headspace health.

The Science Behind Headspace Health

DATE

Headspace Health
Our care system

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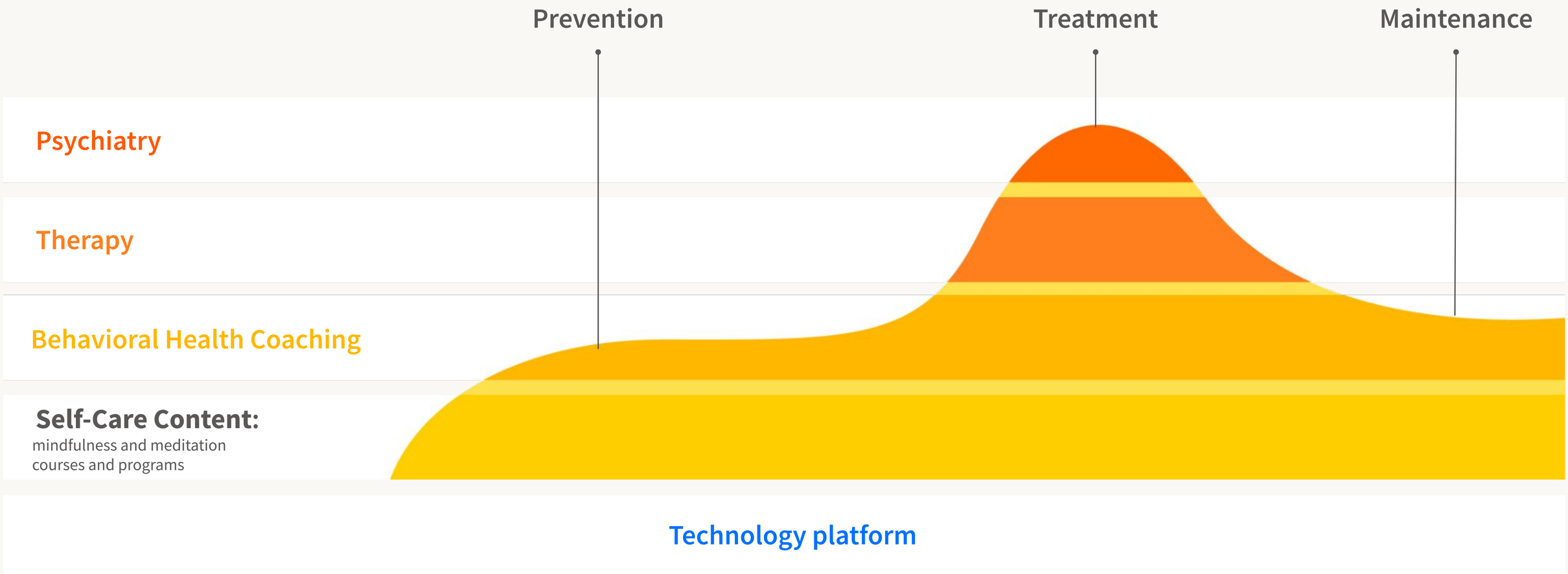
Mental health is a continuum – so is our approach

Our stepped care system – enhanced by technology – uniquely delivers four levels of care simultaneously



A care system backed by an extensive evidence base

Mindfulness and meditation

Mindfulness and meditation decrease perceived stress and reduce mental health symptoms in individuals with anxiety and depression disorders.[1]

Behavioral health coaching

Health coaching is effective in improving individual physical and mental health.[2]

Teletherapy and psychiatry

Teletherapy and psychiatry deliver outcomes equal to in-person versions of treatments.[3]

Sources
1 Nature; Annual Review of Psychology
2 Patient Education and Counseling; Coaching Research Brief
3 APA

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SELECTED RESEARCH AREAS

The largest body of peer-reviewed evidence in digital mental health

Mental wellbeing
stress, resilience, life satisfaction, quality of life

Clinical outcomes
depression, anxiety, sleep

Cognition and neuroscience
HRV, attention

Healthcare costs and ROI:
claims spending, workplace outcomes

50+
Peer-reviewed studies on product-specific outcomes

65+
Research collaborators

UNIVERSITY OF OXFORD

USC University of Southern California

Stanford University

UCSF

Headspace improves mental health

Mindfulness and meditation lead to improvements in anxiety, depression, and general well-being

Anxiety

19%

symptom reduction
after 8 weeks

Journal of Occupational Health Psychology

Depression

29%

symptom reduction
after 8 weeks

Journal of Occupational Health Psychology

Well-being

14%

increase in life
satisfaction after 30 days

PLOS One

Mindfulness and meditation helps employees, managers, and healthcare shift workers

Employees	Decreases in anxiety and depressive symptoms [1]
Managers	Increases in authentic leadership among leaders and positive work attitudes among followers [2]
Healthcare Workers	Increases in positive mood, mindfulness, acting with awareness [3]

Sources
1 Journal of Occupational Health Psychology
2 Journal of Business and Psychology
3 Journal of Pediatric Nursing

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Our care model delivers real-world impact

Coaching and clinical services improve depression, anxiety, productivity, and more

59%
show improvement in anxiety symptoms

JMIR

70%
show improvement in depression symptoms

JMIR

+3
healthy days after 30 days

JMIR

17%
reduction in outpatient costs

Procedia Computer Science

Appendix

Team overview

Study Summaries

Full publication list

Meet our Science team: Clinical Product

We partner on product and service development, ensuring science is baked into our product and services by leveraging research, behavioral science and clinical expertise.

Dr. Lauren Lee (She/Her)

MS and PhD in Clinical Psychology

VP of Clinical Product and Content Development

Expertise

Clinical product/program development
Behavioral science
Clinical/coaching operations

Experience and education

University of Arizona
Lantern Health
Omada
Two Chairs
Calm

Dr. Matthew Chester (He/Him)

MS and PhD in Clinical Psychology

Clinical Product Specialist

Expertise

Digital mental health product development
Health psychology
Clinical/coach training and operations

Experience and education

University of Texas at Austin
VA Healthcare System
Duke University
Noom
Crossover Health

Dr. Michelle Davis (She/Her)

MS and PhD in Clinical Psychology

Clinical Product Specialist

Expertise

Cognitive behavioral therapy
Anxiety disorders and OCD
Clinical intervention/product development

Experience and education

University of Texas at Austin
VA Healthcare System
Baylor College of Medicine
Big Health

Meet our Science team: Research

We validate our impact on health outcomes via RCTs (Randomized Controlled Trials) and real world evidence (RWE) achieved via internal studies and external collaborations.

Dr. Emily Hu (She/Her)
PhD in Epidemiology
Director, Research

Expertise
Epidemiology
Chronic diseases
Public health and prevention

Experience and education
Johns Hopkins School of Public Health
Foodsmart

Dr. Emily Shih (She/Her)
PhD in Human Dev Psychology,
Research Scientist

Expertise
Human development
Emotion Regulation
Stress Physiology

Experience and education
UC Riverside
UC San Francisco

Yrvane Pageot (She/Her)
MA in Health Psychology
Research Associate

Expertise
Health psychology
Research collaborations

Experience and education
UCLA
NYU Grossman School of Medicine

Sarah Kunkle (She/Her)
MPH in Epidemiology
Science Strategy & Operations

Expertise
Health economics and outcomes research
Real world evidence
Industry-academic collaboration

Experience and education
Columbia School of Public Health
Fitbit
23andMe

Dr. Ulrich Kirk (He/Him)
PhD in Neuroscience
External PI

Expertise
Neuroscience

Experience and education
University College London
Baylor College of Medicine
University of Toronto
Virginia Tech
University of Southern Denmark

Mindfulness and Meditation: Workplace Populations

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Link to Full Study

Improved work stress and well-being among employees

Objective: Examine the effects of Headspace on improving psychological well-being and reducing job strain and ambulatory blood pressure during the workday

Population: 238 healthy employees in the UK reporting some work stress from Google and Roche

Study design: Randomized controlled trial: Headspace or waitlist control

Intervention: Headspace for 8 weeks + 8 week follow-up

RESULTS

Participants randomized to the Headspace intervention group reported significant improvements in well-being, distress, job strain, and perceptions of workplace social support compared to the control group.

Anxiety symptoms: 19% reduction after 8 weeks

Depression symptoms: 29% reduction after 8 weeks

Systolic blood pressure: Slightly reduced at 8 weeks.

Improvements in well-being, depressive symptoms, and job strain were sustained at 16-week follow-up,

CONCLUSIONS

Guided mindfulness meditations delivered via smartphone can improve outcomes related to work stress and well-being, with potentially lasting effects.

Link to Full Study

Headspace increases mindfulness and positive mood among medical staff

Objective: Assess the potential for a mindfulness meditation practice to improve medical residents' well-being

Population: 43 resident physicians from Stanford University Hospital

Study Design: Single-arm longitudinal study

Intervention: Headspace for 4 weeks

RESULTS

Mindfulness: 16% increase after 4 weeks

Positive mood: 8% increase after 4 weeks

Improvements in mindfulness were correlated with frequent use of the Headspace app.

CONCLUSIONS

Results of this feasibility study suggest that Headspace can be used to build valuable mindfulness skills and improve mood in physicians.

Link to Full Study

Increased awareness and compassion among novice pediatric nurses

Objective: Examine the effectiveness of smartphone delivered mindfulness in improving nurses' compassion, fatigue, burnout, compassion satisfaction, and mindfulness compared to a traditional intervention

Population: 95 novice pediatric nurses

Study Design: Randomized controlled trial: Headspace or a traditionally delivered mindfulness intervention (i.e., administered by a trained Buddhist priest).

Intervention: Headspace for 4 weeks

RESULTS

Acting with awareness:
Higher among the Headspace group relative to the traditional intervention group

Compassion fatigue:
Lower risk among participants in the Headspace relative to participants in the traditional intervention group

Note: only among participants with subclinical post-traumatic symptoms

CONCLUSIONS

Headspace may benefit novice nurses by teaching important coping skills to manage stress.

Link to Full Study

Headspace reduces health care workers' stress: a large multi-site study of NHS staff

Objective: Investigate the effectiveness of Headspace in reducing health care worker stress

Population: 2182 NHS staff

Study Design: Randomized controlled trial: Headspace or active control (Moodzone)

Intervention: Headspace for 4.5 months

RESULTS

Headspace led to greater reductions in stress and other mental health outcomes compared to the active control group.

In the Headspace group:

Stress: Reduced by 21% after 4.5 months

Depression: Reduced by 24%

Anxiety: Reduced by 30%

Self-compassion: Increased by 13%

CONCLUSIONS

Headspace may help health care workers reduce stress and improve other mental health outcomes

Link to Full Study

Online mindfulness training can improve the well-being of police officers and staff

Objective: Examine the effects of online mindfulness training on well-being in police officers and staff

Population: 1,337 police employees

Study Design: Randomized controlled trial: Mindfit Cop (online mindfulness course for policing) or waitlist control

Intervention: Headspace for 24 weeks

RESULTS

The Headspace group saw improvements in **well-being, life satisfaction, performance, presenteeism, and resilience** after 24 weeks.

Headspace was most beneficial for participants who reported low job control.

CONCLUSIONS

Headspace is an effective form of online mindfulness training to improve the well-being of police officers and staff.

Mindfulness and meditation: Everyday Well-being

Link to Full Study

Headspace improves psychological well-being as measured by resilience, life satisfaction, and stress

Objective : Examine the effects of mindfulness meditation on psychosocial well-being

Population: 74 healthy adults

Study Design: Randomized controlled trial: Headspace or waitlist control

Intervention: Headspace for 30 days

RESULTS

Participants randomized to the Headspace reported improvements in psychological well-being after 10 and 30 days:

Resilience:

- 10 days: 4.5% increase
- 30 days: 11% increase

Life satisfaction:

- 10 days: 8% increase
- 30 days: 15% increase (30 days)

Stress:

- 10 days: 12% decrease
- 30 days: 32% decrease

CONCLUSIONS

Using the Headspace app can improve self-reported psychological outcomes, with greater improvements after 30 days.

Link to Full Study

Improvements in stress, affect, and irritability following brief use of the Headspace app

Objective: Examine the effects of Headspace use on affect, irritability, and stress compared to an active control treatment

Population: 69 adults

Study Design: Randomized controlled trial: Headspace or audiobook control

Intervention: 10 days of Headspace

RESULTS

Compared to the control group, the Headspace group showed greater improvements in well-being:

Irritability: 27% decrease after 10 days

Stress: 15% decrease after 10 days

Affect balance: 200% increase after 10 days

CONCLUSIONS

Brief mindfulness training using the Headspace app is beneficial for several aspects of psychosocial well-being.

Link to Full Study

Headspace reduces compulsive internet use

Objective: Examine the impact of brief mindfulness on compulsive internet use and mental health symptoms

Population: 994 adults

Study Design: Randomized controlled trial: Headspace, progressive muscle relaxation [PMR], or waitlist control

Intervention: Headspace for 2 weeks

RESULTS

Compulsive internet use: greater reduction in Headspace group compared to PMR group

Anxiety and depressive symptoms: greater reduction in Headspace group compared to control group

CONCLUSIONS

Brief mindfulness meditation training with Headspace can reduce compulsive internet use, as well as symptoms of depression and anxiety.

Link to Full Study

Headspace rated as acceptable in enhancing sleep quality in diverse population

Objective: Evaluate the acceptability and feasibility of Headspace to improve sleep quality among a diverse group of adults

Population: 17 racially diverse (53% Black, 12% Asian, 18% Hispanic) adults with a body mass index ≥ 25 and with poor sleep quality

Study Design: Mixed methods (i.e., intervention followed by focus group)

Intervention: Headspace for 30 days and a sleep hygiene presentation

RESULTS

Sleep:

- Participants with > 50% intervention adherence reported that the app helped them **fall asleep faster**
- Participants who used the app at night, exclusively, reported **falling asleep faster and staying asleep**

Acceptability: 100% of participants rated the app as acceptable and appreciated the ability to personalize their app experience

CONCLUSIONS

Using Headspace to enhance sleep quality is acceptable and feasible. Tailoring content for Black/African American individuals may improve uptake in this population.

Mindfulness and meditation: Cognitive and Physical Health Outcomes

Link to Full Study

Focus music improves heart rate variability and attention

Objective: Examine the effects of a music intervention on improving cognitive performance and cardiovascular health

Population: 108 healthy adults

Study Design: Randomized controlled trial: jazz, piano, lo-fi, or waitlist control

Intervention: 15 min and 45 min music durations for 3 days

RESULTS

Compared to participants in the control group, participants in the all 3 music groups showed improvements in:

- Sustained attention
- Heart rate variability (HRV)

For participants in the Headspace groups, **music familiarity** was associated with improvements in:

- Attentional capacity
- HRV

CONCLUSIONS

Focus music content in the Headspace app may positively impact focus and related measures of physiological functioning.

headspace health.

Link to Full Study

Sleep music, sleepcasts, and mindfulness improve sleep quality and sleep arousal

Objective: Examine the effects of three interventions on sleep arousal, sleep quality, and cognitive functioning

Population: 38 healthy volunteers

Study Design: Within-subject crossover design with 3 interventions: sleep music, sleepcasts, guided mindfulness

Intervention: 1 week control followed by 1 week of each of the 3 interventions (4 weeks total)

RESULTS

The **guided mindfulness** intervention was associated with:

- Improvements in **sleep quality**
- Increased **attentional vigilance**
- Improvements in **HRV** during the pre-sleep and sleep periods

- Sleep music and sleepcasts were associated with improvements in **sleep efficiency** and **HRV** during the pre-sleep period

CONCLUSIONS

Sleep music, sleepcasts, and guided mindfulness may lead to improvements in subjective and objective sleep quality among healthy participants.

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Link to Full Study

Smartphone mindfulness meditation training reduces pro-inflammatory gene expression in stressed adults

Objective: Examine the effects of Headspace on pro-inflammatory gene expression compared to a problem-solving control program

Population: 100 customer service employees

Study Design: Randomized controlled trial: Headspace or active control

Intervention: Headspace for 30 days

RESULTS

Pro-inflammatory gene expression: Headspace group had reduced activity of the pro-inflammatory transcription control pathway compared to the control

Perceived stress: Both groups experienced decreases in perceived stress

CONCLUSIONS

Mindfulness training may be an effective method for improving immune cell gene expression in stressful work environments.

headspace health.

Link to Full Study

Improved stress and abdominal fat distribution among adults with overweight

Objective: Examine effects of mindfulness meditation on food cravings and metabolic health

Population: 161 participants with overweight and moderate stress

Study Design: Randomized controlled trial: Headspace, Headspace + healthy eating, healthy eating (active control), or waitlist control

Intervention: Headspace for 8 weeks

RESULTS

Perceived stress:

- 26% lower stress for those who used Headspace (8% for control)

Body fat: Reduced body fat (measured by sagittal diameter) for those who used Headspace

- Those high in **binge eating** had greater reductions in body fat if they were randomized to Headspace compared to control

Adherence: Adherence was associated with greater reductions in stress, cravings, and adiposity

CONCLUSIONS

Headspace is an effective resource for reducing stress and improving abdominal fat distribution patterns among adults with overweight and moderate stress.

Mindfulness and meditation: Clinical populations

Link to Full Study

Clinician-supported Headspace, depression, and anxiety

Objective: Examine the effectiveness of Headspace in depression self-management, as an alternative to a cognitive behavioral therapy (CBT) self-help intervention

Population: 54 adults with mild to moderate depression

Study Design: Feasibility study; single-arm

Intervention: 30 sessions of Headspace in addition to 6 support sessions over 8 weeks

RESULTS

- **Depression:** Reduced by 44%
- **Anxiety:** Reduced by 46%
- **Acceptability**: Clinician-supported Headspace was deemed acceptable by participants and clinicians.
- **Engagement**: Engagement with Headspace and coaching sessions was high. Greater engagement with the Headspace app was associated with a greater reduction in depression symptom severity

CONCLUSIONS

A blended intervention combining Headspace with clinician support has potential as an initial treatment for moderate to moderately severe depression.

headspace health.

Link to Full Study

Headspace as an intervention for cancer patients and their caregivers

Objective: Evaluate Headspace as a tool to help patients and caregivers cope with cancer-related distress

Population: 72 patients and 26 caregivers

Study Design: Feasibility study; Randomized controlled trial: Headspace or waitlist control

Intervention: 8 weeks daily Headspace meditation sessions + Coping with Cancer course

RESULTS

Patients: Experienced improvements in depression, anxiety, pain intensity, and well-being.

Caregivers: Experienced improvements in fatigue

CONCLUSIONS

Results of this study demonstrate that there is potential for Headspace to improve quality of life for cancer patients and their caregivers.

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Link to Full Study

Improved quality of life among breast cancer patients

Objective: Evaluate the efficacy of Headspace to improve quality of life among women with breast cancer

Population: 112 women diagnosed with breast cancer

Study Design: Randomized controlled trial: Headspace or waitlist control

Intervention: Headspace for 8 weeks

RESULTS

Quality of life*: 14% increase in Headspace group

Mindfulness*: 12% increase in Headspace group

*Statistically significantly greater than control group

CONCLUSIONS

Headspace can be an effective intervention for women seeking to improve quality of life and mindfulness following a diagnosis of breast cancer.

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Link to Full Study

Improvement in asthma and mental health symptoms among patients with asthma

Objective: Examine the feasibility Headspace in improving patient-reported outcomes for mild and moderate asthma patients

Population: 144 participants with a clinical asthma diagnosis

Study Design: Randomized controlled trial: Headspace or waitlist control

Intervention: Headspace for 3 months

RESULTS

Depression: improvements at 6 weeks and 3 months

- Reductions were statistically significantly greater compared to the control group

Asthma-related quality of life: improvements at 6 weeks and 3 months

Asthma control: improvements at 6 weeks and 3 months

Mindfulness: improvements at 6 weeks and 3 months

CONCLUSIONS

Headspace demonstrates potential benefits for asthma symptoms, asthma-related quality of life, and mental health symptoms.

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Link to Full Study

Headspace may help improve mental health among postpartum women

Objective: Examine the feasibility, acceptability, and preliminary efficacy of Headspace for postpartum women

Population: 27 women with moderate to moderately severe depressive symptoms seeking postpartum care

Study Design: Mixed-methods, 1-arm feasibility trial

Intervention: Headspace for 6 weeks

RESULTS

Depressive symptoms: improvements at 6 weeks

Perceived stress improvements at 6 weeks

Sleep quality: improvements at 6 weeks

Mindfulness: improvements at 6 weeks

CONCLUSIONS

A Headspace intervention for postpartum women with moderate to moderately severe depressive symptoms is feasible and acceptable and may improve mental health symptoms.

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Coaching and Clinical Services:
Depression & anxiety
Resilience & quality of life
Healthcare costs & utilization

Link to Full Study

Ginger members experience significant reductions in depression symptoms

Objective: Investigate the utilization and effectiveness of the Ginger platform for reducing depression symptoms

Population: 1662 Ginger members

Study Design: Retrospective observational study

Intervention: On-demand behavioral health coaching, clinical services (therapy, psychiatry), and self-guided content

RESULTS

Depression: significant reductions in members experiencing symptoms

- **Baseline:** 46.5% screened positive
- **Follow-up:** 28.7% screened positive

Improvements in depression symptoms were consistent across care modalities

CONCLUSIONS

Ginger members show significant reductions in depression symptoms.

Link to Full Study

Ginger members experience significant reductions in anxiety symptoms

Objective: Investigate association between care engagement and improvement in anxiety symptoms

Population: 1611 Ginger members aged 18+ years who screened positive for anxiety

Study Design: Retrospective observational study

Intervention: On-demand behavioral health coaching, clinical services (therapy, psychiatry) and self-guided content

RESULTS

Anxiety: reductions in anxiety symptoms across all types of care

Members who received coaching or clinical services (therapy or psychiatry) showed greater reductions in depression and anxiety symptoms than members who did not engage in care

Members who engaged in “hybrid care” (coaching + clinical) showed the highest rates of improvement in depression and anxiety symptoms

CONCLUSIONS

Use of any care modality on the Ginger platform was associated with decreases in anxiety symptoms. Engagement with combined care (teletherapy and text-based coaching) showed the greatest likelihood of decreasing anxiety symptoms.

Link to Full Study

Health-related quality of life among Ginger members

Objective: Describe changes in health-related quality of life (HRQoL) in members and association with text-based behavioral coaching and clinical sessions.

Population: 288 Ginger members ages 18+

Study Design: Retrospective observational study

Intervention: On-demand behavioral health coaching; Clinical services (therapy and psychiatry)

RESULTS

Healthy mental health days:
+3 in 30 days

Productive days:
+3 in 30 days

Member engagement with clinical sessions significantly predicted changes in unhealthy mental health days

CONCLUSIONS

Short-term engagement with virtual care can improve HRQoL for members with subclinical and clinical symptoms.

Link to Full Study

Resilience among individuals accessing the Ginger platform

Objective: Understand individual needs, particularly those that might not be captured in traditional clinical assessments.

Population: 9165 Ginger members ages 18+

Study Design: Retrospective observational study

Intervention: On-demand behavioral health coaching, clinical services (therapy, psychiatry) and self-guided content and assessments

RESULTS

Resilience

- The majority (81%) of participants reported low resilience at baseline
- Resilience was lower for younger members
- Resilience was higher for members with no or mild depression or anxiety.

Despite having relatively higher resilience scores, members with no or mild depression or anxiety still had low resilience scores on average.

CONCLUSIONS

Study findings suggest a need for mental health support among individuals who might not typically be recommended for treatment based on results from traditional clinical assessments.

Link to Full Study

Reductions in outpatient costs for Ginger members

Objective: examine the associations between use of an on-demand digital mental health platform and healthcare utilization costs compared to a matched control cohort.

Population: 2148 Ginger members who signed up between Jan 1, 2018 and June 30, 2020 and matched control cohort.

Study Design: event study + control cohort.

Intervention: On-demand behavioral health coaching, clinical services (therapy, psychiatry) and self-guided content and assessments

RESULTS

Total healthcare + pharmacy costs:
no significant differences between cohorts

Outpatient costs:
16.8% reduction in outpatient costs in Ginger cohort vs. control

CONCLUSIONS

Virtual care interventions do not significantly increase total health care costs. In fact, results show that engaging in Ginger is associated with a reduction in outpatient costs, suggesting that novel behavioral health interventions can shift the modality of care without increasing overall health care spending and serve as a scalable approach to addressing the current mental health demands.

Link to Full Study

Recommendation systems support engagement in self-guided content

Objective: describe and evaluate 2 knowledge-based content recommendation systems to bolster engagement in self-guided mental health content.

Population: 14,018 Ginger members

Study Design: Retrospective observational study (in-app and offline evaluation)

Intervention: On-demand behavioral health coaching, clinical services (therapy, psychiatry) and self-guided content and assessments

RESULTS

Content completion:

- Content consumed in the recommendations section had the highest completion rates (42.6%) compared to other sections of the app, (37.35%).
- Conversation-based content recommendations had 11.4% higher completion rates than onboarding response-based recommendations

Content relevance:

conversation-based recommendations had a 16.1% higher relevance rate (studied via subject matter expert annotations) compared to a random control

CONCLUSIONS

Recommender systems can help scale and supplement care with personalized content and self-care recommendations. Conversation-based recommendation algorithm allows for dynamic recommendations based on information gathered during coaching sessions, which is a critical capability, given the changing nature of mental health needs during treatment.

Publication list

Publications highlighted in this deck

Workplace

Bostock, S., Crosswell, A. D., Prather, A. A., & Steptoe, A. (2019). Mindfulness on-the-go: Effects of a mindfulness meditation app on work stress and well-being. Journal of Occupational Health Psychology, 24(1), 127–138. https://doi.org/10.1037/ocp0000118

Wen, L., Sweeney, T. E., Welton, L., Trockel, M., & Katznelson, L. (2017). Encouraging Mindfulness in Medical House Staff via Smartphone App: A Pilot Study. Academic Psychiatry, 41(5), 646–650. https://doi.org/10.1007/s40596-017-0768-3

Wylde, C. M., Mahrer, N. E., Meyer, R. M. L., & Gold, J. I. (2017). Mindfulness for Novice Pediatric Nurses: Smartphone Application Versus Traditional Intervention. Journal of Pediatric Nursing, 36, 205–212. https://doi.org/10.1016/j.pedn.2017.06.008

Taylor, H., Cavanagh, K., Field, A. P., & Strauss, C. (2022). Health Care Workers' Need for Headspace: Findings From a Multisite Definitive Randomized Controlled Trial of an Unguided Digital Mindfulness-Based Self-help App to Reduce Healthcare Worker Stress. JMIR mHealth and uHealth, 10(8), e31744.

Fitzhugh, H., Michaelides, G., Connolly, S., & Daniels, K. (2019). Mindfulness in policing: A randomised controlled trial of two online mindfulness resources across five forces in England and Wale. www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

Everyday Wellbeing

Champion, L., Economides, M., & Chandler, C. (2018). The efficacy of a brief app-based mindfulness intervention on psychosocial outcomes in healthy adults: A pilot randomised controlled trial. PLoS ONE, 13(12). https://doi.org/10.1371/journal.pone.0209482

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Johnson, L. C., Aiello, J. J., Jagtiani, A., Moore, K. N., Barber, L., Gujral, U. P., & Johnson, D. A. (2022). Feasibility, appropriateness, and acceptability of a mobile mindfulness meditation intervention to improve sleep quality among a racially/ethnically diverse population. Sleep Health.

Cognitive and Physical Health Symptoms

Kirk, U., Ngnoumen, C., Clausel, A., & Purvis, C. K. (2021a). Effects of Three Genres of Focus Music on Heart Rate Variability and Sustained Attention. Journal of Cognitive Enhancement. https://doi.org/10.1007/s41465-021-00226-3

Kirk, U., Ngnoumen, C., Clausel, A., & Purvis, C. K. (2021b). Using Actigraphy and Heart Rate Variability (HRV) to Assess Sleep Quality and Sleep Arousal of Three App-Based Interventions: Sleep Music, Sleepcasts, and Guided Mindfulness. Journal of Cognitive Enhancement. https://doi.org/10.1007/s41465-021-00233-4

Dutcher, J. M., Cole, S. W., Williams, A. C., & Creswell, J. D. (2022). Smartphone mindfulness meditation training reduces Pro-inflammatory gene expression in stressed adults: a randomized controlled trial. Brain, Behavior, and Immunity, 103, 171-177.

Radin, R. M., Epel, E. S., Mason, A. E., Vaccaro, J., Fromer, E., Guan, J., & Prather, A. A. (2023). Impact of digital meditation on work stress and health outcomes among adults with overweight: A randomized controlled trial. Plos one, 18(3), e0280808.

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Kubo, A., Kurtovich, E., McGinnis, M., Aghaee, S., Altschuler, A., Quesenberry Jr, C., ... & Avins, A. L. (2019). A randomized controlled trial of mHealth mindfulness intervention for cancer patients and informal cancer caregivers: a feasibility study within an integrated health care delivery system. Integrative cancer therapies, 18, 1534735419850634.

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Ainsworth, B., Stanescu, S., Stuart, B., Russell, D., Liddiard, M., Djukanovic, R., & Thomas, M. (2021). A feasibility trial of a digital mindfulness-based intervention to improve asthma-related quality of life for primary care patients with asthma. Journal of Behavioral Medicine. https://doi.org/10.1007/s10865-021-00249-3

Avalos, L. A., Aghaee, S., Kurtovich, E., Quesenberry Jr, C., Nkemere, L., McGinnis, M. K., & Kubo, A. (2020). A mobile health mindfulness intervention for women with moderate to moderately severe postpartum depressive symptoms: feasibility study. JMIR mental health, 7(11), e17405.

Coaching and Clinical Services

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Shih, E., Aylward, B. S., Kunkle, S., & Graziani, G. (2022). Health-Related Quality of Life Among Members Using an On Demand Behavioral Health Platform: Pilot Observational Study. JMIR Formative Research, 6(7), e35352.

Graziani, G., Kunkle, S., & Shih, E. (2022). Resilience in 2021—Descriptive Analysis of Individuals Accessing Virtual Mental Health Services: Retrospective Observational Study. JMIR Formative Research, 6(3), e34283.

Graziani, G., Aylward, B. S., Fung, V., & Kunkle, S. (2022). Changes in healthcare costs following engagement with a virtual mental health system: a matched cohort study of healthcare claims data. Procedia computer science, 206, 173-182.

Chaturvedi, A., Aylward, B., Shah, S., Graziani, G., Zhang, J., Manuel, B., Telewa,, E., Froelich, S., Baruwa, O., Kulkarni, P.P., W atsonΞ & Kunkle, S. (2023). Content Recommendation Systems in Web-Based Mental Health Care: Real-world Application and Formative Evaluation. JMIR Formative Research, 7(1), e38831.

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