
An mHealth Pain Coping Skills Training Intervention for Hematopoietic Stem Cell Transplantation Patients: Development and Pilot Randomized Controlled Trial

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Why We Did This Study

Many people experience persistent pain after a stem cell transplant, a treatment that uses healthy blood-forming stem cells to treat certain cancers and blood diseases. Up to 58 out of every 100 transplant patients report moderate to severe pain. This pain can make it difficult to move, work, and enjoy everyday life. Although pain medications can help, they do not always provide enough relief and may cause unwanted side effects. Researchers developed a new way to help patients cope with pain from home: a mobile Pain Coping Skills Training program (mPCST) delivered through a tablet using video calls. This study tested whether the mPCST program was easy for patients to use, acceptable to them, and helpful for managing pain.

Who Participated in This Study?

The study was conducted at Duke University Medical Center. A total of 68 people who had undergone a stem cell transplant and were experiencing pain participated. First, 25 patients took part in group discussions to help researchers design the program. Next,



7 patients tested the program and shared feedback about how easy it was to use. Finally, 36 patients participated in a small randomized study, where they were assigned by chance – similar to flipping a coin – to test the program. To participate, patients had to be at least 21 years old, have a cancer diagnosis that led to their stem cell transplant, and report pain at a 3 or higher on a 10-point scale. People with memory problems or who were unable to speak English were not eligible to participate.

What Were the Results?



People in the mPCST group completed an average of 5 out of 6 program sessions. Most participants found the program helpful, giving it an average rating of 8 out of 10, and easy to understand, with an average rating of 7 out of 7. After completing the program, people in the mPCST group felt more confident in their ability to manage pain.

This improvement was large enough to be considered meaningful and was unlikely to be due to chance. They also walked farther during a 2-minute walk test, showing a

meaningful improvement in physical functioning. Participants in the mPCST group also reported less pain-related disability and less fatigue, although people receiving usual care also showed improvement in these areas. Pain intensity itself did not meaningfully change in either group.

What Do These Results Mean?

This study suggests that a home-based mobile program may help people who have had a stem cell transplant better manage pain. Participants found the program easy to use and helpful. The program improved their confidence in managing pain and their ability to walk. One limitation is that this was a small, early-stage study, with only 36 people participating in the main testing phase.

Because of the small number of participants, the findings may not apply to all stem cell transplant patients. In addition, the study only included English-speaking participants, so it is not yet known how well the program would work for people who speak other languages. Larger studies are needed to confirm these findings and determine whether the program benefits a broader group of patients.

