Healthy checkout and impulse purchases

The impact of in-store stimuli on the nature of the buying behaviour

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***Abstract*— The present work aims to implement and test a 'healthy checkout' in a real retailing environment in order to explore the effectiveness of this kind of intervention in terms of helping customers making healthy choices on impulse, contrary to the claim of the extant literature. By developing this research, we want to enrich the extant literature by analyzing the nature of the behaviour in front of the checkout and the effect of in-store stimuli (specifically, assortment and communication) on that nature. For the purpose of the present work, all candies and chocolate at the checkout were replaced by a selection of healthy products. The assortment included a mix of fresh fruit, dried fruit, dried fruit bars, nuts and smoothies. A structured questionnaire was submitted at the end of the shopping trip to the sample considered in different stores in the north of Italy. Participants were asked to evaluate the effectiveness of the intervention (assortment and communication) and the effect of these levers on the nature of the behaviour was assessed. Our findings show that by placing healthy snacks at the checkout and by communicating them at a category level in an easy processable way it is possible to trigger healthy choices on impulse.**

***Key words*— healthy checkout, in store marketing, nudging, shopper behaviour, grocery setting, long-term effectiveness**

I. Introduction

Nutrition is one of the most critical topics of our time since it has been demonstrated that good nutrition is essential for health [1]. The importance of this theme is supported by the fact that individuals are now aware that a proper nutrition is the most appropriate tool to prevent and manage physical dysfunctions. Therefore, they are changing their approach to food, based on a greater focus on healthy diets and healthy aspects of food.

However, despite the will of preserve health, according to the WHO (World Health Organization) over 50% percent of people in Europe are overweight, and over 20% are obese (WHO, 2016). Furthermore, the percentage of diseases connected with food has increased over the last few years (Istat, 2016).

In this scenario, Retailers can be considered responsible for the development of unhealthy food and beverage choices [2] and for being an obstacle between shoppers' will of conducting a healthy lifestyle and their actual indulgent behaviour. Despite the introduction of healthier products alternatives by manufactures, like light or low-fat food products, people can't make healthy choices in a supermarket environment [3].

As a proof, energy-dense snack foods are strategically promoted inside the store in prominent locations (such as end-of-aisle and checkout) because of their high profitability and potential to lead shoppers to make impulse purchases [4]. Along the path to purchase, the checkout represents an area where all shoppers must pass through when they go shopping [5] and for this reason, it is consider one of the most powerful location to promote impulsive purchases. Thus, the impulsive nature of the category and the impulsive location where snacks are displayed, make retailers responsible for the spread of unhealthy eating habits: they have placed short term profits goals above uncertain long term society benefits [6].

Since it has been demonstrated that the environment in which decisions are taken plays an important role in influencing food purchases [4, 7-9], retailers can provide opportunities to improve health outcomes by helping consumers easily identifying healthier products inside the store.

In this sense, replacing unhealthy snacks with healthy ones could be an effective way to promote health among customers by stimulate healthy choices on impulse, overriding the need of self-control resources that healthy choices are supposed to require [10-11].

The present work aims to implement and test a 'healthy checkout' in a real retailing environment in order to explore the effectiveness of this kind of intervention in terms of helping customers making healthy choices on impulse and the role of healthy communication in helping customer choosing healthy products.

By implementing this strategy, we want to fill several gaps in the extant literature and provide valuable contributions in the promotions of healthy food choices. First, we want to enrich the literature about the strategies developed in grocery setting. Many researchers have argued that the interventions made inside grocery stores are less effective then those made in other settings, like canteens, restaurant, work places, hospitals and stations, due to the presence of several stimuli to which customers are exposed [12]. Furhermore, several authors have recognized that all over the country, the presence of unhealthy snacks at the checkout is one of the major problems connected with childhood obesity and, in general, the spread of harmful eating habits [5], but only few attempts have been made to

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exploit checkout to promote health. In addition, none of them tried to understand the nature of the behaviour in front of the healthy checkout, leaving unresolved the effect of the environment over the cognitive resources required according to the literature about health related behaviours. Finally, the healthy checkout that we want to test is the first example run by an Italian retail chain as a way to promote health among customers.

In order to fill in the gaps previously mentioned, the paper is organized as followed. First, we provide an overview of the literature related to impulse buying, its antecedents and the role of environment and products' characteristics in affecting the nature of the behaviour and we develop hypotheses. Second, we present our methodology, which consists in one main study, which, using structured questionnaires. Then, we provide an overview of the major conclusions, and we discuss the implications for retail managers.

II. Theoretical Framework and Hypothesis

Marketing research has demonstrated that in-store strategies influence consumers' buying behaviour. In fact, several authors started to recognize that many decisions are not made until consumers enter the store [15-16]. The literature defined this phenomenon as 'impulse buying". According to the extant literature, an impulse purchase can be defined as 'a sudden and immediate purchase with no pre-shopping intentions either to buy the specific product category or to fulfil a specific buying task' [16].

Several studies have tried to identify the factors that affect and stimulate impulse purchases [17] and they have been divided into three categories: individual characteristics [18]; product category variables [15, 19-20] and situational factors [16, 21]. Among individual characteristics can be cited demographical variables, such as gender and age [22-23] and personality traits, such as Impulse Buying Tendency [19].

Otherwise, the characteristics of the category and the product bought can influence the nature of the choice (impulsive vs unplanned). Thus, hedonic goods, such as chocolate cake or snacks, by eliciting more positive affect than functional goods, are more likely to trigger a positive appraisal of that item [15]. These products are more likely to be purchased on impulse than functional products [24]. This means that at the point of sales, vice products are more susceptible to in-store strategies, while virtue products' purchases is something planned.

In the same way, among situational factors, five main subcategories can be cited [21]: physical surrounding, social surrounding, temporal perspective, antecedent states and task definition. In particular, with reference to grocery shopping, physical surroundings may include in store stimuli such as quantity and quality of the space attributed to the category, display arrangement [25], in store communication, in-store advertisements [26], in-store signage [27], colours [28], store environment, services, store layout, and in store promotion [29]. Among the more profitable areas inside the store, checkout can be considered a prime location to promote additional purchases and impulse buying [30]. In fact, checkout can be defined as 'any compulsory area that shoppers would have to pass through to pay for their goods' [5].

Nevertheless, the majority of retailers, have decided to place sweets, chocolate, candies, gums and chips at the checkout in order to increase sales of these unhealthy but profitable products [5, 31]. Thus, retailers have preferred to stimulate the desire of immediate pleasure rather than uncertain rewards such as helping customers achieving future benefits in terms of health [4,6].

However, some authors have argued that space can be exploit at the point of purchase in order to promote healthy food [4, 14, 32-33] and, more important, to help customers achieving dietary behaviour changes [2].

Placing healthy products at the checkout is a kind of intervention that works on increasing accessibility (convenience or closeness of physically obtaining a product) and availability (presence of the products). On one hand, it has been demonstrated that placing products in prominent locations could increase sales of that products. On the other hand, increasing availability of healthy products can increase the likelihood that consumers find a snack that fits their need and a wide assortment of healthy products may be seen as a cue that implies a consumption norm [4].

Altering the accessibility and the availability of the products are among those strategies named as 'nudging'. Nudging reshapes the environment in which shoppers take their decisions by changing the presentation of options to consumers and making them more appealing, without removing options, changing economic incentive or constraining shoppers' liberty of choice [34-35].

In literature, there are different kinds of nudging and the most common ones are: 'priming nudges', which include altering the visibility, the accessibility and/or the availability of food and beverage in the environment, and 'silence nudges', which use explanation to increase shoppers' attention to a particular choice and comprise, for example, shelf labels and communication [2].

If we consider the checkout in the grocery store environment, studies have focused on priming nudges [2, 4, 6], while few studies have tried to combine priming nudges and communication [36]. To the authors' knowledge, only one experiment tried to test the combination of space management and communication, demonstrating no significant differences between the effectiveness of the intervention when only accessibility and visibility were manipulated compare to the situation in which also information were provided in terms of sales [14]. However, the importance of communication has been demonstrated by several authors [25, 28], who consider it, together with space management, the most important in store marketing levers able to influence purchases. Furthermore, information is one of the most important variables in healthy food related choices. The importance of the communication is very high in the selection of healthy products, since shoppers need to read the huge amount of information provided by the Nutritional Information Panel (NIP) for each product [33].

However, past research has demonstrated that the complexity of the nutritional information can be considered a

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barrier from understanding the information, using them and making healthier and smarter food choices [4]. This suggests that, in order for nutritional information to be incorporated into consumers' decisions, it does not have to be only available at the point of purchase but also easily "processable".

Thus, providing customers synthetic information can help them easily identify and select products that fit their needs. Providing them easily processable information together with aggregating healthy products and giving a visual cue, can be an effective way to help individuals choosing healthily, even when cognitive resources are not available at the moment of the choice. It has been previously argue that impulsive behaviours are due to environmental variables, category characteristics and personal characteristics. Thus, we believe that the environment and specifically, the combination of availability and accessibility of healthy products and easily processable nutrition information can lead consumers to conduct healthy choices on impulse. As some authors have stated, managing together space and communication can make the healthier products easier to select, both mentally, with simple education, and physically, by rearranging the environment to make healthier options more visible, accessible and available, as argued by several authors [4]. These considerations lead us to posit the following hypothesis:

H1. Placing healthy products and the checkout and communicate them towards easily processable information can lead customers to purchase healthy products on impulse

III. Methodology

A. *The development of the Healthy checkout*

Thanks to the collaboration of an Italian leading chain, we initially implemented healthy checkout in five supermarkets in the north of Italy. All the stores were located in suburb areas, were medium sized, and belonged to Every Day Low Price format. This means that no price promotions are offered and no promotional fliers are used, but it is guaranteed a low level of prices every day, for the entire assortment. Thus, all of them had similar features in terms of customers, location, dimension and strategy.

In all the stores considered, unhealthy snacks were removed from all the checkouts of each store and were displayed away from that area on a sideboard, as tested in a previous study [32]. At the checkouts, they were all replaced by a selection of healthy products. The assortment included a mix of fresh fruit, dried fruit, dried fruit bars, nuts and smoothies. The selection of the healthy items was based on the overall nutritional profile of each product. In particular, we used a Nutrition Information System (NIS) which takes into account the content of energy, saturated fat, sodium, sugars, fibres, protein and the proportion of fruit, vegetable, nut and legume content, and assign a scores, that goes from ½ to 5 [37], to each product analysed (Health Star Rating System). Lower scores mean that the product has low nutritional values, while high scores mean that it has good nutritional values. The products displayed on the checkouts achieved a score higher than the minimum acceptable score set in accordance with the retailer (minimum score = 2). For each product, the corresponding score has been communicated with stars symbol. Several algorithms and FOP labels have been developed so far, but to the authors' knowledge, this seems to be the more complete one, since it takes into account the majority of the nutrients provided in the Nutrition Information Panel displayed on the back of the package of each products. Finally, the communication placed on the top of the checkouts' shelves gave information about the criterion used for the selection of the items and the meaning of the scores

B. *Main study: The impact of instore stimuli on the nature of the behaviour at the checkout*

A total of 800 customers were interviewed at the end of the shopping trip in five of the stores where healthy checkout have been tested, several months after the implementation. 623 (69.4% female, 50% under 44, 50% over 44) of them noticed the intervention (both the presence of different products at the checkout and the communication), while 177 shoppers (23% of the sample) were not aware of the intervention. In particular, 313 shoppers were interviewed in the store located in the suburb area of Milan (north of Italy) in July 2016, two months after the implementation (68% female, 50% under 44, 83% normal weight), while the remaining 310 were collected in three store of Parma and Modena (north of Italy) in September 2016, five months after the implementation (70% female, 50% under 44, 87% normal weight). Among the 623 interviewed, 117 bought a product at the checkout during the shopping expedition analysed. After removing 13 participant due to incomplete responses, we obtained a sample of 105 participants (70% female, 62% under 44, 90% normal weight).

In order to test hypothesis, our dependent variable was the impulsiveness of the choice. Participants were asked to indicate whether their purchase at the healthy checkout was something made on impulse because triggered by the environment (complete absence of planning or reminded purchase) or was planned before the shopping expedition. Participants were informed about the definition of impulse and planned purchase and the response was coded as a binomial variable (0= planned purchase, 1=impulsive purchase).

The independent variables comprised the variables that could influence the nature of the behaviour: personal characteristics, situational factors and in-store stimuli, as found in literature, and the selection of the variable was based on previous similar studies [26]. Specifically, age, gender, frequency of shopping (every day, twice a week, once a week, one a month, less that once a month), money available for the shopping trip, and impulse buying tendency were considered, since it has largely been demonstrated their impact on impulsive choices [26, 38]. We deliberately decided not to consider time available since the time spent at the checkout does not depend on shoppers but on the quality of the service provided by the personnel, and on the number of shoppers who are waiting in a queue. Gender was measured by categorical code (0=male, 1=female), while for age participants were

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asked to indicate one of the following classes: 20-24, 25-29, 30-34, 35-44, 45-55, 55-64, over 65. All the other variables were measured trough 7-point Likert scales. In particular, participants were asked to indicate how much they agreed with the statements proposed (1=strongly disagree, 7=strongly agree). Impulse Buying Tendency (IBT) was measure through three 7-points items ('When I go shopping, I buy things that I had not intended to buy', and 'I am a person who makes unplanned purchases', It is fun to buy spontaneously'). The scale used comes from the one developed by Weun et al. (1998) [18] and the Cronbach's alpha was 0.70. Among situational factors, money available was assesses trough three 7-point items ('I do not feel I can afford to make any unplanned purchases on this trip', 'I am on a tight budget while on this shopping trip', and 'I feel that I have enough extra money on this shopping trip'). The scale comes from the one used by Beatty and Ferrel (1998) [16] and the Cronbach's alpha was 0.94. Then, in-store stimuli effects were measured. In particular, the attitude toward in store levers (communication and assortment) was assessed trough different measures. Attitude towards the products displayed at the checkout wanted to measure different aspects (perceived healthiness and novelty, in particular). One 7-points item measure the novelty of the products displayed ('The products offered at the checkout are new for me'), while two 7-point items measured the healthiness perception of the products displayed ('I think that the products displayed are healthy', 'This is a shelf display packed with healthy snacks'). Both variables were based on the scale developed by van Kleef et al. (2012) [4]. The Cronbach's alpha for the perceived healthiness was 0.78. The attitude towards the communication was assess measuring both the informative aspect using a 7- points item ('This communication helps me to get more information') and its perceived ability to influence behaviours through two 7-points items, ('The communication is effective', and 'I think that this kind of communication can influence individual's choices'). The Cronbach's alpha for the last variable was 0.79. The items used come from the scale developed by Moreau, Markman, and Lehmann in 2001 [39]. Finally, a single 7-points scale assessed the ease of the choice in front of the healthy checkout ('The shelf makes the choice easy'). This last item was referred to the easily processable information provided and the fact that all the healthy products are grouped together. Data were processed using SPSS 24 statistical software and we tested our first hypothesis using logistic regression analysis.

IV. Findings and Discussion

As a general overview, we found that 62 participants out of 105 bought something from the healthy checkout on impulse (59% of the sample who bough at least one product at the checkout during the shopping expedition analysed), while the remaining 41% planned the purchase of the healthy snack. After that we followed the procedure previously used by other authors [26]. After assessing that the assumptions of the logistic regression were met, we run a binary logistic regression. The output of the analysis is shown in Table I.

TABLE I. Output of the binary logistic regression

		95% CI for Odd ratio		
Variable	***B(SE)***	***Odd ratio***	***Lower***	***Upper***
Sex	-1.185* (.729)	.306	.073	1.278
Age 20-24				
Age 25-29	-.480 (1.440)	.619	.037	10.407
Age 30-34	-.530 (1.369)	.589	.040	8.620
Age 35-44	.784 (1.295)	2.190	.173	27.739
Age 45-55	.877 (1.427)	2.404	.147	39.401
Age 55-64	.556(1.445)	1.744	.103	29.612
Age over 65	.185 (1.400)	1.204	.077	18.714
Perceived healthiness of products	.384 (.340)	1.468	.753	2.860
Perceived novelty of the assortment	-.065 (.325)	.937	.495	1.774
Perceived ease of the choice	.479*(.308)	1.615	.883	2.952
Perceived effectiveness of the communication	.847** (.406)	2.333	1.052	5.174
Informative aspect of communication	-1.492**** (.439)	.225	.095	.532
IBT	.403 (.296)	1.497	.837	2.676
Money available	.900*** (.351)	2.460	1.235	4.898
Frequency (once a day)				
Frequency (twice a week)	-.839 (833)	.432	.085	2.212
Frequency (once a week)	.766(.936)	2.152	.344	13.469
Frequency (once a month)	2.479 (1.955)	11.926	.258	550.348
Frequency (less then once a month)	1.651(1.296)	5.210	.411	66.013
Constant	.714 (1.205)	2.043		

R2= .626 (Hosmer & Lemershow), .470 (Cox & Snell), .548 (Nagelkerke). Model x2 (18)= 54.339 , p<.001. *p<.10, **p<.05, ***p<.01, ****p<.001

The output shows that the overall regression equation is statistically significant (chi square = 54.339, p <.001). Looking at each variable considered, the ones found to be significant are sex, perceived effectiveness of the communication, informative aspect of the communication, perceived ease of choice and money available. Specifically, men were found to be more prone to buying something on impulse at the checkout than women. Secondly, the perceived effectiveness of the communication was found to affect impulsive behaviours: the more an individual perceives the communication as effective and attractive, the more is it likely that purchase at the

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checkout is made on impulse. On the other hand, the informative aspect of the communication was found to negatively affect impulsive behaviours: the more the communication is perceived as informative, the more the behaviour at the checkout is planned. Furthermore, the more the display and the communication are perceived as they make the choice easy, the higher the likelihood that the purchasing behaviour is on impulse. Finally, the money available was found to positively affect impulsive behaviours. No statistical impact was found for age, frequency of visit, perceived healthiness and novelty of the assortment displayed and impulse buying tendency.

By looking at the results, the most inportant finding is about in-store stimuli and two considerations must be done. First, we did not find a significant effect of the assortment, in terms of perceived healthiness and novelty of the products, displayed at the checkout. The types of products per se do not affect the nature of the behaviour. It has been argue that the impulsivity of the choice can be explained by the product category: the more the product is a vice product, able to evoke immediate gratification, the more likely an individual is to buy on impulse. Otherwise, the purchase of virtue products, like healthy ones, is mainly planned before the shopping trip, as it is seen as something virtuous but not enjoyable [1]. However, in this case, the virtue characteristic of the products does not seem to affect the nature of the behaviour. This can be explained by the fact that the in-store stimuli can override the influence of the category's type and the impact of in-store stimuli is stronger. As a proof, the communication is found to significantly affect the nature of the behaviour. On one hand, the more the shoppers perceive the communication as attractive and effective, the higher the probability to buy on impulse. On the other hand, the more the shoppers recognize an informative role of the communication (it helps acquiring more information), the lower the probability to buy on impulse. The majority of the literature about healthy behaviours highlights that a high level of self-control and a huge amount of information available at the moment of the choice can lead people making a reasoned choice and so, buying healthy products [40].

This is partially demonstrated also by this work. However, depending on how the information are proposed, on how attractive and simple they are and perceived, it is possible to lead people choosing healthy products on impulse. The perceived ease of selection of products on the shelf (connected with the simple communication and the fact that all the healthy products are grouped together) have a substantial impact on the nature of the behaviour. People who bought a product on impulse perceived the healthy checkout as more helpful in making the choice easy than individual who planned the purchase. When retailers develop a strategy to promote health, they should keep in mind that, for what concern in store communication, that if a communication is perceived as effective, and not only informative, and the strategy is perceived as helpful in simplifying the buying process, healthy choices can be performed on impulse.

V. Conclusion and Managerial Implications

The research and its results let us conclude that purchases of healthy products can be made on impulse if adequately promoted inside the store. Specifically we found that 62 participants out of 105 bought something from the healthy checkout on impulse (59% of the sample who bough at least one product at the checkout during the shopping expedition analysed), while the remaining 41% planned the purchase of the healthy snack. Then, we found that the impulsive nature of the behaviour was triggered by the communication (perceived attractiveness and perceived ease of the choice in front of the shelf), money available during the shopping expedition and gender (men are more willing to buy healthy snacks on impulse compared to women). These results led us to conclude that, by managing in store marketing levers, and especially, availability and accessibility of products, and shelf communication, it is possible to promote health on impulse. Specifically, communication has a major role in making people buy a healthy snack on impulse. Depending on the way information are presented, a behaviour can be planned or impulsive. The huge amount of information provided on each pack can be a barrier to the adoption of healthy behaviours: customers are paying more and more attention to the healthy aspects of food and more and more prepared and conscious. However, the time needed to read all the nutritional information stop them adopting healthy behaviours. Providing easy-to-process information at the point of sales can help customers saving time and at the same time making healthy choices. However, the communication alone is not enough. The healthy checkout implemented tried to simplify the choice by communicating the nutritional quality of the products both at a single product level and a category level: displaying together all the healthy products can be a visual cue that make the choice of healthy products something automatic and without the full awareness of the behaviour.

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