

THE IMPACT OF MINDLESS EATING ON WEIGHT – WHAT WE CAN LEARN FROM A REPRESENTATIVE NATIONAL SAMPLE OF ADULT POLES – PLENARY LECTURE

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This study examines eating habits and weight in a representative national sample of Poles. We found bad eating habits (*e.g.* eating mindlessly when not hungry or when encouraged by others) predict BMI and the desire to lose weight quite well. Other predictors depend on gender and control over preparing meals. Men who have a good education, watch more television, eat meals prepared by others, are heavier than those who do not. Women who do much physical work, feel in bad health, eat meals they prepare themselves, are heavier than those who do the opposite.

INTRODUCTION

People gain weight because they eat more than they need, not because they are hungry but for reasons irrelevant to their need for food – or at least irrelevant on logical-scientific grounds [Ogden, 2003]. Many of us, for example, eat just because we are with others who are eating, or the food taste delicious, or we feel upset, or we expect there will not be any food available later [Conner & Armitage, 2002]. The decision to eat, like many other decisions, reflects the operation of two distinct information processing systems [Strack & Deutch, 2004]. In the *reflective system*, the decision involves conscious analysis and deliberation; knowledge about the value of food and its potential consequences, like gaining weight, is taken into account. Once a decision is made, the reflective system activates the appropriate behavioral schemata through the self-terminating mechanism of forming a conscious intention to implement the decision (intending). In contrast, the *impulsive system* processes information and activates the behavioral schemata mindlessly, quickly, and automatically, without conscious analysis of potential consequences. The sight of food on our plate can automatically activate 2 different behavioral schemata: eating or ignoring the stimuli when we are not hungry.

The term “eating habits” [Wieczorkowska & Bednarczyk, 2004] has a very broad meaning consisting of learned choices of food, time and ways of eating. Habits mean a recurrent, often unconscious pattern of behavior (behavioral schemata) that is acquired through frequent repetition. Eating everything we have on our plate could be a conscious, thoughtful decision made in the reflective system and has nothing to do with the habit. We will use the concept of habit to refer to a consistent tendency for a person to feel “forced”

or compelled to finish a meal even if he or she neither likes the food nor feels hungry. This sort of eating can be referred to as eating habit and is a result of activity of the impulsive system.

We analyzed answers to six questions regarding eating rules that can be learned in the childhood and can be characterized as eating habits, eating that is mindless or occurring without conscious consideration of consequences. The index for HABIT (mindless eating for reasons other than hunger) was based on responses to the following questions:

How often during the last three months did you: (1) eat all of a meal because you do not like leftovers to be wasted? (2) eat even though you are not hungry because others encouraged (urged) you to do so? (3) eat more than you needed because the food was delicious? (4) eat what was on the plate in front of you even though you were not hungry? (5) when dining in company, pay little attention to what you were eating? and (6) eat because eating calms you down?

Response scale was: (1) never (2) very seldom (3) seldom (4) often (5) very often (6) always. The Cronbach's alpha for 6 items was 0,72.

Eating habits are learned in early life. For example, Maynard and colleagues [2006] studied a group of individuals who were between 61 and 80 years old and found that socioeconomic and health-related conditions they experienced as children and young adults predict healthy eating styles in old age. Because they are the product of early learning, eating habits are notoriously difficult to change. A study, described in Tufts University Health & Nutrition Letter, of the eating behavior of over 1,200 patients who had undergone balloon angioplasty or similar procedures and were followed for over

a four period years found that during the first year after an acute coronary event the percentage of those who had decided to follow a healthy diet increased from as base level of 30% – the percentage who had followed such a diet prior to coronary treatment – to 91%. A year after rehabilitation, however, the percentage still adhering to a healthy diet had dropped to 49%; and three years later, only 42% remained on a healthy diet.

The aim of our study was to test the relationship between eating habits and weight in a representative national sample of adult Poles. A person's eating habits and attitudes toward food cannot be analyzed independent of his or her social context. Life conditions can facilitate or suppress the manifestation of individual differences [Brands-taetter & Eliaz, 2002]. The situation of individuals who prepare meals themselves is different from those who eat out or have someone else prepare their meals at home. To further complicate matters, this difference is confounded with gender since only 19% men report they prepare their own meals either often, very often or always whereas 66% of women say that do. There are many other differences between the eating styles of men and women. For instance, women are twice as likely as men to say they crave food [Polivy *et al.*, 2005]. Moreover, food cravers, especially females, are more frequently concerned about their weight than the noncravers are. This is why analyses of the relationship between eating habits and weight should be conducted separately for men and women.

In the paper we present the results from tests of the following two hypotheses: (1) Bad eating habits (mindless eating) are predictor of weight; and (2) Current life conditions (*e.g.* employment status, education, financial situation, control over meals, and size of the city) have a weak impact on eating habits learned in the childhood.

METHOD

Sample. The respondents in our study were a representative national sample of adults interviewed during 2005 in Polish General Social Survey (PGSS) that has been conducted annually since 1992 and biennially since 1997 by the Institute for Social Studies at Warsaw University. A detailed description of the sampling procedure can be found at <http://pgss.iss.uw.edu.pl/en/info.ISS-b10>. The PGSS [Cichomski *et al.*, 2005] involves individual interviews and assessed many different social attitudes, values and behaviors as well as socio-demographic, occupational, educational and economic status. In 2005 the questions regarding weight, height and frequency of different activities connected with eating were added.

The sample consisted of 1180 respondents aged from 18 to 91 (median age = 45). Men constitute 48.7% of the sample, 49% have completed high school or more, 34.5% live in villages, 32.4% in small cities and the others in cities of more than 100 000 inhabitants.

Dependent variable: WEIGHT. Dependent variable consists of 2 parts: (1) Objective: BMI (Body Mass Index), and (2) Subjective: an index based on response to the following two questions:

How often during last three months did you (ranging from 'never' to 'always'): (1) feel that you weighed too much? and (2) try to lose weight?

Note that BMI does not take into account muscles tissue. Thus, analyses using only objective measures such as the BMI could be misleading. Or put differently, in order to understand the problem of losing control over weight it is important to take into account how individuals perceive their body, whether they think they are thin or fat and how they feel about this. With this in mind we found that the correlation between our objective and subjective index was sufficiently large ($r=0.67$ for the sample as a whole – the correlation for men [$r=0.62$] was larger than that for women [$r=0.42$]) to allow us, after the necessary transformation, to construct an index WEIGHT, based on the average of the objective and subjective measures, so that those with a high BMI and who feel fat as well as report often trying to lose weight have large values of WEIGHT while those with a low BMI and who feel they are thin as well as report rarely trying to diet have small values of WEIGHT. In short, the value of WEIGHT increases with BMI, feelings of being fat and the reported frequency of dieting.

METHOD OF ANALYSIS

A representative national sample typically is highly heterogeneous and most of the variables (and the indices constructed from them) are correlated with age and sex. The PGSS sample in the present study was no different. As a result, all our analyses were performed on standardized residuals from the regression of the variables on sex and age as predictors. Finally, the analyses that were conducted separately on the subjective and objective measures or on the aggregated measure revealed similar patterns. Hence, only analyses using WEIGHT as the dependent variable are presented here.

RESULTS

Analysis 1. Impact of eating habits and level of control

To perform the analysis we used a median split of index of HABIT. The level of control (CONTROL) was assessed by answers to the question:

How often during the last three months did you eat a meal that was prepared by somebody else?

CONTROL = 2 if respondent said: always or very often or often

CONTROL = 1 if respondent said: never or very rarely or rarely

The 2 x 2 x 2 ANOVA of WEIGHT with gender, habit and control as factors revealed a significant main effect of habit ($F=11.69$, $df_1=1$, $df_2=1168$, $p=0.001$) and a significant interaction of gender and control ($F=10.44$, $df_1=1$, $df_2=1168$, $p=0.001$). Respondents who report bad eating habits (*e.g.* often eats for reasons other than hunger) are heavier than those

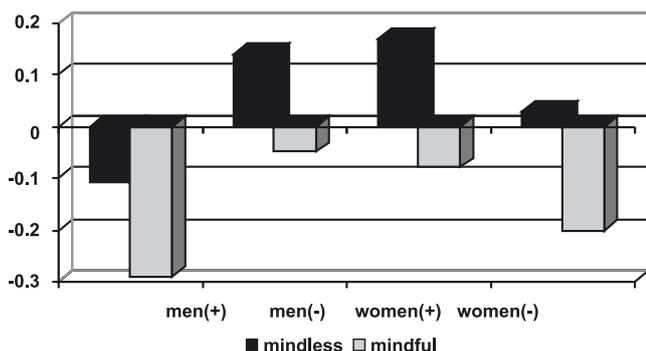


FIGURE 1. Index of WEIGHT as a function of eating habits (mindless vs. mindful), gender and control over meal preparation. men(+) men who prepare meals for themselves; men(-) men who eat meals prepared by somebody else; women(+) women who prepare meals for themselves; women(-) women who eat meals prepared by somebody else

who do not. It also turns out that men who prepare meals for themselves are thinner than men whose meals are prepared by somebody else. The opposite pattern was found in women (Figure 1).

Analysis 2. Impact of education, financial situation, health, physical activities and watching TV

Next we tested whether a relationship between eating habits and weight still holds if we take into account other potential predictors of weight.

The analyzed predictors of WEIGHT included: EDU – Education level (the number of years spent in schools, ranging from six to 19 years); FIN – financial satisfaction; HEALTH – Health satisfaction; TV – frequency of watching TV; PHYSICAL – frequency of doing physical work; SPORT – frequency of walking or engaging in sport activities; and CONTROL – prepares their meals themselves.

The questions used to measure the last four variables above were as follows:

How often during the last three months did you (ranging from ‘never’ to ‘always’); (1) watch TV for more than one hour a day? (TV); (2) do physical works more than one hour a day (PHYSICAL); (3) walk or do other sport activi-

ties (SPORT); and (4) eat meals that were prepared by somebody else (CONTROL)?

The index of FIN (the Cronbach’s alpha = 0.68) was built after necessary transformations of responses to the following 4 questions:

(1) Did it happen that you have not had enough money to buy food or pay rent during last year (yes or no)?, (2) How often did you eat less than you like because of lack of money (from never to always)?, (3) How satisfied are you from your financial situation (satisfied, more or less satisfied, not satisfied)?, (4) Comparing to other families income of your family is (much above average, somewhat above average, equal to average, somewhat below average, much below average)?

The index of HEALTH was based on highly correlated (r = 0.80) responses to the following two questions:

(1) How would you evaluate your health? (very good, rather good, rather bad, bad); (2) How satisfied are you with your health? (very satisfied, satisfied, rather satisfied, rather unsatisfied, unsatisfied, very unsatisfied).

Separate regression analyses for gender revealed only one common predictor (Table 1), namely: those who show worse eating habits (more often eat for other reasons than hunger) are heavier, as well as the following differences: (i) more educated men are heavier; (ii) men who watch TV often are heavier than those who do not; (iii) thinner women who feel healthy are thinner; (iv) women who do physical work often are heavier than those who do not; and (v) men who prepared meals for themselves are thinner than men who are fed by somebody else. For women, however, the relationship is slightly negative but not significant.

A similar analysis of HABIT as the dependent variable demonstrates only two significant predictors, namely: Eating habits are negatively correlated with: (1) the frequency of physical work ($\beta=-0.094$, $p=0.03$) so that men who do less physical work worse eating habits than men who do more physical work; and (ii) the frequency of sport activities ($\beta=-0.097$, $p=0.02$) so that women who rarely engage in

TABLE 1. Results of regression analysis of WEIGHT separately for men and women.

	Men R ² =0.07					Women R ² =0.07				
	b	sb	β	t	p	b	sb	β	t	p
constant	-.377	.176		-2.137		.144	.105		1.366	
FIN	-.057	.054	-.048	-1.047		-.052	.050	-.045	-1.039	
EDU	.137	.039	.156	3.516	.000	.046	.038	.051	1.215	
HEALTH	.040	.040	.044	1.017		.112	.036	.131	3.131	.002
HABIT	.119	.037	.133	3.234	.001	.165	.035	.191	4.771	.000
PHYSICAL	.025	.037	.029	.692		.113	.037	.126	3.064	.002
SPORT	-.004	.037	-.005	-.114		.057	.036	.066	1.604	
TV	.106	.039	.114	2.749	.006	.034	.034	.040	.990	
CONTROL	.207	.095	.090	2.173	.030	-.102	.074	-.056	-1.377	

sports activities have worse eating habits who frequently engage in sports activities.

It is worth noting that eating habits depend neither on education nor on financial situation.

Analysis 3. Impact of size of city and employment status

In this analysis we test the relationship between WEIGHT, eating habits and three socio-demographic variables, namely, size of the city where the respondent resides, employment status, and gender. To do so we performed two separate 3 x 2 x 2 ANOVAs, one with WEIGHT and the other with eating habits as the dependent variable. In each case financial satisfaction served as a covariate.

The differences in WEIGHT are significantly related to the size of the city in which individuals live ($F=6.66$, $df_1=2$, $df_2=1167$, $p=0.001$), as well as to their employment status ($F=13.71$, $df_1=2$, $df_2=1167$, $p<0.0001$). People living in small cities on the average are the heaviest, while those living in villages the least heavy. People who are employed are heavier than those who are unemployed. None of these factors was significant for HABIT.

DISCUSSION AND CONCLUSION

As predicted, individuals' eating habits (mindless eating) were a significant predictor of their weight. To be more specific, (1) we show that eating habits do not correlate with any of the socio-demographic variables analyzed such as education, size of city, employment status, or financial situation, which is consistent with the hypothesis that adult eating habits originate and become well established in early childhood. The findings in our other studies [Wieczorkowska & Eliaz, 2006] support this line of reasoning. (2) Unexpectedly, individuals' financial situation was not a significant predictor of their weight and eating habit. The latter, we speculate, could be result of different countervailing tendencies among the rich and the poor: Wealthy people are better able to restrict their food intake but at the same time they have the means to avoid strenuous physical activity, especially that involved in their job (e.g. they are more likely to drive rather than walk to work and their job is unlikely to involve much physical labor). Whereas poor people are less inclined to restrict their consumption of food – if only to compensate for those occasions when they are unable to afford enough to eat – and the food they typically consume is likely to be high in calories, fat and sugar; on the other hand, they are less able to escape physical activity and their job is more likely to involve strenuous labor.

Finally, we offer several conjectures explaining the observed gender differences: (1) Why is watching TV a good predictor of weight for men but not for women? Perhaps because in the case of men, but not women, the amount of beer they consume increases with the amount of TV watching. (2) Why are women, not men, who do physical work heavier than those who do not? Because both BMI and amount of physical work increases with the number of

children for women, but not for men [Bednarczyk, 2006]. (3) Why is perceived health a significant factor only for women? Because women are more likely than men to become depressed [and experience psychosomatic symptoms] when dealing with the problem of losing weight. And (4) why is education a significant predictor only for men? Again, because the impact of education could be confounded with number of children – better educated women have fewer children [Bednarczyk, 2006], while for men there is no significant relationship between education and number of offspring.

Needless to say, to merit serious consideration the above conjectures about the interaction of gender and various predictors of weight need further systematic research.

To conclude, the results of this study allow us to make recommendation regarding the vital importance of shaping eating habits early in life. How and what people learn to eat in childhood will determine their weight as adults and can be very difficult to change later.

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WPLYW BEZREFLEKSYJNEGO JEDZENIA NA MASĘ CIAŁA – BADANIA REPREZENTATYWNEJ PRÓBY DOROSŁYCH POLAKÓW

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W artykule przedstawiamy wyniki potwierdzające związek między nawykami impulsywnego jedzenia a wagą ciała i chęcią odchudzenia na reprezentatywnej próbie dorosłych Polaków uczestniczących w 2005 roku w Polskim Generalnym Sondażu Społecznym. Przeprowadzone analizy potwierdzają konieczność tworzenia osobnych modeli dla kobiet i mężczyzn. Samodzielne przygotowanie posiłków wiąże się z niższą wagą mężczyzn i wyższą kobiet. Istotnym predyktorem wagi była dla mężczyzn: częstość oglądania TV oraz wykształcenie zaś dla kobiet gorsza ocena stanu zdrowia i wykonywanie pracy fizycznej.