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## **Food apps took a free ride on the first phase of the Covid-19 pandemic in Brazil**

### **Aplicativos de delivery de alimentos pegaram carona na primeira fase da pandemia de Covid-19 no Brasil**

#### **Abstract**

**Objective:** Analyze the marketing content posted by three online food delivery (OFD) companies in Brazil on their official accounts on Facebook, Instagram, and YouTube during the first phase of the COVID-19 pandemic. **Methods:** Exploratory study carried out between March 20 and June 26, 2020. Posts made by these companies were coded according to the interactive tools employed and the product type shown in the posts. A thematic analysis of the posts followed seven steps. **Results:** A total of 137 posts were analyzed. Instagram posts represented 51.0% of the total, Facebook (40.5%), and YouTube (8.5%). More than a third of the posts showed images of foods, mainly meals predominantly made with ultra-processed foods (58.1%) and traditional meals or pasta (44.2%). Six main categories emerged from the thematic analysis: *branding* (83.2%); *information related to the Covid-19 pandemic: measures and new functionalities* (79.6%); *stay at home, stay safe and take care of yours: we will make it happen* (67.1%); *corporate social responsibility* (39.4%); *individual social responsibility* (34.3%); and *premium offers* (5.1%). **Conclusion:** The results indicated that the OFD companies promoted unhealthy eating and traditional meals during the first phase of the Covid-19 pandemic and used the health crisis to adjust their marketing content and promote themselves.

**Keywords:** Social media. Covid-19. Food. Marketing.

#### **Resumo**

**Objetivo:** Analisar o conteúdo de publicidade de três empresas de aplicativos de *delivery* de alimentos no Brasil em suas contas oficiais no Facebook, Instagram e YouTube na primeira fase da pandemia de Covid-19. **Métodos:** Estudo exploratório realizado entre 20 de março e 26 de junho de 2020. Postagens realizadas pelas empresas foram codificadas de acordo com a presença de ferramentas interativas e tipo de alimento. Análise temática foi realizada seguindo sete passos. **Resultados:** Foram analisadas 137 postagens, sendo 51% do Instagram, 40,5% Facebook e 8,5% YouTube. Mais de um terço das postagens ilustravam imagens de refeições, principalmente elaboradas por alimentos ultraprocessados (58,1%) e por refeições tradicionais ou massas (44,2%). Seis principais categorias temáticas emergiram da análise de

conteúdo: *branding* (83,2%); informações relacionadas à Covid-19: medidas e novas funcionalidades dos *apps* (79,6%); fique em casa, esteja seguro e cuide dos seus: nós vamos fazer acontecer (67,1%), responsabilidade social corporativa (39,4%); responsabilidade social individual (34,3%) e oferta de benefícios (5,1%). **Conclusão:** Os resultados indicaram que as empresas de aplicativos de *delivery* de alimentos promoveram alimentação não saudável e refeições tradicionais durante a primeira fase da pandemia de Covid-19 e usaram a crise sanitária para ajustar o conteúdo de publicidade e se promoverem.

**Palavras-chave:** Mídias sociais. Covid-19. Alimentos. Marketing.

## INTRODUCTION

Online food delivery (OFD) platforms are websites or apps for smartphones and tablets managed by third-party companies (e.g., UberEats and Deliveroo) that allow customers to select and order meals from the menu of restaurant partners or products from grocery stores to be delivered by.<sup>1</sup> Delivery men are typically service providers of the OFD platform rather than specific restaurants. According to studies carried out in Brazil<sup>2,3</sup> and elsewhere,<sup>4-6</sup> the food available on these apps is of low nutritional quality with a predominance of ultra-processed foods (UPF).

In the last years, OFD platforms have become widely available in different countries worldwide,<sup>1</sup> especially after the outset of the COVID-19 (Coronavirus Disease 2019) pandemic. During this time, consumers have increasingly used OFD platforms to purchase meals through contact-free delivery<sup>7</sup> to protect themselves from the high risk of SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2) infection. In Brazil, the growing use of the OFD apps can also be linked to the shutdown of commercial food establishments and restrictions on access to food retail.<sup>8</sup> In June 2020 alone, around 39 million orders have been made through OFD apps, which is over 210% more than the 12.3 million orders registered in November 2018.<sup>9</sup>

Furthermore, OFD companies garnered more consumers during the pandemic by promoting their services as essential, safe, ethical, and people-centric.<sup>10,11</sup> Such advertisements reached a large group of consumers on social media platforms (e.g., Facebook, Instagram, and YouTube) as the use of digital devices also increased during the pandemic.<sup>12</sup> In Brazil, between March and April 2020, the daily time spent by Brazilians on social media platforms was approximately 20% higher than between January and March<sup>13</sup> of the same year. On social media, companies take advantage of tools that allow for greater interactivity with the public using high persuasive power.<sup>14,15</sup>

Scientific evidence suggests that food marketing exposure can influence food consumption.<sup>16</sup> Despite existing studies shedding light on the nutritional quality of food offered by OFD platforms and the increase in their utilization during the COVID-19 pandemic, there remains a critical research gap about the marketing content disseminated by OFD companies during this crucial period, particularly through social media platforms, which may shape consumer behavior and food choices. Therefore, this study addresses this gap by analyzing the marketing content posted by three leading OFD companies in Brazil across their official Facebook, Instagram, and YouTube accounts during the first phase of the COVID-19 pandemic.

## METHODS

This study analyzes the marketing content disseminated across the official accounts of the three main online food delivery (OFD) companies in Brazil during the first phase of the COVID-19 pandemic. These companies predominantly utilize social media platforms such as Facebook, Instagram, and YouTube to communicate. These social media platforms are very popular in the country. In 2020, Facebook Brazil had around 150 million active accounts, while Instagram and YouTube had a total of 106.5 million and 105 million active accounts, respectively.

One of the OFD companies (A) is the biggest player in the OFD segment in Brazil. It also operates in two other countries in Latin America (Colombia and Mexico). The company started operations in Brazil in 2011 and by 2020, it was already operating in more than 1,000 cities across the country.<sup>17</sup> The second company (B) operates in thirty-five countries. In Brazil, (B) operated in all 27 Brazilian states and more than 180 cities.<sup>18</sup> The last company (C) operates in nine countries in Latin America. In Brazil, it started operations in 2018.

Although it operates in only 140 cities in Brazil, the company is constantly expanding its operations over the country.<sup>19</sup>

A previously trained researcher, utilizing an account dedicated exclusively to this study, systematically collected all posts made by these companies on their official social media accounts from March 20, 2020 (when the first post related to the Covid-19 pandemic was made by one of the companies) until June 26, 2020 (which corresponds to the first quarter of the Covid-19 pandemic). This data was collected using the screenshot feature available on a laptop's operating system (in this study, a MacBook).

Posts were coded according to the interactive tools employed, including hashtags, links, interactions, and mentions to users. We also collected other descriptive data from each post: type of post (image, video, or gif); the food category that appeared in the post when applicable (meals predominantly made with UPF; traditional meals or pasta; fruit and vegetables; ice-cream, candies, and dessert); and the total number of likes, shares, and comments (Table 1). These variables were defined based on previous studies about digital food marketing monitoring.<sup>3,20</sup> Unfortunately, it was not possible to identify the nutrient content of the items advertised in the posts due to the lack of information on ingredients and quantities. However, food items have been grouped according to the NOVA food classification system.<sup>21</sup>

The thematic analysis was carried out on the posts according to the guidelines suggested by Braun and Clarke.<sup>22</sup> The software NVivo 11.4.3 was used to code the themes. The analysis followed the steps: (i) pre-analysis: two researchers carried out an initial analysis and took notes about the main themes (advertising messages and appeals) that appeared in each post; (ii) generation of initial codes: a researcher systematically coded the pre-analysis and extracted the most relevant data. This step generated 56 initial codes; (iii) selection of categories: a researcher grouped the codes into potential categories, clustering all relevant data for each possible category. This step generated 15 initial categories; (iv) review of the categories: after a review of the coded data and categories, a thematic 'map' was generated for analysis and discussed by all researchers. This step resulted in a set of 6 categories; (v) treatment of the categories: a researcher carried out a general analysis to inspect the features of six categories. As a result, definitions and clear names were generated for each category; (vi) interpretation of results: two researchers independently analyzed the posts according to the six categories found in the previous steps; (vii) consistency analysis of the interpretation: all results were compared, and divergences were verified by a third researcher.

We tabulated the data using Microsoft® Excel 16.43. Variables related to post-characterization and marketing content were described in absolute and relative frequencies. All the information covers the three studied OFD companies. Quantitative data analysis was carried out using Stata 12.

## RESULTS

The three OFD companies posted a total of 137 posts during the period. Instagram posts represented 51.0% of the total analyzed, followed by Facebook (40.5%) and YouTube (8.5%). Company A had the highest number of posts (n = 65; 47.5%), followed by company B (n = 54 posts; 39.4%) and C (n = 18 posts; 13.14%).

Posts with hashtags represented 65.7% and were mainly associated with specific marketing campaigns involving the current health crisis: e.g., “#nossaentrega” (in English: #ourdelivery) and “#abertoparadelivery” (in English: #openfordelivery). Other interactive tools were weblink (17.5%) and interaction (16.8%) (Table 1). As for the type of posts, 51.1% included images and 48.9% videos/gifs. The presence of food images accounted for 31.4% of the posts, of which images of meals predominantly made with UPF represented 58.1%; followed by traditional meals or pasta (44.2%); ice-cream, candies, and dessert (25.6%); and fruits and

vegetables (23.3%). In general, posts without food images had, for example, images of the app's interface, consumers receiving their purchases, and deliverers bringing the orders, among others. As for engagement metric (likes, comments, and shares) (Table 1), we counted a total of 94,281 likes, 63,037 comments, and 1,191 shares in all posts (i.e., an average of 688 likes, 460 comments, and 9 shares per post).

**Table 1.** Characteristics of the posts made by the online food delivery companies on social media platforms in Brazil. Belo Horizonte-MG, 2022.

| Posts characteristics             | n  | %    | Definition                                                                                                                                                                                                                                                                         |
|-----------------------------------|----|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Interactive tools</i>          |    |      |                                                                                                                                                                                                                                                                                    |
| Hashtag                           | 90 | 65.7 | Presence of the symbol # followed by a keyword to mark a message and facilitate a search.                                                                                                                                                                                          |
| Web links                         | 24 | 17.5 | Any posts that include a web link, also known as a hyperlink or simply a link, is a clickable element in a web page or other electronic document that allows users to access another web page or resource on the internet. It typically appears as underlined or highlighted text. |
| Interaction                       | 23 | 16.8 | The company page administrator interacts directly with users through questions, encouragement to share, tagging other users, and comments on the post.                                                                                                                             |
| Mention to users                  | 8  | 5.8  | Whenever companies name-drop a person or brand online on their posts.                                                                                                                                                                                                              |
| <i>Type of post</i>               |    |      |                                                                                                                                                                                                                                                                                    |
| Images                            | 70 | 51.1 | Use of digital images of the product, users, apps, and promotional events.                                                                                                                                                                                                         |
| Videos/Gif                        | 67 | 48.9 | Videos are published directly on Facebook and Instagram or accessed through YouTube. GIF is a lossless format for image files that supports both animated and static images.                                                                                                       |
| <i>Presence of food images</i>    |    |      |                                                                                                                                                                                                                                                                                    |
| No                                | 94 | 68.6 | Posts without any representation of food items.                                                                                                                                                                                                                                    |
| Yes                               | 43 | 31.4 | Presence of any food image in the post. It can be a real food image or an illustration of a food item.                                                                                                                                                                             |
| <i>Food category<sup>a</sup></i>  |    |      |                                                                                                                                                                                                                                                                                    |
| Meals predominantly made with UPF | 25 | 58.1 | Dishes based on ultra-processed ingredients. E.g., hamburgers, hot dogs, and pizzas.                                                                                                                                                                                               |
| Traditional meals or pasta        | 19 | 44.2 | Dishes made predominantly with unprocessed and/or minimally processed foods (E.g., rice beans, meat, and vegetables), pasta (E.g., Spaghetti Bolognese), and international cuisine (E.g., Paella).                                                                                 |
| Ice-cream, candies, and dessert   | 11 | 25.6 | Presence of ice-cream, candies, and dessert in photos or videos.                                                                                                                                                                                                                   |
| Fruits and vegetables             | 10 | 23.3 | Presence of fruits and vegetables in photos or videos.                                                                                                                                                                                                                             |

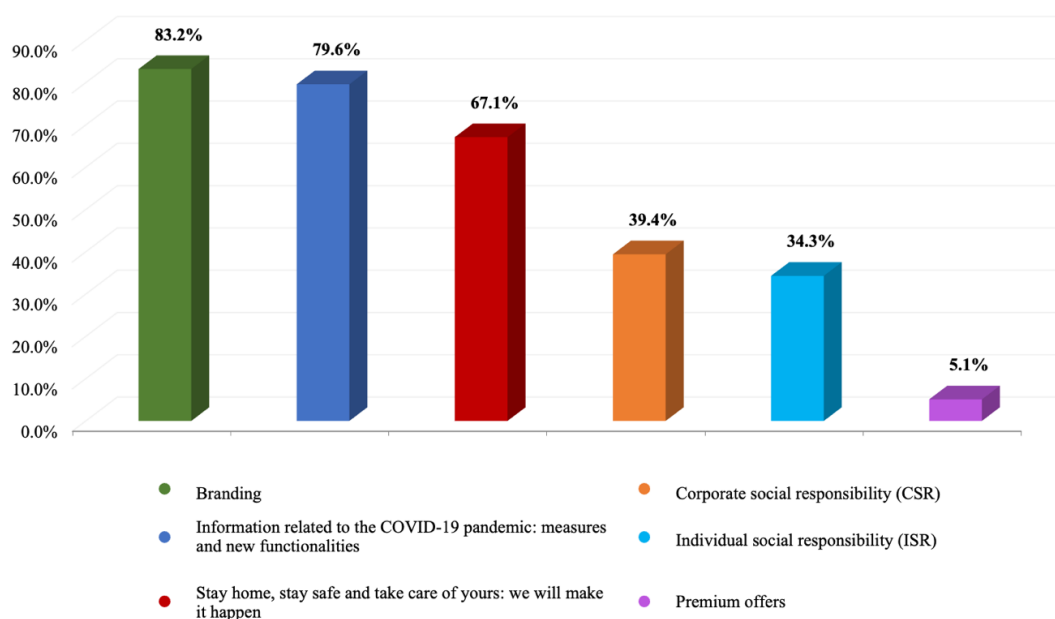
**Table 1.** Characteristics of the posts made by the online food delivery companies on social media platforms in Brazil. Belo Horizonte-MG, 2022. (Continues)

| Engagement Metrics | Total <sup>b</sup> |                                                                                                 |
|--------------------|--------------------|-------------------------------------------------------------------------------------------------|
| Likes              | 94.281             | The number of users who pressed the 'like' button of a post/video on the social media platform. |
| Comments           | 63.037             | The number of comments in a post/video on the social media platform.                            |
| Shares             | 1.191              | The number of shares that a post received on Facebook.                                          |

<sup>a</sup> Applicable when a post contains a food image (n=43). A single post can be part of more than one food category. <sup>b</sup> Sum of each engagement metric in all posts (n = 137).

The thematic analysis of the posts showed six main marketing categories, named by the authors as: (i) *branding*; (ii) *information related to the COVID-19 pandemic: measures and new functionalities*; (iii) *stay at home, stay safe and take care of yours: we will make it happen*; (iv) *corporate social responsibility (CSR)*; (v) *individual social responsibility (ISR)*; and (vi) *premium offers*. These categories are described below (Figure 1).

**Figure 1.** Distribution of the marketing categories found in the posts<sup>a</sup>



<sup>a</sup> A single post can have more than one category

## Branding

This category has been identified in 83.2% of the posts. It refers to different elements, such as mentions of company names, design, symbols, positioning, purpose, and values of the OFD companies during the health crisis. For example, brands created new slogans to show that they are cognizant of the moment and concerned about the health of their users, deliverers, and partners (Box 1-A).

## **Information related to the COVID-19 pandemic: measures and new functionalities**

Companies adopted an informative tone in 79.6% of the posts, which presented and clarified the measures adopted in response to the COVID-19 pandemic. This also included posts teaching users how to use the new features implemented into the apps due to the pandemic. Examples of these posts include step-by-step instructions on requesting safe and contactless deliveries (Box 1-B).

## **Stay at home, stay safe and take care of yours: we will make it happen**

This category has been identified in 67.1% of the posts. In general, the content related to convenience, practicality, and safety when placing orders through the apps. One group of posts focused on the topic of “saving time and staying safe while ordering food” as the users could rely on the companies’ teams to deliver their favorite meals and products. Other posts were linked to commemorative dates (such as Mother’s Day) with an emotional appeal highlighting the importance of maintaining relationships even when apart. We also identified posts encouraging users to order meals and share the moment with family and friends through video calls. To make this moment funnier, one of the OFD companies partnered with a music streaming platform, where several playlists were made available to the users (Box 1-C).

## **Corporate social responsibility (CSR)**

CSR has been identified in 39.4% of the posts that emphasized the company's behavior and actions to promote well-being in society. This included solidarity campaigns, financial aid, and social actions to benefit their staff and partners (such as restaurants and grocery stores), as well as external actors (community, customers, and users) (Box 1-D).

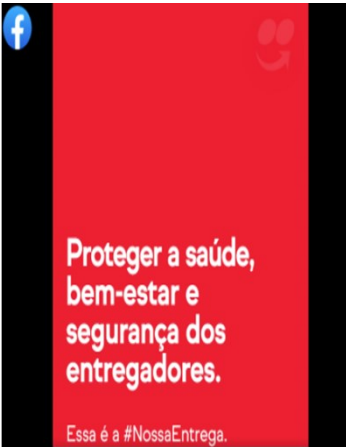
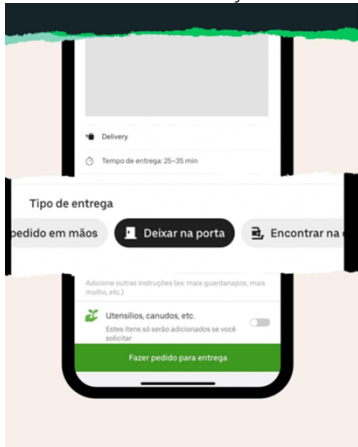
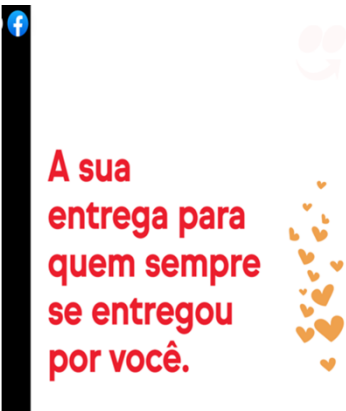
## **Individual social responsibility (ISR)**

In addition to creating CSR campaigns, the companies also used social media to encourage users to order from local restaurants, donate meals and/or money to the socially vulnerable population, and offer tips to the deliverers as ISR actions. These actions appeared in 34.3% of the posts (Box 1-E).

## **Premium offers**

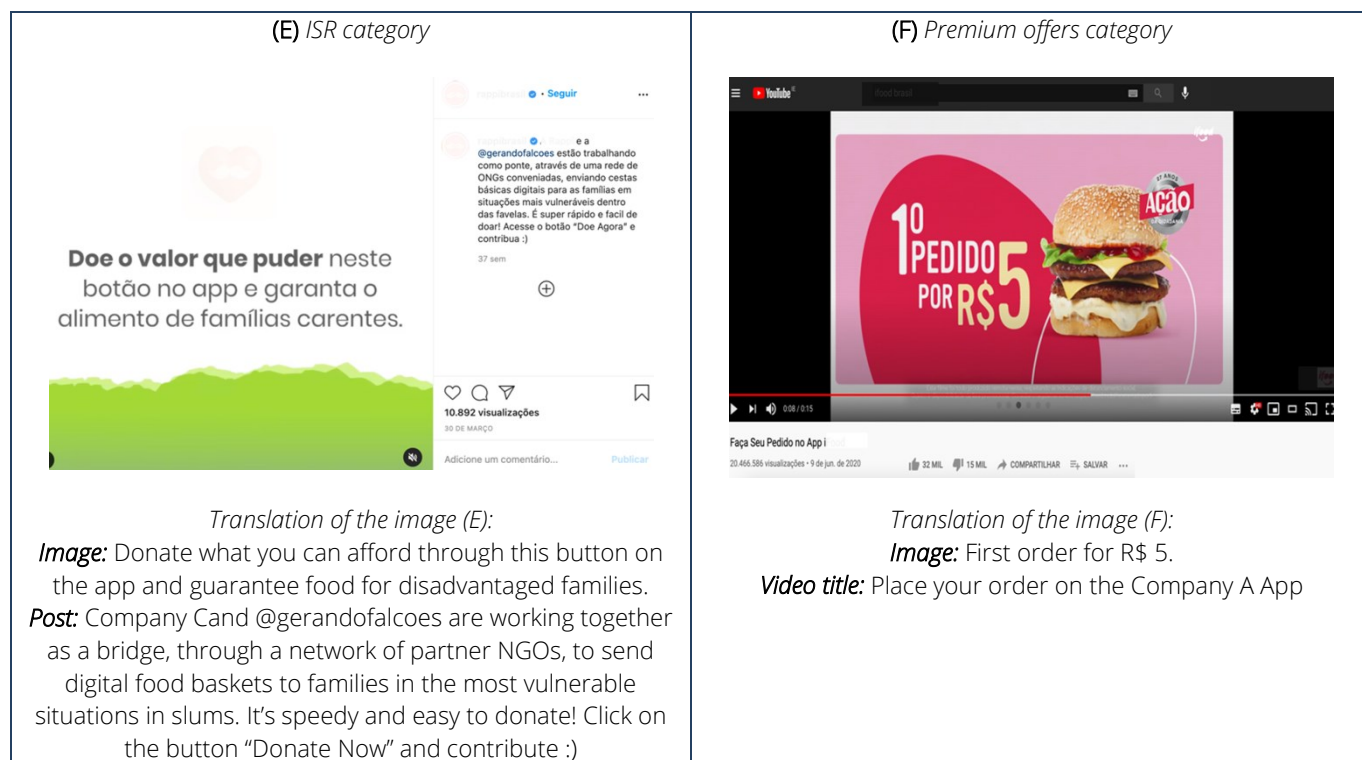
Within this category, we included all posts that indicated offers such as free delivery, limited-time benefits, discounts on the first order, or other reduced-price strategies to encourage app usage. These posts represented 5.1% of the total (Box 1-F).

Box 1. Examples of posts made by three online food delivery companies coded according to the marketing categories.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(A) <i>Branding category</i></p>  <p>Translation of the image (A):<br/> <b>Image:</b> Protecting the health, well-being, and safety of the riders.<br/> <b>This is #OurDelivery</b><br/> <b>Post:</b> Find out what we are doing to increase the safety of our riders. Health, well-being, and safety: all these are very important and deserves double attention. Riders can also count on #OurDelivery.<br/>         Check out all the measures that are being taken by Company A to ensure the health and safety of all people who are part of its ecosystem on the link.</p>                                              | <p>(B) <i>Information related to the COVID-19 pandemic: measures and new functionalities category</i></p>  <p>Translation of the image (B):<br/> <b>Image:</b> Type of delivery: leave at the door.<br/> <b>Post:</b> Did you know that now it's possible to place an order and choose contact-free delivery? Select this option directly in our app before completing your order. Check it out!</p>                                                                                                                                                                                                                                                 |
| <p>(C) <i>Stay at home, stay safe and take care of yours: we will make it happen category</i></p>  <p>Translation of the image (C):<br/> <b>Image:</b> Your delivery to those who have always given themselves over to you.<br/> <b>Post:</b> Our #OurDelivery for Mother's Day will be special. Place your order on app. Choose a super breakfast, a lunch from her favorite restaurant, or even a card gift card for her to use as she wishes, including at grocery stores. This can be your delivery to those who have always given themselves over to you. <a href="https://bit.ly/35K9cAe">https://bit.ly/35K9cAe</a></p> | <p>(D) <i>CSR category</i></p>  <p>Translation of the image (D):<br/> <b>Image:</b> Over 230,000 meals and up to 15,000 trips donated to Mesa Brasil.<br/>         16,000 meals donated to healthcare professionals.<br/> <b>Post:</b> More than ever, supporting and protecting those who need it most is necessary. That is why we donate 16,000 meals to front-line workers from São Paulo and Recife hospitals. We are also donating over 230,000 healthy meals for Mesa Brasil SESC and up to 15,000 trips to help with the logistics and safety of employees. After all, moving what matters most is our role in such a delicate moment.</p> |



**Box 1.** Examples of posts made by three online food delivery companies coded according to the marketing categories. (Continues)



(A) Branding; (B) Information related to the COVID-19 pandemic: measures and new functionalities; (C) Stay at home, stay safe and take care of yours: we will make it happen; (D) CSR; (E) ISR; (F) Premium offers

## DISCUSSION

This study analyzed the marketing content of posts made by OFD companies on their official social media accounts during the first phase of the COVID-19 pandemic (March to June 2020) in Brazil. This was when Brazilians were encouraged to stay at home and food outlets were closed to the public. The results indicated that the OFD companies used the health crisis to adjust their marketing content and promote themselves.

This is a worrying scenario from the public health perspective, given the prevalence of food and beverages of low nutritional quality that are typically offered on OFD platforms. Previous studies have shown a high prevalence of sandwiches, ultra-processed drinks, and pizzas in food menus offered through OFD platforms in Brazil.<sup>2,3</sup> In Canada, the food supply on the four most popular OFD platforms is characterized by low nutritional quality.<sup>4</sup> In Australia, more than 80.0% of the items available on the menus of OFD platforms corresponded to foods with high content of salt, saturated fat, sugar, and low fiber content (e.g., pizzas and hamburgers).<sup>23</sup> Another study revealed that almost three-quarters of the restaurants that offered menus through a prominent OFD platform in Sydney (Australia) and Auckland (New Zealand) were from large fast-food chains. In addition, 9 out of 10 of the most popular items on the restaurant's menus were low-nutritional quality foods, such as chips and sugary drinks.<sup>5</sup> Our study is consistent with such findings, evidencing a higher prevalence of food and drinks of low-nutritional quality than foods considered healthy on the social media content of OFD companies. However, we also noted a high prevalence of posts promoting traditional meals that are typically consumed by Brazilians, which can be explained by the fact that in Brazil, the consumption

of meals made predominantly with unprocessed and minimally processed foods is still relevant.<sup>24,25</sup> In developed countries, on the other hand, the participation of these types of meals is lower.<sup>25</sup>

Advertising through social media offers OFD companies a new pathway to engage directly and interact with their users.<sup>14,15</sup> In the context of the COVID-19 pandemic, OFD companies used interactive tools to encourage users to click and learn about the measures they took in response to the crisis. Companies also asked direct questions to users, inviting them to share content and tag other users. We also observed significant interaction between the OFD companies and users through engagement metrics (likes, comments, and shares).

Our study also showed that most posts made by Brazil's top three OFD companies included '*Branding*' elements. These elements were adapted to the COVID-19 crisis and demonstrated the companies' intention to position themselves as responsible and transparent with the customers about their engagement during the first phase of the COVID-19 pandemic, especially when criticism about the riders' working conditions was increasing in Brazil.<sup>26</sup> By using this strategy, these companies aimed to gain consumers' trust, improve customer retention, increase platform use, and ultimately ensure increased profits.

Many posts were also classified in the category '*Information related to the COVID-19 pandemic: measures and new functionalities*' that contained guidelines for quick and easy use of the apps, step-by-step instructions for ordering, information about safety measures related to the COVID-19 pandemic, and support to answer customers' questions. It is evident that, in general, the pandemic forced an adjustment in the work protocols of all segments. However, in the case of the food delivery service, sharing this type of message is a strategic approach as individuals were looking for information about the necessary safety measures to protect themselves.

In the category '*CSR*', emphasis was given to the companies' stance, focusing on the social actions they carried out. The '*ISR*' category, in turn, reinforced the idea of companies creating opportunities for individuals to support vulnerable people in the context of the health crisis. These categories together accounted for more than half of the posts and emphasized the commitment to society and the ethical conduct of companies during the health crisis. However, this type of positioning, also known as cause marketing, is used to benefit corporations.<sup>27,28</sup> There are many reasons for brands and companies to use cause marketing when advertising, including influencing people's thoughts, choices, and behavior to retain consumers.<sup>29-31</sup>

Our findings are consistent with the "COVID-washing" approach which refers to the use of increasingly well-targeted, engaging, and appropriate marketing strategies by food companies on social media platforms during the pandemic.<sup>32</sup> In Australia, the most frequent themes in the OFD segment on social media were home delivery and takeaway, community support and feeling, supporting local businesses and trading partners, hygiene, and contact-free.<sup>11</sup> A study in Brazil also showed "social responsibility in the pandemic" as one of the themes most used by OFD companies in their social media posts.<sup>33</sup> In other words, companies aligned their products or services with efforts to address the impacts of the pandemic and demonstrate their commitment to society. This involved initiatives such as donating a portion of sales to pandemic-related charities and developing products or services that directly address pandemic-related challenges using these actions to build a positive brand reputation and consumer trust. Another study,<sup>10</sup> which analyzed Instagram accounts of the top three OFD apps used in Australia, the United States of America, and the United Kingdom during the first phase of the COVID-19 pandemic, codified four marketing strategies as follows:

- Links between companies' products and frontline workers,
- Combatting the pandemic via promotions (e.g., supporting affected farmers or other workers; waiving delivery fees),

- Selling social distancing, and
- Companies are harnessing the acceleration of digitalization and the increase in virtual interaction.

However, actions on CSR or ISR cannot be seen as acceptable or a solution for societal problems, not even in times of crisis. Brazil was already experiencing a situation of socioeconomic instabilities caused by successive political and economic crises, which was aggravated by the COVID-19 pandemic. The country faces increasing levels of food insecurity affecting almost 60% of the Brazilian population.<sup>34</sup> Solidarity campaigns gain, therefore, significant importance as they can negatively impact consumers' behavior, especially when promoting diets associated with overweight, obesity, and cardiometabolic risks.

In the category '*Stay at home, stay safe and take care of yours: we will make it happen*', we observed a solid appeal to the practicality and easiness of ordering through OFD apps. The COVID-19 pandemic accelerated the digital revolution for companies and the population.<sup>1,7,35</sup> Several companies had to migrate their business to the digital environment (e.g., creating profiles in OFD apps and social media platforms).<sup>36</sup> The population also changed their behavior by prioritizing online shopping (e.g., OFD apps) and shifting leisure moments to digital environments (e.g., watching live concerts promoted by Brazilian musicians and sponsored by food companies on social media platforms).<sup>35</sup> More than half of the posts made by the OFD platforms stimulated individuals to use digital devices in their daily routines.

We observed a small sample of posts in the '*Premium offers*' category (5.1%), despite previous evidence indicating that benefits (e.g., discount or free delivery) are among the most prevalent types of posts on these apps.<sup>3</sup> OFD companies privileged user-directed advertising over premium offers strategies, which is in line with market research showing that consumers are more interested in content about what brands are doing to help their employees, the community, and the consumer.<sup>37</sup>

Our results point out to the importance of discussing the role of OFD companies in the Brazilian population's health. In 2021, overweight and obesity rates in Brazil were 57.2% and 22.4%, respectively.<sup>38</sup> These data can be aggravated by the COVID-19 pandemic as individual behaviors turned out to be more harmful to health. A survey carried out with 45,161 Brazilians during the first phase of the COVID-19 pandemic (between April 24th and May 24th, 2020) showed a decrease in the practice of physical activity, an increase in the time spent using computers or tablets or watching TV, as well as increased intake of UPF.<sup>39</sup> In addition, OFD platforms may be replacing eating out. As eating out is associated with poorer food choices,<sup>40</sup> people are now bringing home the poor food choices they used to make when eating out, so the quality of food consumed at home is getting worse. This trend can further aggravate the country's health situation as evidence has shown associations between increased risk of mortality from COVID-19 in obese patients and chronic non-communicable diseases such as diabetes and hypertension.<sup>41</sup>

Our results, therefore, reinforce the importance of discussing OFD marketing on social media and its implications for public health. In Brazil, no legislation explicitly targets such companies' advertisements, especially on digital media. We emphasize the urgent need of:

- updating and/or approving new legislation to impose restrictions on advertisements that encourage the consumption of foods that are harmful to health according to nutritional criteria and scientific literature;
- companies to provide consumers with nutritional information of advertised products like front-of-pack nutrition labeling alerts;
- educational campaigns promoted by governments to stimulate healthy eating and raise public awareness on how to use OFD platforms to purchase nutritious food;

- protecting consumers from the social responsibility actions of the food industry associated with self-promotion or sponsorship;
- enforcing compliance with the proposed measures through industry accountability and oversight by public authorities;
- research and monitoring of advertising on these platforms to encourage regulatory measures;
- pressure on the government from civil society groups, including consumer advocates and the public health community, to ensure a healthy food environment free from practices that influence and harm the health and well-being of the population.

## Limitations

Our study has some limitations. First, it captured only a fraction of the marketing material created by a portion of the OFD business sector. These are, nonetheless, the top three companies in the country, and all posts made by them during this study (from March 20, 2020, to June 26, 2020) were captured and analyzed systematically. Second, as this is a three-month longitudinal study, it does not capture all posts related to COVID-19 since, at the time of writing, the pandemic is still ongoing. Third, in our study, we analyzed only one type of advertising, carried out free of charge by companies on their official accounts, which means that programmatic media has not been considered. Artificial intelligence algorithms made it possible to reach consumers even when they are not followers of the accounts. The content is targeted based on the users' social media profiles, the advertisements they see, the accounts they follow and interact with, and the activities of their contacts list. This makes it impossible for us to capture all advertisements. In addition, unfortunately, there was no baseline comparison before the pandemic, so it is difficult to judge if OFD companies changed their marketing behavior because of the pandemic or not. Finally, based on the study design, exploring the effect of exposure to the OFD companies' posts on individuals' health was not possible. However, the literature has shown that exposure to both digital and traditional marketing of unhealthy foods has a high impact on food choices, and consequently on individuals' health.<sup>16</sup>

## CONCLUSION

This study contributes to the discussion around advertising on social media during the first phase of the COVID-19 pandemic by describing the content published by the three leading OFD companies in Brazil on their official accounts on three social media platforms. We noticed that the posts made by the companies used strategies aligned with the country's health context and included branding elements with an informative tone, focusing on themes such as practicality, comfort, security, and social actions.

The implications of our findings refer to the importance of systematically monitoring the marketing content advertised on the company's official social media accounts. We also stress the importance of conducting studies that can monitor the marketing content advertised through programmatic media. Finally, further studies should investigate the impact of individuals' exposure to food marketing content, especially on digital media (where literature is lacking), to support consumer protection activities and changes to legislation.

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### Contributors

Rodrigues MB, Matos JP and Horta PM conceived the study; Rodrigues MB and Matos JP undertook the data analyses; Horta PM critically revised the manuscript. All authors contributed to the interpretation of findings, manuscript writing, and approval of the final version.

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