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Machine-Based Algorithm for Adjusting Activity Targets to Increase Physical Activity and Sustain User Engagement Among Sprout Users

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Physical activity is proven to help prevent and manage non-communicable diseases (NCDs) such as heart disease, stroke, diabetes and several cancers (WHO, 2022). Despite these benefits, physical inactivity remains a public health challenge (Guthold et al., 2018). In response, smartphone apps incorporating step-tracking technology have emerged as a promising tool for promoting physical activity and improving health outcomes (Carter et al., 2018). This 12-week retrospective, quasi-experimental study uses a machine learning algorithm to provide users with personalized daily step count goals. Thus, the primary objective is to measure the daily physical activity changes among *Sprout* app users. Additionally, we aim to analyze app engagement differences between groups during the intervention period. Moreover, we seek to enhance the design and implementation of mHealth apps by studying the effectiveness of adaptive goals in promoting adoption and increasing physical activity among users.