

# Hinge Health digital care program improves health outcomes among employees with musculoskeletal pain

Accepted to the AcademyHealth Annual Research Meeting, 2020

## RESEARCH OBJECTIVE

Chronic musculoskeletal pain can result in disability, reduced physical activity, decreased productivity, opioid use, and unnecessary surgeries – all of which drive a significant amount of health care spend. Individuals suffering from chronic musculoskeletal pain are also more likely to have comorbid mental health disorders such as depression and anxiety. Specialized digital care programs are a potential solution to decrease musculoskeletal pain. Hinge Health is a digital care program to improve knee and back pain among its participants. This study evaluated the impact of Hinge Health's program on health outcomes among Walgreens employees participating in the program.

## POPULATION STUDIED

- Walgreens employees enrolled in a company-offered health plan who opted in to the Hinge program (participation was capped at 500).
- Each study participant had (1) a baseline knee or back pain self-reported value greater than 0, (2) pain lasting at least 3 months prior to enrollment, (3) 10 or more exercise therapy sessions completing during the core 12-week program, and (4) at least one self-reported pain rating between weeks 6 and 12.

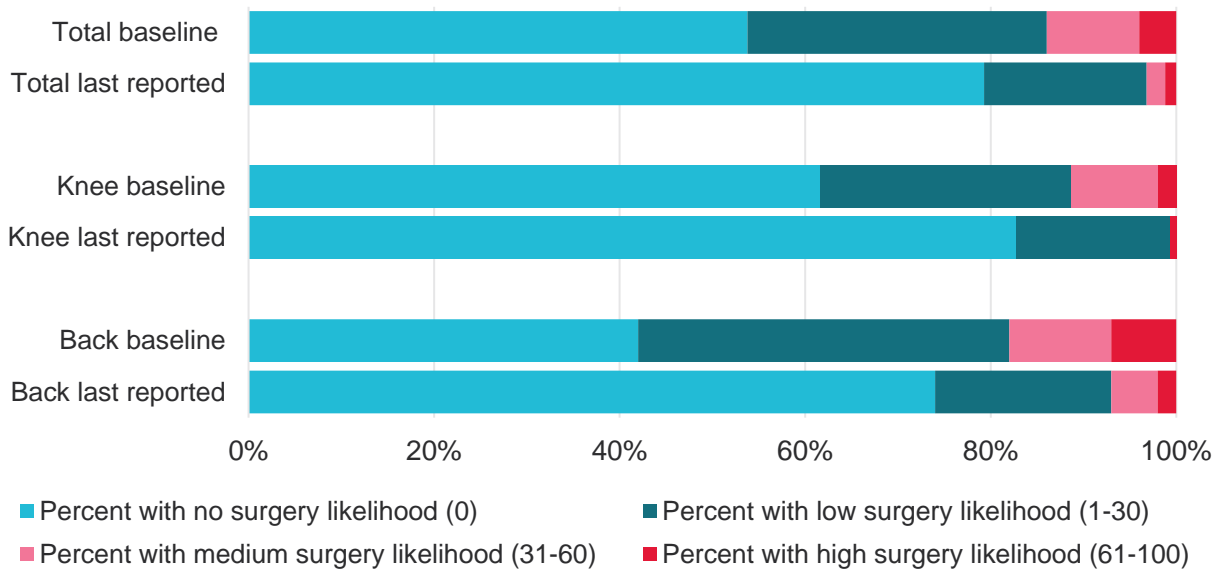
## STUDY DESIGN

A Pretest-Posttest design was used to measure changes in self-reported pain. Secondary outcomes included number of exercise therapy and coaching sessions completed, number of educational articles read, self-reported likelihood of surgery in one year, anxiety scores measured by GAD-7, and depression scores measured by PHQ-9. The Hinge Health back and knee program provides participants with a tablet computer and wearable sensors to guide them through the completion of the 12-week program. Program activities include exercise therapy sessions utilizing wearable sensors and the tablet for continuous direction and feedback, personalized 1-on-1 behavioral support and health coaching, and evidence-based educational articles to help manage pain. The tablet and wearable sensors track participants' activity in the program.

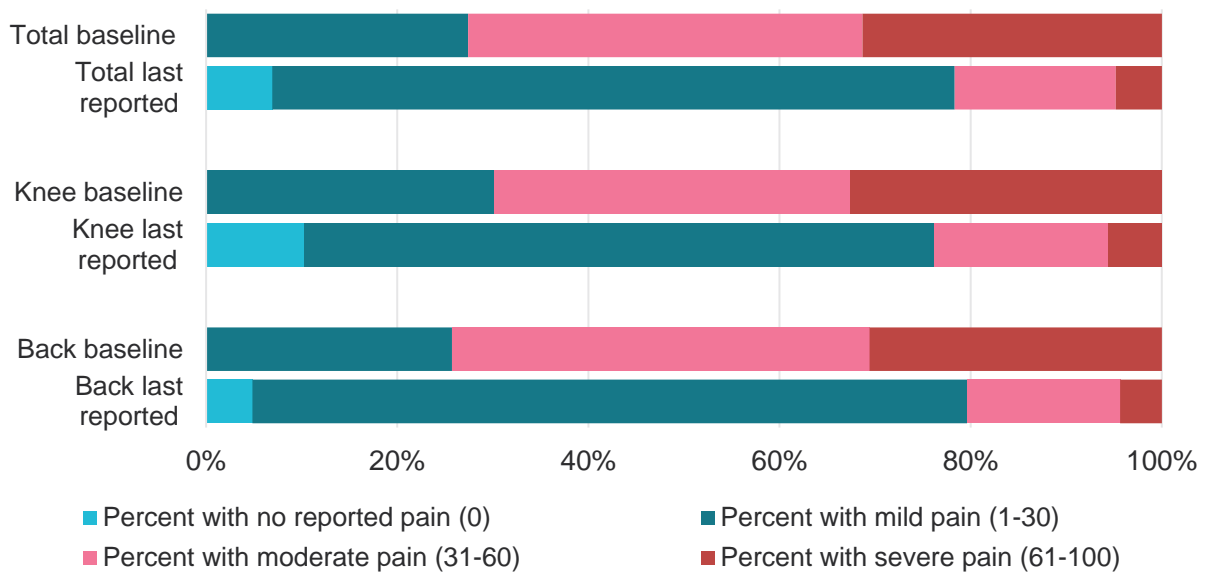
## PRINCIPAL FINDINGS

Of the 485 activated participant Hinge Health accounts, 183 participants enrolled in the knee program and 302 enrolled in the back program. A total of 332 of the 485 (68.5%) participants enrolled met the inclusion criteria. Average reported pain (scale from 0 to 100) decreased from 47.2 at baseline to 19.0 by week 12 (59.7%;  $p < 0.0001$ ). Average 1-year surgery likelihood decreased from 11.3% at baseline to 3.5% by week 12 (69.0%;  $p < 0.0001$ ). Reported pain decreased across all baseline pain categories. Of the participants who reported mild baseline pain, 15% reported no pain by week 12. A majority of the participants who reported moderate or severe baseline pain moved into a lower pain category by week 12 of the program, 79% and 89% respectively.

### Percent of patients in each 1-year surgery likelihood category at baseline and 12-weeks



### Percent of patient in each pain category at baseline and last report



## CONCLUSION

Overall, engagement in the Hinge Health program was high, and engaged participants experienced significant decreases in pain and 1-year surgery likelihood. The number of participants who reported moderate and severe pain in both the knee and back programs decreased significantly ( $p < 0.0001$ ) by the end of the 12-week program. These findings suggest that a digital care program offered through an employer health plan can decrease pain and surgery likelihood for participants experiencing knee and back pain.

## IMPLICATIONS FOR POLICY OR PRACTICE

Adoption of employee digital care programs for musculoskeletal pain can improve health outcomes among employees.

### AMA Citation:

Segovia, M, Singh, T, Smith-Ray, R, Agarwal, Kraus, J. Hinge Health digital care program improves health outcomes among employees with musculoskeletal pain. Presented at the AcademyHealth Annual Research Meeting, July 28-30<sup>th</sup> and August 4<sup>th</sup>-6<sup>th</sup>, 2020.

### Contributing Authors:

Manuel Segovia, MPH, Tanya Singh, MPH, Renae Smith-Ray, PhD, Vibhu Agarwal PhD, Jeff Kraus, MD  
Walgreen Co., Deerfield, IL

For more information on this presentation, please contact: [research@walgreens.com](mailto:research@walgreens.com).

This research was approved by Advarra IRB (#Pro00037295). This research was funded internally by Walgreen Co.