How could a smartphone app improve health outcomes for HIV-positive MSM?

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Background

Receiving an HIV diagnosis can be experienced as traumatic and may be associated with depression and/or anxiety [1,2]. Additionally, there is evidence that a considerable number of people living with HIV have already experienced trauma prior to their HIV diagnosis [3]. Therefore, pre-existing mental health issues may be exacerbated by the prospect, and reality, of living with a lifelong chronic condition where stigma and discrimination are significant issues. The connection between HIV and poor mental health is well documented within the literature and one of the potential reasons that has been identified for this is the internal and external stigma faced by HIV-positive individuals [4–6]. HIV-related stigma is identified as a key factor associated with reduced adherence to HIV medications [7], reduced levels of health literacy [8,9], poor health outcomes and quality of life issues for people living with HIV. It is widely acknowledged that HIV is, historically, a challenging area to work in [10]; however, caring for people living with HIV has changed significantly over the last 20 years as a result of effective antiretroviral therapy. Encouraging patients to self-manage their condition by improving health literacy and offering care and support to promote positive mental, emotional and cognitive well-being has been identified within two of the 12 standards of care for people living with HIV [11]. This article discusses the development and thinking behind a smartphone application (app), called Positive Thinking that aims to promote improved health outcomes, such as medication adherence, through the use of technology-based education and to support newly diagnosed men who have sex with men (MSM).

Why use a smartphone app to improve health outcomes?

Ofcom has reported that UK adults spend an average of 21.6 hours online per week [12] and that internet users are moving away from original methods of accessing the internet and towards more contemporary gadgets such as smartphones and tablets. This has led to the idea of creating a smartphone app specifically for MSM. In addition, supportive evidence suggests many MSM use the internet to find sexual partners [13] and the use of dating apps, such as 'Grindr', is becoming an increasingly popular method of facilitating sex [14]. With this increased use of mobile technology, there have been reports of increased unprotected sexual intercourse amongst young MSM suggesting an increased need for sexual-health advice to be given in a format that is acceptable to the recipient [15]. Using the same platform as dating apps, the Positive Together app enables information and support to be tailored to the target population.

Designing the app

As part of the design of the app, images were chosen to represent the app's theme of being united; the pride rainbow colouring was used. On logging in, the app divides into four departments: 'Services', 'Support', 'Health' and 'Questions' (Figure 1).

The 'Service' department uses the GPS of the smartphone to locate social support and sexual health services nearby (Figure 2). The user could select the service they wish to use and call directly from their mobile to access support or book an appointment. There is a wealth of evidence that suggests sexual-health outcomes are improved with rapid access to integrated sexual health services in a range of settings [16]. Therefore, creating a simple method of reviewing and contacting services is likely to encourage individuals to attend clinics.

Peer support has been identified as the most successful method of care support for HIV-positive individuals [17]. The 'Support' department of the app aims to provide a safe space for users to anonymously

Figure 1: *Menu provided by the Positive Together app upon login*

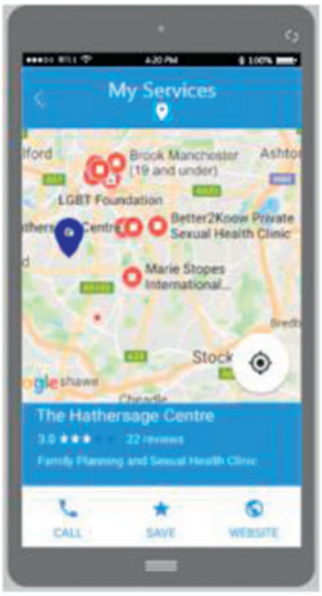

Figure 2: *Positive Together app locates social support and sexual health services*

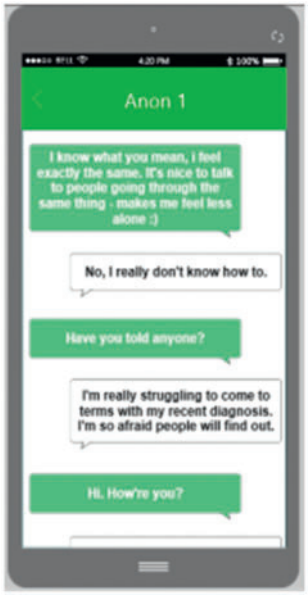

Figure 3: *'Support' section of the Positive Together app*

communicate with one another and discuss their concerns; helping them to feel more supported by their peers and less socially isolated (Figure 3). In order to ensure the space is as safe as possible, users are anonymised through a system that ensures everyone appears as 'Anon' followed by a numerical sequence. The potential for abuse from other account holders was identified during the conceptual stage and in order to safeguard against potential exploitation, an option to report abuse will be available. The accounts of users who have been identified as misusing the app could then be removed.

The 'Health' section provides education on HIV infection and medication to increase health literacy among the app users (Figure 4). This section will be regularly updated and used to educate app users on living more confidently with HIV; evidence suggests

Figure 4: *'Health' section of the Positive Together app*

many newly diagnosed HIV patients are often daunted by the long list of medications they are prescribed and wish to be educated on their usages [18]. In this section users will have the opportunity to create a record of the medication they are taking, blood results and any other general notes they wish to record to help improve their clinical consultations. Information on medication and blood results would be provided to ensure the user fully understood their health status. Once a person has recorded their regular medications, an option to set administration reminders would be available. Similar methods of electronic reminders have proven to be effective in improving antiretroviral adherence [19].

The final section, 'Questions', is for frequently asked questions. Initially a set of pre-identified questions that have been generated through engaging with people living with HIV will be answered. This section will be monitored and updated based on the needs of app users. An option to ask unanswered questions will be available, which would help to ensure the app is meeting the educational needs of users as the feedback received will allow the app developer to identify gaps and add, or update, information accordingly.

Potential barriers

In order for the smartphone app to be successfully implemented and for patients to obtain support, access to a smartphone is required. In times of austerity this might not always be possible and during a period of crisis, a person may not be able to access the support they need. Also, Internet connections in rural areas may be poor, potentially preventing engagement with online support.

Next steps

Now that the app has been designed, we hope to secure funding to pilot it with a group of people living with HIV, which will allow an assessment of the practicality and acceptability of the ideas expressed in this article. After the pilot phase we would be able to add to the desirability of the app based on feedback from participants, before launching the app as a health-promotion tool for HIV-positive MSM.

Concluding thoughts

It is hoped that by using a format that is acceptable to the target population of MSM we will be able to develop appropriate support and education designed to improve health-related outcomes for HIV-positive MSM.

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