Expanding the Theory of Planned Behavior to Explain Energy Dense Food Intentions among Early Adolescents in Indonesia

by Eveline Sarintohe

Taylor & Francis
Taylor & Francis Group

Expanding the Theory of Planned Behavior to Explain Energy Dense Food Intentions among Early Adolescents in Indonesia

Eveline Sarintohe, Junilla K Larsen, Jacqueline M Vink & Dominique F Maciejewski

Published online: 09 Mar 2023.

Submit your article to this journal ⬚

Article views: 593

View related articles ⬚

View Crossmark data ⬚

cogent
psychology

HEALTH PSYCHOLOGY | RESEARCH ARTICLE

Expanding the Theory of Planned Behavior to Explain Energy Dense Food Intentions among Early Adolescents in Indonesia

Eveline Sarintohe[1,2]*, Junilla K Larsen[1], Jacqueline M Vink[1] and Dominique F Maciejewski[1]

*Corresponding author: Eveline Sarintohe, Behavioural Science Institute, Radboud University, Nijmegen, The Netherlands.
E-mail: eveline.sarintohe@ru.nl

Additional information is available at the end of the article

Abstract: The aim of this study is to examine an extended model of the Theory of Planned Behavior (TPB) and increase insight into the intentions to consume energy-dense food among adolescents in Indonesia. This study included 411 adolescents from private schools who reported their intentions to consume energy-dense food the next day and the next week, as well as attitudes, subjective norms, descriptive norms, and perceived behavioral control regarding energy-dense food consumption. Linear regression analyses (in R) were conducted to examine associations of TPB determinants (model 1), TPB determinants plus descriptive norms (model 2), and interactions between determinants (model 3) with the intention to consume energy-dense food the (1) next day or (2) next week. Attitudes and subjective norms were positively associated with both the 'next day' and 'next week' energy-dense food intentions (model 1), although associations for the 'next day model' appeared to be stronger. Descriptive norms, compared to subjective norms, were more strongly associated with 'next week intentions', whereas both norms (descriptive and subjective) did not differ in how strongly they were associated with 'next day' intentions (model 2). Significant interactions between TPB constructs were found for the model predicting 'next day' intentions (i.e. subjective norms × attitude and attitude × PBC) (model 3). Our study provides important information about proximal food intentions among collectivistic cultures specifically, which may have crucial implications for future preventive interventions.

Subjects: South Asian Studies; Health Psychology; Health & Development; Health & Society
Keywords: Obesity; Energy-dense food; Early adolescents; Theory of Planned Behavior; Descriptive norms; High SEP

1. Introduction

Unhealthy lifestyle changes that have occurred with industrialization, urbanization, economic development, and market globalization have accelerated in developing countries, including Indonesia, over the last decade. These changes, in turn, have had a significant negative impact on the health and nutritional status of Indonesian populations (Popkin et al., 2012; Roemling & Qaim, 2012). The prevalence of obesity has recently increased in Indonesia, not only among adults but also among children and adolescents (National Instituted of Health Research and Development, 2017). In Indonesia, obesity or overweight is more prevalent in individuals from higher Socioeconomic Position (SEP) backgrounds and is often perceived as a sign of affluence (Rachmi et al., 2017; Roemling & Qaim, 2012). As there is less stigma on being obese, the intention to consume unhealthy energy-dense food containing excessive sugar and/or fat (strongly linked to

obesity) might be higher in these groups. Studies have shown that, in particular, children and adolescents often consume fast food and energy-dense food (Kassem & Lee, 2004; Mirkarimi et al., 2016). Given that energy-dense food intentions are closely linked to actual energy-dense food intake (Collins & Mullan, 2011; Weijzen et al., 2008), it is important to understand the intentions to consume energy-dense food among adolescents from higher SEP backgrounds in Indonesia.

Understanding adolescents' intentions to consume energy-dense food may be best apprehended by using theoretical models of human motivation and health behaviors (Hagger & Chatzisarantis, 2009). One important model explaining health intentions is the Theory of Planned Behavior (TPB). According to TPB (Ajzen, 2011, 2019), intentions are formed by three main constructs: (1) positive or negative evaluation toward performing the behavior (i.e. attitudes), (2) perception about the social expectations or how others would approve or disapprove the behavior (i.e. subjective norms), and (3) beliefs related to the perceived control over a particular behavior (i. e. perceived behavioral control—PBC). Previous studies have generally shown that a positive attitude toward behavior (attitudes), getting approval from others (subjective norms), and feeling capable of controlling behavior yourself (PBC) are related to higher intentions to consume energy-dense food (i.e Collins & Mullan, 2011; McDermott et al., 2015; Zoellner et al., 2012). However, these studies were conducted in developed countries in Europe and America. Moreover, previous European and American studies have shown that energy-dense food intake and eating too much in social contexts have several negative connotations (e.g. being deficient in self-control—Puhl et al., 2020). We do not know whether the same model applies to developing countries such as Indonesia, since intentions to consume energy-dense food seem to be different in these countries, especially in higher SEP groups. Hence, our first research question was to examine whether the classical TPB constructs (i.e. attitudes, subjective norms, and PBC) would be associated with the intention to consume energy-dense food among Indonesian adolescents.

In the adolescent period, peers play a significant role in adolescents' lives in general (Lam et al., 2014) and in food intentions specifically (Fila & Smith, 2006; Patcheep, 2015). That is why the present study focused on norms in the friend context. There is an important distinction in the literature on social influence with regard to different norms (Rivis & Sheeran, 2003). The subjective norms of the classical TPB refer to *injunctive* norms that are concerned with perceived social pressure and gaining approval or suffering sanctions from significant others. In contrast, *descriptive* friends' norms refer to the perception of what other people do (in this case, friends; Higgs, 2015). Descriptive norms may also explain energy-dense food intentions. A review of norms with regard to eating behaviors based on research from developed countries in Europe and America has shown that descriptive norms more strongly explain people's health intentions compared to injunctive norms (De la Haye et al., 2013). Indonesia has a more collectivistic culture that is different from the more individualistic cultures in most Western countries. Collectivistic cultures tend to score higher on norms, particularly subjective norms (Chen & Hong, 2015; Chiu et al., 2015). As such, we expected that subjective norms might be more strongly linked to energy-dense food intentions compared to descriptive norms in our Indonesian sample. Our second research question was thus to examine whether descriptive norms, next to the classical TPB constructs, would explain additional interindividual differences in energy-dense food intentions. In addition, we compared the relative importance of the effects of subjective and descriptive norms on energy-dense food intentions to investigate which of those contributed most to energy-dense food intentions.

Finally, TPB constructs might interact with each other in explaining health intentions. As suggested by Conner & McMillan (1999), attitudes are likely to be more predictive of intentions when the social environment is supportive of the proposed act (i.e. moderating effects of norms on the attitude-intention link) (e.g. Hukkelberg et al., 2014). Moreover, previous studies have found that PBC was positively associated with intentions when attitudes were more positive (i.e. moderating effects of attitudes on the PBC-intention link; Conner & McMillan, 1999; Gourlan et al., 2019; McMillan & Conner, 2003). Thus, our third question was to examine whether the two norms (i.e.

cogent •• psychology

Figure 1. Depiction of hypothe-sized relations between Theory of Planned Behavior (TBP) constructs and intention to eat energy-dense food.

Note. Solid arrows depict the main effects of attitude toward behavior, and subjective norms and descriptive norms on intention to eat energy-dense food (research question 1). Dotted arrow depicts the main effect of descriptive norms on intention to eat energy-dense food (research question 2). Dashed arrows depict interaction effects between TBP constructs and attitude (research question 3).
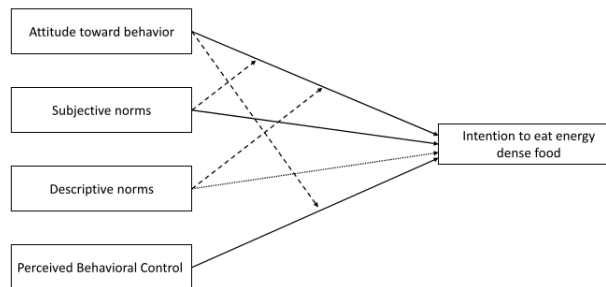
subjective and descriptive norms) would moderate the impact of attitudes on intentions and whether attitudes would moderate the impact of PBC on intentions (see dotted lines in Figure 1).

In sum, the current study used an expanded TPB model, including the original constructs of attitude toward behavior, subjective norms, and PBC, as well as an additional construct: descriptive norms. Based on previous research and the collectivistic nature of the Indonesian culture, we expected that the TPB constructs (i.e. more positive evaluation, more approval from friends, and more self-perceived control) in the decision to consume energy-dense food would be associated with higher intentions to eat energy-dense food (hypothesis 1). Moreover, we expected that descriptive norms would explain additional variance on top of the TPB constructs, but that compared to descriptive norms, subjective norms would be more strongly associated with the intention to consume energy-dense food among Indonesian adolescents (hypothesis 2). Finally, we expected that the proposed interactions (i.e. attitude × subjective norms, attitude × descriptive norms, and PBC × attitude) would additionally explain interindividual intentions to consume energy-dense food among Indonesian adolescents (hypothesis 3). These hypothesized relations between the constructs are depicted in Figure 1.

2. Methods

2.1. Participants

This study is part of a larger prospective study, including three waves of data collection. For this study, we used the data of the first wave (October until December 2019). Adolescents were recruited through five private Junior High Schools in four cities (Jakarta, Surabaya, Bandung, and Manado) in Indonesia. A total of 411 students participated in Wave 1. All adolescents (M_{age} = 12.02 years; SD_{age} = 0.45; range: 11.02–14.11 years; 53.28% boys) were in seventh grade, i.e. in their first year of Junior High School.

2.2. Procedure

This study was approved by the Ethics Committee of the Faculty of Social Sciences of Radboud University, Nijmegen, The Netherlands (ECSS-2019-115). At the start of the study, we asked for active consent from parents in all schools. In three schools, parents gave active consent by returning a signed form. In two schools, due to school policy, the procedure was different. Active consent was given by the heads of the schools, and passive consent was given by the parents. The Ethics Committee has agreed with this changed procedure (ECSS_2019_150). In these two schools,

parents were informed about the study and could object to the participation of their children. Students of all schools were asked to sign a paper consent form indicating that they agreed to (1) participate in the survey study and (2) have their weight and height measured.

At the onset of the study, participants were informed that participation was voluntary, that answers would be processed anonymously, and that they could withdraw from the study at any moment. Adolescents completed a paper self-report survey at school during one classroom hour (approximately 60 min). In addition, adolescents' height and weight were measured at school by the researcher with the help of the school nurse.

2.3. Measurements

We measured intentions, attitudes, subjective norms, descriptive norms, and PBC with self-report Likert scale items. Items were mostly selected from one previous study focusing on high energy-dense food (De la Haye et al., 2013). In addition to the eight items from this study (De la Haye et al., 2013), we added two items for attitudes: one item for each norm and one item for PBC based on two other studies (Gourlan et al., 2019; Kassem & Lee, 2004) to extend the previous items. Items were translated into the Indonesian language using a forward–backward translation procedure and slightly adapted. Specifically, we did not add the time frame (i.e. twice a day) in the TPB items for attitudes, norms, and PBC to avoid too long and unclear Indonesian sentences. For example, we used (in Indonesian language): 'Do your close friends at school think that you should eat high energy food?' instead of 'Do your close friends at school think that you should eat high energy food twice a day?' This has been done in previous Indonesian studies (Ashidiqi & Arundina, 2017; Jan Mei et al., 2021) and also in other studies (e.g. Kruglanski et al., 2015). We asked about next week intentions to eat energy-dense food, as done before (Collins & Mullan, 2011; Gourlan et al., 2019). However, we also added a question about the intention to eat energy-dense food the next day. We have added this question, as in collectivistic cultures, such as the Indonesian culture, people often focus more on the current situation (Wang et al., 2016). As such, shorter-term (i.e. next day) intentions may play a more prominent role compared to longer-term (next week or next month) intentions. Before starting our study, the complete questionnaire was tested among five Indonesian adolescents. These adolescents understood all questions and had no difficulties with completing the questionnaire.

Participants responded to items on a 7-point scale (ranging from 1 to 7). Endpoints varied by item (see below), a high score corresponded with higher values (i.e. more positive attitudes, norms, PBC, and intentions toward energy-dense food intake), and a low score corresponded with lower values, respectively. In the instructions, we defined energy-dense food as food that often contains a lot of salt, sugar, or fat (or all three). We further gave specific examples of energy-dense food products (i.e. salty snacks like chips and crackers; sweets like candy, chocolate, and cake; and fatty foods like French fries and fried products).

2.3.1. Attitude toward behavior

Participants rated their attitude toward eating energy-dense food with three items each rated on a 7-point scale. For each item, participants needed to fill in the following question: 'I think eating high energy food would be...', ranging from 'very annoying' (1) to 'very nice' (7) (item 1), 'unenjoyable' (1) to 'enjoyable' (7) (item 2), and 'very disgusting' (1) to 'very tasty' (7) (item 3). Reliability was sufficient (α = .71). The sum scores were calculated with higher values indicating a higher attitude toward eating energy-dense food (possible range = 3–21).

2.3.2. Subjective norms

Subjective norms were measured with three items: Item 1: 'Do your close friends at school think that you should eat high energy food?' with response options ranging from 'they definitely think I should not' (1) to 'they definitely think I should' (7); Item 2: 'How often do your close friends encourage you to eat high energy food?' with response options ranging from 'never' (1) to 'always' (7); and Item 3: 'Most people who are important to me, approve me to eat energy dense food' with response options ranging from 'disagree' (1) to 'agree' (7). The internal consistency of subjective norms was α = .64. In order to increase reliability, we examined reliability after items deleting. The reliability increased to

ρ = .74 after removal of item 1 (Spearman–Brown). The item was consequently removed, and the total score for the measure of subjective norms no longer included item 1. The sum scores were calculated with higher values indicating higher subjective norms (possible range = 2–14).

2.3.3. Descriptive norms

Descriptive norms were measured with three items: Item 1: 'Of your close friends at school, how many eat high energy food?'—the participants rated this item with response options ranging from 'none of my close friends' (1) to 'all of my close friends' (7); Item 2: 'How do often your classmates eat high energy food'—with response options ranging from 'less than one day per week or never' (1) to 'daily' (7); and Item 3: 'Most people who are like me, eat energy dense food'—with response options ranging from 'none' of them' (1) to 'almost all of them' (7). The internal consistency for descriptive norms was α = .74. The mean scores were calculated with higher values indicating higher descriptive norms (possible range = 3–21).

2.3.4. PBC

Although PBC was measured with two items during data collection, we focused on only one of these items for two reasons. First, the correlation between two items was low (r = .36, p ≤ .01). Second, there was a concern with regard to the validity of one of the PBC items, as that specific item focused on the restriction of energy-dense foods (i.e. 'I am confident that I can limit my consumption of energy dense food (uncertain—certain)') and not on PBC per se. As such, we did not use this item in our analyses and measured PBC with only 1 item. This item stated 'Eating energy dense food or not is up to me', with response options ranging from 'uncertain' (1) to 'certain' (7; possible range = 1–7). Higher values indicate more PBC, meaning that adolescents indicate that they can decide for themselves whether they eat energy-dense food or not. As such, they more deliberately make their own choice to consume energy-dense food or not, rather than experiencing the consumption of energy-dense food as something outside of their own field of influence.

2.3.5. Intention to consume energy-dense food

To assess the intention of energy-dense food intake, participants rated two items on a 7-point scale, namely 'In the next week, how often do you plan to eat high energy food?' with response options ranging from 'once a week or less' to 'daily' and 'Tomorrow, do you intend to eat high energy food?' with response options ranging from 'definitely do not intend' (1) to 'definitely intend to do this' (7). The two outcomes correlated moderately (r = .40; Cohen, 1988), and internal consistency (Spearman–Brown) of these two items in one scale was low (ρ = .58). Given this insufficient internal consistency and the fact that previous studies have mostly focused on weekly intention items and the intention to eat energy-dense foods tomorrow (next day) may not necessarily mean that adolescents will consume energy-dense food the week after, we decided to analyze these items separately and run models for each of the two intention items.

2.4. Data analyses

Data pre-processing and data-analyses were conducted in R 4.0.2 (R Core Team, 2020). The code and output is available via the Open Science Framework under https://osf.io/nqrgu/?view_only= 829705ce24f34e5888cb9c7ba7974ec0. The presence of non-normal distributions in variables was explored using skewness and kurtosis (skewness > 3 and kurtosis > 10; Kline, 2011). Univariate (±3 SD from the mean) outliers were inspected using boxplots. In the case of outliers, those would be winsorized to retain statistical power and attenuate bias (Ghosh & Vogt, 2012).

Linear regression analyses were conducted using the *lm* function from the *base* package to examine the associations and interactions between determinants (attitude toward behavior, subjective and descriptive norms, and PBC) and intention to eat energy-dense food . We analyzed the main and interaction effects in accordance with our hypotheses. In our models, attitude, subjective and descriptive norms, and PBC were our predictors and intention was our outcome (see Figure 1). We ran different models for the two different intention items ('next week' versus

'next day'). In total, we tested five models per intention item: (1) A main effects model of attitude toward behavior, subjective norms, and PBC on intention (hypothesis 1); (2) An additional main effects model, including descriptive norms on top of the main effects included in model 1, to determine the additional value of descriptive norms over and above the other determinants (hypothesis 2). In accordance with our research question regarding the relative strength of subjective versus descriptive norms predicting intention, we compared the two standardized regression coefficients using the car package (Fox & Weisberg, 2019); (3) Three two-way interaction effects models: (a) subjective norms and (b) descriptive norms as a moderator on the relation between attitude toward behavior and intention and (c) attitude toward behavior as a moderator of the relation between PBC and intention (hypothesis 3). For the moderation analyses, interaction terms were calculated by multiplying the predictors and moderators, which were used as predictors in addition to the main effects. Prior to the analyses, the predictors were centered to avoid multicollinearity. We performed simple slope analyses for significant interaction effects (contrasting 1 SD below the mean and 1 SD above the mean) using the interactions package (Long, 2019). In the case of significant interactions, we additionally provided Johnson–Neyman figures depicting regions of significance. The Johnson–Neyman interval provides the slope of the predictor on the outcomes for all possible values of the moderator and can thus pinpoint the exact value of the moderator when the slope of the predictor goes from non-significant to significant. This gives a more fine-grained analyses of the regions of significance (and not only the contrast between −1 SD and +1 SD).

3. Results

With regard to the whole sample dataset (*n* = 411), no severe outliers were detected and the data were approximately normally distributed (see Table 1). The dataset contained no missing data on any of the variables, including next day and next week intentions. Table 1 shows the descriptive statistics (*M*, *SD*) of all study variables as well as their correlations. All predictors (attitude toward behavior, subjective norms, PBC, and descriptive norms) were significantly and positively correlated with the outcomes of 'intention next day' and 'intention next week', respectively. The highest correlation for 'intention next week' was found with descriptive norms (*r* = .35, *p* < .001), whereas the highest correlation for 'intention next day' was found with attitude (*r* = .57, *p* < .001).

3.1. Intention to consume energy-dense food next week

The result of the main effects model (model 1) showed that more positive attitudes toward energy-dense food intake and higher subjective norms explained higher levels of intention to consume energy-dense food next week (Table 2). PBC did not have an additional significant effect. In total, 10.8% of the variance in 'intentions next week' is explained by the predictors (Adjusted R^2). When we added descriptive norms to the main effects model (model 2), the influence of descriptive norms on intention was significant, whereas subjective norms did not predict next week intentions any longer. The effect of attitude remained significant, and the effect of PBC remained non-significant (Adjusted R^2 = 15.0%). The comparison of the two standardized regression

Table 1. Descriptive statistics and correlation coefficients of study variables

Variables	M	SD	Range	1	2	3	4	5	6
1. Attitude	10.73	4.01	3–21	1					
2. Injunctive norms	5.29	3.09	2–14	.26***	1				
3. PBC	4.65	1.97	1–7	.27***	.17***	1			
4. Descriptive norms	12.00	3.74	3–21	.46***	.33***	.31***	1		
5. Intention next week	3.27	1.76	1–7	.32***	.18***	.14**	.35***	1	
6. Intention next day	2.96	1.71	1–7	.57***	.29***	.20***	.39***	.40***	1

**p value < .01, *** p value < .001

cogent •• psychology

Table 2. Results of regression models for main effects and two-way interactions of TPB predicting intention

Model and Variables	B (SE)	t	p	b*	B (SE)	t	p	b*
	Intention 1: Next week, how often do you plan to eat high energy food?				Intention 2: Tomorrow, do you intend to eat high energy food?			
Model 1 (main effects model)								
Attitude	0.13 (0.02)	5.79	<.001	.29	0.22 (0.02)	11.86	<.001	.52
Injunctive norms	0.06 (0.03)	2.02	.04	.10	0.08 (0.02)	3.50	.001	.15
PBC	0.03 (0.04)	0.73	.46	.04	0.03 (0.04)	0.87	.38	.04
Model 2 (main effect model with descriptive norms)								
Attitude	0.09 (0.02)	3.73	<.001	.20	0.20 (0.02)	9.94	<.001	.46
Injunctive norms	0.03 (0.03)	1.04	.30	.05	0.07 (0.02)	2.83	.005	.12
PBC	−0.01 (0.04)	−0.18	.86	−.01	0.01 (0.04)	0.28	.78	.01
Descriptive norms	0.12 (0.03)	4.54	<.001	.25	0.06 (0.02)	2.90	.004	.14
Model 3 (interactions)								
Injunctive norms × Attitude	−0.004 (0.01)	−0.65	.51	−.03	0.01 (0.01)	2.61	.01	.11
Descriptive norms × Attitude	−0.01 (0.01)	−1.12	.26	−.05	0.01 (0.004)	1.82	.07	.07
Attitude × PBC	0.01 (0.01)	0.59	.56	.03	0.03 (0.01)	3.50	.001	.14

Note. Sex and age were included as covariates. PBC = Perceived Behavioral Control; Bold = statistically significant ($p < .05$, $p < .01$)

coefficients of subjective versus descriptive norms indicated that there was a significant difference between subjective and descriptive norms ($F = 5.93$, $df = 1$, $p = .02$). Descriptive norms were more strongly associated with next week intentions than subjective norms.

The two-way interaction model (model 3) showed that neither subjective norms nor descriptive norms moderated the relation between attitude toward behavior and intention next week. Moreover, results indicated that attitude toward behavior did not moderate the relation between PBC and next week intentions.

3.2. Intention to consume energy-dense food the next day

The result of the main effects model (model 1) showed that attitude toward behavior and subjective norms were associated with higher levels of 'intentions next day', whereas again PBC did not significantly explain intentions (see Table 2). In total, 34.1% of the variance in 'intentions next day' was explained (Adjusted R^2). When we added descriptive norms to the main effect model (model 2), descriptive norms additionally predicted higher levels of intention. Subjective norms and attitude remained significant predictors, whereas the effect of PBC remained non-significant (Adjusted $R^2 = 35.3\%$). In contrast to the other model (intention next week), results showed no significant difference between the standardized regression coefficients of subjective versus descriptive norms on next day intentions ($F = 0.04$, $df = 1$, $p = .81$).

The two-way interaction model (models 3) showed two significant interactions. First, subjective norms, but not descriptive norms, moderated the relation between attitude toward behavior and next day intentions. This significant interaction effect was probed by contrasting adolescents with higher subjective norms (+1 SD) versus adolescents with lower subjective norms (−1 SD) using simple slope analyses. As shown in Figure 2, for adolescents with higher subjective norms, the association between attitude to eat energy-dense food and next day intentions was stronger ($B = 0.23$, $SE = 0.02$, $p < .001$, $\beta = .55$) compared to adolescents with lower subjective norms ($B = 0.15$, $SE = 0.06$, $p < .001$, $\beta = .36$).

cogent ·· psychology

Figure 2. Simple slope analyses for the effect of attitudes on intention for adolescents with high injunctive norms (+1 SD), average injunctive norms (mean), and low injunctive norms (−1 SD) toward eating energy-dense foods.
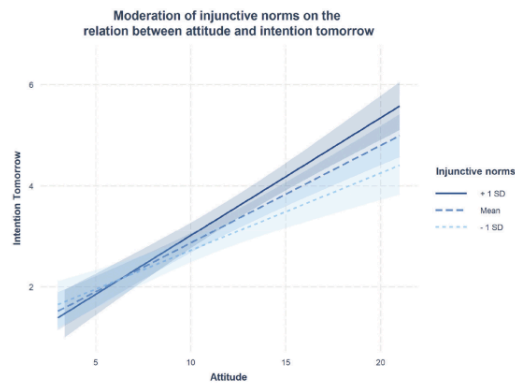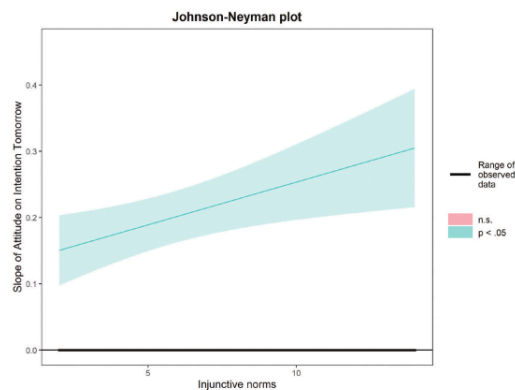

Figure 3. Johnson–Neyman plot showing the moderating effects of injunctive norms on the association between attitudes and intention. Note: Scale goes from minimum to maximum of injunctive norms (2–14).

Johnson–Neyman analyses confirmed that the significance and/or direction of effects did not change across all values of the attitude (i.e. the moderator; see Figure 3).

Second, results showed that attitude toward behavior moderated the relation between PBC and next day intentions. As shown in Figure 4, simple slope analyses indicated that for high attitude to eat energy-dense food, higher PBC was related to a higher intention to eat energy-dense food next day ($B = 0.16$, $SE = 0.06$, $p = .004$, $\beta = .19$). For a lower attitude to eat energy-dense food, higher PBC was negatively, but not significantly, related to a higher intention to eat energy-dense foods next day ($B = −0.07$, $SE = 0.04$, $p = .09$, $\beta = −.09$). However, the more fine-grained analyses (Johnson–Neyman) indicated that this negative relation became significant for very low levels of attitude (Figure 5). Specifically, Johnson–Neyman analyses indicated that the

cogent ·· psychology

Figure 4. Simple slope analyses for the effect of PBC on intention for adolescents with a high attitude (+1 SD), average attitude (mean), and low attitude (−1 SD) toward eating energy-dense foods.
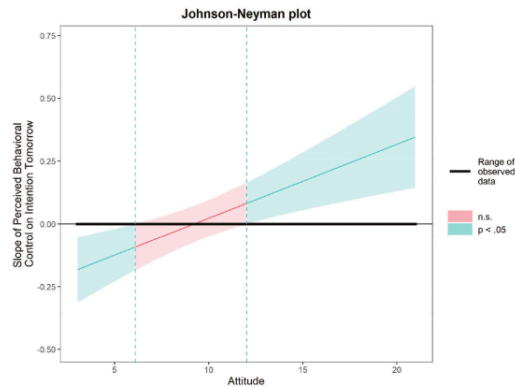

Moderation of attitude on the relation between perceived behavioral control and intention tomorrow
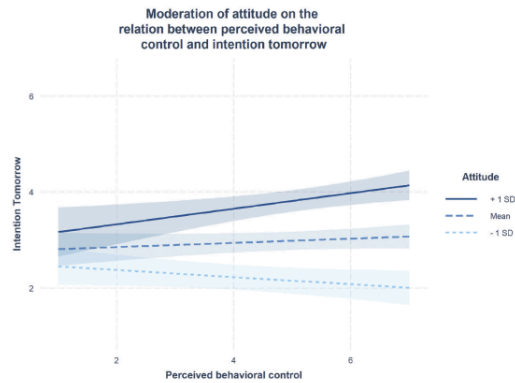
Figure 5. Johnson–Neyman plot showing the moderating effects of attitude on the association between PBC and intention.

Note: Scale goes from minimum to maximum of attitude (3–21).

Johnson-Neyman plot

regression coefficient (the influence of PBC on intention) became positive and significant for values of 12.03 and above of the attitudes variable, which included 32% of our sample, whereas it was non-significant for 51% of the sample (between 6.10 and 12.03). Moreover, the analyses showed that for low levels of attitude (<6.10), the relation between PBC and next day intentions became significantly negative (17% of the sample).

4. Discussion

The present study tested an extended model of the TPB to increase insight into the intention to consume energy-dense food among Indonesian adolescents with higher SEP backgrounds (i.e. from private schools). Besides the three classical TPB determinants of intention (i.e. attitudes, subjective norms, and PBC), we also examined the role of descriptive norms and three interactions (subjective norm × attitude, descriptive norm × attitude, and attitude × PBC). We performed

cogent ·· psychology

separate analyses for different time-frames captured by the two intention items (i.e. for intention next day versus next week). Most previous 'classical' TPB studies have asked about longer-term intentions (i.e. next week(s); Collins & Mullan, 2011; Gourlan et al., 2019). Our study extends those findings by also examining shorter-term intentions (i.e. next day). Overall, our results showed that both attitude and subjective norms were associated with the intention to consume energy-dense food. However, descriptive norms were more important for longer-term (next week) intentions than subjective norms (with the latter turning non-significant when descriptive norms were added to the model). For shorter-term (next day) intentions, descriptive and subjective norms were both significantly associated and did not significantly differ from each other. Moreover, significant interactions between TPB determinants were found only for the model predicting 'next day' intentions, but not for the classical 'next week' intentions. These findings will be further discussed below.

Although we found consistent links for both attitudes and subjective norms with intentions (i.e. next day or next week) to consume energy-dense food among our sample of Indonesian adolescents, we did not find any evidence for the direct link from PBC to intentions, neither next day nor next week. This is in contrast with our hypothesis and the findings of previous studies supporting the TPB (Collins & Mullan, 2011; McDermott et al., 2015; Zoellner et al., 2012). As such, our findings are more in line with the Theory of Reasoned Action (TRA), in which only links with attitudes and norms, but not control, are suggested (Ajzen & Fishbein, 2000). The TRA assumes that most behavior is under volitional control (i.e. that individuals can decide to perform a particular action without thinking about how easy or difficult the behavior is).

When descriptive norms were added to the model, subjective norms were no longer associated with the intention to consume energy-dense food in the next week. Descriptive norms explained 'next week' intentions better compared to subjective norms. This has been found more often in European and American studies (i.e. De la Haye et al., 2013), likely reflecting that 'what other people do' is more important than 'what people think you should do'. Notably, this was the exact opposite from what we had expected beforehand (i.e. stronger effects of subjective norms because of the more collectivistic Indonesian culture compared to more individualistic Western cultures). For the shorter-term intention to consume energy-dense food the next day, descriptive norms did *not* appear to be more important. So this finding was more in line with our expectations, although we did not find stronger effects for subjective norms as hypothesized. Moreover, attitudes seemed to be more strongly associated with the intention to consume energy-dense food the next day compared to the next week (i.e. the standardized regression estimate was more than twice as large [.20 versus .46], although we did not explicitly test these model differences).

How can these seemingly differential findings for the shorter- versus longer-term intention models be explained? Though speculating, it might be that both the Indonesian collectivistic cultural influences (i.e. subjective norms) and individual preferences (i.e. attitudes) become more prominent if we ask about proximal next day intentions, because it asks about more concrete planning of food intake that, in turn, might trigger more concrete and distal individual values, beliefs, and preferences. In contrast, environmental behaviors of peers (i.e. descriptive norms) might have been triggered more by asking about next week intentions to consume energy-dense food, given that weekly energy-dense food consumption may have somewhat less negative connotations in Indonesian cultures, similar to overweight status (Noh et al., 2017; Syahrul et al., 2016). It may also be less concretely planned by individual beliefs and preferences, as it occurs on a more regular basis during the week. As such, the regular peer environment (and what other peers do) might be more important in explaining these more general intentions for the next week. Notably, we also found that the total explained variance of our intention 'next day intention model' was much higher compared to our 'next week intention model'. This may further underscore the importance of the shorter-term intention questions for Indonesian adolescents. These findings were in line with other studies suggesting that the TPB model is better able to predict intentions when using short-term follow-ups, although previous studies compared weekly with monthly periods mostly (Kothe & Mullan, 2015; McEachan et al., 2011).

cogent •• psychology

Moreover, we also found only significant interactions between TPB constructs for our 'next day intention model'. In line with our hypotheses, we found evidence for two out of the three formulated interactions. Specifically, we found that attitudes were more strongly linked to the next day intention to consume energy-dense food in case of higher, compared to lower, subjective norms. We did not find this effect for descriptive peer norms. These results are in line with the traditional form of contingent-consistency hypothesis (Acock & DeFleur in Hukkelberg et al., 2014), suggesting that attitudes are more predictive of the intention to act if the social environment supports the behavior. One possible implication of this interaction finding might be that peer interventions aiming at direct and concrete shorter-term intentions to consume energy-dense foods among Indonesian adolescents who show positive attitude toward such foods can better focus on peer norms in terms of what you *should* or *should not* do rather than on behaviors of other peers.

The other significant interaction showed that the control or the ability to choose energy-dense food was positively associated with the intention to consume energy-dense food when adolescents experienced higher attitudes (i.e. more positive evaluation toward these kinds of foods), whereas for adolescents with very low attitudes, the association between PBC and intention was even negative. These findings support the argument that attitude should form a condition for PBC 'effects' (Eagly & Chaiken, 1993). It suggests that the perception of control over energy-dense food intake becomes important when adolescents like these foods (or not). If they do *not* like these foods and are in control, this might lead to lower intentions to consume such foods. However, if they like these foods but simultaneously experience lower control, they might experience lower intentions to consume such foods. Though speculating, this might suggest that PBC (e.g. showing adolescents that they have in fact less control than they think they have) may be a valuable intervention target for these Indonesian adolescents who have positive attitude toward energy-dense food consumption. However, we should mention the cross-sectional design of our study, which does not allow for any cause-effect statements. Future longitudinal and interventional research should further examine these links and interactions.

Some limitations of this study should be mentioned. First, we used self-report questionnaires, which might have increased the common method variance and artificially inflating associations (Podsakoff & Organ, 1986). Second, the present study only dealt with the prediction of intentions; it did not consider actual behavior. However, previous studies have shown that energy-dense food intentions are closely linked to actual unhealthy energy-dense behavior (Collins & Mullan, 2011; Weijzen et al., 2008). As such, the characteristic 'intention-behavior gap' often reported for more healthy behaviors probably does not play a role here. Third, the items to measure the TPB constructs were translated into the Indonesian language and slightly adapted. While we have used a common forward–backward translation procedure (English–Indonesian), more research is required to test the reliability and validity of these items. Specifically, we asked about both weekly and daily intentions, while previous studies mostly focused on weekly or monthly intentions. Although our daily intention measure impedes comparison with previous literature, it also provides eminent insights regarding the strength of associations when using daily measures that should be further examined. Moreover, we used time frames only for the intention items, not for the other TPB constructs given the Indonesian 'language constraints', as mentioned. Although this has been done in a similar way in other (Indonesian) studies (Ashidiqi & Arundina, 2017; Jan Mei et al., 2021) and a European study (Kruglanski et al., 2015), according to the original TPB standards, these time frames should be included in all TPB items (Ajzen, 2006). Fourth, we used only one item to measure PBC. As such, we cannot determine the internal consistency of our PBC measure and, thus, also know less about how consistently adolescents may have interpreted this construct. Finally, as mentioned, given the cross-sectional design of the current study, we cannot draw any conclusions regarding the direction of effects. For instance, energy-dense food intentions may also influence the amount of control adolescents perceive. Future prospective longitudinal research is needed to further examine the temporal order of the associations found.

5. Implications for research and practice

The findings of the present study have some eminent theoretical and practical implications. Our findings fill a gap in the literature with regard to insights into the intentions to consume energy-dense food among a relatively large sample of obesity-vulnerable early adolescents from private schools in Indonesia. These insights may provide important implications for preventive intervention studies aimed at the restriction of energy-dense food consumption among Indonesian adolescents. Specifically, our findings suggest that preventive interventions may have more effects when focusing on subjective (i.e. what others think you should do) compared to descriptive norms (i.e. what others do). In addition, adolescents with positive attitudes toward energy-dense food might profit more from the awareness that they have less control over the choice for energy-dense food than they actually think they have. Future intervention research is needed to further examine these suggestions. Moreover, our present findings provide new and potentially eminent information about the importance of differential periods to assess intentions to consume energy-dense food (i.e. next week or next day). In terms of the amount of explained variance, our shorter-term intention next day findings are more in line with previous TPB studies assessing weekly intentions. Specifically, the overall explained variance of our shorter-term (next day) intention model was 35% (compared to only 15% for next week intention), whereas previous studies have mostly shown that TPB constructs explain about 40–49% of the variance in longer-term weekly intentions (McEachan et al., 2011). It would be interesting to see whether shorter-term intentions to consume energy-dense food the next day are also explaining intentions better among obesity-vulnerable groups (e.g. lower SEP) in European and American cultures. To conclude, our findings indicate that it may be important to focus on shorter-term proximal food intentions among Indonesian adolescents, providing potentially important implications for health researchers and practitioners developing nutrition and health interventions to address energy-dense food intake among obesity-vulnerable Indonesian adolescents.

Author details

Eveline Sarintohe[1,2]
E-mail: eveline.sarintohe@ru.nl
Junilla K Larsen[1]
Jacqueline M Vink[1]
Dominique F Maciejewski[1]
[1] Behavioural Science Institute, Radboud University, Nijmegen, The Netherlands.
[2] Psychology Faculty, Maranatha Christian University, Bandung, Indonesia.

Author's contributions

JV, DM, and JL were responsible for the study design. JV and JL supervised the data collection. ES was responsible for the data collection, statistical analyses, and interpretation of the data in agreement with JV, JL, and DM. ES wrote the first version of the manuscript and edited by JV, JL, and DM. All authors participated in the revisions of the manuscript. All authors read and approved the final manuscript.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Availability of data and materials

The datasets generated and analyzed during the current study are not publicly available due to agreements we have made concerning the exchange and use of our data but are available from the corresponding author [ES] on reasonable request.

Ethics approval and consent to participate

All procedures performed were in accordance with the ethical standards of Ethics Committee Social Science of Radboud University, Nijmegen, The Netherlands. Of the five schools that agreed to participate, three schools obtained consent forms from parents and students. The remaining two schools based on the school policy, informed the parents about this project (passive consent) and collected the signed consent forms from students only. The original (reference ECSS_2019_150) and amended (passive consent) procedures were approved by the Ethics Committee Social Science of Radboud University, Nijmegen, The Netherlands (ECSS-2019-115).

References

Ajzen, I. (2006). *Constructing a TPB questionnaire: Conceptual and methodological considerations.* http://www.people.umass.edu/aizen/pdf/tpb.measurement.pdf

Ajzen, I. (2011). The theory of planned behavior: Reactions and reflections. *Psychology & Health, 26*(9), 1113–1127. https://doi.org/10.1080/08870446.2011.613995

Ajzen, I. (2019). The theory of planned behavior organizational behavior and human decision processes.

Organizational Behavior and Human Decision Processes, 50(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I., & Fishbein, M. (2000). Attitudes and the attitude-behavior relation: reasoned and automatic processes. *European Review of Social Psychology*, 11(1), 1–33. https://doi.org/10.1080/14792779943000116

Ashidiqi, C., & Arundina, T. (2017). Indonesia students' intention to invest in Sukuk: Theory of planned behaviour approach. *International Journal of Economic Research*, 14(15), 1–14. https://www.researchgate.net/publication/321704998_Indonesia_Students's_intention_to_invest_in_Sukuk_Theory_of_planned_behaviour_approach/link/5da47b7c299bf116fea572c3/download

Chen, Y. Y., & Hong, Y. Y. (2015). Different ways to resolve discrepancy between descriptive and injunctive norms across cultures. *Journal of Cross-Cultural Psychology*, 46(10), 1316–1319. https://doi.org/10.1177/0022022115600265

Chiu, C. Y., Michele, J., Gelfand, J. R. H., Leung, A. K. Y., Liu, Z., Morris, M. W., Mu, Y., Shteynberg, G., Tam, K.-P., Wan, C., & Zou, X. (2015). A conclusion, yet an opening to enriching the normative approach of culture. *Journal of Cross-Cultural Psychology*, 46(10), 1361–1371. https://doi.org/10.1177/0022022115614201

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. Routledge Academic.

Collins, A., & Mullan, B. (2011). An extension of the theory of planned behavior to predict immediate hedonic behaviors and distal benefit behaviors. *Food Quality and Preference*, 22(7), 638–646. https://doi.org/10.1016/j.foodqual.2011.03.011

Conner, M., & McMillan, B. (1999). Interaction effects in the theory of planned behavior: Studying cannabis use. *British Journal of Social Psychology*, 38(2), 195–222. https://doi.org/10.1348/014466699164121

De la Haye, K., Robins, G., Mohr, P., & Wilson, C. (2013). Adolescents' intake of junk food: Processes and mechanisms driving consumption similarities among friends. *Journal of Research on Adolescence*, 23(3), 524–536. https://doi.org/10.1111/jora.12045

Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Forth Worth, TX: Harcourt Brace Jovanovich College Publishers.

Fila, S. A., & Smith, C. (2006). Applying the theory of planned behavior to healthy eating behaviors in urban Native American youth. *International Journal of Behavioral Nutrition and Physical Activity*, 3(11), 1–10. https://doi.org/10.1186/1479-5868-3-11

Fox, J., & Weisberg, S. (2019). *An R Companion to Applied Regression* (Third edition). Sage. https://socialsciences.mcmaster.ca/jfox/Books/Companion/

Ghosh, D., & Vogt, A. (2012). Outliers: An evaluation of methodologies. In *Joint Statistical Meetings* (pp. 3455–3460). http://www.asasrms.org/Proceedings/y2012/Files/304068_72402.pdf

Gourlan, M., Bord, A., & Cousson-Gélie, F. (2019). From intentions formation to their translation into behavior: An extended model of theory of planned behavior in the exercise domain. *Sport, Exercise, and Performance Psychology*, 8(3), 317–333. https://doi.org/10.1037/spy0000158

Hagger, M. S., & Chatzisarantis, N. L. D. (2009). Integrating the theory of planned behavior and self-determination theory in health behavior: A meta-analysis. *British Journal of Health Psychology*, 14(2), 275–302. https://doi.org/10.1348/135910708X373959

Higgs, S. (2015). Social norms and their influence on eating behaviors. *Appetite*, 86, 38–44. https://doi.org/10.1016/j.appet.2014.10.021

Hukkelberg, S. S., Hagtvet, K. A., & Kovac, V. B. (2014). Latent interaction effects in the theory of planned behavior applied to quitting smoking. *British Journal of Health Psychology*, 19(1), 83–100. https://doi.org/10.1111/bjhp.12034

Jan Mei, S., Vanany, I., Wahab, I.R.A., Hamdan, R.A., & Jamaludin, M.H. (2021). Food safety and evaluation of intention to practice safe eating out measures during COVID-19: Cross sectional study in Indonesia and Malaysia. *Food Control*, 125(107920), 1–8. https://doi.org/10.1016/j.foodcont.2021.107920

Kassem, N. O., & Lee, J. W. (2004). Understanding soft drink consumption among male adolescents using the theory of planned behavior. *Journal of Behavioral Medicine*, 27(3), 273–296. https://doi.org/10.1023/B:JOBM.0000028499.29501.8f

Kline, R. B. (2011). *Principles and practice of structural equation modeling (3.ed.)*. The Guilford Press.

Kothe, E. J., & Mullan, B. A. (2015). Interaction effects in the theory of planned behavior: Predicting fruit and vegetable consumption in three prospective cohorts. *British Journal of Health Psychology*, 20(3), 549–562. https://doi.org/10.1111/bjhp.12115

Kruglanski, A. W., Jasko, K., Chernikova, M., Milyavsky, M., Babush, M., Baldner, C., & Pierro, A. (2015). The rocky road from attitudes to behaviors: Charting the goal systemic course of actions. *Psychological Review* (pp. 1–23). ePub. https://doi.org/10.1037/a0039541

Lam, C. B., McHale, S. M., & Crouter, A. C. (2014). Time with peers from middle childhood to late adolescence: Developmental course and adjustment correlates. *Child Development*, 85(4), 1677–1693. https://doi.org/10.1111/cdev.12235

Long, J. A. (2019). *Interactions: Comprehensive, User-Friendly Toolkit for Probing Interactions*. R package version 1.1.0. https://cran.r-project.org/web/packages/interactions/interactions.pdf

McDermott, M. S., Oliver, M., Svenson, A., Simnadis, T., Beck, E. J., Coltman, T., Iverson, D., Caputi, P., & Sharma, R. (2015). The theory of planned behavior and discrete food choices: A systematic review and meta-analysis. *International Journal of Behavioral Nutrition and Physical Activity*, 12(1), 1–11. https://doi.org/10.1186/s12966-015-0324-z

McEachan, R. R. C., Conner, M., Taylor, N. J., & Lawton, R. J. (2011). Prospective prediction of health-related behaviors with the theory of planned behavior: A meta-analysis. *Health Psychology Review*, 5(2), 97–144. https://doi.org/10.1080/17437199.2010.521684

McMillan, B., & Conner, M. (2003). Applying an extended version of the theory of planned behavior to illicit drug use among students. *Journal of Applied Social Psychology*, 33(8), 1662–1683. https://doi.org/10.1111/j.1559-1816.2003.tb01968.x

Mirkarimi, K., Mansourian, M., Kabir, M. J., Ozouni-Davaji, R. B., Eri, M., Hosseini, S. G., Qorbani, M., Safari, O., Mehr, B. R., Noroozi, M., Charkazi, A., & Shahnazi, H. (2016). Fast food consumption behaviors in high-school students based on the Theory of Planned Behavior (TPB). *International Journal of Pediatrics*, 4(7), 2131–2142. https://doi.org/10.22038/ijp.2016.7011

National Instituted of Health Research and Development. *Riset Kesehatan Dasar (National Baseline Health Research), Jakarta, Indonesia*, 2017. Badan Litbang Kesehatan: https://pusdatin.kemkes.go.id (accessed on 5 March 2021)

cogent ••psychology

Noh, J.-W., Kim, J., Yang, Y., Park, J., Cheon, J., & Kwon, Y. D. (2017, August). Body mass index and self-rated health in East Asian countries: Comparison among South Korea, China, Japan, and Taiwan. In Clemens, F. (Ed.), *PLOS ONE* (pp. 1–10). Medical University of Vienna, AUSTRIA. 10.1371

Patcheep, K. (2015). Factors influencing urban adolescents' eating behavior, Ratchaburi Province, Thailand: An application of the theory of planned behavior. *Journal of Health Research, 29*(6), 441–447. https://doi.org/10.14456/jhr.2015.37

Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management, 12*(4), 531–544. https://doi.org/10.1177/014920638601200408

Popkin, B. M., Adair, L. S., & Ng, S. W. (2012). Now and then: The global nutrition transition: The pandemic of obesity in developing countries. *Nutrition Reviews, 70*(1), 13–21. https://doi.org/10.1111/j.1753-4887.2011.00456.x

Puhl, R. M., Lessard, L. M., Larson, N., Eisenberg, M. E., & Neumark-Stzainer, D. (2020). Weight stigma as a predictor of distress and maladaptive eating behaviors during Covid-19: Longitudinal findings from the eat study. *Annals of Behavioral Medicine, 54*(10), 738–746. https://doi.org/10.1093/abm/kaaa077

Rachmi, C., Li, M., & Baur, L. (2017). Overweight and obesity in Indonesia: Prevalence and risk factors – A literature review. *Public Health, 147*, 20–29. https://doi.org/10.1016/j.puhe.2017.02.002

R Core Team. (2020). R: A language and environment for statistical computing. R foundation for statistical computing, Vienna, *Austria. R Foundation for Statistical Computing, Vienna, Austria.* http://www.r-project.org/index.html

Rivis, A., & Sheeran, P. (2003). Descriptive norms as an additional predictor in the theory of planned behavior: A meta-analysis. *Current Psychology, 22*(3), 218–233. https://doi.org/10.1007/s12144-003-1018-2

Roemling, C., & Qaim, M. (2012). Obesity trends and determinants in Indonesia. *Appetite, 58*(3), 1005–1013. https://doi.org/10.1016/j.appet.2012.02.053

Syahrul, S., Kimura, R., Tsuda, A., Susanto, T., Saito, R., & Ahmad, F. (2016). Prevalence of underweight and overweight among school-aged children and it's association with children's sociodemographic and lifestyle in Indonesia. *International Journal of Nursing Sciences, 3*(2), 169–177. https://doi.org/10.1016/j.ijnss.2016.04.004

Wang, M., Rieger, M. O., & Hens, T. (2016). How time preferences differ: Evidence from 53 countries. *Journal of Economic Psychology, 52*, 115–135. https://doi.org/10.1016/j.joep.2015.12.001

Weijzen, P. L. G., de Graaf, C., & Dijksterhuis, G. B. (2008). Discrepancy between snack choice intentions and behavior. *Journal of Nutrition Education and Behavior, 40*(5), 311–316. https://doi.org/10.1016/j.jneb.2007.08.003

Zoellner, J., Estabrooks, P. A., Davy, B. M., Chen, Y. C. Y., & You, W. (2012). Exploring the theory of planned behavior to explain sugar-sweetened beverage consumption. *Journal of Nutrition Education and Behavior, 44*(2), 172–177. https://doi.org/10.1016/j.jneb.2011.06.010

Expanding the Theory of Planned Behavior to Explain Energy Dense Food Intentions among Early Adolescents in Indonesia

<1 %

22 Ajzen, Icek, and Sana Sheikh. "Action versus inaction: anticipated affect in the theory of planned behavior : Anticipated affect", Journal of Applied Social Psychology, 2013.
Publication
<1 %

23 Submitted to Universiti Putra Malaysia
Student Paper
<1 %

24 Geoffrey Haddock, Gregory R. Maio. "Contemporary Perspectives on the Psychology of Attitudes", Psychology Press, 2019
Publication
<1 %

25 bmcgeriatr.biomedcentral.com
Internet Source
<1 %

26 www.frontiersin.org
Internet Source
<1 %

27 Submitted to 2U Georgetown University- GU-MSN
Student Paper
<1 %

28 Submitted to Munster Technological University (MTU)
Student Paper
<1 %

29 Submitted to University of Salford
Student Paper
<1 %

30 eprints.qut.edu.au
Internet Source
<1 %

31 Makin, Harriet Elizabeth. "Identifying the Theoretical Mechanisms of Motivational Interviewing within Weight-Related Behaviour Change in Obesity: A Multi-Methods Investigation", The University of Liverpool (United Kingdom), 2024
Publication
<1 %

| 32 | eduprojecttopics.com
Internet Source | <1% |

| 33 | volum-i.uab.cat
Internet Source | <1% |

| 34 | www.jstage.jst.go.jp
Internet Source | <1% |

| 35 | www.medrxiv.org
Internet Source | <1% |

| 36 | www.researchgate.net
Internet Source | <1% |

| 37 | Joanne R. Smith, Deborah J. Terry, Antony S.R Manstead, Winnifred R. Louis, Diana Kotterman, Jacqueline Wolfs. "The Attitude–Behavior Relationship in Consumer Conduct: The Role of Norms, Past Behavior, and Self-Identity", The Journal of Social Psychology, 2008
Publication | <1% |

| 38 | Michael Sagas, George B. Cunningham, Donna Pastore. "Predicting Head Coaching Intentions of Male and Female Assistant Coaches: An Application of the Theory of Planned Behavior", Sex Roles, 2006
Publication | <1% |

| 39 | Zhuhui Ge, Jianhua Mao, Zhangqiao Dai, Xiaodan Pan et al. "Successful Experience with High-Risk and Family Screening for Fabry Disease in Ninghai County, Zhejiang Province, Eastern China: Genotype−Phenotype Analysis of the GLA IVS4+919G>A Variant", Springer Science and Business Media LLC, 2025
Publication | <1% |

| 40 | orca.cardiff.ac.uk
Internet Source | <1% |

| 41 | www.researchsquare.com
Internet Source | <1% |

42 Aaron Smith-McLallen, Martin Fishbein. "Predictors of intentions to perform six cancer-related behaviours: Roles for injunctive and descriptive norms", Psychology, Health & Medicine, 2008
Publication
<1 %

43 Abir Abdel Rahman, Nada O F Kassem, Marc Lewis Emrys Edwards, Bahia Abdallah, Rana Abdel Malak. "Adding sugar to children's beverages: a theory of planned behavior study of Lebanese mothers", Health Promotion International, 2024
Publication
<1 %

44 Michael A. Hogg, Joanne R. Smith. "Attitudes in social context: A social identity perspective", European Review of Social Psychology, 2010
Publication
<1 %

45 Yaacov Petscher, Christopher Schatschneider, Donald L. Compton. "Applied Quantitative Analysis in Education and the Social Sciences", Routledge, 2013
Publication
<1 %

46 ebin.pub
Internet Source
<1 %

47 flex.flinders.edu.au
Internet Source
<1 %

48 pearl.plymouth.ac.uk
Internet Source
<1 %

49 5dok.net
Internet Source
<1 %

50 Bibi M. Alajmi. "The Intention to Share: Psychological Investigation of Knowledge Sharing Behaviour in Online Communities", Journal of Information & Knowledge Management, 2012
Publication
<1 %

51 Submitted to Florida A&M University
Student Paper
<1 %

52 Givon-Benjio, Nur. "Preference for Greater Distance in Social Anxiety: Preference or Estimation Bias? An Integrative Examination.", University of Haifa (Israel), 2024
Publication
<1 %

53 Hee Sun Park, Katherine A. Klein, Sandi Smith, Dennis Martell. "Separating Subjective Norms, University Descriptive and Injunctive Norms, and U.S. Descriptive and Injunctive Norms for Drinking Behavior Intentions", Health Communication, 2009
Publication
<1 %

54 Katherine W Bauer, Dianne Neumark-Sztainer, Jayne A Fulkerson, Peter J Hannan, Mary Story. "Familial correlates of adolescent girls' physical activity, television use, dietary intake, weight, and body composition", 'Springer Science and Business Media LLC', 2011
Internet Source
<1 %

55 Michael Fritsch, David Storey. "Entrepreneurship in a Regional Context", Routledge, 2017
Publication
<1 %

56 Nick Draper, Gareth Stratton. "Physical Activity - A Multi-disciplinary Introduction", Routledge, 2018
Publication
<1 %

57 Simon C. Kimenju, Matin Qaim. "The nutrition transition and indicators of child malnutrition", Food Security, 2016
Publication
<1 %

58 archium.ateneo.edu
Internet Source
<1 %

59 digibug.ugr.es
Internet Source
<1%

60 ediss.uni-goettingen.de
Internet Source
<1%

61 ejop.psychopen.eu
Internet Source
<1%

62 eprints.nottingham.ac.uk
Internet Source
<1%

63 findresearcher.sdu.dk
Internet Source
<1%

64 hdl.handle.net
Internet Source
<1%

65 ijefm.co.in
Internet Source
<1%

66 lirias.kuleuven.be
Internet Source
<1%

67 pdfs.semanticscholar.org
Internet Source
<1%

68 researchspace.auckland.ac.nz
Internet Source
<1%

69 ucf.digital.flvc.org
Internet Source
<1%

70 www.efos.unios.hr
Internet Source
<1%

71 www.tandfonline.com
Internet Source
<1%

72 Benjamin, Michelle Colleen. "Principals' Self-Perception of Resilience: A Mixed Method Study on Wellness.", Niagara University
Publication
<1%

73 Davis, Angelia K.. "Impact of Comorbid Mental and Physical Health Conditions on Help-
<1%

Seeking Behavior in College Students",
University of South Alabama, 2024
Publication

| 74 | Elza S. Elmira, Bezawit Beyene Chichaibelu, Matin Qaim. "Marriage customs and nutritional status of men and women", Food Policy, 2024
Publication | <1 % |

| 75 | Deborah Fish Ragin, Julian Paul Keenan. "Handbook of Research Methods in Health Psychology", Routledge, 2020
Publication | <1 % |

| 76 | Liudmila Tarabashkina, Pascale G. Quester, Roberta Crouch. "Children and energy-dense foods – parents, peers, acceptability or advertising?", European Journal of Marketing, 2017
Publication | <1 % |

| 77 | dr.lib.iastate.edu
Internet Source | <1 % |

| Exclude quotes | Off | Exclude matches | Off |
| Exclude bibliography | On | | |

Expanding the Theory of Planned Behavior to Explain Energy Dense Food Intentions among Early Adolescents in Indonesia

FINAL GRADE

/0

GENERAL COMMENTS