Improved Attitudes to Psychiatry: A Global Mental Health Peer-to-Peer E-learning Partnership

OBJECTIVE: Health links aim to strengthen healthcare systems in low and middle-income countries through mutual exchange of skills, knowledge and experience. However, student participation remains limited, despite growing educational emphasis upon global health. Medical students continue to report negative attitudes to psychiatry in high income countries, while in Somaliland, the lack of public sector psychiatrists limits medical students' awareness of mental healthcare. This empirical report describes the design, implementation, and mixed methods analysis of a peer-to-peer psychiatry e-learning partnership between UK and Somaliland students arising from a global mental health link between the two countries.

METHODS: Medical students at King's College London (KCL, UK) and Hargeisa and Amoud universities, Somaliland were grouped into 24 pairs. Participants aimed to complete ten fortnightly meetings to discuss psychiatry topics via the website, MedicineAfrica. Students completed initial and final evaluations, including ATP-30 (Attitudes Toward Psychiatry) questions, a stigma questionnaire, and brief evaluations after each meeting.

RESULTS: Quantitative findings demonstrated that enjoyment, interest, and academic helpfulness were rated highly by students in Somaliland and moderately by students in the UK. Somaliland students' attitudes to psychiatry were significantly more positive post-participation, whereas UK students' attitudes remained stable. Qualitative findings identified more gains in factual knowledge for Somaliland students, whereas UK students reported more cross-cultural learning. Reasons for non-completion and student-suggested improvements emphasized the need to ensure commitment to the partnership by participants.

CONCLUSIONS: This partnership encouraged students to consider global mental health outside the standard medical education environment, through an e-learning format solely utilizing existing resources. This new approach demonstrates potential benefits to students in contrasting locations of brief, focused online peer-to-peer education partnerships, expanding the scope of health links to the medical professionals of the future.

KEYWORDS:

Global Mental Health, Attitudes towards Psychiatry, E-Learning, Medical Education, Peer Teaching

Negative attitudes towards psychiatry among medical students continue to be reported, including perceptions that it is unscientific, unenjoyable and does not make use of medical training [1]. Just 14% of applicants to psychiatry higher training have UK medical qualifications [2], and large numbers of psychiatrists did not initially choose the specialty [3]. Stigma towards both people suffering from mental disorders and towards psychiatry as a profession is a complex problem [4]. It has been measured in various ways in high income settings but cross-cultural studies of stigma associated with psychiatry and psychiatric patients have been limited [5]. Proposed solutions have included improved quality of psychiatry teaching and perceived value of the specialty [6], although practical training may not improve attitudes towards psychiatry [7]. A recent systematic review proposed that developing innovative educational initiatives could combat negative attitudes among students and improve recruitment into psychiatry [8].

Somaliland is a self-declared independent region in northern Somalia with a population of 2-3.5 million [9]. There are three public inpatient psychiatric units in the region, and no psychiatrists working in the public sector, leaving a large unmet regional burden of mental illness [10, 11]. King's THET (Tropical Health and Education Trust) Somaliland Partnership (KTSP) is a health link [12], which works to strengthen the healthcare system through mutual exchange of skills, knowledge and experience between Somaliland and King's Health Partners, UK [13].

The KTSP mental health group provides teaching and examination support to all medical students in Somaliland, who previously received no formal psychiatry training. With no practicing psychiatrists in the region, KTSP mental health representatives are recruited from Somaliland students and newly qualified doctors to support the link [14]. Face-to-face teaching of students and doctors in Somaliland covers a basic curriculum, addressing common psychiatric disorders, their diagnosis and management, with a focus on treatment in the resource-limited setting. This teaching was associated with increased knowledge, improved attitudes towards mental health and reduced support for stigmatized attitudes towards people with mental disorders [15]. Medical students at King's College London receive a more in-depth psychiatry teaching

curriculum, which includes rarer disorders, with more clinical exposure to sub-specialties within psychiatry than their peers in Somaliland.

E-learning, a broad term used to describe any approach to education which makes use of electronic technologies to optimize learning, is attracting growing interest in the field of medical education. With increasing accessibility of telephone, computer and Internet technology, e-learning has the potential to create opportunities for more flexible, convenient and personalised study than more traditional approaches. Reviews of the literature note the danger that e-learning may be 'stagnant' if used as an electronic approach to delivering the same educational resources, and advocate a focus on interactive, learner-centered approaches [16]. The need to make e-learning resources interactive for enhanced learning has been supported by experimental studies of both medical students and residents [17]. Internet-based teaching with a focus on interactivity may increase time spent learning and improve learning outcomes [18]. However, variation within web-based education is extensive, with correspondingly diverse outcomes [19]. A review found that new psychiatry teaching technologies are not well studied and require partnership approaches for curricular integration [20]. By contrast, peer teaching has well-documented effects, including increased knowledge, clinical and communication skills, time management, confidence, and responsibility-taking [21]. Few studies have combined peer teaching with e-learning approaches, but where students share learning objectives and linguistic fluency, a single web-based environment has been shown to support cross-cultural peer-learning [22].

There is growing recognition of global health in medical education, including the UK General Medical Council's recommendation for "a global perspective [on] the determinants of health and disease and variations in health care delivery" [23]. Together with recessionary budget cuts [24] and psychiatry recruitment challenges [25], innovative, low-cost technologies stimulating interest in global mental health are increasingly important to educators and clinicians worldwide.

Attempting to address these issues, we piloted a peer-to-peer psychiatry partnership between UK and Somaliland students in 2009-2010, using MedicineAfrica: a telemedicine portal based on a social network structure, which facilitates online case-based tutorials in real time [26]. Ten pairs of students from Hargeisa University, Somaliland, and KCL, UK, met online fortnightly to discuss psychiatry topics, with session enjoyment, academic helpfulness, and interest highly rated [27].

In this study, we evaluate this model, expanded to a larger cohort of participants, incorporating suggested improvements, using a mixed-methods design, utilising both quantitative and qualitative assessments to better characterise student experiences. Medical student coordinators actively involved with psychiatry projects at KCL (RK) and Hargeisa and Amoud Universities, Somaliland (GA) devised, planned, implemented and evaluated the partnership. Through collaborative discussion of a suitable project title, they selected the name *Aqoon*, meaning “knowledge” in Somali.

This study had three substantive aims: first, to examine attitudes to psychiatry pre- and post-participation in peer-to-peer global mental health e-learning; second, to examine stigmatized attitudes in medical students pre- and post-participation and third, to assess students’ subjective reports of learning arising from this partnership. This study had two further methodological aims: to qualitatively assess the practical applicability of this e-learning model and to explore improvements to address problems with implementation.

Methods

We utilized a mixed-methods design, because we considered the combination of quantitative and qualitative data necessary to assess this new medical education intervention from multiple perspectives [28-29].

Recruitment

As Aqoon was in its infancy, we used convenience sampling to recruit participants. We invited UK students to express their interest in partnership with a student in Somaliland for peer-to-peer psychiatry e-learning, via emails to all third year medical students commencing clinical psychiatry placements, members of KCL Psychiatry Society and Medsin (a student global health society). The Somaliland coordinator publicized Aqoon through face-to-face conversations; UK student uptake determined the sample size. We matched UK and Somaliland participants at random; students did not express preferences for same-sex partners. We required applicants to submit a paragraph describing their reasons for participation, with a photograph, to encourage prospective students to consider their motivations and time commitments and to personalize the experience of being matched to a partner overseas.

Procedure

We requested that participants met ten times for one hour, fortnightly, using instant messaging via the MedicineAfrica website. We extended the number of meetings from eight in the pilot study, to ten, to move beyond the core psychiatry curriculum to include two sessions on broader topics of students' choosing. Coordinators and the health link's supervising psychiatrist (SW) devised suggested themes collaboratively, reflecting common disorders, key curricular topics, and cultural perspectives. Participants received fortnightly emails, reminding them to meet and complete evaluation questionnaires.

Instruments

Participants completed anonymous online questionnaires via SurveyMonkey [30] pre-participation, after each meeting, and post-Aqoon, which incorporated the following instruments. Pre-Aqoon, students reported their university, year of study and age. After each meeting, students rated each session's enjoyment, academic helpfulness, and interest on a five-point Likert-type scale, from "Not at all" (1) to "Extremely" (5). We devised this tool as a simple gauge of students' immediate experiences of each online meeting.

Participants completed the ATP-30 questionnaire [31] pre-participation in Aqoon and post-completion of the partnership. ATP-30 comprises 30 attitudinal statements about psychiatry with responses on a five-point scale from strongly disagree (1) to strongly agree (5) and has been used to assess student attitudes in African medical schools [32]. Overall scores range from 30 to 150, with a midpoint of 90, indicating a neutral position.

Students completed a questionnaire assessing stigmatized attitudes towards people with mental health problems, pre-participation in Aqoon and post-completion of the partnership. This instrument was previously piloted in Somaliland by RS and used to demonstrate reduced stigma after intensive face-to-face psychiatry training [15]. It featured ten questions assessing stigma on a five-point scale from strongly disagree (1) to strongly agree (5).

We asked students pre-Aqoon what they hoped to gain from the partnership. After each meeting, we asked participants how long they met for and to name three things they learned that day. Post-Aqoon, we asked students what three things they had gained from the partnership and to suggest three points for improvement. We also asked what problems had prevented participants from completing Aqoon, for suggestions on how to avoid these difficulties and for a summary of their view of the partnership, including whether they would recommend it to a friend.

Ethics

Consent to complete the anonymous questionnaires was an explicit feature of the partnership Terms of Reference, as was agreement to anonymize all cases discussed. Aqoon forms part of the KTSP MedicineAfrica evaluation, which has KCL Ethics Committee approval.

Analysis

Non-parametric tests were used to compare quantitative scores pre- and post-participation, because of small sample sizes. Median ATP-30 and stigma scores between UK and Somaliland students were compared using Wilcoxon rank sum tests for independent samples. Individual students' pre- and post-Aqoon scores were compared using Wilcoxon signed rank tests for matched samples, comparing changes for each country separately and for the full sample. This was only possible for participants who completed both surveys and whose pre- and post-Aqoon answers were matched. We performed statistical analysis using Stata 12.1 [33].

We separated all qualitative responses into UK and Somaliland students, which were indexed inductively into broad categories by RK, using content analysis [34], and counted the number of responses per category. RK maintained awareness of her position as a former KCL student as far as possible, to preserve reflexivity. We then reviewed the results of content analysis alongside the quantitative measures described, to yield a richer understanding of students' experiences. Responses were sufficiently similar that they could all be grouped into categories.

Results

Participant Flow

Medical students at KCL (UK) and Hargeisa and Amoud universities, Somaliland were grouped into 24 pairs. Overall, 44 of 48 participants completed initial questionnaires, including questions about their anticipated learning, the ATP-30 and stigma questionnaire.

After individual online meetings, students completed 98 brief questionnaires about their learning during that session: 57 UK and 41 Somaliland students. Four pairs reported meeting ten times; however it is not possible to know the total number of meetings held because meetings not reported in questionnaires were not logged by the MedicineAfrica website. Mean meeting duration was 1 hour, 23 minutes.

Final post-Aqoon questionnaires, including their evaluations of the partnership, their learning, the ATP-30 and stigma questionnaires were completed by 18 UK and 14 Somaliland students. We were able to match pre- and post-Aqoon questionnaire responses for 19 (11 UK, 8 Somaliland) of the initial 48 participants.

Sample Description

The sample comprised 24 UK and 20 Somaliland students aged 20-42 years. Students were in the third (n=21, 48 per cent), fourth (n=10, 23 per cent), or fifth year (n=12, 27 per cent). One student was taking an intercalated degree. Only Somaliland students identified as fifth years (55%) had received a two-week psychiatry course delivered by King's THET Somaliland Partnership, whereas all UK participants had received psychiatry lectures in their second year and clinical placements in their third year of medical school.

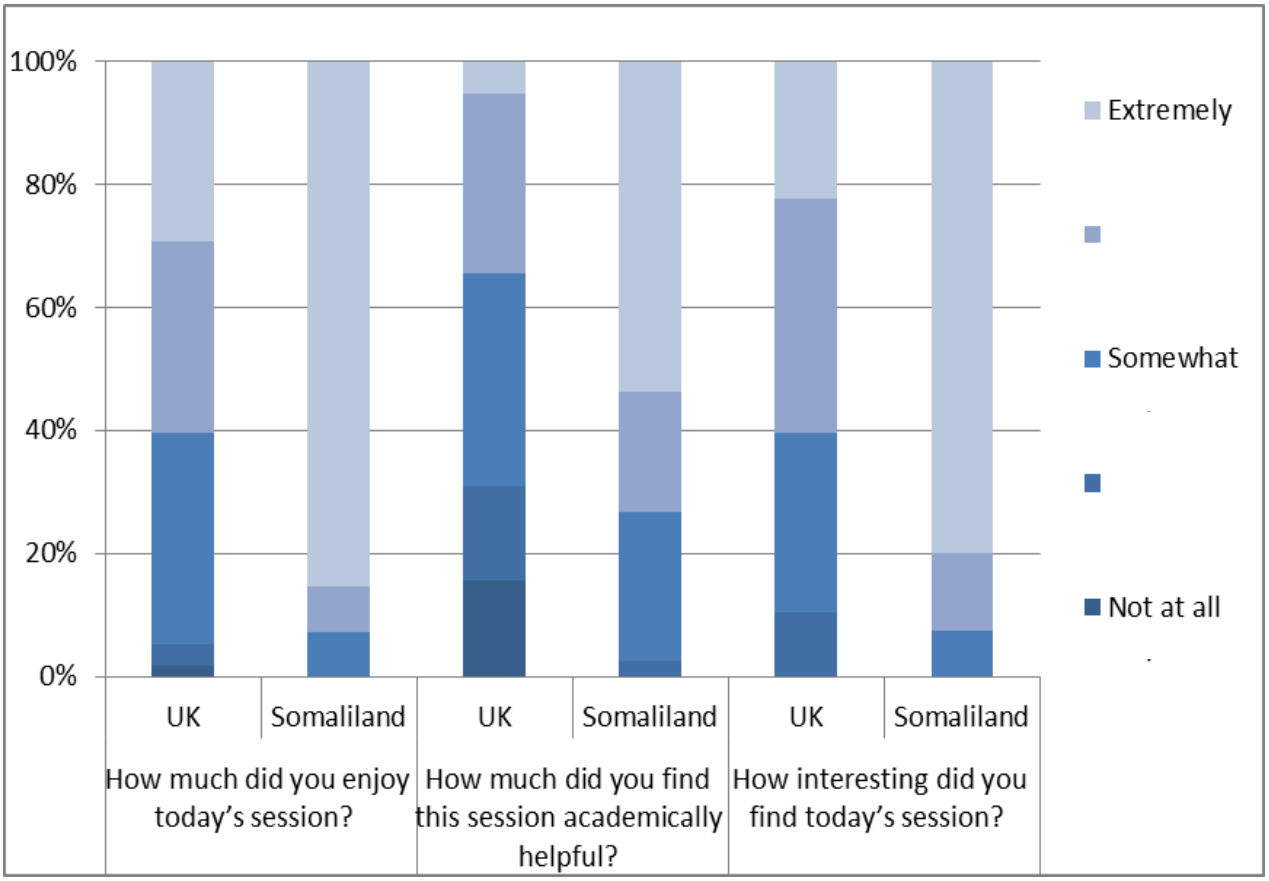
Quantitative Results

Responses to the three experience questions demonstrated significantly more positive ratings by Somaliland students on all three measures (Table 1, Figure 1).

Table 1: Post-meeting evaluation responses

Question	Median score			Wilcoxon's Z value	p-value
	UK students (n=58)	Somaliland students (n=41)	All students (n=99)		
How much did you enjoy today's session?	4	5	5	5.281	0.0001
How much did you find this session academically helpful?	3	5	4	5.277	0.0001
How interesting did you find today's session?	4	5	4	5.425	0.0001

Figure 1: Comparison of UK and Somaliland students' enjoyment, academic helpfulness, and interest ratings of Aqoon



Pre-Aqoon ATP-30 scores were neutral or positive and comparable between UK and Somaliland students (medians= 111.5 and 104.5, z=-1.675, p=0.0939). Overall attitudes became significantly more positive post-Aqoon in the 19 response-matched students (medians= 106 and 114, z=-2.319, p=0.0204). This reflected improved attitudes in Somaliland (medians = 105 and 114; z = -2.038, p=0.0416) but not UK students (medians = 108 and 112, z = -1.203, p =0.2289). Full ATP-30 scores are available on request.

Stigma questionnaire scores pre-Aqoon indicated generally neutral or positive attitudes, with more positive attitudes to mental illness among UK students on four questions (Table 2). Stigma scores did not change significantly post-Aqoon in response-matched students (Table 3). UK students displayed no change in stigma question scores, whereas Somaliland students demonstrated improved attitudes to Q8: “someone with mental illness is not able to make decisions about their treatment” (medians = 2 and 3; z = -2.372, p = .0177).

Table 2: Stigma Questionnaire scores for all students pre-Aqoon

Question	Median score			Wilcoxon's Z value	p-value
	All students n=44	UK students n=24	Somaliland students n=20		
1 I think having a mental illness is the fault of that person*	4	5	4	-1.903	.0570
2 I think mental health is less important than physical health*	4	4	5	1.077	.2816
3 Mental illness is more common in the UK than in Somaliland*	3	3	3	-0.737	.4613
4 Psychiatrists have a lower status than doctors who specialise in physical illness*	4	4	4	-0.168	.8663
5 I do not think it is important to treat or prevent physical illnesses in the mentally ill*	5	5	4	-2.448	**.0144**
6 I would consider psychiatry as a career	4	4	3	-1.492	.1357
7 I think that for governments treating mental illness should be a lower priority than treating physical illness*	4	4	4	-1.752	.0799
8 Someone with mental illness is not able to make decisions about their own treatment*	3	4	2	-5.798	**.0000**
9 I think mental illnesses have mainly spiritual causes*	4	4	3	-2.705	**.0068**
10 How mental illness presents depends mainly on culture*	2	2.5	2	-2.055	**.0399**

Scoring: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree, * Results reversed for ease of analysis.
p-values in bold indicate significance at the 5% level

Table 3: Change in stigma scores for all matched students post-Aqoon

Question	Median score pre-Aqoon (all students, n=19)	Median score post-Aqoon (all students, n=19)	Wilcoxon's Z value	p-value
1 I think having a mental illness is the fault of that person*	4	5	-1.675	.0939
2 I think mental health is less important than physical health*	4	4	-0.747	.4553
3 Mental illness is more common in the UK than in Somaliland*	3	3	-0.374	.7087
4 Psychiatrists have a lower status than doctors who specialise in physical illness*	4	4	-0.633	.5267
5 I do not think it is important to treat or prevent physical illnesses in the mentally ill*	5	5	-0.912	.3617
6 I would consider psychiatry as a career	4	4	-0.707	.4795
7 I think that for governments treating mental illness should be a lower priority than treating physical illness*	4	4	-1.227	.2200
8 Someone with mental illness is not able to make decisions about their own treatment*	3	4	-1.227	.2197
9 I think mental illnesses have mainly spiritual causes*	4	4	0.688	.4917
10 How mental illness presents depends mainly on culture*	2	2	1.055	.2915

Qualitative Results

Qualitative content analysis tables are available by contacting the corresponding author. Content analysis of what participants hoped to gain demonstrated themes of friendship and networking in both groups but greater focus on factual knowledge by Somaliland students (all participants) and on cross-cultural partnership by UK students (83%), for example:

> Third Year (UK): *To learn about psychiatric disorders in another culture and how culture has an effect on psychiatric disorders and how they are treated.*
>
> Fifth Year (Somaliland): *Revision of the basic concepts of psychiatry.*

Content analysis of students' self-reported gains raised similar themes, with both groups emphasising the benefits of friendship but greater focus upon factual knowledge by Somaliland students (79% reported gaining knowledge) and on cross-cultural learning by UK students (61%), for example:

> Third Year (UK): *I made a friend in Somaliland that I would otherwise not have met and learned so much about medical training there and life there in general.*
>
> Fourth Year (Somaliland): *More understanding of psychiatry diseases.*
>
> Third Year (UK): *An understanding of how mental health and perceptions of mental health differ trans-culturally.*

Post-Aqoon, content analysis of 16 (9 UK and 7 Somaliland) students' reasons for not completing the full ten sessions demonstrated similar themes, with both groups emphasising difficulties communicating to plan meetings, finding mutually suitable times and technical problems (mentioned by 100% of UK and Somaliland students who did not complete the partnership) . Two Somaliland students reported that, out of politeness, they did not assert their own availability or seek help from coordinators to reconnect with their partner:

> Fifth Year (Somaliland): *Main problem was time of coming online. My partner used to select time which is suitable and I used to respect it. My suggestion is to persuade every participant to respect chances and opinions of his or her partner.*

Fourth Year (Somaliland): *I used to remind regularly by email & I declined to push her through the coordinators... the best way of addressing this issue is to make sure whether those students registered to the program is interested to start and finish.*

Content analysis of participants' suggested improvements post-Aqoon demonstrated similar themes, with both groups suggesting better motivation to participate and strict meeting times but with greater focus on offering alternative meeting formats by UK students (suggested by 28%) and additional educational resources(43%) and expansion to other specialties (29%) by Somaliland students, for example:

Third Year (UK): *Keep the meeting times a bit stricter - arranged times weren't stuck to.*

Sixth Year (Somaliland): *Partner should be respect the time that be consumed in the waiting for the meeting as some miss the meeting without reason.*

Third Year (UK): *The website wasn't always the most easy to use - perhaps a more simple chat medium like Google or MSN?*

Fourth Year (Somaliland): *To send each member videos for mental illness programs.*

Post-Aqoon, 17 of 18 UK respondents (94%) and all 14 Somaliland respondents said they would recommend Aqoon to a friend. Despite UK students' post-meeting evaluations of enjoyment, academic helpfulness and interest being significantly less positive than Somaliland students', their post-Aqoon qualitative feedback was broadly positive:

Third Year (UK): *This was a very good project, a great chance to make a friend in a different continent and to really understand how psychiatry works differently in different cultures but also to question the way that psychiatric patients are approached and treated here.*

Third Year (UK): *The Aqoon project is a very unique and valuable experience... I have realised how views about a particular subject can differ not only between two people but two different cultures and I can now appreciate why this may be and also have learnt how to approach people especially when asking about sensitive topics.*

Discussion

Key Findings

Students rated this peer-to-peer global mental health e-learning partnership positively for interest, academic helpfulness, and enjoyment, with significantly more positive evaluations by Somaliland than UK students. Participation was associated with significantly improved ATP-30 scores in Somaliland but not UK students. Stigma responses did not change significantly in either group.

Qualitative comparison of anticipated gains pre-partnership and self-reported gains post-partnership supported mutual focus on friendship but greater emphasis on factual knowledge by Somaliland students and cross-cultural learning by UK students. Reasons for non-completion and suggested improvements highlighted logistical and motivational challenges to meeting online. Incorporating qualitative and quantitative analyses in this mixed methods design revealed that this new intervention remained popular when expanded to a larger cohort; the majority would recommend it to a friend.

Comparison with other studies

These results support the pilot study's positive findings [27] but no other evaluations of psychiatry education of this form were found in the literature for comparison. This study supports previously described benefits of peer teaching [15], from a global mental health perspective. It concurs with evidence that a single online environment can effectively facilitate interactive e-learning, where students communicate fluently in the same language [17].

Significantly more positive ratings of interest, academic helpfulness and enjoyment by Somaliland than UK students may have indicated greater benefit from Aqoon in light of reduced access to educational resources compared with UK students, supported by previous studies of face-to-face psychiatry teaching in Somaliland [15].

Alternatively, an acquiescent response bias associated with Likert-type scales is possible, as previously reported [35]. This issue offers an additional motivation for mixed-methods analysis when comparing medical education initiatives cross-culturally, to enable clarification of the attitudes underlying quantitative results.

Interpretation of unchanged stigma responses is difficult, because this questionnaire was designed specifically for use with Somaliland, not UK students, and 55% of Somaliland students had already received face-to-face psychiatry teaching, shown to improve stigma attitudes [15].

Limitations

Limitations include the small sample size and self-selection of Aqoon participants. The anonymity of the MedicineAfrica website forum prevented quantifying the number of meetings not evaluated in questionnaires, limiting data available for analysis. The statistical analyses are appropriate for small samples although we recommend replication with a larger sample. Pre- and post-Aqoon data could not be matched for some students; we recommend using unique codes for anonymous questionnaire completion to ensure direct comparison of all responses pre- and post-intervention while a completion incentive might also reduce attrition. Replication using a probability sample will help ensure the results are representative of medical students and permit wider inference. These results are restricted to a single time period; we propose longitudinal follow-up of future cohorts to explore whether improved ATP-30 scores are maintained. Such studies could also consider the optimal timing of such partnerships in relation to curricular psychiatry lectures and clinical placements.

Students most frequently attributed non-completion of the full ten sessions to difficulty finding mutually suitable times and not prioritising sessions. Future applications of this model require clearer communication of the expectations and demands of participation. Motivation to complete all ten online meetings could be encouraged by integrating participation into the global health curriculum, while scheduling students to meet online at fixed times could alleviate scheduling conflicts. Participants could also be required to produce a piece of reflective writing about their learning during the partnership, with attendance contributing to grades. We recommend regular prompts to arrange meetings and encouragement by coordinators of mutual decision-making.

Strengths

This partnership presents a new intervention, solely utilizing existing resources, with scope for wider use in medical education to improve attitudes towards psychiatry [16]. Some participants requested application of Aqoon to other areas of medicine, supplemented with additional learning materials, indicating potential expansion to particularly benefit medical students in low- and middle-income countries. Participants did not struggle to access Internet or computers, confirming Aqoon's practical relevance to students in settings with limited resources.

Implications

We consider these findings of importance to medical education worldwide, with an increasingly globalized world demanding ever more culturally sensitive clinicians. Although this study cannot determine causality, the association between brief educational partnership and improved attitudes towards psychiatry among students in this low-income country is important, considering restricted medical education and mental healthcare resources [36]. Such peer-to-peer partnerships may especially benefit medical students in resource-poor settings: a hypothesis warranting further study, including comparison with effects of face-to-face psychiatry teaching and expansion to allied health professionals, including student nurses [37].

Conclusion

Peer-to-peer e-learning addresses university teaching challenges, including raising the profile of global health despite budget constraints. Aqoon illustrates how the scope of health links may be expanded beyond qualified clinicians, to the medical professionals of the future.

Conflicts of Interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

Implications for Educators

- Peer-to-peer e-learning addresses university teaching challenges, including raising the profile of global health despite budget constraints, by creating low-cost opportunities for cross-cultural learning.
- Harnessing medical students' enthusiasm for global health links by supplementing opportunities to travel abroad for overseas electives with at-home e-learning partnerships may be an effective means of engaging them with the importance of mental healthcare worldwide.
- This peer-to-peer global mental health e-learning partnership model offers a novel approach to addressing negative attitudes to psychiatry and stigmatized attitudes to people with mental health problems, among medical students in low-income settings.
- Medical students in high income countries may have more entrenched negative attitudes to psychiatry than those in low income settings, but may still benefit from the cross-cultural global mental health learning yielded by participation.
- Logistical and motivational challenges to meeting overseas partners online are the main barriers to successful completion of this partnership model.

References

1. Malhi GS, Parker GB, Parker K, Carr J, Kirkby KC, Yellowlees P, Boyce P, Tonge B. Attitudes toward psychiatry among students entering medical school. Acta Psychiatr Scand. 2003; 107:424–29.

2. Fazel S, Ebmeier KP. Specialty choice in UK junior doctors: Is psychiatry the least popular specialty for UK and international medical graduates? BMC Med Educ. 2009; 9:77.

3. Goldacre MJ, Laxton L, Lambert TW. Medical graduates' early career choices of specialty and their eventual specialty destinations: UK prospective cohort studies. Brit Med J. 2010; 341:c3199.

4. Sculze B. Stigma and mental health professionals: A review of the evidence on an intricate relationship. Int Rev Psychiatr. 2007; 19:137–155.

5. Link BG, Yang LH, Phelan JC, Collins PY. Measuring mental illness stigma. Schizophr Bull. 2004; 30:511–41.

6. Dogra N, Edwards R, Karim K, Cavendish S. Current issues in undergraduate psychiatry education: The findings of a qualitative study. Adv Health Sciences Educ. 2006; 13:309–23.

7. Kuhnigk O, Strebel B, Schilauske J, Jueptner M. Attitudes of medical students towards psychiatry. Adv Health Sciences Educ. 2007; 12:87–101.

8. Lyons Z. Attitudes of medical students toward psychiatry and psychiatry as a career: A systematic review. Acad Psychiatry. 2013; 37:150–7.

9. Jarabi BO. Review of various population estimates for Somaliland, Puntland and South-Central Somalia. Independent Consultancy Mission 2007.

10. Sheriff RS, Reggi M, Mohamed A, Haibe F, Whitwell S, Jenkins R. Mental health in Somalia. Int Psychiatry. 2011; 8:89–91.

11. Sheriff RS, Leather AJM. Leadership and global health. In: Stanton E, Lemer C, Mountford J (eds), Clinical Leadership: Bridging the Divide. London: Quay Books; 2009.

12. Leather AJM, Butterfield C, Peachey K, Silverman M, CC. International Health Links movement expands in the United Kingdom. Int Health. 2010; 2:165–71.

13. Leather A, Ismail EA, Ali R, Abdi YA, Abby MH, Gulaid SA, Walhad SA, Guleid S, Ervine IM, Lowe-Lauri M, Parker M, Adams S, Dateman M, Parry E. Working together to rebuild healthcare in post-conflict Somaliland. Lancet. 2006; 368:1119–25.

14. Sheriff RS, Whitwell S. An innovative approach to integrating mental health into health systems: strengthening activities in Somaliland. Interv Int J of Ment Health, Psychosoc Work Couns Areas Armed Conflict. 2012; 10:59–65.

15. Sheriff RS, Bass N, Hughes P, Ade-Odunlade P, Ismail A, Whitwell S, Jenkins R. Use of Interactive Teaching Techniques to Introduce Mental Health Training to Medical Schools in a Resource Poor Setting. Afr J Psychiatry. 2013; 16:256–63.

16. Mackinnon R, Haque A, Stark P. Peer teaching: By students for students. A student-led initiative. Clin Teach. 2009; 6:245–8.

17. Evans P, Suzuki Y, Begg M, Lam W. Can medical students from two cultures learn effectively from a shared web-based learning environment? Med Educ. 2008; 42:27–33.
18. Thakore H, McMahon T. Virtually there: E-learning in medical education. Clin Teach. 2006; 3:225–8.
19. Kerfoot BP, Conlin PR, McMahon GT. Comparison of delivery modes for online medical education. Med Educ. 2006; 40:1137–8.
20. Cook DA, Levinson AJ, Garside S (2010). Time and learning efficiency in internet-based learning: a systematic review and meta-analysis. Adv Health Sciences Educ. 2010; 15:755–70.
21. Cook DA, Garside S, Levinson AJ, Dupras DM, Montori VM. What do we mean by web-based learning? A systematic review of the variability of interventions. Med Educ. 2010; 44:765–74.
22. Hilty DM, Alverson DC, Alpert JE, Tong L, Saqduyu K, Boland RJ, Mostaghimi A, Leamon ML, Fidler D, Yellowlees PM. Virtual reality, telemedicine, web and data processing innovations in medical and psychiatric education and clinical care. Acad Psychiatry. 2006; 30:528–33.
23. General Medical Council. Tomorrow's Doctors 2009. http://www.gmc-uk.org/static/documents/content/Tomorrow_s_Doctors_0414.pdf. Accessed 04 May 2014.
24. Higher Education Funding Council for England. Recurrent grants for 2011-12, 2009. http://www.hefce.ac.uk/media/hefce1/pubs/hefce/2011/1107/11_07_572412.pdf. Accessed 04 May 2014.
25. Cutler JL, Alspector SL, Harding KJ, Wright LL, Graham JJ. Medical students' perceptions of psychiatry as a career choice. Acad Psychiatry. 2006; 30:144–9.
26. Finlayson AET, Baraco A, Cronin N, Johnson O, Little S, Nuur A, Tanasie D, Leather A. An international, case-based, distance-learning collaboration between the UK and Somaliland using a real-time clinical education website. J Telemed Telecare. 2010; 16:181–4.
27. Keynejad R, Ali F, Finlayson AET, Handuleh J, Adem G, Bowen JST, Leather A, Little SJ, Whitwell S. Telemedicine for peer-to-peer psychiatry learning between U.K. and Somaliland medical students. Acad Psychiatry. 2013; 37:182–86.
28. Schifferdecker KE, Reed VA. Using mixed methods research in medical education: basic guidelines for researchers. Med Educ. 2009; 43:637–44.
29. Lingard L, Albert M, Levinson W. Grounded theory, mixed methods, and action research. Brit Med J. 2008; 337:459–61.
30. Lind DS, Deladisma AM, Cue JI, Thomas AM, MacFadyen BV, Nesbit RR. Survey of student education in surgery. J Am Coll Surgeons. 2007; 204:969–74.
31. Burra P, Kalin R, Leichner P, Waldron JJ, Handforth JR, Jarrett FJ, Amara IB. The ATP 30 – A scale for measuring medical students' attitudes to psychiatry. Med Educ. 1982; 16:31–8.
32. Ndetei DM, Khasakhala L, Ongecha-Owuor F, Kuria M, Mutiso V, Syanda J, Kokonya D. Attitudes toward psychiatry: A survey of medical students at the university of Nairobi, Kenya. Acad Psychiatry. 2008; 32:154–9.
33. StataCorp. Stata Statistical Software: Release 12. College Station, TX: StataCorp LP; 2011.

34. Pope C, Ziebland S, Mays N. Qualitative research in healthcare: Analysing qualitative data. Brit Med J. 2000; 320:114–6.
35. Smith PB. Acquiescent response bias as an aspect of cultural communication style. J Cross Cult Psychol. 2004; 35:50–61.
36. Eaton J, McCay L, Semrau M, Chatterjee S, Baingana F, Araya R, Ntulo C, Thornicroft G, Saxena S. Scale up of services for mental health in low-income and middle-income countries. Lancet. 2011; 378:1592–1603.
37. Iheanacho T, Marienfeld C, Stefanovics E, Rosenheck RA. Attitudes toward mental illness and changes associated with a brief educational intervention for medical and nursing students in Nigeria. Acad Psychiatry. 2014; doi:10.1007/s40596-014-0073-3