

# “We are invisible to society”: impacts of working conditions on food delivery workers’ health and quality of life during the COVID-19 pandemic

“A gente é invisível pra sociedade”: pactos das condições de trabalho na saúde e qualidade de vida em entregadores de comida na pandemia de Covid-19

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## Abstract

The COVID-19 pandemic aggravated the scenario of low income, hunger, unemployment, and informality generated by the 2017 Labor Reform and the dismantling of social policies, leading many workers to enter the food delivery business that misses labor rights or protection. Thus, this study aimed at investigating how such working conditions impacted food delivery workers’ health and quality of life in Curitiba, Brazil, during the pandemic according to delivery categories. Field research, based on saturation of discourse, was conducted in 10 delivery points using a semi-structured instrument. Despite mentioning several negative aspects regarding working conditions, most delivery workers perceived a positive quality of life, mainly associated with the possibility of work and financial return. App-based delivery workers felt more intensely the negative impacts on health and quality of life. These findings point to the need for further discussions on how these new contemporary and precarious labor arrangements impact occupational health in different contexts and categories.

**Keywords:** Labor Precarization; Gamification; Food Delivery Workers; COVID-19; Quality of Life.

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## Resumo

A pandemia de Covid-19 agravou as situações de renda, fome, desemprego e informalidade provocados pela Reforma Trabalhista de 2017 e pelo desmonte de políticas sociais, levando muitos trabalhadores ao ramo da entrega de comida sem direitos ou garantias de proteção. Este trabalho procurou investigar as condições de trabalho e o impacto na saúde e qualidade de vida de entregadores de comida de Curitiba/PR, de acordo com as categorias de entrega, durante a pandemia de Covid-19. Foi realizada pesquisa de campo em 10 points de entrega, seguindo a lógica da saturação de discursos, com o auxílio de instrumento de pesquisa com perguntas semiestruturadas. Paradoxalmente, apesar da menção a vários aspectos negativos das condições de trabalho, a qualidade de vida foi percebida como positiva por grande parte dos entregadores, sendo associada à possibilidade de trabalho e retorno financeiro. Os aspectos negativos das condições de trabalho e seus impactos na saúde e qualidade de vida foram sentidos com mais intensidade por entregadores de aplicativo. Esses achados trazem a necessidade de aprofundamento da discussão das condições de trabalho nos novos arranjos contemporâneos e precarizados e seus impactos na saúde dos trabalhadores, a partir de diferentes contextos e categorias de trabalhadores.

**Palavras-chave:** Precarização do Trabalho; Gamificação; Entregadores de Comida; Covid-19; Qualidade de Vida.

## Introduction

The Covid-19 pandemic in Brazil imposed social isolation and increased unemployment rates, informality, and labor precarization (Antunes, 2020). In this scenario, many unemployed workers or workers from other branches of informality have migrated to delivery activities (Brasil, 2020).

**Labor precarization** is a structural process that consists of the loss of consolidated rights, in which the worker is permanently disposed to capital. This process arises after the elimination of unionization and the Taylorism-Fordist mode of production, characterized by stability, as a way to increase the productivity of workers and thus increase the accumulation of capital (Antunes, 2011).

When it occurs through digital platforms, the precarization of work is known as the **platformization of work** and has among its origins the use of new information technologies (ICT) by large companies. In this sense, the “entrepreneur” of digital platforms becomes a worker exploited by the digital platforms and by themselves (Abilio; Amorim; Grohmann, 2021).

The working conditions of **platformed** delivery workers are widely studied and publicized; however, the working conditions of categories of food delivery workers who do not work on platforms have been little explored by studies, because they are still recent. These categories include motorcycle delivery worker, delivery workers who work for companies that outsource deliveries outside the platforms, or even those who work independently for establishments on a daily fee basis. Thus, little is known about the working conditions and their impacts on the health and quality of life of these categories. This study was then driven by the following research question: what is the impact of working conditions on the health and quality of life perceived by different categories of food delivery workers?

Considering this panorama of increased job precarization and its worsening during the

pandemic, this article intends to understand the working conditions and review how they impact the perceived quality of life and health of different groups of food delivery workers during the period of the Covid-19 pandemic.

## Methods

The research was anchored in the hermeneutic-dialectical perspective as the epistemological basis in all its stages, from the outlining with the actors involved to the elaboration of nuclei of meaning (Minayo, 2014), highlighted in bold in the section “Meanings of precarization”.

To assist outlining the research regarding the general scenario, groups and places to be investigated, as well as the research instrument, a partnership was formed with the *Sindicato de Motofretistas de Curitiba e Região Metropolitana* (Sintramotos) trade union, the *Movimento de Entregadores Antifascistas de Curitiba* and the *Bicicletaria Cultural de Curitiba*, which performs a welcoming work for delivery workers.

Based on the dialogue with the trade union, it was defined the inclusion not only of delivery workers of application platforms (platformed), but also delivery workers of outsourced companies, freelancers and motorcycle delivery worker, including only those who work with food deliveries.

After defining the group of research participants, a semi-structured instrument was constructed containing 50 questions to raise basic information about socioeconomic issues, job characteristics, eating habits, health, sleep, food safety, job satisfaction, access to health services, and Covid-19 as a strategy for data collection.

The field strategy was divided into two stages. The first one consisted of testing the instrument with the delivery workers indicated by Sintramotos. After a positive feedback from the latter and the delivery workers, the research instrument was kept, and the interviews were included in the research.

The second stage, consisting of the fieldwork, started at the end of August 2021 and ended in April 2022. Interviews were first conducted at four different waiting points, or points, as referred to by the group; the next six points were listed as the first groups of delivery workers. Therefore, the research included a total of 10 delivery points (five in front of shopping centers, two with outsourced delivery, two with autonomous delivery, and one in the trade union). All of them presented a large number and heterogeneity of delivery workers and were therefore listed.

In the second stage, in-depth interviews, sequential visits, participant observation and field journal construction (Foot Whyte, 2005) were conducted in each of the selected points, which were concentrated in the central region of Curitiba and in some of its adjacent neighborhoods (Batel, Água Verde and Portão). Once the possibility of different speeches coming from the same profile of delivery workers at the same point was saturated, we moved on to another point.

After recording and in-depth reading, the speeches were organized in NVivo software (QSR International Pty Ltd. Version 10, 2012) and coded (Minayo, 2014). Categories were built based on the themes that appeared in the speeches, subcategories were defined based on the perception of the delivery workers about the theme, and the nuclei of meaning were inductively defined after analysis of these perceptions. The descriptive statistical analysis was performed using Microsoft Excel.

Regarding the socioeconomic characteristics of the different groups of delivery workers, we used age ranges and income averages, as observed in other studies (Abilio et al., 2020; Manzano; Krein, 2020).

The working conditions found concern the form of work (outsourced, apps-based, directly), means of delivery (bicycle or motorcycle), platform served, employment link, other jobs performed, hours worked per day and days worked per week,

rest time and conditions, bathroom use, meals, and shelter. Since no clear conceptualization of the term was found, the survey of working conditions was carried out based on aspects raised in other studies in the same field (Abilio et al., 2020; Greggo et al, 2022; Manzano; Krein, 2020; Tarrão; Santos; Lourenço, 2022).

Finally, as a parameter for reviewing the delivery workers' quality of life, the concepts found in their own speeches were used, rather than other concepts or theoretical grounds. To capture these concepts, respondents were asked to think about their quality of life through the question "How do you rate your quality of life?". To answer this question, they chose one of the Likert scale options (terrible, bad, reasonable, good, and great), and were then asked to justify their answer. The Likert scale was also used to measure satisfaction with working conditions (totally dissatisfied, dissatisfied, satisfied, totally satisfied), followed by an open question to justify the option chosen.

## Overall socioeconomic profile and main characteristics of the working conditions of the delivery workers

A total of 94 delivery workers were interviewed - 68 motorcyclists (72.3%) and 26 cyclists (27.7%) - and, of this total, 74 in-depth interviews were conducted. Chart 1 reveals the main differences between the categories used in this paper.

Based on previous studies (Abilio et al., 2020; Manzano; Krein, 2020), the main differences considered between delivery categories and modalities relate to the existence of a formal contract, completion of a course at the State Traffic Department (Detran), payment of fees to Detran, and type of link with the facility. As further discussed herein, these differences determine the working conditions in which delivery workers spend most of their time.

Table 1 discloses the main socioeconomic characteristics.

**Chart 1 – Differentiation of categories and delivery modalities**

	Motorbike worker	Outsourced delivery workers	Freelancer delivery workers	App-based delivery workers	App-based bike delivery workers	Freelancer bike delivery workers
Type of Contract	Formal	Informal or formal	Informal	Informal	Informal	Informal
Attendance of courses and training delivered by Detran	Yes	No	No	No	No	No
Fees payment	Yes	No	No	No	No	No
Link with the facility	Direct, with contract	Indirect, mediated by an outsourced company	Direct, no contract	Via app company	Via application company	Direct, no contract

Detran: State Department of Traffic.

**Table 1 – Socioeconomic characteristics of food delivery workers in Curitiba, PR**

	Professional motorbike workers/motorcyclists	Freelancer delivery workers/direct delivery for establishments	Outsourced delivery workers	App-based delivery workers	App-based bike delivery workers	Freelancer bike delivery workers/direct delivery for establishments
<b>Total n (% – 94)<sup>1</sup></b>	30 (31%)	4 (4.8%)	12 (13%)	22 (23%)	19 (20.2%)	7 (8%)
<b>White (50 total) n – %</b>	18 (19%)	1 (1%)	6 (6.4%)	9 (9.6%)	12 (13%)	4 (4.2%)
<b>Black (38 total) n – %</b>	7 (7.4%)	2 (2.1%)	6 (6.4%)	14 (15%)	9 (9.6%)	0
<b>Asians/Indians (4 total) n – %</b>	3 (75%)	–	–	–	1 (25%)	–
<b>Highest % by age group</b>	56% (35– 55 years)	75% (35– 40 years)	83% (20– 35 years)	60% (30– 45 years)	80% (20– 35 years)	100% (20– 35 years)
<b>Average years of education</b>	13.5	11	11	11	9	13.5
<b>Has another job</b>	4	2	5	9	5	1

<sup>1</sup>Two motorcycle delivery workers did not state race, so the sum (28) is less than the total for that category (30).

Almost all were men (92; 98%) and only two women (2%), averaging 35 years old, average earnings of R\$2,584, with most of the delivery workers being in the salary range of up to R\$3,000.<sup>1</sup> Most (70%) stated to have no other work besides deliveries, pointing out to the dependence on the activity as the only source of income for these delivery workers. The group interviewed is composed of more whites than blacks, the app-based delivery workers make up the youngest category, and motorcycle deliver workers the oldest category.

Table 2 shows working conditions characterized by informality and precarization.

As can be seen in Table 2, the motorcycle delivery workers are more concentrated in the highest salary range, above R\$3,000, in relation to the other categories and modalities. This category has a formal classification in the *Classificação Brasileira de Ocupações*<sup>2</sup> (Brazilian Classification of Occupations) (5191-10) and several requirements regarding the work routine, including to obtain a special license on the *Carteira Nacional de Habilitação* (National worker’s License) and have a motorcycle with certain characteristics (fixed box and red plate), besides wearing specific personal protective equipment (PPE) and pay mandatory fees to Detran (Brasil, 2022a, 2022b).

1 These figures do not include expenses for fuel and maintenance of motorcycles and bicycles, which can lead to a much lower net amount. Formal delivery workers reported monthly remuneration, freelancers reported to be paid bi-weekly or monthly, and app-based delivery workers to be paid weekly.

2 Retrieved from: <<http://www.mteco.gov.br/cbsite/pages/pesquisas/BuscaPorTitulo.jsf>>. Accessed on: 4 April 2023.

**Table 2 – Main aspects of working conditions for food delivery workers by category and modality**

	Motorbike worker	Freelancer delivery workers	Outsourced delivery workers	Application-based delivery workers	Freelancer bike delivery workers	App-based bike delivery workers
<b>Total n (%)</b>	30 (32%)	3 (3.2%)	12 (12.8%)	23 (24.4%)	4 (4.2%)	22 (23.4%)
<b>94</b>						
<b>Formal (n; % category)</b>	19 (63%)	1 (25%)	8 (66%)	0	0	0
<b>Total: 28</b>						
<b>Informal (n; % category)</b>	11 (37%)	2 (75%)	4 (44%)	23 (100%)	4 (100%)	22 (100%)
<b>Total: 65</b>						
<b>Average hours worked a day</b>	10 hours	9.3	9.9 hours	10.5	7.3	11
<b>Average days worked a week</b>	6 days	5 days	7 days	6 days	6 days	6 days
<b>Average monthly income (R\$)</b>	3262.5	1,860	2,587.5	2,291.2	1,666	2,023
<b>Highest % of delivery workers per income range</b>	60% above R\$3,000	75% between R\$2,000 and R\$3,000	42% between R\$3,000 and R\$3,900	43% between R\$1,500 and R\$2,900	75% below R\$1,500	50% between R\$2,000 and R\$2,900
<b>Fixed compensation</b>	Yes	No	No	No	No	No
<b>Fixed work schedule</b>	Yes	Yes	Yes	No	Yes	No
<b>Fixed rest time</b>	Yes	No	No	No	No	No
<b>Fixed mealtime</b>	Formal	No	No	No	No	No
<b>Food Aid<sup>1</sup></b>	Formal	Yes	Variable <sup>2</sup>	No	Yes	No
<b>PPE aid (helmet, vest, mask, alcohol gel)</b>	No	No	No	No	No	Variable <sup>5</sup>
<b>Healthcare aid/insurance</b>	Formal	No	Formal only	Variable <sup>4</sup>	No	No
<b>Access to bathroom and fixed shelter</b>	Yes	Yes	Variable <sup>3</sup>	No	Yes	No

<sup>1</sup> Includes both financial aid and meals voucher.

<sup>2</sup> Only formal and outsourced delivery workers who are offered meals by the restaurants, on a voluntary basis.

<sup>3</sup> Only outsourced delivery workers who are offered meals by the restaurants, on a voluntary basis.

<sup>4</sup> Only delivery workers on the Ifood platform.

<sup>5</sup> Some platforms offer alcohol gel and mask.

Table 2 shows that, although motorcycle delivery workers have the highest concentration of formal workers (registered job), there is still a percentage that works without registration, directly for the establishment or through app - they were classified as motorcycle delivery workers because they are still legally bound to the category. In view of the devaluation of this category due to the increased volume of app deliveries, a fact evidenced by the speeches, some still complement their working hours with app deliveries in different shifts.

Another differential of this group is a more predictable journey than the other categories, with fixed earnings and hours, meals at the companies or restaurants where they work, as well as access to bathrooms, shelter inside the facilities, and defined times for rest.

As for the outsourced delivery workers, working conditions vary more. This category, whose average age is 33 years old, works for companies that outsource deliveries to restaurants, with no link to the facilities. It consists of eight formal employees, nine informal ones and three with Individual Microentrepreneur (MEI) registration, who are hired, but must pay their own benefits. After recruitment, they are directed to restaurants, some on a weekly basis, others on a monthly basis. In restaurants with a larger number of delivery workers, they operate in the form of rotation, and the volume of hours is agreed between the company and the restaurant, usually by shifts. They do not earn a fixed monthly fee, but a percentage of each delivery fee made during their shift, and they pay a fixed daily fee to stay on the site.

According to the outsourced employees interviewed, the advantage of working in this modality in relation to the other categories is the possibility of “guaranteed” deliveries, the fixed work and the possible link with the facility. Some allow the use of the kitchen to pack and heat lunch boxes or even provide meals, permission to use the bathroom, access to water and, in some cases, shelter from the rain. In addition, they use a rotation system, which guarantees a certain number of deliveries. However, these “benefits” are optional and are not

provided for in the contracts established between the outsourcing companies and the restaurants, which in turn may or may not offer some of these options. The working conditions of this category, therefore, are more variable in relation to delivery workers, but more predictable when compared to app-based delivery workers.

This variability has occurred for more than two decades, with a reduction in the more stable labor segments; reintegration occurred with fragile work situations, under outsourcing regimes (Franco; Druck; Seligmann-Silva, 2010), so this category is also subject to job precarization.

In relation to freelancer delivery workers, working conditions have more fixed aspects, but there are no rights and guarantees. Remuneration is paid according to daily fees paid by the restaurants without the mediation of third parties (fixed amounts per day) plus the full amount of the delivery fee. There is no formal contract, and the number of hours is agreed between the worker and the restaurant. Opportunities are usually disclosed informally in social networking groups of the delivery workers, in which they can evaluate the best proposals, report abuses and indicate good opportunities.

The fixed aspects involve ties with the establishments, water supply, bathroom, meal, and shelter. Although the average monthly income is lower, being paid the full delivery fee (which does not happen for outsourced workers), the absence of formal requirements (which occurs for motorcycle delivery worker), and the guaranteed deliveries become appealing and represent an alternative to the apps, which require delivery time and do not involve benefits. As a form of mutual help, the self-employed reported the occurrence of reports and alerts of the places that offer poor delivery conditions in messaging app groups.

Finally, the working conditions perceived as most critical are experienced by the platformed delivery workers who make up the youngest group - 51% are in the age group between 19 and 29 years and 48% in the age group between 30 and 39 years. In the older age groups this percentage progressively decreases. More than half of the platformed delivery

workers (60%) have completed high school, but 26% have only completed elementary school. This is the highest rate among all groups, which indicates the low educational level of this category.

The fact that none of the conditions of the job are predictable - from the number of hours and the amount earned, to vital aspects such as access to food, water, shelter, and bathroom facilities - makes it the most critical. For bike delivery workers, especially the platformed ones, these conditions are more unsafe due to the long distances they have to travel from their homes to the delivery points, in addition to the route of the deliveries and the levels of difficulty they face on the way - only one

delivery worker lives up to 5 km from the delivery point, 10 live up to 10 km and six live more than 20 km away -, which causes great physical stress. They earn less than app-based delivery workers, but more than the freelancer, who work fewer hours and are the category with the lowest wages. The bike delivery workers are the most vulnerable category in terms of facing adversities such as physical effort and safety, especially when they are black.

Differences were also observed in the conditions experienced by black delivery workers compared to the white ones. These differences can be seen in Table 3.

**Table 3 - Differences in working conditions for black and white delivery workers.**

	General <sup>1</sup> (94)	Motorbike worker (30) <sup>2</sup>	Freelancer delivery workers (3)	Outsourced delivery workers (12)	App-based delivery workers (23)	Bike delivery workers delivery workers (22) <sup>3</sup>	Freelancer bike delivery workers (4)
<b>White n (% total)</b>	50 (54.5%)	18 (19%)	1 (1%)	6 (6.4%)	9 (9.6%)	12 (13%)	4 (4.2%)
<b>Black n (% total)</b>	38 (41.3%)	7 (7.4%)	2 (2.1%)	6 (6.4%)	14 (15%)	9 (9.6%)	0
<b>Informality degree n (%)</b>	15 (30%) x	4 (22%) x	1 (100%) x	4 (66%) x	9 (100%) x	12 (100%) x	4 (100%) x
<b>White×black</b>	24 (63%)	4 (57%)	1 (50%)	5 (83%)	14 (100%)	9 (100%)	-
<b>White x black average monthly wage (Reais)</b>	2,758 x R\$2,400	3,341 x R\$2,614	R\$3,141 x R\$2,438	R\$3,086 x R\$2,806	R\$2,200 x R\$2,593	R\$2,341 x R\$1,638	R\$1,750 x R\$1,500
<b>Average hours worked/day</b>	10.4h x	10.6h x	8 h x	9.6h x	10h x	11.1 x	7.3 x
<b>White×black</b>	10.4h	11.5h	7h	9.3h	11h	12	-
<b>Average days worked/week</b>	6.1 x	6.1 x	6.1 x	6.5 x	6 x	6 x	6.1 x
<b>White×black</b>	6.3	6.3	5.5	7	6.5	6.1	-

<sup>1</sup> Of the total 94 delivery workers, three self-declared to be Asian, one self-declared to be indigenous, and two did not declare color, so the total of blacks and whites is 88 delivery workers.

<sup>2</sup> Of the total 30 motorcycle delivery workers, in addition to the 18 self-declared white and seven black, three self-declared to be Asian and two did not declare color.

<sup>3</sup> Of the total of 22 bike delivery workers, besides the 12 self-declared white and nine black, one delivery worker self-declared to be indigenous.

As can be seen in Table 3, and in general, black delivery workers earn on average 13% less than the white ones. The highlighted figures reveal greater

informality and lower average wages in almost all modalities, even when the number of hours and days worked remained similar or was higher. It is also

noteworthy the greater number of black workers in the most vulnerable positions, whose working conditions are more sickening, as is the case of motorcycle delivery workers. They occupy fewer positions in categories where working conditions are more predictable, such as motorcycle delivery workers, outsourced workers, and freelancers, and even when they do, they earn less.

This difference demarcates the exposure of black delivery workers to even more precarious conditions than those typically faced in this type of work, even confirming trends observed in other surveys that show the high percentage of black and peripheral delivery workers as app-based bike delivery workers (Wilbur, 2020).

According to Wilbur (2020), bike is the primary delivery vehicle for peripheral, and low-education black youth. In this research it is observed that black delivery workers are in fact the most vulnerable group, who do not see possibilities of growth in the activity and use the bike because they cannot afford to buy motorcycles. On the other hand, the white bike delivery workers, whether they use apps or are freelancers, are mostly younger and have other employment ties and/or come from middle-class families. They see the delivery work as a healthy but temporary physical activity, or even subject to evolution through the purchase of a motorcycle.

When looking at the categorization by color, the black, either being bike or motorcycle delivery

workers, of all the categories considered in this study, still present some worrying data. All white delivery workers who tested positive for Covid-19 were able to take time off, even when they were only suspected of having the disease. On the other hand, less than half of the eight black delivery workers with this diagnosis could get time off. In addition, we observed greater difficulty in accessing health services by black delivery workers who, despite having more diagnoses of chronic diseases (10), access fewer public or private health services.

These difficulties may be attributable to the lower income of this group and the fact that their main mode of delivery occurs via app, which makes it impossible to take unpaid time off, in the case of Covid-19, and to attend health services, due to the need to put in a large volume of hours to receive calls and try to increase income, which is lower than that of white delivery workers, for example.

### The meanings of precarization

Next, the nuclei of meaning apprehended through the speeches will be deepened. These speeches can be seen in Chart 2. The criteria used to identify the respondents' speeches, which are in parentheses after the selected excerpts, refer to the category, mode of delivery and sequence of the interview conducted.

**Chart 2 - Perceptions about the main aspects of the working conditions in the speeches of the food delivery workers**

Categories	Subcategories		
Racism	Structural racism forces black delivery workers to work longer hours and be exposed to more risk, harassment and racism		
Level of formality, employment relationship and working conditions	The higher the level of formality and/or link with facilities, the less variable the work process becomes, increasing the perception of a more stable and predictable work process		
Understanding of how digital platforms work	Lack of understanding of the rules of digital platforms operation		
Characteristics of daily work	Reduced possibilities to eat while working	Low pay	Variable access to water, hygiene, and shelter
Work accident	High risk of accidents and difficult access to public or private security assistance		

continues...

**Chart 2 – Continuation**

Categories	Subcategories
Covid-10	Contamination and diseasing from Covid-19 make it difficult to take time off work
Perception about satisfaction and quality of life	Satisfaction related to deliveries and compensation
No protection of delivery workers	Sense of invisibility vis-à-vis digital platforms, outsourced companies, restaurants and customers

The first nucleus of meaning concerns the structural racism present in the **working conditions of black delivery workers, which forces them to work more and be more exposed to greater situations of risk, harassment and racism.** Black delivery workers were the only ones to report situations of harassment by customers, in addition to situations of prejudice in the deliveries performed: *“Once I was without my profile picture and the person started being racist because she thought I was black, she said a lot of bad things”* (C\_AppAut2).

Among the bike delivery workers interviewed, if we compare the remuneration of young blacks and whites up to 30 years old, the first ones earn 54% less. According to Abilio (2020), the access of black delivery workers, especially young ones, is amplified when the conditions of an occupation “are even more precarious and poorly paid”.

The second nucleus of meaning concerns the working conditions of the first three categories (professionalized, outsourced, and freelancer delivery workers), which present more predictable working conditions, even though motorcycle delivery workers suffer less precarization, which influences the perception of quality of life at work. In view of this, the second nucleus of meaning relates the level of formality and link with working conditions: the higher the level of formality and/or link with facilities, with pre-defined working conditions, the greater the perception of stability and predictability of work, even if the wages are low: *“I don’t work for the app because it doesn’t pay, it’s better to work for the daily rate [autonomously] in good places that give lunch, I try to work in good places”* (M\_Aut1).

Regarding the platformed delivery workers, the understanding of the **lack of understanding**

**about the operation of digital platforms** stood out, especially about amounts to be earned, blocking factors (even when the delivery was completed), suspension and even low delivery requests:

*Yeah... because they [platform] blocked on the day like that, very easy. Like, the app was kind of buggy like that [...]. I don’t know how to explain it well, but there was a time that I took a delivery to a [restaurant], and I arrived at the client’s house, and I put the ‘delivered’, after I delivered the snack. Then, afterwards, I was blocked for nothing, on the day.* (C\_App9)

This lack of understanding was more frequent among the bike delivery workers, who demonstrated greater recognition of precarization to which they are submitted due to greater physical exhaustion, greater vulnerability to theft, unfavorable external conditions – rain and excessive heat, which can decrease the performance of deliveries –, the need for long displacements to the delivery points and excessive load. The last point is relevant because, as there is no possibility of installing a fixed box, they often carry excessive weight on their backs, especially when delivering supermarket items.

Consequently, **the lack of understanding about the operation rules of digital platforms** is determinant to the work management of app-based delivery workers. This fourth nucleus of meaning extracted from the speeches reveals that many app-based delivery workers fail to take breaks, mainly related to meals, or even take other care of their own health.

*I don’t stop to rest; I don’t stop for lunch. Bathrooms are between deliveries. Like, you go to a mall, you feel*

*like doing it right there. You also drink water in the mall [...]. Sometimes we can't hold on to it, we do it on the street, on the vacant lot. So as not to have to stop. Right? The faster it is for me the better [...]. I don't want to waste time, because it's like this, it's, uh... right at lunchtime, which would be my lunchtime, it's the busiest time. And sometimes, there's a promotion and so on [...]. I just take a great breakfast in the morning before leaving and then I'll only eat at night, when I arrive. (C\_App10)*

The lack of knowledge of the rules, which are determined by the companies, creates a feeling of insecurity in relation to the platform, which is perceived as a constant threat and can be interpreted as a type of **biopower** exercised by the platforms (Foucault, 2004; Vidigal, 2021), a way to establish insecurity and control over the bodies of the delivery workers, always willing to answer calls under any adverse conditions.

Demonstrating the absence of any benefit to app-based delivery workers, the latter also speaks of the gamification process in which there is the insertion of the logic of video games at work to encourage delivery workers to keep their apps on and not refuse calls, even though challenges, prizes, and performance evaluation (Oliveira, 2021). They then combine this way of functioning with the objectives and goals of daily deliveries and earnings, even if the waiting and delivery conditions are unhealthy and dangerous.

The aspect of daily work that becomes most subject to this logic of gamification, therefore, concerns the **possibilities of eating during work**, for which the app delivery workers are completely responsible, in contrast to the other categories in which this aspect is granted.

Regarding **access to water, hygiene, and shelter**, app-based delivery workers on one of the platforms would have support points at their disposal, which would also be responsible for providing alcohol gel and masks. However, there is no publicized list of these points and the delivery workers only learn about them at the time of delivery. Only four (11%) of them were aware of this possibility, and none

had used the space, because it is not close to their delivery point.

In general, platform users use the malls predominantly for using bathrooms, having water and charging cell phones, as well as to get partial shelter under the marquees, exposed to the bad weather outside. Only a small percentage of registered delivery workers are able to stay in specific areas within the malls. For freelancer delivery workers, the restaurant space becomes their own waiting space and work environment, with full shelter. Outsourced delivery workers also had partial shelter, especially in restaurants with a very large number of deliveries, whose rotation scheme requires a considerable amount of delivery workers waiting outside.

For all the app-based delivery workers and some outsourced delivery workers, **low compensation** is the main dissatisfaction factor and the main claim, even with the recent raise implemented by one of the platforms, considering that 69% have no other source of income and 61% have a total household income of up to R\$3,000, besides the fact that compensation is uncertain. Added to this, the average time spent between waiting and delivery is 10.4 hours a day, and makes it impossible to have other relevant sources of income or even to seek extra training, studies, and attendance to courses to overcome this situation.

According to the *Departamento Intersindical de Estatística e Estudos Econômicos* (Dieese), in May 2022 the household income needed in the city of Curitiba to spend on housing, transportation, hygiene and clothing, in addition to food, was R\$5,495.52 (Dieese, 2022). Considering the average monthly income of R\$2,584, and that 44% of the group is responsible for the household, it is understood that the remuneration for deliveries, in general, does not guarantee the family's subsistence.

This delivery fee of the platformed works disregards, for example, the displacement to the pickup site or even the return to the waiting site. For app-based delivery workers, this generates fuel costs, and for bike delivery workers, physical

effort. For the latter, the fee is even more unfair because it does not take into account the terrain and the conditions of public roads, much less the weight of the deliveries.

The minimum rates per kilometer (platforms) or the daily rates (freelancers and outsourced workers) make the routine of most delivery workers of all categories reviewed unstable and unhealthy, being more unfavorable for platformed workers.

The high risk of accidents and the difficulty in accessing public or private security assistance are also a daily component very present in the speeches, either because of the accidents already suffered and the deaths of colleagues and friends, or because of the imminent possibility of suffering an accident.

Covid-19 contamination, however, was hardly cited as a barrier to deliveries, as has occurred in other research with platformed workers (Piasna; Drahekoupil, 2021), although in countries such as Ecuador the incidence of Covid-19 contamination was higher than in the rest of the population (Ortiz-Prado et al, 201).

Regarding Covid-19 contamination, of 78 delivery workers who responded to this item, 20% (16) said they had tested positive, 68% (53) said they had not contracted it, 6% had symptoms but not tested, and 6% said they did not know if they had contracted the virus. Of the 16 delivery workers who tested positive, three were unable to take time off and continued working. This situation was also reported in case of accidents:

*I lost the muscle [in a work accident] because of a delivery of only six Reais. Wow, I almost died that day. The bills started coming in and I couldn't stay away, so I stayed home for only two weeks [...]. So now I work feeling pain. (M\_App2)*

*I got Covid twice and I did not take time off, I had bills to pay. (M\_App8)*

Outsourced and freelancer delivery workers who were contaminated or injured also reported that they did not receive sick leave coverage,

and that it was **difficult to get time off**. In addition, many do not have the information to apply for these benefits or do not know how to access them, either in private companies or in the public sector. Platformed delivery workers even reported fear of requesting leave and then receiving few calls or being blocked. None of the aforementioned benefits cover damage to motorcycles, bicycles, cell phones, and helmets, which are necessary tools for the job: *Oh, I have a damaged bike, two. I don't get any, any help for the bike. Bike mechanics, you don't have an incentive (C\_App1).*

For this reason, the perception of **non-protection and invisibility** is very present, especially in platformed delivery workers, subject to greater risks, both in relation to the public authorities and the private sector, customers, and society:

*[Platform] gives alcohol gel and mask and nothing else. If we are stolen, we pay for it. They don't pay anything. Nobody sees us, we are invisible. (M\_App8)*

*On my first day of delivery I had an accident, the [company] called asking if I could make the delivery, there is no use to complain because if you complain they block you and put another person in the place. (M\_App10)*

*The state should help regulate the delivery workers' health and food issues. (M\_App\_reg1)*

*Years go by forcing the body, spine, sciatic, disturbs the psychological, I've already had a lot of therapy and physiotherapy, I've suffered more than 10 accidents. Every delivery worker should pay a healthcare plan. (M\_Aut1)*

In this context, delivery workers are held responsible not only for their gains, but also for their losses, especially the app-based ones, because the platforms force workers to assume the risks, the pace, the intensity and the extension of the work shift (Wilbur, 2020). The urban space inflexible

to motorcyclists and cyclists, the precarious work relations, the high density of work, the time pressure and the lack of PPE supply by companies, restaurants, apps and clients generate the difficulty to avoid risks and practice self-care for the prevention of accidents or even robberies (Diniz; Assunção; Lima, 2005).

According to the typology of work precarization proposed by Franco and Druck (2009), these conditions arise from the “intensification of work and outsourcing” that produces low pay, unstable contracts, and fragile working conditions and health, which makes motorcycle, outsourced and freelancer delivery workers also suffer impacts on health and quality of life because of the working conditions they face.

Job insecurity, characterized by the absence of training and information about risks and preventive measures, is also generated by companies as a way to seek higher productivity at any cost. It results, for example, in a higher number of accidents, of a still underestimated value (Franco; Druck, 2009). Other surveys have already pointed out that this number of accidents is higher in food delivery workers than in motorcyclists in general (Byun; Park; Jeong, 2020), a fact evidenced in a report presented by the *Comissão Parlamentar de Inquérito* (Parliamentary Inquiry Commission) (CPI) of the Applications, according to which motorcycle delivery workers constitute between 60% and 70% of the patients admitted to the Trauma Department of the Hospital das Clínicas of the Medical School of the University of São Paulo (HCFMUSP) (Ribeiro, 2022).

In this sense, the lack of rights of this group of workers is doubly marked by the game of invisibility and stigma. The delivery workers interviewed report that most of the time they feel invisible in their needs: when circulating on the streets and in traffic they are often disrespected – “nobody sees us”. However, when they suffer accidents or have difficulties delivering, they are treated as sub-citizens, marked by stigma and harassment that extend from racial discrimination to class

prejudice and against the profession itself, seen as a “non-profession”.

*We are invisible to society. Some clients are very rude, they tell us to go up to the apartment, to go to the person's house, to the condominium, they don't pay a tip, they delay our time to get another call. Then they say that it is late, that it is cold or bad, they curse us, say that they will not give the code. Yesterday a girl threatened not to give the code if I didn't go up [to the client's apartment to make the delivery]. (M\_App8)*

*Some of them [restaurant employers] say. “I don't like the motoboy. I hate the motoboy bunch” [...]. We are kind of discarded, you know? (M\_F2)*

This negative perception about the working conditions does little to change the feeling of **satisfaction with the deliveries** or even with the quality of life and the possibility of income, because such conditions are seen as a burden of the process, a “necessary evil”. Of the 92 delivery workers who answered the question about quality of life, 52% consider their quality of life to be reasonable, 38% good, and only 3.2% terrible. Regarding job satisfaction, 61% were satisfied, 17.4% dissatisfied, 15.2% totally satisfied, and 3.2% totally dissatisfied. Surprisingly, some workers claim to be satisfied with their work, even if the quality of life reported is regular or bad:

*My quality of life is regular because before I couldn't get a job at all and I didn't even have a drive license [...]. Now I know what it is to earn more than two minimum wages. I always worked without a registered work card and always got minimum wage. (M\_App2)*

*My quality of life is actually a trash [...] because the human being should not live like this, and I don't want to live like this either [...]. Satisfaction [with work] is 95% because I earn good money without having an annoying boss nagging me. (C\_App2)*

This situation unveils two paradoxes. In the first, the feeling of having a work possibility apparently “without bosses” and the management of one’s own working time was pointed out by most of the delivery workers as a positive factor, despite the dissatisfaction with the rest of the working conditions. In other words, a large part of the delivery workers associated quality of life with having an occupation that allows them to obtain the income provided by the deliveries, even if the conditions are perceived as unfavorable. According to the World Health Organization, quality of life can be defined as “an individual’s perception of their position in life, in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns” (WHO, 1995, p. 1405, free translation). Taking this definition into consideration, it is understood that delivery workers neglect factors unrelated to earning an income, including health, nutrition, or stress, as part of their understanding of quality of life.

The second paradox refers to the favorable perception of quality of life beyond this sense of autonomy, which involves a balance of all aspects of work experienced and takes into account risks of accident, health, and nutrition. This perception occurs mainly in delivery workers who have other sources of income, mainly formal (Piasna; Drahoukoupil, 2021), but it also appears in freelancers. The latter, despite their lower income and labor non-protection, are more satisfied with their working conditions and show less perception of risks and insecurities with this, precisely because they have ties with restaurants and customers:

*You’re working for who you know, you’re working for yourself, right? You have more autonomy, you really make your own schedule, you work without pressure [referring to the pressure of the apps]. I think maybe the main point is that it’s*

*fairer, right? That you charge, you know what you charge, you know what you are charging, right? (C\_AppAut)*<sup>3</sup>

*The private one pays better for the delivery worker, and is a lower cost for them. (C\_AppAut)*<sup>2</sup>

Therefore, the greater the dependence on platforms or outsourced companies, the more unfavorable are perceptions of working conditions per se, even if satisfaction with quality of life is favorable (Piasna; Drahoukoupil, 2021).

The precarization of employment, which generates everything from fragile work situations for formal delivery workers, to processes of incentive for self-acceleration, unattainable goals for bonuses, and strong time pressure for the platformed workers lead to the precarization of workers’ mental and physical health. The social time of work is in contradiction with the delivery workers’ biorhythms, predisposing them to accidents and illnesses. The invisibility felt by them is due to the weakening of social recognition arising from the naturalization of insecurity and disposability of some groups of people (Franco; Druck; Seligmann-Silva, 2010).

Finally, based on the results and discussion presented, one finds that the working conditions of these delivery workers are unfavorable and characterized by insecurity in relation to the operating rules of the platforms, the low values of minimum mileage rate and daily rate, informalization, the imminent risk of accidents, the reproduction of structural racism against black delivery workers, the difficulty of caring for their own health, devaluation of professionalized categories and the accountability of the risks involved. All categories perceived impacts on quality of life due to the dynamics of informalization that, however, seem to hit app-based delivery workers more intensely due to the greater risk and unpredictability, despite the sense of autonomy produced by the activity (Abilio; Amorim; Grohmann, 2021).

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3 Speech of two freelancer bike delivery workers.

## Final considerations

This paper sought to highlight the impact of the working conditions of different categories of delivery services on the quality of life of delivery workers. It found that working conditions are inadequate for most categories, mainly because of an unfavorable balance between eating possibilities, knowledge of platform rules, relationship with customers, employers and restaurants, risk of accidents, protection in case of accidents and contamination by Covid-19. Moreover, the impacts hit black delivery workers and app-based delivery workers the hardest.

The relevance of the findings lies precisely in the relationship between these aspects and some differences between the delivery categories, but the situation of platformed delivery workers clearly stands out. However, due to the dynamics of labor precarization enhanced by the Labor Reform of 2017, other deliver workers also submitted to the uberization process, as is the case of outsourced workers, also suffer the daily stigma and invisibilization, but they are not portrayed in other studies on the same theme. Thus, more research is needed to investigate these and other working conditions in each of these categories.

Finally, the research showed that the working conditions of food delivery workers in general cause physical and mental wear, hinder access to rights, and do not ensure the dignified survival of platformed or outsourced workers who work exclusively in the activity, even if the perception of the income earned with this activity is positive and the engagement caused by the gamification strategy maintains the link and incentive of workers with the platforms. Another important finding lies in the positive perception of formal and freelancer delivery workers about their work in relation to **predictability** and **stability** arising from the link established with the facility, whether by formal contract or proximity, as factors linked to a higher quality of life at work, even if the wages are not adequate and they miss labor protection. These two paradoxes are imposed by

the radicalization of global neoliberalism and the Brazilian State's Necropolitics policies that hit informal and precarized groups of workers the hardest.

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### Authors' contribution

Vanessa Daufenback was responsible for the design, writing and critical revision of the manuscript. Cláudia Bógus and Cecília Rocha were responsible for the critical revision of the manuscript. Esther Amorim Ribeiro collaborated with the production of research data.

Received: July 17, 2022

Resubmitted: January 16, 2023; March 30, 2023

Approved: April 02, 2023