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Predicting Healthy Eating: Conscientiousness versus the Health Belief Model

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The present paper aimed to investigate the incremental validity of conscientiousness over the Health Belief Model (i.e., HBM) components in predicting students' eating habits. Using a non-experimental, longitudinal design, data from 200 Romanian students (181 females; M_{age} = 20.75, SD_{age} = 3.89) were initially collected (T1). After one month (T2), the second wave of data was received from 150 students. Hierarchical regression results with eating habits from T2 as a criterion showed that self-efficacy for healthy eating was the only significant predictor for students' eating habits (β = .45, $t(145)$ = 5.41, p < .01). Self-efficacy alone explained 27% of the variance in eating habits. Contrary to expectations, the perceived benefits of healthy eating did not correlate with the participants' eating habits. Conscientiousness did not bring additional predictive value, besides the HBM components (β = .03 , $t(145)$ = .38, p = .70). These results reinforce the value of the HBM as a frame of reference for explaining eating habits in young people. From a practical standpoint, the findings suggest the need to strengthen self-efficacy in youth, which, in turn, can help them develop healthier eating habits. Limitations and other implications were further discussed.

Keywords: health belief model, self-efficacy, eating habits, conscientiousness.

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Introduction

Unhealthy eating behaviour is a serious problem and a leading cause of obesity, a major risk factor for certain cancers, cardiovascular disease, and diabetes (World Health Organization, 2018). Unhealthy and improper nutrition can lead to immunity problems and increased susceptibility to disease, as well as to some deficits in physical and cognitive development (World Health Organization, 2017). For this reason, food selection is a necessary behaviour, with long-term consequences, both for the health and longevity of the individual and for society, in terms of public health costs.

In Romania, there is an annual tendency of increased prevalence of obesity in adults. According to the National Center for Health Assessment and Promotion (CNEPSS, 2019), the prevalence of obesity in 2016 was around 22.5%. The same source announced that "over two-thirds of Romanians over the age of 15 do not consume five servings of fruits and vegetables daily, being in the last place in the EU [European Union]." (CNEPSS, 2019, p. 12). People should develop healthy eating habits and preferences early on, but children and adolescents depend on parents and other caregivers for food choices. They gain more independence in late adolescence and especially with the transition to university-level education. The beginning of university education is often when young adults start making their own food choices, which can negatively impact their eating style (Marquis, 2005 as cited in Deshpande et al., 2009). Hence, the necessity to pay close attention to what makes them choose the right food.

Different theoretical frameworks explain healthy eating and the factors related to it. The Health Belief Model (HBM; Becker, 1974) is the first theory developed to explain health-related behaviours and one of the most exhaustive models used in health behaviour research (Skinner et al., 2015). Shortly, according to HBM, the likelihood of healthy behaviour is more significant when the individual perceives the threat of a disease (i.e., considers himself susceptible to the disease and considers it severe), perceives a high level of benefits of the preventive actions for that disease and a low level of barriers in carrying out the required preventive actions. The benefits and barriers are the positive and negative expectations regarding behaviour, thus influencing implementing the behaviour. For example, if reducing sugar intake is perceived as having many benefits, such as preventing diabetes or maintaining an optimal weight, the person is more likely to reduce sugar intake. On the other hand, if the person perceives many barriers, such as the high price of healthier sweeteners or the long time it takes to prepare sweets at home, they are less likely to reduce sugar intake. According to Connar and Norman (1998 as cited in Walker, 1999), health beliefs are influenced by demographics, a variable also incorporated in the HBM.

Carpenter (2010) conducted a meta-analysis to investigate the predictive value of the four primary variables of the health belief model (i.e., susceptibility, severity, barriers, and benefits). The perceived barriers and benefits were the strongest predictors. The influence of the perceived severity of a disease on the probability of adopting preventive behaviour was low (r = .15). For susceptibility, the effect was almost zero (r = .05), this being the weakest predictor in the meta-analysis. Perceived benefits had a significant positive effect (r = .27), while barriers were the strongest predictor (r =.30). Both benefits and barriers had a stronger predictive value when the outcome was a preventive behaviour, rather than a treatment behaviour (Carpenter, 2010). For example, benefits and barriers are stronger predictors for physical exercises when the aim is to prevent overweight than when the aim is losing weight in already overweight individuals.

Deshpande et al. (2009) adapted the HBM to include diet-specific factors. The perception of diet quality, the importance of a healthy diet, self-efficacy, and environmental variables were included, and the model was extended to the student population. In this model, perceived barriers were a significant negative predictor for the likelihood of healthy eating (β = -.14), while perceived benefits did not predict the likelihood of healthy eating. Barriers also predicted self-efficacy (β = -0.74), and self-efficacy predicted the likelihood of healthy eating (β = .25). Self-efficacy brought a significant additional predictive value in the HBM and was incorporated as an HBM component.

Recent inquiries on student samples found no significant relationship between perceived severity and susceptibility of unhealthy eating consequences and the likelihood of healthy eating (Kim et al., 2012; Najarkolei et al., 2015). One study found this relationship significant only for the severity of unhealthy eating consequences (Mascioli & Davis, 2019). These results could be explained by the time gap between unhealthy behaviour and its possible adverse health outcomes. The negative consequences of unhealthy eating, such as diabetes or certain types of cancer, usually occur later in life and may be less relevant to students.

Results are mixed regarding the link between perceived benefits, barriers, and healthy eating in students. Both benefits (r = .15) and barriers (r = -.20) showed a significant effect on healthy eating behaviour in some studies (Kim et al., 2012). Other authors found a significant effect only for barriers (β = -.18) but not for benefits (Najarkolaei et al., 2015). Mascioli and Davis (2019) wanted to determine whether perceived benefits, susceptibility, and severity predict a health-protective eating style. Their sample consisted of students at a Canadian University. The overall model was significant, with a small effect size (R^2 = .23), but perceived susceptibility was not a significant predictor. In this study, perceived benefits predicted healthy eating behaviour. These results are consistent with research on high school students, in which healthy eating was predicted by perceived benefits and self-efficacy, but not by barriers (Salahshoori et al., 2014). The perceived value of healthy eating was also associated with fruit consumption in a sample of teenagers (Pearson et al., 2011). Perceived benefits were the strongest predictor (r = .35) for organic food consumption in a sample of young adults. Barriers (r = -.26) and self-efficacy (r = .11) also predicted organic food consumption, the overall model in this research explaining 42% of the likelihood of eating organic food (Yazdanpanah et al., 2015).

Orji et al. (2012) found self-efficacy to be the best predictor for healthy eating (β = .53). In their study, the baseline health belief model with four variables explained 20% of the variance in healthy eating. Barriers were the strongest predictor (β = -.42). After adding self-efficacy and cues to action, the predictive power of the model doubled.

In a minority of studies, self-efficacy did not predict the likelihood of healthy eating in students (e.g., Najarkolaei et al., 2015). However, research on adult samples shows that adding self-efficacy as an HBM component increases the model's predictive power. Perceived barriers were the only predictor in the baseline model that explained some of the variances in healthy eating habits (β = -.24), and the addition of self-efficacy increased the model's predictive value by 13% (Lo et al., 2015). These results are consistent with a recent study on pupils aged 10 to 11 years old, where self-efficacy, barriers, and benefits explained 22% of the eating behaviour, while the model without self-efficacy explained only 11% of the variance (Kasmaei et al., 2019).

Although most studies investigating the relationship between HBM and eating behavior are cross-sectional, there are also some longitudinal studies on this topic. These usually aimed to improve eating behaviour, following an educational intervention based on the HBM. A systematic review has shown that interventions based on the HBM can increase adherence to healthy behaviours, such as taking medication or following a diet (Jones et al., 2014). The model effectively adopts nutritional behaviours to increase bone density for osteoporosis prevention (Hidarnia et al., 2016). In other research, the results in the experimental group improved following a nutrition education intervention in medical students (Tavakoli et al., 2016). The results are consistent with similar inquiries on high-school overweight students (Jarvandi et al., 2018). The HBM also predicted 17% of the variance in students' body mass index in a cross-sectional study. This finding is relevant for the possible applicability of the model in optimal weight management interventions for students (McArthur et al., 2018).

Turning the lenses from HBM to personality traits that facilitate healthy eating behaviours, most studies highlighted the beneficial role of conscientiousness in this direction (Bogg & Roberts, 2004; Goldberg & Strycker, 2002; Keller & Siegrist, 2015). Healthy eating can take more time and planning (e.g., shopping and cooking) and more self-discipline than consuming unhealthy food and fast food (Gick, 2014). For this reason, conscientiousness proved to be one of the most critical personality factors in explaining students' eating habits. A previous study found a significant negative correlation between conscientiousness and the frequency of sweets consumption in students (Wen et al., 2015). In a study based on the theory of planned behaviour, conscientiousness was a significant predictor of the likelihood of eating fruits and vegetables in a student sample (Monds et al., 2015).

Regarding socio-demographic factors involved in healthy eating, results are still unclear when it comes to age. So far, we know that conscientiousness is lower in late adolescents and it starts growing in adulthood (Soto et al., 2011), which would make students particularly vulnerable to unhealthy eating. In previous studies, people in the 18-25 age group experienced significantly more barriers to healthy eating than people over 25 years old (Ross & Melzer, 2015), while other papers did not find age differences (Najarkolaei et al., 2015).

In sum, we know so far that the HBM was particularly useful in examining eating habits and that conscientiousness is one of the most significant personality factors linked with healthy eating. To the best of our knowledge, the incremental validity of conscientiousness over the HBM in predicting healthy eating habits has not yet been investigated. As such, in the present study, we will assess the variables from the health belief model that had significant associations with eating behaviour in previous studies, and that explained most of its variance, namely perceived barriers, perceived benefits, and self-efficacy for healthy eating. Severity and susceptibility for unhealthy eating outcomes will not be introduced because the associations between these variables and healthy eating were very small or insignificant. Additionally, we want to determine whether conscientiousness brings incremental predictive value over the HBM.

We anticipate that higher levels of self-efficacy for healthy eating, lower levels of perceived barriers, and higher levels of perceived benefits will predict healthier eating habits among students. We expect a higher level of conscientiousness to be positively associated with students' healthy eating and predict students' eating habits.

Method

Participants and design

The design of this research is non-experimental, longitudinal, with non-random sampling. The sample size was determined through a priori analysis using G*Power 3.1.9.4 tool (Faul et al., 2009). For regressions with five predictors, a power of .95, and a medium effect size, 138 participants were needed. In the first stage of data collection (T1), 200 students (181 females) from the University of Bucharest, Romania, participated. Their mean age was M = 20.75 and SD = 3.89. Ninety-one percent of the respondents were undergraduates, 6% had a chronic illness, and 15% were on a diet at the time of the study. After one month, a sub-sample of 150 students participated in the second wave of data collection (T2). The dropout percentage from T1 to T2 was 25%.

Instruments

Socio-demographic data from this sample were collected through an online questionnaire conceived by the authors. The questionnaire included questions about the age and sex of the respondents, their current educational level, the presence of chronic disease, and dieting.

Eating habits were assessed with Rapid Eating Assessment for Participants – Shortened Version (REAP-S; Johnston et al., 2018), a quick tool to assess diet quality in clinical or research context. It can be used to quickly assess the intake of fats, fiber, sugar, and selected food groups (Segal-Isaacson et al., 2004). REAP-S has 13 items that measure the frequency of different food consumption in an ordinary week. Participants answered using a 4-point Likert scale, where 1 = "usually/ often", 2 = "sometimes", 3 = "rarely/ never" and 4 = "does not apply to me". An example of an item is "Do you eat less than two servings of vegetables a day? (1 serving = ½ cup of vegetables or 1 cup of green leaves)." Possible scores range from 13 to 39, and a higher score indicates a healthier eating behaviour. In the present sample, the Cronbach alpha index of internal consistency was α = .75 in T1 and α = .77 in T2.

Self-efficacy for healthy eating was measured with The Healthy Eating and Weight Self-Efficacy Scale (Wilson-Barlow et al., 2014). This scale has 11 items and two factors – healthy eating and optimal weight. Considering the purpose of this study, only the subscale for healthy eating was used. This subscale has seven items with five possible answers on a Likert scale from 1 *(strongly disagree*) to 5 (*strongly agree*). An example of an item is "I can eat various healthy foods to keep my diet balanced." The maximum score is 35, a higher score indicating a higher level of self-efficacy for healthy eating. In our sample, the internal consistency for this subscale was Cronbach's α = .86.

Perceived barriers to healthy eating were measured with a 6-item instrument used by Kim et al. (2012) on a sample of students. The internal consistency for these questions was good in their study (Cronbach's α = .82). Each question has five possible answers on a Likert scale from 1 (*totally disagree*) to 5 *(totally agree*), and the maximum possible score is 30. An example of an item is "It is difficult to find time to plan healthy meals." In the present study, the internal consistency for these questions was Cronbach's α = .64.

Perceived benefits of healthy eating were assessed with the questions used by Mascioli and Davis (2019) on a sample of students. The answers were scored on a 4-point Likert scale from 1 (*never*) to 4 (*always*). A higher score reflects a higher level of perceived benefits. An example of an item is "Do you think that consuming healthy food may improve your appearance?". In their paper, the internal consistency for these questions was Cronbach's α = .71. In the present research, the internal consistency was Cronbach's α = .65.

Conscientiousness was assessed with the 10 items subscale from The 5 NEO-PI-R Broad Domains (Costa & McCrae, 1992). Participants answered on a 5-point Likert scale, from 1 *(totally disagree*) to 5 (*totally agree*). An example of an item is "Make plans and stick to them." Some items were reverse-scored so that a higher score would reflect higher levels of conscientiousness. In the present study, the internal consistency for this subscale was Cronbach's α = .84.

Procedure

The scales with no available Romanian translations were translated with the back-translation method. The measures were included in a Google Forms questionnaire which was completed online. The participants volunteered to fill in the questionnaire, which was shared in social media student groups from the University of Bucharest. All the participants read and signed informed consent at the beginning of the study. They were informed about the aim and scope of the research, confidentiality, and information management. The first stage of data collection (T1) started in February 2020, and the participants completed all the scales. After one month (T2), they were contacted to complete the healthy eating measure again.

Results

Descriptive statistics and correlations

All the analyses were performed with IBM SPSS Statistics for Windows, version 20 (IBM Corp., 2011). Table 1 displays the means, the standard deviations, and the Pearson correlations between the investigated variables. Eating habits show significant correlations with all the variables, except perceived benefits (r = .12, p = .07). The highest correlation was with self-efficacy for healthy eating (r = .53, p < .01), followed by perceived barriers (r = -.43, p < .01), and conscientiousness (r = .19, p < .01).

The incremental validity of conscientiousness over HBM components in predicting eating habits

A series of hierarchical regressions were used, with eating habits from T2 as a criterion, to investigate the incremental validity of conscientiousness over the HBM components in predicting eating habits. In Step 1, we introduced age as a single predictor to isolate its impact from the HBM components and conscientiousness. In Steps 2 and 3, we introduced the HBM components that significantly correlated with eating habits (i.e., self-efficacy and barriers) in the descending order of their correlation with the criterion. In the final step, we introduced conscientiousness as an additional predictor.

The general model, with all the predictors, is significant and explains 30% of the score variance in eating habits. Step 1 is not significant, which means that age, the control variable, is not a significant predictor in the current model (F(1, 148) = 3.50, p =.06, R^2 =.02). In Step 2, we added self-efficacy, which transformed the model into a significant one (ΔF (1, 147) = 56.50, p < .01, ΔR^2 =.27). Self-efficacy alone explained 27% of the criterion's variance. Barriers, in Step 3, don't bring additional significant explicative value (ΔF (1, 146) = 2.43, p = .12, ΔR^2 = .01).Similarly, conscientiousness, in Step 4, doesn't show incremental validity over the other variables (ΔF(1, 145) = .14, p = .70, ΔR^2 = .00).

The analysis of each predictor, within each step, reveals that self-efficacy is the only significant predictor of eating habits throughout all the steps in the model. The standardized beta coefficients for self-efficacy drop from .53 in Step 2 to .45 in Step 4. Also, barriers and conscientiousness are not significant predictors for eating habits within each step. For details, consult Table 2.

Table 1. Descriptive Statistics and Correlations

Variable	*M*	*SD*	1	2	3	4	5	6
1. Eating habits	32.03	6.79	-					
2. Self-efficacy	23.56	6.33	.53**	-				
3. Barriers	14.66	4.26	-.43**	-.57**	-			
4. Benefits	15.87	2.16	.12	.14*	.01	-		
5. Conscientiousness	35.52	6.87	.19**	.25**	-.38**	.07	-	
6. Age	20.75	3.89	.14*	.10	-.19**	-.04	.04	-

Notes. *p < .05; ** p < .01; N = 200.

Table 2. Hierarchical Regression Results for Eating Habits

	B	95% CI for B		SE B	β	R^2	ΔR^2
		LL	UL				
Step 1						.02	.02
Constant	27.37	21.32	33.42	3.06			
Age	.27	-.01	.56	.15	.15		
Step 2						.29**	.27**
Constant	16.39	10.47	22.30	2.99			
Age	.15	-.09	.39	.12	.08		
Self-efficacy	.57	.41	.71	.08	.53**		
Step 3						.30	.01
Constant	21.65	12.76	30.55	4.50			
Age	.12	-.12	.36	.13	.07		
Self-efficacy	.49	.31	.66	.09	.45**		
Barriers	-.20	-.44	.05	.13	-.13		
Step 4						.30	.00
Constant	20.45	9.54	31.36	5.51			
Age	.12	-.12	.36	.13	.07		
Self-efficacy	.49	.31	.66	.09	.45**		
Barriers	-.18	-.44	.08	.14	-.12		
Conscientiousness	.03	-.11	.17	.07	.03		

Notes. ** p < .01.

Discussion

This study aimed at investigating the incremental validity of conscientiousness over the Health Belief Model (i.e., HBM) components in predicting students' eating habits. The topic was chosen because of the consequences daily eating habits have on people's physical and mental health (Jacka et al., 2015; Li et al., 2017). Results showed that self-efficacy for healthy eating was the strongest predictor of eating habits, while perceived barriers and conscientiousness did not bring additional significant explicative value for eating habits.

One explanation for why perceived barriers were not a significant predictor in addition to self-efficacy could be the scale used to measure the concept. In the absence of a standardized tool for measuring this component of the HBM, perceived barriers were assessed with the six questions used in a previous paper on a sample of students (Kim et al., 2012). However, there are some differences between Kim et al. study and ours. Kim et al. measured students' intention to eat healthy, while we measured students' eating habits in an ordinary week. This difference could partially explain the lack of a significant contribution of barriers in explaining students' eating habits. However, our results are consistent with another study that did not find perceived barriers to be a significant predictor of healthy eating (Salahshoori et al., 2014).

The role of conscientiousness in explaining eating habits was unclear at the beginning of this research, as few studies addressed the topic. We know that conscientiousness was negatively associated with the frequency of sweets consumption in students (Wen et al., 2015), and it was a significant predictor for students' intention to eat fruits and vegetables (Monds et al., 2015). At the moment of this research, we did not find studies investigating the predictive power of conscientiousness for students' eating habits in an ordinary week, not to mention in comparison with the HBM components. Thus, our research provides the first evidence that individual differences in conscientiousness do not predict eating habits in students and that this variable does not bring extra value over the HBM components. However, it can be considered that the question of the role of conscientiousness in explaining eating habits remains open, as we conducted the study on a convenience sample, and further inquiries are needed.

Contrary to our expectations, the perceived benefits of healthy eating did not correlate significantly with students' eating habits. In previous research on this topic, the role of benefits varied. Thus, our results are consistent with the results of Najarkolaei et al. (2015) and Deshpande et al. (2009), but they are not in line with other papers (Kim et al., 2012; Mascioli & Davis, 2019; Yazdanpanah et al., 2015). One reason for the lack of correlation between perceived benefits and eating habits may be using a scale with a small number of questions, more precisely the 5 questions Mascioli and Davis (2019) used on a student sample. They found a positive correlation between benefits and a health-protective eating style. However, their dependent variable was measured with a single self-report question, while in the present research, we assessed students' eating habits in an ordinary week. Moreover, the sample used by Mascioli and Davis was significantly bigger (N= 347) than the sample used in the present study (N= 200), and this could have led to an inflated power effect in their study.

In this study, self-efficacy was the strongest predictor for students' eating habits, and it explained alone 27% of the variance. A higher level of self-efficacy for healthy eating has been associated with healthier eating habits among students. This result is consistent with several previous examinations (Deshpande et al., 2009; Kasmaei et al., 2019; Orji et al., 2012; Salahshoori et al., 2014; Yazdanpanah et al., 2015), and it highlights the importance of this HBM component for the field. From a practical perspective, this result can be used when designing unhealthy eating prevention or intervention programs for unhealthy eating.

The current study suggests that it is necessary to strengthen self-efficacy for healthy eating when we want to help young people develop healthy eating habits. In other words, the students who eat healthier are those who consider themselves able to eat healthier. Self-efficacy for healthy eating can be increased in several ways: psychoeducation concerning the role of nutrition for body and mind, behaviour change strategies, and stress management techniques (Prestwich et al., 2014).

Limitations and future research directions

Besides the contribution this study brings to the general knowledge regarding the topic, we need to discuss several limitations to place the results in an appropriate context. First of all, at the moment, there is no "gold-standard" tool for measuring the variables in the HBM. Researchers adapt the scales for their specific research questions, leading to a diversity of scales with more or less good psychometric properties. Thus, we included the questions used by other authors in their studies for measuring perceived barriers and benefits of healthy eating. Perceived barriers were assessed with the six questions Kim et al. (2012) used, with good internal consistency (Cronbach's α =.82). In the present research, the internal consistency was low (Cronbach's α =.64). This limitation can be explained by the limited number of items on the scale. Perceived benefits were measured with five questions used by Mascioli and Davis (2019). The internal consistency in their study was suitable for research (Cronbach's α =.71), but in the present study, the internal consistency was lower (Cronbach's α =.65). A possible explanation is the smaller sample in our study (N =200) than the Mascioli and Davis study (N = 374). Other explanations can come from the sample characteristics or the phrasing of the questions. Considering the value of the HBM for behavioral research, it is necessary to pay more attention to the psychometric properties of tools used to measure its components and encourage worldwide efforts in developing and investigating accurate measurement instruments for this purpose.

Secondly, the data were collected only through self-report measures. This could lead to a possible tendency of participants to give desirable answers. The use of hetero-evaluation or an alternative method for measuring the dependent variable could increase the data's accuracy and facilitate a better understanding of the relationships between variables. A suitable option is a diary of eating habits in which respondents can note the food consumed for a limited period, such as a week. Various digital applications for food monitoring could be incorporated. These would also be more attractive to young people than the pencil-paper version, facilitating their participation in the research.

Thirdly, the sampling method was not random, and the participants were volunteers. As such, it is possible for respondents in this sample to be particularly interested in healthy eating and could have healthier eating habits than those who did not volunteer to participate.

Forth, the gender distribution is another limit of this research, with 90,5% females and 9,5% males. The gender distribution is similar to the one in the research of Najarkolaei et al. (2015). Three hundred eighteen female students (86.4%) and 50 male students (13.6%) took part in their study, and the authors found that female students had better nutrition than male students. Mascioli and Davis (2019) did not find significant gender differences regarding the HBM components and a health-protective eating style. In their research, the gender distribution was 78,8% females and 21,2% males. The results of studies with an equal gender distribution varied. Deshpande et al. (2009) found that females had a higher intention to eat healthy than males. The gender distribution was 45% females and 55% males in their study. Adriaanse et al. (2016) did not find gender differences regarding the intention to eat healthily. They conducted the study on a sample of 45% males and 55% females; the authors suggest that women tend to eat more healthy snacks and less unhealthy snacks than men, although the differences were minimal (Adriaanse et al., 2016). Based on their results, we could say that in our research, the scores for eating habits might be slightly better than in a sample with an equal gender distribution. In the research of Kasmaei et al. (2019) on adolescents, the gender distribution was 50,6% girls and 49.4% boys, and the researchers did not find gender differences in HBM components and nutritional behaviour. Thus, we cannot be sure that equal gender distribution would lead to different results, and we expect only possible minor differences. Future research among larger samples is needed to clarify these differences.

In conclusion, the significant contribution of our research is that we investigated the incremental validity of conscientiousness over the HBM components on predicting students' eating habits. This research is the first evidence that conscientiousness does not bring significant predictive value besides the HBM components. This finding can be helpful when trying to help young people who struggle with unhealthy eating behaviour, as it highlights the idea that one can eat healthy despite personality traits and that other factors are more important in making food choices. Finding self-efficacy to be the strongest predictor of eating habits in students is another contribution of this study. This result can be helpful when designing prevention or intervention programs on the topic of unhealthy eating behaviour. Moreover, our research focused on students' eating behaviour in an ordinary week, not their intention to eat healthily. This is a strength of the research, as most studies measure the intention of healthy eating, not on the actual behaviour.

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