



Original article

Beyond symptom monitoring: Consumer needs for bipolar disorder self-management using smartphones



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ARTICLE INFO

Article history:

Received 7 March 2017

Received in revised form 17 May 2017

Accepted 22 May 2017

Available online 1 June 2017

Keywords:

mHealth

Bipolar disorder

Self-management

ABSTRACT

Objectives: To investigate the potential use of smartphone apps to support self-management in young adults with bipolar disorder.

Methods: We recruited 89 young adults (18–30 years) with bipolar disorder to complete a cross-sectional online survey. The survey contained quantitative and qualitative questions regarding technology use, current use of disorder-management apps, types of apps desired for disorder management, and app features that users would consider important when selecting apps. Results were analysed using descriptive statistics and thematic analysis.

Results: Almost all participants used a smartphone daily and 40% currently used apps for disorder management. Of those not currently using apps, 79% indicated they would like to try them. On average, participants rated 61% of the self-management strategies listed as desirable for app support, with sleep-management, understanding early warning signs and triggers, and stay-well plans the most frequently endorsed. App features considered important during app selection were ease-of-use, scientific quality, flexibility/customisation, and data privacy.

Conclusions: The results indicate that young adults with bipolar disorder are interested in a wide range of apps for self-management. Participants were interested in apps to support self-management strategies considered clinically important for disorder management. Many of these app needs are currently unmet. Results suggest diversifying and prioritising app capabilities to ensure evidence-based resources for a broader range of app functions are available to consumers.

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1. Introduction

Psychoeducation aims to promote active involvement in one's health through increasing understanding of the illness and developing skills to manage the condition. In bipolar disorder (BD), psychoeducation reduces time to episode recurrence and time spent ill, but only for those with fewer than 11–14 prior episodes of the disorder [1]. It is therefore a priority to help young people, early in the course of BD, gain these disorder-specific self-management skills and information. However, young adults with BD are difficult to engage in psychotherapy and self-management

[2]. Recent qualitative findings report that young adults do not engage in a number of strategies that are considered critical by their high-functioning adult counterparts [3]. Therefore, novel ways of engaging the young adult population with relevant psychoeducation and self-management strategies are required.

One option may be to use smartphone apps. Smartphone ownership is already high among young adults and most already use smartphones to access health information [4]. Evidence suggests that using mobile technology to support mental health is acceptable to consumers in general [5], and adolescents specifically [6]. In fact, some self-management strategies are already performed using smartphones, with symptom monitoring apps shown to be acceptable to individuals with BD [7,8]. Research exploring the use of symptom monitoring and objective data in BD has reported that adherence to smartphone monitoring outperforms that of paper and pencil charting [7].

Abbreviations: BD, bipolar disorder; mHealth, mobile health.

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<http://dx.doi.org/10.1016/j.eurpsy.2017.05.023>

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Although acceptable and already available in app marketplaces, prior research examining the types of apps available to individuals with BD and their quality found that evidence-based content was lacking [9]. Further, while numerous disorder-specific apps were reported to be available, their content was limited, predominantly comprised of symptom monitoring, disorder information, and self-screening and assessment [9].

While these components are critical, symptom monitoring and disorder information are only two of a group of strategies used by individuals with BD to actively manage their condition. Other important strategies include routine and lifestyle factors such as sleep-management, a balanced diet, and regular exercise, as well as stay-well plans, social support, and meditation/relaxation practices [10,11]. As yet, content of disorder-specific apps does not cover many of these self-management strategies.

For smartphone applications to be useful and effective for self-management, they must address consumer needs. However, to our knowledge, smartphone and other technology use patterns within this population have not yet been explored and no previous studies have examined the perceived needs for app-assisted self-management of those with BD. We therefore know little about the opinions and preferences of individuals, especially young adults, on the utility of smartphone apps to help manage BD.

The aim of this study was to assess the needs of young adults with BD regarding the use of apps for self-management; in doing so, we addressed four areas:

- technology use, exploring the use of a range of digital devices and engagement in online activities. We hypothesised that smartphone use would be as common among young adults with BD as the general young adult population;
- current use of apps for managing the disorder, to gain information about the barriers to app use and perceived advantages and disadvantages of apps;
- self-management app needs, by identifying the self-management strategies consumers were interested in having included within apps. We hypothesised that this would extend beyond the limited app content currently available;
- finally, App features, types of app elements which participants considered important during app selection, in order to identify essential features of successful apps.

2. Material and methods

2.1. Study design

A cross-sectional survey regarding technology use, app use for self-management, and app features important during app selection was delivered online via the Black Dog Institute Research Engine. Survey content was informed by a review of self-management in BD published literature, and preliminary overview of consumer reviews of currently available mobile apps for BD submitted to Apple and Google app stores [12]. Survey piloting occurred with three young adults with BD recruited through the Black Dog Institute volunteer network to test its usability and relevance. The study received ethical approval from the UNSW Australia Human Research Ethics Committee (Protocol number: HC15198).

2.2. Sample

Participant recruitment occurred online via promotion on Facebook and Twitter accounts of the Black Dog Institute, as well as through the online resources and social media accounts of external organisations and services with a BD or youth mental health focus. Additional recruitment occurred through the Black Dog Institute

clinics and volunteer research register. Participant information and consent and eligibility screening were completed anonymously online. Inclusion criteria were; a diagnosis of BD; aged between 18–30 years; Internet access; and ability to read and type English.

2.3. Measures

2.3.1. Participant

Information was collected on age, sex, current employment status, and country of residence. Disorder-specific information including age of diagnosis and current treatment was also collected.

2.3.2. Technology use

Use of technology was assessed using three questions previously used in national surveys of technology and mental health [13,14]. The three questions investigated the average amount of time spent online per day, which technological devices participants use daily, and what online activities were undertaken within the past month.

2.3.3. Current use of apps for managing the disorder

Questions regarding use of apps to support BD self-management differed based on participant's current disorder management app use. Current use of disorder management apps was determined with a yes/no question. Those currently using apps for self-management were asked about their app use (a), while non-self-management app users were asked about their past app experience and future motivations (b).

(a) Those using apps for self-management were asked:

- what apps do you currently use?
- how did you learn about those apps?
- and, what made you choose the app(s) you use over other apps?

Named apps used by participants to manage their disorder were categorised by app type by JN as signified by the app's primary function outlined in the app description. Information regarding the availability of a privacy policy and evidence of app efficacy was also collected.

(b) Those not using apps for BD management were asked:

- why don't you use apps to assist in your self-management?
- have you ever tried using apps to assist with self-management?
- would you like to use apps to assist with self-management?
- and, why or why not?

2.3.4. Self-management app needs

All participants were asked to rate a list of self-management strategies according to their interest in using an app to assist with the strategy. Development of the strategy list involved an informal review of the self-management literature using PsycINFO by JN to identify relevant strategies from psychosocial intervention manuals [15–18] and qualitative studies on BD self-management [10,11,19]. All authors then reviewed and condensed the list of strategies before piloting the reduced list with three young adults with BD. Upon suggestion, two items were added after piloting, “using the internet for support (e.g. forums, message boards)” and “talking to friends/peers”. Interest in using an app to support the strategy was ranked on a 5-point Likert scale ranging from 1 very uninterested to 5 very interested.

2.3.5. App features

Also investigated were factors influencing app choice and usage. A list of app features, such as ease-of-use, data privacy, and personalisation, thought to be important to app users was compiled with reference to preliminary results of a qualitative

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