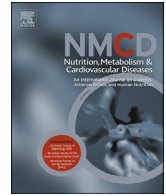




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SHORT COMMUNICATION

Changes in food choice following restrictive measures due to Covid-19



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Abstract *Background and aims:* Following the Covid-19 proliferation beyond the borders of China at the beginning of 2020, containment measures have been taken by different countries around the globe. Citizens were forced to stay at home. The aim of this study is twofold. First, we will provide an analysis of food consumption in Italy during the emergency from a social stance. Secondly, we will consider the risks in relation to health of these food product choices. *Methods and result:* This analysis is based on IRI's data on consumption trends (percentage increase in sales in value) during the first period of the spread of coronavirus, from 23rd of February through the 29th of March, 2020. The sample includes 10 769 stores. There was an increase in the consumption of pasta, flour, eggs, long-life milk and frozen foods, in comparison to a reduction of fresh food goods. The sales of snacks have dropped in relation to the production of homemade bread, pizza and cakes.

Conclusion: The increase in the consumption of some types of food is linked with their symbolic value and its tendency to carry on at home some external socialization habits. But be careful: these habits are not always healthy.

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Starting in December 2019, an acute respiratory syndrome called Covid-19 caused by the new SARS-CoV-2 coronavirus, broke out in continental China and has since spread out across the world.

Citizens living in different parts of the world have been requested to stay at home and limit their outings to strict necessities. Whilst the main economic and industrial

activities, along with all forms of entertainment [1] remain closed.

The detailed timing of containment measures that was implemented by the Italian Government [2] was instrumental in explaining the changes in the purchase of basic food necessities during the lockdown.

The aim of this study is twofold: firstly, we will provide an analysis of food consumption in Italy during the Covid-19 emergency, thereby, highlighting the selection of certain food products from a social point of view, as a strategy to face the stressful restrictive measures implemented by the government. Secondly, we will consider its impact on health in general. Indeed wrongful eating habits risk creating the necessary background for other secondary

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diseases, hence increase the susceptibility to the virus itself.

This analysis is based on data from IRI (Information Resources), a leader in Consumer Goods, Retail and Shopper market data, which has been analyzing consumption trends during the crisis, i.e. consumptions in value over 6 weeks, from February 23rd through to March 29th, 2020. The changes reported were compared to the same period of that in the past year. This sample of 10 769 stores takes different sales channels into consideration [3].

First of all, the comparison of data on the purchase of edible and non-edible products shows, at national level (differences amongst Northern, Center and Southern areas), a significant percentage of increase (16.7%) in sales in value, mainly during the first week after the decree of March 9th (Fig. 1).

Immediately soon after the decisions made by the Italian government, people throughout Italy “assaulted” supermarkets in the hope of gaining comfort and a sense of control in a situation of total anxiety and uncertainty [4].

In line with other studies on changes in the consumption of goods in case of a disaster [5], some recent studies on the COVID-19 emergency have shown a similar increase in purchases in regards to toilet paper [6]. This is an indispensable product, which no one wants to be short of in the knowledge that they would have to spend several weeks perhaps months at home.

Moreover, the analyzed data provide some important information about the change in the consumption habits of the Italian population: they now choose the first days of the week as shopping days, instead of the weekend, and local shops instead of hypermarkets (+33.3% in sales in the last week ending March 29th compared to 2019 vs. -18.8%

in the same period). Online sales have increased as well (during the examined 6 weeks +91.9% compared to 2019).

However, the most interesting aspect is the type of foods which have been consumed.

Focusing on the first 30 categories of Fast Moving Consumer Goods (FMCG) by sales in value during the 6 weeks in domestic confinement, we can observe an increase in the consumption of canned food and products which are usually included in our diet, namely pasta, flour, eggs, long-life pasteurized milk, along with frozen foods. This compared to a strong reduction in the sales of fresh goods, like fruit and vegetables. Notwithstanding the lockdown, the sales of snacks, especially sweetened ones, have dropped compared to the production of homemade desserts (Table 1).

There has been a general increase in packaged goods that are on the whole perceived as more hygienic and shorten the person's time spent in shops.

Regarding FMCG foods, the edible categories that have reported a higher growth over the considered weeks are brewer's yeast, flour, pasty ingredients and legumes (Fig. 2).

In addition to this, during the last week of observation, the products used for home preparation of bread, pizza and cakes have reported a further significant increase as compared to the same period in 2019 (brewer's yeast + 296.9% and flours and mixtures + 203%).

The tendency to make bread, pizza and sweets at home, suggested by these consumption dynamics, could be interpreted as a pleasant way to spend time during a mandatory stay at home policy. Another possible reason is the effect of a positive reaction to boredom linked to the drastic reduction of activities and their routines [7]. Moreover, it is not only a means to deal with a difficult

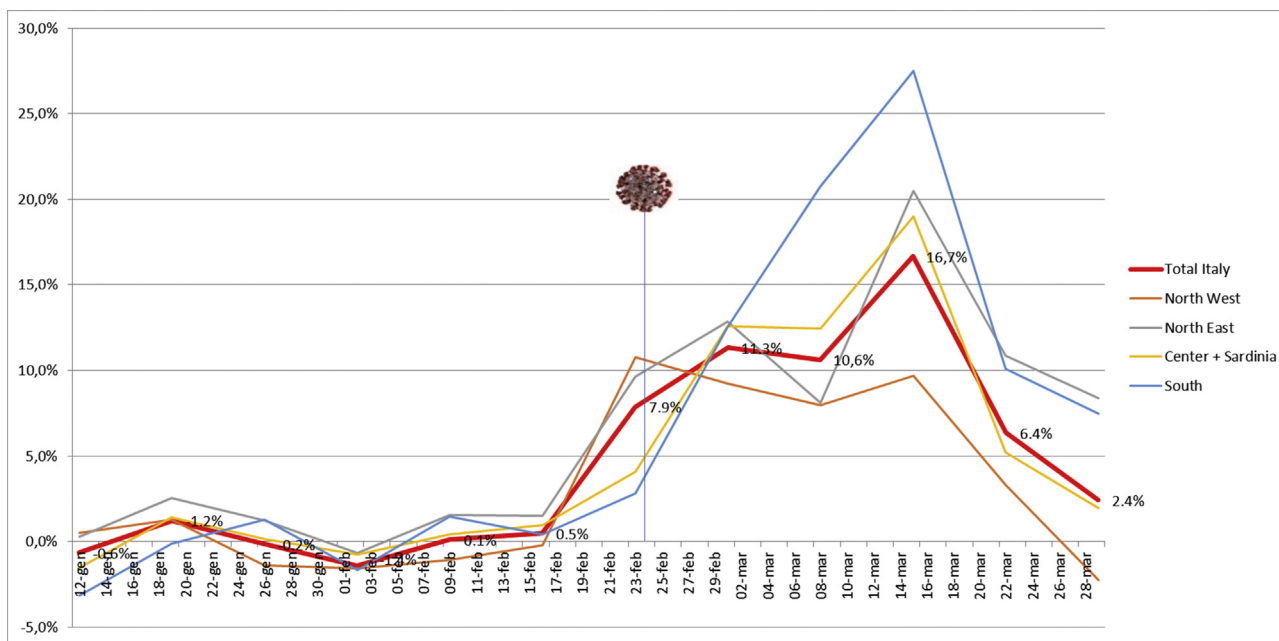


Figure 1 Sales trend in value in the 6 weeks (percentage change in purchases compared to a year ago, total store sales). Source: IRI

Table 1 First 30 categories by sales in FMCG (percentage change in sales in value compared to a year ago).

Category	23-Feb	1-Mar	8-Mar	15-Mar	22-Mar	29-Mar	From 23-Feb
Sliced cold cuts	11.5%	8.6%	8.7%	28.7%	22.5%	15.4%	15.9%
Biscuits	4.2%	9.9%	11.2%	22.2%	9.2%	4.4%	10.2%
Still water	11.1%	18.5%	3.1%	13.3%	-9.4%	-17.5%	3.2%
Beer Alcohol	3.2%	5.4%	7.5%	6.8%	2.7%	-1.0%	4.1%
Coffee minced	9.3%	8.5%	15.8%	23.2%	18.5%	15.5%	15.2%
Milk Uht	17.1%	31.7%	18.6%	55.2%	29.0%	20.5%	28.7%
Wine - Italian Doc/Docg	2.3%	4.9%	11.6%	6.5%	2.3%	12.3%	6.6%
Snacks	0.6%	0.0%	-1.0%	6.9%	-4.1%	-7.3%	-0.7%
Vegetables	-2.5%	-6.6%	-5.2%	-3.8%	-12.1%	-18.4%	-8.1%
Mozzarella	7.6%	13.0%	18.0%	40.1%	39.0%	38.2%	26.3%
Tuna fish in oil	32.2%	42.3%	17.3%	47.4%	24.9%	3.2%	27.8%
Semolina pasta	29.4%	57.6%	31.6%	64.1%	19.8%	11.3%	36.3%
Frozen Natural Veggies & Fruits	10.4%	25.7%	20.5%	49.7%	36.0%	33.6%	29.0%
Hen eggs	11.7%	18.5%	18.4%	56.8%	50.1%	52.0%	34.4%
Laundry cleaners/softeners	6.4%	7.2%	5.5%	5.7%	-8.5%	-25.1%	-1.5%
Parmesan and similar cheese	16.2%	22.0%	26.9%	45.9%	29.4%	28.0%	28.1%
Pet Care Cats - Nutrition	10.1%	5.9%	6.2%	13.9%	-0.2%	-1.8%	5.8%
Toilet paper	14.2%	22.2%	15.4%	41.7%	27.4%	15.4%	22.7%
Extra virgin olive oil	11.9%	17.2%	15.3%	10.2%	-2.0%	-4.2%	8.1%
Fresh milk	0.1%	-0.1%	1.4%	3.5%	-7.8%	-12.6%	-2.5%
Poultry and Rabbit	15.8%	19.0%	19.5%	30.3%	16.9%	11.2%	18.8%
Sweet snacks	2.2%	-3.2%	0.2%	-11.9%	-20.4%	-21.6%	-8.9%
Cola	3.8%	5.4%	6.1%	4.9%	-2.3%	-3.9%	2.4%
Frozen natural fish	11.6%	23.3%	17.7%	42.8%	39.7%	37.5%	28.9%
Fresh stuffed pasta	1.7%	9.2%	15.9%	23.9%	8.4%	5.3%	10.7%
Confectionary	37.2%	37.8%	40.8%	16.3%	3.6%	7.2%	23.5%
Wine - Italian Igp	-0.6%	0.2%	1.3%	2.7%	5.6%	5.0%	2.3%
Fish specialties	15.0%	15.7%	19.7%	19.0%	-3.2%	-0.8%	10.5%
Oranges	3.0%	11.5%	22.0%	55.1%	62.7%	58.8%	34.3%
Pet Care Dog - Nutrition	6.3%	3.8%	2.5%	14.1%	0.8%	1.0%	4.8%

Source: IRI

domestic situation, linked to a specific food craving (especially carbohydrates) [8], but also a way to rediscover family ties. As in the traditional family, the preparation of food played a vital role in the dimension of care and in the

rituality of domestic co-existence. Bread along with bread-making are symbolic in that it connotes a person's ability to support their family and more importantly to face the family's primary needs. Being able to possess it or find it,

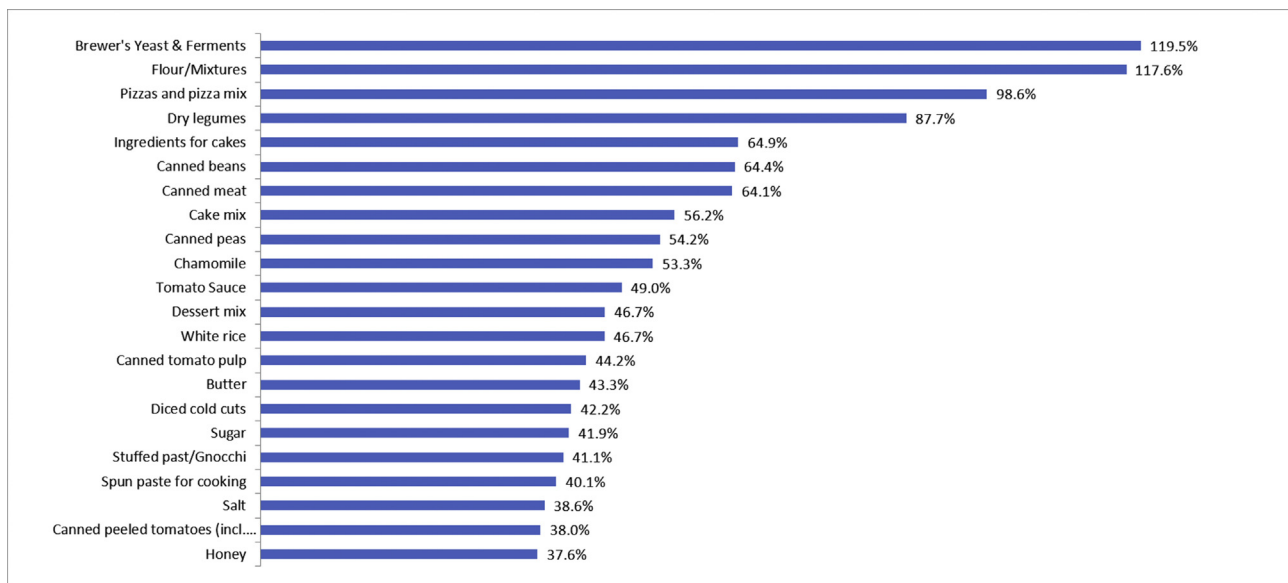


Figure 2 Food categories at higher growth during the 6 weeks (% change in Sales in value vs Year Ago- FMCG). Source: IRI

and more importantly, to make it from one's own hands is an important safety element.

It is also interesting to link the increase in the consumption of some types of food with the tendency to carry out at home some external socialization habits, namely, having breakfast at the bar or meeting up with friends for a pizza, or even enjoying aperitif. Along with an increase in the consumption of classic comfort food, such as chocolate and chips and fast food take outs, the sales of coffee (+15.2%), snacks and aperitifs have also increased. The habit of happy hour is very often lived virtually on new sharing platforms such as Zoom and House party. This new pattern of food consumption is a key factor that reflects the importance of virtual meetings in defining specific times of the day, which have changed not only in their spatial dimension (inside/outside) but also in their temporal one too.

The food choices of the Italians during the crisis are closely intertwined with social motivations and create psychological resilience. Conversely however, they show a connection with dangerous elements when it comes down to health.

During quarantine, there has also been a rise in the consumption of packaged red meat (+8%) and not to mention processed meat (sliced cold cuts sales have increased by 15.9%), biscuits (+10.2%) and spreadable creams (+14%). An inadequate intake of fruits and vegetables, coupled with an increase in the consumption of simple sugar foods and saturated fats, can expose humans to specific shortages in micro-nutrients which in turn can compromise their health [9,10]. This figure is even more discouraging if we consider that before this dramatic pandemic, Italians had not eaten the right servings of fruit and vegetables. As reported in a recently published paper, Italians' food habits and lifestyle are poorly adherent to Mediterranean diet recommendations [11].

All this can affect health in the long term and increase the risk of developing obesity. Besides being a chronic inflammatory state per se, this is often complicated by diabetes, dyslipidemia, cardiovascular diseases; these data are confirmed in a interesting publication [12]. This state of general inflammation can expose the subject to an increased risk of further complications if contracting COVID-19 [13].

Another issue is milk intake: there has been a -2.5% decrease in the consumption of fresh milk. It should be reminded that an adequate consumption of this product can improve bone health, being a source of calcium and Vitamin D. The intake of this latter is already strongly compromised by the quarantine, not to mention the lack of sunlight [14].

In conclusion, bread, pizza and homemade cakes are archaic resilience tools that will undoubtedly remain in our collective imagination as the paradigmatic foods of our life during the Coronavirus crisis.

Despite their symbolic value, it should be noteworthy to mention that when speaking of food at the time of COVID-19, the same usual rules should be applied according to the specific life circumstances: meals consumed at scheduled

times, hydration, the increase in the consumption of fruit and vegetables, the intake of milk as a source of calcium, and lastly, the limited consumption of simple sugar food items and saturated fats.

Declaration of Competing Interest

The authors declare that they have no known competing interests or personal relationships that could have appeared to influence the work reported in this paper.

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