to complete the pre-programme questionnaires. Within this group, 13 GPs commenced e-supervision sessions before 31 December 2011. Of these 13, nine completed the repeat questionnaire 6 months later.

For these nine GPs, after 6 months of e-supervision there was an increase in knowledge, with pre- and post-programme median scores of 60% and 75%, respectively (Fig. 1), but this was not statistically significant ($P = 0.20$).

Post-test increases in perceived confidence to any degree on the Likert scale were reported for managing all scenarios and treatments, with numbers of GPs who reported any increase ranging from 1 (11%) for the management of schizophrenia to 7 (78%) for the use of amitriptyline (Table 3). After 6 months of e-supervision there was a significant increase in the number of GPs who agreed or strongly agreed with statements of perceived confidence in managing most of the clinical scenarios presented, with the exceptions of managing the violent patient and the patient with schizophrenia (Table 3). Statistical significance in changes in perceived confidence in managing scenarios was found only in the assessment of capacity (one person felt confident in the pre-test phase, six in the post-test phase; $P = 0.025$). Overall, GPs reported an increase in perceived confidence in using all six treatments listed, including psychotherapy; this was statistically significant for chlorpromazine, amitriptyline and sodium valproate (Table 3).

Again, nine of the original 13 GPs completed the post-test survey section about beliefs. Three of these GPs strongly disagreed with the statement 'I am scared of people with mental illness' 6 months after the e-supervision began compared with one before supervision sessions began ($P = 0.26$). The proportion of GPs who strongly disagreed with the statement 'If I work with people with mental illness I can become mentally disturbed' increased from two to four ($P = 0.80$).

Framework analyses of data from the semi-structured interviews and the email discussion forum showed barriers to the delivery of the e-supervision programme and benefits of the programme (Table 4). Volunteer psychiatrists found the experience of e-supervision highly rewarding

Fig. 1

Knowledge scores before and after 6 months of e-supervision

Table 3

Number (%) of affirmative responses from nine Sudanese GPs to questionnaire statements

Confidence statement	Pre-programme	Post-programme	P
I feel confident in managing the following scenarios:			
Schizophrenia	5 (56)	4 (44)	0.564
Depression	6 (67)	8 (89)	0.157
Catatonia (*n* = 8)	1 (11)	2 (25)	0.564
Violent patient	3 (33)	3 (33)	1.000
Assessing capacity (*n* = 8)	1 (13)	6 (67)	0.025
Assessment of suicide risk	5 (56)	7 (78)	0.317
I feel confident using the following treatments:			
Chlorpromazine	4 (44)	8 (89)	0.046
Amitriptyline	3 (33)	7 (78)	0.045
Sodium valproate	5 (56)	9 (100)	0.046
Psychotherapy	3 (33)	4 (44)	0.564
Depot antipsychotic	2 (22)	4 (44)	0.317
Psychoeducation	3 (33)	5 (56)	0.317

Table 4

Framework analysis findings of the e-supervision experiences of psychiatrists and Sudanese GPs

Theme	Sub-theme
Barriers to delivery of the programme	Unreliable technology Cultural differences between psychiatrists and GPs Time constraints
Benefits of the programme	Improves patient management by GPs Increases confidence of GPs Highly rewarding and educational for psychiatrists

and educational; GPs felt that their recognition and management of patients with mental health problems had improved. Technological difficulties and cultural differences hindered the programme, but GPs valued the programme highly. While they expressed a willingness to pay for e-supervision in the future, the three psychiatrists were keen to offer support only on a voluntary basis.

In summary, the mhGAP e-supervision programme is challenged by a series of barriers. The outcomes were more marked in relation to increased confidence than to increased knowledge. The increase in confidence of GPs was found in both quantitative and qualitative results. Although not statistically significant, an improvement in attitudes towards mental illness is a potential outcome. An additional and unexpected benefit was the educational value for supervising psychiatrists. The programme is highly valued by GPs.

Discussion

To our knowledge, this is the first study to evaluate a unique mhGAP programme involving e-supervision to increase the capacity of primary care to deal with mental health problems in a low-income country. Overall, within 6 months of commencing the e-supervision programme, Sudanese GPs had greater knowledge of mental illness, felt more confident in managing mental illness and held views about mental illness that were less negative. The findings support the programme's rationale.

The feasibility of the programme could be improved by addressing some of the barriers identified. Restricting e-supervision to text-only instant messaging and avoiding audio-visual communication modes such as Voice over Internet Protocol (VoIP) may overcome the technology barrier to a degree. However, the evidence suggests that distant supervision between clinicians in a high-income country and those in a low-income country has limitations when restricted to the use of text, such as email (Rahman *et al*, 2006). Prior to commencing the first e-supervision session, all participants could be given advice on how to minimise technological disturbance. The language difficulties arising from the low number of Arabic-speaking psychiatrist supervisors sometimes hindered communication during e-supervision sessions. Recruiting more Arabic-speaking psychiatrist volunteers from the UK would help to minimise language problems. Some time constraints could be overcome by extending the programme by up to 3–6 months, to allow sufficient time to cover the WHO mhGAP-IG content.

Despite these identified barriers, the Sudanese GPs reported improved patient management and increased confidence in identifying and managing mental illness. This is consistent with findings reported in a study which showed some benefits of clinical supervision of nurses by a psychiatrist using videoconferencing within the same country, when the geographical distance was a barrier to regular face-to-face contact (Heckner & Giard, 2005).

There were difficulties in retaining GP participants within the e-supervision programme. Some GPs moved to better-paid jobs in more affluent countries in the Middle East. Proposed solutions to the 'brain drain' of doctors from lower-income countries have included the home country taking responsibility for improving retention through increased pay, training and work opportunities, with support from higher-income countries, in particular the country to which doctors move, which would share expertise and best practice and also provide funding for training and improving infrastructure for health in the lower-income country (Kuehn, 2007). In the present pilot, the effect of GPs migrating to other countries resulted in a relatively small number of people who actually completed 6 months of e-supervision. These GPs were not were not followed up in the present study. Further study of the rate and reasons for GP attrition in the programme would identify further barriers to the feasibility of the e-supervision programme and determine whether the e-supervision should also be offered to non-medically qualified health workers with appropriate training (Bruckner *et al*, 2011).

A key limitation of this pilot study is the small sample size, which may not only have skewed the findings of the qualitative analysis but also have affected the interpretation of quantitative data and

associated significance testing (Duffy *et al*, 2005). The evaluation was also limited by the absence of a comparison group which did not receive the e-supervision. Therefore, positive outcomes cannot be confidently attributed solely to the e-supervision programme. The study design, which relied heavily on the direct report of participants, could have been strengthened by including additional objective measures of outcome, such as a grading of the change in confidence of the GPs as assessed by the supervising psychiatrist following case-based discussions. Although the evaluation attempted to assess the overall standardisation of e-supervision sessions through the semi-structured interview questions about time and use of the WHO mhGAP-IG, no evaluation data were collected about the degree of standardisation of individual e-supervision sessions of all participants. A lack of standardisation in the execution of e-supervision sessions may have affected the outcomes of the programme. A future trial of the programme should include more stringent controls of quality and standardisation.

In summary, the limited findings of this small pilot do not confirm whether the mhGAP-IG can be used effectively to supervise primary care doctors at a distance. It is recommended that the barriers to the e-supervision programme are addressed fully. It would then be appropriate to re-evaluate the mhGAP e-supervision programme with a larger number of GPs and psychiatrists. Ideally, this evaluation should follow a controlled trial design and include a detailed economic evaluation. This needs to take place before the e-supervision programme can be confidently rolled out to other countries.

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The WHO mhGAP Intervention Guide for people with intellectual disability: the Sri Lankan experience

Rohit Gumber,[1] Shweta Gangavati,[2] Sabyasachi Bhaumik,[3] Sherva Cooray,[4] Kiran Purandare,[5] Jayan Mendis[6] and Chamila Abeywickrema[7]

[1]Consultant Psychiatrist, Leicester Frith Hospital, Leicester, UK, email gumber@doctors.org.uk

[2]Locum Speciality Doctor, Leicester Frith Hospital, Leicester, UK

[3]Consultant Psychiatrist, Leicester Frith Hospital, Leicester, UK, and Honorary Chair, University of Leicester, UK

[4]Consultant Psychiatrist and Chair of the ICD-11/DID Working Group, Faculty of Psychiatry of Intellectual Disability, Royal College of Psychiatrists, London, UK

[5]Consultant Psychiatrist, C&NW London NHS Foundation Trust, UK

[6]Director and Consultant Psychiatrist, National Institute of Mental Health, Colombo, Sri Lanka

[7]Medical Officer, National Institute of Mental Health, Colombo, Sri Lanka

In recognition of the treatment gap in mental health, the World Health Organization (WHO) Mental Health Gap Action Programme (mhGAP) was launched in 2008 and has proved successful. The paper describes the launch of the first mhGAP intellectual disabilities pilot project in Sri Lanka. It reports on the development of the materials and the key lessons learnt.

Mental disorders and intellectual disability are universal, but many low-income countries are unable to provide the appropriate healthcare services. This results in a significant treatment gap. It is estimated that 76–85% of patients with mental disorders do not receive the treatment they need (Khon *et al*, 2004). Some cultures emphasise the role of religion in understanding intellectual disability and caring for people with such conditions. This population is then less likely to seek help from medical professionals (Royal College of Psychiatrists, 2011). According to the World Health Organization (WHO), within low- and middle-income countries (LMICs) 80% of all people with a disability live in poverty in isolated rural areas, often stigmatised and, despite their high rates of morbidity, have poor access to healthcare (WHO, 2009). The WHO (2011) estimated a shortage of 55 000 psychiatrists and over 600 000 mental health nurses worldwide.