Appetite 106 (2016) 23–29

Contents lists available at ScienceDirect

Appetite

journal homepage: www.elsevier.com/locate/appet

The role of self-identity in predicting fruit and vegetable intake

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ARTICLE INFO

Article history:
Received 29 June 2015
Received in revised form
27 October 2015
Accepted 18 December 2015
Available online 23 December 2015

Keywords:
Fruit and vegetable
Intake
Theory of planned behavior
Self-identity

ABSTRACT

This research investigated whether the Theory of Planned Behavior (TPB) with the addition of self-identity could predict fruit and vegetable intake when controlling for past behavior. Previous research had demonstrated the efficacy of TPB to predict intention and behavior in relation to food choice and the additional power of self-identity, but had failed assess the effects of self-identity while controlling for past behavior. At baseline (N = 210) TPB components and past behavior in relation to fruit and vegetable consumption plus self-identity as a healthy eater were measured by questionnaire in a sample of university students. At time 1, 4 weeks later, self-reported fruit and vegetable consumption was measured. Structural Equation Modelling (SEM) indicated attitude, PBC and self-identity to be significant predictors of intention (subjective norm and past behavior were not significant). Intention, self-identity and past behavior were direct predictors of behavior. The current findings support the independent effect of self-identity as a healthy eater on both intentions and future behaviour when controlling for TPB variables and also past behavior. The discussion considers the importance of self-identity in changing intentions and behavior for behaviors such as fruit and vegetable consumption.

1. Introduction

The current research is an application of an extended model of the Theory of Planned Behavior (TPB; Ajzen, 1991) to understanding fruit and vegetable consumption in a sample of students from South Italy. Healthy eating is an important determinant of various health outcomes. Guidelines for healthy eating (Cialfa et al., 2003; USDA/USDHHS, 2010) recommend the daily consumption of at least five servings of fruits and vegetables and also for any fresh vegetables consumed to be as varied as possible. This behavior can promote health by providing the necessary vitamins and antioxidants (CDC, 2012) and contributes to physical health by helping preventing cancers and chronic illnesses (e.g., Dauchet, Amouyel, & Dallongeville, 2006; He, Nowson, & MacGregor, 2006; WHO, 2003), and weight gain (e.g., Alinia, Hels, & Tetens, 2009; Sartorelli, Franco, & Cardoso, 2008). The World Health Organization (WHO, 2003) reported that low fruit and vegetable intake was responsible for 11% of strokes, 19% of gastrointestinal cancers and 31% of ischemic heart disease.

European levels of daily fruit and vegetables intake in 2013 amounted to 342 g per capita (Freshfel, 2015). This is below the recommended minimum of 400 g of fruit and vegetables per day recommended by the World Health Organization (2003). Although Italians are traditionally viewed as consuming a healthy 'Mediterranean diet' that includes plenty of fruits and vegetables (e.g., Turati et al., 2015), the National Institute of Statistics (Multiscopo ISTAT, 2014) reported that only 18.1% of the Italian population consumes at least four daily servings of fruits, vegetables and fresh vegetables. Disadvantaged consumers in the South of Italy report even lower rates of fruit and vegetable consumption (14.2% in South versus 21.1% in the North of Italy consumed at least 4 portions; Multiscopo ISTAT, 2013). Therefore, the understanding of factors involved in regular fruit and vegetable consumption in Italians could be used to inform interventions designed to increase this behavior.

1.1. Theoretical background

The present study adopted the theory of planned behavior (TPB; Ajzen, 1991) as a theoretical framework to predict fruit and vegetable consumption, since TPB constructs have been found to be strong predictors of various dietary behaviors (Armitage & Conner, 2001a; Conner & Norman, 2005; McEachan, Conner, Taylor, & Lawton, 2011; Mullan, Wong, & Kothe, 2013). In a meta-analytic review across various behaviors, Armitage and Conner (2001a)

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http://dx.doi.org/10.1016/j.appet.2015.12.020
0195-6663/

indicated that the TPB model reliably explained between 40 and 50% of the variance in intention, and between 20 and 40% of the variance in behavior. More recently, the review of McEachan et al. (2011), which considered the efficacy of TPB for different health behaviors showed that the TPB predicted 21.2% of the variance in dietary behavior (mainly based on intentions) and 52.4% of dietary intentions. In this review, attitude emerged as the most important predictor of intention ($\beta = 0.39$), followed by perceived behavioral control ($\beta = 0.27$), subjective norm ($\beta = 0.22$) and past behavior ($\beta = 0.16$).

Studies have applied the TPB model to predict a variety of specific eating behaviors including fruit and vegetable intake (e.g., Blanchard et al. 2009a, 2009b; Conner, Norman, & Bell, 2002; De Bruijn et al., 2007; Elliott & Armitage, 2006; Godin et al., 2010; Kothe, Amaratunga, & Mullan, 2011; Kothe & Mullan, 2014; Povey, Conner, Sparks, James, & Shepherd, 2000). In a review of 23 such studies (specifically, 15 studies on the determinants of fruit and vegetable intake, 7 on the determinants of intention and fruit and vegetable intake and one on the determinants of intention), Guillaumie, Godin, and Vezina-Im (2010) reported that 30%–57% of the variance in intentions were accounted for by attitudes, perceived norms, and perceived behavioral control, while 6%–32% of the variance in fruit and vegetable consumption was accounted for by intentions and perceived behavioral control. Therefore there exists ample empirical evidence that TPB is a useful way to understand fruit and vegetable intake.

The present research further analyzes how well the TPB predicts intentions and action for this behavior in an Italian population. Importantly, additional predictors (self-identity and past behavior) were included in the present research to increase the predictive validity of the TPB in relation to fruit and vegetable consumption (Fig. 1).

Self-identity appears to be a motivational construct that adds to predictions within the TPB (Conner & Armitage, 2002). This concept can be described as a salient aspect of one's self-perception (e.g., "I think of myself as a green consumer"; Sparks, 2000). Several authors have suggested self-identity as a useful additional variable in the TPB (e.g., Bissonnette & Contento, 2001; Charng, Piliavin, & Callero, 1988; Cook, Kerr, & Moore, 2002; Nigbur, Lyons, & Uzzell, 2010; Terry, Hogg, & White, 1999). The basis of the assumed relationship between self-identity and behavioral intentions relies on identity theory (Stryker, 1968, 1980, 1987), where the self is regarded as a social construct, a set of identities related to the different roles that everyone occupies in the social settings. A role can be considered as a collection of expectations about role-appropriate behavior (Simon, 1992); it is assumed that the pattern of behaviors have been internalized as a role identity and the more salient the identity, the more it will increase the intention to implement the related behaviors (Charng et al., 1988). This is because acting a role-congruent behavior helps to confirm a person's status as a role member (Callero, 1985).

Consistent with this view, Terry, Hogg, and Duck (1999) argued that self-identity influences intentions because the performance of a certain behavior allows the individual to validate the self-concept that originates from role identities and helps the person to develop a positive and significant self-evaluation. Therefore, people intend to perform a behavior consistent with their personal beliefs, norms and their social roles (e.g., self-identity). The predictive power of self-identity has been found over and above the effects of other TPB variables (e.g., Charng et al., 1988; Conner & Armitage, 1998; Ries, Hein, Pihu, & Armenta, 2012), especially in the domain of food choice (Sparks & Guthrie, 1998; Sparks & Shepherd, 1992; Sparks, Shepherd, Wieringa, & Zimmermanns, 1995). This is particularly the case for self-identity as a predictor of intention (Sparks & Guthrie, 1998; Sparks & Shepherd, 1992). For example, Sparks et al. (1995), examining five dietary changes linked to fat consumption, included a measure of self-identity. This was defined as the "identification as someone who is concerned about the health consequences of diet". They reported that this construct significantly predicted the expectations of making dietary changes independently of attitudes. Conner and Armitage's (1988) review of six similar studies, indicated that self-identity accounted for 1% of the variance in intention over and above TPB variables (attitude, subjective norm, perceived behavioral control). More recent work has shown similar effects for self-identity on intentions over and above TPB variables (Armitage & Conner, 2001b; Arnold et al., 2006; Evans & Norman, 2003; Hagger & Chatzisarantis, 2006; Mannetti, Pierro, & Livi, 2004).

Some studies have also examined the effects of self-identity on behavior whilst controlling for TPB variables. The suggestion is that self-identity may influence behavior independently of intentions (and perceived behavioral control). This occurs for two reasons. On one side, implicit aspects of identity could emerge through unconscious processes beyond the awareness (Devos & Banaji, 2003 for review). On the other side, identity could involve experiences of reflexive consciousness through its regulating function (Baumeister, 1998). In fact, identities produce a standard for behavior (Stryker & Burke, 2000), allowing individuals' to evaluate the congruency between behavior meanings and their identities. Negative or positive emotions could arise from this evaluation and individuals could change their behaviors if they are not consistent with identity expectations (Burke, 1980).

Biddle, Bank, and Slavings (1987) showed that self-identity had an effect on a social behavior over and above the effect of intentions and PBC. Theodorakis (1994) showed that role-identity about physical activity explained intention and behavior. More pertinently, Strachan and Brawley (2009), in a study on healthy-eater identity and self-efficacy as determinants of healthy eating behavior demonstrated that these variables increased the explained variance in healthy eating behavior. Similarly, Dunn, Mohrc, Wilson, and Gary (2011), in a study of fast food consumption, reported intention was predicted by attitude, subjective norms, self-efficacy and self-identification as a healthy eater, although self-identification did not influence behavior. Ries et al. (2012), in a study on prediction of intention to perform physical activity, showed that self-identity significant determined intention and behavior, independently of other TPB variables. Brouwer (2012) reported that self-identity as a healthy eater predicted intention and healthy eating independent of other TPB variables. More recently, Brouwer and Mosack (2015) showed that identity as a healthy eater was a significant determinant of healthy eating intentions over and above the TPB components and a significant determinant of overall healthy eating behaviors, fruit and low-fat dairy intake over and above intentions and PBC.

A limitation of a number of the above studies is that in examining the effect of self-identity they failed to consider the effect of controlling for past behavior. Although the role of past behavior in the TPB has prompted considerable debate (see Eagly & Chaiken, 1993: 178–182; Ajzen, 1991, 2002 for reviews), a number of studies shown past behavior to be a strong predictor of intentions and behavior (e.g., Conner, Warren, Close, & Sparks, 1999; Hagger, Chatzisarantis, & Biddle, 2002; Mullen, Hersey, & Iverson, 1987; Norman & Conner, 2006; Norman & Smith, 1995) that remains when controlling for TPB variables (e.g., Conner & Armitage, 1998; Ouellette & Wood, 1998). Relatedly, Fishbein (1997) claimed that measures of self-identity could be a measure of past behavior, since people possibly could infer their self-identities by examining their past behavior (Sparks & Guthrie, 1998). This would point to the need to examine the effects of self-identity within the TPB whilst controlling for past behavior in order to show their independent