

The Role of Social Support and Self-efficacy for Planning Fruit and Vegetable Intake

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ABSTRACT

Objective: The aim of the current study was to examine the joint effect of self-efficacy, action planning, and received social support on fruit and vegetable intake.

Design: The study used a longitudinal design with 3 waves of data collection.

Setting: Major university campus in Beijing, China.

Participants: Young adults (n = 286).

Variables Measured: Age, gender, body mass index, dietary self-efficacy, and baseline behavior were measured at time 1. Two weeks after time 1, received social support and action planning were assessed (time 2); 4 weeks after time 1, subsequent fruit and vegetable consumption was measured (time 3).

Analysis: In a path analysis, action planning at time 2 was specified as a mediator between self-efficacy at time 1 and fruit and vegetable intake at time 3, controlling for age, gender, body mass index, and baseline behavior. In addition, in a conditional process analysis, received social support at time 2 was specified as a moderator of the self-efficacy–planning relationship.

Results: Action planning mediated between self-efficacy and subsequent dietary behavior, and received social support moderated between self-efficacy and planning supporting a compensation effect. Action planning served as a proximal predictor of fruit and vegetable intake, and planning one's consumption was facilitated by dietary self-efficacy.

Conclusions and Implications: Through the identification of social cognitive factors influencing dietary planning, interventions can target self-efficacy and received social support to test the efficacy of these mechanisms in increasing individuals' ability to ensure they consume adequate amounts of fruits and vegetables.

Key Words: dietary self-efficacy, action planning, received social support, fruit and vegetable intake (*J Nutr Educ Behav.* 2016; ■:1–7.)

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INTRODUCTION

Consuming a nutritionally balanced diet that includes an adequate amount of fruits and vegetables protects overall health and is associated with a reduced

risk of some noncommunicable diseases including cardiovascular disease and certain cancers.^{1–4} An adequate consumption is considered to be at least 400 g/d of fruits and vegetables, which is often equated to be at least 5 portions.⁵ Globally,

however, fruit and vegetable intake is much lower than this recommendation,^{6,7} which suggests that current interventions aimed at improving dietary decisions are not effective or are at best only marginally effective in encouraging individuals' healthy food choices.

A major criticism of the design of many health promotion programs is the neglect of behavioral theory as a basis to inform the development of the intervention and an evidence base for their effectiveness. The literature reinforces the notion that health promotion interventions underpinned by behavioral theory and supported by robust evaluation are more likely to result in behavioral change. Accordingly, social cognitive factors are likely to be critical in individuals' decisions to consume adequate amounts of fruits and vegetables. It is therefore important for interventions grounded in sound behavioral theory to be adopted to modify individuals' dietary decisions.

To ensure effective acceptance and adoption of interventions to improve

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fruit and vegetable intake, it is important first to isolate the mechanisms that guide the health behavior. Future investigations can then test the extent to which the mechanisms magnify or diminish motivations toward behavioral engagement. Social cognitive mechanisms of behavior change often serve as a backdrop toward understanding human behavior; in trying to move knowledge forward, researchers have become focused on investigating the more complex relationships within the social cognitive components.⁸ In relation to fruit and vegetable intake, reviews documented the facilitating roles of dietary self-efficacy, action planning, and social support.⁸⁻¹⁰ Comparatively little research, however, investigated how these processes operate in concert with or independent of each other to explain behavioral engagement, and even fewer used designs to test the sequence of effects accurately. Studies are therefore needed that examine the joint effects of these 3 social-cognitive variables on health behavior, specifically in this study on fruit and vegetable intake, using longitudinal research designs.

Dietary Self-efficacy, Action Planning, and Social Support for Fruit and Vegetable Intake

Perceived self-efficacy is defined as the belief in one's capabilities to perform an action required to achieve a certain outcome; it can be characterized as being prospective, competence based, and action related.¹¹ Self-efficacy beliefs can affect which tasks people choose to complete, how much effort they expend on their tasks, the extent to which they persevere in the face of obstacles, and how they evaluate their successes and failures.¹¹ Thus, dietary self-efficacy reflects the optimistic self-beliefs people hold in the face of temptations or obstacles, to stick to their healthy dietary behaviors. It is an essential personal resource that enables individuals, including those at risk of poor diets, to initiate and sustain healthy eating behavior.¹² Studies using longitudinal survey designs have shown that participants with higher levels of dietary self-efficacy also report higher levels of fruit and vegetable intake.¹³ Interventions designed to improve dietary self-efficacy have

also been found to facilitate fruit and vegetable consumption.¹⁴

Whereas self-efficacy is a belief in one's ability to perform a specific action required to attain a desired outcome, planning is a self-regulatory or self-management skill that is hypothesized to be a proximal predictor for health behavior change. Action planning pertains to making detailed plans of when, where, and how to initiate an action.¹⁵ It aims to create new contingencies between (external) situational cues and behavioral responses (eg, in a school dining hall at lunch time, I will eat a piece of fruit).^{16,17} Over the past decade there has been a surge in intervention studies to enhance planning.¹⁸⁻²⁰ Evidence overall supports the effectiveness of planning interventions,²¹ with meta-analytic research showing a notable medium effect size for planning interventions on health behaviors.²² More specifically, recent reviews on intervention studies documented the effects of action planning on dietary behavior, including fruit and vegetable intake.⁹

Although extant literature in general supported the role of planning on behavior, considerable heterogeneity in effects across studies existed and some studies evidenced no effect.²¹ This suggests that the role of planning on behavior is complex and further research is needed that examines the mechanisms by which planning formation leads to behavioral engagement.²¹ It may be that individuals with a high level of self-efficacy might be more likely to form specific plans to initiate a novel behavior and that optimistic self-beliefs can instigate the execution of those plans. The health action process approach explicitly specifies planning as a mediator between self-efficacy and behavior.²³ Whereas some studies confirmed this hypothesized pathway in the context of nutrition behavior, these studies were limited either because the study design had only 2 time points²⁴ or because the measures assessed self-management and not action planning.²⁵ Thus, it seems both timely and important for providing evidence in support of theoretical propositions that research investigates the mediating role of action planning between self-efficacy and fruit and vegetable intake using a longitudinal research design that accurately specifies the sequential nature of the proposed effects.

Social support is another important social cognitive variable that has been shown to influence fruit and vegetable intake positively.¹⁰ It refers to the function and quality of social relationships that involve interactive processes between providers and receivers. Perceived social support is the recipient's anticipated available support from his or her social network if needed, whereas received social support reflects the actual resources provided by significant others (eg, family members, friends).²⁶ Received dietary support, in particular, has been found to be a predictor for fruit and vegetable intake.^{13,27} What is less known is how this construct might interact with other important social cognitive factors to influence behavior. Specifically, the mechanisms that reflect the interplay of received social support with self-efficacy and action planning in terms of dietary behavior are not well understood and warrant further investigation.

Social cognitive theory may help to explain these more complex relationships; it suggests various possible interactions between self-efficacy and social support on health behaviors.¹¹ On the one hand, they could strengthen one another—the synergistic hypothesis. This synergistic interaction was confirmed in a dietary study: Individuals with higher self-efficacy profited more from support when forming intentions that then were translated into more fruit and vegetable intake.¹³ On the other hand, one factor could take over the role of the other—the compensation hypothesis. This compensation interaction posits that both resources could compensate for lacks in the respective other.^{11,28} A study that tested this compensation hypothesis in the context of physical exercise found that high self-efficacy could compensate for low social support on action control.²⁹ Alternative explanations were given for the findings: Those who were supported in their exercise might depend less on their own abilities to overcome barriers for exercising; or, low-supported persons might initiate exercise because of their firm self-efficacious beliefs. Thus, further studies are needed to understand this complex relationship better and provide an evidence base that explains the interactive role between self-efficacy and social support on health behavior.

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