HEALTH COACHING AND TECHNOLOGY WITH VULNERABLE CLIENTS

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One approach to reducing chronic homelessness is permanent supportive housing (PSH), which combines a rental voucher with supportive case management services. The physical location of PSH ranges from scattered-site (individual apartments usually rented from private landlords), to single-site (dedicated buildings for 100% permanent supportive housing units), to integrated housing (PSH units within multifamily complexes). Supportive services may include case management, life skills, mental health care, education, and employment training. In a report prepared by the Lewin Group (2004), supportive housing was significantly less expensive than alternatives such as homeless shelters, jails, or psychiatric hospitals. For example, in New York City, the cost for one day of supportive housing was $42, a day in jail was $165, and a day in a community hospital was $1,185.

Although PSH can result in lower overall costs, people who reside in PSH still face numerous challenges in their ability to live independently. This can be the result of a history of chaotic or traumatic living situations, as well as other chronic physical or mental health conditions that limit functioning. For instance, our evaluation in Fort Worth, Texas, found that most PSH residents (73%) reported at least one chronic health condition, the most common being asthma (24.5%), hepatitis C (22.6%), heart disease (21.4%), and COPD (15.17%). In terms of mental health, 55% reported having received treatment for a mental health condition, 67% reported having a history of substance abuse, and 44% reported both co-occurring substance abuse and mental health concerns.

The m.chat Program

m.chat (Mobile Community Health Assistance for Tenants) is a technology-assisted health coaching program designed to improve key health indicators among PSH residents. The program was developed as part of the Region 10 Regional Healthcare Partnership (RHP 10) Medicaid Waiver program in the state of Texas, and is being tested in a group of 300 PSH residents in Fort Worth. m.chat is designed to supplement traditional case management with a holistic focus on wellness indicators. The program is unique in the way it combines both in-person and technological approaches to address modifiable biopsychosocial domains, including the following: diet, exercise, substance use, medication compliance, social support, and recreation/leisure.

m.chat has three components: in-person health coaching, a specialized coaching software, and provision of "Chat Bucks" that can be exchanged for wellness items. Prior to the first coaching visit and at regular intervals, clients complete a psychosocial assessment to gauge progress on key biopsychosocial indicators. The m.chat software interacts directly with Efforts to Outcomes (ETO), a widely used human services case management system. The in-person health coaching, typically conducted in the person's home, draws from motivational interviewing (MI) and solution-focused brief therapy (SFBT). MI is a conversational style for strengthening a person's motivation and commitment to change (Miller & Rollnick, 2012). SFBT overlaps with MI, but places a greater emphasis on client-determined goals rather than on a predetermined behavioral outcome (Lewis & Osborn, 2004).

The m.chat software is used to provide feedback to clients, as well as to facilitate the health coaching interaction. The software system was programmed by Adcieo, a company that specializes in the development and deployment of online engagement strategies, social media, and other digital marketing techniques. The flow of the interface helps facilitate common MI and SFBT strategies such as a menu of options, scaling questions, and eliciting motivational and solution-focused talk. In this way, the program is similar to other technologies that help people make changes in diet, exercise, or medication compliance. According to Fogg (2009), technology can be persuasive by increasing motivation, making something easier to do (ability), or providing reminders or cues to action (triggers). Many commercially available programs (e.g., Fitbit, RunningTracker, MyFitnessPal, Text4baby) address these elements by providing normative feedback, risk estimates, planning activities, reminders, or facilitating connections to other people, yet they may be inaccessible to populations living in poverty.

In terms of motivation, the m.chat software uses simple visual icons for each health area, and gives an overall (red, yellow, or green) progress estimate in each area. In each domain, we adapted existing assessments and developed "cutoff" scores to estimate good, fair, or poor health in the relevant areas. The program also provides some participants with a cellphone for a period of time. (To determine the cost effectiveness of the phone component, we randomized one-half of our clients to carry the phone at any one time.) While carrying the phone, clients have access to a phone-based app, which allows them to complete daily health assessments,

access tips, and receive reminders about their chosen goals. Clients can document motivation and progress on a series of scaled questions. In an analysis of initial coaching sessions, most participants chose one or two domains to "activate," the most common being diet (62%), physical activity (32%), and substance abuse (32%). Reasons for wanting to make changes in diet and activity were similar and included wanting to lose weight, controlling chronic health conditions, increasing energy, reducing depression, and sleeping better. Most of the substance abuse reasons were associated with smoking cigarettes, such as wanting to breathe easier, live longer, save money, and please friends/family. In accordance with these reasons, initial goals included items such as eating more vegetables, exercising regularly, or quitting smoking.

In terms of ability, the m.chat software helps people set long-term goals, as well as specific actions that they'd like to accomplish in the next 30 days. For instance, if a client has a goal to lose 10 pounds over the next six months, action items might include monitoring soda intake or walking twice in the next week. The program also contains a database of local resources in each health area. The client and coach can browse the description of community resources to determine if any of those resources may help clients access resources or reach their health goals.

In terms of triggers, the software helps clients set text reminders about key action items. Common reminders include statements about exercise, taking medicine, and setting up health care or other appointments. At the end of each home visit, health coaches provide clients with a printed summary of their work for that visit.

Finally, by meeting with their coaches (nonphone group) or completing a daily phone check in (phone group), clients earn wellness incentives called Chat Bucks, which can be redeemed for equipment and services to help reach health and wellness goals. Health coaches monitor purchases to ensure they're consistent with appropriate health and wellness goals. In initial visits, clients have most often exchanged Chat Bucks for household items (e.g., cleaning supplies, paper products), items to promote diet or general health (e.g., scales, blood pressure monitor, protein powder), leisure items (e.g., music players, art supplies, movie tickets), and exercise items (e.g., fitness shoes, discounted YMCA membership, yoga mats).

We're evaluating m.chat using both qualitative (e.g., focus groups, client input) and quantitative (e.g., assessments at fixed intervals) methods to determine the effectiveness of the program, as well as to suggest areas of development. Data queries gathered from ETO allow project personnel to review client progress on a weekly basis. A more detailed analysis is conducted on a quarterly and biannual basis to promote continuous improvement and development.

The Future of Technology in Social Services

Although technology is widely used in human services for both case management and client tracking, m.chat integrates persuasive technology, such as motivation, ability, and triggers, to encourage a high-risk, impoverished population to engage in preventive health behaviors. m.chat also complements the flow of a MI/SFBT-based interaction with a provider. Coaches use the program to document motivation and progress, help people set goals, and develop short-term tasks. In the future, case management systems could be increasingly designed to facilitate behavior change, in addition to gathering and summarizing assessment information. The use of mobile apps could be expanded to provide feedback on physical activity (from phone accelerometers or activity bracelets), medication compliance (from pill dispensing systems), or blood glucose level (from portable monitors). Similarly, cellphones could be used to remind clients about appointments or provide information about whether clients have entered a high-risk environment, (e.g., for relapse to smoking or drug use). The availability of technology presents unique opportunities both to reduce health care costs and improve the lives of our most vulnerable clients.

Examples of the program can be viewed at:

- Diet motivation and ruler: https://youtu.be/NRKPRM3sAbE
- Medication motivation to goals: https://youtu.be/Mst39czjOCc
- Exercise goals and action items: https://youtu.be/ASBVBJHfbQM
- Diet reminder: https://youtu.be/HTyAsr_NVVc

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