

Research on the Factors Related to Food Choices to Promote Healthy Eating

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ABSTRACT

The problem of being overweight is becoming more and more serious, much attention has been paid to consumers' food choices. A growing body of literature now demonstrates the importance of behavioral factors in individual food consumption. Understanding the psychology of how people make food choices that can lead to the cause of obesity, several insights from psychology and behavioral economics help explain why people are particularly vulnerable to the current food environment. In the article, we review the most important food consumption and behavioral economics and provide a thorough discussion of how such tools are now being added to change consumers' behaviors. The paper discusses the improvement of the design of food policies, adjustment of the food label, framing of public health messages, carefully changing the consumers' food choices so that people can change their choices.

Keywords: *Obesity, food choice, Healthy food*

1. INTRODUCTION

The insights about healthy eating have a long history, beginning with conventional economics and progressing to food choice information to provide practical guidance that assisted consumers in purchasing healthy food. Because Pediatric overweight and obesity are highly prevalent, more than one-third of American students and teenagers are overweight. Although treatment has produced some improvements, there are still some shortcomings. The adjustment of food policies is really needed to curb this kind of trend and the factors contributing the obesity remain elusive even though there are many theories. For example, some researchers have cited the increased frequency of sedentary behavior need to blame. Furthermore, consumers cannot make a more informed decision because restaurants, fast food, and takeout food are such a common part of the American diet.

Despite considerable time and effort spent encouraging healthy eating, substantial improvements in these behaviors have not been realized. This paper seeks the reasons why people still choose to eat junk food even though they know these are detrimental to their health and some suggestions about adjustment of food policy to lead more people to choose and eat healthy food. This insight may help to generate new policies so that to change the

consumers' food choices and can reduce the obesity problem

2. REASONS FOR PEOPLE CHOOSE UNHEALTHY FOOD

In the current food environment, many consumers prefer to eat junk food rather than healthy food, there are many reasons. Firstly, because calorie-dense foods are widely available, inexpensive, heavily marketed, not clearly labeled, and served in large portions [1-3]. This kind of environment makes people easy to choose unhealthy food. Meanwhile, the taste is also different between healthy food and junk food. Junk food normally tastes better than healthy food. Secondly, Income inequality grew throughout the 1980s, this problem continues today. This negatively impacts the health of the overall population. In fact, in the context of developing economies, there is plenty of evidence to support the hypothesis that undernourishment is mainly concentrated in the poor [4]. Thirdly, people are also susceptible to current prejudice, which puts a disproportionate weight on temporary satisfaction relative to future costs and benefits. [5-7]. Finally, people can't understand the concept of calorie, even for adults, the relevant information is not enough to warn them. Normally, unhealthy food is tasty while healthy food tastes not well. Therefore, people can be easily influenced by the

immediate enjoyment of the food. As a consequence, we can predict and change consumer behavior based on these reasons by using psychology and behavioral economics bias.

3. APPLYING PSYCHOLOGY AND BEHAVIORAL ECONOMICS TO EXPLAIN, PREDICT CONSUMER BEHAVIOR

Traditional economic theory assumes that human is purely rational and their decisions and behaviors are also purely rational.[8-10]. That is, people have a rational preference for results, always strive to maximize utility, and make independent decisions based on abundant and relevant information [11,12]. Based on this assumption, the conventional model predicts consumers can make wise decisions that yield the optimal result. However, a growing number research elucidate that people actually are not rational decision makers. Empirical evidence from psychology and behavioral economics shows that consumer choices and behaviors often systematically deviate from the rational assumptions of neoclassical economics. There are certain basic and persistent biases in human decision-making, which often generate these behaviors that these assumptions can't explain[13,14,15]. It is impossible to display all cognitive biases and behavioral anomalies, but there are several particularly relevant to understanding food choice, especially in terms of predicting and changing the behaviors of individuals. As outlined below, among the most pervasive biases to affect consumers' patterns of food choice include status quo bias and anchoring cost, loss aversion, temporal and spatial discounting, myopia.

3.1. Keep Default Options

Because of the first reason, it is normal to see large portion size junk food in the majority of restaurants. Besides, people tend to retain the status quo and stick to defaults. Habitual, automatic, and guided by default options. People have a strong tendency to stick with default options, a phenomenon known as the "status quo bias." [15]. For instance, when people meet a complex situation, they are likely to resist change and continue following the pre-set options, even when there are better alternatives. Much of one's daily eating habits are "mindless" [16]. Unfortunately, unhealthy food choices tend to increase due to the vast majority of food defaults. [17]. French fries and beverages can be set as a default in many restaurants, people often stick to eating this kind of junk food since they tend to keep normal even though they say they want to reduce the size if someone asked them. Therefore, if people want to change their eating habits, they must request a substitute -something on the opposite of status quo basis. They need to make up their mind to seek healthier options because such defaults are influential.

3.2. Taste Of Unhealthy Food

According to the first reason, normally, people can behave more rationally when they are eating more delicious foods [20]. There is no question that taste of food is a key factor when people decide whether to eat or not. People are not willing to eat food that tastes bad. Hence making healthy food more delicious can build effective feed-back loops, which are more likely to bring good emotions. Cohen and his teammates conduct a study that added fruits and vegetables to two groups, but only that group that improved the taste of food led to higher consumption [21].

3.3. Loss Aversion

People tend to put more weight on losses relative to equal gains, thus people often avoid losses especially when the stakes increase [16,17]. People usually pay attention to risks, costs, or losses related to accepting new behavior. When faced with a decision, people think that the utility of losing something is far greater than the utility of gaining something. As far as healthy eating is concerned, people are unwilling to lose junk food because they taste well and they can have a good time when they eat something yummy. Under this decision-making mechanism, individuals are more concerned with direct enjoyment experience, considering factors such as taste, convenience and satiety. Compared with it, although eating healthier food can make them healthier, people prefer not to lose the delicious junk food rather than choosing healthier options. This trend is reflected in contingent valuation studies, showing that willingness to accept is often higher than the willingness to pay [18,19].

3.4. Frame Effect

According to the fourth reason, the Frame effect refers to the influence of information surrounding a decision (the frame) on the decision itself, the same meaning of information using different descriptions changes consumers' behaviors. Framing information and marketing can have a significant influence on decision making. For example, one research [21] has found that medical patients will reduce reliance on anecdotes when they see the statistical information in pictographs. They can make a wiser decision. Also, maybe it is hard for many people to understand by labeling nutritional information and calories. Such research can appeal to change the type of nutrition label that should be displayed on the package of food. Like using a color-code scheme that is reliable.

3.5. Time Discount

As for the third reason, if time (time discounting) or space (space discounting) is far away, people tend to think that things have little value or meaning [22]. For

example, people often prefer immediate rewards even though it is smaller (eg. \$10 now) rather than larger future rewards (eg. \$20 in the next year). What's more, they often try to avoid actions that may cost them a lot in the short-term. Like buying a motorbike to go to work. Although it can bring long-term benefits (save the commune fee). Temporal factors have a key role. Some food characteristics such as taste and convenience offer immediate rewards, whereas for others the reward is more distant. Individuals tend to underestimate the value of long-term rewards, so even the most health-conscious consumers may encounter conflicts between healthy food choices and their promised long-term benefits and the short-term pleasures of tastier but less healthy choices [23]. In the food industry, people tend to choose cheaper but unhealthy food because this kind of food is usually yummy and cheap while healthier options are more expensive. People tend to put a bigger weight on temporary satisfaction relative to cost and benefit and put a smaller weight on long-term satisfaction. When making quick choices, short-term flavors will especially take precedence over long-term flavors, such as the tempting dessert trays offered in cafeterias. Despite most consumers knowing that healthy food is good for health, it can't be seen in the short-term. Therefore, a great number of consumers still choose to eat unhealthy food though they know it is harmful to do so.

3.6. Income Inequality

According to the second reason, income inequality is everywhere in the world. Meanwhile, vegetables and fruits are often more expensive than these junk foods (i.e. sugar, fried chicken). The poor family can hardly afford the expensive healthy food. Compared with it, they prefer to buy unhealthy food to full their belly rather than buying healthy food to pursue healthy. It is normal to see many health problems in many poor places, which is a very urgent issue needed to be solved.

3.7. Short-sight Behavior

Because of the third reason, many consumers have myopic tendencies. They are not good at considering long-term self-interests, scrutinizing consequences of short-term gratification. For example, one research [24] use a framework called the hot-cold decision triangle to find that everyone has two decision states, cold states and hot states. When individuals respond impulsively to immediate stimuli, this often indicates the hot state of thinking. Cold thinking usually can make people think in the long-term, which places a higher priority on long-term payoffs such as health. Individuals have been found to underestimate the effects of such immediate stimuli, a finding referred to as the hot-cold empathy gap [25]. This results in most consumers becoming myopia. They are easy to overestimate their ability to withstand immediate temptations and find themselves giving in to them. To

resist such temptations (as chocolate and hamburgers), self-control is required. However, research shows that the ability to maintain the necessary level of effort may be exhausted [26].

4. POLICY IMPLICATION

These key insights from behavioral economics and psychology can exert a positive impact on policymakers. They can guide the effective design and delivery of consumers-focused strategies and public policy interventions to change consumers' food choices, especially solutions that concentrate on framing, choice architecture to change their choice. While it is impossible to display all the implications on this paper, we still hope policymakers think about how to completely change all kinds of consumers' persistent cognitive bias and determine how to shift consumer behavior in the desired direction. The cost-effective, practical and mass-scalable approaches should be thought of firstly.

4.1 Status Quo Bias And Defaults

In this regard, We were able to show that participants wishing to change habits (i.e. those with strong habits but unfavorable intentions) were less likely to choose a new performance environment through transformation [27]. The effectiveness of behavioral interventions can be directly targeting those energy-related practices that can easily and effortlessly be modified using default settings [22], for example, the menu label is a traditional policy that requires all restaurants to display calorie information on their menus and menu boards at the time of purchase. Besides, we can encourage the restaurant to perform one-off actions--for example, require every restaurant transform their default side dish from French Fries and baked Potato to vegetables and fruits. Consumers need to change their side dish where interested customers must actively ask if they don't wish to eat this kind of healthy food. What's more, we can use traffic light methods --for instance, we can list different food with different colors (higher calorie, redder and lower, greener) and we need to list some suggestions that show the recommended daily caloric intake. We can use a different combination of colors to display it. Roberto found that adults will decide to consume less when they see the calorie labels [27]. Other research use traffic lights to highlight low-and high-calorie items [28], making more people choose green food and fewer people consume red food. The change of environment will not only affect the habits, but also bring behavior under intentional control. Ideally, strategies that target inertia and encourage people to shift from the status quo (i.e. offering 'free trial' periods or changing the order of normal menu). This environmental change will make it easier for people to adapt when automatic, routine and habitual patterns of behavior are disrupted [29,30].

4.2. Anchoring Effect

Usually, people can eat more when they are served more and large portions are a common and influential default setting in restaurants. The consumer can hardly differentiate the different volumes. Even though the vast majority of people, especially those who want to control their weight, prefer to eat smaller sizes at restaurants, actually no one will ask to order small ones. They are still often normal or even large ones. However, when asked if people in the restaurant wanted to cut back on their meals, more than a third said they would. [17]. Therefore, we can set a limit size option at the restaurant (eg. place a 16-ounce limit on containers used to serve sugar-sweetened drinks in restaurants). If someone wants to eat more, they need to order more, this does not have harm for those who are fully rational. It is a truth widely acknowledged that sugar-sweetened beverages contribute to obesity [31,32]. Also, we can use anchoring cost bias, steadily downsize the normal large portion size of the main course and increase the size of healthy food (eg. healthy vegetable salad). Some research compared with customers who purchased the standard portion, those who purchased the larger portion increased their energy intake. But two groups of customers don't think there are differences of the appropriateness of the portion size or of the amount that was eaten their usual meal. These results suggest that large portion sizes contribute to the obesity epidemic [33].

4.3. Loss Aversion

People are always eager to avoid and minimize losses and unnecessary costs. Therefore, in terms of this bias, we can make the information more effective and salient. Rather than only paying attention to the benefit of healthy food (a gain-framed message), concentrate on the expense of eating (i.e. money, effort) junk food (a lose-framed message), and We need to highlight how junk food can adversely affect our health and lives, thereby reducing future costs and losses. According to some research, negative frames may be most persuasive in persuasive social contexts with self-referencing appeals, whereas positive frames work best when benefits to self as well as others are emphasized.[34] For example, Gonzales et al.[35] have suggested that when communicating messages to improve energy efficiency (e.g., advocating retrofitting), framing recommendations in terms of loss (i.e., energy and money lost via inaction) rather than gain (i.e., energy or money gained via action) may be more effective. This is also can be used in the food industry. Therefore, a statement such as, 'You are killing yourself and it will cost you \$50000 at hospital in the future' is likely to be more motivating than stating, 'You could save \$20000 at the hospital by eating more healthy food'. food can exert a detrimental impact on our health and life, reducing future cost and losses. However, some shortcomings can influence the effectiveness of lose-framed message (i.e. who/what the reference point

is, characteristics of target people), because some research indicate that positive frames work best when benefits to self as well as others are emphasized [34] even though lose-framed message may be more memorable when appealing themselves. Therefore, comprehensive frames are needed to be considered.

4.4. Discount Over Time

Some researches recognize that delays render consequences less effective in guiding behavior. Therefore, time discounting refers to the reduction of the consequence effect due to delay. Because the cost of choosing and eating healthy food (i.e. give up yummy and cheap fast food and choosing expensive vegetables) are often big and immediate, the benefit of eating healthy food is delayed. According to research, decisions involving immediate and delayed rewards have higher neural activity in the limbic system than decisions involving only delayed rewards [41]. Therefore, we need to consider the long-term benefit of eating healthy food when we make the policies. Other research indicates that precommitment [37] can decrease the effect of temporal and spatial discounting and reduce impulsivity and/or encourage delayed gratification and self-control [36]. Thus we need to consider these insights when we consider policy, for example, we can offer immediate rewards (e.g. Discount on vegetables) when the consumer chooses to eat healthy food rather than junk food. We can encourage government to distribute more frequent issuance, appealing to more consumers to buy healthy food. For instance, twice-monthly versus monthly payments could be useful to facilitate the purchase of perishable products, such as fruits and vegetables, throughout the month [42]. These rewards can be intrinsic (e.g. praise, commendation) and also can be extrinsic (e.g. money, gifts) [22]. More people may choose healthy food when they received short-term rewards and they can still get long-term rewards in the future.

4.5. Be Motivated By Rewards And Incentives

Many policies now use monetary rewards to appeal to consumers to choose healthy food, some research indicates that the function of monetary rewards can only yield inconsistent and temporary effects. If the governments want a lasting and long-term policy, they can consider non-monetary interventions [38]. As with praise, recognition and social approval should be used to motivate healthy food choices. For example, people are more motivated to continue to eat more healthy food rather than junk food when they are praised that they become slenderer and they look more handsome. This is because such intrinsic rewards can make them feel good about themselves (e.g., increasing self-confidence and self-esteem) and because people care about their image and what others think of them. Meanwhile, some studies

have shown that intrinsic rewards in the form of praise, public recognition, and praise may have stronger and more consistent behavioral effects than monetary rewards [39,40].

4.6. Myopia

Human time discounting reflects two fundamentally different mechanism systems: one prioritizes the present and rarely considers the future (as do other animals), and the other consistently discount results over time (as do humans) [42]. Modern society are unstable and complex. Some research indicate that accept small rewards may be optimal. Incorporating long-term planning and self-prediction of the distant future into current decisions may also be a recent evolution compared to the tendency to accept instant gratification. [41] Therefore, short-term rewards should be considered when making food policy because people are often myopia.

5. DISCUSSION

After decades of research in the field of behavioral economics and psychology, these researches provide a series of valuable insights for understanding consumer food choice and decision-making. However, behavioral economics research has found some cognitive biases that may limit the effectiveness of cause-based methods [43]. This article reviews some findings related to food consumption and discusses some potential applications to the food industry and suggestions to the policymakers. Food has a great number of characteristics that consumers emphasize, from the price, taste and convenience to health and safety. All of these factors can change the consumers' choices. According to the conventional assumption, all consumers can make an optimal decision because they are rational, they may pay more attention to nutrition and health. However, behavioral economics finds that consumers actually are not so consistent, there are many biases can influence their choice. For example, temporal plays a key role in this situation. Some food characteristics, such as taste and convenience, provide immediate rewards, while for others the rewards are further down the line. [44] consumers tend to underestimate the long-term benefit. Besides, many factors can change consumers' decisions. Therefore, it is hard to find university of research findings. Future research should not only focus on the factors that can predict consumers' food choices but also should concentrate on how to change the consumers' decisions and when, where, and why this situation happens. Namely, random controlled trials with larger samples of participants, more objective measures of actual behavior, and longitudinal data collected over extended time frames [17]. From a theoretical point of view, researchers should devote themselves to developing simple and general models and explaining most of the psychological phenomena we have referenced here.

6. CONCLUSION

Behavior science can not only shed light on important reasons which can result in health problems like obesity, but also help us understand why preventing and treating childhood obesity is so difficult. In this paper, we analysis why nowadays more and more people prefer to eat junk food rather than eating vegetables and fruits and want to find the factors which can explain this phenomenon. Because this research uses behavioral economics and psychology to predict, explain and change such kinds of behavior, behaviors of consumers are totally different from the conventional assumption. Consumer behaviors, decisions, values and attitudes are affected by various cognitive bias which seem not rational, not seeking to maximize their material interests. For example, people do not like lose more than like gains and like immediate rewards more than long-term rewards even though they are bigger. It is vital to take all these into account when making policy suggestions for encouraging consumers to consume more healthy food. We argue that we can change consumers' behavior by altering default options, providing immediate intrinsic rewards, motivated people by giving them incentives, and giving them information about lose if they continue eating unhealthy food. This paper focus on the obesity and food policy, these insights can also be used to guide consumers. Although the field of psychology and behavior economics have existed for decades, there still some theoretical and empirical gaps inevitably remain. There are many gaps in this paper. However, these can offer potential avenues for future research. For example, there is still a lot of room here to promote our understanding of the key determinants of food choice as well as the precise rewards and incentives and the extent of impact that such kind of rewards and incentives have on consumers making them change their consuming habits. Meanwhile, research should rely more on empirical research and influence evaluation (test reliability and universality) and display a more reliable model to explain, change and predict consumer behaviors.

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