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orcid.org/0000-0002-8668-9552

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Larisa Absalyamova
H.S. Skovoroda National
Pedagogical University, Kharkiv

EXPERIMENTAL RESEARCH OF ADVERTISEMENT WATCHING INFLUENCE ON CHILDREN'S EATING BEHAVIOR

The given article describes the experiment, which has tested the main hypothesis that primary school-aged children will consume larger amounts of food, and snacks while watching some cartoon including food advertising. It is concluded that our research results have demonstrated the food advertising influence on snacks while watching television. It has been noted that such eating behavior caused by food advertising may additionally facilitate the epidemic of obesity. It has been proved that in view of the findings the necessity to make efforts to reduce advertising of unhealthy food for children is flagrant.

Keywords: eating behavior, experiment, advertising, food, child, inheritance, socially cognitive theory, obesity.

Л.М. Абсальямова

ЕКСПЕРИМЕНТАЛЬНЕ ДОСЛІДЖЕННЯ ВПЛИВУ ПЕРЕГЛЯДУ РЕКЛАМИ НА ХАРЧОВУ ПОВЕДІНКУ ДІТЕЙ

У статті описана експериментальна перевірка гіпотези про підвищення об'єму з'їденої їжі і частоти випадків її прийому у дітей молодшого шкільного віку, що переглядають мультфільми з рекламою їжі. Констатований факт впливу реклами їжі на частоту перекусів під час перегляду телебачення молодшими школярами. Відзначається, що харчова поведінка, викликана рекламою їжі, виступає в ролі додаткового чинника епідемії ожиріння. Зроблений висновок про необхідність зменшення адресованої дітям реклами нездорової їжі.

Ключові слова: харчова поведінка, експеримент, реклама, їжа, дитина, спадкоємство, соціально-когнітивна теорія, ожиріння.

Л.Н. Абсальямова

ЭКСПЕРИМЕНТАЛЬНОЕ ИССЛЕДОВАНИЕ ВЛИЯНИЯ ПРОСМОТРА РЕКЛАМЫ НА ПИЩЕВОЕ ПОВЕДЕНИЕ ДЕТЕЙ

В статье описана экспериментальная проверка гипотезы о повышении объема съеденной пищи и частоты случаев ее приема у детей младшего школьного возраста, просматривающих мультфильмы с рекламой еды. Констатирован факт влияния рекламы еды на частоту перекусов во время просмотра телевидения младшими школьниками. Отмечается, что пищевое поведение, вызванное рекла-

мой еды, выступает в роли дополнительного фактора эпидемии ожирения. Сделан вывод о необходимости уменьшения адресованной детям рекламы нездоровой еды.

Ключевые слова: пищевое поведение, эксперимент, реклама, еда, ребенок, наследование, социально-когнитивная теория, ожирение.

Introduction. The style of nutrition reflects the affective needs and mental state of a person, so the psychotherapeutic impact on him is an important reserve of acquiring mental health and harmony [6]. According to the data of World Health Organization, the epidemic of obesity is considered to be “the main factor in the global disaster of chronic illnesses and disability” [4; 7 – 9]. This tendency is particularly strong for young people. Over the last 35 years, the percentage ratio of children and young people being overweight or under risk to become overweight, has increased by 3 times and currently is about 35%.

The crisis of obesity is fed by physical activity limitations as well as by excessive consuming of high fat and sugar food. In this case, there is a belief that the main reason of the unhealthy food consuming is accumulation of harmful messages for children conveyed through food advertising. Every day children watch at average 15 television food advertisings and 98% of these ads promote high fat, sugar or salt food. Moreover, food advertising for children shows the unhealthy eating behavior with positive connotations. In addition to good taste, the most popular advantages of the harmful products consuming promoting by advertising are fun, happiness and “swag”.

A large body of research have been done to study advertising for children and to conclude that food advertising leads to a great amount of choices and purchases of the advertised products [3]. Along with it, the researches due to the correlation and semi-experimental methods prove that a good deal of time spent for watching ads is often connected with unhealthier diets and heavy body weight of children [2]. Other experiments have also studied influence of food advertising on the real eating behavior usually evaluated by food choices after food advertising. Empirical data with high ecological validity have been about the children’s camp participants shown the everyday cartoon with sweets or fruits advertising while the control group children have been shown no ads. Within the next two weeks, those children who have seen the sweets advertising have been choosing fruits and orange juice as a snack less often than other children [12].

Literature reviews also traverse the need of further investigations, in particular the ones, which would reveal the direct causal connection between food advertising and unhealthy diets. From this perspective Halford and his colleagues have recently demonstrated that groups of children want to eat faster

after watching of sequels of 8-10 food ads for children than after watching of other products advertising. Together with this, the given consequences arose on the summary level, in other words the enlarged food consuming has been extended to the food not included into the shown advertising [11]. However, the authors have no support for their hypothetic mechanism, in particular, assuming that overweight children have better memory and food advertising awareness that leads more consuming.

The theoretical and methodological works also make an emphasis on the necessity to extend food advertising analysis beyond the age group of children as up to date there is not enough information about such impacts on young people and adults. Finally, many investigations have studied advertising of high-caloric food poor in healthy elements. As a result, we know very little about the influence of more nourishing food on eating behavior. Our research is directed to fill in these gaps in our knowledge and uses a new approach for food advertising impact study using the modern socially cognitive theories.

The **aim** of the article is an experimental investigation of the food commercials' influence on children's eating behavior.

Socially cognitive theories assume that there exist a small but potentially long-term impact of food advertising on eating behavior, which may arise beyond the participants' intentions and knowledge [1]. Research methods may offer a means for checking of these impacts. The experiments are constructed in such a way that the relevant visual representations are activated at one experiment phase and after all unconscious no-purpose effects of this activation are evaluated at the next phase. The researches have already demonstrated the fact that a wide range of the complex social and physical behavior (such as aggression, loyalty, rudeness and speed of walking) may be activated by the relevant external drives with no intent of a person to behave in such a way or consciousness of the impact [3]. The mechanism activated here evidently lies in a strong association between the images activated through perception of the particular type of behavior and those images, which activate some particular behavior type. The same mechanism creates the tendencies of heritance and mimicry of adults and serves as the basis for studies of little children by means of observation.

A large amount of images is offered by mass media including TV-programs and advertising. Reviewing of the aggressive behavior models or examples of alcohol consumption in media may result in aggression and real alcohol abuse in life.

Investigations conducted among adults prove that external drives have significant influence on eating behavior. Reviewing of taste properties of the consumed food has increased the subjective desire and consuming even in spite of the participants being well fed. Moreover, food advertising generally focuses

on the immediate sensual consuming effects, such as appetency, and it make more difficult to oppose to such advertisement messages (e.g., through the reasonable self-limitation process). In line with these empirical data Louv and Butrin have made a supposition that the consumed food drives may activate hedonic hunger or thoughts, feelings and needs with regard to food in the absence of the real energy shortage [13].

Customer behavior also may be activated by means of automatic processes. The external drives unrelated to food gustatory qualities (e.g., container size and form, serving size, food variety) have an impact on the amount of the consumed food without a recipient's knowing. Other people's behavior is another important external behavioral drive and people automatically inherit eating behavior of other people including choice of food and amount of the consumed food without realizing such a kind of behavior. Unconscious nature of such impacts has been investigated in the experiments in which exposition of the words connected with thirst or smiling faces been displayed by consciousness levels without a participant's knowing about that, has increased drinks consumption among thirsty people [15].

Food and drinks advertising convey potentially strong drives of food consumption including images of good-looking people eating, snacks except for the main meals and positive emotions connected with food consumption. Messages displayed by TV commercial have strength to act as a drive of the real world and lead to the relevant eating behavior. In view of the food types and positive effects of food consumption that are typically promoted in advertising clips, it is possible to conclude that generally snacks are stimulated by means of unhealthy food and drinks. We have decided to check experimentally if food television advertising placed in such a way as if it has naturally appeared in the middle of a TV program will stimulate or directly activate the automatic increase in snack food consumption. Given that these effects theoretically appear beyond conscious awareness, intention or possibility to regulate the impulsive tendencies cannot influence the experiment results. Therefore, we consider that food advertising connecting snacks and happiness (e.g., one of the typical ads shown while TV programs for children) will automatically stimulate eating behavior among children. We also assume that advertising will have an impact on consumption of any kind of available food that may not be advertised.

We have created the experimental research reproducing the conditions in which people generally watch food advertising on TV. One of the experimental research targets has been to minimize the participants' understanding that advertising has been a subject of the research and not TV reviewing in general. All the clips have been placed in the middle of a TV program between advert break times, which are usually, appear at certain intervals. Total amount of food advertising have been in line with amount of food advertising which is usually

demonstrated while similar amount of time of a television program. The experiments have used the typical samples of advertising for children as a incentive. It has been measured how much food will be consumed by a child while watching television. To minimize the awareness of the real experiment objectives even more, the advertising clips have not been connected with brand or type of food that could be consumed by participants while the experiment.

Discussion. We have used our experiment to check the fundamental hypothesis that primary school-aged children will consume much more food and snacks while watching the cartoon including food advertising. Children in random order were watching the cartoon including either food advertising or other types of advertising. The experiment participants were given food and snacks. Each child was watching a cartoon alone to exclude the potential inheritance, social facilitation or self-presentation. Parents were filling in the questionnaire with information about their child. 72 children have taken participation in the experiment, 34 girls and 38 boys. Each of the experimental and control groups has involved 36 children. Children from 7 to 11 years old have participated in the experiment. Children in control and experimental groups differ not much in age or weight. In accordance with parents' answers, children watched little television (about 1 hour per day). A child met the experimenter individually at school, approximately for 30 minutes in a free classroom. If a child asked about the research objective, the experimenter informed that such things as children like have been investigated, e.g. television programs or food. After acquaintance, children were watching 20-minutes cartoon. Half of participants were watching the version that included three 40-seconds food advertisings while advert breaks. These advertising clips were demonstrating food for breakfasts or snacks of low nutritional quality using fun and happiness messages (potato chips, high sugar flakes, sweet waffles). The demonstrated advertisings are types of food clips that are more often shown at television for children. Another half of children was watching the same cartoon with three ads of games and entertaining products, namely not about food.

Schoolchildren within the experiment also received a big bowl of salt crackers and a glass of water. The children were informed that they could have a bite while watching television. Herewith, there was no advertising of salt crackers demonstrated while watching a cartoon. After that, the experimenter left a room, came back after termination of a cartoon and asked children when they ate last time before the experiment. After children leaving the room, the experimenter measured unconsumed crackers excluding the amount of the food consumed.

Along with that, parents filled in the questionnaire specifying the number of hours and minutes within which their child was watching television during last seven days, whether their child had a TV set in own room, how often their

child had a bite or had food while watching television within the specified period, how much their child like salt crackers as well as weight, height and demographic information.

As expected, the children which were watching a cartoon with food advertising consumed much more amount of crackers (48%, 29,8 grams) while watching than those children who were watching advertising not about food (18,4 grams).

It is important that most characteristics of children could not foresee the consumption level. By means of Mann-Whitney U-test no significant difference has been revealed among children with different parameters of weight, sex, amount of time spent for watching television at home. The amount of the crackers consumed did not correlate significantly with period of time of the last food consumption by a child, his/her age, parents' estimation of his/her appetite, snacks while watching television during the last week. Only parents' estimation as to how a child likes crackers influenced the amount of the food consumed. Therefore, regardless the investigated characteristics schoolchildren consumed more after watching food advertising.

The given results give important validation of our hypothesis. Children who were watching food advertising ate 11,4 grams of food more while watching television in this experiment. At such consumption level snacks while watching food advertising only within 30 hours daily leads to additional 112 consumed calories and almost 5 kg weight increase per year in case it is not compensated by reduced consumption of other food or physical activity.

It was unexpected in our research that among the screened characteristics of children only crackers preferences by parents' estimation provided the amount of the food consumed. It is possible to express caution against making conclusions as for the difference in eating behavior in various children groups, in particular based on reports of parents and children including weight of a child and time of watching television.

However, deficiency of significant difference among the screened characteristics of children assumes that food advertising has a big impact on strong consumption fostering among highly diversified selection of children. In general, food advertising influence corresponded to connection between perception and behavior.

The conducted experimental research shows evidence of the automatic, direct causal connection between food advertising and more snacks consumption. In general, the revealed results are well correlated. The diversified selection has been involved into the research. It has been discovered that food advertising emphasizing that snacks give joy, happiness and excitement (as in most advertisements of food for children) had a direct impact on food consumption increase. Moreover, similarity between the available food and advertised food

was not necessary. Finally, the revealed impacts appeared regardless the primary hunger of participants. The amount of food consumed after watching the snacks had no significant connection with when a child had food last time.

Potential consequences for health sake of these advertising influence effects that appear in everyday life have a profound and long-term impact on the general way of food consumption. Attempts to control the unhealthy nutrition may also fall under influence because of perception of various ads of unhealthy food. In such a case, children come under this significant influence first of all.

One of restrictions to our experimental findings (as to the most part of laboratory experiments) consists in fact that in the real world watching advertising incentives appear in the wide range of contexts. We cannot feel certain that other situational factors (e.g. watching with other children, watching at another daytime, or watching for some other purposes) will not have influence on advertising effects. To optimize the external and internal validity, we have imitated the natural conditions of watching television as close to reality as possible. Therefore, we are persuaded that the increased snacks happened because of advertising and that the same effects really appear during watching television in the real world.

Though the results of our researches are in line with a great amount of the known mechanisms of teaching through observation, the specific mechanisms by means of which food advertising increases automatic eating behavior, cannot be certainly defined. As many variables related to children's characteristics had no influence on snacks while watching advertising a considerable part of this effect may appeared through observing of eating behavior of people in advertisements and/or activation of concepts associated with food consumption. In addition, snacks advertising could start a short-term goal of getting pleasure and it could lead to the congruent behavior. In reality, the power of advertising influence may be its capacity to influence on behavior through a great amount of mechanisms at one and the same time.

Another restriction of our results is that we cannot indicate the specific characteristics of advertising influencing eating behavior. To increase the ecological validity of our results we have used the real-life advertising clips. Further investigations perspectives are connected with studying of messages giving shape to food consumption advertising, which may have a significant influence on eating behavior.

Further understanding of the mechanisms causing these advertising effects is also necessary so that teachers and parents could more effectively defend children and themselves against the unhealthy influence of food advertising. It is possible to assume that defense against unconscious "intellectual consumption" demands knowledge and understanding of the fact that undesirable external influences may touch us. In this case strong motivation and converted op-

portunities to defend oneself against such an influence are necessary. In this respect, increase of knowledge is the important first step. Educational media-programs teaching children how to analyze and evaluate advertising messages are necessary. It is also critical to increase society's understanding of how advertising can influence on people beyond their knowing.

The follow-up researches also could study the context that may can influence the motivation and ability to defend against the effects of food advertising influence. According to Baumeister and colleagues, self-regulation resources are restricted and can become exhausted and unavailable for the next tasks of self-regulation [14]. Advertising influence is especially high at evening prime time when many adults watch television after a hard working day. Perhaps, snacks advertisements may have a strong influence on women with bulimia eating behavior disorders. The follow-up researches could also reveal whether advertising using other messages for consumption (e.g. for pleasure) could influence on motivation of food consumption in other way.

Another important line of research will be to study the impact of other forms of food advertising on a person. There is increasing of a tendency that food production companies place television advertising with more nonintrusive marketing strategies. The follow-up researches could study whether eating behavior modeled while watching television programs and films with products, or interactive web-sites including food products also cause automatic consumption behavior. It is possible to assume that even observation of less clear hints at food (e.g. brands logotypes on banners or web sites) may influence eating behavior.

Conclusions. To sum up, it may be noted that our research results have demonstrated the influence of food advertising on snacks while watching television. Such eating behavior caused by food advertising can make a contribution into the epidemic of obesity. In view of obtained experimental data it is obvious that it is necessary to put efforts to minimize the unhealthy food advertising for children. Moreover, our experimental data show the necessity of awareness increasing concerning the potential effects of the automatic eating behavior in the result of food advertising viewing.

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