

# Use of interactive teaching techniques to introduce mental health training to medical schools in a resource poor setting

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## Abstract

**Objective:** There are currently no practising psychiatrists in Somaliland. In 2007 the first medical students graduated from universities in Somaliland without mental health training. We aimed to pilot an intensive but flexible package of mental health training to all senior medical students and interns using interactive training techniques and to evaluate its effectiveness by assessing knowledge, skills and attitudes. **Methods:** Teaching techniques included didactic lectures, case based discussion groups and role playing. Informal feedback informed a flexible teaching package. Assessment tools designed specifically for this course included a pre and post course MCQ exam and an OSCE. Changes in students' attitudes were evaluated using a questionnaire administered before and after the course. In addition, a questionnaire administered following the course evaluated the changes students perceived in their knowledge and attitudes to mental health. **Results:** The MCQ improved from 50.7% pre course to 64.4% post course ( $p=9.73 \times 10^{-8}$ ). Students achieved an average overall OSCE mark of 71%. The pre and post attitudes questionnaire was most significantly different for statements relevant to aetiology, stigma and the overlap between mental and physical health. The statement most strongly agreed with after the course was 'I now understand more about the overlap between mental and physical health'. **Conclusion:** Interactive teaching provided a learning experience for both students and trainers. On site and distance learning based on the teaching described here has widened the scope of the training possible in psychiatry and allowed the provision of regular teaching, supervision and peer support in Somaliland. However, the current lack of local expertise means that important issues of sustainability need to be considered in future work

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## Introduction

According to global burden of disease estimates, 30.8% of all years lived with disability are accounted for by mental and neurological conditions.<sup>1</sup> Moreover, the burden of disease due to mental disorders appears to be increasing.<sup>2</sup> Most of the global burden of mental illness falls to the poorest nations where 80% of world's population live.<sup>3</sup> One third of the

population of the world, i.e. 2 billion people, live in countries spending less than 1% of their health budget on mental health.<sup>4</sup>

In addition, there is a scarcity of human resources in low and middle-income countries. Sub-Saharan Africa has 24% of the global burden disease but only 3% of the world's health workers<sup>5</sup>, and international migration of psychiatrists to richer countries has had a major impact on the psychiatrist population ratio in the countries of origin.<sup>6</sup> There is also a major brain drain of nurses, exemplified by the fact that in 2003 one out of every three work permits issued to nurses in the UK were to nurses from low and middle-income countries.<sup>7</sup> This lack of general and specialist human resources in low

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income countries has had a major impact on the capacity of countries to make effective use of international aid.

### *The situation in Somaliland*

Somaliland, in the Horn of Africa, gained independence from Britain in 1960 when it joined other regions to become the Republic of Somalia. Following a period of bloody civil war and mass migration in the 1980s, Somaliland declared itself independent in 1991 although its independence from Somalia is not internationally recognised.<sup>8</sup>

Post conflict Somaliland and its consequently weakened health sector face a high unmet mental health need due in part to the conflict itself, khat (a plant substance which has psychomotor stimulant effects when chewed) use and unemployment.<sup>9</sup> In addition, high rates of female genital mutilation (98%)<sup>10</sup>, as well as suspected high rates of domestic and gender-based violence may prove potent risk factors for mental illness in women.

Somaliland has an estimated population of between 2 and 3.5 million<sup>11</sup> and the health budget is \$750,000 per year. Somaliland's status as an unrecognised country has hampered the efforts of international donors to engage effectively. The fact that much of national income is derived from remittances from the diaspora means that the government itself has little or no resource with which to develop mental health training for health workers.

Human resources for mental health are extremely scarce with no practising psychiatrists and very few other health care workers who have, at best, limited training in either mental health or general health. Primary care is very limited; there are no mental health workers or psychotropic medications available in either primary or secondary health care services, including maternal and child health centres and health posts (community clinics). Religious or traditional healers are often the first port of call for those suffering from mental health problems.<sup>12</sup>

Until recently specialist mental health services were confined to two inpatient units (one at Hargeisa Group Hospital (HGH) with 110 bed capacity and one in Berbera Mental Hospital on the coast with approximately 42 beds) which operate largely without medical input and with untrained nursing staff.<sup>13</sup> In 2007 the first medical students graduated from two medical schools in Somaliland (University of Hargeisa in Hargeisa, the main city of Somaliland and the University of Amoud in Boroma) but without training in mental health.<sup>13</sup>

### *Health links*

As a part of the International Health Links network<sup>14</sup>, health institutions in high-income countries have supported education and training in low and middle-income countries. International health links are mutually beneficial, collaborative, long-term partnerships between institutions. One such health-link, The King's THET Somaliland Partnership (KTSP) has been developed between King's College Hospital in London and partners in Somaliland including academic institutions, hospitals, professional associations and the Ministry of Health and Labour since 2000<sup>8</sup>, supported by the Tropical Health and Education Trust (THET).

In response to concerns raised by Hargeisa Regional Health Board in Somaliland to KTSP regarding mental health in 2006, a KTSP multidisciplinary mental health group was set up

to contribute to mental health training in the region.<sup>13</sup> A first step was to conduct situation appraisal in Somaliland. This was conducted in 2006 by two UK based psychiatrists. During the appraisal, stakeholder meetings were held with the Ministry of Health and Labour, Hargeisa Regional Health Board, World Food Programme, World Health Organization, United Nations Development Programme and GAVO (General Assistance and Volunteer Organization) which is a local NGO. During the appraisal the Institute of Health Sciences, the Deans of both Hargeisa and Amoud medical schools and the Somaliland Medical Association were also consulted. It was acknowledged that even though medical students at both universities were required to pass a psychiatry course to proceed to finals where psychiatry is part of the written and clinical examination, no resources were identified in Somaliland to deliver teaching or supervision in mental health to medical students. In addition, on graduating from medical school, students are required to undertake a 2 year internship programme of which psychiatry is a part, however there was no resource identified in Somaliland to provide suitable supervision for this.

### *Considerations in introducing psychiatry training in Somaliland*

Curricula need to be tailored to the context, resources and culture of a country.<sup>15-17</sup> And such tailoring needs to be carried out in partnership with local professionals and other stakeholders.<sup>18</sup> However, there was a lack of local mental health specialists to inform curricula development and teaching in Somaliland. In addition, conditions on the mental health ward in HGH with inadequate containment of severely psychotic patients rendered it unsuitable for teaching.

Our aim of this pilot teaching course was multifold:

- To develop the knowledge and skills of medical students and interns with flexibility to maximise relevance and cultural sensitivity.
- To evaluate the course in terms of improvement of knowledge, skills, changes in attitudes and the perception of students to changes that had occurred during the course.
- To develop a course that we could then further adapt for subsequent distance and on-site teaching.

We hypothesised that the use of interactive teaching techniques such as role play<sup>19,20</sup> and case based discussions<sup>21-23</sup> would be effective and along with daily feedback from both trainees and trainers would allow a flexible approach. This would allow training to be constantly amended according to usefulness thus maximising cultural sensitivity and relevance. Course materials including cases for role plays and discussions could then be utilised for future training.

### **Method**

#### *Teaching personnel*

A group of four psychiatrists (RJSS, NB, PH and AI) and a senior nurse manager (AO) were selected by the KTSP mental health group. All have previous experience teaching in low and middle-income countries and RJSS was chosen as the team lead. All of the team other than AI were working in London. AI lives in Canada and was originally from Somaliland. He was

chosen as part of the team to improve cultural sensitivity and communication. GAVO, who have extensive experience in dealing with the psychosocial aspects of mental illness in Somaliland was also asked to attend the teaching and in addition gave a talk on the psychosocial aspects of mental health care in Somaliland.

### **Participants**

All of the final year medical students and interns received the training; this consisted of 19 final year medical students at Hargeisa University and ten at Amoud University, together with the only six interns who graduated in Somaliland in the previous year. None of these students or interns had previously received formal mental health training, although AI had delivered some ad hoc training when visiting on annual leave.

### **Content**

The team formulated themes for the basic training from the situation appraisal, prior experience in low and middle income countries and adapted these from a teaching programme developed in Kenya.<sup>18</sup>

Role plays and case based discussions were based on the Kenya materials and on real cases seen on the ward in HGH and adapted by PH. The teaching materials also included background lecture notes, case examples, and role-plays adapted from the Kenyan teaching toolkit.<sup>18,24</sup> All cases were recorded for further role play and problem based learning. The training was delivered over 7 days with an extra day at the end for assessment and feedback.

### **Teaching methods**

A different teaching lead was assigned for each day to make use of different teaching styles and observe which were most effective. We used a mixture of interactive and didactic teaching. Classroom teaching included theoretical presentations as well as substantial practical sessions including role playing (groups of three students) and small (2-4 students) and large (8-10 students) case based discussion groups. In addition AI interviewed patients from the ward in front of the teaching group with questions and interaction from the students. Role plays and discussions lasted for 10-20 minutes. Role plays were done in groups of 2-3 students; and were generally performed by two of the three students and observed by the other. Usually one student played the patient/carer and the other the health care professional. At least three of the teaching staff observed the role plays and discussion groups. One of the teaching staff took notes. Role plays and case based discussions were then discussed together as the large teaching group afterwards. Students were invited to role play or present their discussions to the larger group.

Student feedback was received on a daily basis. Feedback was invited as part of small and large discussion groups and the trainers were made available to take feedback on an individual basis following each day's teaching. Notes were taken on this feedback.

All of the trainers attended daily debriefing meetings and reflected on the days training and discussed the student feedback. Minutes were taken by one of the teaching staff and then distributed amongst the other members of teaching staff

to further amend. This process continued until a consensus was reached. The content and style of teaching were then further modified according to the feedback from students and staff debriefing on a daily basis. The purpose of the feedback and debriefing was to inform and modify training on a continual basis therefore formal qualitative analysis was not performed.

### **Setting**

All of the students were taught together at HGH where there is a teaching facility with space for training up to forty students, and access to a white board and projector.

### **Assessment Tools**

#### *Multiple Choice Question Exam (MCQ)*

The purpose was to review the pre-training knowledge and compare it to that at the end of the course. Questions were chosen, prior to arrival in Somaliland from the Kings College Hospital bank of MCQs for medical students by PH, and RJSS. Questions were chosen to be relevant to the context and contained in the content of the course.

#### *Objective Structured Clinical Examination (OSCE)*

NB developed five OSCE stations based on real cases from the ward and designed to test knowledge and skills contained in the course. These were reduced to three examination stations and one example station, chosen democratically by the team. NB and RJSS performed the example station in front of the student group with PH and the students acting as "examiners". Two of the stations were examined in English and one in Somali, translated by AI. The actors were played by GAVO and examined by AI (who is fluent in Somali). The English station utilised actors from GAVO and were examined by teaching staff. Detailed instructions to actors were produced as well as instruction to candidates and marking schemes for examiners. GAVO staff have no formal training in acting, they do however have extensive experience with the mentally unwell.

#### *Attitudes questionnaires*

There were two sets of attitudes questions designed specifically for this course based on previous (non-teaching) visits to Somaliland. One set was administered both before and after the course and included questions about the priority that should be given to the management of mental illness. These 15 questions can be seen in Table III. The other set of questions was administered after the course only and included questions as to how much the students perceived they had changed in terms of their attitudes, skills and knowledge over the course. These questions can be seen in Figure 1.

The students were not required to give their name for the attitudes questionnaire to reduce social desirability bias. Both sets of questions utilised a five point Likert scale ("strongly disagree", "disagree", "neither agree nor disagree", "agree", "strongly agree") which were phrased both negatively and positively to avoid confirmation bias.

### **Analysis**

The MCQ score's were to be analysed comparing before and after using a paired two tail T-test. There were not sufficient items to conduct an item analysis.

The OSCE scores were split into communication skill score and clinical skill score.

For the before and after questionnaire only the data of those students who answered the questions both before and after the course were compared. A descriptive analysis was performed. The range and median score were given for each question. The results were compared using a paired Wilcoxon rank sum test.

### Ethics

As the examination (MCQ and OSCE) and attitudes questionnaires were intrinsic parts of the teaching process an audit to assess utility was not deemed to require formal ethical clearance, as per Kings College requirements; however, the Institute of Health Sciences in Hargeisa, the Deans of both Hargeisa and Amoud medical schools and the Somaliland Medical Association were consulted and approved of the course development, delivery and assessment of utility as described.

### Results

All participants on the course (29 medical students and 6 interns) gave informal verbal feedback about the course and all 5 teachers contributed to daily debriefing. The recommendations from this were then fed into the remainder

of the teaching (Table I gives an example of this process).

Attendance records were kept in accordance with usual university procedures and the students maintained excellent attendance throughout (100% attendance for 5 of 7 days, 2 students missed 1 day each).

All 29 final year medical students completed pre and post course MCQs (Table II). The students significantly improved their MCQ score over the duration of the course with a mean improvement of 12.7%. The results of the MCQ exam are summarized in Table 2. 78% (25/32) of those attending the course achieved a final average mark of over 60%, which would be equivalent to a pass in the UK.

All 29 final year medical students completed the post course OSCE. The average mark of the OSCE was 71% overall, made up of a communication skills score of 83% and clinical skills score of 61%.

The majority of the students (25 out of a possible 29) completed the pre and post training attitude questionnaires. Unfortunately four students arrived late for the teaching and did not complete the pre training questionnaire. The results are summarised in Table III.

Perceived attitude changes were measured at the end of the course (31 participants; 29 students and 2 interns) and the results can be seen in Figure 1.

**Table I: An example of feedback gained and changes made**

Subjects taught	Feedback from students	Team debrief	Changes made to course
<b>Day 1</b> Introduction, Physical/mental health, Communication skills- in particular breaking bad news Classification	When breaking bad news, the students felt that in Somali culture it was important of speak about Allah's will and tell the head of family first.  Have found it difficult to break bad news before and found role play useful  Interns did not like to be taught with students	The teaching went well and according to time Intermixing lecture with practical seems to work well	To teach general principles e.g. safety first, and how to make clinical decisions rather than to teach hard and fast rules  Interns to be taught separately
<b>Day 2</b> History taking, Affective disorders	They had never explained side effects before but felt it was a good skill  Students would prefer longer lessons with longer breaks. It is culturally acceptable to share information with family Patient consent for talking to family is often not taken into consideration.	Some nurses were attending the teaching but did not understand English.  Many parts of a standard psychiatric history are very sensitive in Somaliland (drugs/alcohol, sex, suicide)	All to teach staff in Somali  Timetable amended

**Table II: MCQ Exam Results**

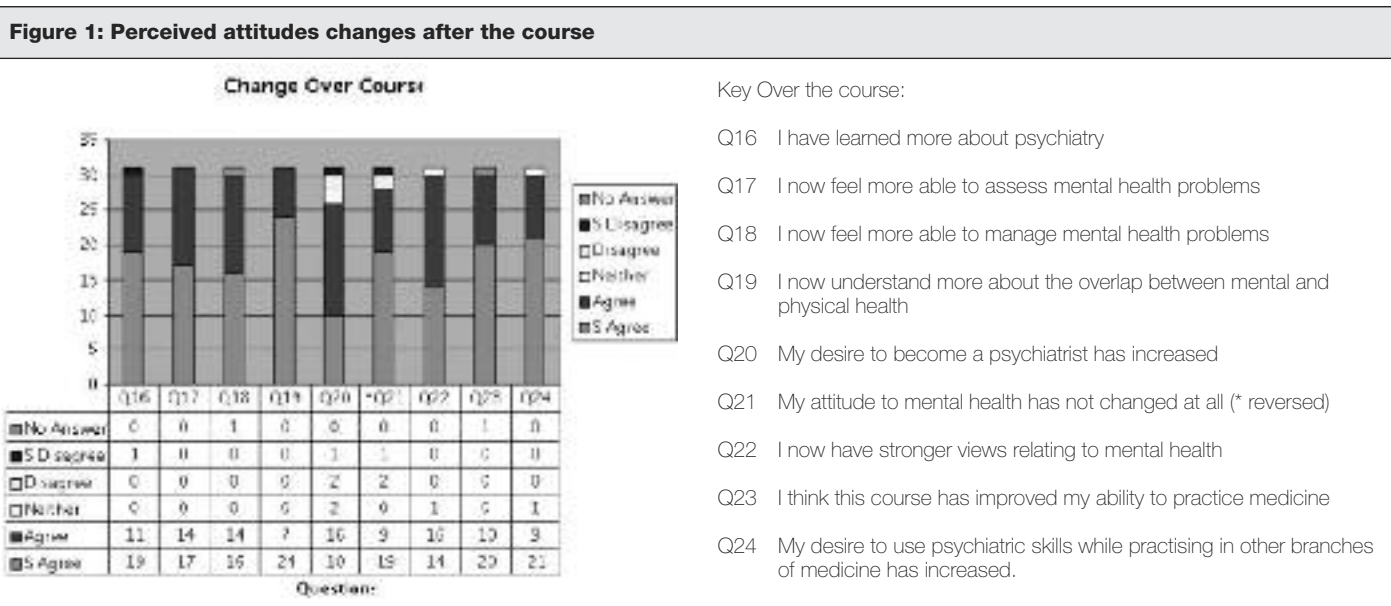
		<i>n</i>	Score mean (%)	<i>SD</i>	Range	* <i>T-test (p=)</i>
MCQ	Pre course	29	50.7	6.9	34-61	9.73 E-08
	Post course	29	64.4	7.1	48-85	

\* two tailed T-test

**Table III: Attitudes questionnaire comparing T1 with T2**

Question	N	Median T1	Median T2	Range T1	Range T2	Wilcoxon rank sum $t1=t2, Prob >  z $
*1 I think having a mental illness is the fault of that person*	25	3	4	1-4	1-4	0.004*
*2 I think mental health is less important than physical health*	25	4	4	3-4	2-5	0.593
3 I think it is important to look for physical causes of psychiatric symptoms	25	4	5	2-5	4-5	0.012*
4 I think it is important for all doctors to have a basic understanding of psychiatry	25	5	5	4-5	4-5	0.527
5 I feel I have an obligation to promote mental health awareness in the community	25	4	4	3-5	1-5	0.760
*6 I think psychiatry is irrelevant to medical students*	25	4	4	3-4	3-5	0.564
*7 I don't think it is important to treat or prevent physical illnesses in the mentally ill*	25	3	4	1-5	2-5	0.011*
8 I think people who have mental illnesses can be discriminated against (ie prejudiced against because they have a mental health problem)	25	1	1	1-5	1-5	0.832
9 I think there is a lack of resources for managing the mentally ill	25	4	4	1-5	1-5	0.565
*10 I don't think Doctors should be involved in the care of the mentally ill*	25	3	3	1-4	1-5	0.502
*11 I think that the mentally ill should be looked after by specialists (psychiatrists) only	25	3	3	0-4	1-5	0.502
*12 I think the mentally ill should have fewer rights to treatment than the physically unwell	25	4	3	1-5	1-5	0.549
*13 I don't think it is important to take the preferences of the mentally ill into consideration when choosing treatment	25	3	3	1-5	1-5	0.921
*14 I think mental illness have mainly spiritual causes	25	2	3	1-4	1-5	0.048*
15 I think that mental health is important in the physically unwell	25	4	4	2-5	2-5	0.159

Scoring: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree, \* Results reversed for ease of analysis, T1=pre course, T2=post course



## Discussion

The course appears to have had a significant impact on knowledge and skills. In addition, There were statistically significant changes in attitudes for the statements relating to stigma; 'I think having a mental illness is the fault of that person', and 'I think mental illness have mainly spiritual causes', as well as those relating to the overlap between mental and physical illness; 'I think it is important to look for physical causes of psychiatric symptoms', 'I think it is important to treat or prevent physical illnesses in the mentally ill' and "I think it is important to look for physical causes of psychiatric symptoms".

After the course participants agreed with statements confirming that changes had taken place. The changes that the students perceived had taken place after the course are broadly in agreement with the changes in attitudes that were significant in the pre and post course questionnaire. All 31 responders (100%) agreed or strongly agreed with the statements "I now feel more able to assess mental health problems" and I now understand more about the overlap between mental and physical health. In addition, all but one of the responders (97%) agreed with the statements; 'I have learned more about psychiatry', 'I now feel more able to manage mental health problems', 'I now have stronger views relating to mental health', 'I think this course has improved my ability to practice medicine' and 'My desire to use psychiatric skills while practising in other branches of medicine has increased'. The statements most avidly agreed with after the course were therefore those relating to the overlap between mental and physical health and statements relating to stigma

### Comparison with other studies

The results of the MCQ score change are broadly in agreement with the results of another similar study conducted in Malawi where 84% of students achieved a mark of at least 60%.<sup>25</sup> In our study 78% (25/32) of those attending the course achieved a final average mark of over 60%. The Somaliland teaching was however of a shorter duration than the Malawi training (7 days compared with two weeks) and the students had no time to revise (0 compared with 4 days). We expected our course to have only partial impact on knowledge as it was also geared to impact on students enthusiasm and attitudes as well as clinical and communication skills.

The course described in this paper appears to have had a positive effect on the medical student's attitudes towards mental health and psychiatry. These results contrast those of another study in which a two week long psychiatry course did not have a significant effect on the attitudes of medical students. These results are however not directly comparable as a different questionnaire was used.<sup>26</sup>

In our study the change in attitudes appeared to have an effect on the enthusiasm of students to specialise in psychiatry with 26 of 31 (84%) either agreeing or strongly agreeing with the statement "My desire to become a psychiatrist has increased". This broadly agrees although is not directly comparable with the findings of another study conducted with medical students in London in which the proportion of students who considered the possibility of specializing in psychiatry rose from 6 to 17% during

psychiatry training.<sup>27</sup> However, this is in contrast with studies from other low and middle income countries which show that despite favourable attitudes towards psychiatry it is an unpopular career choice.<sup>28-32</sup> However, the literature regarding the relationship between attitudes to psychiatry and the choice of psychiatry as a career is complex and may be affected by environmental factors, exposure to psychiatry, quality and timing of psychiatry course and the attitude of other faculty members to psychiatry.<sup>33</sup>

The positive feedback received particularly for the interactive style of teaching is consistent with the results of other studies which show that interactive discussions are more popular with students and teachers than more didactic approaches.<sup>34,35</sup> Previous studies have also shown that student motivation is also heightened by an interactive style of teaching<sup>36-38</sup> which might explain some of the student's perceived attitude changes regarding psychiatry and also their enthusiasm for psychiatry following the course.

### Strengths and Limitations

The advantage of this pilot teaching programme was that it provided an intense low-cost course in basic psychiatry. The teaching was intense in terms of human resources (three teaching staff in the classroom all the time to facilitate role plays and discussion groups) however the only cost was travel and expenses as the staff donated their time voluntarily.

The course was interactive and relied on regular feedback by trainers and students so that the course was flexible and able to change according to need. Without this responsiveness it would have been difficult to provide and pilot culturally appropriate learning. In addition without safe access to a mental health ward the interactive style of training allowed clinical material and skills to be taught.<sup>39</sup>

The response to the attitudes questionnaires may have been biased by social desirability. This is more likely to have had an effect on the perceived attitude change after the course as the students may have felt that there should have been a change. Social desirability may have affected the responses both before and after the course however it is less likely to have affected the change in response.

### Continued work based on this pilot

Feedback from the students at the end of the course was that they wanted to continue their learning and a suggestion from the trainers was for the students to write essays which would be marked and feedback given electronically. The trainers also proposed that in the absence of senior faculty members or specialists in mental health in Somaliland that a small number of senior interns/students could be mentored as local mental health representatives. After discussion it was decided that these representatives would be selected on the basis of the MCQ and OSCE results and on the essays.

All 29 students and 6 interns wrote an essay which they sent to RJSS electronically. Two male interns, one from each medical school, were selected and were endorsed by the Deans of both Medical Schools. The enthusiastic response to the essay competition allowed us to see the potential for continued distance learning and also for senior students and interns to continue to take leadership roles in mental health.

Based on the course described here two KTSP mental health representatives have continued to be selected each year. Amongst other roles these representatives have then supported psychiatry teaching in the following year.<sup>40</sup>

The original course described here has inspired four further psychiatry courses for the final year medical students at Hargeisa and Amoud Universities provided by KTSP. The courses have continued to be led by UK based volunteer psychiatrists with input from KTSP mental health representatives. A further 50 students have received the training which has continued to use the content and delivery methods inspired by the pilot course described here. Paired pre and post course attitude and knowledge data has been collected revealing continued improvements in line with the pilot results (data not shown). In addition, improvement in conditions on the ward has allowed patient contact to be incorporated into subsequent courses.

The in-country teaching is supported by distance learning. Based on the course described here KTSP has piloted real time clinical case based medical education for interns in Somaliland from the UK via a website, [www.medicinafrica.com](http://www.medicinafrica.com),<sup>41</sup> since December 2008, with positive early feedback. In 2010, this programme was widened to provide regular psychiatry teaching for the final year students at Hargeisa and Amoud Universities. To date over 80 medical students and interns have benefited from this teaching. In 2011 psychiatry clinical supervision was piloted allowing 13 interns in Somaliland to be supervised by UK based psychiatrists. In addition, the course described here inspired the idea of peer to peer student partnership between medical students in Somaliland and at King's College London. Over 20 pairs have completed the 10 week course.

### Implications

The significant changes in attitudes for statement relevant to stigma (Statements 1 and 14, Table III) have important implications for the provision and demand for mental health services. Stigma is important to tackle as it has been cited as a significant barrier to the improvement of mental health services in low-income countries both because of a low demand due to beliefs that mental illness is not a 'real illness' and social stigma leading to loss of priority for mental health service funding.<sup>42,43</sup>

The significant attitude changes relating to the importance of recognising the overlap between mental and physical health (Statements 3 and 7, Table III) are potentially important due to the need to incorporate mental health into general medicine. In a country without postgraduate psychiatric training, the majority of the doctors will be working in general medicine and the importance of recognising mental illness in this setting is paramount. This is in line with recommendations from Malawi.<sup>15</sup>

Long term sustainability will require integration of mental health into national health and social sector reform plans, and integration of mental health into primary health care if the mental health needs of the population are to be met.<sup>42,24</sup>

### Future Work

The educational partnership with Somaliland is now planning further specific activity to meet the continuing needs of the

newly qualified interns, supervision of nursing working on the mental health ward, and integration of mental health teaching into general health systems strengthening projects.

It is clear that Somaliland, as elsewhere<sup>44</sup>, needs a comprehensive mental health strategy that involves policy and service development to address population mental health needs in the context of low resources, and geographic and political difficulties. Such a strategy will need to include integration of mental health into the basic training of all health cadres and into post-basic training to develop a cadre of specialist workers, and into CPD of all health workers especially those in primary care. Such programmes have been described recently in Kenya<sup>45</sup>, Tanzania mainland<sup>46</sup>, Zanzibar<sup>47</sup>, and Egypt.<sup>48</sup> The next task would be to train health professionals within Somaliland to become mental health trainers so that the training programme can be sustained, and so that future students can receive supervision from within the region.

### Conclusion

Interactive teaching provided a mutual learning experience. It not only improved knowledge but also affected the attitudes of the students most notably those relating to stigma and the overlap between physical and mental illness.

On site and distance learning and a mentorship scheme based on the course described here has widened the scope of the training possible in psychiatry and increased the sustainability of providing regular teaching and training. However, the current lack of local expertise means that important issues of sustainability need to be considered in future work.

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