Department of Medicine Research Day, May 1, 2015, SCTR Lobby/Auditorium
ABSTRACT SUBMISSION FORM (all abstracts invited for poster presentation)

Wellness Incentives for Physical Activity among Overweight and Obese Employees - A Randomized, Controlled Trial

Mitesh S. Patel, MD, MBA, MS, David A. Asch MD, MBA, Roy Rosin, MBA, Dylan S. Small, PhD, Scarlett L. Bellamy, ScD, Nancy Haff, MD, Samantha M. Lee, BSE, Lisa Wesby, MS, Karen Hoffer, BS, David Shuttleworth, MS, Devon Taylor, BS, Victoria Ulrich, BS, RD, Jingsan Zhu, MBA, MS, Lin Yang, MS, Xingmei Wang, MS, Kevin G. Volpp, MD, PhD

University of Pennsylvania, Philadelphia VA Medical Center

BACKGROUND: More than 80% of large employers offer wellness incentives. However, there is little evidence that these programs are effective. Behavioral economics offers promise for better designing incentives to change behavior. The objective of this study was to test the effectiveness of a standard incentive in which employees gain financial rewards for meeting a minimum level of activity and compare it to two financial incentive designs that leverage concepts from behavioral economics.

METHODS: 280 adult employees from a university in Philadelphia with a body mass index of 27 or greater were randomized to control or one of 3 intervention arms with equivalent economic value. The intervention arms were a standard incentive in which participants gained rewards for daily performance, a loss aversion incentive in which participants were allocated rewards upfront that were taken back each time the daily goal was not met, or a lottery-based incentive. Eligibility for rewards was based on achieving at least 7000 steps per day, a level endorsed by the American College of Sports Medicine as meeting federal guidelines for the minimum level of physical activity to achieve health benefits. Financial incentives were offered during the 13 week intervention period (participants could win about $1.40 per day if they met step goals) and participants were followed for an additional 13 weeks. Step counts were tracked by smartphone accelerometers using an application that ran passively in the background. The primary outcome measure was the proportion of participant-days that the goal was achieved during the intervention. The intent-to-treat analysis used generalized linear and mixed-models to adjust for the repeated measures of participant step counts. All hypothesis tests were two-sided. To maintain the type I error rate while testing 3 pairwise comparisons, we used a Bonferroni correction to define an alpha of 0.0167 as our threshold for statistical significance. We estimated that a sample of at least 280 participants would ensure 80% power to detect a 20% difference between arms.

RESULTS: Participants in the study sample had a mean body mass index of 33.1 (standard deviation [SD]: 5.6), mean age of 39.6 (SD 11.6), and were 77.5% female. During the intervention period, the loss aversion incentive had a significantly greater proportion achieving goal than control (0.45 vs. 0.30, Difference: 0.16, 95% confidence interval [CI]: 0.03 – 0.15, P = 0.003). Compared to control, there were no significant differences for the standard incentive (0.35 vs. 0.30, Difference: 0.06, 95% CI: -0.04 – 0.16, P=0.26) or the lottery-based incentive (0.36 vs. 0.30, Difference: 0.06, 95% CI: -0.04 – 0.17, P=0.23). The loss aversion incentive arm had the greatest level of daily steps but it was not significantly different than the control arm (Difference: 861, 95% CI: -24 – 1746, P = 0.06). There were no significant differences between arms during the follow-up period.

CONCLUSIONS: Among overweight and obese employees, a wellness incentive designed to leverage loss aversion was significantly more effective for increasing physical activity than alternative incentive designs with the same economic value. These findings offer new evidence for how to improve the effectiveness of wellness programs using financial incentives for physical activity.

Name: Mitesh Patel, MD, MBA, MS
Rank: Assistant Professor
Division: General Internal Medicine
Email address: mpatel@upenn.edu

Please mark ONE research category
___Basic Research _X__Clinical Research

Please indicate if you are a
____Student
____Resident
____Fellow/PostDoc/Research Associate/Instructor
_X__Assistant Professor

Return completed abstract form saved as a Word Document to Terri Manganaro (terese@mail.med.upenn.edu) no later than April 1, 2015.