HEALTHY DISPLAYS INSIDE GROCERY STORES: A LAB EXPERIMENT TO ASSESS THE IMPACT OF RETAILERS' STRATEGIES

[1]BENEDETTA GRANDI, [2]MARIA GRAZIA CARDINALI

[1, 2]Department of Economics and Management, University of Parma, Italy
[1]benedetta.grandi@unipr.it,[2]mariagrazia.cardinali@unipr.it

Abstract- The main purpose of this study is to develop an innovative in store marketing strategy able to promote healthier products inside grocery stores and test its effectiveness in terms of ability to change both behaviours and attitudes. By conducting a lab experiment, we wanted to fill several gaps in the extant literature. While there are many studies explaining the mechanisms supporting healthy choices, fewer are the contributions about the role of retailers in promoting healthy eating through in-store marketing levers. Furthermore, there are few studies about the impact of retailers' strategies on attitudes and beliefs.

Keywords- grocery stores, healthy choices, in-store marketing levers

I. INTRODUCTION

Until now, retailers and manufactures have implemented marketing strategies in order to incentive the purchase of inexpensive, ready-to-eat and altered food [1] in the belief that it is possible to influence consumers' behaviour inside the store and stimulate impulsive purchases towards profitable products [2]-[7]. However, the growing attention towards health and nutrition is designed to change marketing practices in food sector and considering that the majority of food purchases occur in grocery retailing, the point of sale is the right place where promoting healthy eating through in-store marketing levers [8].

For the purpose of this work, we tested the effectiveness of a new kind of display segmentation in the sweet snacks (bakery) category, based on the nutritional profile of products. To achieve this goal, we used experimental design methodology.By developing and test this kind of strategy we want to fill several gaps in the extant literature. First of all, this work intends to find new ways to help consumers choosing healthier product among packaged food inside grocery stores. Most of the interventions developed so far have been oriented to the promotion of healthy food categories, such as fruit and vegetables. Nevertheless, the framework of shopper marketing suggests opportunities for encouraging and facilitating healthier food purchasing within packaged food categories [9]. In this regard, recently some authors [10] have found that individuals do not consider as healthy only fresh products, but they recognize that inside food packaged categories there are more and less healthy alternatives. Finally, most important, we wanted to test the effectiveness of the strategy considering both behaviours and attitudes changes. Most of the studies have focused their attention on the effects on products selection, while questions as to how the beliefs are acquired and whether and how they may be altered remain to be answered.In order to fill those gaps, the present paper is organized as follows. First, we provide an overview of the literature on the role of retailers in influencing shopping behaviour and the possibility to promote health among customers and to change attitudes. Then, we develop our hypotheses. Second, we present our methodology and we present and discuss the main results obtained. Third, we provide an overview of the major conclusions, and we discuss the implications for retail managers. Finally, we address the limitations and suggest interesting areas for future research.

II. CONCEPTUAL FRAMEWORK

The role of retailers in influencing behaviours. There is a wide literature, starting from the nineties, which recognizes to the point of sales the ability to influence consumers' behaviour, preferences, and choices. Thanks to the management if in-store marketing levers it is possible to guide shoppers inside the store and make them selecting some products and categories over others [6]. Quantity and quality of the space given to the category, display arrangement, in store communication, in-store advertisements [11], in-store signage [12], colours [13], store environment [14], services, store layout and in store promotion [15] could influence sales and modify our behaviours and choices. However, retailers have managed these levers in order to achieve profits goals intead of health ones in the belief that only vice products purchases can be triggered and influenced inside the store. As an example, they have adopted special in-store displays strategically positioned along the path to purchase (e.g. candy at the cash register).

However, recently some authors have started to highlight that whether food decisions will be healthy or unhealthy can depend on environmental cues available in a situation [16][17]. This means that, if managed properly, in-store marketing levers could

encourage and facilitate healthier food purchasing [9].

Among all the levers that a retailer can manage, product placement and instore communication can be considered innovative approaches. As a proof, some authors have demonstrated that space arrangement, the amount of shelf-space, the prominence of location, such as at the end of an aisle, merchandising displays, department signage and shelf tags could influence healthy purchase decisions [18][8]. In particular, shelf labels and/or signage can display information about product' nutritional values and suggest the adequate quantity to consume [19].
The main goal of this tool is to summarize all the nutrition information of the products and present them in an immediate and effective way. Many studies have, in fact, found that one of the main problem that discourages shopper from reading the nutritional labels is huge amount of information presented and the absence of time available to do that [20][21]. The communication is very important when referring to healthy food selection, since shoppers need to read the huge amount of information provided by the Nutritional Information Panel (NIP) for each product. Past research has demonstrated that the complexity of the nutritional information can be considered a barrier from understanding the information, using them and making healthier and smarter food choices [22][23]. So giving information offers a stimulus to shoppers that works as a continuous reminder [24]. But giving only information is not enough.

We argue that the combination of the two strategies (space management and communication) is more effective than the single ones. 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 [24].
Based on these considerations we posit that

H1: Developing a strategy where both space and communication are managaed in a healthy manner can lead to a changing in the consumers' preferences

Several authors have argued and demonstrated that emotions can influence customer [25] and customer loyalty [26]. Moreover, emotions can predict customers' judgments [27], decision-making [28], and overall evaluation of products or services [29]. Thus, stimulating and evoking emotions can affect individuals' behaviours and choices. Given those results in the extant literature, we have tried to propose two different kinds of in-store communication with the aim to evoke different emotions: stars and colours to indicate the nutritional quality of the products displayed in the shelf. In the first case, we wanted to stimulate cognitive responses, since stars are usually used to indicate ranks [30]. The second alternative, instead, represents each segment with colours wants to be more impactful by speaking to the emotional mind [31]. Thus,

H2: A communication able to evoke emotions is considered more effective in making individuals changing their preferences and selecting healthier products (colours)

In the same way, since it has been largely demonstrated that presenting health-related cues might positively influence health behaviour among individuals who value the primed concepts [32], we posit that:

H3: People who are interested in health issue are more willing to change their preferences if they discover that these are not 'healthy'

The role of retailers in influencing attitudes towards health

However, behaviours and beliefs do not always go along. Sometimes happens that a communication and more in general a cue is able to modify behaviours in the short term, but if it does not affect attitudes and beliefs, the short term change does not became a long term one [33]. The main aim of a healthy communication is to educating consumers with respect to nutrition, increase awareness and change attitudes [34][35]. We previously argue that the complexity of the nutritional information can be considered a barrier from understanding the information, using them and making healthier and smarter food. This suggests that, in order for nutritional information to be incorporated into consumers' decisions and increase awareness and change attitude, it does not have to be only available at the point of purchase but also easily "processable" [22][36]. Thus,

H4: Providing synthetic and intuitive nutritional information at the point of purchase can help customers better understand the importance of healthy food and change attitudes

III. METHODOLOGY

In order to test the hypothesis previously mentioned, we followed different steps. First, we started with the development of the new display. Thanks to the cooperation of an Italian retail chain, we analysed the data system (sales, products' allocation and nutritional values information) about the sweet snacks' category referred to one single store. The decision to focus on the sweet snacks' category has one main reason: the great resources that many manufacturers have invested in chancing receipts and

proposing healthy alternatives of products assures the presence of a wide nutritional status range, which made the presentation of high/low nutritional status treatments entirely plausible [37].

Before starting the experiment, we visited the store in order to take note of the criteria of products' allocation on the shelf. Thanks to the Health Star Rating System, we rated the overall nutritional profile of each products displayed in the store. The algorithm used was developed by Food Standards Australia New Zealand and other technical and nutrition experts. This rating is based on scores given to energy (KJ), risk nutrients (as saturated fat, sodium and sugars) and positive nutrients (in particular dietary fibres, protein and the proportion of fruit, vegetable, nut and legume content). The values considered by the algorithm are based on a consistent measure of 100g or 100mL of a product. This means that the star ratings of similar products can be compared at-a-glance. The total score obtained for each product has been translated into a number of stars, whose range goes from ½ a star to 5 stars. The more stars, the healthier is the product.

Because of space allocation logics, we grouped the scores in three cluster: each item has been assigned to a specific segment (3 = high nutritional quality; 2 = medium nutritional quality; 1= scarce nutritional quality). Then, we created a new display composed by three vertical nutritional segments. The nutritional segments have been ordered from the healthier to the less healthy, according to the direction of travel of the shoppers.
Then, we created two alternatives of communication: stars (more rational) and colours (more emotional and intuitive). The aim was to test different type of communication in order to find out the more effective one.

Once created the display, we conducted a between-within subjects experiment in a laboratory setting, in order to explore consumers' behaviour in front of the new display, investigate consumer's willingness to change products, attitudes towards the strategy and its impact on consumers' beliefs and the efficacy of the communication. Three stimuli were used during the experiment: the "traditional display" (i.e. the sweet snacks display founded instore), the "stars display" (i.e. the nutritional display communicated with stars symbol) and the "colours display" (i.e. the nutritional display communicated with red, amber and green). All the displayes have been shown on the wall using a video projector so that we were able to recreate the real size of the products.A sample of 131 individuals (62.6% female, 50.3% belonging to the 18-29 age class, 32.9% to the 30-54 class and 16.8% over 55) was recruited and assigned to one of the two conditions developed: colours (53% of the sample) and stars (47%).

Measures. Before the experiment, people were asked to answer an open question about their definition of nutritional quality questions in order to have a deep undertanding of people beliefs about health issue. Then, they were asked questions about their health interest, labels usage and the variables take into account while choosing food products. Specifically, health interest was measured through seven 7-points items and it measure the extent to what a person is trying to control his diet ('I try to reduce my sodium intake', 'I watch the amount of fat I consume', 'I eat a well-balanced diet', 'I eat fresh fruits and vegetables', 'I moderate my red meat consumption', 'I cut back on snacks and treats', 'I avoid foods with additives and preservatives'). This scale come from the one developed by Moorman, [38] and the Cronbach's alpha was .824. Otherwise, nutritional labels usage was measure using four 7-points items ('I usually pay attention to nutrition information', 'I use nutrition information on the label when making most of my food selections', 'I look forward nutritional information of food products on the web', 'I would like to receive more information and nutritional content of products at the point of sales'), based on the scale developed by Moorman [38] and the Cronbach's alpha was .763. After that, participants were asked to indicate on a 7-points scale the importance given to price, nutritional content, taste and weight control while choosing a food product. Each participant has been placed in front of the traditional display and asked to select his favourite product. Then, participants were asked to confirm or change their preference in front of the nutritional display and to explain the motivation of their choice. To facilitate the comprehension of the new display, an information card was given to them. Then, after the choice participants were asked again, on a 7-points scale, the importance given to price, taste, nutritional content and weight in order to check the impact of the intervention on participants' attitude. Data were processed using both T-Lab and SPSS statistical software.

IV. FINDINGS AND DISCUSSION

Definition of nutritional quality. Participants were asked the following questions: 'What do you think 'nutritional quality' refers to?'. This activity led us to identify two main categories. 91% of participants said the nutritional quality is connected to the content (56% ingredients and nutritional content, 26.6% natural ingredients, 8.4% balanced ingredients), while 9% of customers identified the way products are produced (5.4% referred to the controlled supply chain while 3.8% mentioned certification).
Two communication stimuli: manipulation check. To ensure that we successfully manipulated the communication stimuli (star and colours), we needed to assess the emotion caused by the two different communications provided, in the believe that

stimulating and evoking emotions can positively affect individuals' beliefs, behaviours and choices [29]. After the choice made in front of the nutritional display, participants were asked to indicate on a 7-points semi-anchored scale the intensity of the emotions evoked by the two communication (curiosity, happiness, trust, calm, attraction, surprise, safeness). A t-test revealed that, at a significant level, nutritional display that uses colours is more able to arouse safeness (Mstars=4.6, Mcolours=5.6, p<.005) and calm (Mstars=4.9, Mcolours=5.5, p<.10). Considering that colours are able to create positive emotions, we expect that coloured display is more effective in changing participants' behaviours.

The effect of the intervention on consumers' behaviour. Overall, we found that 77.9% of participants decided to confirm their preferences in front of the nutritional display, while 22.1% decided to change. Within this 77.9% of respondent who have not changed their choice, there is a 48.5% of people whose first choice was a product with the highest nutritional quality score. The 20.4% of customers decided not to improve a bad choice (lowest nutritional profile score), while a 31% decided to confirm a medium quality choice (H1).

Since all the participants who selected a 'high quality product' at first instance decided to confirm the choice, we decided to analyze only customers who had the chance to improve the quality of their choice (81 participants).

In order to test H2 and H3 and to predict the probability that a customer will change his choices in front of the nutritional display, we run a binary logistic regression: we considered as our dependent variable the changing in preferences (0='I change my choice', 1='I confirm my choice') and as independent variables the communication stimuli (star and colours), label usage, health interest, gender and age.

The Table below (Table 1) shows the output.

	B	Sign.	Exp(B)	95% C.I.per EXP(B)	
				Lower	Upper
Label usage	1,219	**,003**	3,385	1,510	7,592
Health interest	-2,316	**,001**	,099	,026	,375
Stimulus	-1,558	**,037**	,211	,049	,910
Gender	1,003	,192	2,726	,604	12,295
Age		**,058**			
Costant	28,583				

The result shows that the probability of changing preferences in front of the nutritional display significantly depends on label usage, health interest, communication stimulus, and age. Specifically, people who try to control their diet (health interest) are more willing to change their preferences if they realize that the nutritional quality of the products normally chosen is not high (medium or scarce nutritional quality of the preferences). Otherwise, people who assess to pay attention to the nutritional information of the food products seem to be less affected by the intervention: customers who consider themselves knowledgable about nutritional content rely less on synthetic nutritional information given by the retailers. Furthermore, older people seem to be more willing to change their preferences compared to youger ones. Finally, in line the results of the manipulaton check, nutritional display that uses colours is more effective in changing participants' choices.

We did not find a significant impact of gender on the probability to change the choice in front of the display (p=.192)

The effect of the intervention on consumers' beliefs

Finally, in order to test if the in store strategy developed is able to change not only behaviour but also beliefs (H4), we compared the importance given to price, nutritional content, taste and weight control before and after people saw the nutritional displays and read the nutritional information on the leaflet. We conducted a repeated-measures ANOVA with the score given to the variables as a within subject effect and communication stimulus as a between subjects effect. We also considered health interest and age as covariates, since we found them to affect the behaviour in order to isolate the effect of the 'nutritional display'. While we did not find a significant difference between the scores given to price, taste and weight control before and after people saw the nutritional display nor a significant interaction effect between the scores and the stimulus, we found a overall significant change in the importance give to nutritional content (Mbefore=5.6, Mafter=5.8, p<.10). However, no interaction effect between the importance given before and after the intervention and the communication stimulus (p=.393).

V. CONCLUSIONS AND MANAGERIAL IMPLICATIONS

The results of our experiment can give important directions to retailers and can help them finding new ways to promote health, by making little changing in the behaviours and, more important, in attitudes. Specifically, we found that the strategy proposed can lead customers to change their preferences if they discover that the product they are used to buy has scarce or medium nutritional quality. The willingness to change preferences can be explained by demographic characteristics (in particular age), health interest and in store stimuli. It is important to hightlight that when customers consider themselves as knowledgable since they carefully read nutritional information, they are less willing to rely on the communication provided by the retailer. In this sense, it seems that using intuitive and synthetic nutritional information is able to change behaviours only when it addresses people who wants to eat a balance diet but do not read information on the pack of the products. Otherwise, this kind of information make people reconsider and increase the importance of health in the selection of food.

Finally, the communication stimulus proposed has an impact on the behaviour: when it evokes positive emotions, it is more able to change behaviours.

REFERENCES

[1] Cohen, D. A., and L. I. Lesser. 2016. "Obesity Prevention at the Point of Purchase: Obesity Prevention at the Point of Purchase." Obesity Reviews 17 (5):389–96.

[2] Hirschman E. C. and Holbrook M. B. (1982) "Hedonic consumption: emerging concepts, methods and propositions", The Journal of Marketing, pp92-101.

[3] Bucklin R. E. and Lattin J. M. (1991)" A two-state model of purchase incidence and brand choice", Marketing Science, 10 (1), pp24-39.

[4] Donovan R., Rossiter J., Marcoolyn G. and Nesdale A. (1994) "Store Atmosphere and Purchasing Behaviour", Journal of Retailing, 70 (3), pp283-294.

[5] Beatty S. E. and Ferrell M. E. (1998) "Impulse buying: Modelling its precursors", Journal of retailing, 74 (2), pp169-191.

[6] Inman J.J., Winer R.S. and Ferraro R. (2009) "The Interplay Among Category Characteristics, Customer Characteristics, and Customer Activities on In-Store Decision Making", Journal of Marketing, 73 (5), pp19-29.

[7] Bell D., Corsten D. and Knox D. (2011) "From Point of Purchase to Path to Purchase: How Preshopping Factors Drive Unplanned Buying", Journal of Marketing, 75 (1), pp31-45.

[8] Glanz K., Bader M. D. and Iyer S. (2012) "Retail grocery store marketing strategies and obesity: an integrative review", American journal of preventive medicine, 42 (5), pp503-512.

[9] Foster G. D., Karpyn A., Wojtanowski A. C., Davis E., Weiss S., Brensinger C. and Leuchten D. (2014) "Placement and promotion strategies to increase sales of healthier products in supermarkets in low-income, ethnically diverse neighborhoods: a randomized controlled trial", The American journal of clinical nutrition, 99 (6), pp1359-1368.

[10] Bellini, S., Cardinali, M. G. and Grandi B. (2016) "Managing Healthy Eating: the role of manufacturers and retailers in consumers' food choice", Proceedings of 35th International Business Research Conference, Dubai, 30-31 May 2016.

[11] Zhou, Lianxi, and Amy Wong. 2004. "Consumer Impulse Buying and In-Store Stimuli in Chinese Supermarkets." Journal of International Consumer Marketing 16 (2):37–53.

[12] Peck, Joann, and Terry L. Childers. 2006. "If I Touch It I Have to Have It: Individual and Environmental Influences on Impulse Purchasing." Journal of Business Research 59 (6):765–69.

[13] Bhakat, Ravi Shankar, and G. Muruganantham. 2013. "A Review of Impulse Buying Behavior." International Journal of Marketing Studies 5 (3).

[14] Mohan, Geetha, BharadhwajSivakumaran, and Piyush Sharma. 2013. "Impact of Store Environment on Impulse Buying Behavior." European Journal of Marketing 47 (10):1711–32.

[15] Fam, Kim-Shyan, Bill Merrilees, James E. Richard, Laszlo Jozsa, Yongqiang Li, and Jayne Krisjanous. 2011. "In-store Marketing: A Strategic Perspective." Edited by Nelson OlyNdubisi. Asia Pacific Journal of Marketing and Logistics 23 (2):165–76.

[16] Hofmann, Wilhelm, MalteFriese, and Reinout W. Wiers. 2008. "Impulsive versus Reflective Influences on Health Behavior: A Theoretical Framework and Empirical Review." Health Psychology Review 2 (2):111–37.

[17] Salmon, Stefanie J., Bob M. Fennis, Denise T. D. de Ridder, Marieke A. Adriaanse, and Emely de Vet. 2014. "Health on Impulse: When Low Self-Control Promotes Healthy Food Choices." Health Psychology 33 (2):103–9.

[18] Curhan R. C. (1974) "The effects of merchandising and temporary promotional activities on the sales of fresh fruits and vegetables in supermarkets", Journal of Marketing Research, pp286-294.

[19] Glanz K. and Yaroch A. L. (2004) "Strategies for increasing fruit and vegetable intake in grocery stores and communities: policy, pricing, and environmental change", Preventive Medicine, 39, pp75-80.

[20] Walker, K. Z., Woods, J. L., Rickard, C. A., and Wong, C. K. (2008) "Product variety in Australian snacks and drinks: how can the consumer make a healthy choice?", Public health nutrition, 11(10), pp1046-1053.

[21] Kelly B., Hughes C., Chapman K., Louie J. C. Y., Dixon H., Crawford J. and Slevin T. (2009) "Consumer testing of the acceptability and effectiveness of front-of-pack food labelling systems for the Australian grocery market", Health promotion international, 24 (2), pp120-129.

[22] Inman, J. Jeffrey, HristinaDzhogleva, and Jim Maurer. 2013. "Does Reducing Nutritional Information Complexity Promote Healthier Food Choices?: (570052013-080)." American Psychological Association.

[23] Cohen, Deborah A., Richard A. Scribner, and Thomas A. Farley. 2000. "A Structural Model of Health Behavior: A Pragmatic Approach to Explain and Influence Health Behaviors at the Population Level." Preventive Medicine 30 (2):146–54.

[24] Kleef, Ellen van, Kai Otten, and Hans CM van Trijp. 2012. "Healthy Snacks at the Checkout Counter: A Lab and Field Study on the Impact of Shelf Arrangement and Assortment Structure on Consumer Choices." BMC Public Health 12 (1).

[25] Westbrook, Robert A., and Richard L. Oliver. 1991. "The Dimensionality of Consumption Emotion Patterns and Consumer Satisfaction." Journal of Consumer Research 18 (1):84.

[26] Yu, Yi-Ting, and Alison Dean. 2001. "The Contribution of Emotional Satisfaction to Consumer Loyalty." International Journal of Service Industry Management 12 (3):234–50.

[27] Schoefer, Klaus. 2008. "The Role of Cognition and Affect in the Formation of Customer Satisfaction Judgements Concerning Service Recovery Encounters." Journal of Consumer Behaviour 7 (3):210–21.

[28] Angie, Amanda D., Shane Connelly, Ethan P. Waples, and VykintaKligyte. 2011. "The Influence of Discrete Emotions on Judgement and Decision-Making: A Meta-Analytic Review." Cognition & Emotion 25 (8):1393–1422.

[29] Kim, Junyong, and Pranjal Gupta. 2012. "Emotional Expressions in Online User Reviews: How They Influence Consumers' Product Evaluations." Journal of Business Research 65 (7):985–92.

[30] Turnbull, Don. 2007. "Rating, Voting & Ranking: Designing for Collaboration & Consensus." In , 2705. ACM Press.

[31] Lugli, Giampiero. 2015. Cibo, Salute E Business: Neuroscienze E Marketing Nutrizionale. Prima edizione. Cultura E Società. Milano: Egea.

[32] Papies, Esther K. 2016. "Health Goal Priming as a Situated Intervention Tool: How to Benefit from Nonconscious Motivational Routes to Health Behaviour." Health Psychology Review 10 (4):408–24.

[33] Haefner, D. P., &Kirscht, J. P. (1970). Motivational and Behavioral Effects of Modifying Health Beliefs. Public Health Reports (1896-1970), 85(6), 478.

[34] Cameron, Adrian J., Emma Charlton, Winsfred W. Ngan, and Gary Sacks. 2016. "A Systematic Review of the Effectiveness of Supermarket-Based Interventions Involving Product, Promotion, or Place on the Healthiness of Consumer Purchases." Current Nutrition Reports 5 (3):129–38.

[35] Wansink, Brian. 2017. "Healthy Profits: An Interdisciplinary Retail Framework That Increases the Sales of Healthy Foods." Journal of Retailing 93 (1):65–78.

[36] Russo, J. Edward, Richard Staelin, Catherine A. Nolan, Gary J. Russell, and Barbara L. Metcalf. 1986. "Nutrition Information in the Supermarket." Journal of Consumer Research 13 (1):48.

[37] Hamlin, Robert, and Lisa McNeill. 2016. "Does the Australasian 'Health Star Rating' Front of Pack Nutritional Label System Work?" Nutrients 8 (6):327.

[38] [38] Moorman, Christine. 2015. "Attitude Toward Use of Nutritional Information Scale." American Psychological Association.

★★★