

A Study on the Applicability of the Health Action Process Approach to the Dietary Behavior of University Students in Shanxi, China

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ABSTRACT

Objective: To confirm the applicability of the Health Action Process Approach in predicting and explaining the healthy dietary behavior of college students.

Design: Cross-sectional survey. The data were collected through the self-administered questionnaires.

Setting: Eight universities in Shanxi province, China.

Participants: A total of 1,933 undergraduates were randomly selected using random cluster sampling from Shanxi, China (92.0% response; 31.7% males).

Main Outcome Measures: Each variable was measured using questionnaires.

Analysis: Data were analyzed by 2-sample *t* test, linear correlation, and path analysis. Significance was set at $P < .05$.

Results: Risk perception, self-efficacy, and positive expectancy began functioning during the intention formation stage ($P < .01$). Outcome expectancy, self-efficacy, and behavioral intentions had a predictive role in plan formation ($P < .001$). Action planning, positive expectancy, and self-efficacy were effective predictors of dietary behavior ($P < .001$). An action plan was a mediator between behavioral intention and dietary behavior; the mediation effect was 0.086.

Conclusions and Implications: As a first step, application of Health Action Process Approach to the dietary behavior of Chinese college students was confirmed. Future research expanding on this study could consider including additional sociodemographic factors in the model structure using a broader study population.

Key Words: Health Action Process Approach, college students, dietary behavior, research of applicability (*J Nutr Educ Behav.* 2017;■■:■■–■■.)

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INTRODUCTION

College students can be considered the driving force behind the sustainable development of society as well as the builders of social development and scientific and technological advancement for whom health is a prerequisite for wellness in life and learning.^{1,2} At this

crucial stage, college students are under the great pressures of education, life, and employment; therefore, it is essential for their mental and physical health to promote responsible nutrition and dietary habits.³ According to several related surveys, 93.4% of college students' diets were imbalanced in Guangdong, China.⁴ Among

1,078 college students in Guangxi, China, 53.4% were less than healthy as a result of dietary nutrition disorders.⁵ Average dietary quality among college students was in a moderate state of imbalance in Shanxi, China, owing to the coexistence of moderate insufficient intakes (54.8%) and excessive intakes (80.0%) of specific foods.⁶ Whereas 6.8% of students had healthy diets, 65.9% had unhealthy diets in Chengdu.⁷ Lack of nutrition or dietary knowledge, as well as eating disorders, are common among college students.⁸⁻¹⁰ Thus, it is essential for researchers to explore an effective way to improve the dietary behavior of college students. Behavior change theories are useful guides for understanding how behaviors have changed.¹¹ Among those various existing theories, the most prevalent ones are social learning theory,¹² Social Cognitive Theory,¹³ the theories of

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reasoned action¹⁴ and planned behaviors,¹⁵ the transtheoretical model (TTM),¹⁶ and the Health Action Process Approach (HAPA).¹⁷ Compared with other models, the TTM and HAPA are phase models in which it is assumed that there are many possible behaviors, and that behavior is the result of intention.¹⁸ The TTM assesses an individual's readiness to act on a healthier behavior and provides strategies or processes to guide individual change toward action and maintenance. It is composed of the following constructs: stages of change, processes of change, self-efficacy, decisional balance, and temptations.¹⁶ The HAPA is a social cognition psychological model that may provide a foundation for further intervention,¹⁹ which can be considered as being a mixed phase model. There are 2 distinct stages in HAPA model: the motivational phase in which intention is formed and the volitional phase in which intention is translated into action (Figure 1).^{19,20} In the motivational phase, an individual's intention to implement a certain behavior is influenced by self-efficacy, outcome expectancy, and risk perception. Self-efficacy is the degree to which an individual perceives his capability to complete a particular behavior. Outcome expectancy refers to whether a person believes a certain behavior will cause a desired change. Risk perception refers to the perceived health threat or concern that requires action

mobilization.^{21,22} On the other hand, the volitional phase of the HAPA highlights action planning as the bridging variable between intention and behavior.²³ To translate intention into behavior, intention with high self-efficacy also is necessary for an individual to set action plans that guide behavior.²⁴ Existing studies have shown that the HAPA has a significant value for explaining and predicting the change of healthy behaviors, forming a new perspective on behavior research.²⁵⁻²⁷ International scholars have mainly used HAPA in the fields of physical exercise, diet, self-examination of breasts, and flossing.²⁸⁻³⁰ The HAPA was most widely used in the field of physical exercise behavior in China, where its applicability was validated.^{31,32} In addition, the HAPA has been used to explore sexual behavior.^{33,34} However, there are few validation studies concerning the dietary behavior of college students. Duan et al³⁵ evaluated the efficacy of an 8-week Web-based intervention based on the HAPA to improve physical activity and fruit and vegetable intake in Chinese university students. Zhou³⁶ verified the applicability of the HAPA model in the field of the healthy eating behavior of college students with methods of model verification and experimental intervention.

To verify the validity of the HAPA in predicting and explaining the engagement of college students in healthy

dietary behavior, students from 8 universities in Shanxi, China, were randomly selected as respondents. Individual behaviors were divided into the pre-intention, intention, and action stages based on the HAPA. Based on those reports, it was hypothesized that the application of the HAPA in the dietary behavior of college students was effective and the predicting effect of different HAPA variables was disparate in different stages of dietary behavior.

METHODS

Sample Size

The researchers randomly selected college students from institutions in Shanxi province for a pretest survey (27 boys and 33 girls). Data on students' nutrition knowledge and dietary behavior were extracted from questionnaires and their reliability and validity were verified. Overall Cronbach $\alpha = .81$, with all 6 dimensions $\geq .66$ (correlation coefficient, 0.36–0.87). Cronbach α (correlation coefficients) from each dimension were as follows: self-efficacy, $\alpha = .78$ (0.48–0.77); outcome expectancy, $\alpha = .72$ (0.31–0.67); risk perception, $\alpha = .93$ (0.69–0.86); and action planning, $\alpha = .93$ (0.69–0.84). Following the sample content estimation formula $n = u\alpha^2 p(1-p) / \delta^2$,³⁷ where p was the correct rate of pretest nutrition knowledge and $p = 42\%$, $\delta = 0.02$, $\alpha = .05$, and $u_{0.05} = 1.645$, a sample size of 1,647 was calculated. Considering participant compliance and questionnaire effectiveness, the sample size was expanded to 2,100 for sufficient power.

Participants

The study used cluster random sampling to recruit 2,100 undergraduate students from 8 universities in Shanxi province who were admitted between 2012 and 2015.³⁸ First, each class in the 8 universities was randomly numbered based on grades. Next, 1 class was randomly chosen from each grade in each university using the random number table. If the number of girls in a class was more than 3 times that of boys, the class was excluded and another class in that university was randomly selected to replace the former one. All students in the selected

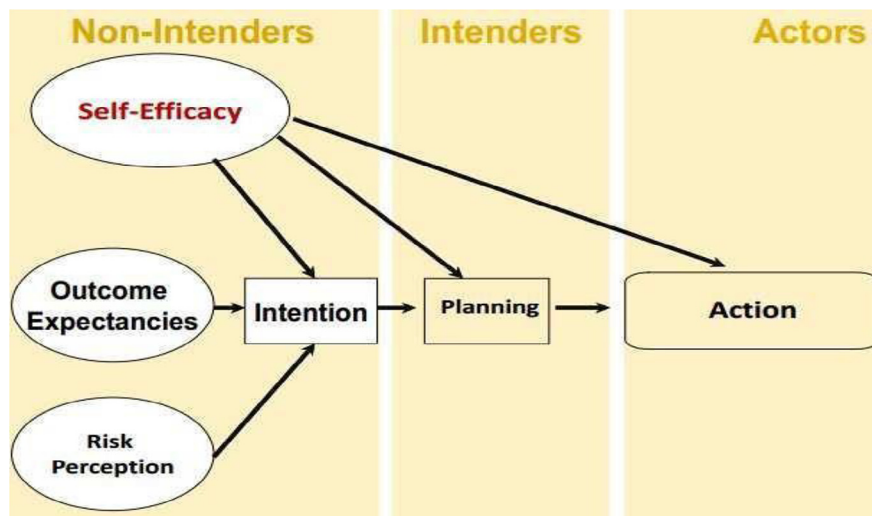


Figure 1. Health Action Process Approach framework with a 3-stage layer depicting detailed information about the model.

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