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# "A heavy freedom": the paradox of autonomy among ride-hailing drivers

*"Liberdade que pesa": o paradoxo da autonomia no trabalho de motoristas por aplicativo*

*«Libertad que pesa»: la paradoja de la autonomía en el trabajo de los conductores de aplicaciones*

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**Abstract**

**Objective:** To analyze the autonomy paradox among ride-hailing drivers. **Methods:** We conducted an analytical, mixed-methods study. The sample comprised 24 ride-hailing drivers from the metropolitan area of São Luís, Maranhão, Brazil. We recruited participants via snowball sampling and determined sample size by theoretical saturation. We analyzed qualitative data using thematic content analysis and quantitative data using descriptive statistics. **Results:** Most participants were single men aged 25 to 45 with a college degree. Drivers reported physical symptoms, such as musculoskeletal pain, and psychological issues, including anxiety, insomnia, and frustration. They identified exhausting work hours and a lack of safety as primary occupational stressors. **Conclusion:** Although drivers equate autonomy with flexible scheduling, this perceived freedom is illusory; they ultimately feel trapped by the long hours required to meet app-imposed targets. Inadequate regulation and precarious conditions exacerbate driver vulnerability and pressure, highlighting the urgent need for interventions to protect their health and well-being.

**Descriptors:**
Occupational Health. Job Security. Information Technology.

**Whats is already known on this?**
App-mediated labor has become a global phenomenon, enabling freelance work but remaining largely unregulated and unsafe for workers.

**What this study adds?**
It highlights the critical need to regulate ride-hailing work to ensure drivers' health and safety.

***Resumo***

***Objetivo:*** *Analisar o paradoxo da autonomia no trabalho de motoristas por aplicativo.* ***Métodos:*** *Tratou-se de uma pesquisa de natureza analítica com abordagem quanti-qualitativa. Participaram do estudo 24 motoristas por aplicativo da região metropolitana de São Luís, Maranhão. A amostra foi selecionada pela técnica* snowball *e definida através do critério de saturação teórica. A análise dos dados qualitativos foi realizada à luz da análise temática de conteúdo e a análise quantitativa realizada através de estatística descritiva.* ***Resultados:*** *Os participantes são na maioria homens, solteiros, com ensino superior completo e idade entre 25 e 45 anos. Relatam sintomas físicos como dores musculoesqueléticas e psíquicos como ansiedade, insônia e frustração,*

*associados a uma jornada exaustiva e a falta de segurança como um dos principais fatores estressores relacionados ao trabalho que executam.* ***Conclusão:*** *A pesquisa revelou que a autonomia é traduzida pela possibilidade de trabalhar em horários próprios, porém esta liberdade é problematizada quando os motoristas assumem sentirem-se presos às longas jornadas de trabalho para alcance de metas impostas pelo aplicativo. A falta de regulamentação adequada e as condições precárias aumentam as pressões e a vulnerabilidade sobre estes trabalhadores, evidenciando a necessidade de intervenções para melhorar a sua saúde e o bem-estar.*

***Descritores:***

*Saúde Ocupacional. Segurança do Emprego. Tecnologia da Informação.*

***Resumen***

***Objetivo:*** *Analizar la paradoja de la autonomía en el trabajo de los conductores de aplicaciones de transporte.* ***Métodos:*** *Investigación de carácter analítico con enfoque cuantitativo-cualitativo. En el estudio participaron 24 conductores de aplicaciones de transporte de la región metropolitana de São Luís, Maranhão. La muestra se seleccionó mediante la técnica de bola de nieve y se definió según el criterio de saturación teórica. El análisis de los datos cualitativos se llevó a cabo mediante el análisis temático de contenido mientras que el análisis cuantitativo se realizó mediante estadística descriptiva.* ***Resultados:*** *Los participantes son en su mayoría hombres, solteros, con estudios superiores completos y edades comprendidas entre los 25 y los 45 años. Refieren síntomas físicos, como dolores musculoesqueléticos, y psíquicos, como ansiedad, insomnio y frustración, asociados a una jornada agotadora y a la falta de seguridad como uno de los principales factores estresantes relacionados con el trabajo que realizan.* ***Conclusión:*** *La investigación reveló que la autonomía se traduce en la posibilidad de trabajar en horarios propios; sin embargo, esta libertad se ve cuestionada cuando los conductores afirman sentirse atrapados en largas jornadas laborales para alcanzar los objetivos impuestos por la aplicación. La falta de una regulación adecuada y las condiciones precarias aumentan la presión y la vulnerabilidad de estos trabajadores, lo que pone de manifiesto la necesidad de intervenciones para mejorar su salud y bienestar.*

***Descriptores:***

*Salud Laboral. Seguridad del Empleo. Tecnología de la Información.*

## INTRODUCTION

Work is a highly complex social phenomenon encompassing various dimensions and meanings. It mediates personal and cultural values while driving economic wealth generation. As a central pillar of society, work directly influences an individual's physical and mental health[1].

Recent macroeconomic shifts—including rising unemployment, precarious employment contracts, weakened legal protections, and decentralized labor negotiations—have increasingly burdened workers. These changes cause physical and psychological strain, impairing health and quality of life both inside and outside the workplace[2].

Facing rising unemployment and economic recession in Brazil, the federal government reformed labor regulations to mitigate the crisis. Enacted through Law No. 13,467/2017, these measures significantly altered the Consolidation of Labor Laws (CLT)[3].

This so-called "labor modernization" could have advanced social protection had it genuinely improved workers' living and health conditions. However, critics argue the legislation favored large corporations, further eroding various employment frameworks[4].

As seemingly independent and lucrative work models gained traction, companies like Uber, Cabify, 99, iFood, Rappi, and Loggi expanded rapidly by launching digital platforms that connect users with service providers. These tools mediate transactions between drivers and passengers, or among businesses, couriers, and consumers. They are often marketed as flexible, freelance opportunities for workers while providing convenient, low-cost private services to customers[5].

Given this increased labor flexibility, app-based transport and delivery services surged across Brazil. The "entrepreneurship" narrative promoted by major tech firms resonated with drivers and couriers, largely due to the low barrier to entry: working requires only a smartphone, internet access, and a leased or owned vehicle. This environment cemented the phenomenon of "uberization" in the country, defined by the spread of informal, precarious labor models[6].

Despite growing research on algorithmic management and gig work precariousness, few empirical studies have investigated the 'autonomy paradox'[7]. Specifically, there is a lack of mixed-methods research exploring the suffering caused by algorithmically managed labor in capital cities plagued by structural inequality.

We analyze the experiences of ride-hailing drivers in São Luís, Maranhão, who rely on platforms like Uber and 99 as their primary income. These drivers navigate an urban landscape characterized by profound socioeconomic disparities and high informality, often justified by the "autonomy paradox". We define this "autonomy paradox" as a condition where workers are formally free to set their schedules but remain subjugated by indirect algorithmic control, implicit targets, and economic pressures that effectively obliterate their independence.

Consequently, this investigation focuses on actual work organization, shift lengths, and the psychosocial toll of algorithmic platform dynamics. Given that unregulated and precarious gig work can induce severe suffering and illness in full-time drivers, we aim to analyze the autonomy paradox inherent in ride-hailing labor.

## METHODS

We conducted an analytical, descriptive, and exploratory mixed-methods study. We assessed empirical data using content analysis grounded in the psychodynamics of work theory, and we evaluated quantitative data using descriptive statistics. We notified the Maranhão Association of App-Based Drivers (AMAPMA) to secure endorsement, disseminate the research, and help raise awareness of potential participants to the study's importance.

The target population comprised digital platform drivers of any sex or work shift. Eligibility criteria included active platform usage for at least 12 months, a minimum workload of 20 hours per week, and exclusive reliance on platform-derived income. We excluded drivers using the app for supplemental income, those with formal employment ties (even if on leave or vacation), retirees, pensioners, or anyone otherwise detached from formal labor.

We recruited participants using snowball sampling, a referral-based strategy ideal for accessing hard-to-reach populations. We finalized the sample size upon reaching theoretical saturation, ceasing data collection when participant narratives yielded redundant information. No invited participants declined to enroll.

Data collection began by inviting a driver recommended by our research team. Interested individuals received detailed explanations of the study's ethical principles and procedures. Upon agreement, participants read and signed two copies of the Informed Consent Form.

To profile the cohort, we collected quantitative data using a structured, 10-item questionnaire detailing sociodemographic and occupational characteristics (e.g., age, platform tenure, average daily shift, estimated income, and education). We used these data to contextualize the sample without performing inferential statistical analysis, as our primary goal was to thoroughly understand subjective experiences of app-based labor. However, we processed the quantitative metrics in Microsoft Excel 2019 using descriptive statistics, reporting absolute and relative frequencies.

Descriptive profiling is standard in qualitative research, enhancing contextual transparency without compromising the study's epistemological framework.

We gathered qualitative data using a script of seven guiding questions. We audio-recorded all interviews to ensure accurate verbatim transcription and subsequent analysis. After each interview, we asked the participant to nominate another driver, whom we then contacted and invited to join. Interviews took place at locations chosen by the participants and lasted approximately 27 minutes on average. Typically, researchers met drivers inside their vehicles between rides—most often at gas stations—to explain the study, obtain consent, and conduct the interview.

All interviewers were senior nursing undergraduates from the Research, Health, Nursing, and Work Study Group. They received rigorous training in data collection and transcription under the supervision of advisors holding at least a master's degree.

We pre-tested the semi-structured interview guide and sociodemographic form on individuals matching the target population to ensure clarity, relevance, and comprehensibility. Subsequently, our research team reviewed the tools, refining the wording, reordering questions, and tightening conceptual alignment with our theoretical framework. This iterative process ensured robust internal consistency and methodological fitness.

We processed qualitative data via thematic content analysis, identifying recurring themes and relationships among core meanings. This required deep reading of the transcripts, preliminary organization, and subsequent analytical interpretation. Furthermore, we triangulated the data, correlating participant narratives with systematic observational field notes[8]. Two master's-level coders with extensive qualitative research experience performed this analysis.

We conducted the thematic content analysis in six stages. First, researchers engaged in data familiarization, deeply immersing themselves in the empirical material to grasp its full scope and detail. This involved iterative readings of the transcripts to pinpoint meanings, regularities, and emerging patterns.

Second, we generated initial codes, highlighting critical elements within the text. Coding exposed significant semantic and latent data features essential for understanding the phenomenon.

Third, we identified overarching themes by clustering the organized codes. We sorted and grouped codes into potential themes and subthemes, discarding redundant or irrelevant ones.

Fourth, we reviewed the themes, reanalyzing coded extracts to refine the thematic clusters. We reread the entire dataset to ensure thematic coherence and to capture any core meanings missed during earlier stages.

Fifth, we defined and named the themes. After establishing a robust thematic map, we finalized adjustments to the identified themes. This sharpened their boundaries and clarity, ensuring they accurately represented the data and were immediately comprehensible to readers.

The sixth and final stage involved drafting the analytical report. With the dataset fully organized and interpreted, we systematized our findings and structured the results.

We interpreted the empirical data through Christophe Dejours' psychodynamics of work framework[9], which robustly underpins our proposed 'autonomy paradox' concept.

We reported this qualitative study following the COREQ (Consolidated Criteria for Reporting Qualitative Research) checklist recommended by the EQUATOR Network, covering researcher characteristics, study design, context, participant selection, data collection, and analytical findings.

We registered the study on Plataforma Brasil (CAAE No. 73073223.4.0000.8007). The Research Ethics Committee of the Maranhão Faculty of Science and Technology approved the protocol (Opinion No. 6,319,185) on September 22, 2023.

## RESULTS

### Participant profiling

The cohort included 24 ride-hailing drivers. The sample was predominantly male (n=22), aged 25 to 45 (n=17), and single (n=13). Most drivers supported one to four financial dependents (n=18). Regarding housing, 15 drivers paid rent or mortgage installments. Additionally, 21 participants reported vehicle rental or financing costs. Most drivers (n=18) held a college degree. Table 1 outlines key platform-work characteristics.

We noted that 83.5% of the interviewed drivers earned an average daily profit exceeding BRL 100.00 (n=20). Consequently, half of the cohort (n=12) maintained an individual monthly income between BRL 3,000.01 and BRL 5,000.00 derived entirely from app-mediated labor.

Regarding work shifts, 75% of drivers stayed active on the platform for 6 to 9 hours (n=9) or 10 to 12 hours (n=9) daily, while 54% worked over 40 hours weekly (n=13).

Motivations for driving varied: 62% (n=15) preferred the freelance autonomy, whereas 38% (n=9) cited a lack of opportunities in their professional field.

**Table 1.** Work shift, profit, and motivation for app-based labor. São Luís, MA, Brazil, 2025.

| Categories | Variables | (n) | % |
|---|---|---|---|
| **Average daily profit** | Up to BRL 50.00 | 1 | 4 |
| | Between BRL 50.01 and BRL 100.00 | 3 | 12.5 |
| | > BRL 100.00 | 20 | 83.5 |
| **Monthly income** | Up to BRL 1,500.00 | 5 | 21 |
| | Between BRL 1,500.01 and BRL 3,000.00 | 6 | 25 |
| | Between BRL 3,000.01 and BRL 5,000.00 | 12 | 50 |
| | > BRL 5,000.01 | 1 | 4 |
| **Daily shift** | Up to 5h | 2 | 8 |
| | Between 6h and 9h | 9 | 37.5 |
| | Between 10h and 12h | 9 | 37.5 |
| | > 12h | 4 | 17 |
| **Weekly shift** | Up to 20h | 5 | 21 |
| | Between 21h and 30h | 2 | 8 |
| | Between 31h and 40h | 4 | 17 |
| | > 40h | 13 | 54 |
| **Reason for working as a driver** | Freelance work | 15 | 62 |
| | Lack of opportunities in my qualified field | 9 | 38 |
| **Total** | | **24** | **100** |

**Source:** Prepared by the authors, 2025.

Table 2 presents the primary physical and psychological symptoms drivers experienced, alongside occupational stressors, regular physical activity, and unrelated chronic health conditions.

**Table 2.** Driver perceptions of their physical and mental health over the past 30 days and regular sports participation. São Luís, MA, Brazil, 2025.

| Categories | Variables | (n) | % |
|---|---|---|---|
| **Physical symptom** | *Muscle pain or tingling* | 11 | 46 |
| | Fatigue or drowsiness | 7 | 29.5 |
| | Headache or earache | 3 | 12.5 |
| | Insomnia | 1 | 4 |
| | None | 2 | 8 |
| **Psychological symptom** | Inattention or anxiety | 9 | 37.5 |
| | Low self-esteem or loss of libido | 4 | 17 |
| | Irritability or stress | 8 | 33 |
| | None | 3 | 12.5 |
| **Stressor** | Exhausting work hours | 9 | 37.5 |
| | Unruly passengers | 4 | 17 |
| | Lack of workplace safety | 9 | 37.5 |
| | None | 2 | 8 |
| **Physical activity** | Yes | 7 | 29 |
| | No | 17 | 71 |
| **Health Problems** | Yes | 3 | 12.5 |
| | No | 21 | 87.5 |
| **Total** | | **24** | **100** |

**Source:** Prepared by the authors, 2025.

We found that 92% of the cohort reported physical symptoms linked to their work shifts. Of these, 46% (n=11) noted muscle pain and tingling in their limbs, 29.5% (n=7) reported fatigue or drowsiness, 12.5% (n=3) highlighted headaches or earaches, and 4% (n=1) described insomnia and poor rest.

Regarding psychological symptoms, 87.5% reported compromised mental health. Drivers cited inattention or anxiety (37.5%, n=9), irritability (33%, n=8), and low self-esteem or loss of libido (17%, n=4).

When asked about stressors, 92% identified daily occupational stressors over the past 30 days. For 37.5% (n=9), a lack of safety was a primary stressor, alongside exhausting shifts to meet daily targets (37.5%, n=9) and poor passenger behavior (17%, n=4).

Furthermore, 71% (n=17) did not exercise regularly. We also screened for chronic diseases to correlate them with gig work; however, 87.5% (n=21) reported no pre-existing health issues before driving for apps.

Qualitative data saturated by the 19th interview. We proceeded to 24 interviews to confirm saturation, observing repeated core meanings and a complete absence of novel statements or themes.

We anonymized quotes using the letter 'D' (Driver), followed by sequential numbers (1–24). Chart 1 illustrates the theoretical data saturation.

**Chart 1.** Distribution of novel statements in interviews and theoretical data saturation. MA, Brazil, 2025.

| Core meanings | D 01 | D 02 | D 03 | D 04 | D 05 | D 06 | D 07 | D 08 | D 09 | D 10 | D 11 | D 12 | D 13 | D 14 | D 15 | D 16 | D 17 | D 18 | D 19 | D 20 | D 21 | D 22 | D 23 | D 24 | Total Recurrences |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Satisfaction, autonomy, and scheduling freedom** | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | x | x | | x | | x | x | | 19 |
| Harsh routine and extensive work hours | x | x | x | x | | x | | x | x | x | | | x | x | x | x | x | x | x | x | x | | | x | 18 |
| **Low pay** | x | | x | x | x | | | x | x | x | x | | | x | x | x | x | x | x | x | x | | x | | 17 |
| **Workplace safety concerns** | x | x | x | x | | | x | x | | | x | x | x | x | x | x | x | x | x | x | x | | x | | 18 |
| Physical health deterioration | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | x | x | | 22 |
| Uncomfortable experiences | x | x | x | | x | | x | x | x | x | x | x | x | x | x | x | x | | x | x | x | | x | x | 20 |
| Driving by choice | | | | | | | | | | | | | | | | | x | x | | | | | | x | 04 |
| Fear of illness and income loss | | | | | | | | x | | | | | x | | | | | x | | | x | x | | | 04 |
| Low self-esteem | | | | | | | | | | x | | | | | | | | | | x | x | | x | | 04 |
| Exhausting labor | x | x | x | x | | x | | x | | x | | | | x | | x | x | x | x | x | x | | x | | 15 |
| Comparison to formal employment | | | | | x | | | x | | | | | | | | | x | x | | x | | | | | 05 |
| Lack of economic and social value | x | | x | | x | x | x | x | x | | | | x | x | x | x | | x | x | x | x | | x | | 16 |
| Feelings of discouragement | | | | | | | | x | | | | | | | | | | x | | x | | | | x | 05 |
| Stress | x | x | | x | x | x | | x | | | x | | x | | | x | x | x | x | x | x | x | x | x | 16 |
| Lack of time for other activities | | | | | | | | | | | | | | | | x | | x | x | x | | | x | x | 06 |
| Better financial earnings | x | | | | x | | x | x | | | | x | | | | | | | x | | | | | x | 07 |
| Job dissatisfaction | | | | | x | | | x | | | | | x | x | x | x | | x | x | | x | | | | 09 |
| Mental exhaustion | x | | x | | x | | | x | x | x | | | | | | | | x | x | x | x | | | | 10 |
| Driving out of necessity | | | x | | x | | | x | | x | x | | x | | x | | x | | x | x | x | x | x | x | 14 |
| Back pain | | | x | x | x | | | x | | | | | | x | | x | x | x | x | x | x | | | x | 12 |
| Joint pain | | | | x | x | | | x | | | | | | | | x | x | | x | | x | | | | 07 |
| Poor passenger behavior | x | x | x | | x | | | x | | x | | x | x | x | x | x | x | x | x | x | x | | | | 16 |
| Racism | | | | | | | | | | | | | | x | | | x | | | | | | | x | 03 |
| Discomfort from noise pollution and heat | | | | | | | | x | | | | x | x | | | | | | x | x | x | | | | 06 |
| Frustration and lack of opportunities | | | | | | | x | x | | | | x | | x | x | x | | | x | x | x | | x | x | 11 |
| Relief of ending the day without issues | x | | | | x | x | | x | | | | x | x | x | | | | x | | x | x | | | | 10 |
| Meeting new people | | x | | | | x | | x | | | | | | | x | x | | x | | | | | | | 06 |
| Sexual harassment | | | | | | x | | | | | | | x | | x | x | x | | x | x | x | x | x | x | 11 |
| Working with daily targets | | | | | | | | | | x | | | x | x | | | x | x | x | x | x | | | | 08 |
| **New Statements** | 12 | 02 | 01 | 01 | 01 | 01 | 01 | 02 | 00 | 01 | 00 | 00 | 00 | 01 | 00 | 01 | 01 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 25 |

**Source:** Prepared by the authors, 2025.

Deep reading of the transcripts yielded 318 core meanings. We clustered these meanings by affinity to form themes. This generated 29 themes, shaping broad analytical categories representing the drivers' perspectives. We synthesized the coded data into two main categories: "Freedom contingent on physical and psychological exhaustion" and "Exhausted bodies, adrift minds: the impacts of the gig-work routine".

**Freedom contingent on physical and psychological exhaustion**

Participants cited scheduling flexibility as a primary motivator, emphasizing the autonomy to dictate their own shifts:

> I like driving for apps because I have autonomy. I set my own schedule. I leave home whenever I want, and I return whenever I want (D 01).

> The biggest motivator is the autonomy we get. I make my own schedule, take only the rides I want, and go to places where I feel safe (D 02).

Technological advances have revolutionized labor, driving unprecedented scheduling flexibility and expanding platform-mediated gig work. However, drivers described a grueling routine marked by long hours, poor pay, and marginal social recognition.

This physical toll manifests as musculoskeletal pain—especially in the lower back and joints—due to prolonged sitting. Furthermore, drivers face relentless exposure to noise pollution, extreme heat, and severe traffic stress:

> Sometimes we work twelve, fourteen hours straight, which inevitably wrecks our health. Some days I don't even stop for lunch just to drive a bit longer and earn more (D 03).

Unpleasant encounters fuel job dissatisfaction, largely driven by hostile passenger behavior, including verbal abuse, humiliation, and sexual harassment:

> There have been times I had to kick passengers out because they crossed the line. I feel unsafe and uncomfortable (D 06).

> Grumpy, rude passengers take their problems out on us, even though we have nothing to do with it. You end up feeling humiliated just because you need the work (D 14).

> One day a guy asked to sit in the front, and I let him. Halfway through the trip, he started rubbing my legs. I stopped the car and told him to get out (D 15).

> I once had to kick a passenger out for sexually harassing me. It made me totally uncomfortable (D 16).

> A guy once asked me about the black Halls myth. I didn't get it. He kept asking if I went to the gym every day because I had a "great body". I felt incredibly upset (D 13).

Drivers harbor profound concerns about workplace safety. The narratives show that many view their jobs as inherently unsafe, reflecting a pervasive sense of vulnerability. This danger is magnified by chaotic traffic, crumbling infrastructure, encounters with unpredictable strangers, and the threat of crime-ridden zones. These elements trap workers in vulnerable situations that severely damage their health and quality of life:

> It's hard to pull over and feel safe. You're always terrified of getting robbed. (D 02).

> There's this constant fear and dread because you never know who you're letting into your car, you know? (D 19).

Consequently, drivers reach a grim consensus regarding the precariousness of their labor, a daily struggle largely driven by sheer survival. Participants contrasted formal employment (governed by the CLT)—viewed as a rigid adherence to orders and schedules—with app-based work, which they associate with informality, freedom, entrepreneurship, and autonomy. However, making this comparison forces drivers to recognize the inherent risks:

> Being a gig driver lets you escape formal employment. It gets you cash. You can make good money, but the platform ultimately enslaves you (D 03).

> In my old job, I had a schedule for every little thing... I worked strictly on targets and reports. Today, the only thing I manage is my route (D 04).

Yet, the very job that grants autonomy also instills deep anxiety over falling ill, as sickness instantly severs their income.

**Exhausted bodies, adrift minds: the impacts of the gig-work routine**

Drivers endure exhausting hours to hit targets, scraping together enough daily profit to cover living expenses and operational costs. Under this pressure, they neglect basic self-care, skipping stretches, hydration, and even bathroom breaks:

> I feel the weight of freedom in this job every single day. I have quotas to meet, and sometimes I go without water or bathroom breaks (D 02).

> What hurts most is the back pain from sitting and driving forever just to make a few extra bucks. It leaves me incredibly frustrated (D 16).

Participants also highlighted chronic occupational stress, driven primarily by safety fears and poor compensation. These elements point to acute psychological suffering—a byproduct of the relentless mental drain of daily gig work, manifesting as anxiety attacks and severe sleep deprivation:

> I mostly work nights, which drains me even more, you know? Sometimes I have to sleep in the car for an hour or two just to keep driving (D 08).

> I get anxiety attacks constantly. You think you're going to make more money, but it's the opposite. It's depressing. I can't hit the target, and I have to work endlessly just to survive (D 19).

Drivers also reported profound demotivation, largely because their intense gig schedules obliterate any time for leisure or personal activities. Furthermore, they emphasized the lack of economic and social validation, which crushes their self-esteem and jeopardizes their mental health:

> I started getting weird muscle pains that I never used to have. Maybe it's because I stopped working out and sit too much (D 07).

> You just feel this deep sadness. Sometimes you drive for hours, you're exhausted, and you still haven't made any money or hit your target. It's frustrating when you're forced to take rides in terrible areas at awful times... But you have bills to pay, car notes, you know? (D 14).

> My wife works all day while I'm out driving. We barely see each other at night. On weekends, I'm out driving, so there's no time for us. But that's how it is, right? We have to survive (D 19).

These testimonies reveal that while drivers technically control where and when they work, financial targets heavily dictate these choices. Although drivers value platform flexibility, economic instability transforms this "freedom" into a grueling obligation.

## DISCUSSION

A four-month ethnography in Salvador, Bahia, reframed worker subordination, demonstrating that digital platforms use 'incentivism'—gamification strategies designed to trap drivers into working harder for illusory profits[10]. This strategy erodes drivers' autonomy, coercing them into the "game" of chasing platform-dictated targets rather than honoring their own schedules.

Thus, while drivers perceive autonomy over their time, invisible constraints severely compromise this freedom. Dejours[9] argues that suffering arises from the discrepancy between prescribed and actual work. In the gig economy, the promise of autonomy represents the prescribed work, whereas the actual work requires blind obedience to implicit targets, algorithmic dependency, and endless connectivity. This dissonance breeds psychological suffering, often masked by corporate rhetoric touting self-management and entrepreneurship.

Furthermore, unpaid labor—the 'standby mode' identified in a study from Campinas and São Paulo—exacerbates workload by denying drivers compensation while they wait for rides[11]. Consequently, workers must chase peak hours, further forfeiting their scheduling freedom.

A study of 15 app-based workers in Campinas highlighted this exhausting reality, documenting shifts ranging from 10 to 112 hours weekly, averaging 13 hours daily[12]. Corroborating our findings, that study linked digital platform precariousness to profound insecurity, lack of recognition, fear, and chronic fatigue.

According to Dejours[9], recognition is vital for transforming occupational suffering into pleasure. The analyzed narratives expose a severe deficit in recognition, both socially and algorithmically. This lack of symbolic and institutional validation strips the work of positive meaning, amplifying emotional exhaustion and subjective vulnerability.

A study of 11 female ride-hailing drivers in Belo Horizonte highlighted the acute fear and insecurity stemming from moral and sexual harassment[13]. Similarly, a survey of 104 mostly male (84%) gig drivers in São Carlos and Campinas found that 88% felt unsafe and 51% had experienced violence. Notably, 23% reported sexual harassment[14]. These compounding vulnerabilities destabilize even male-dominated environments, underscoring workplace insecurity as a nationwide crisis.

In this setting, algorithmic management imposes diffuse control—eliminating direct supervision while ruthlessly escalating production pressure. Through Dejours' lens[9], this framework forces workers to internalize control, making them solely responsible for their economic survival—even if it means enduring routine violence and harassment. Suffering here stems not just from physical overload, but from the relentless tension between illusory freedom and structural insecurity.

Regarding formal employment ties, a study on aging, labor, and technology among 10 app-based drivers in Curitiba contrasted gig autonomy with the loss of formal safety nets, such as paid vacation and year-end bonuses[15]. Our participants echoed this comparison; despite app-driven flexibility, drivers acutely recognize the individual risks they shoulder.

This awareness has sparked resistance against platforms' manipulative strategies to absorb labor and trap drivers within the "uberized" system. We observe individual and collective protests, regional strikes, national movements, and the formation of driver associations fighting for fair labor conditions[16].

Regarding psychosocial risks, anxiety was overwhelmingly prevalent. Because the platform relies on customer ratings, drivers must maintain flawless scores to avoid deactivation. Consequently, many drivers felt forced to constantly smile and feign friendliness just to protect their ratings[17].

An oral history of a female gig driver in Maringá highlighted how brutal shifts trigger severe physical and psychological exhaustion. Corroborating our findings, that study also documented widespread musculoskeletal pain and anxiety attacks. Endless shifts with no fixed boundaries alienate drivers from leisure, health promotion, and family life[18].

Our findings suggest that platform-based suffering transcends material poverty, deeply affecting subjective dimensions like recognition, autonomy, and labor organization. Through the lens of psychodynamics of work, we see that platforms' advertised freedom does not eliminate suffering. Instead, it weaponizes it, forcing solitary workers to shoulder the immense risks and pressures of digitalized production.

Crucially, this study's primary contribution is analyzing the autonomy paradox within the socioeconomic reality of São Luís, Maranhão—a capital entrenched in historical inequality and massive labor informality. By exposing how formal autonomy exploits local economic vulnerabilities, we expand the gig-economy debate beyond Brazil's wealthy South-Southeast, proving that digital labor suffering assumes distinct, severe forms in peripheral regions.

The study's limitations stem from its regional focus, which may constrain the generalizability of the findings given the unique urban, economic, and social dynamics of the area. Furthermore, because tech and mobility apps evolve rapidly, this cross-sectional snapshot may soon be outdated.

This research enriches applied social sciences and public health by detailing how "uberization" devastates drivers' living and working conditions, demanding a deeper debate on the paradox of autonomy, freedom, and burnout. Policymakers and institutions can leverage these findings to draft regulations that address occupational hazards and protect platform drivers' health.

## CONCLUSION

Precarious gig conditions, zero regulatory protection, and unsafe environments severely damage drivers' physical and mental health. This underscores the urgent need for comprehensive strategies to improve labor standards and guarantee a healthy workplace.

While theoretically defined as freedom from schedules and quotas, driver autonomy collapses under the harsh realities of the gig. Drivers recognize that true freedom vanishes when platform pressures force them to chase arbitrary targets, condemning them to endless shifts, musculoskeletal pain, chronic anxiety, and profound social isolation.

## CONTRIBUITIONS

Contributed to the conception or design of the study/research: Fontenele RM. Contributed to data collection: Reis SCR, Pinheiro KS, Fontenele RM. Contributed to the analysis and/or interpretation of data: Mouzinho PHS, Aroucha LAG, Fontenele RM. Contributed to article writing or critical review: Reis SCR, Pinheiro KS, Fontenele RM. Final approval of the version to be published: Aroucha LAG, Fontenele RM.

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