

Effects of Implementation Intentions on Exercise Stage Transitions

Yao-Chung Huang ¹, Chia-Der Dong Fang ², Likang Chi ³

¹ Institute of Coaching Science, National Taiwan Sport University, Taiwan

² Office of Physical Education, Soochow University, Taiwan

³ Department of Physical Education, National Taiwan Normal University, Taiwan

Introduction

Although Transtheoretical Model (TTM) has been widely applied in a variety of health behaviors, it has often been criticized for the lack of a clear specification of which variables influence which stage transitions (Marshall & Biddle, 2001; Sutton, 2005). Interventions suggested by TTM in process of change were often hardly to implement and had always been sustained for a long period of time to reach the effects. Implementation intentions were simple and easy to execute in successful health behavioral change (Sheeran, Milne, Webb, & Gollwitzer, 2005) but were seldom used in exercise (e.g. Milne, Orbell, & Sheeran, 2002) especially for all behavioral stages of change. In a study of workplaces employee (Armitage, 2006), implementation intentions did promote progression but did not prevent regression from the stages of change. Another study of oral hygiene (Schüz, Sniehotta, Mallach, Wiedemann, & Schwarzer, 2008) revealed that progression from preintentional to intentional stage was predicted by implementation intentions. There was no study for implementation intentions on exercise stage transitions. The purpose of this study was to examine whether transitions between exercise stages could be predicted by implementation intentions.

Methods

Participants

Participants were 96 male and 156 female university students ($M_{age} = 19.84 \pm 1.54$) of physical education courses.

Measures

Implementation Intentions Scale

Based on the concepts of implementation intention (Gollwitzer, 1999), four item scales were generated. The items including the followings: 1. Do you plan when to go exercise last two weeks, 2. Do you plan how to exercise last two weeks, 3. Do you plan where to go exercise last two weeks, and 4. Do you plan to do what exercise last two weeks. Items were answered on a 5-point Likert scale ranging from 1 (not at all) to 5 (always).

Stages of Change

Stage of change for exercise behavior was assessed using a version of the Stages of Exercise Change Questionnaire (Reed et al., 1997). The original staging measure consists of five items that represent the five SOC (i.e. precontemplation, contemplation, preparation, action, and maintenance) and shows it's a valid and reliable staging method.

Procedure and Analysis

After completing stage of change and past usage of implementation intentions scale, experimental group (N=108) received implementation intentions interventions including how, when, what, and where to implement their intentions to regular exercise. Control group (N=145) received no treatment. Exercise stages and usage of implementation intentions were assessed again two weeks later.

Using chi-square to examine regression and progression between experimental and control groups, independent t-test or univariate F-test for baseline stages with possible stage transitions.

Results

Results indicated that, there were 9 regressors and 21 progressors in the experimental group and 17 regressors and 31 progressors in the control group. There was no difference between experimental and control groups on progression and regression ($\chi^2(1) = 0.24, p = .81$). Overall, participants who progressed from intentional stage reported higher implementation intentions usage than static in this stage, and static in actional stage reported higher implementation intentions usage than regressed from this stage.

Table 1 t-test for progression and static from intentional stage

	n	M	SD	t	p
progress	42	2.89	0.70	2.64*	.01
static	27	2.44	0.69		

* $p < .05$

Table 2 t-test for static and regression from actional stage

	n	M	SD	t	p
static	107	3.35	0.79	3.56**	.001
regress	17	2.65	0.56		

** $p < .01$

Discussion / Conclusions

The results revealed that implementation intentions interventions did not provide additional help for experimental group as compared with control group. This was because we didn't sure if all in experimental group would make their best efforts in planning future exercise and we made no manipulation check in this study. This result partly consisted with Luszczynska's (2006) findings that only who were in experimental group and frequently used implementation intentions could benefit their intention to translate into action. The latter results of this study also showed that whenever in experimental or control groups, people who were initially in intentional stage and actional stage can promote stage progress and prevent stage regression for frequently using of implementation intentions. These results partly consist with the findings of Armitage's (2006) and Schüz's et al. (2008) findings. Further researches can examine longer term intervention effects of implementation intentions and effects of another concept of plan (coping plan) (Schwarzer, 2008).

References

- Armitage, C. J. (2006). Evidence that implementation intentions promote transitions between the stages of change. *Journal of Consulting and Clinical Psychology*, 74, 141–51.
- Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist*, 54, 493–503.
- Luszczynska, A. (2006). An implementation intentions intervention, the use of planning strategy, and physical activity

after myocardial infarction. *Social Science and Medicine*, 62, 900-908.

- Marshall, S. J. and Biddle, S. J. H. (2001). The transtheoretical model of behaviour change: A meta analysis of applications to physical activity and exercise. *Annals of Behavioral Medicine*, 23(4), 229-246.
- Milne, S., Orbell, S., & Sheeran, P. (2002). Combining motivational and volitional interventions to promote exercise participation: Protection motivation theory and implementation intentions. *British Journal of Health Psychology*, 7, 163-184.
- Reed, G. R., Velicer, W. F., & Prochaska, J. O. (1997). What makes a good staging algorithm: Examples from regular exercise. *American Journal of Health Promotion*, 12, 57-67.
- Schüz, B., Sniehotta, F. F., Mallach, N., Wiedemann, A. U., Schwarzer, R. (2008). Predicting transitions from the preintentional, intentional and actional stages of change. *Health Education Research*.
- Schwarzer, R. (2008). Modeling health behavior change: How to predict and modify the adoption and maintenance of health behaviors. *Applied Psychology*, 57(1), 1-29.
- Sheeran, P., Milne, S. E., Webb, T. L., & Gollwitzer, P. M. (2005). Implementation intentions. In M. Conner & P. Norman (Eds.), *Predicting health behavior* (2nd ed., pp. 276-323). Buckingham, UK: Open University Press.
- Sutton, S. (2005). Stage theories of health behavior. In M. Conner & P. Norman (Eds.), *Predicting health behaviors* (2nd ed., pp. 223-275). Maidenhead, England: Open University Press.