

Wellbeing under Algorithmic Management: Explaining How Human Needs Shape Performance in Platform Work

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Abstract

Background:

Platform-based employment has transformed contemporary work through algorithmic coordination and evaluation. Although previous research has documented the effects of platform work on workers' wellbeing, less is known about how wellbeing functions as a psychological mechanism linking algorithmically managed work conditions to job performance.

Objective:

This study examines how the fulfilment of existence, relatedness, and growth (ERG) needs influences job performance among platform workers and investigates the mediating role of Subjective Well-Being (SWB).

Methods:

A cross-sectional survey of 277 platform workers in Guangzhou, China, was analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The model estimated both the direct effects of ERG needs on job performance and their indirect effects through SWB.

Results:

Existence and growth needs positively influenced job performance both directly and indirectly through SWB. Relatedness needs showed no direct association with performance but exerted a significant indirect effect through SWB, indicating that social resources contribute to performance primarily by enhancing workers' psychological wellbeing.

Conclusions:

The findings suggest that algorithmic management reshapes rather than diminishes the role of human needs in platform work by altering the wellbeing pathways through which motivation influences performance. By conceptualising SWB as an active psychological mechanism rather than merely an outcome of work conditions, this study advances understanding of wellbeing in digitally mediated work and offers practical insights for designing platform systems that support both sustainable performance and worker wellbeing..

1. Introduction

The rapid expansion of the platform economy has fundamentally reshaped the organization of work, giving rise to employment arrangements that differ markedly from those found in conventional organizations (Woodcock & Graham, 2020). Across sectors such as ride-hailing, food delivery, logistics, and online content creation, digital platforms increasingly coordinate labor through algorithmic systems that allocate tasks, monitor behavior, evaluate performance, and determine rewards with limited direct

human supervision (Wood et al., 2019; Kellogg et al., 2020). Rather than functioning merely as technological tools, algorithms increasingly assume managerial responsibilities that were traditionally performed by supervisors, thereby redefining how workers interact with organizations and how performance is governed.

This transformation is particularly visible in China, where platform-based employment has become a central component of the officially recognized *new forms of employment* (新就业形态). Enabled by widespread digitalization and supported by the rapid expansion of online platforms, millions of workers now participate in labor arrangements characterized by flexible scheduling, fragmented organizational attachment, and data-driven management (Möhlmann et al., 2021). Although such work provides accessible income opportunities and accommodates diverse labor market participants, it also exposes workers to highly dynamic forms of managerial control. Task allocation, pricing, customer evaluation, and work intensity are continuously adjusted through algorithms whose operating logic often remains opaque to workers (Rosenblat & Stark, 2016; Kellogg et al., 2020). Consequently, employment flexibility is frequently accompanied by heightened uncertainty regarding income stability, work autonomy, and future development.

Unlike employees in traditional organizations, platform workers rarely rely on stable organizational routines or sustained interpersonal interactions when performing their work. Instead, everyday work activities unfold through continuous interactions with digital systems that evaluate workers in real time while providing limited opportunities for explanation, negotiation, or developmental feedback (Wood et al., 2019). Previous studies have shown that algorithmic management not only changes how work is organized but also reshapes workers' experiences of autonomy, fairness, and organizational support (Duggan et al., 2020; Möhlmann et al., 2021). These distinctive characteristics suggest that platform work should not simply be regarded as another flexible employment arrangement; rather, it represents a qualitatively different work context in which technological infrastructures become deeply intertwined with workers' psychological experiences and behavioral responses.

Accordingly, understanding performance in platform-based employment requires moving beyond conventional organizational assumptions. In traditional workplaces, job performance is typically supported by formal supervision, organizational identification, and relatively stable employment relationships (Campbell, 1990; Borman & Motowidlo, 1997). Platform work, by contrast, is embedded in environments characterized by algorithmic evaluation, fluctuating demand, and weak organizational attachment, where workers must continually adapt to changing digital rules while maintaining service quality and customer satisfaction. Performance therefore depends not only on workers' capabilities but also on their ability to sustain motivation, regulate emotions, and remain psychologically engaged under conditions of persistent uncertainty.

Existing scholarship has substantially advanced understanding of platform work, yet three important limitations remain.

First, much of the literature explains platform work primarily through its institutional and technological characteristics. Studies have examined employment precarity, algorithmic control, surveillance, contractual ambiguity, and labor regulation (De Stefano, 2015; Wood et al., 2019; Kellogg et al., 2020). Although these studies provide valuable insights into how digital platforms reshape employment relationships, they devote comparatively less attention to the psychological processes through which these work conditions ultimately influence workers' performance. Consequently, the mechanisms linking platform governance to behavioral outcomes remain insufficiently theorized.

Second, research on worker well-being has largely treated Subjective Well-Being (SWB) as a consequence of platform work rather than as a mechanism through which work conditions influence subsequent behavior. Existing studies consistently demonstrate that algorithmic management, unstable income, and weak organizational attachment reduce workers' psychological well-being (Wood et al., 2019; Petriglieri et al., 2019). However, considerably less is known about whether well-being subsequently shapes workers' capacity to remain productive, adaptive, and engaged under algorithmic management. This outcome-oriented perspective therefore leaves an important theoretical question unanswered: how does well-being translate adverse or supportive work experiences into sustained job performance?

Third, although motivational theories have frequently been applied to organizational behavior, their application to platform work remains relatively limited. Many existing studies rely on frameworks originally developed for conventional employment relationships, where organizational membership, managerial supervision, and career structures are relatively stable (Hackman & Oldham, 1976; Deci & Ryan, 2000). Platform work differs fundamentally from these assumptions. Workers simultaneously experience economic uncertainty, intensive digital monitoring, fragmented social interaction, and limited career progression, while continuously adapting to changing algorithmic rules (Kellogg et al., 2020; Möhlmann et al., 2021). These characteristics suggest that motivational processes may evolve differently under algorithmic management than in traditional organizational settings.

Alderfer's ERG theory provides a particularly appropriate framework for addressing this issue because it conceptualizes motivation as a dynamic process in which existence, relatedness, and growth needs coexist and may be reprioritized when environmental conditions change (Alderfer, 1969). Unlike hierarchical need theories that assume relatively stable organizational contexts, ERG theory recognizes that individuals continuously adjust motivational priorities in response to changing constraints and opportunities. This flexibility makes the theory especially relevant for platform work, where workers frequently navigate fluctuating demand, uncertain earnings, evolving algorithmic rules, and unstable opportunities for social interaction and personal development.

Nevertheless, applying ERG theory to platform work requires more than transferring traditional motivational constructs into a digital setting. Platform work represents a fundamentally different organizational environment in which algorithmic systems increasingly determine workers' access to economic resources, social interaction, and developmental opportunities. Consequently, classical

motivational needs may operate through mechanisms that differ from those observed in conventional organizations. Rather than assuming that need fulfilment directly translates into higher performance, understanding motivation under algorithmic management requires attention to the psychological processes that connect changing work conditions with behavioral adaptation.

Building on this perspective, the present study develops a process-based explanation of job performance in platform-based employment by integrating ERG theory with Subjective Well-Being as an intervening psychological mechanism. Specifically, the study argues that workers' perceptions of existence, relatedness, and growth conditions influence job performance not only directly but also indirectly through their effects on Subjective Well-Being. In doing so, the study shifts attention from identifying whether platform work affects workers toward explaining how motivational resources are transformed into sustained performance under algorithmic management.

This study contributes to the literature in three ways. First, it extends research on platform work by moving beyond structural descriptions of algorithmic management to explain the psychological processes through which digitally mediated work conditions become performance-relevant. Second, it advances ERG theory by demonstrating how different categories of human needs operate under algorithmic management, thereby illustrating that the motivational significance of need fulfilment is contingent upon digital work arrangements rather than stable organizational environments. Third, by conceptualizing Subjective Well-Being as an active mediating mechanism rather than a passive outcome, the study bridges research on motivation, well-being, and digital labor, offering a more integrated explanation of how workers sustain performance in contemporary platform-based employment.

2. Literature Review and Theoretical Framework

This section develops the theoretical foundation of the study by explaining why job performance in platform-based employment cannot be fully understood through conventional organizational perspectives. Rather than viewing platform work simply as a new employment arrangement, this study argues that algorithmic management fundamentally reshapes the conditions under which workers satisfy human needs and sustain performance. The section therefore first revisits the concept of job performance in algorithmically managed work environments before introducing ERG theory as a context-sensitive motivational framework. It then explains how existence, relatedness, and growth needs should be interpreted within platform-based employment and develops the theoretical rationale for positioning Subjective Well-Being (SWB) as the psychological mechanism linking need fulfilment to job performance.

2.1 Job Performance under Algorithmic Management

Job performance has long been regarded as one of the central constructs in organizational research. Traditional conceptualizations generally define performance as behaviors or actions that contribute to organizational goals within relatively stable employment relationships (Campbell, 1990; Borman & Motowidlo, 1997). Such perspectives were developed in organizational contexts characterized by clearly

defined job responsibilities, enduring employment relationships, and direct managerial supervision, where performance is evaluated through formal appraisal systems and supervisors' assessments.

These assumptions become less applicable in platform-based employment. Unlike conventional organizations, digital labor platforms rely extensively on algorithmic management to coordinate work processes, allocate tasks, monitor worker behavior, and evaluate performance (Wood et al., 2019; Kellogg et al., 2020). Rather than receiving guidance from supervisors, platform workers interact primarily with algorithmic systems that continuously generate performance evaluations through customer ratings, task acceptance rates, response times, completion efficiency, and other digitally generated indicators. These metrics influence not only workers' current earnings but also their future access to work opportunities, customer visibility, and even continued participation on the platform. Consequently, performance in platform work functions simultaneously as an outcome of workers' behavior and as a mechanism through which subsequent employment opportunities are distributed.

This distinctive governance structure suggests that job performance in platform work extends beyond successful task execution. Platform workers must continuously interpret algorithmic signals, adjust to changing allocation rules, respond to fluctuating customer demand, and maintain favorable reputational evaluations in order to remain competitive within platform ecosystems. Unlike employees operating under relatively stable organizational routines, platform workers perform under conditions characterized by opaque decision-making, fragmented organizational attachment, intensive digital monitoring, and considerable uncertainty regarding future work opportunities. Maintaining performance therefore requires not only technical competence but also continuous behavioral adaptation to evolving algorithmic environments.

Recent research increasingly reflects this broader understanding of performance in digitally mediated work. Griffin et al. (2007) argue that contemporary work performance includes adaptive and proactive behaviors alongside task performance, while Koopmans et al. (2011) conceptualize job performance as a multidimensional construct incorporating task execution, contextual performance, and adaptive functioning. These perspectives are particularly relevant to platform work, where workers must simultaneously complete assigned tasks, manage customer interactions, maintain reputational scores, and adjust their behavior in response to real-time algorithmic feedback. Accordingly, performance should be understood not simply as a measurable output but as workers' sustained capacity to function effectively under conditions of algorithmic management.

This perspective also has important theoretical implications. Existing research has generated valuable insights into how algorithmic management shapes labor processes, employment precarity, and worker well-being (Ashford et al., 2018; Petriglieri et al., 2019; Wood et al., 2019). However, considerably less attention has been devoted to explaining the psychological mechanisms through which workers maintain performance despite continuous algorithmic evaluation. Because performance in platform work depends not only on external work conditions but also on workers' ability to mobilize cognitive, emotional, and motivational resources under uncertainty, understanding the motivational foundations of

sustained performance becomes an important theoretical challenge. Addressing this challenge requires a framework capable of explaining how different categories of human needs acquire varying performance relevance under algorithmic management.

2.2 ERG Theory as a Context-Sensitive Motivational Framework

Among established theories of work motivation, Alderfer's ERG theory offers a particularly suitable framework for explaining motivational processes in platform-based employment. Unlike need theories that assume a fixed hierarchy of motivational priorities, ERG theory proposes that existence, relatedness, and growth needs may operate simultaneously and that individuals dynamically adjust their motivational priorities when opportunities for need fulfilment change (Alderfer, 1969). The mechanisms of need substitution and frustration-regression further suggest that motivation evolves in response to changing environmental conditions rather than following a predetermined sequence. Such flexibility is particularly valuable for understanding work environments characterized by instability and uncertainty.

This characteristic distinguishes ERG theory from several influential motivational frameworks that were primarily developed within relatively stable organizational settings. For example, the Job Characteristics Model assumes that enriched job design promotes intrinsic motivation through relatively enduring work characteristics (Hackman & Oldham, 1976), while Self-Determination Theory emphasizes the fulfilment of autonomy, competence, and relatedness under conditions that support self-directed motivation (Deci & Ryan, 2000). Although these perspectives have made substantial contributions to organizational research, they generally assume relatively predictable organizational structures, consistent managerial support, and stable access to work resources. Such assumptions are increasingly difficult to sustain in algorithmically managed employment.

Platform work presents a markedly different motivational context. Workers frequently experience fluctuating demand, dynamic pricing mechanisms, opaque task allocation, continuous digital surveillance, and performance-based remuneration (Wood et al., 2019; Kellogg et al., 2020; Möhlmann et al., 2021). While digital platforms often promote flexibility and autonomy, workers simultaneously confront considerable uncertainty regarding income stability, future work opportunities, and algorithmic decision-making. Under these conditions, motivational priorities are unlikely to remain stable. Instead, workers continuously reassess the relative importance of economic security, social support, and personal development as algorithmic conditions evolve.

The theoretical value of ERG theory therefore lies not merely in classifying human needs into three categories but in explaining how workers recalibrate these needs when work environments become unstable. When algorithmic decisions reduce income predictability, existence needs may become increasingly salient because economic security is essential for maintaining work participation. When organizational attachment is weak and interpersonal interaction is fragmented, workers may rely more heavily on alternative relational resources to preserve psychological stability. Likewise, continuous changes in platform rules and customer expectations may elevate the importance of growth needs

because learning and adaptive capability become critical for sustaining employability within platform ecosystems. Rather than treating motivation as a relatively static individual characteristic, ERG theory captures the dynamic interaction between changing work environments and shifting motivational priorities.

Building on this perspective, the present study argues that algorithmic management does more than influence workers' motivation through increased work demands or technological control. More fundamentally, it reconfigures the relative performance value of different human needs by altering the conditions under which these needs can be fulfilled. This proposition represents the central theoretical argument of the study and provides the foundation for examining how existence, relatedness, and growth needs contribute to job performance through Subjective Well-Being in platform-based employment.

2.3 Reconfiguring ERG Needs under Algorithmic Management

Although ERG theory identifies existence, relatedness, and growth as fundamental categories of human needs, the ways in which these needs are experienced and fulfilled depend heavily on the characteristics of the work environment. In conventional organizations, need fulfilment is typically embedded within relatively stable organizational structures, formal managerial relationships, and established career systems. Platform-based employment differs substantially from these assumptions. Because work is coordinated through algorithmic systems rather than organizational hierarchies, the conditions under which workers pursue economic security, social connection, and personal development are fundamentally transformed. Consequently, applying ERG theory to platform work requires not merely transferring traditional need constructs into a new setting, but reinterpreting their motivational significance within algorithmically managed work environments.

Existence needs become particularly salient because algorithmic management directly influences workers' access to economic security. Unlike employees receiving relatively stable salaries, platform workers frequently experience fluctuating demand, dynamic pricing mechanisms, variable workloads, and opaque task allocation systems (Wood et al., 2019). Under these conditions, economic security is shaped not only by the level of income but also by workers' perceptions of whether platform rules are transparent, work schedules remain sufficiently flexible, and job demands are psychologically manageable. Previous research has shown that unstable employment arrangements and income uncertainty increase workers' dependence on basic economic resources (Kalleberg, 2009), while algorithmic monitoring and work intensification often amplify occupational stress (Wood et al., 2019). Accordingly, this study conceptualizes existence needs as workers' perceptions of economic and operational security reflected in pay transparency, work flexibility, and manageable job stress. These dimensions jointly determine whether workers perceive algorithmically governed work as sustainable over time.

The meaning of relatedness needs is likewise reshaped by the distinctive social structure of platform work. Traditional organizations provide relatively stable work groups, supervisory relationships, and opportunities for face-to-face interaction, all of which contribute to interpersonal support and organizational identification. Platform workers, by contrast, often work independently, interact with digital interfaces rather than supervisors, and experience limited opportunities for sustained collaboration. Consequently, relatedness is no longer confined to workplace relationships but extends to broader sources of social and psychological support. Previous studies suggest that perceived organizational support becomes less salient under fragmented employment arrangements, whereas support from peers, platform institutions, and family members assumes greater importance in helping workers cope with uncertainty and social isolation (Sverke et al., 2002; Cuyper et al., 2008). Moreover, workers' perceptions of platform fairness and responsiveness may partially substitute for traditional supervisory relationships by influencing whether they feel respected and treated fairly within digitally mediated work systems. Accordingly, relatedness needs in platform-based employment are conceptualized as a broader network of social and institutional resources that primarily contributes to workers' emotional stability rather than directly facilitating task execution.

Growth needs also acquire distinctive characteristics under algorithmic management. In conventional organizations, growth is frequently associated with structured career progression, formal training programs, and promotional opportunities. Such organizational mechanisms are generally limited in platform work, where workers are expected to maintain employability through continuous adaptation rather than organizational advancement. Frequent changes in algorithmic rules, customer expectations, and task allocation mechanisms require workers to develop new competencies through self-directed learning and accumulated work experience (Parker et al., 2017). Consequently, growth needs in platform-based employment are reflected less in hierarchical career advancement than in workers' opportunities to acquire knowledge, strengthen adaptive capability, and sustain long-term competitiveness within evolving platform ecosystems.

Taken together, these contextualized interpretations suggest that algorithmic management does not diminish the relevance of human needs. Instead, it changes the conditions under which different needs are fulfilled and, consequently, alters their relative importance for sustaining job performance. This perspective provides the conceptual foundation for examining why existence, relatedness, and growth needs may follow different psychological pathways in algorithmically managed work environments.

2.4 Formative Specification of ERG Needs

The contextualized interpretation of ERG needs also has implications for how these constructs should be conceptualized and measured. Rather than representing latent traits reflected by interchangeable indicators, existence, relatedness, and growth needs are viewed in this study as higher-order constructs formed by multiple dimensions that collectively define workers' experiences of need fulfilment. Following the recommendations of Jarvis et al. (2003), these constructs are therefore specified as formative rather than reflective.

This specification is consistent with the theoretical characteristics of platform-based employment. Workers' perceptions of need fulfilment arise from the combined influence of several coexisting work conditions rather than any single underlying psychological attribute. For example, existence needs cannot be adequately represented by income alone because workers' perceptions of economic security are simultaneously shaped by pay transparency, workload flexibility, and work-related stress. Likewise, relatedness needs emerge through multiple sources of support, including co-workers, platform institutions, and family members, each contributing distinct aspects of workers' social experiences. Growth needs are similarly constituted through complementary opportunities for learning, skill utilization, and future development. Removing any one of these dimensions would alter the substantive meaning of the higher-order construct itself.

The formative specification is particularly appropriate for algorithmically managed work because platform employment is characterized by considerable heterogeneity across workers, platforms, and labor market conditions. Different combinations of work characteristics may generate similar perceptions of need fulfilment, while changes in a single dimension may substantially alter workers' overall motivational experiences. Treating ERG needs as formative constructs therefore captures the configurational nature of motivation under algorithmic management and more accurately reflects the complexity of workers lived experiences in platform-based employment.

2.5 Subjective Well-Being as a Psychological Mechanism

Prior research on platform work has predominantly examined Subjective Well-Being as an outcome of work conditions, documenting how algorithmic management and employment precarity influence workers' satisfaction and affective states (Wood et al., 2019). However, recent wellbeing scholarship argues that well-being should be viewed as an emergent and relational process that develops through ongoing interactions between individuals and their surrounding technological, social, and material environments rather than as a static psychological condition (Andrews & Rishworth, 2023). Building on this perspective, the present study conceptualizes SWB as the psychological mechanism through which workers transform experiences of need fulfilment into sustained work performance.

This interpretation is consistent with Conservation of Resources (COR) theory, which proposes that individuals seek to acquire, preserve, and invest psychological resources in order to cope with demanding environments (Hobfoll, 1989). Fulfilment of existence, relatedness, and growth needs contributes to the accumulation of important psychological resources, including perceived security, emotional stability, self-efficacy, and confidence in one's capacity to meet environmental demands. These resources are subsequently reflected in workers' overall subjective well-being before influencing observable work behavior. Rather than functioning as an isolated emotional state, subjective well-being represents a broader psychological condition through which individuals maintain motivation and resilience under uncertainty.

Research in organizational psychology provides further support for this perspective. Wright and Cropanzano (2000) argue that well-being contributes directly to employee effectiveness by enhancing

psychological functioning, while Judge et al. (2001) demonstrate that happier employees generally exhibit higher levels of job performance. Similarly, Sonnentag (2015) emphasizes that positive psychological functioning facilitates recovery, adaptive capacity, and sustained work engagement under demanding conditions. These findings suggest that workers with higher levels of subjective well-being are more capable of regulating emotions, allocating cognitive resources efficiently, and maintaining effective performance despite environmental pressures.

The importance of this mechanism may be particularly pronounced in platform-based employment. Because algorithmic management reduces opportunities for direct organizational support while exposing workers to continuous evaluation and uncertainty, workers increasingly rely on internal psychological resources to maintain effective functioning. Subjective well-being therefore becomes the mechanism through which favorable work conditions are transformed into adaptive behaviors, sustained engagement, and effective performance. Accordingly, this study conceptualizes SWB not as a passive outcome of platform work but as the central psychological process linking ERG need fulfilment to job performance under algorithmic management.

2.6 Hypotheses Development

Building on the preceding theoretical arguments, this study proposes that algorithmic management reshapes how different categories of human needs contribute to job performance by altering the conditions under which those needs are fulfilled. Rather than assuming that all motivational resources exert identical effects, the proposed model argues that existence, relatedness, and growth needs possess distinct performance relevance within digitally mediated work environments. Moreover, Subjective Well-Being functions as the central psychological mechanism through which these motivational conditions are translated into sustained work performance. Figure 1 illustrates the proposed research model.

2.6.1 Existence Needs and Job Performance

Algorithmically managed work environments expose platform workers to substantial economic uncertainty through dynamic pricing, fluctuating demand, opaque task allocation, and continuous performance evaluation (Wood et al., 2019; Kellogg et al., 2020). Under such conditions, maintaining stable income and manageable working conditions becomes a prerequisite for sustained participation in platform work. Unlike conventional organizational settings, where basic employment conditions are generally institutionalized, platform workers must continuously evaluate whether their work remains economically viable and psychologically sustainable.

According to ERG theory, fulfilment of existence needs provides the material and psychological foundation upon which individuals allocate attention and effort toward higher-order work behaviors (Alderfer, 1969). When workers perceive that compensation systems are transparent, work schedules remain sufficiently flexible, and work-related stress is manageable, fewer cognitive and emotional

resources are devoted to coping with uncertainty. Instead, these resources can be invested in task execution, customer service, and adaptive responses to changing platform requirements.

Previous studies similarly suggest that income predictability, transparent algorithmic rules, and reduced work-related stress contribute to more stable work performance in digitally mediated employment (Kalleberg, 2009; Wood et al., 2019). Accordingly, fulfilment of existence needs should directly strengthen workers' capacity to sustain performance under algorithmic management.

H1: Existence Needs (EN) positively influence Job Performance (JP).

2.6.2 Relatedness Needs and Job Performance

Although platform work is frequently characterized by individualized task execution and weak organizational attachment, workers continue to rely on social and institutional relationships when navigating uncertain work environments. Unlike traditional organizations, however, these relationships extend beyond immediate colleagues and supervisors to include platform support mechanisms, perceptions of organizational fairness, peer networks, and family members who frequently provide emotional and practical assistance (Sverke et al., 2002; Cuyper et al., 2008).

ERG theory proposes that fulfilment of relatedness needs enhances individuals' sense of belonging and emotional stability (Alderfer, 1969). Nevertheless, the structural characteristics of platform work suggest that these relational resources may contribute differently to performance than they do in conventional workplaces. Because algorithmic management largely replaces interpersonal coordination with digital control, social relationships may exert relatively limited influence on immediate task execution while remaining important for sustaining workers' psychological functioning under prolonged uncertainty.

Despite this distinction, workers who perceive stronger relational support are generally better equipped to maintain engagement and remain committed to work despite the absence of traditional organizational communities. Consequently, relatedness needs are expected to contribute positively to job performance, although the underlying mechanisms may differ from those observed in conventional employment.

H2: Relatedness Needs (RN) positively influence Job Performance (JP).

2.6.3 Growth Needs and Job Performance

Platform work requires workers to adapt continuously to evolving algorithmic rules, changing customer expectations, and shifting task allocation mechanisms. Because formal promotion systems and structured organizational training are generally absent, maintaining competitiveness depends heavily on workers' willingness and ability to acquire new knowledge, develop skills, and adjust work strategies over time (Parker et al., 2017).

Within ERG theory, growth needs reflect individuals' desire for competence, learning, and personal development (Alderfer, 1969). Under algorithmic management, fulfilment of these needs becomes particularly valuable because adaptive capability directly influences workers' ability to interpret

algorithmic feedback, respond to environmental changes, and maintain favorable performance evaluations.

Previous research suggests that opportunities for learning and skill development enhance workers' adaptability and long-term effectiveness, particularly within digitally mediated work environments characterized by continuous change (Parker et al., 2017). Consequently, workers who perceive greater opportunities for growth should demonstrate stronger job performance.

H3: Growth Needs (GN) positively influence Job Performance (JP).

2.6.4 ERG Needs and Subjective Well-Being

Although the three categories of needs differ in their performance relevance, ERG theory suggests that fulfilment of each contributes positively to individuals' overall psychological functioning (Alderfer, 1969). Conservation of Resources theory further argues that access to material, social, and developmental resources enables individuals to accumulate psychological resources that promote resilience and well-being (Hobfoll, 1989).

In platform-based employment, fulfilment of existence needs enhances feelings of economic security and reduces uncertainty associated with algorithmic management. Relatedness needs provide emotional support and reduce the psychological consequences of social isolation, while growth needs strengthen workers' perceptions of competence and future opportunity despite uncertain career structures. Together, these resources contribute to higher levels of Subjective Well-Being by improving workers' overall evaluations of their work experiences.

Accordingly, this study proposes:

H4: Existence Needs (EN) positively influence Subjective Well-Being (SWB).

H5: Relatedness Needs (RN) positively influence Subjective Well-Being (SWB).

H6: Growth Needs (GN) positively influence Subjective Well-Being (SWB).

2.6.5 Subjective Well-Being and Job Performance

Rather than conceptualizing Subjective Well-Being merely as an outcome of favorable work conditions, this study argues that well-being functions as an active psychological resource supporting sustained work performance. Workers experiencing higher levels of subjective well-being possess greater emotional stability, cognitive flexibility, and resilience, enabling them to cope more effectively with uncertainty and continuous evaluation (Judge et al., 2001; Sonnentag, 2015; Wright & Cropanzano, 2000).

These capabilities are particularly important under algorithmic management, where workers frequently encounter changing platform rules, performance pressures, and limited organizational support.

Individuals with higher levels of subjective well-being are therefore more likely to sustain effort, regulate emotional responses to customer interactions, and adapt effectively to evolving platform demands.

Accordingly,

H7: Subjective Well-Being (SWB) positively influences Job Performance (JP).

2.6.6 The Mediating Role of Subjective Well-Being

The preceding hypotheses suggest that fulfilment of ERG needs not only influences job performance directly but also contributes to the accumulation of psychological resources reflected in Subjective Well-Being. Because algorithmic management changes the conditions under which existence, relatedness, and growth needs are experienced, workers' evaluations of these conditions are expected to shape their psychological functioning before influencing behavioral outcomes.

Rather than representing an endpoint of work experiences, Subjective Well-Being serves as the mechanism through which favorable motivational conditions are transformed into sustained effort, adaptive functioning, and effective performance. This process-oriented perspective integrates ERG theory with Conservation of Resources theory by explaining how need fulfilment is translated into behavioral outcomes under algorithmic management.

Accordingly, the following mediation hypotheses are proposed:

H8: Subjective Well-Being (SWB) mediates the relationship between Existence Needs (EN) and Job Performance (JP).

H9: Subjective Well-Being (SWB) mediates the relationship between Relatedness Needs (RN) and Job Performance (JP).

H10: Subjective Well-Being (SWB) mediates the relationship between Growth Needs (GN) and Job Performance (JP).

3. Research Methods

3.1 Research Context and Data Collection

China provides an appropriate empirical setting for examining motivational processes in platform-based employment because it hosts one of the world's largest digital platform economies, where algorithmically managed work has become deeply embedded across transportation, food delivery, logistics, and online content creation. The rapid expansion of these platform ecosystems has generated increasingly diverse forms of digitally mediated employment while exposing workers to common features of algorithmic management, including automated task allocation, continuous performance monitoring, and data-driven evaluation (Kellogg et al., 2020; Möhlmann et al., 2021). This combination of sectoral diversity and shared governance mechanisms offers an appropriate context for investigating

how workers' psychological experiences are translated into job performance under algorithmic management.

To examine the proposed theoretical model, this study employed a cross-sectional survey design. Survey research remains an appropriate methodological approach for testing theoretically specified relationships among latent psychological constructs, particularly in emerging organizational contexts where workers' perceptions and experiences cannot be directly observed (Hair et al., 2019; Podsakoff et al., 2003). Because the objective of this study was to explain the psychological pathways linking ERG need fulfilment, Subjective Well-Being, and job performance, collecting individual-level perceptual data from platform workers was considered the most suitable research strategy.

Data were collected over a one-month period from platform workers in Guangzhou, one of China's largest metropolitan areas and a mature digital platform ecosystem. Guangzhou was selected because of its high concentration of platform-mediated employment across multiple industries, providing access to workers operating under diverse algorithmic management systems while remaining within a relatively consistent institutional environment. The sample comprised workers engaged in ride-hailing, food delivery, on-demand logistics, and online content creation, thereby capturing the heterogeneity of contemporary platform-based employment while maintaining a common reliance on algorithmically coordinated work processes.

Given the absence of comprehensive sampling frames for platform workers and the dispersed nature of digitally mediated employment, a multi-channel recruitment strategy was adopted to improve sample coverage and reduce selection bias. Participants were recruited through several complementary channels. Survey links were first distributed through WeChat-based worker communities that facilitate communication among platform workers. Additional respondents were recruited through on-site visits to food-delivery dispatch locations and ride-hailing waiting areas, where workers were approached during service intervals. To broaden coverage beyond location-based platform work, referral-based recruitment was also conducted within online creator communities. Employing multiple recruitment channels is recommended when studying non-standard and difficult-to-access labor populations because it reduces the sampling limitations associated with single-source recruitment (Heckman, 1979).

Several procedural measures were implemented to enhance data quality and minimize common survey-related biases. Participation was voluntary and anonymous, reducing evaluation apprehension and encouraging honest responses. The online questionnaire required complete responses to all items, incorporated location-based screening questions to confirm respondents' engagement in platform work, and established a minimum completion-time threshold to identify inattentive responses. Question wording was carefully designed to reduce ambiguity, and psychologically related constructs were organized into separate sections to lessen respondents' tendency to infer the proposed relationships among variables (Podsakoff et al., 2003). After eliminating incomplete questionnaires and responses failing the quality-screening procedures, 277 valid questionnaires were retained for subsequent analyses.

Control variables were selected according to both theoretical relevance and empirical contribution. Age and marital status were retained because preliminary analyses indicated significant associations with Subjective Well-Being and Job Performance, respectively. Other demographic characteristics, including education level and monthly income, were not included in the final structural model because they did not provide additional explanatory power. This approach is consistent with recommendations to avoid unnecessary statistical controls that may reduce estimation efficiency and introduce interpretational ambiguity (Becker et al., 2015).

3.2 Measurement Development

The measurement instrument was developed using established multi-item scales that have been widely applied in organizational behavior, psychology, and information systems research. Rather than developing new measures, this study adapted validated instruments to reflect the characteristics of platform-based employment while preserving their original conceptual meaning. Such adaptation is particularly important in digitally mediated work settings because platform workers encounter employment conditions that differ substantially from those experienced in conventional organizational contexts.

The original questionnaire was prepared in English before being translated into Chinese using a translation and back-translation procedure to ensure semantic equivalence across languages. Following established cross-cultural survey guidelines, bilingual researchers independently translated the questionnaire into Chinese and subsequently translated it back into English. Discrepancies between the original and back-translated versions were discussed and resolved through iterative revision until conceptual consistency was achieved. This process helped ensure that translated items accurately captured the intended theoretical constructs while remaining linguistically appropriate for Chinese platform workers.

Before formal data collection, the questionnaire underwent an iterative refinement process designed to improve both content validity and contextual relevance. Rather than focusing solely on linguistic accuracy, this stage evaluated whether the measurement items adequately reflected the realities of algorithmically managed work. Academic researchers with expertise in platform employment, labor studies, and organizational behavior reviewed the preliminary questionnaire and provided feedback regarding conceptual clarity, wording precision, and contextual appropriateness. Based on their recommendations, several items were revised to improve readability and better capture platform-specific employment experiences without altering the theoretical meaning of the underlying constructs.

Following expert review, a pilot study involving 29 platform workers was conducted to assess respondents' interpretation of questionnaire items and to examine the preliminary psychometric properties of the measurement instrument. This sample size is consistent with established recommendations for questionnaire pretesting prior to large-scale survey implementation (Perneger et al., 2015). The pilot study served not only to evaluate internal consistency but also to identify potential problems arising from the adaptation of established scales to the platform work context.

The pilot results indicated satisfactory measurement quality across all first-order constructs. As reported in Table 1. Cronbach's alpha values exceeded the recommended threshold of 0.70, demonstrating acceptable to excellent internal consistency (Holmbeck & Devine, 2009). Exploratory factor analysis further suggested minor cross-loading issues for two measurement items. These items were subsequently revised to improve conceptual clarity before the final questionnaire was administered. Through this multi-stage development process, the measurement instrument achieved satisfactory reliability, content validity, and contextual appropriateness for investigating motivational processes in platform-based employment.

Table 1
Reliability Test Results from Pilot Study (N = 29)

Construct	Dimension	Code	Items	Cronbach's α
Existence Needs	Pay Transparency	PT	3	0.753
	Work Flexibility	WF	3	0.841
	Job Stress	JS	3	0.801
Relatedness Needs	Co-worker Support	CS	3	0.704
	Platform Support	PS	3	0.709
	Family Support	FS	3	0.846
Growth Needs	Informal Learning	IL	3	0.765
	Career Growth	CG	3	0.868
Subjective Well-Being	Life Satisfaction	LS	3	0.788
	Positive Affect	PA	3	0.826
	Negative Affect	NA	3	0.821
Job Performance	Task Performance	TP	3	0.928
	Service Performance	SP	3	0.894
	Adaptive Performance	AAP	3	0.879

3.3 Measures

All constructs were measured using previously validated multi-item scales adapted to the context of platform-based employment. Unless otherwise specified, responses were recorded on a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The adaptation of existing instruments aimed to preserve their theoretical meaning while ensuring their applicability to digitally mediated work environments.

Consistent with the conceptual framework developed in Chap. 2, Existence Needs (EN), Relatedness Needs (RN), and Growth Needs (GN) were modeled as formative second-order constructs. Each higher-order construct was formed by multiple first-order dimensions that jointly represented workers' experiences of need fulfilment under algorithmic management. Specifically, Existence Needs comprised Pay Transparency, Work Flexibility, and Job Stress; Relatedness Needs comprised Co-worker Support, Platform Support, and Family Support; and Growth Needs comprised Informal Learning and Career Growth. Because each dimension captures a distinct aspect of workers' motivational experiences, the indicators were treated as complementary rather than interchangeable, consistent with recommendations for modeling formative hierarchical constructs (Jarvis et al., 2003).

By contrast, Subjective Well-Being (SWB) and Job Performance (JP) were conceptualized as reflective second-order constructs because their underlying dimensions represent manifestations of broader latent psychological concepts. Subjective Well-Being was reflected by Life Satisfaction, Positive Affect, and Negative Affect, following the widely accepted multidimensional conceptualization of individual well-being. Job Performance was reflected by Task Performance, Service Performance, and Adaptive Performance, capturing workers' effectiveness in completing assigned tasks, delivering satisfactory customer service, and adapting to continuously changing work requirements within platform environments.

The hierarchical measurement specification reflects the theoretical assumptions underlying this study. ERG needs are conceptualized as composite motivational conditions jointly shaped by multiple dimensions of platform work, whereas Subjective Well-Being and Job Performance represent latent psychological outcomes manifested through observable behavioral and affective indicators. This mixed formative-reflective specification therefore provides an appropriate representation of the proposed theoretical model while maintaining consistency with established methodological recommendations for hierarchical component models (Hair et al., 2019; Jarvis et al., 2003).

3.4 Analytical Strategy

The proposed research model was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) implemented in SmartPLS 4. PLS-SEM was considered particularly appropriate for the present study because the proposed model incorporates both formative and reflective higher-order constructs while seeking to explain and predict the relationships among motivational conditions, psychological mechanisms, and job performance. Compared with covariance-based structural equation modeling, PLS-SEM provides greater flexibility when estimating complex hierarchical models containing mixed measurement specifications and does not require strict multivariate normality assumptions (Hair et al., 2019).

Following the two-stage approach recommended for higher-order component models, the analysis proceeded in two sequential steps. During the first stage, the measurement properties of all first-order constructs were evaluated. Reflective constructs were assessed in terms of indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Formative constructs were evaluated

by examining indicator collinearity and the significance and relevance of indicator weights to ensure that each formative dimension made a meaningful contribution to its corresponding higher-order construct.

In the second stage, latent variable scores generated from the validated first-order measurement models were used to estimate the higher-order structural model. The structural analysis examined the hypothesized relationships among Existence Needs, Relatedness Needs, Growth Needs, Subjective Well-Being, and Job Performance, with particular attention to both direct and indirect effects. The statistical significance of path coefficients was assessed using a non-parametric bootstrapping procedure with 5,000 resamples, which provides robust confidence interval estimates for hypothesis testing without relying on distributional assumptions (Hair et al., 2019).

Model performance was evaluated using multiple complementary criteria. The explanatory power of the structural model was assessed through the adjusted R^2 values of the endogenous constructs, while predictive relevance was examined using the PLSpredict procedure. Because the objective of this study extends beyond theory testing to explaining workers' performance under algorithmic management, evaluating predictive capability is particularly important for assessing the practical usefulness of the proposed model within digitally mediated employment settings.

Given that all variables were collected from the same respondents using a single survey instrument, potential common method bias (CMB) was addressed through both procedural and statistical approaches. Procedurally, respondents were assured of anonymity and confidentiality, psychologically related constructs were separated within the questionnaire, and item wording was carefully designed to reduce evaluation apprehension and socially desirable responding (Podsakoff et al., 2003). Statistically, post hoc diagnostic analyses were conducted following data collection to examine whether common method variance posed a substantial threat to the validity of the findings. The results indicated that common method bias was unlikely to materially influence the estimated relationships among the study constructs.

Finally, the study was conducted in accordance with established ethical principles for human-subject research. Ethical approval was obtained from the authors' institutional review board prior to data collection, and all respondents voluntarily provided informed consent before completing the questionnaire.

4. Results

Rather than immediately interpreting the theoretical implications of the findings, this section reports the empirical results in four stages. First, the characteristics of the analytical sample and preliminary diagnostic tests are presented. Second, the adequacy of the measurement model is evaluated. Third, the structural model is assessed to examine the proposed hypotheses. Finally, mediation effects and predictive validity are reported to evaluate the robustness of the proposed model.

4.1 Sample Characteristics and Preliminary Analyses

The final analytical sample comprised 277 platform workers operating across multiple forms of platform-mediated employment in Guangzhou, including food delivery worker, ride-hailing driver, on-demand trucking, internet marketer/creator, delivery courier, other platform-based, as summarized in Table 2. The demographic profile broadly reflects characteristics commonly reported for China's platform workforce, including a predominance of male workers, relatively long working hours, and a substantial proportion of workers with rural hukou, suggesting that the sample adequately represents the diversity of digitally mediated labour in the Chinese platform economy.

More than three-quarters of respondents reported working at least eight hours per day, indicating prolonged exposure to algorithmic management and continuous platform evaluation. Such work patterns provide an appropriate empirical setting for examining how motivational conditions are associated with subjective well-being and job performance under digitally mediated work arrangements.

Prior to estimating the structural model, Job Stress and Negative Affect were reverse-coded so that higher values consistently represented more favorable conditions within their respective higher-order constructs. Consequently, higher scores on Existence Needs reflected greater perceived economic and operational security, whereas higher scores on Subjective Well-Being indicated lower levels of negative affect.

Potential common method bias was assessed using Harman's single-factor test (Podsakoff et al., 2003). The first unrotated factor explained 38.57% of the total variance, remaining below the commonly accepted threshold. Although no single statistical procedure can completely eliminate concerns regarding common method variance, the result suggests that common method bias is unlikely to materially affect the findings reported in this study.

Table 2
Sample Characteristics (N = 277)

Variable	Category	n	%	Notes
Primary Job Type	Food Delivery Worker	59	21.3	Captures sector diversity.
	Ride-hailing Driver	44	15.9	
	On-demand Trucking	43	15.5	
	Internet Marketer/Creator	32	11.6	
	Delivery Courier	29	10.5	
	Other Platform-based	70	25.3	
Age Group	< 30 years	109	39.4	Mean ≈ 34.1 yrs (SD ≈ 8.0)*
	31–45 years	148	53.4	
	> 45 years	20	7.2	
Gender	Male	170	61.4	
	Female	107	38.6	
Hukou Status	Rural	151	54.5	Reflects migratory background.
	Urban	126	45.5	
Marital Status	Married	245	88.4	Control variable (1 = Married).
	Unmarried	32	11.6	
Avg. Work Hours/Day	> 12 hours	69	24.9	Indicates high work intensity.
	10–12 hours	76	27.4	
	8–10 hours	69	24.9	
	< 8 hours	24	8.7	
Note: Mean age estimated using group midpoints.				

4.2 Measurement Model Assessment

Before testing the proposed hypotheses, the psychometric properties of the measurement model were examined. Overall, the results provide strong support for the reliability and validity of both the reflective and formative components of the hierarchical measurement model, indicating that the constructs adequately capture workers' motivational experiences and psychological responses in platform-based employment.

4.2.1 Reliability and Convergent Validity

Table 3 reports the assessment of the reflective measurement model. All indicator loadings exceeded the recommended threshold of 0.70, demonstrating strong relationships between observed indicators and their corresponding latent constructs. Composite Reliability (CR) values ranged from 0.883 to 0.937, exceeding the recommended benchmark of 0.70 and indicating satisfactory internal consistency. Likewise, all Average Variance Extracted (AVE) values were above 0.50, providing evidence of adequate convergent validity (Fornell & Larcker, 1981; Hair et al., 2019).

Taken together, these findings indicate that the reflective constructs exhibit satisfactory psychometric quality and are appropriate for subsequent structural model estimation.

Table 3
Reliability and Convergent Validity of Reflective Constructs

Construct	Indicator	Loading	CR	AVE
Task Performance (TP)	TP1	0.825	0.886	0.722
	TP2	0.855		
	TP3	0.869		
Service Performance (SP)	SP1	0.848	0.899	0.749
	SP2	0.872		
	SP3	0.876		
Adaptive Performance (AAP)	AAP1	0.847	0.883	0.716
	AAP2	0.855		
	AAP3	0.837		
Job Performance (JP) – 2nd Order	TP	0.926	0.937	0.623
	SP	0.932		
	AAP	0.915		

4.2.2 Evaluation of Hierarchical Measurement Constructs

The formative higher-order constructs were subsequently evaluated using bootstrapping with 5,000 resamples. As reported in Table 4, all formative dimensions contributed significantly to their respective higher-order constructs (all $p < 0.001$), confirming the theoretical specification of Existence Needs, Relatedness Needs, and Growth Needs as multidimensional motivational conditions.

Within Existence Needs, Pay Transparency, Work Flexibility, and Job Stress each made significant contributions to the overall construct. Similarly, Co-worker Support, Platform Support, and Family Support all contributed significantly to Relatedness Needs, indicating that social resources derived from both workplace and non-work contexts jointly shape workers' relational experiences in platform

employment. Growth Needs were likewise formed by significant contributions from Informal Learning and Career Growth, highlighting the importance of developmental opportunities even within relatively flexible and non-standard work arrangements.

Collinearity diagnostics further supported the adequacy of the formative specification, with all VIF values remaining well below the recommended threshold of five.

The higher-order reflective constructs also demonstrated strong measurement quality. Subjective Well-Being was well represented by Life Satisfaction, Positive Affect, and Negative Affect, whereas Job Performance was strongly reflected by Task Performance, Service Performance, and Adaptive Performance. Collectively, these findings support the validity of the hierarchical measurement model adopted in this study.

Table 4
Measurement Model Results (Reflective Loadings and Formative Weights)

Construct / Path	Estimate	t-value	p-value	VIF
First-Order Reflective Constructs (Indicator Loadings)				
Task Performance (TP)				
TP1 ← TP	0.825	28.076	0.000	–
TP2 ← TP	0.855	43.059	0.000	–
TP3 ← TP	0.869	60.628	0.000	–
Service Performance (SP)				
SP1 ← SP	0.848	37.657	0.000	–
SP2 ← SP	0.872	37.808	0.000	–
SP3 ← SP	0.876	53.454	0.000	–
Algorithmic Adaptability (AAP)				
AAP1 ← AAP	0.847	36.610	0.000	–
AAP2 ← AAP	0.855	35.719	0.000	–
AAP3 ← AAP	0.837	32.986	0.000	–
Second-Order Reflective Constructs (Loadings)				
Subjective Well-Being (SWB)				
SWB → LS	0.938	35.830	0.000	–
SWB → PA	0.925	35.184	0.000	–
SWB → NA	–0.873	25.154	0.000	–
Job Performance (JP)				
JP → TP	0.984	70.752	0.000	–
JP → SP	0.890	28.669	0.000	–
JP → AAP	0.823	20.216	0.000	–
Second-Order Formative Constructs (Weights & VIF)				
Existence Needs (EN)				
PT → EN	0.368	39.030	0.000	3.485
WF → EN	0.353	41.533	0.000	4.086
JS → EN	–0.348	38.152	0.000	3.663

Construct / Path	Estimate	t-value	p-value	VIF
Relatedness Needs (RN)				
CS → RN	0.408	25.877	0.000	2.595
PS → RN	0.389	25.754	0.000	2.576
FS → RN	0.309	17.444	0.000	2.472
Growth Needs (GN)				
IL → GN	0.546	32.844	0.000	2.541
CG → GN	0.514	32.785	0.000	2.541

4.3 Structural Model and Hypothesis Testing

After establishing the adequacy of the measurement model, the proposed structural relationships were estimated using the two-stage PLS-SEM procedure. No evidence of multicollinearity was detected among the latent constructs, with all inner VIF values equal to 1.000.

The model demonstrated satisfactory explanatory power. The adjusted R^2 values indicate that the proposed framework explains 44.1% of the variance in Subjective Well-Being and 49.9% of the variance in Job Performance, suggesting that the model captures a substantial proportion of workers' psychological experiences and performance outcomes under algorithmic management.

4.3.1 Direct Effects

Table 5 presents the direct effects among the study constructs, Fig. 1(a–b) shows the PLS-SEM results. Existence Needs exhibited a significant positive relationship with Job Performance ($\beta = 0.305$, $p < 0.001$), providing support for H1. Likewise, Growth Needs positively influenced Job Performance ($\beta = 0.291$, $p < 0.001$), supporting H3. By contrast, the direct effect of Relatedness Needs on Job Performance was not statistically significant ($\beta = 0.093$, $p = 0.105$), and therefore H2 was not supported. All three categories of ERG needs were positively associated with Subjective Well-Being. Specifically, Existence Needs ($\beta = 0.334$, $p < 0.001$), Relatedness Needs ($\beta = 0.174$, $p = 0.004$), and Growth Needs ($\beta = 0.287$, $p < 0.001$) significantly enhanced workers' Subjective Well-Being, supporting H4–H6. Subjective Well-Being subsequently exerted a positive effect on Job Performance ($\beta = 0.187$, $p = 0.002$), providing support for H7.

Table 5
Direct Effects and Hypothesis Testing (H1-H7)

Hypothesis	Path	Std. Beta (β)	t-value	p-value	95% BCI LL	95% BCI UL	Supported?
H1	EN -> JP	0.305	5.012	< 0.001	0.184	0.421	Yes
H2	RN -> JP	0.093	1.622	0.105	-0.025	0.203	No
H3	GN -> JP	0.291	5.001	< 0.001	0.174	0.402	Yes
H4	EN -> SWB	0.334	5.406	< 0.001	0.204	0.448	Yes
H5	RN -> SWB	0.174	2.857	0.004	0.053	0.292	Yes
H6	GN -> SWB	0.287	5.034	< 0.001	0.173	0.397	Yes
H7	SWB -> JP	0.187	3.164	0.002	0.064	0.295	Yes
<i>Note: BCI = Bias-Corrected Confidence Interval.</i>							

Taken together, these findings indicate that different categories of ERG needs do not contribute equally to performance under algorithmic management. While existence- and growth-related conditions directly enhance workers' performance, relatedness appears to influence performance through a different psychological pathway.

4.3.2 Mediating Effects of Subjective Well-Being

The mediating role of Subjective Well-Being was examined using bias-corrected bootstrapping procedures. As reported in Table 6 and Fig. 1(b), Subjective Well-Being significantly mediated the relationship between Existence Needs and Job Performance ($\beta = 0.062$, $p = 0.010$), indicating partial mediation and supporting H8. A similar pattern emerged for Growth Needs, where Subjective Well-Being partially mediated the relationship with Job Performance ($\beta = 0.054$, $p = 0.010$), supporting H10.

For Relatedness Needs, however, the indirect effect through Subjective Well-Being was significant ($\beta = 0.033$, $p = 0.038$), whereas the corresponding direct effect on Job Performance was not. This pattern indicates full mediation, suggesting that relational resources contribute to workers' performance primarily by enhancing their psychological well-being rather than by directly improving task execution.

The observed mediation patterns reveal that the three categories of ERG needs operate through distinct motivational pathways, providing empirical support for the proposed process-oriented explanation of job performance in platform-based employment.

Table 6
Mediation Analysis Results (H8-H10)

Hypothesis	Path	Std. Beta (β)	t-value	p-value	95% BCI LL	95% BCI UL	Mediation
H8	EN -> SWB - > JP	0.062	2.568	0.010	0.021	0.114	partial
H9	RN -> SWB - > JP	0.033	2.079	0.038	0.069	0.069	full
H10	GN -> SWB - > JP	0.054	2.572	0.010	0.019	0.099	partial

4.4 Predictive Assessment and Robustness Checks

Beyond hypothesis testing, the predictive capability of the proposed model was evaluated using the PLSpredict procedure. Across all indicators of Job Performance, the PLS-SEM model consistently generated lower prediction errors than the corresponding linear benchmark model, indicating satisfactory out-of-sample predictive performance.

Additional robustness analyses incorporating demographic control variables yielded substantively similar results. Although age exhibited a negative association with Subjective Well-Being and marital status was negatively associated with Job Performance, the magnitude, direction, and statistical significance of the hypothesized relationships remained stable. These findings provide additional confidence that the proposed theoretical model is robust across alternative model specifications.

5. Discussion

The findings suggest that algorithmic management does not affect all dimensions of human motivation in the same manner. Rather than simply changing the conditions under which platform work is performed, algorithmically governed work systems reshape the pathways through which different human needs are translated into sustained job performance. By integrating Alderfer's ERG theory with Subjective Well-Being, this study develops a process-oriented explanation of performance in platform-based employment that moves beyond structural accounts of digital labor. Instead of viewing platform workers as passive recipients of algorithmic control, the findings indicate that workers continuously interpret, prioritize, and respond to economic, social, and developmental conditions, and that these motivational processes ultimately determine their capacity to perform under digitally mediated work arrangements.

This perspective contributes to a growing body of research arguing that algorithmic management should be understood not merely as a technological mechanism of labor control but also as a system that reshapes workers' psychological experiences and behavioral responses (Wood et al., 2019; Kellogg et al., 2020; Möhlmann et al., 2021). The empirical results reveal a differentiated motivational pattern: existence and growth needs contribute directly to job performance, whereas relatedness needs influence performance primarily through Subjective Well-Being. Rather than representing isolated empirical

relationships, these findings suggest that different categories of human needs acquire different functional significance once managerial authority is embedded within algorithmic systems instead of traditional organizational hierarchies.

5.1 Core Findings: Algorithmic Management and Differentiated Motivational Pathways

The most important finding of this study is not simply that different categories of ERG needs exert different effects on job performance, but that algorithmic management selectively reshapes the mechanisms through which these needs become performance-relevant. This distinction extends existing research on platform work by demonstrating that digital labor environments influence not only workers' access to motivational resources but also the psychological routes through which these resources affect behavioral outcomes.

The direct effect of Existence Needs highlights the continued importance of economic and operational predictability in algorithmically managed work. Platform work is frequently portrayed as offering flexibility and autonomy; however, the present findings suggest that workers' performance remains fundamentally dependent on whether algorithmic systems provide sufficiently stable and predictable working conditions. Existing studies have shown that opaque pricing mechanisms, dynamic task allocation, and fluctuating demand generate substantial uncertainty regarding both income and workload (Rosenblat & Stark, 2016; Veen et al., 2020). Under these conditions, workers must constantly interpret algorithmic signals while simultaneously managing economic risks. Consequently, existence needs in platform work extend beyond traditional concerns regarding salary or job security. They increasingly reflect workers' perceptions of algorithmic predictability, including whether platform rules are transparent, task allocation appears understandable, and work intensity remains psychologically manageable.

This perspective helps explain why existence needs exert such a strong direct influence on job performance. When workers perceive platform algorithms as relatively transparent and predictable, they are able to devote greater cognitive resources to task execution rather than continuously monitoring potential changes in pricing, dispatch rules, or performance evaluation. Conversely, opaque algorithmic decision-making increases uncertainty, cognitive load, and emotional exhaustion, thereby reducing workers' capacity to sustain performance even when formal autonomy appears high (Shin & Park, 2019). The findings therefore suggest that algorithmic governance modifies the practical meaning of economic security: what matters is not only the availability of work opportunities but also the predictability of the digital systems through which those opportunities are distributed.

The direct relationship between Growth Needs and job performance reveals another distinctive feature of platform-based employment. Previous studies have consistently argued that learning opportunities and career development enhance individual performance across a wide range of organizational contexts (Petriglieri et al., 2019; Spreitzer et al., 2017). The present findings extend this literature by showing that

developmental motivation remains highly consequential even in employment arrangements characterized by weak organizational attachment and limited formal career structures.

Importantly, growth in platform work differs substantially from development in conventional organizations. Formal training programs, supervisory coaching, and clearly defined promotion pathways are often absent. Instead, workers continuously develop practical knowledge through experimentation, peer exchanges, and repeated interaction with algorithmic systems. Learning therefore becomes closely associated with understanding evolving dispatch logic, adapting to changing performance metrics, anticipating customer evaluation patterns, and responding effectively to frequent algorithm updates. Developmental motivation under algorithmic management is consequently directed not only toward acquiring occupational skills but also toward building what may be described as algorithmic competence—the ability to understand, anticipate, and adapt to digitally mediated managerial systems.

From this perspective, growth needs contribute directly to performance because workers who continuously acquire such adaptive capabilities are better equipped to maintain productivity despite changing platform rules and market conditions. Rather than portraying platform work as purely transactional, the findings indicate that learning remains an important source of competitive advantage for workers operating within increasingly data-driven labor markets.

A markedly different pattern emerges for Relatedness Needs, which do not directly influence job performance but instead operate entirely through Subjective Well-Being. This finding reflects one of the defining characteristics of platform work: although workers remain socially embedded, their work activities are increasingly organized through dispersed digital infrastructures rather than stable organizational communities. Traditional organizations rely heavily on face-to-face interaction, team coordination, and supervisory relationships to facilitate task accomplishment. Platform work, by contrast, fragments interpersonal relationships across geographically dispersed workers who rarely interact directly with colleagues or managers (Ashford et al., 2018).

Consequently, social resources perform a different function under algorithmic management. Rather than directly improving task coordination or operational efficiency, co-worker support, family support, and platform responsiveness primarily help workers regulate emotional strain, reduce feelings of isolation, and maintain psychological resilience. Previous studies similarly suggest that social support in platform work buffers emotional exhaustion more effectively than it enhances immediate task performance (Petriglieri et al., 2019; Schweitzer et al., 2023). The present findings extend this argument by demonstrating that the performance relevance of relatedness needs depends almost entirely on their capacity to strengthen workers' Subjective Well-Being.

Taken together, these differentiated effects suggest that algorithmic management does not weaken the importance of human needs; rather, it reorganizes the motivational architecture through which these needs influence behavior. Instrumental resources such as economic security and adaptive learning retain direct behavioral consequences because they enable workers to cope with the operational demands of algorithmic systems. Relational resources, however, become psychologically consequential

by helping workers preserve emotional stability in work environments characterized by continuous monitoring, fragmented social interaction, and limited organizational attachment. This differentiated pattern provides a more nuanced understanding of motivation in platform work than perspectives that assume all work resources contribute to performance through similar mechanisms.

5.2 Subjective Well-Being as a Resource Conversion Mechanism

A second major contribution of this study concerns the role of Subjective Well-Being in explaining how motivational conditions are translated into performance under algorithmic management. Existing research on platform work has predominantly conceptualized well-being as an outcome of employment quality, focusing on how algorithmic control, employment insecurity, or work intensity influence workers' psychological welfare (Wood et al., 2019). While this perspective has generated valuable insights, it provides only a partial explanation of how favorable or unfavorable work conditions ultimately influence behavioral outcomes.

The present findings suggest a different interpretation. Rather than functioning solely as an endpoint of workers' experiences, Subjective Well-Being operates as a resource conversion mechanism through which motivational conditions become behaviorally consequential. This interpretation is consistent with Conservation of Resources theory (Hobfoll, 1989), which proposes that individuals mobilize accumulated psychological resources to cope with demanding environments. Fulfilment of existence, relatedness, and growth needs contributes to the development of resources such as perceived control, emotional stability, optimism, and self-efficacy, which subsequently shape workers' willingness and capacity to sustain effort under conditions of uncertainty. In algorithmically managed work settings, where performance depends on continuous adaptation to dynamic digital systems, these psychological resources become particularly valuable.

Empirical evidence from organizational psychology further supports this interpretation. Workers experiencing higher levels of well-being generally demonstrate stronger emotional regulation, greater cognitive flexibility, and more effective adaptation to demanding work environments (Wright & Cropanzano, 2000; Sonnentag, 2015; Bakker & Demerouti, 2017). The present findings indicate that similar mechanisms operate within platform-based employment, despite its distinctive institutional characteristics. Rather than simply reflecting workers' satisfaction with their work arrangements, Subjective Well-Being appears to facilitate the continuous allocation of cognitive and emotional resources required to cope with algorithmic monitoring, fluctuating workloads, customer evaluations, and evolving platform rules.

Importantly, the mediation patterns observed in this study further demonstrate that the psychological role of well-being differs across categories of human needs. Existence and growth needs display both instrumental and psychological value: they directly support performance while simultaneously strengthening workers' well-being. Relatedness needs, however, exhibit little direct instrumental utility under algorithmic management. Their influence emerges primarily through emotional regulation and

psychological resilience, reinforcing previous observations that social support within platform work functions principally as a buffering resource rather than a mechanism of task coordination (Petriglieri et al., 2019; Schweitzer et al., 2023).

By conceptualizing Subjective Well-Being as a resource conversion mechanism rather than merely a welfare outcome, the findings provide a more integrated explanation of how motivational conditions become translated into sustained performance in digitally mediated work. This perspective not only deepens understanding of worker behavior under algorithmic management but also establishes the conceptual foundation for the theoretical contributions discussed in the following section.

5.3 Theoretical Contributions

Beyond explaining the empirical findings, this study advances the literature by offering a different way of conceptualizing motivation and performance in algorithmically managed work. Rather than treating platform work simply as another form of precarious employment, the findings suggest that algorithmic management reshapes the mechanisms through which motivational resources are converted into performance. This perspective contributes to several streams of research.

First, the study extends the platform work literature by shifting attention from the consequences of algorithmic management to the processes through which algorithmic management influences worker performance. Existing studies have documented how algorithmic control generates surveillance, uncertainty, and employment insecurity (Wood et al., 2019; Kellogg et al., 2020; Möhlmann et al., 2021), yet considerably less attention has been paid to how workers psychologically respond to these conditions in ways that ultimately shape performance. By positioning Subjective Well-Being as the mechanism linking work conditions to behavioral outcomes, this study moves beyond descriptive accounts of algorithmic governance and provides a process-oriented explanation of worker adaptation. In doing so, it responds directly to recent calls for incorporating psychological mechanisms into research on digitally mediated work (Meijerink & Bondarouk, 2023).

Second, the findings refine the application of ERG theory to platform-based employment by demonstrating that different categories of human needs do not contribute to performance through identical motivational pathways. Traditional applications of ERG theory have generally assumed that fulfilment of existence, relatedness, and growth needs contributes positively to work outcomes, with limited consideration of how organizational context may alter these relationships. The present findings suggest that under algorithmic management, the effectiveness of different needs depends on the type of resources they provide. Existence and growth needs function primarily as performance-enabling resources because they directly reduce uncertainty and strengthen workers' capacity to cope with changing algorithmic demands. Relatedness needs, however, operate predominantly through emotional regulation rather than direct task execution. This distinction illustrates that algorithmic management not only changes the salience of human needs but also transforms the mechanisms through which these needs influence work behavior. Consequently, the study extends ERG theory from a general motivational framework to one that is sensitive to the distinctive characteristics of digitally governed employment.

Third, this study contributes to the growing literature on worker well-being by reconceptualizing Subjective Well-Being as an active psychological resource rather than a passive outcome of employment conditions. Previous studies have predominantly examined well-being as an indicator of worker welfare or job quality (Wright & Cropanzano, 2000; Judge et al., 2001). While this perspective has generated valuable insights, it provides only a partial explanation of why similar work conditions often produce different performance outcomes across workers. By demonstrating that Subjective Well-Being mediates the effects of need fulfilment on job performance, the present study shows that well-being functions as a resource through which workers mobilize cognitive, emotional, and motivational capacities to sustain performance under continuous algorithmic evaluation. This perspective connects motivation theory with resource-based explanations of employee functioning (Hobfoll, 1989; Bakker & Demerouti, 2017), thereby offering a more integrated account of behavioral adaptation in digital labor environments.

Finally, the study contributes to research on algorithmic management by suggesting that technological control should not be understood solely as a system of behavioral regulation. Instead, its influence depends on how workers psychologically interpret and respond to algorithmically generated work conditions. While algorithms determine task allocation, pricing mechanisms, performance monitoring, and evaluation criteria, workers continue to exercise agency through the ways they preserve psychological resources, maintain well-being, and adapt to changing platform demands. The findings therefore indicate that sustainable platform performance emerges not simply from increasingly sophisticated algorithms but from the interaction between digital governance and workers' psychological adaptation. This perspective offers a more balanced understanding of algorithmic management by recognizing the continuing role of human motivation within technologically mediated work systems.

5.4 Practical Implications for Platform Design and Governance

The findings offer several implications for the design and governance of platform-based employment. More importantly, they suggest that improving worker performance requires moving beyond a narrow emphasis on algorithmic optimization toward a more human-centred approach to platform management.

First, the results indicate that platform performance cannot be sustained solely through increasingly sophisticated algorithms or stronger performance monitoring. Because existence needs exert both direct and indirect effects on job performance, platform operators should prioritize the stability and predictability of workers' operating environment. In practical terms, greater transparency in pricing mechanisms, clearer task allocation rules, and more consistent performance evaluation criteria may reduce uncertainty and cognitive burden, enabling workers to devote more attention to task execution rather than continually adapting to opaque algorithmic decisions (Rosenblat, 2018). These findings suggest that algorithmic transparency should be viewed not merely as an ethical concern but also as a managerial resource that supports sustainable performance.

Second, the findings demonstrate that relational resources contribute to performance primarily by enhancing workers' Subjective Well-Being rather than by directly improving task execution. This distinction has important implications for platform governance. Existing platform systems often emphasize individual productivity while providing few opportunities for meaningful social interaction or organizational support. The present results suggest that investments in fair communication channels, timely dispute-resolution mechanisms, responsive platform support, and peer communities may generate performance benefits indirectly by reducing psychological strain and strengthening workers' emotional resilience. In algorithmically managed environments, social support therefore represents a psychological infrastructure that complements, rather than substitutes for, technological control.

Third, the significant role of growth needs highlights the importance of continuous learning within digital labor platforms. Platform work is frequently portrayed as routine and highly standardized, yet workers operate in environments where algorithms, customer expectations, and market conditions change continuously. The findings imply that workers' ability to sustain performance depends partly on opportunities to acquire new skills and adapt to evolving platform rules. Rather than relying exclusively on performance-based incentives, platforms could strengthen workers' adaptive capacity by providing personalized feedback, accessible learning resources, and opportunities to develop platform-specific competencies. Such initiatives may improve both immediate performance and longer-term workforce resilience.

Finally, the observed negative relationship between marital status and job performance suggests that performance under algorithmic management is influenced not only by workplace conditions but also by workers' broader life circumstances. Platform work often blurs the boundaries between work and personal life, particularly when earnings depend on continuously responding to fluctuating demand. Providing workers with greater discretion over workload pacing, scheduling flexibility, and temporary work suspension may help alleviate work–family conflict without substantially reducing operational efficiency. More broadly, this finding suggests that sustainable platform governance should recognize workers as individuals embedded in broader social contexts rather than treating them solely as units of algorithmically managed labor.

Taken together, these implications reinforce a broader conclusion emerging from this study. The effectiveness of algorithmic management depends not only on the efficiency of digital coordination but also on whether platform systems create conditions under which workers can maintain psychological resources, adapt to changing demands, and sustain performance over time. Designing platforms that balance technological efficiency with human well-being is therefore likely to become an increasingly important source of competitive advantage in the platform economy.

5.5 Limitations and Future Research

Despite these contributions, the present study has several limitations that also point to important directions for future research.

First, the cross-sectional research design limits the ability to draw strong causal inferences regarding the relationships among ERG need fulfilment, Subjective Well-Being, and job performance. Although the proposed model is grounded in established motivational theory, workers' experiences under algorithmic management are unlikely to remain static. Platform algorithms are frequently updated, performance criteria evolve, and workers continuously adjust their behavioral strategies in response to changing digital environments. Consequently, the motivational pathways identified in this study should be understood as dynamic rather than fixed. Longitudinal research would therefore be valuable for examining whether the relative importance of existence, relatedness, and growth needs changes as workers accumulate platform experience or as algorithmic governance becomes more sophisticated. Experimental and quasi-experimental designs could further strengthen causal inference by investigating how specific algorithmic interventions—such as increased pricing transparency, alternative task allocation mechanisms, or different feedback systems—influence workers' psychological responses over time.

Second, the empirical evidence was drawn from platform workers in Guangzhou, one of China's largest digital labor markets. Although this setting provides an appropriate context for examining algorithmically managed work, platform ecosystems operate within institutional environments that differ substantially across regions and countries. Labor regulation, welfare systems, cultural expectations, and platform governance arrangements may all shape how workers experience need fulfilment and respond to algorithmic control. Future studies could therefore adopt comparative research designs across cities, countries, or platform types to investigate whether the psychological mechanisms identified here remain stable under different institutional conditions. Such research would contribute to a more contextualized understanding of motivation in platform work and clarify the boundary conditions of the proposed theoretical model.

Third, this study conceptualizes algorithmic management primarily through workers' perceptions of platform work conditions rather than through specific characteristics of algorithmic systems themselves. While this perspective is consistent with the study's theoretical focus on psychological processes, algorithms differ considerably in their degree of transparency, adaptability, automation, and human intervention. Emerging research suggests that these technological characteristics may shape workers' experiences in fundamentally different ways (Kellogg et al., 2020; Meijerink & Bondarouk, 2023). Future research could therefore move beyond treating algorithmic management as a general organizational context and instead examine how different forms of algorithmic governance influence motivational processes. Such an approach would help explain not only whether algorithmic management affects workers, but also which specific algorithmic mechanisms are most consequential for well-being and performance.

Fourth, job performance was assessed using self-reported measures that capture workers' own evaluations of their task execution, service quality, and adaptive performance. Although these measures are appropriate for understanding workers' behavioral responses, platform organizations increasingly rely on algorithm-generated indicators, including customer ratings, task acceptance rates, response

speed, and completion efficiency. Integrating self-reported assessments with platform-generated behavioral data would provide a more comprehensive understanding of performance under algorithmic management and allow future studies to examine potential discrepancies between workers' own perceptions of effective performance and algorithmic evaluations.

Finally, while the present study employed a quantitative design to identify general patterns across platform workers, quantitative evidence alone cannot fully explain how workers interpret, negotiate, and respond to algorithmic control in their everyday working lives. Qualitative approaches, including longitudinal interviews, digital ethnography, and diary studies, could provide richer insight into how workers make sense of algorithmic decisions, reconstruct their motivational priorities, and preserve psychological well-being under conditions of continuous technological monitoring. Combining qualitative and quantitative approaches would therefore deepen understanding of the micro-level psychological processes through which algorithmic management reshapes work behavior.

Taken together, these limitations highlight that understanding motivation in platform-based employment requires closer integration of technological, psychological, and institutional perspectives. Future research that combines richer data sources, longitudinal designs, and more explicit theorization of algorithmic management will be better positioned to explain how digital governance systems shape not only worker outcomes but also the evolving relationship between human motivation and organizational performance.

6. Conclusions

Rather than asking whether algorithmic management influences workers' performance, this study addressed a more fundamental question: through what psychological processes do digitally governed work conditions become performance-relevant? Drawing on Alderfer's ERG theory, the study proposed and empirically tested a process model in which Subjective Well-Being (SWB) links the fulfillment of human needs to job performance in platform-based employment. By shifting attention from structural characteristics of platform work to the psychological mechanisms through which workers respond to algorithmic governance, the study provides a more nuanced explanation of performance in contemporary digital labor.

The findings demonstrate that different categories of human needs do not operate through identical pathways. Existence and growth needs contribute directly to job performance while simultaneously enhancing workers' subjective well-being. Relatedness needs, however, improve performance only indirectly by strengthening workers' psychological well-being. These differentiated pathways suggest that algorithmic management does not simply weaken or strengthen human motivation. Instead, it reshapes the relative importance of material, developmental, and relational resources by altering the mechanisms through which these resources are translated into work behavior. In digitally mediated employment, performance depends not only on workers' capabilities or incentives but also on their

capacity to maintain psychological well-being while continuously adapting to algorithmic evaluation and uncertainty.

These findings extend current scholarship on platform work in several important respects. Existing studies have largely examined algorithmic management from institutional, technological, or regulatory perspectives, with comparatively less attention devoted to the motivational processes connecting work conditions with behavioral outcomes. By integrating ERG theory with Subjective Well-Being, this study develops a process-oriented explanation that connects motivation, well-being, and performance within a single theoretical framework. More broadly, the findings suggest that classical motivational theories remain valuable for understanding contemporary digital work, provided they are reinterpreted in ways that recognize the distinctive organizational conditions created by algorithmic management rather than assuming conventional employment relationships.

The study also carries broader implications for the design and governance of digital labor platforms. As algorithmic systems increasingly determine how work is allocated, monitored, and rewarded, sustainable platform performance cannot be achieved through optimization of efficiency metrics alone. Workers' economic security, opportunities for learning, and psychological well-being constitute productive resources rather than peripheral welfare concerns. Consistent with emerging posthumanism perspectives on wellbeing, wellbeing should not be viewed merely as an individual psychological outcome but as something produced through ongoing interactions among workers, digital technologies, organizational arrangements, and wider socio-material environments (Andrews & Rishworth, 2023). Designing platform systems that acknowledge these interconnected relationships is therefore essential not only for improving worker wellbeing but also for sustaining organizational effectiveness in increasingly algorithmic workplaces.

Ultimately, this study argues that the central challenge of platform work is not whether digital technologies replace human motivation, but how they transform the conditions under which motivation is generated, maintained, and translated into performance. Understanding these evolving psychological processes is essential for advancing research on platform-based employment and for developing forms of algorithmic management that support both organizational performance and human wellbeing.

Declarations

Ethics:

This study was conducted in accordance with the ethical standards of the 1964 Helsinki declaration and its comparable ethical standards.

Formal ethical approval was not required for this survey-based study as it did not involve vulnerable populations or sensitive topics, in accordance with the institutional guidelines. However, all procedures were performed in compliance with relevant ethical regulations.

Informed consent was obtained from all participants. The first page of the questionnaire included a comprehensive information sheet that outlined the purpose of the research, the voluntary nature of participation, and guaranteed the anonymity and confidentiality of all responses. Participants were informed that their data would be used solely for academic research purposes and would not be shared with any third parties. Returning the completed questionnaire was considered as providing implied consent.

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Declaration of generative AI in scientific writing:

Whilst writing this article, we sought assistance from ChatGPT regarding the English phrasing of certain sections of the text, and also used the tool to carry out the necessary review and editing of the text. Naturally, we take full responsibility for the content of this article.

Data availability:

For privacy reasons, the datasets generated or analysed in this study will not be made publicly available; however, they may be provided upon reasonable request to the corresponding author.

CRedit authorship contribution statement:

Conceptualization—Q.Z.; Methodology—Q.Z.; Formal Analysis—Q.Z., T.S.L.; Data Curation—Q.Z., T.S.L.; Writing—Original Draft—Q.Z.; Writing—Review & Editing—T.S.L.,D.O.; Visualization—D.O.; Supervision—T.S.L.,D.O.; Project Administration—Q.Z.,T.S.L.,D.O.

Declaration of competing interest:

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

1. Alderfer, C. P. (1969). An empirical test of a new theory of human needs. *Organizational Behavior and Human Performance*, 4(2), 142–175.

- [https://doi.org/10.1016/0030-5073\(69\)90004-X](https://doi.org/10.1016/0030-5073(69)90004-X).
2. Andrews, G. J., & Rishworth, A. (2023). *New theoretical terrains in geographies of wellbeing: Key questions of the posthumanist turn*. *Wellbeing, Space and Society*, 4, 100130.
<https://doi.org/10.1016/j.wss.2023.100130>.
 3. Ashford, S. J., Caza, B. B., & Reid, E. M. (2018). From surviving to thriving in the gig economy: A research agenda for individuals in the new world of work. *Research in Organizational Behavior*, 38, 23-41.
<https://doi.org/10.1016/j.riob.2018.11.001>
 4. Bakker, A. B., & Demerouti, E. (2017). Job demands–resources theory. *Journal of Occupational Health Psychology*, 22(3), 273–285.
<https://doi.org/10.1037/ocp0000056>
 5. Becker, T. E., Atinc, G., Breugh, J. A., Carlson, K. D., Edwards, J. R., & Spector, P. E. (2015). Statistical control in correlational studies: 10 essential recommendations for organizational researchers. *Journal of Organizational Behavior*, 37(2), 157-167. **<https://doi.org/10.1002/job.2053>**.
 6. Borman, W. C., & Motowidlo, S. J. (1997). Task performance and contextual performance: The meaning for personnel selection research. *Human performance*, 10(2), 99-109.
https://doi.org/10.1207/s15327043hup1002_3.
 7. Campbell, J. P. (1990). Modeling the performance prediction problem in industrial and organizational psychology.
<https://psycnet.apa.org/record/1993-97198-012>.
 8. Cuyper, N. D., Bernhard-Oettel, C., Berntson, E., Witte, H. D., & Alarco, B. (2008). Employability and employees' well-being: Mediation by job insecurity 1. *Applied Psychology*, 57(3), 488-509.
<https://doi.org/10.1111/j.1464-0597.2008.00332.x>.
 9. De Stefano, V. (2015). The rise of the just-in-time workforce: On-demand work, crowdwork, and labor protection in the gig-economy. *Comp. Lab. L. & Pol'y J.*, 37, 471.
<https://doi.org/10.2139/ssrn.2682602>
 10. Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits. *Psychological Inquiry*, 11(4), 227–268.
https://doi.org/10.1207/s15327965pli1104_01 .
 11. Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39-50.
<https://doi.org/10.1177/002224378101800104>.
 12. Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Positive behavior in uncertain and interdependent contexts. *Academy of management journal*, 50(2), 327-347.
<https://doi.org/10.5465/amj.2007.24634438>
 13. Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work. *Organizational Behavior and Human Performance*, 16(2), 250–279.
[https://doi.org/10.1016/0030-5073\(76\)90016-7](https://doi.org/10.1016/0030-5073(76)90016-7).

14. Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). PLS-SEM. *European Business Review*, 31(1), 2–24.
<https://doi.org/10.1108/EBR-11-2018-0203>
15. Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica: Journal of the econometric society*, 153-161. <https://doi.org/10.2307/1912352>.
16. Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, 44(3), 513–524.
<https://doi.org/10.1037/0003-066X.44.3.513>
17. Holmbeck, G. N., & Devine, K. A. (2009). Editorial: An Author's Checklist for Measure Development and Validation Manuscripts. *Journal of Pediatric Psychology*, 34(7), 691–696.
<https://doi.org/10.1093/jpepsy/jsp046>.
18. Jarvis, C. B., MacKenzie, S. B., & Podsakoff, P. M. (2003). A critical review of construct indicators and measurement model misspecification in marketing and consumer research. *Journal of consumer research*, 30(2), 199-218.
<https://doi.org/10.1086/376806>.
19. Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The job satisfaction–job performance relationship: A qualitative and quantitative review. *Psychological bulletin*, 127(3), 376.
<https://doi.org/10.1037/0033-2909.127.3.376>.
20. Kalleberg, A. L. (2009). Precarious work, insecure workers: Employment relations in transition. *American sociological review*, 74(1), 1-22.
<https://doi.org/10.1177/000312240907400101>.
21. Kellogg, K. C., Valentine, M. A., & Christin, A. (2020). Algorithms at work: The new contested terrain of control. *Academy of management annals*, 14(1), 366-410.
<https://doi.org/10.5465/annals.2018.0174>
22. Koopmans, L., Bernaards, C. M., Hildebrandt, V. H., Schaufeli, W. B., de Vet Henrica, C. W., & Van Der Beek, A. J. (2011). Conceptual frameworks of individual work performance: A systematic review. *Journal of occupational and environmental medicine*, 53(8), 856-866.
<https://doi.org/10.1097/JOM.0b013e318226a763>
23. Meijerink, J., & Bondarouk, T. (2023). The duality of algorithmic management: Toward a research agenda on HRM algorithms, autonomy and value creation. *Human resource management review*, 33(1), 100876.
<https://doi.org/10.1016/j.hrmr.2021.100876>.
24. Möhlmann, M., Zalmanson, L., Henfridsson, O., & Gregory, R. W. (2021). Algorithmic management of work on online labor platforms: When matching meets control. *MIS quarterly*, 45(4), 1999-2022.
<https://doi.org/10.25300/MISQ/2021/15333>
25. Parker, S. K., Van den Broeck, A., & Holman, D. (2017). Work design influences: A synthesis of multilevel factors that affect the design of jobs. *Academy of Management Annals*, 11(1), 267-308.
<https://doi.org/10.5465/annals.2014.0054>.

26. Perneger, T. V., Courvoisier, D. S., Hudelson, P. M., & Gayet-Ageron, A. (2015). Sample size for pre-tests of questionnaires. *Quality of life Research*, 24(1), 147-151..
<https://doi.org/10.1007/s11136-014-0752-2>
27. Petriglieri, G., Ashford, S. J., & Wrzesniewski, A. (2019). Agony and ecstasy in the gig economy: Cultivating holding environments for precarious and personalized work identities. *Administrative science quarterly*, 64(1), 124-170.
<https://doi.org/10.1177/0001839218759646>
28. Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of applied psychology*, 88(5), 879 –903.
<https://doi.org/10.1037/0021-9010.88.5.879>
29. Rosenblat, A. (2018). *Uberland: How algorithms are rewriting the rules of work*. Univ of California Press.
30. Rosenblat, A., & Stark, L. (2016). Algorithmic labor and information asymmetries: A case study of Uber's drivers. *International journal of communication*, 10, 27.
<https://ijoc.org/index.php/ijoc/article/view/4892/1739>.
31. Schweitzer, V. M., Rivkin, W., & Gerpott, F. H. (2023). Gig Workers' Social Support Seeking on Informal Online Platforms as a Predictor of Performance. In *Academy of management proceedings* (Vol. 2023, No. 1, p. 12853). Briarcliff Manor, NY 10510: Academy of Management.
<https://doi.org/10.5465/AMPROC.2023.72bp>.
32. Shin, D., & Park, Y. J. (2019). Role of fairness, accountability, and transparency in algorithmic affordance. *Computers in Human Behavior*, 98, 277-284.
<https://doi.org/10.1016/j.chb.2019.04.019>
33. Sonnentag, S. (2015). Dynamics of well-being. *Annual Review of Organizational Psychology and Organizational Behavior*, 2, 261–293.
<https://doi.org/10.1146/annurev-orgpsych-032414-111347>
34. Sonnentag, S., & Frese, M. (2003). Stress in organizations.
35. Spreitzer, G. M., Cameron, L., & Garrett, L. (2017). Alternative work arrangements: Two images of the new world of work. *Annual Review of Organizational Psychology and Organizational Behavior*, 4, 473-499.
<https://doi.org/10.1146/annurev-orgpsych-032516-113332>
36. Sverke, M., Hellgren, J., & Näswall, K. (2002). No security: A meta-analysis and review of job insecurity and its consequences. *Journal of occupational health psychology*, 7(3), 242-264.
<https://doi.org/10.1037/1076-8998.7.3.242>.
37. Veen, A., Barratt, T., & Goods, C. (2020). Platform-capital's 'app-etite' for control: A labour process analysis of food-delivery work in Australia. *Work, employment and society*, 34(3), 388-406.
<https://doi.org/10.1177/0950017019836911>

38. Wood, A. J., Graham, M., Lehdonvirta, V., & Hjorth, I. (2019). Good gig, bad gig. *Work, Employment and Society*, 33(1), 56–75.
<https://doi.org/10.1177/0950017018785616>

39. Woodcock, J., & Graham, M. (2020). *The gig economy*. Cambridge: Polity.

40. Wright, T. A., & Cropanzano, R. (2000). Psychological well-being and performance. *Journal of Occupational Health Psychology*, 5(1), 84–94.
<https://doi.org/10.1037/1076-8998.5.1.84>

Figures

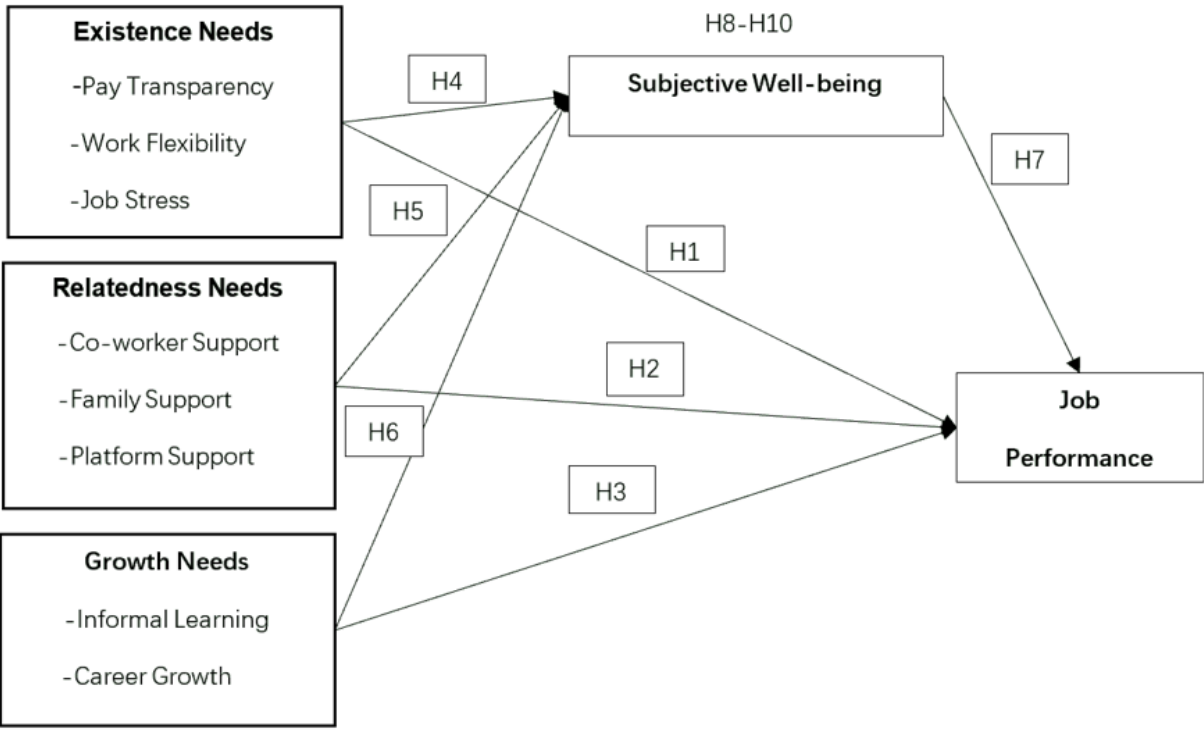


Figure 1

Research Model

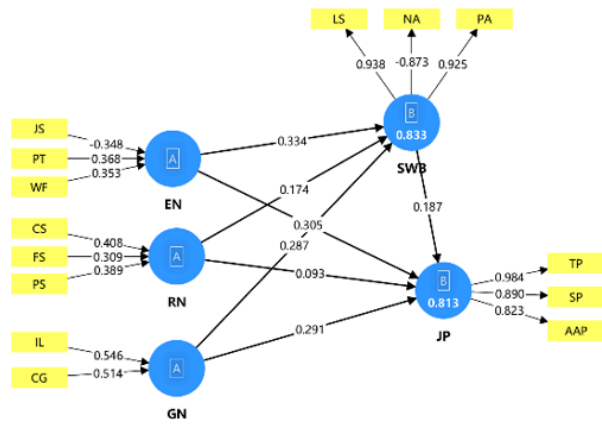


Fig 1(a): PLS-SEM algorithm results

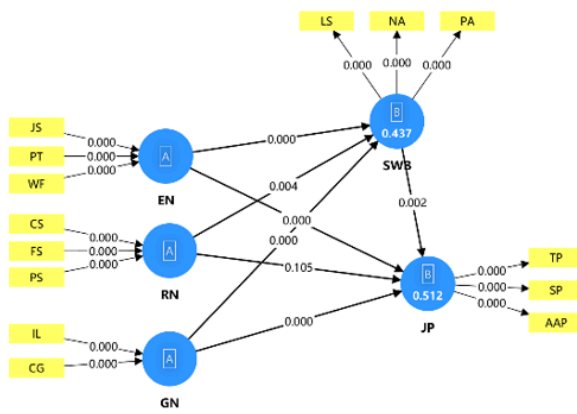


Fig 1(b): Bootstrapping results

Figure 2

See image above for figure legend.