An Effect of Walking Exercise Applying the Theory of Planned Behavior in People at Risk of Hypertension

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Objective: To investigate an effectiveness of walking exercise program applying the Theory of Planned Behavior in people at risk of hypertension in Samut Sakorn province.

Material and Method: The present study is a quasi-experimental research. The inclusion criteria were people aged 35-59 years old, systolic blood pressure 120-139 mmHg, and diastolic blood pressure 80-89 mmHg. Participants were randomly selected into the experimental group (n = 34) and the comparison group (n = 34). The experimental group received activities including health information, benefits of walking exercise, group discussion in exercise barriers, modeling and experience exchange, walking exercise practice, and practice on using walking monitoring booklet at the baseline and the 2nd week, whereas the comparison group received only health information and the booklet practice at the beginning of the intervention. Data were collected by self-administered questionnaires at the baseline, 2nd week, and 6th week. Statistical analysis was performed using Chi-square, Independent t-test, and repeated measures ANOVA.

Results: The experimental group made significant improvements in attitude towards walking exercise, perceived behavior control, subjective norm, walking exercise intention, and walking exercise over time (p<0.05). However, no statistically significant differences between the experimental and the comparison groups were found in subjective norm, systolic and diastolic blood pressure from baseline to the 6th week. The experimental group had a significant higher mean difference score of attitude towards walking exercise, perceived behavior control, walking exercise intention, walking exercise, weight, and BMI compared to those in the comparison group (p<0.05). Subjective norm scores in the experimental group were more likely to increase from baseline to the 6th week, but not a significant difference.

Conclusion: Walking exercise programs applying the Theory of Planned Behavior should be recommended in people at risk of hypertension. Health professionals should also be motivated to practice with this program.

Keywords: Walking exercise, Hypertension, Theory of planned behavior, Risk population

Hypertension is recognized as a major risk of cardiovascular disease, one of leading causes of death in Thailand, and its prevalence has been increasing with an approximately 778 per 100,000 people in 2007 compared to 341 per 100,000 people in 2002(1). A number of studies demonstrated that physical activity could reduce blood pressure and the incidence of hypertension. Staffileno et al(2) found that women who had physical activity such as walking for 150 minutes accumulated had a significant decrease systolic and diastolic blood pressure. A meta-analysis studied by Whelton et al(3) indicated that people who engaged aerobic exercise for at least 30 minutes for most had approximately 4 mmHg reduction compared to those who did not. It is consistent with the recommendation according to JNC VII which indicated that in order to prevent hypertension regular physical activity at least 30 minutes per day, most days of the week should be performed and the preferred activity in older adults is walking(4). Therefore, physical activity such as walking exercise improvement should be promoted for prevention of high blood pressure, particularly among people at risk of hypertension.

The Theory of Planned Behavior(5) has been widely used in research to explore and predict people in performing healthy behaviors(6). Ajzen(6) indicated that behavior occur when the people can perform or not perform such behavior at will and also proposed three determinants of intentions including attitude toward behavior, subjective norm, and perceived behavior control. “Attitudes” refers to people’s determinant to whether performing a particular behavior
is a pros or cons, whereas subjective norm involved their perceptions of the social pressures they are under

to either perform or not perform the behavior. Perceived
behavioral control is a perception of the overall ease or
difficulty in performing such behavior. A number of
studies demonstrated that attitude, perceived behavior
control, and motivation from family and friends were
associated with physical activity such as brisk walking\(^{10,11}\). However, no study investigated factors
influencing walking exercise among Thai population at
risk of hypertension.

Therefore, the purpose of the study was to
investigate the effect of applying the Theory of Planned
Behavior to attitudes towards walking exercise,
perceived behavior control, subjective norm, intention
to perform walking exercise, and walking exercise among
Thai people at risk of hypertension. In addition, body
weight, body mass index (BMI), and blood pressure
were also examined.

Material and Method

Study design

A quasi-experimental research with two-
group, pretest-posttest design conducted between
December 2010 and January 2011 was used to
investigate an effect of walking exercise. Participants
were randomly recruited at a health promotion hospital
in Samut Sakorn province. The study was approved by
the Mahidol University’s Ethical Committee with the
approved number MUPH2010-195. A full explanation
was provided before participants began participating
in the study. Participation was voluntary with consent
obtained and anonymity guaranteed. The present
study was carried out according to the Declaration of
Helsinki.

Subjects

Participation in the study was voluntary. Eligibility
criteria included people aged 35-59 years old,
had systolic blood pressure 120-139 mmHg and diastolic
blood pressure 80-89 mmHg, had no history of illness
with hypertension, and were able to participate in
walking exercise. Power analysis was conducted to
estimate the sample size needed for the present study.
To achieve 80% power with a large effect and an alpha
of 0.05, a minimum of 28 participants per group
accounting for attrition was projected\(^{12}\). Allowing for
an attrition rate of 20%\(^{13}\), a total of 68 participants (34
participants per group) of 122 persons at risk of
hypertension recorded in the hospital, were invited to
participate in the present study.

Procedure

As the participants were enrolled, they were
simple randomly assigned into the comparison and
experimental groups. A comparison group received a
60-min health education session including health
information about hypertension and its prevention, and
practiced walking time monitoring at the time of
randomization. No further intervention contact was
provided except at the 2\(^{nd}\) and 6\(^{th}\) week for data
collection. For the experimental group, participants
received health education supplemented by
intervention program of 1 to 2 hours per session. The
goal of the intervention was to accumulate 150 minutes
of walking exercise per week.

The 1\(^{st}\) week objectives focused on
improvement of people’s attitudes toward walking
exercise and intention to perform exercise. Activities
included providing a 60-min health education session
including health information regarding hypertension
information and its prevention, discussion about
experience in walking exercise with role model and
intention to engage in the exercise. Discussion after
performing walking experience among groups was done
in order to increase social norm influence. It included
walking exercise practice for improving people’s
confidence in performing exercise and building their
capability to control their behaviors. Each session of
walking exercise consisted of a 10-min warm up period,
30-min walking exercise, and a 10-min cool-down period.
Booklet for walking time monitoring developed by the
researcher was also provided for motivating people’s
intention. They were encouraged to practice at home
at least 3 to 5 other days. The 2\(^{nd}\) week objectives and
activities were repeated. No activity was provided for
the 3\(^{rd}\) week to the 6\(^{th}\) week. Data were collected in both
groups at the baseline, the 2\(^{nd}\) week and the 6\(^{th}\) week.

Questionnaire

Participants were asked to complete
questionnaires at the time of enrollment, at the 2\(^{nd}\) and
6\(^{th}\) week. The questionnaires included the following:
Sociodemographic information included
gender, age, education, marital status, occupation,
income, health history, body weight, BMI, and blood
pressure.

Attitude towards walking exercise measures
modified from Jitamorntri\(^{14,15}\) was assessed using eleven
items (α = 0.81). A total score could range from 11 to 55,
and the higher the score, the greater the individual’s
perception of walking exercise is good.

Subjective norm measures was a single
question for measuring how likely people would like to perform walking exercise that the reference group of exercise wanted. The group included friends and family (such as relatives, couple, children, and parents). Responses ranged from “not at all” to “the most influence”. The higher the score, the greater the individual’s felt it was okay for them to perform walking exercise.

Perceived behavior control measures modified from Jitramontri(14) was measured how easy it would be to perform walking exercise, and how much control they believed they would have over their walking exercise. It was assessed using 9 items ($\alpha = 0.78$). A total score could range from 9 to 36, and the higher the score, the greater the perception of individual’s control over walking exercise.

Walking exercise intention was measured whether people would engage in performing walking exercise for at least 150 minutes within 1 week. It was assessed using a visual scale with a scale of 0 (definite will not to) to 10 (definite will).

Walking exercise was asked as people’s actual performing walking exercise in minutes per week within the past 30 days.

**Statistical analyses**

Data were analyzed by using computerized statistical analysis software (SPSS version 18). Intention-to-treat analyses were used. Differences between the experimental and comparison group were examined by using Chi-square test for categorical and Independence t-test for continuous variables. Repeated measures ANOVA were performed to determine whether there were significant changes in body weight, BMI, blood pressure, attitude towards walking exercise, subjective norm, perceived behavior control, intention, and walking exercise across time based on effect of the intervention. A p-value < 0.05 was considered as the criterion of statistical significance.

**Results**

A baseline comparison of two groups on sex, age, educational level, income, and marital status showed no statistically significant differences ($p = 0.71, 0.57, 0.39, 0.71,$ and 0.39 respectively). The majority of the participants in both groups was married women with low income, and finished at the primary school level, and those in the experimental group were employed compared to those in the comparison group ($p = 0.04$). Additionally, no statistically significant baseline difference in systolic and diastolic blood pressure, attitude towards walking exercise, perceived behavioral control, and walking exercise intention ($p = 0.22, 0.15, 0.28, 0.71,$ and 0.29 respectively). However, the mean of body weight, BMI, and walking exercise in the experimental group were greater than those in the comparison group ($p = 0.03, 0.07$ and $<0.001$, respectively), and friends were the group that influences people in performing walking exercise in the experimental group at the baseline ($p = 0.04$) (Table 1).

<table>
<thead>
<tr>
<th></th>
<th>Experimental group (n = 34)</th>
<th>Comparison group (n = 34)</th>
<th>t</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (Kg)</td>
<td>65.62 (11.1)</td>
<td>59.97 (10.3)</td>
<td>2.16</td>
<td>0.03</td>
</tr>
<tr>
<td>Body mass index (Kg/m²)</td>
<td>26.58 (4.4)</td>
<td>24.63 (4.3)</td>
<td>1.84</td>
<td>0.07</td>
</tr>
<tr>
<td>Blood pressure (mmHg)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systolic</td>
<td>128.32 (7.3)</td>
<td>125.62 (10.6)</td>
<td>1.22</td>
<td>0.22</td>
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<tr>
<td>Diastolic</td>
<td>74.62 (7.2)</td>
<td>77.18 (7.3)</td>
<td>-1.45</td>
<td>0.15</td>
</tr>
<tr>
<td>Attitude towards walking exercise</td>
<td>43.21 (3.5)</td>
<td>42.21 (3.9)</td>
<td>1.10</td>
<td>0.28</td>
</tr>
<tr>
<td>Perceived behavior control</td>
<td>27.50 (4.0)</td>
<td>27.21 (2.3)</td>
<td>0.37</td>
<td>0.71</td>
</tr>
<tr>
<td>Subjective norm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friends</td>
<td>1.71 (0.9)</td>
<td>1.29 (0.6)</td>
<td>2.12</td>
<td>0.04</td>
</tr>
<tr>
<td>Family</td>
<td>2.47 (1.2)</td>
<td>2.44 (0.9)</td>
<td>0.11</td>
<td>0.91</td>
</tr>
<tr>
<td>Walking exercise intention</td>
<td>8.38 (1.6)</td>
<td>7.94 (1.8)</td>
<td>1.07</td>
<td>0.29</td>
</tr>
<tr>
<td>Walk (min)</td>
<td>85.15 (42.25)</td>
<td>53.53 (43.91)</td>
<td>3.02</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

* p<0.05
As shown in Table 2, repeated measures ANOVA demonstrated a significant effects for attitude towards walking exercise (F = 16.28, p<0.001), perceived behavior control (F = 85.47, p<0.001), friends as a subjective norm (F = 15.38, p<0.001), family as a subjective norm (F = 5.16, p = 0.03), walking exercise intention (F = 14.61, p<0.001), and walking exercise (F = 22.37, p<0.001), with most outcome measures improving over time. However, there was no statistically significant effect for systolic (F = 0.85, p = 0.36) and diastolic blood pressure (F = 2.06, p = 0.16) weight (F = 0.43, p = 0.51), and BMI (F = 0.07, p = 0.79). Additionally, groups by time interaction effects were found for attitude towards walking exercise (F = 6.41, p<0.001), perceived behavior control (F = 27.96, p<0.001), walking exercise intention (F = 7.27, p<0.001), walking exercise (F = 8.43, p<0.001), weight (F = 4.53, p = 0.01), and BMI (F = 4.39, p = 0.02). However, no significant group by time interactions were found on friends as a subjective norm (F = 2.61, p = 0.07), family as a subjective norm (F = 2.42, p = 0.09), systolic blood pressure (F = 0.55, p = 0.57), and diastolic blood pressure (F = 0.05, p = 0.94). That is, no significant differences between the experimental and the comparison groups were found in subjective norms and blood pressure from baseline to the 6th week.

When performing independent t-test analysis to compare the mean differences of factors between groups, a significant difference in mean score of perceived behavior control, walking exercise intention, walking exercise, weight, and BMI between baseline to the 2nd week, and between baseline to the 6th week were observed, whereas the significant difference in mean score of attitude towards walking exercise were found between baseline to the 2nd week (p<0.05). In addition, the mean score of friends as subjective norm was more likely to increase between baseline to 6th week, but not with significant differences (p = 0.05) (Table 2).

Discussion
The findings provide evidence to support that the Theory of Planned Behavior is a useful guiding framework to develop activity for promoting healthy behavior such as walking exercise. The study program can successfully improve attitude towards walking exercise, subjective norms, perceived behavior control, intention, and walking exercise, which is consistent with previous studies. Noticeably, people who received the program demonstrated the greater gains of outcome measures at the 2nd week compared to the comparison group. These findings suggested some motivation before the 6th week for continuing and maintaining walking exercise, and a further study should be conducted to confirm the result.

Two interesting findings were found in the present study. Attitude towards walking exercise was more likely to decrease after the 2nd week of intervention, and no significant differences between the experimental and the comparison groups in the amount of subjective norm contributed to people’s performing walking exercise from baseline to the end of the present study. This might underscore an impact of perceived behavior control and walking exercise intention on people’s performing physical activities. This is supported by previous studies. Plotnikoff et al found that perceived behavior control was a strong factor associated with physical activity. Everson indicated that attitudes and subjective norm were at least important factors in predicting intention to perform physical activity. A study of Rivas and Sheeran also showed that subjective norm made a smaller contribution in predicting intention than did attitude and perceived behavioral control. Therefore, a further study regarding physical activity interventions would need to search for strategies for mainly increasing perceived behavior control and intention. Discussion with positive model focused on how to overcome barriers is an example.

Despite no significant change in body weight and BMI, after the 6th week intervention the experimental group showed improvement whereas the comparison group showed decline. Additionally, no different change in systolic and diastolic blood pressure over time was found. Possibly, the walking exercise in the study might not fully intense and the period of intervention was short for lowering weight and blood pressure. A number of studies demonstrated weight and BMI improvement after engaging in physical activity over 6 months. A study conducted by Gutin et al also indicated that moderately intense physical activity for 2-3 hours per week would result in child weight lost. Vianna et al found that walking three times a week at an intensity level for 4 months could significantly decrease the diastolic blood pressure. This is consistent with a systematic review conducted by Lee et al which indicated that moderate to high-intensity walking (65-85% of maximum heart rate), 3-5 days/week, for 20-60 min continuous or accumulated with duration of intervention ranged 8-19 weeks (mean length was 19 weeks) can reduce blood pressure.

The present study should be interpreted within the context of its limitations. First, the number of
Table 2. Mean, mean difference, and repeated measures ANOVA of the outcome measures for the experimental and comparison groups at baseline, the 2nd week, the 6th week of intervention

<table>
<thead>
<tr>
<th></th>
<th>Experimental group (n = 34)</th>
<th>Comparison group (n = 34)</th>
<th>p *</th>
<th>p @</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude towards walking exercise</td>
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</tr>
<tr>
<td>Baseline</td>
<td>43.21 (3.5)</td>
<td>42.21 (3.9)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>2nd week</td>
<td>47.79 (2.5)</td>
<td>43.21 (3.9)</td>
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<tr>
<td>6th week</td>
<td>45.29 (3.3)</td>
<td>43.29 (3.9)</td>
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<tr>
<td>2nd week-baseline</td>
<td>4.59 (3.9)</td>
<td>1.00 (5.5)</td>
<td>&lt;0.001</td>
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<tr>
<td>6th week-baseline</td>
<td>2.09 (3.9)</td>
<td>1.09 (5.7)</td>
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<td>0.39</td>
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<tr>
<td>Perceived behavior control</td>
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<tr>
<td>Baseline</td>
<td>27.50 (4.0)</td>
<td>27.21 (2.3)</td>
<td>0.02</td>
<td>&lt;0.001</td>
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<tr>
<td>2nd week</td>
<td>31.56 (2.9)</td>
<td>25.47 (1.6)</td>
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<tr>
<td>6th week</td>
<td>30.94 (2.9)</td>
<td>25.47 (1.6)</td>
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<td>2nd week-baseline</td>
<td>4.06 (4.4)</td>
<td>-1.74 (2.5)</td>
<td>&lt;0.001</td>
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<td>6th week-baseline</td>
<td>3.44 (4.4)</td>
<td>-1.74 (2.5)</td>
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<td>Subjective norm</td>
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<tr>
<td>Friends</td>
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</tr>
<tr>
<td>Baseline</td>
<td>1.71 (0.9)</td>
<td>1.29 (0.6)</td>
<td>&lt;0.001</td>
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<tr>
<td>2nd week</td>
<td>2.12 (0.9)</td>
<td>1.71 (0.7)</td>
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<tr>
<td>6th week</td>
<td>3.06 (1.1)</td>
<td>2.12 (0.9)</td>
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<td>2nd week-baseline</td>
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<td>0.41 (1.1)</td>
<td>1.00</td>
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<td>6th week-baseline</td>
<td>1.35 (1.1)</td>
<td>0.82 (1.1)</td>
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<tr>
<td>Baseline</td>
<td>2.47 (1.2)</td>
<td>2.44 (0.9)</td>
<td>0.02</td>
<td>0.03</td>
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<tr>
<td>2nd week</td>
<td>3.12 (0.9)</td>
<td>2.56 (0.8)</td>
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<tr>
<td>6th week</td>
<td>2.88 (1.0)</td>
<td>2.32 (0.8)</td>
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<td>2nd week-baseline</td>
<td>0.64 (1.3)</td>
<td>0.11 (1.1)</td>
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<tr>
<td>6th week-baseline</td>
<td>0.41 (1.4)</td>
<td>-0.11 (1.1)</td>
<td>0.08</td>
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</table>

* p<0.05;  * Independent t-test; @ Repeated measure ANOVA
### Table 2. (cont.)

<table>
<thead>
<tr>
<th></th>
<th>Experimental group (n = 34)</th>
<th>Comparison group (n = 34)</th>
<th>p *</th>
<th>p @</th>
<th>Time</th>
<th>Group</th>
<th>Time x Group</th>
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<tr>
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<tr>
<td>Baseline</td>
<td>8.38 (1.6)</td>
<td>7.94 (1.8)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
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<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; week</td>
<td>9.59 (0.8)</td>
<td>8.03 (1.7)</td>
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<tr>
<td>6&lt;sup&gt;th&lt;/sup&gt; week</td>
<td>9.44 (0.9)</td>
<td>8.00 (1.6)</td>
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<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; week-baseline</td>
<td>1.21 (1.3)</td>
<td>0.09 (1.7)</td>
<td>&lt;0.001</td>
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<td>6&lt;sup&gt;th&lt;/sup&gt; week-baseline</td>
<td>1.06 (1.4)</td>
<td>0.06 (1.8)</td>
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<td>Walk (min)</td>
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<tr>
<td>Baseline</td>
<td>85.15 (42.25)</td>
<td>53.53 (43.91)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
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<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; week</td>
<td>140.88 (68.1)</td>
<td>67.65 (55.4)</td>
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<tr>
<td>6&lt;sup&gt;th&lt;/sup&gt; week</td>
<td>145.88 (73.1)</td>
<td>73.97 (59.9)</td>
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<td>2&lt;sup&gt;nd&lt;/sup&gt; week-baseline</td>
<td>55.74 (53.1)</td>
<td>14.12 (42.5)</td>
<td>&lt;0.001</td>
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<td>6&lt;sup&gt;th&lt;/sup&gt; week-baseline</td>
<td>60.74 (65.5)</td>
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<td>Weight (Kg)</td>
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<tr>
<td>Baseline</td>
<td>65.62 (11.1)</td>
<td>59.97 (10.3)</td>
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<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; week</td>
<td>62.94 (12.0)</td>
<td>63.03 (12.2)</td>
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<td>62.65 (11.3)</td>
<td>63.35 (12.0)</td>
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<td>2&lt;sup&gt;nd&lt;/sup&gt; week-baseline</td>
<td>-2.68 (6.6)</td>
<td>3.06 (11.8)</td>
<td>0.02</td>
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<tr>
<td>6&lt;sup&gt;th&lt;/sup&gt; week-baseline</td>
<td>-2.97 (10.8)</td>
<td>3.38 (11.7)</td>
<td>0.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body mass index (Kg/m&lt;sup&gt;2&lt;/sup&gt;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>26.58 (4.4)</td>
<td>24.63 (4.3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; week</td>
<td>25.55 (5.1)</td>
<td>26.02 (5.9)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6&lt;sup&gt;th&lt;/sup&gt; week</td>
<td>25.51 (5.3)</td>
<td>26.15 (5.8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; week-baseline</td>
<td>-1.03 (2.6)</td>
<td>1.39 (5.2)</td>
<td>0.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6&lt;sup&gt;th&lt;/sup&gt; week-baseline</td>
<td>-1.07 (4.4)</td>
<td>1.51 (5.1)</td>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

* p<0.05; * Independent t-test; @ Repeated measure ANOVA
subjects was limited: the majority of subjects were women, from which the results might not be generalized in the male population. This calls for a greater number particularly male in the sample size in the future for further study. Second, the present study was conducted for six weeks, which might not be sufficient time for weight and blood pressure changes. Thus, longitudinal study should be considered to test the results and determinants of change.

**Conclusion**

The present study findings provide partially supported the usefulness of the Theory of Planned Behavior in walking exercise program among people at risk of hypertension. Subjective norms, perceived behavior control, intention, and walking exercise were improved overtime, whereas attitude towards walking exercise was increased only at a few weeks. However, outcome measures including weight, BMI, and blood pressure did not differ from the baseline to the end of intervention.

**Acknowledgement**

The authors wish to thank the assistance of health professionals. Without their help and enthusiasm in the data collection process, this study would not have been possible.

**Potential conflicts of interest**

None.

**References**

5. US Department of Health and Human Services.


ผลของการโปรแกรมการออกกำลังกายด้วยการเดินที่ประยุกต์ทฤษฎีพื้นฐานตามแผนในประชากรกลุ่มเสี่ยงโรคความดันโลหิตสูง

อุปกรณ์ต้นทุน: ทองวัฒนา, สุวินทร์ กลุ่มพยาธิ, ปานนัน พิชยพิษณุ

วัตถุประสงค์: เพื่อศึกษาผลของการโปรแกรมการออกกำลังกายด้วยการเดินที่ประยุกต์ทฤษฎีพื้นฐานตามแผนในประชากรกลุ่มเสี่ยงโรคความดันโลหิตสูง

วิธีการ: การวิจัยเป็นแบบการทดลอง (quasi-experimental research) เกณฑ์การตัดสินคู่มันตัวอย่าง โดยแบ่งอยู่ระหว่าง 35-59 ปี ความดันโลหิตสูง คู่มันระหว่าง 120-139 มิลลิเมตรหุ้งและความดันโลหิตต่ำมิลลิเมตรหุ้ง คู่มันระหว่าง 80-89 มิลลิเมตร คู่มันคู่ตัวอย่างและคู่มันเป็นคู่มันทดลอง 34 ราย กลุ่มเปรียบเทียบ 34 ราย โดยกลุ่มทดลองได้รับกิจกรรมเพื่อนอกกิจกรรมประยุกต์ทฤษฎีที่สำคัญสุขภาพด้านความรู้โรคความดันโลหิตสูงและการป้องกัน ประโยชน์ของการออกกำลังกายด้วยการเดิน การกินอาหารและการสุขภาพรวมจากการออกกำลังกาย การใช้บุคคลที่มีลักษณะ เล็กสิ่งต่างๆ ดังกล่าวในกลุ่ม ศึกษาผลการทดลอง ด้วยการใช้สูตรบันทึกการออกกำลังกายด้วยการเดินในสัปดาห์แรกและสัปดาห์ที่ 2 ในขณะที่กลุ่มเปรียบเทียบ มีเพื่อศึกษาการได้ความรู้และการใช้สูตรบันทึกการออกกำลังกายด้วยการเดินในสัปดาห์แรกและสัปดาห์ที่ 2 จากผลการได้ความรู้การใช้สูตรบันทึกการออกกำลังกายด้วยการเดินในสัปดาห์แรกและสัปดาห์ที่ 2 ในการศึกษาความแตกต่างระหว่างการใช้สูตรบันทึกการออกกำลังกายด้วยการเดิน

ผลการศึกษา: กลุ่มทดลองมีที่สูงกว่ากลุ่มเปรียบเทียบในการมีพื้นฐานการออกกำลังกาย การปรับรูปแบบด้านพื้นฐานการออกกำลังกายตามคู่มันของ การออกกำลังกายด้วยการเดินเพิ่มขึ้นตลอดระยะเวลาที่มีการศึกษา (p<0.05) แต่ยังไม่สามารถตกลงที่จะเข้าสู่สิ่งที่มีความแตกต่างที่มีอยู่สูงกว่ากลุ่มเปรียบเทียบ ระหว่างกลุ่มทดลองและกลุ่มเปรียบเทียบตัวเปรียบการออกกำลังกายด้วยการเดินเพิ่มขึ้นตลอดระยะเวลาที่มีการศึกษา (p<0.05) เท่ากับความแตกต่างคะแนนระดับศึกษาไม่แตกต่างกันอย่างมีนัยสำคัญ

สรุป: ควรมีการแนะนำการใช้โปรแกรมการออกกำลังกายด้วยการเดินที่ประยุกต์ทฤษฎีพื้นฐานตามแผนในกลุ่มเสี่ยงโรคความดันโลหิตสูงและการระดับบุคคลทางสุขภาพให้เป็นกิจกรรมการใช้โปรแกรม

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