TherapyBuddy

Problem Description

The traditional and most common method of at-home exercise prescription regarding rehabilitative therapy is outdated. Sending patients home with a list of exercises on a sheet of paper may not be the best method of at-home therapy in today's tech savvy society. While the standardized exercises that are first issued may provide some value to the patient at the beginning of their rehabilitative process, they may not provide much benefit further along the process. Thus, there is a need for continuous customization of exercises and greater communication between the patient and their therapist. It is proposed that the implementation of a shared application between a patient and their therapist will improve such matters.

Design Solution

The proposed design solution involves a patient profile that can be accessed by both the patient and their therapist. A dated exercise checklist with photos and/or videos of the exercises will allow for patients to efficiently engage in at-home therapy tasks. After completion of an exercise and its repetitions, patients will then be asked to rate their pain perception and perceived exertion. This data will allow the therapist to assess their patient and remotely prescribe new exercises or remove existing exercises on a weekly basis as needed. This application enhances the current system in place, and meets several needs of the stakeholders at play. TherapyBuddy will digitize the paper handouts given to patients, and allow the therapist to easily track patient progress. Not only can this be used for a variety of therapy prescriptions, but also it limits the amount of in-person appointments and therapy sessions required unless it is necessary. Therapists can check on their patients at any time, and assign exercises that are catered to the individual based off of their test results and commentary. A chatbox may also be used if necessary. Overall, TherapyBuddy will increase communication between the patient and therapist, improve motivation of the patient, and make tracking purposes easier.

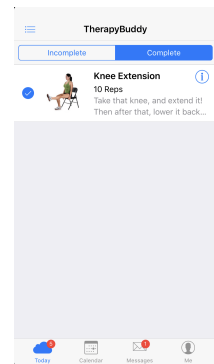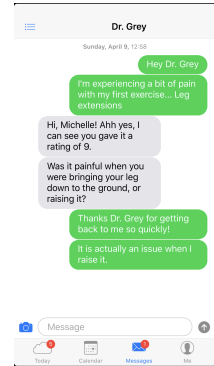## Application

Patient perspective
1. Login
2. Book appointments with your therapist through the application
3. Checklist of exercises and reps
4. Click the info button beside each exercise to get a full description
5. Check off once completed
6. Quick evaluation tests of exercise
   a. Pain perception
   b. Exertion rating
   c. Leave a comment for the therapist
7. View previously completed exercises
8. Next exercise
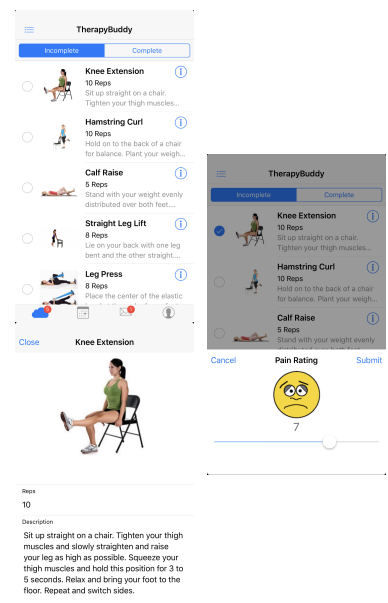
9. Initialize a conversation with the therapist through the application
10. See recovery progress and estimated time to recovery under the "Me" tab
11. "Push Notifications" on the lock screen when it is time for the next exercise session

Therapist perspective
1. Login
2. List of patient names
3. Click on patient name for patient profile
    a. Meeting dates
    b. Test results
    c. Comments and notes
    d. Estimated time to recovery (with override settings to manually enter an estimate)
4. Notifications
    a. Notifications on exercise completion
    b. Notifications on new chat message
    c. Notifications when the system deems it necessary for the therapist to review unusual pain ratings
5. Add or remove exercises from list
    a. Exercises selected form a master list divided by body part
    b. Each exercise comes with a name, images, step-by-step instruction

Implementation

The wide usage of mobile computing platforms like iOS and Android have provided the grounds for an application like TherapyBuddy to be successful. A high adoption percentage is expected due to its industry compliant user interface, ease of use, and portability. The future pathway for TherapyBuddy involves usage of the application by physiotherapists, registered kinesiologists, occupational therapists, and assistants. Processes like patient diagnosis, patient contact and data collection will be greatly augmented by the use of this piece of software.

Users are able to utilize this platform on any device, including iOS (iPhone & iPad) Android (Phone & Tablet), and even on the web due to the software's cross-platform compatible framework (Apache Cordova).

A 60-day free trial will be offered to private clinics in hopes that they will test the application with interested patients. Both the therapists and patients may provide feedback regarding their experience with TherapyBuddy, to allow for continuous quality improvement of the application.

In the future, TherapyBuddy will increase its ability to predict patient recovery times as we collect a large data set from patients that utilize the service. Recovery time may be reduced by utilizing machine learning algorithms to determine the optimal set of exercises that should be given to the patients. This is based on their medical history, the type of injury they are recovering from, and input from the doctor.

DEMO VIDEO: https://youtu.be/IvaS5hiZ5aQ