Injunctive and Descriptive Norm Effects on Physical Activity

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Injunctive and Descriptive Norm Effects on Physical Activity
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Abstract

This study investigated the effect of focus norm theory to exercise using a norm self-monitoring via the Fitbit Zip pedometer. The Fitbit Zip pedometer is a wireless activity tracker that tracks number of steps, distance, and calories burned. The Fitbit Zip uploads data wirelessly to Mac or PC computers via a USB component that plugs into the computer's USB port. The Fitbit Zip also syncs to supported mobile phones using Bluetooth. The Fitbit Zip stores minute-by-minute data for seven days and a daily total for 23 days until the device is synced to a computer. For the current study, the Fitbit Zip was used to track participants' number of steps which was used as the dependent measure. The number of steps was used as a non-report measure of physical activity prior to and following exposure to normative feedback.

Introduction

Regular physical activity has many physical and psychological benefits such as reducing risk for cardiovascular disease, depression, obesity, and improved cognitive functioning (US Department of Health and Human Services, 2008). In 2012, only 20.8% of American adults met the physical activity guidelines for both aerobic and strengthening activities and 46.6% of American adults met neither the aerobic activity nor the muscle strengthening guidelines (National Center for Health Statistics, 2014). While physical inactivity is not the sole cause of obesity, physically inactive adults have an increased risk of becoming overweight or obese (US Department of Health and Human Services, 2008). Excess body weight also has serious health and financial consequences (Field et al., 2001). Obesity and overweight adults have an increased risk for developing diabetes, gallbladder, hypertension, heart disease, high cholesterol and stroke compared to normal weight adults (Field et al., 2001). Social influence is the process of change in an individual's thoughts, feelings, attitudes, or behaviors as a result of interactions with others (Rashotte, 2006).

Several exercise interventions at the personal, workplace, and community levels have been investigated. These interventions have increased physical activity; however, the effects of exercise interventions often decline shortly after the intervention ends (Claidini et al., 1990). Therefore, there is a pressing need for interventions that are, at the very least, cost-effective and easily administrable. Social influence may be one additional way to encourage physical activity. Social influence theory accounts for the observed individual differences in normative and descriptive effects, and theory-based exercise interventions.

Hypotheses

Hypothesis 1: Participants would increase number of steps from week 1 to week 2 of the study as a result of self-monitoring via the Fitbit Zip pedometer.

Hypothesis 2: Regardless of condition (descriptive or injunctive feedback), participants norm for weeks 1 and 2 would increase their number of steps for week three and week four of the study.

Hypothesis 3: Participants above the norm for weeks one and two in the descriptive norm condition would decrease number of steps for week three and four of the study.

Hypothesis 4: Participants in the descriptive plus injunctive norm condition would increase more steps for week three and week four of the study compared to the descriptive or injunctive norm conditions.

Method

Participants recorded how often they participated in physical activity for four weeks using the Fitbit Zip pedometer. Participants received either descriptive or injunctive feedback through a multimedia messaging service (MMS) sent via email to the participants' mobile phones. Broadly, it was expected that normative feedback groups would differ on the key outcome variables, such that:

- Fifty-two undergraduate students with a mean age of 18.66 (SD = 0.83) from a Midwestern university were recruited in this study.
- Participants were recruited from the university’s online participant pool; they received credit for participation toward their

- Twenty-seven participants were randomly assigned to the descriptive condition and 25 participants were randomly assigned to the injunctive condition.
- Seven participants did not enter into the lab for debriefing and never returned the Fitbit Zip; consequently, data for these seven participants was dropped from the study.
- The second hypothesis was not supported as there was not a statistically significant median increase in number of steps from week one and two (Mdn = 29056.00) to week three (Mdn = 25393.00), z = 0.71, p = 0.48, or week three and four (Mdn = 28261.00) to week four (Mdn = 21650.00), z = 0.10, p = 0.92, for the descriptive norm condition. This hypothesis was also not supported as there was not a statistically significant median increase in number of steps from weeks one and two (Mdn = 29056.00) to week three (Mdn = 23754.00), z = 0.71, p = 0.48, or from week three and four (Mdn = 28261.00) to week four (Mdn = 21650.00), z = 0.10, p = 0.92, for the injunctive norm conditions. This hypothesis also was not supported as there was not a statistically significant median increase in number of steps from week three and week four (Mdn = 22045.00) to week four (Mdn = 30248.00), z = 0.00, p = 1.00, r = 0.00.
- The third hypothesis was partially supported as there was a statistically significant median decrease in number of steps for week two and three (Mdn = 37268.00) to week three (Mdn = 30539.00), z = 2.18, p < 0.05, r = 0.48, but there was not a statistically significant median decrease in number of steps from week three (Mdn = 29632.00) to week four (Mdn = 28587.00), z = 0.69, p = 0.49, r = 0.14.
- The fourth hypothesis was not supported as there were not statistically significant median differences between the two conditions for week three, U = 254.00, p = 0.77, r = 0.04, or week four, U = 253.00, p = 0.79, r = 0.04.

Conclusions

- This study investigated the effects of normative feedback on physical activity.
- The first hypothesis that participants would increase number of steps from week one to week two of the study as a result of self-monitoring via the Fitbit Zip pedometer was not supported.
- The second hypothesis that, regardless of condition (descriptive or injunctive feedback), participants would increase their number of steps for week three and week four of the study was not supported.
- The third hypothesis that participants above the norm for weeks one and two in the descriptive norm condition would decrease number of steps for week three was not supported.
- The fourth hypothesis that participants in the descriptive plus injunctive norm condition would take more steps than participants in the descriptive norm condition for week three and week four of the study was not supported.

Limitations

- The current study was underpowered. The initial sample size was small (n = 52) and eight participants were dropped from the study resulting in an even smaller sample size (n = 44). The sample size was also not a statistically significant increase in number of steps from week two to week three (Mdn = 37268.00) to week three (Mdn = 30539.00), z = 2.18, p < 0.05, r = 0.48, but there was not a statistically significant median decrease in number of steps from week three (Mdn = 29632.00) to week four (Mdn = 28587.00), z = 0.69, p = 0.49, r = 0.14.
- Several participants did not respond to the manipulation check that accompanied the normative feedback message suggesting that the normative feedback was not utilized by all participants. This limits the ability to test the exposure to normative conduct to exercise behavior.

While the current study was underpowered and all conclusions are tentative, the current study incorporated popular and inexpensive technology which could help make exercise interventions more accessible to a diverse population.

Future Directions

- The current study requires further replication as the current study had a large amount of missing data and the results are inconsistent with focus normative theory and previous research.
- Future research may seek to further investigate the use of technology in exercise interventions.