



Platform Labour, Gig Economy Precarity, and the Demand for Social Protection: An Empirical Study of Ride-Hailing and Delivery Workers in Urban Pakistan

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DOI	https://doi.org/10.65761/jssp.2026.114
How to Cite:	Nasreen, S., & Akram, S. (2026). Platform Labour, Gig Economy Precarity, and the Demand for Social Protection: An Empirical Study of Ride-Hailing and Delivery Workers in Urban Pakistan. <i>Journal of Social Science Perspectives</i> , 3(1), 15-20.
Running Title:	Platform Labour and Social Protection among Gig Workers in Urban Pakistan

ARTICLE INFORMATION

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Keywords:

Gig economy precarity, platform labour
urban Pakistan, ride-hailing delivery
workers, social protection demand,
informal labour precariousness

Article History:

Received: 09-02-2026
Revised: 11-04-2026
Accepted: 19-04-2026
Published: 26-04-2026

ABSTRACT

Background: The rapid expansion of digital labour platforms has created employment opportunities in Pakistan, particularly in ride-hailing and food-delivery services. Although platform work offers flexibility and income-generation opportunities, it is often characterized by employment insecurity, income instability, occupational risks, and limited access to social protection. Evidence regarding the working conditions and welfare needs of platform workers in Pakistan remains scarce.

Objective: To examine the relationship between platform labour, employment precarity, and the demand for social protection among ride-hailing and delivery workers in urban Pakistan

Methods: A mixed-methods cross-sectional study was conducted among 452 platform workers recruited from major Pakistani cities using purposive intercept and snowball sampling. Data were collected through structured questionnaires and face-to-face interviews. Quantitative analyses included descriptive statistics, chi-square tests, t-tests, ANOVA, multiple linear regression, and ordinal logistic regression, while qualitative responses were analyzed thematically.

Results: Overall, 72.6% of participants experienced high income volatility, and 58.4% reported earnings insufficient to meet household needs. Perceived employment precarity was high, particularly regarding job insecurity and lack of employment benefits. More than 90% supported health and accident insurance, while substantial majorities favored pension schemes, paid leave, and minimum income guarantees. Income volatility was a significant predictor of perceived employment precarity ($\beta = 0.38, p < 0.001$).

Conclusion: Platform workers in Pakistan experience considerable economic insecurity and inadequate social protection. Expanding social protection coverage, strengthening labour standards, and implementing policies that promote decent work are essential for improving worker welfare in the growing digital labour economy.

INTRODUCTION

The rapid expansion of digital technologies has transformed labour markets worldwide, giving rise to the platform economy and new forms of work mediated through mobile applications and online platforms (Fu et al., 2021; Vallas & Schor, 2020). Ride-hailing and food-delivery services such as Careem, inDrive, Foodpanda, Uber, and Bykea have become prominent sources of employment for millions of workers across both developed and developing countries (Howson et al., 2022). These platforms connect customers and service providers through algorithm-driven systems that allocate tasks, monitor performance, and determine compensation (Rani & Furrer, 2021). While platform work offers flexibility and income-generating opportunities, it has also generated growing concerns regarding employment precarity, income insecurity, and the absence of adequate social protection mechanisms (Howson et al., 2022).

The gig economy refers to a labour market characterized by short-term, task-based, and on-demand work arrangements facilitated through digital platforms (Jarrahi et al., 2020; Tan et al., 2021). Unlike traditional employment relationships, gig workers are commonly classified as independent contractors rather than employees, limiting their access to benefits such as health insurance, paid leave, pensions, unemployment protection, and collective bargaining rights (Conn & Campbell, 2021; Daskalova et al., 2021). As a result, platform workers often operate within

regulatory grey areas where labour protections remain weak or absent (Dieuaide & Azaïs, 2020; Daskalova et al., 2021). Recent studies have highlighted that although digital platforms promote flexibility and autonomy, workers frequently experience unstable earnings, algorithmic control, and job insecurity (Rani & Furrer, 2021).

Globally, the platform economy has expanded significantly over the past decade (Acs et al., 2021). The International Labour Organization estimated that digital labour platforms have become a major source of employment and income for millions of individuals,

HIGHLIGHTS	
Research insights	Platform workers experience substantial income volatility and employment precarity, demonstrating significant gaps in social protection and economic security.
Practical insights	Expanding health insurance, accident coverage, pensions, paid leave, and minimum income guarantees can improve welfare among platform workers.
Industry insights	Strengthening labour standards and social protection policies can promote decent work and sustainable employment within Pakistan's growing digital labour economy.

particularly in urban centres where unemployment and



underemployment remain persistent challenges (Cieslik et al., 2022; Giddy, 2022; Mutengwe et al., 2024). Research from Europe, North America, Asia, and Latin America has shown that platform workers often face unpredictable income streams due to fluctuations in customer demand, dynamic pricing mechanisms, and changing platform policies (Zhang, 2022). Furthermore, algorithmic management systems frequently determine worker visibility, task allocation, and performance evaluations, creating new forms of workplace surveillance and control that can contribute to stress and uncertainty (Benlian et al., 2022; Kellogg et al., 2020; Vignola et al., 2023).

In developing countries, the gig economy has become particularly important because of limited formal employment opportunities and growing urban populations (Heeks et al., 2021; Ray, 2024). Many workers enter platform-based occupations as a response to unemployment, underemployment, or economic hardship rather than as a deliberate preference for flexible work arrangements (Piasna & Drahokoupil, 2021; Ray, 2024). Consequently, platform work often functions as a survival strategy for economically vulnerable populations (Chen et al., 2020; Ray, 2024). Studies conducted in Africa, South Asia, and Southeast Asia have reported that workers frequently endure long working hours, occupational hazards, income volatility, and limited legal protections while remaining dependent on digital platforms for their livelihoods (Anwar & Graham, 2020).

Pakistan has witnessed rapid growth in the platform economy during the last decade, particularly within the transportation and delivery sectors (Malik et al., 2021; Mushtaq & Yuhui, 2020). The widespread adoption of smartphones, increased internet penetration, and expansion of digital payment systems have contributed to the emergence of platforms such as Careem, inDrive, Foodpanda, and Bykea (Choudhary et al., 2024; Malik et al., 2021). These services provide employment opportunities for thousands of urban workers, many of whom rely on platform work as their primary source of income (Bogliacino et al., 2020; Malik et al., 2021). Despite the increasing economic importance of this workforce, limited empirical research has examined the employment conditions, social protection needs, and experiences of platform workers in Pakistan (Malik et al., 2021).

One of the most significant concerns associated with platform labour is employment precarity. Precarity refers to insecure, unstable, and unpredictable working conditions characterized by limited control over work processes, uncertain earnings, and inadequate labour protection (Daskalova et al., 2021; Chen et al., 2020). Platform workers often face risks associated with sudden account deactivation, customer rating systems, fluctuating demand, and the absence of employer-provided benefits (Howson et al., 2022; Kellogg et al., 2020; Rani & Furrer, 2021). Such conditions can negatively affect workers' economic well-being, physical health, and psychological outcomes (Chen et al., 2020; Daskalova et al., 2021). Furthermore, the lack of access to social protection programs increases workers' vulnerability to illness, injury, economic shocks, and retirement insecurity (Chen et al., 2020; Daskalova et al., 2021; Rani & Furrer, 2021).

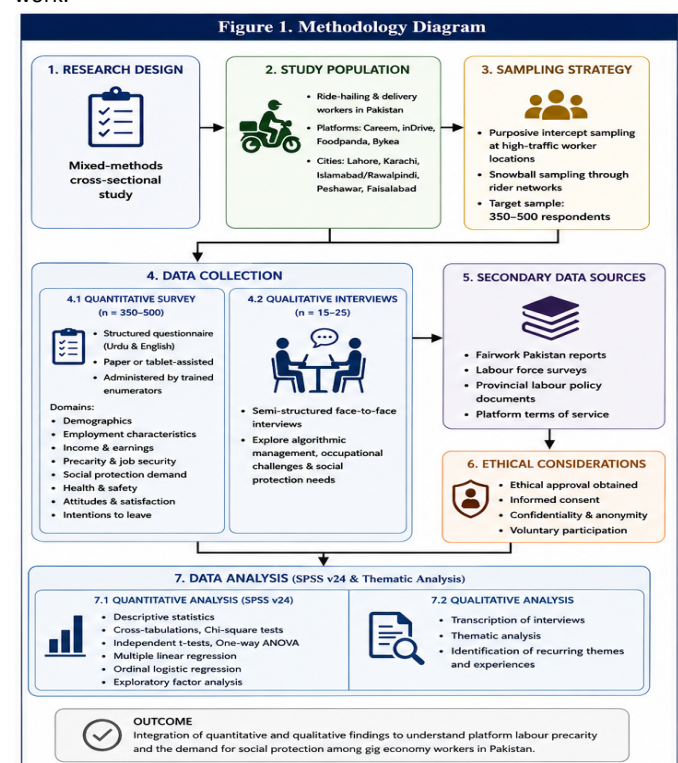
Given the continued expansion of the gig economy in Pakistan, there is an urgent need to understand how platform workers perceive their employment conditions and what forms of social protection they consider most important (Malik et al., 2021). Existing evidence from other countries suggests that gig workers strongly support measures such as health insurance, accident coverage, pension schemes, minimum income guarantees, and paid leave (Aloisi, 2022; Daskalova et al., 2021). However, little is known about whether similar concerns and preferences exist among Pakistani platform workers (Malik et al., 2021). Addressing this gap is essential for informing labour policies and regulatory frameworks that seek to balance innovation, economic growth, and worker welfare (Daskalova et al., 2021; Fu et al., 2021; Aloisi,

2022).

Therefore, the present study aims to investigate the relationship between platform labour, employment precarity, and demand for social protection among ride-hailing and delivery workers in urban Pakistan. Specifically, the study examines income volatility, job insecurity, health and safety experiences, social protection needs, collective action attitudes, job satisfaction, and intentions to leave platform work. By generating empirical evidence from multiple urban centres, this research contributes to the growing literature on digital labour and provides policy-relevant insights for improving working conditions and promoting decent work in Pakistan's rapidly evolving platform economy.

METHODOLOGY

This study employed a mixed-methods cross-sectional research design to examine platform labour, gig economy precarity, and the demand for social protection among ride-hailing and delivery workers in urban Pakistan. Primary data were collected from active workers associated with major digital platforms such as Careem, inDrive, Foodpanda, and Bykea across major cities, including Lahore, Karachi, Islamabad/Rawalpindi, Peshawar, and Faisalabad. Participants were recruited through purposive intercept sampling at high-traffic rider gathering locations, such as petrol stations, restaurant clusters, shopping plazas, bus terminals, and commonly used waiting points. To increase the diversity of respondents and reach workers from different platforms and backgrounds, snowball sampling was also utilized through rider networks and community contacts. A total of 350–500 respondents were surveyed using a structured questionnaire available in both Urdu and English and administered through paper-based or tablet-assisted methods by trained field enumerators. The questionnaire collected information on demographic characteristics (age, gender, education, marital status, dependents, and city), employment-related factors (years of platform work, primary platform, full-time or part-time status, vehicle ownership, smartphone quality, and previous formal employment experience), and outcome variables, including income volatility, earnings adequacy, perceived job precarity, access to social protection, health and safety experiences, attitudes toward collective action, job satisfaction, and intentions to leave platform work.



In addition, a purposive subsample of 15–25 workers participated in short face-to-face semi-structured interviews to provide deeper insights into algorithmic management, occupational challenges, and social protection needs. Secondary data were obtained from Fairwork Pakistan reports, labour force surveys, provincial labour policy documents, and publicly available platform terms of service to contextualize the findings. Quantitative data were analyzed using SPSS version 24, employing descriptive statistics, cross-tabulations, chi-square tests, independent t-tests, one-way ANOVA, multiple linear regression, ordinal logistic regression, and exploratory factor analysis to identify key determinants of precarity and social protection demand. Qualitative interview data were transcribed and analyzed through thematic analysis to identify recurring themes and experiences. Ethical approval was obtained from the relevant institutional review board, and all participants provided informed consent prior to participation. Confidentiality, anonymity, and voluntary participation were ensured throughout the research process.

RESULTS

A total of 452 ride-hailing and delivery workers participated in the study. Respondents were recruited from Lahore, Karachi, Islamabad/Rawalpindi, Peshawar, and Faisalabad and represented major digital labour platforms, including Careem, inDrive, Foodpanda, and Bykea. The findings provide insights into the demographic characteristics, employment conditions, income stability, perceived precarity, social protection needs, and job satisfaction of platform workers in Pakistan.

Table 1: Demographic Characteristics of Respondents (N = 452)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	18–25	98	21.7
	26–35	224	49.6
	36–45	92	20.4
	>45	38	8.4
Gender	Male	427	94.5
	Female	25	5.5
Education	Primary	42	9.3
	Secondary	218	48.2
	College Diploma	105	23.2
	University Degree	87	19.2
Marital Status	Single	147	32.5
	Married	285	63.1
	Other	20	4.4

The majority of respondents were between 26 and 35 years of age (49.6%), male (94.5%), and married (63.1%). Nearly half of the participants had completed secondary education (48.2%).

Table 2: Platform Work Characteristics

Variable	Category	Frequency (n)	Percentage (%)
Primary Platform	inDrive	148	32.7
	Careem	104	23.0
	Foodpanda	122	27.0
	Bykea	78	17.3
Work Status	Full-time	277	61.3
	Part-time	175	38.7
Vehicle Ownership	Own Vehicle	324	71.7
	Rented Vehicle	128	28.3
Years on Platform	<1 Year	76	16.8
	1–3 Years	185	40.9
	4–6 Years	129	28.5
	>6 Years	62	13.7

Most respondents worked full-time (61.3%) and owned the vehicle used for platform work (71.7%). Approximately 40.9% had been engaged in platform work for one to three years.

Table 3: Income Volatility and Earnings Adequacy

Variable	Category	Frequency (n)	Percentage (%)
Monthly Income Fluctuation	High	328	72.6
	Moderate	89	19.7
	Low	35	7.7
Earnings Adequate for Household Needs	Yes	188	41.6
	No	264	58.4

A large proportion of workers (72.6%) reported experiencing high income volatility. More than half of the respondents (58.4%) stated that their earnings were insufficient to meet household expenses consistently.

Table 4: Perceived Employment Precarity

Statement	Mean ± SD
Fear of losing platform access/account	4.12 ± 0.83
Dependence on platform algorithms	4.28 ± 0.75
Lack of employment security	4.35 ± 0.71
Lack of employment benefits	4.46 ± 0.69
Overall Precarity Score	4.30 ± 0.62

Scale: 1 = Strongly Disagree to 5 = Strongly Agree

Respondents reported high levels of perceived precarity. The highest-rated concern was the lack of employment benefits (Mean = 4.46 ± 0.69), followed by lack of job security (Mean = 4.35 ± 0.71).

Table 5: Demand for Social Protection Measures

Social Protection Measure	Support (%)
Health Insurance	91.8
Paid Medical Leave	88.7
Pension Scheme	84.5
Accident Insurance	93.4
Minimum Income Guarantee	86.9
Fuel Subsidy Support	81.2

The majority of workers expressed strong support for social protection initiatives. Accident insurance (93.4%) and health insurance (91.8%) received the highest levels of support.

Table 6: Health and Safety Experiences

Variable	Yes (%)	No (%)
Experienced Road Accident During Work	38.7	61.3
Experienced Verbal Abuse from Customers	56.4	43.6
Experienced Physical Threats	18.8	81.2
Reported Work-Related Stress	74.1	25.9

Work-related risks were common among respondents. More than one-third (38.7%) reported experiencing a road accident while working, while 74.1% reported high levels of occupational stress.

Table 7: Job Satisfaction and Exit Intentions

Variable	Mean ± SD
Job Satisfaction	2.89 ± 0.91
Intention to Leave Platform Work	3.97 ± 0.88

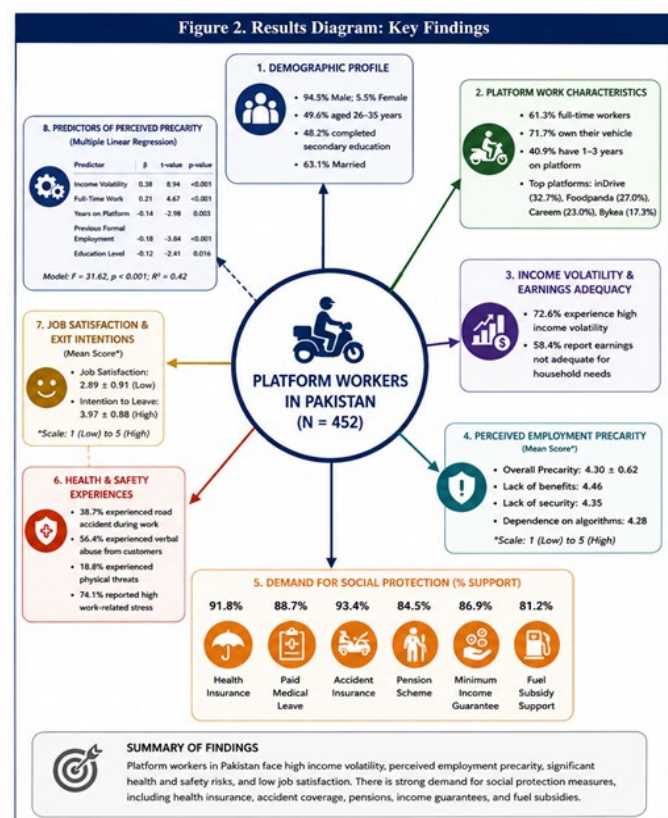
Scale: 1 = Very Low to 5 = Very High

Workers reported relatively low job satisfaction and a high intention to leave platform work if alternative employment opportunities became available.

Table 8: Multiple Linear Regression Predicting Perceived Precarity

Predictor	β	t-value	p-value
Income Volatility	0.38	8.94	<0.001
Full-Time Platform Work	0.21	4.67	<0.001
Years on Platform	-0.14	-2.98	0.003
Previous Formal Employment	-0.18	-3.84	<0.001
Education Level	-0.12	-2.41	0.016

The regression model was significant ($F = 31.62$, $p < 0.001$; $R^2 = 0.42$). Income volatility emerged as the strongest predictor of perceived precarity, indicating that workers experiencing unstable earnings were significantly more likely to perceive their work as insecure and lacking protection.



The findings demonstrate that platform workers in Pakistan experience substantial economic insecurity, high levels of employment precarity, limited access to social protection, and considerable occupational risks. Strong demand for health insurance, accident coverage, pensions, and income guarantees suggests a significant gap between workers' needs and the protections currently available within the gig economy. These results highlight the importance of policy interventions aimed at improving labour protections and social security coverage for platform-based workers.

DISCUSSION

The findings of the present study reveal that platform workers in Pakistan experience substantial economic insecurity, employment precarity, and limited access to social protection mechanisms. A large proportion of respondents reported unstable earnings, concerns regarding job security, and strong support for social protection measures such as health insurance, accident coverage, paid leave, and pension schemes. These findings align with the growing international literature indicating that gig economy workers often occupy vulnerable positions characterized by uncertain income streams, limited labour rights, and dependence

on digital platforms for employment opportunities (Chen et al., 2020; Howson et al., 2022; Malik et al., 2021).

Income volatility emerged as one of the strongest predictors of perceived precarity among respondents. More than two-thirds of workers reported significant fluctuations in monthly earnings, highlighting the unpredictable nature of platform-based work. Similar findings have been reported among ride-hailing and food-delivery workers in both developed and developing economies, where algorithmically determined demand and dynamic pricing systems create unstable income patterns (Heeks et al., 2021; Piasna & Drahokoupil, 2021). Research published in the International Labour Review and Work, Employment and Society suggests that income instability not only affects workers' economic well-being but also contributes to psychological stress and long-term financial insecurity (Chen et al., 2020; Howson et al., 2022).

The high levels of perceived employment precarity observed in this study are consistent with previous evidence demonstrating that platform workers frequently lack employment protections traditionally available to standard employees (Aloisi, 2022; Chen et al., 2020; Daskalova et al., 2021). Respondents expressed concerns regarding account deactivation, algorithmic monitoring, and the absence of benefits such as health insurance and paid leave. These findings support the argument that platform companies often classify workers as independent contractors rather than employees, thereby limiting access to labour protections and social security programs (Conn & Campbell, 2021; Daskalova et al., 2021; Zhang, 2022). Studies conducted in Europe, North America, and Asia have similarly identified algorithmic control as a central feature of platform labour, whereby workers are subject to performance ratings, automated decision-making, and opaque management systems that influence work allocation and earnings (Benlian et al., 2022; Kellogg et al., 2020; Rani & Furrer, 2021).

The overwhelming demand for social protection measures found in this study reflects a significant gap between workers' needs and existing labour policies. More than 90% of participants supported the provision of health and accident insurance, while substantial majorities also endorsed pension schemes and minimum income guarantees. These findings mirror recommendations made by the International Labour Organization and the World Bank, which emphasize extending social protection coverage to workers engaged in non-standard forms of employment (International Labour Organization, 2021; World Bank, 2022). Recent evidence from countries such as India, Indonesia, and Brazil indicates that gig workers consistently prioritize access to healthcare, income protection, and retirement benefits due to the high levels of occupational and financial risk associated with platform work (Aloisi, 2022; Daskalova et al., 2021).

Health and safety concerns were also prominent among respondents. A considerable proportion reported work-related accidents, verbal abuse from customers, and elevated stress levels. Similar patterns have been documented among delivery riders and ride-hailing drivers globally, where long working hours, road traffic exposure, customer pressure, and performance incentives increase occupational hazards (Cieslik et al., 2022; Giddy, 2022; Howson et al., 2022). A recent study of platform workers found frequent exposure to physical and ergonomic hazards and violence, with higher prevalence of musculoskeletal symptoms, general fatigue, and depressive symptoms compared with the general population (Vignola et al., 2023).

Another important finding was the relatively low level of job satisfaction and the strong intention among workers to leave platform employment if alternative opportunities became available. This result suggests that many individuals engage in platform work primarily due to limited labour market alternatives rather than because of a preference for flexible employment arrangements. Similar observations have been reported in studies conducted in South Asia and Sub-Saharan Africa, where gig work often functions

as a coping strategy in contexts characterized by unemployment and underemployment (Cieslik et al., 2022; Giddy, 2022). While flexibility remains one of the perceived advantages of platform work, the present findings indicate that flexibility alone may not compensate for the absence of stable income, social protection, and employment security (Piasna & Drahokoupil, 2021).

The regression analysis further demonstrated that income volatility, full-time dependence on platform work, and lack of prior formal employment significantly increased perceived precarity. These findings are consistent with previous evidence that workers with limited access to formal employment opportunities may be particularly vulnerable to precarious working conditions (Chen et al., 2020; Malik et al., 2021). Workers who relied exclusively on platform earnings were particularly vulnerable to economic shocks and policy changes, emphasizing the need for targeted interventions to improve employment security and social welfare coverage (Chen et al., 2020).

Overall, the findings provide strong evidence that platform workers in Pakistan face many of the same challenges documented in international research on the gig economy. The results underscore the urgent need for policy reforms aimed at extending social protection, clarifying employment classification, improving occupational safety standards, and developing portable benefit systems that can accommodate the unique nature of platform-based work (Aloisi, 2022; Daskalova et al., 2021; Zhang, 2022). Such measures would contribute to reducing employment precarity while promoting decent work and sustainable livelihoods within Pakistan's rapidly expanding digital labour economy (Fu et al., 2021; Malik et al., 2021).

CONCLUSION

This study highlights the growing significance of platform-based work in Pakistan and reveals the considerable challenges faced by ride-hailing and delivery workers. The findings demonstrate that gig workers experience high levels of income volatility, employment insecurity, occupational risks, and limited access to social protection benefits. Despite the flexibility associated with platform work, many respondents reported low job satisfaction and a strong desire for improved labour protections. The overwhelming demand for health insurance, accident coverage, pension schemes, and minimum income guarantees underscores the inadequacy of existing support mechanisms for this workforce. Furthermore, income instability emerged as a key factor influencing perceptions of precarity and overall well-being. These findings emphasize the need for policymakers, labour regulators, and digital platforms to develop inclusive social protection frameworks and fair labour standards. Strengthening worker protections can promote decent work, reduce vulnerability, and support the sustainable growth of Pakistan's expanding digital labour economy.

Ethical Considerations

The study adhered to relevant ethical principles throughout the research process. Informed consent was obtained from all participants prior to participation. Participation was voluntary, and participants were informed of their right to withdraw from the study without penalty. Confidentiality and anonymity were maintained throughout the study, and the collected information was used solely for research purposes.

Data Availability

The data generated and analyzed during the current study are available from the corresponding author upon reasonable request, subject to appropriate ethical and confidentiality considerations.

Author Contributions

Basit Ali: Conceptualization, methodology, data curation, formal analysis, investigation, and writing—original draft preparation.

Sadia Nasreen: Methodology, investigation, data curation, formal analysis, and writing—review and editing.

Shehla Akram: Investigation, data analysis, interpretation of findings, and writing—review and editing.

Baber Nawaz: Methodology, investigation, interpretation of findings, and writing—review and editing.

All authors contributed to the study, critically reviewed the manuscript, approved the final version, and agreed to be accountable for all aspects of the work, ensuring that questions related to the accuracy or integrity of any part of the research were appropriately investigated and resolved.

Funding

No external funding was received for this study.

Conflict of Interest

The author declares no conflict of interest.

Acknowledgments

The authors sincerely acknowledge the support and cooperation of the participating ride-hailing and delivery workers, community contacts, and field staff who contributed to the completion of this study.

Use of Artificial Intelligence

ChatGPT (OpenAI) was used to assist with language editing, grammar correction, and improvement of the clarity and readability of the manuscript. Gemini AI was used to assist with the preparation of images/visual materials. The authors reviewed and verified all AI-assisted content and remain fully responsible for the accuracy, originality, interpretation, and final content of the manuscript.

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