Mhealth for Mental Health

Abstract

This intervention was designed on the premise that access to information about community resources and mental health disease itself, coupled with an informed social support network, will empower patients to seek help in combating mental health problems. The intervention is a free SMS text service that will send relevant information to people between the ages of 15-49 years old who present with symptoms of depression or anxiety, as well as the community at large with the hope that members will refer one another to the service.

Only those persons with access to a cell phone and who are literate will be engaged via the SMS text service, and spread of information via word-of-mouth will reach other community members. For those with an Internet connection, an online portal primarily modeled after Yelp and PatientsLikeMe will aggregate information from experiences recorded through the free RapidSMS platform on call center phones. Also on this portal, Google Maps will be leveraged to visually display mental health resources in a community. With collaboration of NGOs, government, and health providers, a print-out of the portal’s information (including a map of services and description of user experiences) will be periodically made available at select community sites.

Training of call center volunteers will be coordinated at the regional level to ensure that volunteers are appropriately trained to call/text information in both a respectful and colloquial manner, while protecting the confidentiality of all participants. Quantitative and qualitative measures collected via the SMS text service, at call centers, and with collaboration of health providers will be monitored at a schedule determined by regional and site coordinators to evaluate the effect of the intervention.
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I. Premise

The following intervention was developed with a strong evidence base and specifically works towards meeting Goal D of the Grand Challenges Framework, to increase awareness of the global burden of mental health disease by developing “culturally informed methods to eliminate the stigma, discrimination, and social exclusion of patients and families across cultural settings” (Collins et. al., 2011).

The main assumptions to design this intervention were the results found by Rüsch et al. related to “factors that increase the likelihood of treatment avoidance, delays to care, and discontinuation of services: (i) lack of knowledge about the features and treatability of mental illnesses, (ii) ignorance about how to access assessment and treatment, (iii) prejudice against people with mental illness, and (iv) expectations of discrimination against people who are diagnosed with a mental illness” (Rüsch et al., 2011). Furthermore, the shortage of skilled providers for psychological counseling interventions in many parts of the world has led to a need to shift psychological treatment to non-professional providers and to internet-based self-guided psychological treatments (Patel, 2013).

II. Goals and Objectives

Goals:
1. Increase mental health literacy in the adult population (ages 15-49) and consequent demand for mental health services.
2. Increase knowledge about existing access to treatment with health providers, as well as opportunities for self-treatment in mild cases of mental health disease.
3. Reduce stigma surrounding mental diseases by furthering dialogue and creating more streams for social support.
4. Create a system for ongoing feedback to easily monitor quality of mental health services.

Objectives:
1. Connect community members with existing mental health resources in a discrete and culturally appropriate manner by providing this information via SMS text service and call/text hotline.
2. Temporarily guide a distressed person, either suffering from a mental health issue or simply concerned about a loved one suffering from a mental health issue, with messages of reassurance, motivation, and advice in the event that health resources are not available or readily accessible.
3. Allow a culturally appropriate option to refer other community members to this service by anonymously providing their number to the proposed text service.
4. Connect to an anonymous phone or text hotline in order to speak with a trained community counselor or volunteer who has previously conquered a similar mental health issue.
5. Systematically document demand and quality of mental health resources through SMS feedback and relay information to an online portal accessible to the public for sharing and recording user experience.
Figure 1. Summary of intervention. Example text prompts are provided in Annex I.
III. Methods

A. Target Population

1. People with the disease: This intervention will be targeted at all people between the ages of 15-49 years old who present with symptoms of depression or anxiety. In the initial phases, only those persons with access to a cell phone and who are literate, will be engaged via an SMS text service and call/text hotline. Spread of information by word-of-mouth may reach community members who are illiterate or don’t have access to a cell phone. For those with an Internet connection, an online portal primarily modeled after Yelp and PatientsLikeMe will aggregate information from experiences recorded through the free RapidSMS set up on cell phones used in call centers, and use Google Maps to visually display mental health resources in a community. With collaboration of NGO’s, government, and health providers, a print-out of the portal’s information (including a map of services and description of user experiences) will be made available at select community sites.

2. Family, friends, and community: Members of the community need to be able to assist and support those suffering from mental health issues without using labels or directly addressing this currently stigmatizing health issue. Many people experiencing a mental disorder may not be able to identify or confront their problem, and thus may delay or completely fail to seek professional help. In these cases, the person’s social network (family, friends, and community) may facilitate help-seeking. Indeed, there is evidence that people experiencing a mental disorder are more likely to seek professional help if someone else suggests it (Cusack, Deane, Wilson, & Ciarrochi, 2004).

The target population will be approached and introduced to the intervention in a discrete way (posters, advertisements) at different community sites: grocery markets, health care providers, churches, universities, and pharmacies among other popular locations specific to each context. Partnerships with these locations and involvement of local trusted community members will facilitate timely adoption of these flyers and spread of the information by word-of-mouth.

There will be two ways for a person to access the intervention:

- Self-initiated: Send a text message asking for the service (e.g. sending the word “DEP” to the number 222)
- Referral: If you think a friend or family might benefit from the text service, you can refer her/his number to the intervention to access the service (e.g. sending the 8 digit phone number to 222).

The person will receive a welcoming text and will have the option to opt out of the intervention in case it was sent by error, or if they are not interested or ready for such an intervention.

B. Components of the Intervention

Please see Figure 1 on the previous page for a schematic of the intervention. A description of each component is presented in this section, while an example of the specific text messages presented in each component is included in Annex I.
1. **Information**

Mental health knowledge predicts intentions to seek help for a mental illness and to disclose such an illness to family and friends (Rüscher et al., 2011). Longitudinal studies suggest that improved knowledge about available treatments and medication can increase the chance of usage (Jorm et al., 2006; Schomerus & Angermeyer, 2008).

This first stage of the intervention will send SMS to the participants with information about mental diseases, their symptoms, and available treatments. It is important to communicate the information using the socially accepted terms (e.g. “life problem” or “stress”) that are currently used in the country in place of the more direct medical labels of “depression” or “anxiety.”

It is also critical to link the recognition of a disorder with specific actions that are likely to help a person’s recovery, rather than using socially-appropriate labeling as an act that is useful in its own right. If a person recognizes his or her problem as a mental disorder, this may assist help-seeking, but in order to get effective help, the person also needs to know about the range of professional help and evidence-based treatments available.

Finally, SMS may be used to gradually acknowledge and offer information dispelling cultural myths present in the population that may discourage certain methods of treating mental disease. For example, previous literature has documented community beliefs that psychiatric medications are potentially more harmful than helpful (Jorm et al., 1997; Lauber, Nordt, Falcato, & Rössler, 2001).

2. **Motivation**

Once the participants receive all the information available on the system, text messages motivating him to seek help will be sent. In case the intervention was initiated by a family, friend, or community member who referred the service, motivational messages to the referrer will offer advice about how to best help their loved one seek help or treatment. There is evidence that recovery from depression is optimal when family members provide strong social support (Keitner et al., 1995), and this positive support helps coping with traumatic life events (Charuvastra & Cloitre, 2008). Providing members of the social network with the right information is critical to providing a supportive environment for recovery from mental health diseases.

The major goal of this stage is to encourage the patient to initiate action to combat their mental health condition by either:

1. Seeking medical help or treatment at a health facility
2. Starting a program of self-help strategies that could be supplemented by use of a hotline with trained counselors or web page patient portal (similar to Patientslikeme.com)

Upon the patient’s request, the system will be designed to also provide “randomly generated messages suggesting cognitive and behavioral tips to counteract stressors and/or sad mood” as done in previous mobile interventions (Morris & Aguilera, 2012).
For many, access to professional help or treatment is currently limited; this presents a need and opportunity to facilitate self-help via a continued text service and an option to connect to a hotline. The hotline supports discussion with a trained counselor or someone who previously suffered from a similar condition. This also presents an opportunity to ask the patients about services they would like to have access to, and therefore build a case for expanding access to mental health services. Documenting demand in this socially acceptable manner will help build efforts in the long run.

A number of community surveys have assessed public beliefs about informal self-help. These surveys show that self-help tends to be viewed very positively; in fact, it is often viewed more positively than professional treatment (Jorm, 2011). Even for more severe mental disorders, self-help strategies are popularly accepted. For example, in a study probing public opinion of therapy for psychosis, young people in Australia strongly supported self-driven measures such as becoming more physically active, using meditation, and getting up early and out in the sunlight (Jorm et al., 2008a). By contrast, one study surveying a community in rural India demonstrated that distraction from the problem, vitamins, and appetite stimulants were commonly endorsed (Kermode et al., 2009).

In both of these cases, an industrialized setting and a rural setting, professional medical help may have not been viewed positively due to lack of availability (and consequent association of medical facilities as restricted to only very severe mental health disease), lack of quality of services, or due to pervasive stigma in the community.

3. Medical Treatment and/or Social Support Therapy

If the patient chooses to seek medical help, information about available public health providers will be sent to the patient, as well as the option for them to request more information to address any doubts regarding their prescribed medications. These will all be set up by corresponding text prompts.

The self-help strategy we will provide is an approach based on social support (membership to a network, perceived satisfaction with support, and the frequency of emotional support) which has been suggested to be a major buffer in coping with stressors related to HIV, a similarly stigmatized health condition. Literature has suggested that young HIV positive individuals often prefer seeking and receiving social support in relationships with peers versus parents (Derlega et. al., 2003).

The call/text hotline provides this option to connect with peers that have dealt with similar problems in the past. A striking finding by Derlega et al. was that professionals who have specialized training in mental disorders may not be viewed as positively as more generic professional help. This may partly be due to the stigma surrounding mental disorders or the idea that only those with very severe conditions require care by physicians with such specialized training. This intervention thus seeks to provide alternatives to specialized medical help by providing opportunity to connect with peers as well as trained community counselor.

The SMART Recovery (http://www.smartrecovery.org) model is a very successful evidence-based model used in the United States to help people fighting substance abuse problems, and uses an online certified program that trains facilitators to moderate
support groups. Similar online training programs should be investigated and offered as
options to formally train people manning the text/phone hotline at minimum. Alternatively, the information from these models could be adapted to inform in-person
trainings. This model is preferable over a model like Alcoholics Anonymous, which
requires patients to first admit that they have an illness, which may be counter-
productive in communities where mental health is very stigmatizing still. Instead, SMART proactively approaches substance abuse (mental health disorders in our case) as a problem that must be fixed, and encourages a holistic self-improvement mindset for
the participant. SMART employs a decentralized model in which small groups are
conducted in-person or online to discuss weekly challenges and successes.
Collaboration with SMART may facilitate immediate attention for those with access to
an Internet connection.

Furthermore, literature has suggested three main strategies to reduce stigmatization: “(i) Educational approaches to challenge inaccurate stereotypes about mental illnesses, replacing them with factual information; (ii) interpersonal contact with members of the
stigmatized group; and (iii) Social activism, or protest” (Corrigan et. al., 2012). The
authors further concluded that (ii) is often more effective than (i) (Corrigan et. al.,
2012).

In line with (i), one study suggested that providing information via a website can
increase the participants’ understanding of treatments for depression relative to the other interventions, but did not improve professional help-seeking (Christensen, Leach, Barney, Mackinnon, & Griffiths, 2006). Still this effort must be acknowledged as a
critical part of creating an environment in which mental health problems are considered part of a disease; only through understanding of the condition may a patient ultimately confront their illness.

PatientsLikeMe.com is a free online portal used primarily in the United States to
facilitate dialogue and understanding among patients with a variety of diseases by
offering forums for reflection on health experiences. In later phases of our intervention,
we feel that designing a similar portal would benefit community members with access
to Internet. In addition to offering forums for reflection, our portal could feature Google
Maps that are open-source and allow patients to plot the locations of mental health
services they have used. By syncing data regarding user experience collected through
the SMS text service, this information may be consolidated in one location making it
easy to access via Internet. In effect, this portal could act as a service similar to
Yelp.com, which provides location, user reviews, prices for services, and forums for all
businesses and customers.

MoodGYM and eCouch are two other online programs that target people suffering from
depression and anxiety by offering a self-help guide. Incorporating features of these
programs, or potentially partnering with these sites, may supplement our portal in later
phases of the intervention.

Facilitating in-person interpersonal contact with other members of a stigmatized group
may be less desirable in smaller communities where the size of the community
precludes maintaining a reasonable level of anonymity. The call/text hotline option to
speak with a peer who has previously dealt with a similar mental health problem serves
as a form of more anonymous interpersonal contact.
4. **Treatment Follow-up**

Whether the patient is receiving treatment in a health facility or through our text service, hotline, or online resources, this component of the intervention may help overcome some of the barriers to adhering to health advice. Follow-up SMS texts can be employed to reinforce advice through regular messages related to applying coping skills or adhering to treatment.

When the patient expresses interest in a provider, texts asking about whether they attended the visit and the quality of the service (waiting time, rating of service on scale from 1-10, and other factors that may be further researched, including factors specific to particular contexts) for four purposes:

- To remind the patient of ongoing support from the text service, which is especially critical if a patient had a negative experience at the suggested provider.
- To serve as a quality control measure to hold providers accountable to patients.
- To provide input for the patient portal as a way to share information among patients with an Internet connection (similar to Yelp). This information can then be made available as a print-copy in community sites periodically in order to share it (though not in real-time) with other community members without access to an Internet connection. It will serve as a directory of services.
- To inform improvement, modification, and scaling up of mental health services in communities, and build a system for surveillance.

An important predictor of outcomes in psychotherapy is the therapeutic alliance, defined as the connection that individual feels to the therapist (Menacho et. al., 2013). Due to limited resources, it is unlikely that a person may be assured of consistency in the person who provides therapy, so it is especially important to provide a quality control check to ensure that therapists (through the hotline, or in person) are more or less providing similar quality treatment, making the patient comfortable and effectively addressing his or her symptoms.

C. **Monitoring and Evaluation**

In order to specifically assess the efficacy of the intervention, quantitative measures may be automatically sought and recorded for the SMS text service including:

- The number of voice or text messages exchanged by the target population, both self-initiated and by referral
- (Coded yes/no = digits) Utilization of services recommended via text service
- Rating on scale of 1-10 for each service used (call center, text service, specific health provider)
- (Coded yes/no = digits) Whether patient would recommend service to others

More quantitative measures may be researched to best assess quality of mental health services. The quick collection and availability of this quantitative data on call center phones using the free RapidSMS platform can help guide the intervention if the statistics show certain mental health services are inaccessible (e.g. too long waiting
time) or simply not helping patients (e.g. a bad rating of provider). By syncing data regarding user experience collected through the SMS text service to the online portal described above in the “Medical Treatment…” section, this information may be consolidated in one location making it easy to access via Internet. It is also designed to provide immediate feedback to the regional coordinator, who will then relay this information to the site coordinator, who may discuss potential adjustments with community partners and health providers (further detailed in “Coordination…” section below).

RapidSMS is a free, open-source technology developed by Columbia University that is currently being used to monitor children’s nutritional status in Senegal, Mauritania, Uganda, Somalia, Zambia, Kenya, Nigeria, Malawi, and Ethiopia among other countries. This platform may be used to sync SMS texts to a database on the online portal for easy, real-time data collection. In our model, we rely on collaboration with local non-profit organizations, NGOs, universities, and/or local government to select and utilize an appropriate SMS texting technology for the local setting. If not yet established in a community, then with grant money or other funding sources, we may collaborate with RapidSMS to set up a newly equipped network in the site of interest. Many sites are already expanding their use of the technology.

For the call center, quantitative surveys can be conducted at each call center periodically at an interval pre-determined by the regional and site coordinator, in order to get a sense of the types of topics that participants are discussing, and whether the call center staff feels that adequate advice is being provided to help participants. In-depth interviews (qualitative) may also be conducted for a sample of call center counselors to get more perspective on successes and challenges in each context.

Finally, population health parameters that are recorded such as percentage of suicides (typically recorded as part of larger surveys by the government or ministries of health), and number of anti-depressant and anxiety medications prescribed and dispensed (via health care providers and pharmacies), may be leveraged through partnerships with the appropriate institutions that hold the desired data. Observing how these figures change with time after the intervention’s implementation in a community may also be used as a crude estimate of the intervention’s efficacy.

D. Coordination of Efforts

In order to access the best qualified people (social workers, mental health specialists, general physicians, pharmacists, social workers, law enforcement, etc.) who may shed light on each site and region’s mental health services system, physical community networks and social media networks (Facebook, Twitter, LinkedIn) may be leveraged. Targeted online forums, such as Harvard’s Global Health Delivery Online, which has over 2951 organizations, clinicians, regulators, policy-makers, managers, students, and citizens from over 176 countries, may also be engaged. This digital initiative will also serve another purpose—by generating awareness and interest in evaluation of mental health services; more NGOs or funds will be attracted to this effort, and potentially contribute resources.
If mobile phones need to be donated for the call/text hotlines, then a source should be sought out, preferably locally; as a last resort, external donations of phones may be requested from the following organizations, to name a few:

- Medic Mobile’s Hope Phones Program
- British Red Cross
- Ecolife
- Amnesty International

As far as managing the coordination of activities, there will be coordinators at the national, regional, and local levels. The national coordinator will oversee the operations of the regional coordinators. The main responsibility of the regional and site coordinators is to seek out local partners, assess the social and cultural climate to determine who will be involved, assess the state of technology and adapt as necessary, and set up partnerships. The regional coordinator interfaces and receives input from the country capital coordinator to get any feedback on data or relevant information from online traffic generated by the social media effort. The regional coordinator relays information to the site coordinator, and the site coordinator communicates with call centers and health care providers. The site coordinator will also be responsible for quantitative and qualitative assessments of the call centers’ progress, while the regional coordinator will oversee the online portal’s aggregated quantitative data. A mechanism to validate the mental health resources plotted by users on the Google Maps element of the portal must also be set in place, and will be supervised by the site coordinators. In the event that the site coordinator does not have access to an Internet connection, this information must be relayed to him from the regional coordinator or national coordinator.

The call center volunteers are the only interface with the participants. Therefore it is critical to recruit volunteers that are from the community ideally (if not possible, from the region at minimum) in order to minimize verbal or cultural communication problems. Furthermore, involving members of the community is more likely to create an atmosphere of trust. The training protocol must be standardized and agreed upon by regional and site coordinators for each context, and the training itself may be conducted via partnerships with NGO’s or experts familiar in training health workers about privacy issues in particular. Some of the critical components to focus on in training sessions for the call/text hotline include:

- How to speak to participants and explain the service in addition to the information collected, time commitment, and potential risks.
- How to maintain an open and safe tone in conversations without pressuring participants to provide personal information about themselves.
- How to speak colloquially without using intimidating or inappropriate medical terms that could discourage the participant from continuing the conversation.
- How to recognize and counsel very severe patients that may require emergency services such as suicide watch.
- How to best utilize community services and refer participants to health providers and pharmacies appropriately.

Because each context is very different in the social, cultural, and economic forces that impact each setting, this approach will only work if it is adapted to the setting from the
bottom up using the knowledge and expertise of local partners. We are making a conscious decision to involve religious and selective local community leaders in promoting the intervention because in many societies, they are often trusted figures that are turned to in dire circumstances. However there is always a chance that such involvement may lead to situations that compromise the interests of particular groups of people in a region. The regional and site coordinators will make this judgment call to exclude religious and political figures as necessary in building partnerships to promote the intervention in the community.

E. Phases

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<tr>
<th>Phase</th>
<th>Key Activities</th>
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<td>0</td>
<td>Select at least two pilot sites and find community-member coordinators that will assume responsibility for leading the operation in these areas. Spread the word about this project via in-person bulletin boards, public spaces, as well as through social media and professional health forums (GHD Online, LinkedIn, Twitter, Facebook, magazines)</td>
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<tr>
<td>1</td>
<td>Set up a workshop for national coordinator, regional coordinator, and site coordinators in pilot sites. Roles should be clearly defined, and feedback mechanisms ensured on a time schedule set by the regional coordinator with permission from the national coordinator. General guidelines dictating how call center volunteers will be trained should be set.</td>
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<tr>
<td>2</td>
<td>Regional coordinators seek input from local experts and online resources on implementing the intervention in pilot sites by contacting local universities, NGO’s, and leveraging online forums and social media (GHD Online, LinkedIn, Twitter, Facebook, magazines)</td>
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<tr>
<td>3</td>
<td>Regional coordinators seek partners and funds to effectively establish intervention: partnered service to facilitate free texting, source of mobile phones for call center, and local community spaces to base call centers and hang flyers for the intervention. Consult: NGO’s, Medic Mobile, Red Cross, Amnesty International, EcoLife, churches, community centers, schools, social work centers, law enforcement facilities, and grocery markets among other community resources</td>
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<td>4</td>
<td>Regional coordinators create text prompts with panel of mental health experts at regional level. Involve site coordinators to ensure that language is colloquial, and create multiple versions as necessary. Consult: NGO’s with experience creating surveys, academics with expertise in mental health and mobile health</td>
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<td>5</td>
<td>Establish standard protocol for training community members to answer call/text hotline at regional level under supervision of the regional coordinator. Consult: SMART Recovery Model, NGO’s with experience training health workers, academics with expertise in mental health and mobile health.</td>
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<tr>
<td>6</td>
<td>Recruit and train community members to answer the call/text hotline following the established protocol. Consult: NGO’s with experience training health workers, academics with expertise in mental health and mobile health</td>
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<td>7</td>
<td>Create flyers and spread the word about the intervention in partnered community spaces.</td>
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<td>8</td>
<td>Record findings, and share lessons learned among coordinators. Regional and site coordinators should summarize what worked and what did not work in the field. This information may be shared with interested parties, and the model may be tweaked as appropriate in each setting. By sharing some of this information through social media, the effort would also show that it is transparent and trying to be as effective as possible. This would possibly attract further attention and resource inputs.</td>
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IV. Discussion

1. Strengths
Our intervention takes a multi-pronged approach to address all tiers of society struggling with mental health problems, although those with cell phones are most directly targeted. The plan utilizes existing resources in the community, values the knowledge and experiences of community members to inform strategy and create local ownership of the effort, respects the cultural and social boundaries that may be present in the community and uses easy to teach and use technology. This is a simple solution that may be scalable, and allows a system for feedback and passing on lessons learned.

2. Weaknesses
Access to cell phones and mobile networks at large are not universally ensured, so certain geographic areas may be inaccessible to the SMS text service or hotline aspects of the intervention. The hope is that the newly generated demand from those with cell phone access will in turn lead to expansion of mental health resources for the whole community, including those without cell phones.

In order to ensure that the intervention is effective for each context, measures to promote usage of the appropriate language and level of respect must be taken. This will require extensive coordination among regional and site coordinators, and effective communication lines among the call centers and management to ensure there is enough appropriately trained staff to meet the community’s needs. Small groups with community members to inform how to best phrase certain terms in colloquial language may be helpful to inform the SMS text service prompts before launching the service in the community. If the participant does not understand the SMS texts fully, it may discourage participation, so confusion must be avoided.

Privacy of information is critical to maintaining the trust of users of the SMS text service as well as the call center. Volunteers and anyone involved in the intervention must be appropriately trained to maintain confidentiality of all conversations. Free online trainings may be sought, and collaboration with NGO’s that promote these services may help with training. Training should be standardized for a given region, so coordination among regional coordinators is critical in each country.

For families or groups of people that share cell phones, the text service may not be feasible because text messages will be viewable by others using the cell phone. In this case, in order to protect the patient’s privacy, we hope that the call hotline will be used...
instead, or that the person will be cognizant of the risk and delete messages from the
cell phone as necessary.

One concern that has been cited in a similar text service intervention focusing on HIV
patients (Menacho et al., 2013) was that a text service can be considered annoying to the
participants over time. In order to avoid overburdening both patient and referrer, and
consequently impose undue harm, there will always be an option to opt out of receiving
future text messages.

There is always the risk of abuse of the text service system and call/text hotlines by
members of the community who do not respect the service; however, this is a risk that
must be taken, and we believe that the potential benefits of the system outweigh the
potential harm. Furthermore, as the stigma gradually dissipates with increased usage of
the services and targeted health promotion activities, this risk will go down.

Finally, with the creation of the online portal, there must be a mechanism to monitor the
site for feedback that our intervention does not currently address. Currently we
anticipate that volunteer graduate students from the U.S. may be willing to fulfill this
role if given formal acknowledgement or prestige for their contribution. Monitoring the
site would include general web maintenance; partnerships with NGO’s may also
facilitate this process.

3. Future Directions

A creative method of meeting (i) and (iii) of Corrigan et al.’s strategies to reduce
stigmatization is to involve the whole community in dialogue by encouraging skits
played by community members and acting troupes to discuss the topics of mental health
disorders and portray positive help-seeking behavior. This is a discrete way of
facilitating dialogue and reaching members of the community who may not be willing
to confront their issues through the text services. Furthermore, community dramas bring
all levels of society together, including all age groups, and may begin to shift attitudes
for younger members of the community.

Second, expanding mental health services to rural or especially isolated communities
via mobile counseling units would be helpful in areas that are geographically isolated.
Even in urban areas, where all health services are generally limited to serve the dense
population, mobile health units could provide more timely medical attention. There are
several existing mobile health unit models across the world, so many communities are
already familiar with the concept. Through partnerships with existing units, and NGOs
that may rent transportation vehicles, mobile health units for mental health services may
be expanded. Counselors could be trained similarly to how they would be trained for the
call/text hotlines (SMART Recovery model, regional training models, etc.) with
additional training from health providers on how to interact with patients in person.

Finally, with the creation of an incentive of formal accreditation, the intervention may
leverage the time, skills, and spheres of influence of young people in the upper and
middle income tier of developing countries to spearhead a discussion about mental
health in their respective countries, and initiate a movement to break stigma. With
collaboration from academic institutions, formal value could be given to students who
participate; however, this system will only work if students are assessed for their skills
and given the appropriate responsibilities to prevent undue harm to the community. The idea is to create an organized and valued opportunity for “service-learning” among this untapped market of free, privileged, and influential manpower. Often students in this tier of society have ties to media, government, and other socially influential positions, and thus may be more empowered to quickly spread the word about this movement, and potentially change sentiments in a community where they are often given respect simply due to their place in society.

V. References


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Jorm, A. F., Morgan, A. J., & Wright, A. (2008b). First aid strategies that are helpful to young people developing a mental disorder: Beliefs of health professionals compared to young people and parents. BMC Psychiatry, 8. doi:10.1186/1471-244x-8-42


Rüsch N, Evans-Lacko SE, Henderson C, Flach C, Graham. Knowledge and attitudes as


VI. Annexes

Annex I. Example of text messages sent through SMS text service, though these must be refined by thorough research and consultation with mental health experts. These options will have also be informed by supervising coordinators and a review of literature appropriate to each context (e.g., how to refer to “depression” and “anxiety” in culturally appropriate terms), but this general format will be followed. At the end of each SMS, the option to opt out will be presented by entering “00.” Furthermore, feedback on the use and quality of mental health services utilized will always be assessed with appropriate prompts corresponding to digits entered. Please note that “Mhealth.org” is used to represent the online portal.

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<th>Component</th>
<th>1. Yourself</th>
<th>2. Family member, friend or community member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome</td>
<td>SMS 2: Welcome to Mhealth. From now on we will be sending you health-related texts for FREE. Visit Mhealth.org.</td>
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</tr>
<tr>
<td></td>
<td>SMS 3: We want to help you to overcome your feelings of sadness, anxiety or depression.</td>
<td>SMS 3: We want to help your loved one to overcome feeling of sadness, anxiety or depression.</td>
</tr>
<tr>
<td></td>
<td>SMS 4: You are not alone, everything will be better with Mhealth!</td>
<td>SMS 4: You are not alone, everything will be better with Mhealth!</td>
</tr>
<tr>
<td>Information</td>
<td>SMS 5: Depression and anxiety are diseases, and you can treat them!</td>
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</tr>
<tr>
<td>Disease Treatment</td>
<td>SMS 6: When you have depression, it interferes with daily life and causes pain for both you and those who care about you. Depression is a common illness that can be treated!</td>
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</tr>
<tr>
<td>Motivation</td>
<td>SMS 7</td>
<td>SMS 7</td>
</tr>
<tr>
<td></td>
<td>SMS 8</td>
<td>SMS 8</td>
</tr>
<tr>
<td></td>
<td>SMS 9: Having a happy life starts out by getting checked with your health provider!</td>
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</tr>
</tbody>
</table>
Medications, psychotherapies, and other methods can effectively treat people with depression, start your treatment now!

If you want to start a treatment with Mhealth is FREE and confidential! Just reply TREAT to this number.

If your beloved wants to start a treatment with Mhealth it's FREE and confidential! Just ask him to send TREAT to this number.

If you want to talk with someone about how you feel choose: 1. To chat with someone 2. To receive a call from an expert

The closest health care provider is at the following address: ___________. Contact phone number: _______. Text 1 if you would like another option.

Did you visit the health care provider at the following address: _______? Text 1 if Yes, Text 2 if No.

- [No⇒series of texts asking what the barriers were to visiting the health care provider (must research to develop options)]
- [If Yes, ask questions about the appointment (length of wait, how comfortable they felt on scale of 1-10, whether they feel their symptoms have improved, etc.; these options must also be researched).]

Engage in exercise or physical activity and maintain a regular sleep schedule

- Enlist a trusted friend or relative to help you get out and about or do activities
- Make sure you get out of the house for at least a short time each day
- Learn relaxation methods
- Talk over problems or feelings with someone who is supportive and caring
- Let family and friends know how you are feeling so that they are aware of what you are going through
- Eat a healthy, balanced diet

Reward yourself for reaching a small goal

Do you want to chat with someone who overcame depression? Reply CHAT to this number.
3. Call intervention

**SMS 20**
Call us whenever you need to talk! We are working 7 days a week, 24 hours a day!

If patient is attending the SMS or call interventions or receiving medical treatment:

<table>
<thead>
<tr>
<th>Treatment follow-up</th>
<th>SMS 21</th>
<th>Congratulations! You are now about to start a new life.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SMS 22</td>
<td>Did you take your medication today? Adherence it’s a very important part of your recovery!</td>
</tr>
<tr>
<td></td>
<td>SMS 23</td>
<td>Track your mood and your responses to positive and negative daily interactions, it’s a helpful exercise!</td>
</tr>
</tbody>
</table>