

Self-monitoring using digital health tools is associated with weight loss

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A systematic review of multiple randomized controlled studies among adults with overweight or obesity showed that greater engagement in self-monitoring using digital health tools was associated with significant weight loss, according to a paper published online in *Obesity*, The Obesity Society's flagship journal. This is the first comprehensive systematic review to examine the relationship between digital self-monitoring and weight loss.

"Digital health tools have flourished in the past decade," said Michele L. Patel, Ph.D., post-doctoral research fellow, Stanford Prevention Research Center, Stanford University School of Medicine in Stanford, Calif. "What this paper sought out to explore was whether tracking via these digital tools is effective at producing [greater weight loss](#)." Patel is the corresponding author of the study.

Given the wide-spread prevalence of obesity with rates of 42 percent among US adults and 13 percent worldwide, treatment options that have high efficacy, acceptability and reach are needed.

As found in previous reviews, interventions using technology-based modalities, including SMS, apps, wearables and websites often produced weight loss similar to or less than that of in-person interventions but better than that of control arms; however these reviews did not focus on self-monitoring. The current research addresses this gap and contributes to the science of engagement in behavioral interventions.

Conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines, the [review](#) included 39 randomized controlled studies of behavioral weight loss interventions for adults with overweight or obesity using digital health technologies for self-monitoring. Six databases—PubMed, EMBASE, Scopus, PsycInfo, CINAHL and ProQuest Dissertations & Theses—were searched for studies that included interventions 12 weeks or longer in duration, weight outcomes six months or longer and outcomes on self-monitoring engagement and their relationship to weight loss. The studies were published between January 2009 and September 2019.

Among the 67 interventions with digital self-monitoring, weight was tracked in 72 percent of them, diet in 81 percent and physical activity in 82 percent. Websites were the most common self-monitoring technology tools followed by apps, wearables, electronic scales and text messaging. No studies used social media platforms for self-monitoring.

Digital self-monitoring was linked to weight loss in 74 percent of occurrences. This pattern was found across all three major behaviors that are tracked (dietary intake, physical activity and body weight). Few interventions had digital self-monitoring engagement rates greater than 75 percent of days. Rates were higher in digital tools than in paper-based journals in 21 out of 34 comparisons. "This may be because many digital tools are highly

portable, and therefore allow the user to track any time of the day; [digital tools](#) also may make tracking quicker, and may be less burdensome to use," said Patel.

"Given that previous reviews conducted before the emergence of these newer tools have established that self-monitoring also plays a key role in the maintenance of [weight loss](#) (i.e., preventing [weight](#) regain), a critical next step for our field is to examine how we can help sustain engagement with these tools longer term, after the initial novelty wears off," said Assistant Professor Kathryn M. Ross, Ph.D., MPH, Department of Clinical and Health Psychology, University of Florida, Gainesville. Ross was not associated with the research.

More information: Michele L. Patel et al. Self-Monitoring via Digital Health in Weight Loss Interventions: A Systematic Review Among Adults with Overweight or Obesity, *Obesity* (2021). [DOI: 10.1002/oby.23088](#)

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