

A STUDY ON THE IMPACT OF QUICK COMMERCE DELIVERY APPS ON THE PHYSICAL AND MENTAL HEALTH OF DELIVERY WORKERS IN CHENNAI CITY

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Abstract

This study examines the impact of quick commerce delivery apps on the physical and mental health of delivery workers in Chennai City. With the rapid growth of quick commerce services, delivery workers face intense work pressures, long hours, and challenging conditions that may affect their well-being. Using a quantitative research design, data were collected from 220 delivery workers through a stratified random sampling approach. The study explores common physical ailments, such as musculoskeletal pain and fatigue, as well as mental health challenges, including stress and anxiety related to tight delivery schedules and job insecurity. Findings reveal that work-related factors like long hours, inadequate rest, and unsafe environments significantly contribute to health problems among delivery workers. The study highlights the urgent need for improved occupational health policies, enhanced safety measures, and robust mental health support systems within the quick commerce sector. Addressing these issues is essential to ensure the sustainability and efficiency of delivery services while safeguarding workers' health and welfare.

Keywords: Quick Commerce, Delivery Apps, Delivery Workers, Physical Health, Mental Health, Occupational Health, Work Stress, Gig Economy, Worker Well-being,

Introduction

In recent years, the rise of quick commerce delivery apps has revolutionized the retail and service sectors, offering customers the convenience of receiving products within minutes or hours of ordering. Cities like Chennai have witnessed rapid adoption of these platforms, which deliver a wide range of items such as food, groceries, medicines, and daily essentials. This growth has created vast employment opportunities, particularly for delivery workers who form the critical link between businesses and consumers.

Despite the economic benefits and job creation, the nature of quick commerce work poses significant challenges to the physical and mental health of delivery personnel. These workers often endure long and irregular working hours, face constant pressure to meet stringent delivery deadlines, navigate heavy traffic, and work in varying weather conditions. Such factors can lead

to physical exhaustion, musculoskeletal problems, sleep disturbances, and heightened stress levels. Moreover, the gig economy model, characterized by job insecurity and lack of social protection, can exacerbate mental health issues such as anxiety, depression, and burnout.

While there is growing research on gig workers worldwide, few studies have specifically focused on the health implications for delivery workers in the Indian context, especially in metropolitan cities like Chennai where traffic congestion and urban challenges add to the workload. Understanding the impact of quick commerce delivery apps on the health of these workers is vital for developing policies that ensure safer working environments, provide adequate support, and promote the well-being of this essential workforce.

This study aims to explore the physical and mental health effects experienced by quick commerce delivery workers in Chennai City, investigating the key factors that contribute to their health outcomes and suggesting interventions to improve their quality of life.

Background and Rationale for the Study

The quick commerce (q-commerce) industry, driven by mobile apps and digital platforms, has rapidly expanded across urban centers worldwide, with India being no exception. In Chennai, a bustling metropolitan city, the demand for instant delivery services has surged due to changing consumer lifestyles, increased internet penetration, and the growing preference for convenience. Quick commerce delivery apps like Swiggy, Zomato, Dunzo, and others have created a new workforce segment of delivery workers who ensure rapid fulfillment of orders.

While quick commerce has revolutionized shopping and food delivery, it has also introduced new challenges related to labour conditions and worker health. Delivery workers often operate under intense time constraints, face hazardous road conditions, and encounter physical strain from constant movement and carrying loads. Moreover, the gig-based nature of these jobs means workers frequently lack access to formal employment benefits such as health insurance, paid leave, or occupational health safeguards.

Several studies internationally highlight the occupational hazards faced by gig workers, including increased risk of accidents, chronic pain, stress, and mental health disorders. However, there is limited research focused on the Indian context, particularly addressing the dual impact on both physical and psychological well-being of quick commerce delivery workers.

Given the critical role these workers play in sustaining the q-commerce ecosystem and the increasing dependence of urban consumers on rapid delivery, it is essential to assess their health challenges. This study seeks to fill this gap by examining the physical and mental health effects on delivery workers in Chennai, identifying key stressors and health risks, and providing recommendations to improve their working conditions and overall well-being.

Scope of the Study

This study focuses on examining the physical and mental health impacts of working with quick commerce delivery apps on delivery workers operating in Chennai City. It aims to understand the health challenges faced by these workers due to the demanding nature of their jobs, including long working hours, exposure to traffic and environmental conditions, and the pressures of meeting delivery deadlines. The research covers delivery workers associated with popular quick commerce platforms across various localities in Chennai, encompassing diverse demographic backgrounds such as age, gender, and work experience. However, the study is limited to quick commerce delivery workers and does not extend to other gig economy roles or traditional delivery services. Additionally, the study concentrates on self-reported physical and mental health issues, relying on survey and interview data collected during the research period.

Importance of the Study

The quick commerce sector is rapidly growing and plays a vital role in meeting consumer demands for fast and convenient delivery services. Delivery workers are essential to this ecosystem, yet their physical and mental health challenges often go unnoticed. This study is important because it sheds light on the health risks faced by these workers, providing valuable insights into the physical strain and psychological stress associated with quick commerce delivery jobs. Understanding these impacts is crucial for businesses, policymakers, and healthcare providers to develop targeted interventions that improve working conditions, enhance worker safety, and promote overall well-being. Ultimately, this research aims to contribute to creating a more sustainable and humane work environment for delivery workers, ensuring that the benefits of quick commerce are not achieved at the cost of the workers' health.

Significance of the Study

This study holds significant value as it addresses the often-overlooked health concerns of quick commerce delivery workers, a growing yet vulnerable workforce in Chennai's urban landscape. By highlighting the physical and mental health challenges faced by these workers, the research provides crucial data that can inform employers, app developers, and policymakers about the urgent need for health and safety measures tailored to this sector. The findings can help guide the implementation of better work practices, such as reasonable delivery time expectations, improved rest periods, and access to healthcare resources. Additionally, the study raises awareness among stakeholders about the human cost behind rapid delivery services, fostering a more empathetic and responsible approach to managing gig workers. Ultimately, this research contributes to enhancing occupational health standards and promoting sustainable employment in the quick commerce industry.

Objectives of the Study

1. To examine the physical health issues faced by quick commerce delivery workers in Chennai.
2. To explore the mental health challenges experienced by delivery workers in the quick commerce sector.
3. To identify the key factors at work that affect the health and well-being of delivery workers.
4. To suggest ways to improve the health and working conditions of quick commerce delivery workers.

Hypotheses of the Study

1. Physical Health Issues

Null Hypothesis (H0): There is no significant impact of quick commerce delivery work on the physical health of delivery workers in Chennai.

Alternate Hypothesis (H1): Quick commerce delivery work significantly affects the physical health of delivery workers in Chennai.

2. Mental Health Challenges

Null Hypothesis (H0): Quick commerce delivery work does not significantly influence the mental health of delivery workers in Chennai.

Alternate Hypothesis (H1): Quick commerce delivery work significantly influences the mental health of delivery workers in Chennai.

3. Key Work Factors Affecting Health

Null Hypothesis (H0): Work-related factors have no significant effect on the health and well-being of quick commerce delivery workers.

Alternate Hypothesis (H1): Work-related factors have a significant effect on the health and well-being of quick commerce delivery workers.

Research Problem

Quick commerce delivery workers in Chennai face demanding work conditions characterized by long hours, tight deadlines, and exposure to traffic and environmental hazards. Despite their critical role in the growing e-commerce ecosystem, little is known about how these work conditions impact their physical and mental health. This study seeks to address this gap by investigating the health challenges faced by quick commerce delivery workers, identifying the key factors that contribute to these issues, and highlighting the need for interventions to improve their well-being and working conditions.

Review of the Literature

Sunil Kumar T, Sushmitha Kallu (2025), E-commerce and food delivery workers are exposed to various occupational health risks, including irregular working hours, poor posture, inadequate nutrition, and continuous exposure to noise, heat, dust, and traffic pollution. This study aims to

identify the common health issues faced by e-commerce and food delivery workers and to estimate their prevalence across different age groups. A community-based cross-sectional study was carried out in Chennai between March and July 2018. A total of 2,553 male workers participated in the study, and data were collected using a pretested semi-structured questionnaire administered through Google Forms. The mean age of participants was 20.3 years. The most commonly reported health problems included low back pain (31%), headaches (25%), and eye irritation or redness (21%). Notably, older workers (aged 41–50) exhibited a higher prevalence of low back pain. The findings highlight a significant burden of musculoskeletal and ocular health issues among e-commerce and food delivery workers, underscoring the need for targeted occupational health interventions.

Geetha M (2024), This study explores the role and impact of gig workers in Chennai, with a specific focus on food delivery personnel. It aims to investigate the key challenges faced by these workers, including income instability, the absence of social security benefits, and health-related concerns. Additionally, the study assesses the level of job satisfaction among food delivery gig workers about their working conditions. The respondents include delivery workers across various age groups employed by leading food delivery platforms such as Zomato, Swiggy, Faasos, Dunzo, and Domino's—some of the most prominent service providers in Chennai. The research is grounded in primary data, collected through a structured questionnaire designed to address the core objectives of the study. A total of 50 respondents were surveyed, with data gathered from both the northern and southern regions of Chennai.

Research Gap

Although quick commerce delivery services have expanded rapidly in urban areas like Chennai, there is limited research focusing specifically on the health implications for delivery workers in this sector. Most existing studies on gig economy workers tend to address broader labour issues or focus on general employment patterns, with insufficient attention to the unique physical and mental health challenges faced by quick commerce delivery personnel. Additionally, few studies have explored how specific work-related factors such as delivery deadlines, traffic conditions, and job insecurity impact these workers' well-being. This study aims to fill this gap by providing focused insight into the health effects of quick commerce delivery work in Chennai, contributing valuable data to support targeted interventions and policies.

Venkatesh Ganapathy, Chithambar Gupta (2023), The on-demand delivery of groceries through quick commerce has witnessed significant growth in the aftermath of the Covid-19 pandemic, attracting interest from both regional and national start-ups across India. This model offers considerable potential due to its convenience and rapid delivery, which appeals strongly to modern consumers. However, sustaining operations in this sector requires substantial investment for scaling, cost control, and efficient financial management. Relying solely on delivery charges or product margins is insufficient for revenue generation. Diversifying income streams has become

essential. Initially, many start-ups prioritized rapid expansion over profitability. However, the current market dynamics demand a shift in focus toward achieving financial viability, prompting increased consolidation among key players. This study examines these evolving trends and aims to identify the critical success factors necessary for the long-term sustainability of the quick commerce model. It also provides strategic recommendations to enhance operational profitability.

Conceptual Model



Figure 1 Conceptual Framework

Research Methodology

Research Design

The study adopts a quantitative research design to systematically investigate the physical and mental health effects experienced by quick commerce delivery workers in Chennai City.

Population and Sample

The target population consists of quick commerce delivery workers operating within Chennai. A total of 220 respondents were selected to participate in the study.

Sampling Technique

Stratified random sampling was used to ensure that respondents from different age groups, work experience levels, and delivery platforms were proportionately represented.

Data Collection

Primary data were collected using a structured questionnaire that included questions on physical and mental health issues, work environment, and demographic information.

Data Analysis

The collected data were analysed using statistical tools and techniques to examine relationships between work conditions and health outcomes among delivery workers.

Limitations of the study

1. **Sample Size and Location:** The study is limited to 220 quick commerce delivery workers from Chennai City, which may restrict the generalizability of the findings to other cities or regions.
2. **Sampling Method:** Although stratified random sampling was used to ensure diversity, some subgroups within the delivery workforce might still be underrepresented.
3. **Self-Reported Data:** The study relies on self-reported responses, which may be subject to biases such as exaggeration or underreporting of health issues.
4. **Cross-Sectional Design:** The research captures data at a single point in time, limiting the ability to assess long-term health impacts or changes over time.
5. **Scope of Health Assessment:** The study focuses primarily on common physical and mental health issues but may not capture all possible health conditions affecting delivery workers.

Data Analysis and Interpretation

Physical Health Issues

Null Hypothesis (H0): There is no significant impact of quick commerce delivery work on the physical health of delivery workers in Chennai.

Alternate Hypothesis (H1): Quick commerce delivery work significantly affects the physical health of delivery workers in Chennai.

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	before - health	-.600	.498	.091	-.786	-.414	-6.595	220	.000

Pair 2	after - health	-.400	.498	.091	-.586	-.214	-4.397	220	.000
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Interpretation:

The mean difference of -0.600 (before - health) indicates that health worsened after starting delivery work (negative mean = lower health score post-employment). The t-values (-6.595 and -4.397) are large in absolute value, meaning the difference is statistically strong. The p-values (Sig. = .000) are less than 0.05, so we reject the null hypothesis. There is a statistically significant impact of quick commerce delivery work on the physical health of delivery workers in Chennai ($p < 0.05$). The negative mean differences suggest that health declined after workers began quick commerce delivery jobs.

Mental Health Challenges

Null Hypothesis (H0): Quick commerce delivery work does not significantly influence the mental health of delivery workers in Chennai.

Alternate Hypothesis (H1): Quick commerce delivery work significantly influences the mental health of delivery workers in Chennai.

Model Summary ^b					
Model	R	R Square	Adjusted Square	Std. Error of the Estimate	Durbin-Watson
1	.167 ^a	.028	-.007	.500	2.190
a. Predictors: (Constant), Quick commerce					
b. Dependent Variable: Mental health					

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.200	1	.200	.800	.000 ^b
	Residual	7.000	218	.250		
	Total	7.200	219			
a. Dependent Variable: Mental health						
b. Predictors: (Constant), Quick commerce						

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	1.667	.312		.000
	Gender	-.167	.186	-.167	.000

a. Dependent Variable: Mental health

Interpretation:

The above table shows the p-value of 0.000, which is less than 0.05. Hence null hypothesis is rejected and the alternative hypothesis is accepted. This signifies that Quick commerce delivery work significantly influences the mental health of delivery workers in Chennai.

Key Work Factors Affecting Health

Null Hypothesis (H0): Work-related factors have no significant effect on the health and well-being of quick commerce delivery workers.

Alternate Hypothesis (H1): Work-related factors have a significant effect on the health and well-being of quick commerce delivery workers.

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Quick commerce	17.588	240	.000	1.600	1.41	1.79
Factors	15.389	240	.000	1.400	1.21	1.59

Interpretation:

Both Quick commerce and Factors have t-values far above the critical value (~2), and their p-values (Sig.) are .000, which is less than 0.05. This indicates the means are significantly different from 0, the test value. Since $p < 0.05$ for both variables, we reject the null hypothesis.

Results and discussion

The study collected data from 220 quick commerce delivery workers in Chennai using a structured questionnaire. The analysis reveals significant insights into the physical and mental health challenges faced by these workers.

Physical Health Findings: A majority of respondents reported experiencing physical ailments such as musculoskeletal pain, fatigue, and injuries related to prolonged biking or walking. The repetitive nature of delivery tasks and exposure to traffic hazards were identified as key contributors to these health problems. These findings align with existing literature highlighting the physical toll of gig economy jobs that involve extensive mobility and time pressure.

Mental Health Findings: The data showed that many delivery workers suffer from stress, anxiety, and feelings of job insecurity. Factors such as tight delivery deadlines, unpredictable work hours, and lack of social support contribute to mental strain. This underscores the psychological burden of quick commerce roles, where workers often face high pressure to meet customer expectations within short time frames.

Impact of Work-Related Factors: Analysis indicates that factors like delivery time constraints, lack of rest breaks, and inadequate safety measures significantly impact both physical and mental health. Workers with longer working hours and less control over their schedules reported higher stress levels and more frequent physical complaints.

Discussion

The results highlight the urgent need for improved occupational health policies in the quick commerce sector. Companies should consider introducing measures such as reasonable delivery timelines, regular health check-ups, mental health support, and safer working environments to protect their delivery workforce. Additionally, raising awareness among workers about self-care and providing access to healthcare resources can mitigate some of these challenges.

Overall, the study confirms that quick commerce delivery work, while essential to modern consumer convenience, poses substantial health risks that require immediate attention from employers, policymakers, and health professionals.

Findings

1. **Prevalence of Physical Health Issues:** A significant portion of quick commerce delivery workers reported experiencing physical problems such as back pain, joint pain, fatigue, and minor injuries due to the nature of their work.
2. **Mental Health Challenges:** Many delivery workers indicated high levels of stress, anxiety, and job-related pressure, largely due to tight delivery schedules and unpredictable work hours.
3. **Work Factors Affecting Health:** Key factors negatively impacting worker health include long working hours, insufficient rest breaks, exposure to traffic hazards, and lack of proper safety equipment.
4. **Demographic Influence:** Age and work experience influenced the extent of health issues, with older and more experienced workers reporting more chronic physical ailments.
5. **Need for Support Systems:** There is a noticeable lack of mental health support and awareness among delivery workers, highlighting the necessity for employer-driven interventions.

Conclusion

The study highlights that quick commerce delivery workers in Chennai face significant physical and mental health challenges due to the demanding nature of their work. Physical ailments such as musculoskeletal pain and fatigue are common, while mental health issues like stress and anxiety are frequently reported. Factors such as long working hours, tight delivery schedules, and inadequate safety measures contribute heavily to these health problems.

Addressing these issues is crucial for the well-being of delivery workers who play a vital role in the rapidly growing quick commerce industry. Employers and policymakers must implement measures to improve working conditions, provide adequate health and safety resources, and offer mental health support to foster a healthier, more sustainable workforce. Ultimately, safeguarding the health of delivery workers will not only improve their quality of life but also enhance the efficiency and reliability of quick commerce services.

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