

Research driven: Sibly and the transformation of mental health and wellness

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ABSTRACT

The face of mental health services is undergoing a dramatic transformation fueled by a growing body of research that supports the use of digital interventions, coaching, and guided self-help as effective alternatives to traditional approaches such as face to face office visits. Independent organizations and authors conclude that the time for real world implementation of these tools has arrived. Sibly is a guided self-help intervention that utilizes digital tools and supportive coaching to help users improve their mental health and wellness through a texting platform. The service leverages well-tested tools and research, trained coaches, and artificial intelligence to offer an accessible, scalable, high-quality, and cost-effective option for mental health and wellness.

AUTHOR KEYWORDS

Digital Health, Wellness, Coaching, Motivational Interviewing, Mental Health, Chat, Machine Learning, Empirically-based tools.

ACM CLASSIFICATION KEYWORDS

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous; Information systems; World Wide Web; Web applications; Internet communications tools; Chat

TIME FOR A SEA CHANGE

Three decades of clinical outcome research points mental health services in a new direction. We have reached the dawn of a new era in the delivery of mental health services and can anticipate rapid transformation in the next decade. [4, 15] The transformation of mental health services will not be reached by clinging to traditional models of service delivery. Technology-enabled mental health services (TEMHS) that mimic traditional delivery models have become skeuomorphs that distract from a paradigm shift that

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is required [15]. Tom Insel, the former director of the National Institute of Mental Health (NIMH), expressed alarm at the intransigent gap between clinical research and mental health services. Dr. Insel rightly asserts that the problem will not be solved by improving existing mental health services but through technology-enabled mental health solutions delivered by smartphones [9]. To his point, research in the areas of empirically based interventions, digital delivery, clinical training, and health coaching are the basis for Sibly, a novel approach to bridge the gap between science and practice.

Sibly is a technology enabled service that is delivered via an app. Users can download the app, access self-help resources, and text with a health coach at any time. Sibly is built on 3 pillars - real time assistance, proven science, and AI. Users can text with trained coaches and access manualized self-help interventions any time, at the user's convenience. Sibly draws tools and strategies from a large body of research that defines and validates effective tools to help people change. Sibly uses AI to insure the quality of the service and extends the reach of effective mental health tools.

EMPIRICALLY-BASED TREATMENTS (EBT)

In the last 30 years, time-limited, manualized interventions, like Motivational Interviewing (MI) and Cognitive Behavioural Therapy (CBT) challenged traditional definitions of treatment. Well specified, manualized treatments like MI and CBT produce better outcomes than less structured psychotherapeutic treatment [18]. Well-specified, manualized interventions have facilitated the rise of self-help tools based on these interventions, the dissemination of these approaches to paraprofessionals with less training, and the translation of these tools for digital delivery [11, 4, 12].

TECHNOLOGY DELIVERS EFFECTIVE MENTAL HEALTH INTERVENTIONS

Multiple independent investigators examined clinical trial data and concluded that the time has come to implement technologically delivered EBTs into routine healthcare. Cavanagh and Shapiro [6] examined four decades of digital mental health research in a meta-analytic study finding large effect sizes in favor of computerized treatments for anxiety and depression. Independent investigators replicated multiple trials in which computerized CBT produced large effect sizes similar in size to CBT delivered face-to-face by

a therapist [1, 8]. Analysis by the Cochrane collaboration supports the use of digital interventions in the areas sexual health, physical activity, chronic disease, blood sugar control, and cognitive behavioral treatment of anxiety. The lynchpin to the success of digital delivery is not the effectiveness of the tools, but the inclusion of human support to engage and retain patients. of human support to engage and retain patients.

ACCESSIBLE TRAINED COACHES ARE KEY TO SUCCESS

Richards and Richardson [16] assert that human contact and support are key to successful implementation and adoption of TEMHS. Wait-list effects lend additional support to Sibly's model of real-time assistance because when compared to those provided with self-help materials, individuals who are directed to wait for help do not get better and may never achieve the improvements of those who immediately access assistance [2,12]. By matching users to a team of trained coaches who act as a single voice, Sibly creates a one-to-many relationship that capitalizes on the use of manualized self-help tools, trained coaches, and a smart back-end system that promotes engagement in and adherence to the empirically-based tools.

EXTENDING THE REACH OF HUMAN COACHES

Sibly's unique technology-enabled service does not replace the human connection in traditional mental health services but instead augments the human connection. One of the most robust findings in treatment outcome research is the power of a strong empathic relationship for good treatment outcome [10]. Research investigating the efficacy of digital interventions shows that human contact adds to the use, satisfaction and efficacy of digital mental health tools [1,13, 16]. Research has found that therapy delivered through the computer has similar and more goal-oriented Working Alliance than to face-to-face therapy. Participants noted that they find the disinhibiting nature of electronic communication with their providers to be important to their success [7]. Sibly need not reinvent well-tested therapeutic models (i.e., motivational interviewing, cognitive behavioural therapy, etc.), but to deliver them in a guided self-help format that leverages a therapeutic relationship to enhance change [18]. By adding coaches trained in empathic listening, motivational techniques, and cognitive behavioural tools to the robust smart system, Sibly maximizes the efficiency of guided self-help, digital delivery, and stepped care.

ARTIFICIAL INTELLIGENCE IMPROVES QUALITY

Publications by several groups support the utility of artificial intelligence (AI) for evaluating the integrity of psychotherapeutic sessions after they have already occurred. Current research has found discrete sentence features to be more effective than recursive networks for automating adherence coding for motivational interviews [17]. Atkins and colleagues have demonstrated the utility of statistical text classification for scaling resources to meet quality assurance needs for the implementation of motivational

interviewing techniques. These groups use AI and digital strategies to evaluate the quality of the intervention for feedback to clinicians after the sessions have occurred.

Sibly's use of smart tools enhances services in real time surpasses the power of natural language processing tools that analyse therapeutic statements days or weeks after a session is over. Our rigorous quality assurance process insures that our coaches utilize the skills and techniques in which they have been trained. Sibly's text-based interventions provide a unique opportunity to examine the quality of the services provided to our users *as the coaching session takes place*. To our knowledge, ours is the only system allows the use machine learning tools to evaluate and improve adherence, making real-time suggestions that improve the quality of responses our coaches provide. Our use of artificial intelligence and machine learning adds scalability and reliability to the service.

REAL-WORLD IMPLEMENTATION

Healthcare systems around the world see the value of digital health programs and have invested heavily in their development and implementation. Simultaneously, the advent of smartphones created a universe of consumers accustomed to managing all aspects of their lives on mobile devices. Consumer demand for such healthcare apps is strong with 70% of adults 18-65 interested in digital tools to improve their health [3]. In 2016, a McKinsey report on digital services identified mental health as one of "the 13 most significant, increasingly-proven healthcare digitization technologies." Research in the area of digital health innovations suggests that organizations will have the most success "starting small and acting fast" [5.15]. These authors also suggest that the best way to determine what patients want is to simultaneously provide and evaluate the TEMH tools. Digital mental health products have strong evidence and rapidly growing implementation around the world.

EVALUATION

Since launch of the service in the summer of 2016, over 4 thousand users have subscribed to Sibly exchanging over 1.4 million messages with our coaches. We have a bimodal age distribution in which self-pay users are an average of 28 years old and employer paid users are an average of 45 years old. Our users are 78% female, 18% male, and 3% non-binary. Typically, our subscribers have an average of 10 coaching conversations during their subscription period. Ninety-five percent of our users report improvements in their mental wellbeing as a result of using the service. Two-thirds of users surveyed show objective reductions in mental and emotional suffering over a 6 week survey period.

CONCLUSION

Sibly utilizes a combination of motivational interviewing and cognitive behavioural tools to offer seamless, real time support to users. The implementation of these skills can be observed in conversations driven by self-guided paths

adapted from empirically supported manuals and in live coaching support for our users. In our minds, the question isn't to ask if Sibly's tools and strategies are sufficiently supported by research. An enormous body of research supports the use of MI, CBT, and digital mental health tools, as well as the use of coaches to facilitate engagement. We propose instead that it might be difficult to find similar justifications for the standard of care in traditional mental health services. The time and opportunity to implement TEMHSs have arrived. Sibly is leading the way into this new era in TEMHS by putting the most affordable and effective mental health resource in everyone's pocket.

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