

WELLNESS MANAGEMENT

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CONSUMER MHEALTH EVOLUTION

Mobile healthtech innovations that help resolve wellness concerns are on the rise – **Merilee Kern**

Today's apps, wearables, biomedical systems, tablets and other novel mobile health (mHealth) innovations are evolving into leading utilities. Some are equipped with AI and other advanced self-assessment

algorithms, which offer progress monitoring, performance feedback, and other key motivation, engagement and participation drivers – and they're enhancing lives and lifestyles.

Such advancements are fuelling the growth of the global mobile healthcare market, which is expected to reach nearly US\$ 247 billion by 2025.

The application of machine learning and data science in the user driven mHealth realm is understandably escalating as favourable outcomes ensue. Research suggests that deep and machine learning can solve key consumer mHealth issues and challenges, includ-

ing improving privacy preservation, service quality and user experiences.

Today's breed of mHealth platforms and applications are incorporating analytic algorithms to support the use, interpretation and integration of specific data points to more effectively address lifestyle concerns, and even serious chronic diseases such as diabetes, cardiovascular disorders and obesity.

These and other conditions are driving the expansion of the mHealth app market. Artificial intelligence and other advanced algorithms are facilitating comprehensive, timely and more accurate analysis of impactful



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health information that's available on demand in real time for consumers.

Furthering optimism within the mobile healthcare tech category is research that's consistently validating the power of gamification. It's defined as the application of a 'game system' in a non-game context, and is a behavioural intervention that enables people to better manage and even help rectify an array of wellness concerns.

Amidst validated efficacy, the gamification method in particular is driving extreme global market growth and represents an exciting facet of mobile healthcare tech as the category evolves.

These three mHealth categories are using advanced and emerging technologies to drive meaningful lifestyle modifications.

MENTAL HEALTH Addressing mental health issues is ranked higher than cancer for top societal health concerns.

Algorithms and data science advancements can help users track moods, stress and anxiety levels with greater speed and accuracy, and also offer interventions such as sending alerts when medical care might be prudent.

According to a *Frontiers in Psychology* report, the benefits of mental health screening and diagnostic apps include reducing the strain on mental health services, improving patient wellbeing and increasing access for under-represented groups.

It notes that tools such as apps "can facilitate early identification of mental health disorders and support self-management. mHealth tools are convenient, instant and scalable. They also empower individuals to manage their mental health without the restrictions imposed by traditional mental health services. Apps can also aid in engaging typically hard to reach patient populations by reducing stigma and increasing help seeking behaviour."

AI-powered mobile healthcare apps such as Youper use a chatbot to interact with patients to determine their health conditions, suggest therapies, connect patients with professionals and more.

Leveraging artificial intelligence makes Youper uniquely able to combine clinical effectiveness and patient engagement.

At the core of Youper's AI-powered digital mental health solutions are conversational agents who listen to and interact with users; just-in-time interventions that help users manage emotional challenges wherever and whenever necessary; and personalisation to recommend techniques that fit users' specific needs.

HEART DISEASE Since cardiovascular illnesses are the leading cause of death in the US, highly advanced apps are being developed to address this pervasive problem.

One such app is Anura, which is a comprehensive video-based health and wellness measurement app that uses the camera on your mobile device, to assess wellness and provide medical grade measurements using data gathered from a 30 second video selfie.

This includes vital signs such as your heart rate, irregular heartbeat, blood pressure and more, in the context of risks such as cardiovascular disease, heart attacks and hypertension.

Other mHealth apps such as Binah.ai can detect and monitor biomarkers, which include a person's blood pressure, heart rate, heart rate variability (multiple parameters and RR interval or RRI raw data), oxygen saturation, breathing rate, sympathetic stress, parasympathetic activity, pulse-respiration quotient (PRQ) and the Binah Wellness Score.

It uses deep learning, computer vision and signal processing techniques to analyse the person's face from a video stream of exposed skin to provide important health measurements. Binah.ai's Health Data Platform is an AI-powered, video-based, 100 percent software solution that enables people to measure a wide range of biomarkers using a smartphone, tablet or laptop.

WEIGHT ISSUES In the data science driven fitness and diet gamification realm, there is a wide array of noteworthy examples.

One of them is CARROT, which is a free app that rewards you (financially) for walking. By achieving individual activity goals, users earn virtual currency that can be used to play games, compete in challenges, bid at auctions and earn rewards.

Using Apple HealthKit, CARROT gives you personalised activity goals that are based on your own activity history, which is updated daily. CARROT's Apple Watch app allows users to monitor their daily activity progress with a tap.

Meanwhile, its iBeacon technology enables users to earn bonus rewards points for activities such as community healthcare programmes and visiting participating businesses.

While throngs of healthcare companies and applications have added gamification strategy to their solution suite or otherwise appeared on the scene in recent years, some visionaries such as HealthyWage have been pioneering the diet gamification space for well over a decade. It employs data driven and financially incentivised wellness challenges as its business model, effectively ushering in the gamification era.

Unlike the glut of exercise oriented apps that dominate this gamification subcategory, HealthyWage is championing and financially rewarding the results of one's fitness and nutrition efforts, in response to healthy weight loss and management.

It offers numerous types of data analytics informed and behavioural science backed contests, and challenges for both individual and team dieters – all fuelled by cash incentives, social and expert-based support, goal setting and advanced performance tracking technologies, among other tools and resources.

Since its inception, HealthyWage has reportedly paid nearly half a million women and men more than 52 million dollars in cash rewards collectively for a combined 4,535,925 kilograms lost.

And its workplace wellness programmes have been informally run in more than 3,000 organisations.

