App-based psychological interventions: friend or foe?

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THE NEED
In a time of increasing demand for psychological services and continually decreasing resources, unmet need with respect to National Health Service (NHS) mental health services is reaching an unprecedented level.1 While monthly referrals to community mental health teams increased 13% in 2013, and 16% in the case of crisis services, investment in mental health services has fallen in real terms for three successive years,2 not helped by the government’s £22 billion target for efficiency savings. As such, the resulting loss of over 200 full-time mental health doctors and 3600 nurses3 has meant that despite a £450 million investment in reducing waiting times4 and increasing access to psychological therapies (IAPT), 1 in 10 patients experience waiting lists of over a year before receiving any form of treatment, with 1 in 2 waiting over 3 months.5

One in 6 of those on waiting lists for mental health services are expected to attempt suicide, 4 in 10 are expected to self-harm and two-thirds are likely to see their condition deteriorate before having the opportunity to see a mental health professional.1,5 As such, approximately 70 million sick days6 and 170 000 self-harm related accident and emergency attendances7 can be attributed to underlying mental health issues in the UK every year; with these individuals also exhibiting double the rate of both inpatient and outpatient hospital attendances8 compared to the UK general population.9 Unfortunately long-term prospects for those with mental health issues are not much better. Those suffering from serious mental illness face twice the risk of diabetes and death from heart disease,9 three times the risk of hypertension and a fourfold increase in all-cause premature mortality when compared with the UK general population; all of which contributing to the £105 billion mental distress costs the English economy each year.10

THE POTENTIAL
Given the documented limited success of IAPT in stemming the rising tide of unmet need within mental health,4 an alternative approach may be necessary, that can extend care to those with the greatest need, without imposing substantial pressures on already scarce mental health-care funding.11 Online and app-based self-delivered treatments for mental health disorders are a novel and increasingly popular method12–14 of service delivery, and as such, may be the solution the NHS is looking for. To date, a number of mental health apps have demonstrated effect sizes comparable to the conventional standard of care.13–14 While this clear lack of evidence is concerning, equally so is the finding that just 2/14 currently apply validated metrics, including the ‘gold standard’ Patient Health Questionnaire-9 (PHQ-9) and Warwick-Edinburgh Mental Well-being Scale, such that the true clinical value of over 85% of NHS accredited mental health apps is at present impossible to determine.

Unfortunately the situation seems to be much the same with respect to apps accredited by the NHS. Of the 27 mental health apps currently listed in the NHS apps library,14 just 4/14 provide any evidence of patient-reported outcomes to substantiate claims of effectiveness, as shown in table 1. While this clear lack of evidence is concerning, equally so is the finding that just 2/14 currently apply validated metrics, including the GAD-7 and PHQ-9, to assess clinical performance. As such, confidence in, and the validity of the claims made by apps that fail to apply such metrics must be considered as low at best, suggesting that the true clinical value of over 85% of NHS accredited mental health apps is at present impossible to determine.

THE REALITY
However, apps are by no means a perfect solution to our nation’s mounting mental health requirements, and are characterised by numerous shortfalls. These often stem from the frequent lack of an underlying evidence base, a lack of scientific credibility and subsequent limited clinical effectiveness, but also from issues including an over-reliance on apps, equity in access and increased anxiety resulting from self-diagnosis.21 In order to become an asset to be included in the mental health practitioners and patient’s arsenal, mental health applications must at the very least, be well-informed, scientifically credible, peer-reviewed and evidence-based. However, these conditions in themselves are not sufficient to ensure quality and equally important is the inclusion of validated performance metrics designed to assess the effectiveness of other NHS accredited activities. Such metrics may include the Generalised Anxiety Disorder 7 (GAD-7), Patient Health Questionnaire-9 (PHQ-9) and Warwick-Edinburgh Mental Well-being Scale, such that the value of such apps as a complementary or stand-alone treatment, can be determined.

In 2013, there were only 32 published articles regarding depression apps, compared with a total of 1536 available for download.22 This finding of a high availability but low evidence base is synonymous with results observed for apps dedicated to the treatment of other psychological disorders, including bipolar disorder,23 bulimia nervosa24 and post-traumatic stress disorder (PTSD).25 bringing into question the scientific credibility, validity and efficacy of the majority of electronic psychological interventions currently available to consumers.

Unfortunately the situation seems to be much the same with respect to apps accredited by the NHS. Of the 27 mental health apps currently listed in the NHS apps library,16 14 are dedicated to the management of depression and anxiety, yet just 4/14 provide any evidence of patient-reported outcomes to substantiate claims of effectiveness, as shown in table 1. While this clear lack of evidence is concerning, equally so is the finding that just 2/14 currently apply validated metrics, including the GAD-7 and PHQ-9, to assess clinical performance. As such, confidence in, and the validity of the claims made by apps that fail to apply such metrics must be considered as low at best, suggesting that the true clinical value of over 85% of NHS accredited mental health apps is at present impossible to determine.

MOVING FORWARD
Fortunately not all apps are created equally, with some demonstrating significant patient benefits. One NHS accredited app boasts recovery rates of 58%, some 14% higher than the 44% average achieved by IAPT over the same period, and 8% higher the NHS national target of 50%.27 with the average user reporting at least a five-point reduction in PHQ-9 and GAD-7 scores after 3 months. This of course is no new finding, numerous studies have demonstrated significantly improved outcomes for those using computer-based psychological treatments, with those supported by a practitioner and designed with clinical quality in mind, on average more than twice as effective.18

Evid Based Mental Health November 2015 Vol 18 No 4 97
During a time of unprecedented NHS efficiency savings, this opportunity should be welcomed by NHS commissioners looking to extend the provision of high quality mental health services within existing budgets and without crowding out other services. Not only are high quality apps relatively inexpensive, but unlike alternative NHS activities they are also non-excludable and non-rival in consumption, meaning that the use of an app by one individual does not preclude another from using that same service at the same time, a condition rarely observed with respect to NHS services.

However, in order to ensure that apps don’t do more harm than good, it is important that those presently recommended by the NHS apps library, that either fail to demonstrate evidence underlying the methodological approach taken, or evidence of effectiveness in use, are removed. Reputation and legitimacy of sources are highly correlated with app downloads, and there is a perceived level of quality assurance that comes with accreditation by the NHS. Similar to the shortcomings of information found on the Internet, information provided by apps is of variable quality and given that 3 in 10 individuals with an untreated mental health issue now opt to pay for private treatment on account of limited NHS availability, the purchase and use of apps that are yet to demonstrate objective clinical benefit is not only a potential waste of money, but also likely to have a compounding effect on levels of anxiety in those with the greatest need and least access to effective treatment. The widespread availability and use of smartphones, and the increasing uptake of tablet devices, suggests that apps clearly do have a place within a changing 21st century NHS. They may act as a bridge between treatment sessions, improve retention and adherence to treatment centres, the use of apps not may not only promote health service efficiency, but also support the NHS in returning to its seminal promise of equal access for equal need.

However, if this is to be an effective venture, this space clearly requires more stringent regulation, vetting and quality control. While some have proposed quality assurance checklists or the application of existing NICE systematic review methodology, there exists a growing unmet need for the development of app-specific guidelines and certifications, such that only high quality and clinically-effective apps are offered to patients. With respect to the rest of the world, the Australian government and US Food and Drug Administration (FDA) have demonstrated some success in the regulation and enforcement of app quality and safety standards; despite the lack of clear guidance as to the difference between medical and well-being apps. The FDA now exercise enforcement discretion for any app designed to assist patients with diagnosed psychiatric conditions in maintaining their behavioural coping skills, in addition to those providing motivational guidance to reduce stress and promote a positive outlook. These advances, in addition to educating users to look for signals of quality before downloading, including the presence of industry self-regulating certifications such as the ‘Happtique Health App Certification Standard’ (HACP), highlight some of the many potential opportunities for improvement in the overall standard of mental health apps.

Commitment to the application of such standards should ensure that the apps patients download do not result in more harm than good, that they function as described and offer value and a means of delivering solution-focused brief therapy (SFBT). The use of NHS accredited performance metrics?

Table 1: Details of apps dedicated to depression and anxiety within the NHS health apps library

<table>
<thead>
<tr>
<th>App name</th>
<th>Focus</th>
<th>Specific patient benefits reported?</th>
<th>Evidence to substantiate claims?</th>
<th>Use of NHS accredited performance metrics?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hands up therapy</td>
<td>Dealing with emotions</td>
<td>▶ Feeling more relaxed/ at peace.</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Ginsberg</td>
<td>Improving emotional well-being</td>
<td>▶ Improve health and well-being.</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Mindfulness</td>
<td>Relieving stress via meditation</td>
<td>Reduce stress and increase well-being</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Black rainbow</td>
<td>Relieving depression via relaxation, meditation, poems and recordings</td>
<td>Beat depression</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Workguru</td>
<td>Reducing work-related stress via CBT, mindfulness, job coaching and positive psychology</td>
<td>▶ Building resilience and managing stress</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Mindlogr</td>
<td>Self-reflection to improve well-being</td>
<td>Learn, grow and create more meaning in your life</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Five ways to well-being</td>
<td>Self-reflection to improve well-being</td>
<td>Improve well-being</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>SAM: self-help for anxiety management</td>
<td>Self-help, self-reflection exercises to manage anxiety</td>
<td>Understand and manage anxiety</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Happy healthy</td>
<td>Self-reflection, mindfulness and activity logging</td>
<td>Increased mental well-being</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Moodkit-Mood improvement tools</td>
<td>CBT</td>
<td>▶ Manage stress, depression, anxiety.</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Buddyapp</td>
<td>Digital support tool adjunct to therapy to reinforce positive behaviours</td>
<td>Support therapy services by reinforcing positive behaviours</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Big white wall</td>
<td>Online community guided by medical health professionals to improve mental health</td>
<td>▶ Improve well-being</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Moodscope</td>
<td>Mood-tracking system</td>
<td>▶ Manage psychological issues</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

CBT, cognitive-behavioural therapy; NHS, National Health Service.

Competing interests SF is a Director of MINeD ACCESS ltd, a technology company delivering solution-focused brief therapy (SFBT).

Additional material is published online only. To view please visit the journal online (http://dx.doi.org/10.1136/eb-2015-102203).
REFERENCES