



The real-time and carry-over effects of injustice on performance and service quality in a ridesharing driver scenario

Xue Lei^{1,2} · Seth A. Kaplan²

Accepted: 22 December 2022 / Published online: 9 January 2023

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2023

Abstract

The nature of gig work and its growth have important implications for organizational justice theory. Aspects of gig work, including the transactional compensation arrangement, strict algorithmic rating system, and power asymmetry between drivers and customers, have implications for understanding how dimensions of distributive, informational, and interpersonal injustice manifest and impact job performance in the gig context. An understanding of this topic can inform justice theory more broadly and help explain inconsistent findings in the literature. Here, we report the results of two studies examining the unique effects of these respective dimensions of injustice on emotions and, ultimately, the driving performance and service quality in a ridesharing service context. In Study 1, we modeled the passenger-driver interaction of the ridesharing context using a driving simulator in a laboratory setting to differentiate the real-time and carry-over effects of specific dimensions of injustice. The results from 99 participants showed that perceptions of interpersonal injustice increased anger and unhappiness during the ride, in turn impairing driving and service performance. Antecedent-focused emotion regulation strategies (ERS) reduced felt unhappiness. Moreover, unexpectedly, perceived distributive injustice as caused by the customer rating had opposite (direct versus indirect) effects on service performance in the subsequent ride. Study 2 was an online simulation vignette scenario with 294 participants. The results replicated the findings of Study 1 and revealed two moderators of the unexpected distributive justice-performance relationship.

Keywords Justice · Performance · Rideshare · Algorithmic management · Carry-over effects

The organizational justice literature has "grown around attempts to describe and explain the role of fairness as a consideration in the workplace" (Greenberg, 1990, p. 400). Recently, however, as a growing number of nontraditional forms of work have emerged (i.e., "gig" work), the notion of the "workplace" has changed (Kuhn & Maleki, 2017). Gig work entails various features that differ from traditional work (Geissinger et al., 2022; Tirapani & Willmott, 2022). In gig work, compensation is per transaction, not by time (Duggan et al., 2020), and job security is dictated by strict algorithmic rating systems closely monitoring workers' behaviors (Kuhn & Maleki, 2017). Furthermore, gig

workers do not have supervisors or colleagues; for many of them, such as ridesharing drivers, their interactions only are with customers, and these customers often treat them in rude or unjust ways (He et al., 2021; Rosenblat & Stark, 2016).

Collectively, these features suggest that organizational justice has significant impacts on gig workers. In fact, the impacts of specific justice dimensions may be even more significant, and thus more salient, for gig workers than in traditional work settings. This is both because gig workers have a high likelihood of encountering disrespectful customers and because customers' ratings are consequential for the workers' ability to retain their jobs (Kellogg et al., 2020; McFeely & Pendell, 2018; Song et al., 2020). However, how different job features relate to justice judgments and how those judgments impact gig workers' reactions and gig performance are still largely unknown.

Thus, we consider how different dimensions of organizational justice operate in the gig context, both independently and in conjunction with each other. Beyond contributing to research on gig work, the current set of studies

✉ Xue Lei
xlei@ecust.edu.cn

¹ School of Business, East China University of Science and Technology, No. 130 Meilong Road, Shanghai 200237, China

² Department of Psychology, George Mason University, Fairfax, VA, USA

also contributes to the literature on organizational justice theory. The results from these studies answer the question of whether that theory's tenets are also applicable to the gig context (Gessinger et al., 2022; Tirapani & Willmott, 2022), and they help resolve current questions and inconsistencies within the literature on the theory more generally.

More specifically, we see this set of studies as making four main potential contributions to the justice literature. First, these studies help explicate how different components of justice—both in isolation and jointly—impact task performance. Although each dimension of organizational justice has a positive overall meta-analytic relationship with job performance, these relationships are moderate in size (with all corrected correlations being less than 0.30; Colquitt et al., 2013). Moreover, each of these relationships is highly variable. Several studies have found null or even negative findings (see Pattnaik & Tripathy, 2018), and Colquitt et al. (2013) found that most confidence intervals contained zero (suggesting moderation). Of particular relevance, scholars have questioned which dimension is most predictive of performance (Pattnaik & Tripathy, 2018) and have called for greater nuance in understanding the mechanisms through which the different dimensions operate, both separately and in tandem (e.g., Conlon et al., 2013). In the current research, we propose different mechanisms for various dimensions of justice and use experimental methods that allow both distilling each of their effects and their interplay, thus advancing the justice literature in several ways.

Second, we extend the justice literature by examining the effects of justice over time. As Xu et al. (2022, p. 1072) recently concluded, “in nearly all cases justice perceptions have been treated as static phenomena. This is, however, a questionable assumption: as employees continually encounter new justice information in the environment, their perceptions of justice are likely to evolve.” In the current study, we examine the effects of successive justice-related events on subsequent reactions and performance. Specifically, we explore whether the effects of a justice event associated with one customer service encounter spill over and continue impacting impact reactions and behavior during a second encounter or, alternatively, cease to have an effect when justice events during the second subsequent customer encounter become salient. This question reflects the now established recognition that justice perceptions often stem from specific events and encounters (e.g., Matta et al., 2014) and the fact that most customer service positions entail one interaction after another. Despite these conclusions, we are unaware of research exploring how the justice-related effects of one encounter do or do not influence reactions to subsequent customer service encounters and performance in them. The results from the current inquiry have theoretical implications regarding the dynamism of justice effects over short time frames and practical implications for whether (and

how) organizations can sever or prolong the effects of given interactions.

A third contribution we seek to make is adding to the growing literature on the implications of algorithmic performance management systems for gig worker reactions and performance (Kellogg et al., 2020). Because “gigs” are short-term arrangements where the customer ratings factor into retaining one's position (Kuhn & Maleki, 2017), the ratings for each gig are consequential. As such, gig work is often viewed in purely transactional terms (see Duggan et al., 2020 for a review). This view suggests that the fairness of the performance ratings is especially impactful to the workers and, in fact, may be the only types of fairness that influence worker reactions and subsequent performance. On the other hand, recent studies indicate that gig workers also seek, and are sensitive to, the relational parts of their work and further, that they miss out on the normal social benefits that typically accompany traditional jobs (e.g., Ashford et al., 2018). Ridesharing drivers, for instance, report feeling they are seen as more of transportation instruments than as humans when working. For example, Anicich (2022, p. 5 in the online version) reports the following quote from a ridesharing worker, [it is] “always really appreciated” when “[customers] treat you like a human being and they look you in the eye or smile” (#9). The authors conclude that behaviors that one would expect in in-person interactions are the exception in the ride-sharing context. This latter conclusion suggests that ridesharing drivers may also be attuned to interpersonal justice and to the information (and informational justice) customers do or do not provide, which may interact with distributive justice (deriving from ratings). Here, we integrate these notions and, in doing so, examine the interplay among these justice factors in the gig context.

Finally, we seek to extend the justice literature by examining alternative ways through which injustice may impact performance. Research seeking to explain the harmful impact of injustice on worker performance has largely centered on the role of trust in authority figure/decision-making (e.g., Brockner et al., 1997; Colquitt et al., 2013). People have more or less trust in the decision-maker (e.g., supervisor) and use those trust judgments in the fairness decision-making process (Lind & van den Bos, 2002). However, in the customer service context (including the gig context), the decision-maker is not a known entity with whom the worker has a history to use in making trust judgments (Anicich, 2022). In this case, where the salience of trust would seem less central, the mechanisms through which injustice impacts performance are largely unknown.

To these ends, below, we first review the relevant literature on justice theory. We then discuss the proposed theoretical model and corresponding study hypotheses. As detailed in the following pages, we designed two studies to examine

how injustice events impact ride-share drivers' emotions and performance. In Study 1, we simulated passenger-driver interactions in the ridesharing context in a laboratory setting. Specifically, to distinguish between the effects of different forms of injustice on drivers' emotions and performance, we had each participant play the driver role and complete two rides with (confederate) passengers. The effect of injustice perceptions caused by interpersonal interaction on the current ride and the effect of injustice perceptions caused by customer ratings and comments from the previous ride on the following ride were investigated. Additionally, the moderating roles of antecedent-focused emotional regulation strategies (ERS) and of informational justice were investigated. Then, to try to confirm the hypotheses (and support Study 1 findings)—and to further explore an unexpected finding from Study 1—we conducted an online vignette scenario in Study 2.

Theoretical background and hypothesis development

Organizational justice theory

Organizational justice theory differentiates specific types of workplace justice and explains their proposed relationship with important outcomes (Colquitt et al., 2001). These different forms of (in) justice are central to the current theories. The two most well-known typologies of organizational justice are the three-component model (distributive, procedural, and interactional justice; Cropanzano et al., 2001) and the four-component model (distributive, procedural, interpersonal, and informational justice; Colquitt, 2001). Here, we adopted the four-component view of organizational justice, as it seemed more appropriate in the current context.

Within the four-component model, distributive justice is defined as fairness associated with outcomes and how resources and rewards (e.g., pay or promotions) are allocated. Based on equity theory, when evaluating the fairness of the outcome, individuals consider (a) the absolute level of the rewards they receive and (b) whether those outcomes are fair when compared to a standard or level of input (Adams, 1965). In the current study, distributive justice perceptions related to customer ratings were examined.

In contrast, interactional justice measures how well individuals are being treated interpersonally (Bies & Moag, 1986). Here, we follow others in differentiating between two types of interactional justice, i.e., informational justice and interpersonal justice (e.g., Colquitt, 2001; Greenberg, 1993). Informational justice considers detailed explanations and information given to individuals to explain the decision and whether the information

is perceived as adequate and truthful (Colquitt, 2001). In the gig driving context, informational justice perceptions can result from the voluntary comments that passengers may provide along with their numerical ratings. Finally, interpersonal justice captures the extent to which an individual believes that he or she has been treated with respect, dignity, and sincerity during a justice-related event (Greenberg, 1993), which can occur during the customer-driver interaction.¹

Notably, although “justice” and “injustice” are related, we focus on injustice here, as injustice tends to induce a “hot” cognitive process during which emotions are often involved (see Hillebrandt & Barclay, 2013). Using these different types of injustice, we developed a model of injustice, emotions, and performance in the gig driving context. Below, we advance the study hypotheses embedded in the model, integrating aspects of the gig driving context with the foundational scholarship.

Proposed model of justice, emotions, and performance in the gig driving context

In the current study, we focused on gig workers on ride-sharing platforms. To facilitate interpretation of the study design and hypotheses, we first describe how ridesharing platforms function. Drivers on platforms such as Uber or Lyft are usually not formally employed by the company. They may earn some or all of their income through one or more of the platforms and may drive a few or many hours a week—usually driving their own cars. Customers request a ride using an app. In a typical scenario, the driver receives the assignment through the app, picks up the passenger(s), follows the navigation toward the destination, interacts (to a varying extent) with the passenger(s) during the drive, and finishes the ride by dropping off the passenger(s) at the destination. After the ride, drivers get paid through the app. The customer also has the option of providing a rating through the app. The driver then seeks their next ride, and this same series of events unfolds (multiple times a day).

Interpersonal injustice and driver emotional reactions

As seen in the above depiction, the driver incurs a series of events—picking up a passenger(s), driving them to the destination, and receiving payment and a rating. Of significance here is that each of these events has the potential to generate perceptions of injustice and, in turn, emotional

¹ Procedural justice is the fourth component in this model. It represents perceptions of fairness related to the processes and procedures of decision-making and rewards allocation (Colquitt, 2001). Since the focus of the present study is justice involved in the customer-driver interaction, procedural justice regarding the entire management system was not explored.

reactions and then performance consequences (Cropanzano et al., 2001). Importantly, this sequence occurs for a given ride, but that entire sequence (corresponding to a given ride) also unfolds several times a shift/day. As such, we determined that incorporating multiple rides was important for appropriately capturing the dynamics of interest and how the injustice-related events from one ride may impact reactions during a later ride.

First, a given ride can trigger perceptions of interpersonal injustice when the customer acts in a rude or disrespectful manner. Not uncommonly, passengers indeed behave in such ways, complaining about the rates or interacting in a harsh, demeaning manner (Marquis et al., 2018; Rosenblat & Stark, 2016). While insensitive interaction is obviously also prevalent in other customer service contexts, it may be especially common or extreme in the ridesharing context because there often is nobody else present (e.g., other customers or a work supervisor) who otherwise may directly or indirectly curb such behavior.

These perceptions of interpersonal injustice are proposed to generate negative emotional reactions. This notion is grounded in affective events theory (Weiss & Cropanzano, 1996) and in Cropanzano et al.'s (2000) model of cognitive justice appraisal. Supportive of these ideas, research documents that interpersonal injustice triggers negative emotions, especially anger and hostility (Barclay et al., 2005; Rupp & Spencer, 2006). Here, we operationalized negative affect using two discrete emotions, anger and unhappiness. In the following sections, we draw on theoretical work on injustice and affect in suggesting that these two negative emotions may operate differently in certain parts of the model.

H1: Perceived higher interpersonal injustice leads to anger and unhappiness.

Distributive injustice and driver negative emotional reactions

After the driver delivers the customer to their destination, there are two more significant events that have the potential to trigger perceptions of injustice. Both of these events are associated with the performance management system that the ridesharing platforms employ.

First, the passenger's optional rating about the driver can likely trigger strong perceptions of distributive injustice. After the ride, the passenger has the option of providing ratings about their trip experience through the app, assigning 1 to 5 stars. These customer ratings are crucially important. If the driver's average rating falls below a certain minimum (e.g., 4.6 or even 4.8 in some areas; Helling, 2022), the driver's account may be deactivated, and the individual cannot continue working as a driver for that specific platform (from the official Uber website). Additionally, because drivers' average rating (e.g., over the past 100 rides) is shown to

future customers, it can influence how many rides a driver can obtain (from the official Uber website; i.e., if the driver's rating is low, the passenger may choose another driver).

Given that drivers recognize the significance of these ratings (Gandini, 2019; Marquis et al., 2018), they are likely to form injustice perceptions when evaluating the ratings (Cropanzano et al., 2000). The importance of these ratings and their power to generate negative emotions should be especially great when ratings are lower than expected (Cropanzano et al., 2000). The salience of the ratings is probably further amplified by the availability of other, past ratings that serve as a readily available referent (Adams, 1965). Thus, whereas customer service positions in general are likely to trigger perceptions of injustice and corresponding negative emotional reactions (e.g. Grandey et al., 2002; Rupp et al., 2008), the frequency and criticality of these ratings may make them especially impactful in the gig driving context.

Important to highlight here is that this perceived distributive injustice derives from a ride that has concluded (i.e., Ride 1). However, the negative emotions these perceptions would trigger would manifest after that ride in the next ride (Ride 2; and perhaps subsequent rides). As argued below, this recognition suggests that the distributive injustice associated with Ride 1 can impact the driver's performance—in their emotions from the previous ride—in the subsequent ride (with a different passenger).

H2: Perceived distributive injustice as caused by seeing the customer rating associated with Ride 1 leads to anger and unhappiness in the subsequent ride.

Informational injustice and driver negative emotional reactions

Along with numerical ratings, passengers can also provide narrative comments about the ride. Viewing these comments represents a potential third injustice-related event in two ways. First, as with the numerical ratings, the comments could be a source of distributive injustice. However, the major justice-related effect these comments would seem to have is through their joint effect with the numerical ratings. Such comments can have informational value that may or may not help justify lower quantitative values. Consistent with this idea, studies have found that information about the decision-making process can mitigate the negative impact of outcome favorability (Brockner & Wiesenfeld, 1996). Based on the two-stage model of justice (e.g., Cropanzano & Folger, 1991), unfavorable outcomes trigger information processing, wherein individuals consider procedural information to decide whether the outcome was justified. Applied to the customer-driver interaction context, if the unfavorable rating is accompanied by information explaining the reason for the rating, drivers should be less likely to

see the numerical rating as unjust. In turn, the possibility of experiencing negative emotions should be diminished.

Showing this effect in the current context also seemingly has implications for the design of apps that ridesharing platforms use to allow for customer feedback (e.g., by encouraging or requiring it to help shape drivers' reactions). Again, it is important to emphasize here that this is a proposed cross-ride effect in that the comments associated with one ride (Ride 1) will impact emotions and, in turn, performance during the subsequent ride (Ride 2).

H3: Perceived informational injustice moderates the relationship between perceived distributive injustice and negative emotions such that when perceived informational injustice is high, perceived distributive injustice is more strongly related to negative emotions.

Carryover effects of negative emotional reactions from ride 1 to ride 2

The fact that drivers complete a series of rides during a day/shift further suggests that the emotional reactions deriving from injustice associated with a previous ride can endure, continuing to manifest in subsequent rides. Thus, in the current portrayal and study design, the anger and unhappiness resulting from rude or insensitive passengers (i.e., perceptions of impersonal injustice) in Ride 1 could persist into Ride 2.

In support of this notion, substantial research demonstrates that emotions often endure well after the precipitating episode. For instance, Verduyn and Lavrijsen (2015) analyzed the duration of various emotions after eliciting events and found that the median return to the baseline state was at least an hour for most emotions. It was longer than that for the emotions of interest here—anger, irritation and sadness (the latter two approximating unhappiness). Furthermore, other work suggests that recent past affect may have a greater impact on behavior than does current affect (Chong & Ahmed, 2017; Lerner et al., 2004).

Of note, this idea that negative affect persists beyond the focal event also demonstrates that the effects of injustice persist. While the justice literature has established the importance of cumulative justice-related events and perceptions on outcomes (e.g., trust, job attitudes; Colquitt et al., 2001), there is very limited research on justice spillover effects. Although a few recent studies have found a spillover effect of work injustice into the family domain (e.g., Lee et al., 2019b; Wang et al., 2019), the carryover effect of feelings of injustice caused by previous customer interaction on the next injustice remains largely unexplored. Based on the evidence above, we propose the following hypothesis.

H4: The negative emotional reactions (of anger and unhappiness) resulting from perceptions of interpersonal

injustice during an earlier ride (Ride 1) are positively associated with higher levels of those negative emotions during a subsequent ride (Ride 2).

Emotional regulation strategies and drivers' negative emotional reactions

In addition to considering the impact of the events on perceptions of injustice, we deemed that it is also important for drivers to incorporate strategies to manage their emotions. Indeed, drivers regularly use such emotion regulation strategies (ERS; Gandini, 2019; Marquis et al., 2018). Beyond the importance of capturing drivers' realities, including ERS here can also extend previous research on emotion regulation during service encounters by examining whether the enactment of ERS endures (in a subsequent ride).

According to Gross' (1998) model, emotion regulation occurs at different stages of the cognition appraisal process and has different effects. Antecedent-focused ERS occurs before emotions fully develop. In contrast, response-modulation ERS focuses on changing the emotion expressions only. Hence, antecedent-focused ERS can obstruct the emergence of negative emotions or dampen such emotions, often through cognitive change or reappraisal (Gross, 1998). Research consistently suggests that antecedent-focused ERS or reappraisal strategies are superior to response-modulation ERS or expressive suppression (Gross, 1998; Gross & John, 2003).

Given this evidence, we propose both a main effect of antecedent-focused ERS and a moderating effect (in that it should attenuate negative emotional reactions to justice-related events).

H5: The greater use of antecedent-focused emotion regulation strategies is negatively associated with anger and unhappiness.

H6: Antecedent-focused emotion regulation strategies moderate the relationship between injustice perceptions, including both (a) interpersonal injustice and (b) distributive injustice, and negative emotions, such that the relationship becomes weaker when antecedent-focused ERS are used.

Negative emotions and driver performance

The negative emotions resulting from the three different forms of injustice should ultimately impact the driver's performance during each ride. The experience of this emotion and related attempts to regulate it place demands on cognitive resources (Schmeichel, 2007). In turn, fewer resources (e.g., in the form of attention and self-regulation) are available for the primary performance task (i.e., driving; Beal, et al., 2005). Consistent with this rationale, a recent experience sampling study by Merlo and colleagues (2018) demonstrated that increased

negative affect resulted in difficulty focusing on work tasks and, in turn, impaired task performance. Given that driving relies heavily on attentional resources (Lee & Winston, 2016), we expect this result to manifest in the current context.

Indeed, other empirical evidence for this idea comes from research on "road rage." Studies consistently show that anger or frustration caused by challenging or unexpected traffic situations leads to unsafe or aggressive behaviors that impact driving performance (Lee & Winston, 2016; Nesbit et al., 2007). Additionally, anecdotal support for this prediction comes from media reports describing Uber drivers getting into car accidents when trying to arrive at a destination quickly, especially at the request of customers (e.g., Leiker, 2018; Rapiet, 2018).

In addition to impacting driving performance, these negative emotional experiences can also impair the service quality that the drivers provide. While negative emotion and its regulation may impair quality in many contexts (e.g., Rupp et al., 2008), this effect may be especially pronounced in a context such as the ridesharing one. This is because the workers in this context must manage two cognitively demanding tasks concurrently—driving and appropriately interacting with the passenger. Thus, relative to service workers performing less cognitively demanding tasks, ridesharing workers' attentional resources should already be significantly compromised (Cantini et al., 2009), and managing negative emotional reactions should amplify this state. This all said, other mechanisms (e.g., cognitive evaluations) are also likely at play. As such, we offer a partial mediation hypothesis below.

H7: The negative emotions of anger and unhappiness partially mediate the relationship between the various types of injustice perceptions, such that higher injustice perceptions lead to higher levels of these negative emotions and then lower levels of driving performance and service quality.

Study 1: Laboratory simulation study

Method

Participants

One hundred participants were recruited for the main study (after we tested the study setting in the pilot period²). This sample size was based on previous studies using similar designs (e.g., injustice perceptions on emotional labor in a call-center simulation, Rupp & Spencer, 2006). Among the 100 participants, 13 were drivers in the ridesharing industry

² The details of the pilot study can be requested from the corresponding author.

recruited through advertisements posted on online forums, social media, and flyers. The remaining participants were 87 college students recruited from the business school at a large, public U.S. university.³ All participants had a valid driver's license. Participants were compensated \$30–\$45 in the form of a gift card.⁴ One participant's data were removed due to survey malfunction during the study.

The final sample of 99 participants included 61 males (61.6%). The mean age was 26.24 ($SD = 10.24$). The racial composition was white (49.5%), Asian (29.3%), African American (17.2%), and other (4%). Ninety-seven percent of participants reported driving more than two or three times each week on average.⁵

Overview of the study design

The hypotheses were examined in a laboratory setting. The study was designed such that each driver would have two rides, each with a different passenger. First, to disentangle the effects of interpersonal injustice during versus after the ride, each participant interacted with two confederate passengers displaying different levels of interpersonal injustice. In ride 1, drivers interacted with a demanding confederate passenger who acted impatiently and provided incorrect navigation instructions to induce perceptions of interpersonal injustice. This allowed for examining the effects of interpersonal injustice on emotions and performance. Then, in Ride 2, a (different) neutral-mood passenger interacted in a polite manner and acted without obvious expression of emotions (attempted not to induce strong interpersonal [in] justice). Thus, this was a within-person design that allowed for examining the effect of injustice perceptions on emotions and performance.

To tease apart the respective effects of informational and distributive injustice, a 2×2 between-person design was adopted. As shown in Table 1, the conditions varied on the level of distributive and informational injustice (low-low, low-high, high-low, and high-high). Distributive injustice was manipulated by presenting the driver with a customer rating of 3 (high) or 5 (low) based on the first ride. We chose 3 to represent the low rating

³ Our original intention was to recruit only ridesharing drivers. However, it was not feasible to recruit a sufficient number of gig workers to come to the lab on campus (despite multiple recruitment efforts). Thus, student participants were included as well. Model results with and without those ridesharing drivers were compared and the study conclusions without those drivers were the same as those reported here.

⁴ For ride sharing drivers, an additional \$15 was provided to compensate time spent traveling to/from the laboratory and to cover parking costs.

⁵ These data were collected early in 2019, prior to the COVID-19 pandemic in the U.S.

Table 1 Overview of study 1 conditions

Study condition	<i>N</i>	Dist- Inj	Inf-Inj	Manipulated rating (1–5 stars)	Comments
1. HDHI	27	High	High	3	Definitely not a 5-star ride
2. HDLI	28	High	Low	3	You should be more careful when there's a lot of oncoming traffic
3. LDHI	23	Low	High	5	A 5-star ride
4. LDLI	21	Low	Low	5	I appreciate you being cautious of oncoming traffic

1. *HDHI* “high distributive injustice and high informational injustice” condition, *HDLI* “high distributive injustice and low informational injustice” condition, *LDHI* “low distributive injustice and high informational injustice” condition, *LDLI* “low distributive injustice and low informational injustice” condition

2. *Dist-Inj* “Distributive injustice”, *Inf-Inj* “Informational injustice”

(high distributive injustice) condition because drivers were required to keep an average rating of 4.60 in the study (similar to the real-life requirement by ride-share platforms). All drivers were told that their average score was 4.65 based on their previous 100 rides. Thus, a rating of 3 could severely impact their average rating (the new average rating would be $(4.65 \cdot 100 + 3) / 101 = 4.63$). Informational injustice was manipulated by how specific and reasonable the comments were—as based on the literature (Bies & Moag, 1986; Greenberg, 1990, 1993). All comments were constructed to be as similar as possible, varying only in valence. Participants were assigned to each condition randomly, and the number of participants in each condition was similar (see Table 1).

Simulation driving task

To create a laboratory simulation with physical and psychological fidelity, a driving simulator was used (with a steering wheel in addition to gas and brake pedals). Additionally, the lab room was designed to resemble the inside of a car (see the [supplementary material](#) for more detail). Two driving scenarios developed by human factors psychologists (see more descriptions in Lee & LaVoie, 2018; Saikal et al., 2019) to resemble real-life driving situations were used as the driving context. The two scenarios had comparable difficulty levels in terms of traffic congestion-related events (e.g., a slow car making multiple stops in front of the participant vehicle, traffic jam) but with different routes programmed to reduce potential practice effects. Similar to the GPS navigation, navigations were presented to instruct drivers in the correct direction to proceed. To make the experience more realistic, background engine noise was also added. Drivers were alerted when they reached the destination (each

ride lasted approximately 10 min), at which point they stopped driving.⁶

Procedures

Each participant completed an online survey before coming to the lab. This pre-ride survey included questions about the participant's experience with ridesharing, driving frequency, and demographics. Then, on the day of the study appointment, after the participant signed the formal study consent, the experimenter read the training script to the participant. The training script included background information on the ridesharing industry and emphasized that participants needed to perform well to maintain a good rating to continue being drivers. To simulate real-life ridesharing and to increase participants' engagement in the driver role, participants were told that for each ride they completed, they could earn \$10. However, they needed to maintain an average rating over 4.60 (with a starting rating of 4.65). Next, the participants completed a set of survey questions to confirm that they understood the rating criteria.

Then, the participants were given verbal instructions on how to use the driving simulator and the rules of the road (regarding speed limits, etc.). There was also a practice session to help the participants become familiar with the simulator. After the participants felt comfortable with the operation, the study session began. The first confederate passenger entered

⁶ Of note, the drive would not be terminated if there was only a minor accident (such as hitting a construction barrel). However, the drive would return to the beginning if the driver encountered a more severe incident (e.g., a car crash). In this scenario, we allowed the experiment to continue until the passenger was dropped off at the final destination, to keep the end result consistent across rides. The entire process with the same passenger was still considered ride 1 in this case. There were 12 such cases.

the study room to begin the ride and interacted with the driver as if they were in a real ridesharing context. The two confederates both followed a predetermined script, with the first one acting like a demanding passenger and the second passenger displaying a more neutral mood. After ride 1, drivers answered survey questions about their emotions and perceived interpersonal justice in the past ride. Then, they saw the manipulated rating and comments and answered more questions about their perceived distributive/informational justice.

Next, in Ride 2, the drivers interacted with a different confederate passenger. At the end of the second ride, drivers answered survey questions about their experience in the past ride and general questions on personality. Participants were debriefed after completing the two rides, and everyone received compensation.

Both confederates were male undergraduate psychology research assistants. One of them played the demanding passenger role in Ride 1, and the other played the neutral-mood passenger role in Ride 2. Each of them had a unique character profile to help them answer any personal questions from the “driver”. The confederate passengers were also trained to rate the service quality of the driver based on the provided criteria⁷ and noted their rationale for the rating (these are not the ratings seen by the driver).

Measures

Manipulation checks To ensure that the drivers understood which aspects of their performance would be evaluated by the passengers, they needed to correctly respond to a multiple-choice question after hearing the training script. In addition, to check whether there was more interpersonal injustice with the demanding rider than with the neutral acting rider, ratings of interpersonal justice were collected.

Anger and unhappiness during the rides Felt anger and unhappiness during the two rides were each measured by four items from the Discrete Emotions Questionnaire (Harmon-Jones et al., 2016). Responses were made on a 5-point scale (ranging from “Not at all” to “Very much”) using the prompt “During the past ride, to what extent did you experience these emotions?”. Cronbach’s alphas were 0.91 and 0.90 for anger and 0.92 and 0.96 for unhappiness.

Antecedent-focused emotion regulation The antecedent-focused ERS used in each ride was measured using items

from Diefendorff et al. (2008) with the prompt “To what extent did you engage in the following behaviors in the past ride to regulate your emotions?”. Three items on cognitive change that were applicable to the study (“Reinterpret the situation in a more positive light”, “Find humor in the situation”, “Think about how the passenger feels”) were included. Responses were made using a scale ranging from a 1 = never to 5 = to a very great extent. Cronbach’s alphas were 0.78 and 0.81 for the scale in the two rides, respectively.

Perceived injustice Justice scales from Colquitt (2001) were adapted to measure distributive (four items, $\alpha = 0.91$), interpersonal (four items, $\alpha = 0.89$), and informational justice (four items, $\alpha = 0.90$) in the driving context (with a focus on the customer rating). Sample items include “Does your rating reflect the effort you have put into your work?”, “Has (he or she) treated you in a polite manner?”, and “Were (his or her) explanations regarding the rating reasonable?”, respectively. A 5-point scale (1 = not at all and 5 = to a great extent) was used for all justice items. In addition, a three-item measure adapted from Brett and Atwater (2001) was adopted to measure the perceived usefulness of the comments, e.g., “The comments are useful to me” (1 = strongly disagree, 5 = strongly agree; $\alpha = 0.96$).

Unstable driving Following established procedures in driving research, we calculated the average rate of change (i.e., discrepancy in scores with a time interval of approximately 0.02 s) in speed and used it as an indicator of unstable driving (see Lee & LaVoie, 2018).

Service quality Each passenger’s (i.e., the two confederates’) rating of the driver’s service quality (their perceived service quality based on the criteria in the training script, i.e., the driver’s courtesy and communication with the customer) was also collected using a single-item measure (1 to 5 scale).

Control variable Because the perceived difficulty of the task may affect task performance, one item from the NASA-Task load index (“How mentally demanding was the task?”; Hart & Staveland, 1988) was included as a potential control variable. The original 21-point response ranging from “very low” to “very high” was used.

Analysis

Mplus 7 was used to test the hypothesized models. The measurement model was first examined using confirmatory factor analysis (CFA). Then, path analysis was conducted using scale means to test the model. Bootstrapping was used to calculate the indirect effect.

⁷ Note that unlike the real customer ratings, the service ratings here were only based on the interaction between the driver and the passenger, i.e., whether the driver showed courtesy (good attitude toward the passenger) and had good communication with the passenger (clear, patient, etc.).

Results

Measurement model

CFA was used to examine the hypothesized measurement models. First, for Ride 1, four factors excluding the single item measures (i.e., interpersonal justice, anger, unhappiness, antecedent-focused ER) were included in the CFA. Items were made to load on their intended factors, and all other loadings were set to zero. This model demonstrated adequate model fit ($\chi^2 [84] = 131.31$, CFI = 0.96, TLI = 0.95, RMSEA = 0.08, SRMR = 0.05). Then, for Ride 2, again, seven factors excluding the single item measures (i.e., perceived distributive and informational justice, anger and unhappiness during Ride 1 and Ride 2, respectively, antecedent-focused ER) were included in a single CFA. Again, items were set to load on their intended factors, and all other loadings were set to zero. The model revealed adequate fit ($\chi^2 [278] = 455.94$, CFI = 0.92, TLI = 0.91, RMSEA = 0.08, SRMR = 0.07).

Manipulation checks

Paired-sample *t* tests were conducted to ensure that the first confederate passenger displayed more interpersonal injustice than the 2nd confederate passenger and to confirm that the high injustice conditions led to higher injustice feelings. The results supported our manipulations.⁸

Descriptive statistics and correlations

Table 2 presents the means, standard deviations, and inter-correlations for the study variables. Overall, injustice perceptions were correlated with negative emotions (e.g., $r = 0.30$, $p < 0.01$ between perceived interpersonal injustice and anger during Ride 1). Emotions showed correlations with certain performance outcomes (e.g., $r = -0.26$, $p < 0.01$ between anger and service rating during Ride 1). There is also evidence that antecedent-focused ERS were negatively correlated with unhappiness ($r = -0.52$ during Ride 1, $p < 0.01$; $r = -0.70$ during Ride 2, $p < 0.01$) and negatively correlated with anger ($r = -0.33$ during Ride 1, $p < 0.01$). These results are consistent with general expectations.

Tests of study hypotheses

We evaluated separate models for Ride 1 and Ride 2. The Ride 1 initial path model⁹ included perceived interpersonal

injustice, antecedent-focused ERS during ride 1, the interpersonal injustice \times ERS interaction, emotions during Ride 1 (both unhappiness and anger), the two performance outcomes, and one control variable (perceived mental demands).¹⁰ Similarly, the Ride 2 initial path model included perceived distributive injustice and informational injustice (after seeing the Ride 1 rating), antecedent-focused ERS during Ride 2, the two hypothesized interaction terms, emotions during Ride 1 and Ride 2, the two performance outcomes, and the control variable (perceived mental demands). Below, we describe the model results, following the order of the hypotheses. Notably, we made modifications to the model as described in the Additional Analyses section below. Figure 1 incorporates those changes.

Injustice and driver emotional reactions (H1-H3) First, the Ride 1 model results revealed that perceived interpersonal injustice was positively related to anger ($b = 0.148$, $p = 0.031$) and to unhappiness ($b = 0.286$, $p < 0.01$) during the ride. These findings support Hypothesis 1. Initial results revealed that perceived distributive injustice (resulting from seeing the numerical ratings after Ride 1) did not directly relate to anger or unhappiness during Ride 2, inconsistent with Hypothesis 2. However, additional analyses described below provide a more nuanced portrayal of this relationship and partly support the hypothesis. Finally, informational injustice (from seeing the comments) did not significantly moderate the relationship between distributive injustice and negative emotions (anger: $b = -0.045$, $p = 0.288$; unhappiness: $b = 0.026$, $p = 0.577$). Thus, Hypothesis 3 was not supported.

Carry-over effects of negative emotional reactions from ride 1 to ride 2 (H4) In support of Hypothesis 4, Ride 1 unhappiness was positively related to Ride 2 unhappiness ($b = 0.344$, $p < 0.01$), and Ride 1 anger was positively related to Ride 2 anger ($b = 0.200$, $p = 0.038$).

Emotion regulation strategies and driver negative emotional reactions (H5-H6) Partially supporting Hypothesis 5, the adoption of antecedent-focused ERS did reduce felt unhappiness in Ride 1 ($b = -0.469$, $p < 0.01$). However, it did not reduce anger ($b = -0.204$, $p = 0.083$) in Ride 1. Consistent with the Ride 1 findings, antecedent-focused ERS decreased unhappiness ($b = -0.563$, $p < 0.001$) but not anger ($b = -0.008$, $p = 0.834$) in Ride 2.

Despite these main effects, antecedent-focused ERS did not significantly moderate the relationship between interpersonal injustice and either negative emotion (anger:

⁸ See detailed results in [supplementary material](#).

⁹ Because the interactions were not significant in either the Ride 1 or Ride 2 model, we present the results with just main effects in Fig. 1.

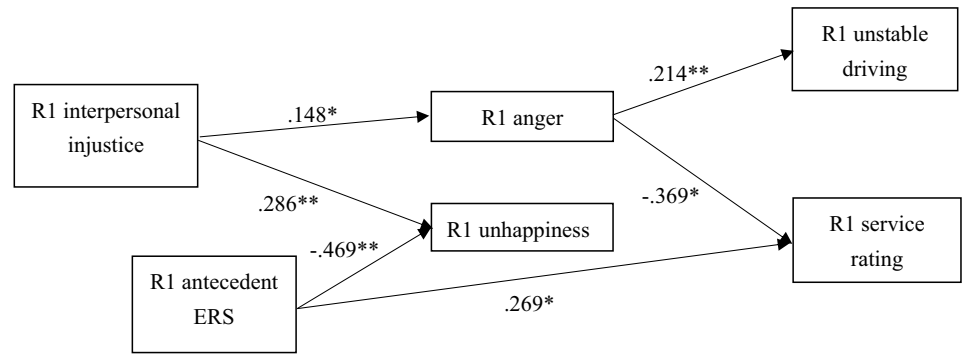
¹⁰ In both Ride 1 and Ride 2 models, the conclusions were the same without the control variable. We present the model results with the control in the Figure.

Table 2 Means, standard deviations, and inter-correlations for major variables in study 1

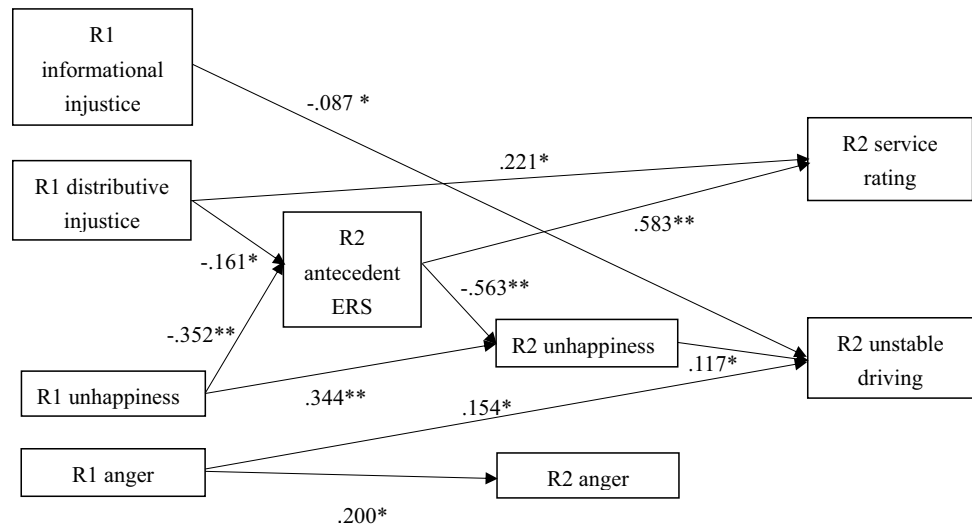
Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
<i>Ride 1</i>													
1. Ant-ERS	–	-.33	-.52	-.35	-.16	-.15	.21	.11	.57	-.06	-.50	.21	-.01
2. Anger		–	.33	.30	-.04	-.09	-.26	.22	-.16	.29	.21	-.11	.27
3. Unhappiness			–	.44	-.07	.15	-.01	-.17	-.39	-.08	.55	-.04	.02
4. Interpersonal injustice				–	.17	.32	-.05	-.19	-.12	-.04	.11	.05	-.15
5. Distributive injustice					–	.55	-.04	-.16	-.26	.15	.16	.12	-.27
6. Informational injustice						–	-.03	-.24	-.22	.00	.24	.07	-.32
7. Service							–	-.14	.18	-.25	-.05	.59	.12
8. Unstable driving								–	.13	.34	-.02	-.06	.73
<i>Ride 2</i>													
9. Ant-ERS									–	-.06	-.70	.40	.02
10. Anger										–	.09	-.06	.17
11. Unhappiness											–	-.20	.07
12. Service												–	-.15
13. Unstable driving													–
<i>M</i>	3.53	1.44	3.13	2.38	2.78	3.15	3.75	0.70	3.64	1.14	2.33	4.24	0.19
<i>SD</i>	0.94	0.74	1.05	1.07	1.28	1.23	1.12	0.14	0.95	0.41	1.05	0.95	0.40

Sample sizes varied from 95 to 99. Correlations with absolute values above (and including) .20 were all significant at $p < .05$. Ant-ERS: Antecedent-focused emotional regulation strategies

Fig. 1 Path model results for study 1. *Note.* Only significant effects are shown. All path coefficients are non-standardized. ** $p < .01$, two-tailed. * $p < .05$, two-tailed



a Ride 1 model results (with a demanding passenger)



b Ride 2 model results (with a neutral mood passenger)

$b = -0.100$, $p = 0.208$; unhappiness: $b = -0.038$, $p = 0.591$). It also did not moderate the relationships between distributive injustice and negative emotions (anger: $b = -0.044$, $p = 0.086$; unhappiness: $b = 0.059$, $p = 0.319$). Thus, Hypothesis 6 was not supported.

Injustice, negative emotions, and driver performance (H7) Turning to the relationships between emotional reactions and the two indicators of performance, Ride 1 anger was negatively related to service quality ($b = -0.369$, $p = 0.043$) and positively related to unstable driving ($b = 0.214$, $p < 0.01$). In contrast, Ride 1 unhappiness was not predictive of either performance outcome (service quality: $b = 0.185$, $p = 0.196$; unstable driving: $b = 0.069$, $p = 0.116$).

Given the significant effects for anger, we then conducted follow-up tests of the indirect effect for it mediating the relationship interpersonal injustice and the two performance outcomes. Using bootstrapping, the indirect effect of interpersonal injustice on unstable driving through anger was significant (95% CI: [0.002, 0.076]). In contrast, the indirect effect for service quality was not significant ($p > 0.05$). Thus, the Ride 1 results partially supported Hypothesis 7.

The results for Ride 2 showed that unhappiness during that ride was positively related to unstable driving ($b = 0.117$, $p = 0.041$). However, unhappiness was not predictive of service rating ($b = 0.155$, $p = 0.246$). Additionally, unlike the Ride 1 results, anger was not significantly related to the two outcomes (both $p > 0.50$). Hypothesis 7 was partially supported for Ride 2.

Additional analyses The results above provide support for some of the hypotheses but not others. An inspection of the bivariate relationships in Table 2 also revealed some counterintuitive results related to the nonsignificant findings. One unexpected set of results concerns the effects of distributive injustice and of informational justice on performance outcomes. First, while we predicted that receiving lower ratings would be linked with worse performance in the subsequent ride, the bivariate correlation in Table 2 reveals the opposite. Additionally, although we did not expect a direct effect of informational injustice, we noted that higher informational injustice was also linked to more stable driving in Ride 2. Given these results, we included direct paths between both types of injustice and both types of performance. In doing so, we borrowed from a small body of literature showing that reduced job security can increase effort (Shoss, 2017), thus leading to better performance. As seen in Fig. 1, the path for informational injustice was significant, as was the path between distributive injustice and service quality. The other direct paths were not, and we thus did not include them in the final model. We return to these findings in Study 2, testing the proposed rationale more directly.

Additionally, it was of note in Table 2 that distributive injustice was not significantly related to subsequent anger or unhappiness. This result implies that the manipulations may not have been strong enough to generate anger. However, distributive injustice did have a significant negative correlation with antecedent-focused emotion regulation during Ride 2 ($r = -0.26$, $p < 0.05$). This finding indicates that experiencing distributive injustice might lead to the use of less antecedent-focused ERS in the subsequent ride. This result is consistent with research showing that contextual and situational factors as well as momentary affect can influence emotion regulation (Colombo et al., 2020).

Given this finding and the corresponding rationale, we also tested whether ERS played a role in mediating the effects of distributive injustice on the performance outcomes. Here, we found that unhappiness during the first ride impacted Ride 2 service quality through decreased antecedent-focused ERS during Ride 2 (indirect effect: -0.205 ; 95% CI: $[-0.350, -0.091]$). Additionally, perceived distributive injustice had a negative indirect effect on service rating through reduced use of antecedent-focused ERS (indirect effect: -0.094 ; 95% CI: $[-0.219, -0.015]$). However, the serial mediation effects from distributive injustice to antecedent ERS, unhappiness, and then service quality (indirect effect: 0.014 ; 95% CI $[-0.006, 0.061]$), or unstable driving (indirect effect: 0.011 ; 95% CI $[-0.001, 0.034]$), were not significant.

Study 1 discussion

The results from Study 1 show the potential importance of injustice on emotions and performance in the gig context. Consistent with the hypothesis, interpersonal injustice led to the negative emotion of anger and further resulted in lower task performance (including a lower service rating and a less smooth ride). However, other conclusions were mixed, and some findings were opposite to predictions. Thus, we felt that replicating these counterintuitive findings was important.

With respect to the unexpected results, Study 1 revealed that receiving an unjust rating had a surprising direct impact on later task performance. Similarly, higher perceived informational injustice also reduced unstable driving in the subsequent ride. These findings are contradictory to the tenets of equity theory—the predominant theory linking distributive justice perceptions to subsequent behavior (Adams, 1965). According to equity theory, low perceived distributive justice (or reward unfairness) should result in less effort and, in turn, lower, not enhanced, performance (Erdogan, 2002). Indeed, meta-analytic studies show a positive relationship between distributive justice and performance (e.g., $r = 0.13$; Colquitt et al., 2001).

In considering explanations for these findings, we began by consulting various literatures on when seemingly negative

scenarios result in better performance. The job insecurity literature contains a particularly germane set of findings. This research highlights that whereas the experience of job insecurity can often trigger negative emotions detrimental to performance, the motivation to maintain one's job sometimes can also yield more effort and better performance (see Koen et al., 2019; Shoss, 2017). Applied to the current findings, this research suggests that the reason unjust ratings and comments led to better performance is because drivers perceived a greater necessity of maintaining performance levels that would allow them to retain their gig driver jobs (at the set performance level). In Study 2, we leverage this notion but also expand upon it to design a vignette study.

Study 2: Online vignette study

Research context and overview of study 2

We had three goals in conducting this follow-up study. First, we sought to replicate the unexpected positive effect of injustice on subsequent performance from Study 1. Second, expanding on this finding, we hoped to gain insight into when low distributive justice can lead to more effort. Third, we again tested the interaction between distributive and informational injustice on drivers' emotions, which did not reach statistical significance in Study 1. We reasoned that having a larger sample size and including a more specific measure that captured drivers' emotions immediately after seeing the ratings (i.e., anger) instead of the experienced emotions during the subsequent ride would support the proposed interaction. Additionally, given that the level of detail of the comments did not moderate perceived distributive justice in Study 1, we added another type of comment—apologies from the customer—to explore if this type of comment made a difference in the scenario. This type of comment has been shown to increase the perceived fairness of performance ratings in combination with a poor rating (Greenberg, 1991). We pursued these goals in an online vignette study described below. Please see Table 4 for a detailed comparative analysis between Study 1 and Study 2 regarding the hypotheses tested in each study.

To further investigate the positive effect of injustice on subsequent performance from Study 1, we proposed two new hypotheses regarding the potential mechanism of the effect in the gig work context. The examination of potential moderators between justice and performance also helped to resolve the mixed findings in the literature (Colquitt et al., 2013; Pattnaik & Tripathy, 2018). Specifically, after consulting further relevant motivational literature that implicates the effort-performance relationship, in tandem with consideration of the gig context,

we concluded that Vroom's seminal expectancy theory (and the valence-instrumentality-expectancy model, VIE, Vroom, 1964; van Eerde & Thierry, 1996) provides a reasonable and parsimonious framework to explain these findings. We expand on the linkages between VIE and the current findings and context below.

First, as implied above, and according to the valence component of the theory, workers should spend more effort if the work outcome is important to them. For drivers who care about performing well on the job (e.g., who rely on driving for their income), receiving a low rating reduces their chance to maintain the job and thus can contribute to job insecurity, especially for workers under the strict algorithmic management system. In turn, these drivers reasonably would increase—not decrease—their work effort to retain their status with the platform. Consistent with this notion, a recent meta-analysis shows that extremely high levels of job insecurity are actually associated with increased task performance (Jiang et al., 2022). While numerical ratings certainly are part of performance management for many jobs, here, the numbers are the determinant of whether one can remain in the job (or, in the study context, earn more money). Thus, when performance on the job is important, receiving a low/unfair rating should yield increased—not decreased—effort.

Another aspect of the VIE model—instrumentality, which pertains to the link between behavior/effort and rewards—also appears to support this unexpected finding. Although the behavior (e.g., in terms of driving and service quality) of drivers is continuously observable (for evaluation), whether the drivers feel their efforts (e.g., in driving safely, interacting respectfully) is rigorously evaluated based on certain criteria can vary across people and situations. If the drivers recognize that their work efforts translate into higher ratings and gratuities, they will likely continue to invest high levels of effort. In contrast, if drivers do not feel their work effort is being closely examined and evaluated (i.e., low instrumentality), they would likely not keep investing efforts, especially if they believe they only need to exert modest effort to succeed.

Additionally, we reason that the present result may be due to individuals (i.e., drivers) having different raters (i.e., passengers) for each rating occurrence. Unlike in traditional rating contexts where (employees recognize that) the same rater (e.g., supervisor) or a few individuals will rate them again and very well may continue comparing them to peers (in a more or less equitable manner), here, it is a different rater in each scenario. Thus, the expectancy and instrumentality that might be diminished by perceiving a rater—not just the rating—as unfair should not necessarily translate to the ridesharing context. Instead, levels of these factors may remain high even when one perceives low distributive justice from a given ride.

Collectively, then, this reasoning implies that, in certain scenarios, perceiving higher distributive injustice (mostly owing to having received low ratings) will lead to greater—not less effort—in the subsequent ride than perceiving lower distributive injustice. Specifically, this effect should manifest in two cases: a) when the importance of performance in the subsequent ride is perceived as especially high and b) when drivers feel their behavior/performance is not being rigorously evaluated. We examine the following Hypotheses in Study 2.

H8: The perceived importance of the subsequent ride moderates the relationship between perceived distributive injustice and performance effort in the next ride, such that the perceived distributive injustice is positively related to expected performance effort when the perceived importance of the next ride is high.

H9: The perceived evaluability moderates the relationship between the perceived distributive injustice and performance effort in the subsequent ride, such that the perceived distributive injustice is positively related to expected performance effort when the perceived evaluability is low.

Method

Sample and procedure

Participants who held a driver's license were recruited through an online panel, Prolific (<https://www.prolific.co/>). A total of 310 participants completed the online survey (over 50 people in each study condition). After our review of the attention check items, 16 participants were dropped from later analyses, resulting in a sample size of 294 (mean_{Age} = 32.49, *SD*_{Age} = 11.29; 47.3% male). Notably, 37 of these participants reported that they work(ed) in the ridesharing industry. All participants were compensated based on the panel guidelines.

In the online survey, participants first watched a short introductory video that explained the ridesharing industry, the customer rating system, and the simulation scenario (similar to Study 1). In the scenario, participants were told to “*imagine that you are a driver on such a ridesharing platform. Your current average rating from the past 100 rides is 4.65. The minimum score to continue to be a driver is 4.60. Thus, you need to maintain good performance to keep driving and earn more money.*”

After watching the video, the participants needed to correctly complete three questions about the scenario before proceeding (i.e., to ensure that participants were attending to the instructions). The participants then read a scenario in which they were they were providing a ride for a demanding passenger (to mimic the situation in Study 1). We intentionally provided little information about their performance (see below).

“In this ride, you encountered a demanding passenger. He asked you to get to the destination as soon as possible and asked you to adjust the temperature in the car, etc. You tried to cope with his demands. Finally, you dropped him off at the destination.”

After seeing the vignette, participants randomly continued to one of the five conditions with different rating scores and/or comments. In addition to the four conditions in Study 1, an extra condition with a low rating (3) and an apology-type comment (“I apologize for the low rating but it’s not a 5-star ride”) was included as well. Next, participants completed scales measuring justice perceptions, anger and satisfaction after seeing the rating (these are more detailed measures compared to the single-item face expression measure used in Study 1), perceived accountability, and their anticipated performance effort in the subsequent ride.

Measures

Injustice Distributive and informational injustice were measured using the same scales as in Study 1 with a 5-point Likert response scale ($\alpha = 0.974$ and 0.854 respectively).

Anger To measure felt anger after seeing the rating and comments, four items were adapted from Weiss et al. (1999), as used in Barclay et al. (2005). Participants answered the questions using the prompt “Please indicate the extent to which you would likely feel these emotions after seeing the rating and comments”. A sample item is “I feel angry about the rating.” Responses were obtained using a 5-point Likert scale from “not at all” to “extremely” ($\alpha = 0.889$).

Perceived evaluability To capture participants’ perceptions regarding the evaluation of their performance, three items from the evaluability dimension of a validated accountability measure (Han & Perry, 2020) were adopted. The items included “The outcomes of my work are rigorously evaluated”, “My work efforts are rigorously evaluated”, and “I expect to receive frequent feedback from the customers/platform.” Responses were obtained using a 5-point Likert scale ranging from “strongly disagree” to “strongly agree” ($\alpha = 0.720$).

Perceived importance of the subsequent ride One item, “It is important for me to do well on the next ride”, was used to gauge drivers’ perceived importance of performing well in the subsequent ride. Responses were obtained using a 5-point Likert scale ranging from “strongly disagree” to “strongly agree”.

Expected service effort With three items adapted from a work effort measure (Brockner et al., 1992), participants

reported their expected change in service effort compared to the previous ride (“In the next ride, compared to the effort you spent in service in the past ride,...”). The items included “I would try to work harder to satisfy the passenger’s needs”, “I would intentionally expend a great deal of effort in fulfilling the passenger’s needs”, and “I would spend less effort pleasing the passenger” (5-point Likert response scale; 1 = strongly disagree, 5 = strongly agree). Cronbach’s alpha was 0.671 for all items and 0.837 if excluding the reverse-coded item. Given that all the interitem correlations were positive (after reverse coding) and that including the reverse-coded item helped capture a broader range of behavior tendencies (from increased effort to similar effort to reduced effort), all three items were retained.

Expected driving effort Driving effort was also adapted from the work effort measure (Brockner et al., 1992) and was similar to the service effort measure (with all phrases describing service changed to driving, e.g., “I would intentionally expend a great deal of effort in driving”). Cronbach’s alpha was 0.684 for all items and 0.793 if excluding the reverse-coded item. Thus, using the same reasoning as above, we retained all three items to create the scale score.

Scenario realism To ensure that the presented scenario was realistic to the participants, a scenario realism measure was adapted from three items used in Hill et al. (in press) (1 = strongly disagree, 5 = strongly agree). An example item is “It is realistic that I might experience a situation like this as a rideshare driver” ($\alpha=0.810$).

Results and discussion

The average perceived scenario realism was high across participants ($M=4.75, SD=0.48$), supporting the realism of the scenario. The descriptive statistics and bivariate correlations of the major variables are presented in Table 3.

Effects of comments and rating conditions

To explore how the customer rating and different types of comments affected perceived distributive justice and informational justice, we computed the mean values (see Fig. 2) and conducted a series of t tests. Overall, the customer rating had a much stronger impact on both distributive and informational injustice than did the comments.

The results also showed that providing an explanatory comment in addition to a low rating decreased perceived informational injustice compared to providing a general comment ($t(103.4)=-4.05, p<0.001, 95\% \text{ CI of the mean difference}=[-0.60, -0.21]$). However, there was no difference in distributive injustice. Compared to a general comment plus a high rating, providing an explanatory comment in addition to a high rating resulted in a lower level of perceived informational injustice ($t(116)=-3.77, p<0.001, 95\% \text{ CI of the mean difference}=[-0.82, -0.26]$).

The distributive × informational injustice interaction on drivers’ anger

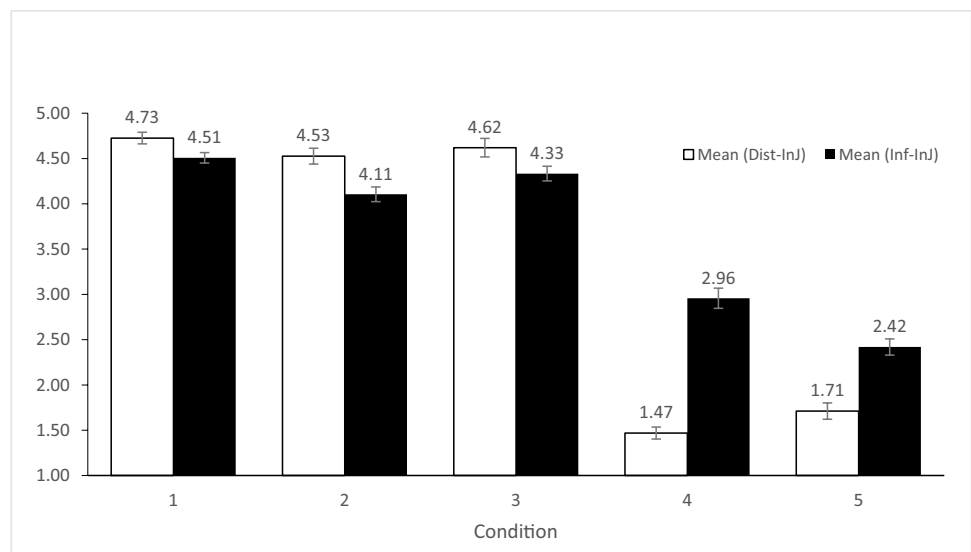
To again test Hypothesis 3 regarding the interaction between distributive injustice and informational injustice on participants’ emotional reactions, hierarchical regressions were conducted. Both distributive and informational injustice had significant main effects on anger in step 1 ($b=0.46$ and 0.23 , respectively, both $p<0.05$). The distributive × informational injustice interaction was significant as well ($b=0.09, t=2.80, p=0.005; \Delta R^2=0.011$). Distributive injustice was more strongly related to anger when informational injustice was high (see Fig. 3). Simple slope tests showed that both slopes (+1 and -1 SD) were significant at $p<0.05$. Hypothesis 3 was thus supported in Study 2.

Table 3 Study 2 descriptive statistics and correlations in study 2

Variables	Mean	SD	1	2	3	4	5	6	7	8
1. Distributive injustice	3.41	1.62	(.97)	.77	.77	.10	.06	-.14	-.03	.04
2. Informational injustice	3.67	1.05		(.85)	.65	.08	.01	-.18	.05	.09
3. Anger	2.28	1.16			(.89)	.06	-.01	-.16	-.06	.04
4. Expected service effort	4.35	0.66				(.67)	.76	.29	.34	.27
5. Expected driving effort	4.21	0.72					(.68)	.24	.24	.20
6. Perceived evaluability	3.96	0.79						(.72)	.12	.22
7. Perceived importance of the subsequent ride	4.83	0.51							/	.26
8. Scenario realism	4.75	0.48								(.81)

$N=293$ to 294 . Correlations with absolute values above .12 were all significant at $p<.05$. Correlations with absolute values above .15 were all significant at $p<.01$. Values in the parentheses are Cronbach’s alphas

Fig. 2 Means and mean standard errors of perceived distributive and informational injustice in the study 2 conditions. *Note.* Condition 1: a rating of 3 with a general and vague comment ($N=62$); Condition 2: a rating of 3 with an explanatory comment ($N=57$); Condition 3: a rating of 3 with an apologetic comment ($N=57$); Condition 4: a rating of 5 with a general and vague comment ($N=59$); Condition 5: a rating of 5 with an explanatory comment ($N=59$)



The two-way interactions on service and performance effort

To test Hypotheses 8 and 9 regarding the potential moderating effect of perceived importance and perceived evaluability on the relationships of distributive injustice with service/driving effort, hierarchical regressions were conducted (see Table 2 in supplementary material for the full results). All predictors were centered on their means before computing the interaction terms. In step 1, the main effects were examined. Next, we included the interaction terms in step 2. Both perceived importance and evaluability had significant main effects on driving effort and service effort in step 1 (all $p < 0.05$). In step 2, perceived evaluability significantly moderated the relationship between distributive injustice and service effort ($b = -0.08, t = -2.68, p = 0.008; \Delta R^2 = 0.022$).

Following previous suggestions, simple slope analyses were conducted (Dawson & Richter, 2006). The results showed that the slope was significant at low levels of perceived evaluability ($b = 0.14, z = 4.16, p < 0.001$). In addition, the perceived importance of subsequent rides significantly moderated the relationship between distributive injustice and service effort ($b = 0.12, t = 2.16, p = 0.03; \Delta R^2 = 0.014$). Simple slope analyses revealed that the slope was significant only at high levels of perceived importance ($b = 0.13, z = 3.85, p < 0.001$).

The significant interactions were also plotted using unstandardized regression coefficients following standard procedures (Dawson & Richter, 2006). As shown in Fig. 4, the negative relationship between distributive injustice and expected service effort was stronger when perceived evaluability was low or when perceived importance of the subsequent ride was high. In sum, these results generally supported Hypotheses 8 and 9.¹¹

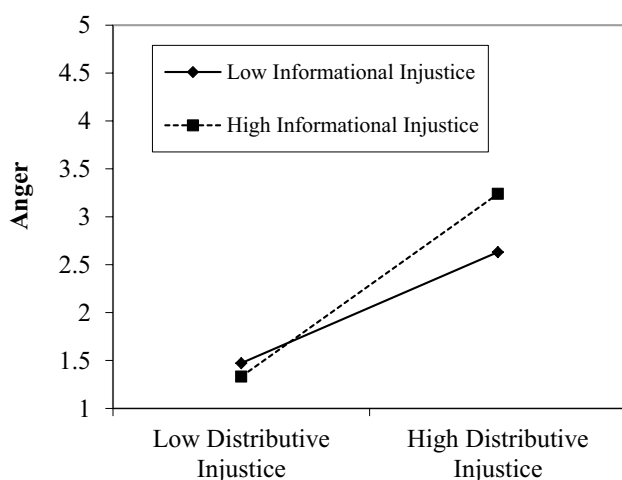


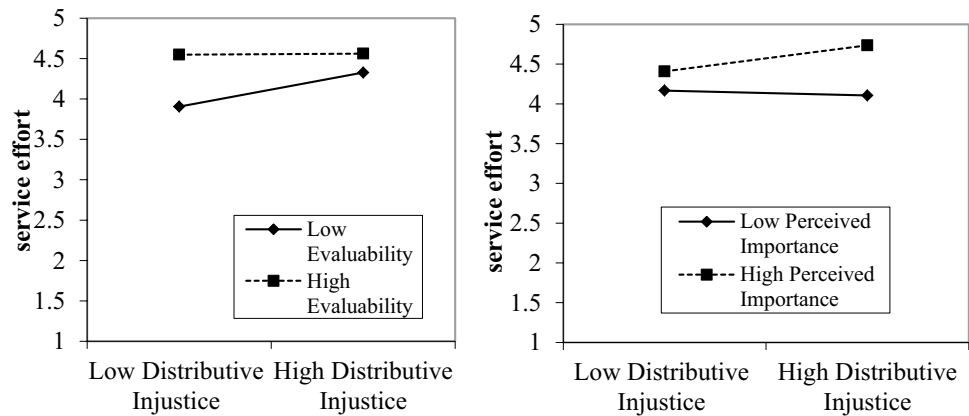
Fig. 3 Study 2 interaction plot

General discussion

As one of the first empirical investigations into the effects of specific types of injustice on the emotional experience and performance of ridesharing drivers, this research led to several notable findings. First, it showed the detrimental effect of interpersonal injustice on customer service quality and driver performance. The two studies also revealed an unexpected positive effect of lower distributive perceptions on performance in a subsequent ride. In addition, engaging in

¹¹ As an exploratory analysis, we also tested the moderating effects of perceived importance and evaluability between informational injustice and service/driving effort. Similar to distributive injustice, the positive relationship between informational injustice and service and driving effort was stronger when perceived importance was high or when perceived evaluability was low.

Fig. 4 Two-way interaction plots on service effort



antecedent-focused emotion regulation strategies produced beneficial effects on drivers' emotions and performance.

On a broader level, by linking justice theory with the customer-rating oriented performance management system in a gig work context, the studies contributed to multiple relevant literatures. Here, we detail the theoretical and practical implications of the results from this research. Following that discussion, we outline the study limitations and boundary conditions that future research may address. We also present a summary of the hypotheses, the results across the two studies, and theoretical implications of the findings in Table 4.

Theoretical implications of current findings

We see this study as making several theoretical contributions that are not only unique to the gig work context but also may offer insights to other contexts. First, Study 1 showed that the effects of emotional reactions resulting from one injustice event persist, bleeding into the next service encounter. This represents the current paradigm for studying the impact of justice on emotion and then performance in within-service encounters (e.g., Rupp & Spencer, 2006). However, the current finding suggests utility in future studies determining the length of residual reactions from a given unjust reaction and the downstream impact of those reactions. The finding that distributive injustice led to better performance would also seem to have more general implications for gig and contingent workers more generally. Here, drivers were motivated to keep their job and perceived future rides as important, and receiving an unfair rating (often caused by a low rating) pushed them to exert more effort in improving their service quality. While these results mirror some in the job insecurity literature, the main effect of insecurity on performance is negative (as is true for injustice; see Shoss, 2017 and Colquitt et al., 2013, respectively). That injustice led to greater performance here may reveal just how salient and “unforgiving” the numerical standards are for gig drivers. Whereas job insecure employees may potentially have some additional avenues to retain their jobs absent superior

performance (e.g., extra-role behaviors), gig drivers would not seem to have such options. They are under the control of the platform's algorithm, with which they cannot have an interpersonal relationship. Thus, drivers seem largely powerless to influence their future driving work with a platform through any routes other than trying to provide a secure and pleasant ride. This lack of perceived power contributes to other strong notions of unfairness among gig drivers (Rosenblat & Stark, 2016).

A second contribution stems from our documenting this justice-emotion-performance mediation in this particular context. In past research documenting the injustice (or mistreatment) to poor customer service performance link, the individuals have been agents (i.e., employees) of the organization. In such a context, sabotaging customer service interactions is a way to avenge injustice (Colquitt et al., 2013); the employee can seek retribution against a supervisor, the customer, or the organization as a whole as a means to “get back at them” (Skarlicki et al., 2016).

In contrast, in the gig context, individuals are independent agents, not agents of the organization. Their income comes from each task completed as requested by the customers, with no additional income provided by the platform. Recognizing this and recognizing that customers make decisions about gratuities based upon their performance, the drivers should reasonably refrain from sabotaging their interactions. This said, we obviously acknowledge that employees sometimes do seek retribution even when it is not financially rational to do so.

The results involving interpersonal injustice provide strong support for a cognitive hijacking theory of injustice on customer service. Even when individuals (should) strongly desire to engage in appropriate interpersonal interaction and safer driving behavior, salient negative emotions can draw from the cognitive resources that allow them to do so most effectively. This notion is consistent with Beal et al. (2005) and with other research showing that customer mistreatment impairs performance on cognitive tasks (Rafaeli et al., 2012).

Table 4 Comparative analysis of study 1 and study 2

Hypotheses	Study 1 findings	Study 2 findings	Theoretical implications
H1: Perceived higher interpersonal injustice leads to anger and unhappiness	Supported	N/A	Replicates findings on the effects of interpersonal injustice on emotions (in gig work context)
H2: Perceived distributive injustice as caused by seeing the customer rating associated with Ride 1 leads to anger and unhappiness in the subsequent ride	Unsupported (<i>but found an unexpected positive relationship between distributive injustice and Ride 2 performance</i>)	Replicated the unexpected finding	Reveals a positive relationship between distributive injustice and performance in the next encounter. This is counter to meta-analysis findings on justice-performance relationship
H3: Perceived informational injustice moderates the relationship between perceived distributive injustice and negative emotions	Unsupported	Supported	Extends the justice and gig literatures by demonstrating moderating effect of informational injustice
H4: The negative emotional reactions resulting from perceptions of interpersonal injustice during an earlier ride (Ride 1) will be positively associated with higher levels of those negative emotions during a subsequent ride (Ride 2)	Supported	N/A	Extends the justice and customer service literatures by highlighting the residual impact of emotions in subsequent encounters
H5: The greater use of antecedent-focused ERS is negatively associated with anger and unhappiness	Partially supported	N/A	Replicates research showing the benefits of certain ERS in the (in)justice-emotion-performance relationship. Extends finding to the gig work context
H6: Antecedent-focused ERS moderate the relationship between injustice perceptions and negative emotions	Unsupported	N/A	
H7: The negative emotions of anger and unhappiness will partially mediate the relationship between the various types of injustice perceptions and driving performance as well as service quality	Partially supported	N/A	Replicates research showing the mediating effect of anger in this relationship. Extends this finding to different performance outcomes and to the gig context
H8: Perceived importance of the subsequent ride moderates the relationship between perceived distributive injustice and performance effort in the next ride	N/A	Supported	Integrates VIE and justice theory and shows boundary conditions of the distributive injustice – performance relationship
H9: Perceived evaluability moderates the relationship between perceived distributive injustice and performance effort in the next ride	N/A	Supported	Integrates VIE and justice theory and shows boundary conditions of the distributive injustice – performance relationship

Additionally, of note regarding this impairment in performance is that it manifested both as degraded service quality and as worsened driving control. These dual effects suggest that individuals generally did not choose and/or were not able to preserve their depleted attentional resources for one aspect of performance (e.g., driving). Rather, both aspects suffered.

A final theoretical contribution we believe these results make is in regard to the different forms of justice. Whereas studies regularly incorporate two forms of justice, studies containing three or more forms are rare (see Colquitt et al., 2013). Moreover, even among the studies that do contain several forms of justice, justice is typically measured in observational designs, not manipulated as here. By manipulating various levels of the different forms of justice, we were able to empirically tease apart their separate effects and to examine their interplay without naturalistic confounding.

The results showed that both interpersonal justice and distributive justice had main (but opposite) effects on performance. Additionally, informational justice moderated the impact of distributive justice on emotions (although only reaching statistical significance in Study 2). This latter finding is consistent with seminal research on other human resource practices (e.g., layoffs) showing that informational justice can impact the effects of perceiving a negative or inequitable outcome (Lind & Van den Bos, 2002). Here, though, we were able to examine the effects “in real time” and link the joint effects of the two forms of justice to performance in a subsequent customer interaction. Our suspicion is that the effects of informational justice emerged here, in part, due to the simultaneity of the ratings and comments (e.g., Charness & Levine, 2002). Given that individuals may often receive explanations for their performance ratings later, or only upon requesting such feedback, research exploring whether the interaction holds when there is delay between the rating and (customer) feedback would seem to be of value (see Fortin et al., 2016).

Practical implications of current findings

This research also has practical implications both for the gig context and more generally. First, the current findings suggest significant value in ridesharing platform drivers’ recognition of their negative emotional states and how these states may impair their driving performance. One possibility for this aim may include brief mandatory training offered by ridesharing platforms, informing drivers of the pernicious effects of negative customer interactions for their own and their customers’ safety and on their service quality—and, in turn, on ratings. We would find the development and testing of such a program intriguing. Additionally, (and perhaps as part of this training), drivers could make use of various strategies (and apps) to better cope with their

negative emotions and their impact on cognitive processes. Supported strategies include mindfulness, rest breaks, and breathing exercises (e.g., Hülshager et al., 2013). In particular, apps that allow for mood tracking—and just-in-time adaptive interventions—would seem useful here. Obviously, drivers would need to use these apps or interventions when not driving. In addition, customers should also be educated and reminded (e.g., through ridesharing apps and cues in drivers’ cars) about driving-related safety issues and things to avoid when interacting with the driver.

A second practical implication concerns informational justice findings. As described above, passengers providing more detailed notes about ratings partially mitigated the influence of a lower rating (i.e., lower distributive justice) on negative emotions. One practical takeaway is that platforms—or drivers themselves—should encourage passengers to provide detailed (and polite) feedback, perhaps especially when the passengers provide ratings below some threshold.

Of note, we suspect that the importance of this qualitative feedback may be especially strong in the ridesharing context. This suggestion derives from the fact that these workers have (arguably) no procedural control over the algorithm used by the rating platform and receive relatively little information from the platforms about how the algorithm functions (Lee et al., 2019a). Given this dearth of voice and lack of information about the procedures that impact their livelihood, the information that passengers provide (about rides) should be especially valued, due both to this contrast and to its importance.

Additionally, in terms of the possibility that drivers who receive high ratings might withhold their effort in subsequent rides, it is important to increase the reliability and accuracy of the customer rating system to decrease the chance of arbitrary ratings and increase the rigor of the performance evaluation system. Our findings supported the usefulness of the customer rating system as a way to motivate drivers to keep performing well, but it is also critical that the system is not be abused to take advantage of the drivers.

Limitations and future directions

These studies also have some limitations and boundary conditions for future research to explore. First, although the sample size for both studies was based on experimental studies with similar designs, replicating the mediation and interaction effects with a larger sample size is advisable. Additionally, while the Study 1 simulation was designed to mimic real-world driving conditions and was pilot tested, confirming the current findings in a field study would be of use. However, it is of note that we did ask participants to report their level of commitment to display rules using a five-item measure (Hollenbeck et al., 1989), and the average score was high (Mean = 4.36 on a 5-point scale, SD = 0.58). This finding seems to support the authenticity of the Study 1 simulation design. Moreover, with

respect to the sample, although both real ridesharing drivers and student participants were included in Study 1, the results were similar if only the student sample was used.

Future research may also examine the impact of injustice on drivers' more global job attitudes and well-being over longer time periods. Given the current designs, investigating the repeated effects of injustice on well-being outcomes and how they accumulate over time was obviously not feasible (or the study focus). Arguably, the accumulated exposure to events perceived as unfair treatment would have a strong impact on job attitudes and well-being. This said, the lack of carryover effects from Ride 1 to Ride 2 in Study 1 suggest that this conclusion is not axiomatic. These cumulative effects could be examined using an experience sampling design or by surveying the same participants for multiple weeks. Additionally, whether the motivating effect of lower distributive justice on subsequent performance still holds over time (i.e., rides) and in other gig work contexts with a salient rating system (e.g., the food delivery industry) should also be examined to replicate the findings.

Finally, given that there is no established multidimensional ERS measure suitable for use in the gig work context, only some cognitive change strategies were measured as antecedent-focused ERS here. Presumably, drivers use a variety of strategies, perhaps in response to particular types of stressors. Given the potential unique nature of this job/context, we would call for research to develop a multidimensional ERS measure for use in the gig work context.

Conclusion

Using experimental and vignette methodologies, the current studies shed light on the justice perceptions and emotional experience of gig workers (in the ridesharing industry) as well as the related performance implications. The finding that different types of justice produce distinct and interacting impacts on performance has important implications for practice and theory development. We hope this research can provide an impetus for such efforts.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s12144-022-04215-3>.

Acknowledgements This research is supported by George Mason University, the Natural Science Foundation of Guangdong Province, China (Grant No. 2020A1515010859), and the National Natural Science Foundation of China (Grant No. 72202064).

Data availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics statement All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration and

its later agenda. The study was approved by the Institutional Research Committee of George Mason University (No. 1385640).

Consent to participate Informed consent was obtained from all individual participants included in the study.

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

References

- Adams, J. S. (1965). Inequity in social exchange. *Advances in Experimental Social Psychology*, 2, 267–299. [https://doi.org/10.1016/S0065-2601\(08\)60108-2](https://doi.org/10.1016/S0065-2601(08)60108-2)
- Anicich, E. M. (2022). Flexing and floundering in the on-demand economy: Narrative identity construction under algorithmic management. *Organizational Behavior and Human Decision Processes*, 169, 104138. <https://doi.org/10.1016/j.obhdp.2022.104138>
- 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>
- Barclay, L. J., Skarlicki, D. P., & Pugh, S. D. (2005). Exploring the role of emotions in injustice perceptions and retaliation. *Journal of Applied Psychology*, 90(4), 629–643. <https://doi.org/10.1037/0021-9010.90.4.629>
- Beal, D. J., Weiss, H. M., Barros, E., & MacDermid, S. M. (2005). An episodic process model of affective influences on performance. *Journal of Applied Psychology*, 90(6), 1054–1068. <https://doi.org/10.1037/0021-9010.90.6.1054>
- Bies, R. J., & Moag, J. S. (1986). Interactional communication criteria of fairness. *Research in Organizational Behavior*, 9, 289–319.
- Brett, J. F., & Atwater, L. E. (2001). 360° feedback: Accuracy, reactions, and perceptions of usefulness. *Journal of Applied Psychology*, 86(5), 930–942. <https://doi.org/10.1037/0021-9010.86.5.930>
- Brockner, J., Grover, S., Reed, T., & Dewitt, R. (1992). Layoffs, job insecurity, and survivors' work effort: Evidence of an inverted-u relationship. *The Academy of Management Journal*, 35(2), 413–425. Retrieved January 18, 2021, from <http://www.jstor.org/stable/256380>
- Brockner, J., Siegel, P. A., Daly, J. P., Tyler, T., & Martin, C. (1997). When trust matters: The moderating effect of outcome favorability. *Administrative Science Quarterly*, 42(3), 558–583. <https://doi.org/10.2307/2393738>
- Brockner, J., & Wiesenfeld, B. M. (1996). An integrative framework for explaining reactions to decisions: Interactive effects of outcomes and procedures. *Psychological Bulletin*, 120, 189–208. <https://doi.org/10.1037/0033-2909.120.2.189>
- Cantin, V., Lavallière, M., Simoneau, M., & Teasdale, N. (2009). Mental workload when driving in a simulator: Effects of age and driving complexity. *Accident Analysis & Prevention*, 41(4), 763–771.
- Charness, G. B., & Levine, D. I. (2002). Changes in the employment contract? Evidence from a Quasi-Experiment. *Journal of Economic Behavior & Organization*, 47, 391–405.
- Chong, Y. S., & Ahmed, P. K. (2017). On happiness, sadness or indifference: Investigating the carryover effect of outcome valence in service perceptions. *Journal of Service Theory and Practice*, 27(1), 69–86. <https://doi.org/10.1108/JSTP-03-2015-0062>
- Colombo, D., Fernández-Álvarez, J., Suso-Ribera, C., Cipresso, P., Valev, H., Leufkens, T., Sas, C., García-Palacios, A., Riva, G., & Botella, C. (2020). The need for change: Understanding emotion regulation antecedents and consequences using ecological

- momentary assessment. *Emotion*, 20(1), 30–36. <https://doi.org/10.1037/EMO0000671>
- Colquitt, J. A. (2001). On the dimensionality of organizational justice: A construct validation of a measure. *Journal of Applied Psychology*, 86(3), 386–400. <https://doi.org/10.1037/0021-9010.86.3.386>
- Colquitt, J. A., Conlon, D. E., Wesson, M. J., Porter, C. O. L. H., & Ng, K. Y. (2001). Justice at the millennium: A meta-analytic review of 25 years of organizational justice research. *Journal of Applied Psychology*, 86(3), 425–445. <https://doi.org/10.1037/0021-9010.86.3.425>
- Colquitt, J. A., Scott, B. A., Rodell, J. B., Long, D. M., Zapata, C. P., Conlon, D. E., & Wesson, M. J. (2013). Justice at the millennium, a decade later: A meta-analytic test of social exchange and affect-based perspectives. *Journal of Applied Psychology*, 98(2), 199–236. <https://doi.org/10.1037/a0031757>
- Conlon, D. E., Meyer, C. J., & Nowakowski, J. M. (2013). How does organizational justice affect performance, withdrawal, and counterproductive behavior?. In J. Greenberg & J. A. Colquitt (Eds.), *Handbook of organizational justice* (pp. 301–327). Psychology Press. <https://doi.org/10.4324/9780203774847>
- Cropanzano, R., Weiss, H., Suckow, K., & Grandey, A. (2000). Doing justice to workplace emotion. In N. M. Ashkanasy, C. E. J. Hartel, & W. J. Zerbe (Eds.), *Emotions in the workplace: Research, theory, and practice* (pp. 49–62). Quorum Books.
- Cropanzano, R., Byrne, Z. S., Bobocel, D. R., & Rupp, D. E. (2001). Moral virtues, fairness heuristics, social entities, and other denizens of organizational justice. *Journal of Vocational Behavior*, 58(2), 164–209. <https://doi.org/10.1006/jvbe.2001.1791>
- Cropanzano, R., & Folger, R. (1991). Procedural justice and worker motivation. In R. Steers & L. Porter (Eds.), *Motivation and work behavior* (pp. 131–143). New York: McGraw–Hill.
- Dawson, J. F., & Richter, A. W. (2006). Probing three-way interactions in moderated multiple regression: Development and application of a slope difference test. *Journal of Applied Psychology*, 91(4), 917–926. <https://doi.org/10.1037/0021-9010.91.4.917>
- Diefendorff, J. M., Richard, E. M., & Yang, J. (2008). Linking emotion regulation strategies to affective events and negative emotions at work. *Journal of Vocational Behavior*, 73(3), 498–508. <https://doi.org/10.1016/j.jvb.2008.09.006>
- Duggan, J., Sherman, U., Carbery, R., & McDonnell, A. (2020). Algorithmic management and app-work in the gig economy: A research agenda for employment relations and HRM. *Human Resource Management Journal*, 30(1), 114–132. <https://doi.org/10.1111/1748-8583.12258>
- Erdogan, B. (2002). Antecedents and consequences of justice perceptions in performance appraisals. *Human Resource Management Review*, 12(4), 555–578. [https://doi.org/10.1016/S1053-4822\(02\)00070-0](https://doi.org/10.1016/S1053-4822(02)00070-0)
- Fortin, M., Cojuharenco, I., Patient, D., & German, H. (2016). It is time for justice: How time changes what we know about justice judgments and justice effects: It is time for justice. *Journal of Organizational Behavior*, 37, S30–S56. <https://doi.org/10.1002/job.1958>
- Gandini, A. (2019). Labour process theory and the gig economy. *Human Relations*, 72(6), 1039–1056. <https://doi.org/10.1177/0018726718790002>
- Geissinger, A., Laurell, C., Öberg, C., Sandström, C., & Suseno, Y. (2022). The sharing economy and the transformation of work: Evidence from Foodora. *Personnel Review*, 51(2), 584–602. <https://doi.org/10.1108/PR-08-2019-0450>
- Grandey, A. A., Tam, A. P., & Brauburger, A. L. (2002). Affective states and traits in the workplace: Diary and survey data from young workers. *Motivation and Emotion*, 26(1), 31–55. <https://doi.org/10.1023/A:1015142124306>
- Greenberg, J. (1990). Organizational justice: Yesterday, today, and tomorrow. *Journal of Management*, 16(2), 399–432. <https://doi.org/10.1177/014920639001600208>
- Greenberg, J. (1991). Using explanations to manage impressions of performance appraisal fairness. *Employee Responsibilities and Rights Journal*, 4(1), 51–60. <https://doi.org/10.1007/BF01390438>
- Greenberg, J. (1993). Stealing in the name of justice: Informational and interpersonal moderators of theft reactions to underpayment inequity. *Organizational Behavior and Human Decision Processes*, 54(1), 81–103. <https://doi.org/10.1006/obhd.1993.1004>
- Gross, J. J. (1998). Antecedent- and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology*, 74(1), 224–237. <https://doi.org/10.1037/0022-3514.74.1.224>
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85(2), 348–362. <https://doi.org/10.1037/0022-3514.85.2.348>
- Han, Y., & Perry, J. L. (2020). Employee accountability: Development of a multidimensional scale. *International Public Management Journal*, 23(2), 224–251. <https://doi.org/10.1080/10967494.2019.1690606>
- Harmon-Jones, C., Bastian, B., & Harmon-Jones, E. (2016). The discrete emotions questionnaire: A new tool for measuring state self-reported emotions. *PLoS ONE*, 11(8), e0159915. <https://doi.org/10.1371/journal.pone.0159915>
- Hart, S. G., & Staveland, L. E. (1988). Development of NASA-TLX (Task Load Index): Results of empirical and theoretical research. *Advances in Psychology*, 52, 139–183. [https://doi.org/10.1016/S0166-4115\(08\)62386-9](https://doi.org/10.1016/S0166-4115(08)62386-9)
- He, X., Lu, W., Luo, H., & Liu, S. (2021). How gig worker responds to negative customer treatment: The effects of work meaningfulness and traits of psychological resilience. *Frontiers in Psychology*, 12, 783372. <https://doi.org/10.3389/fpsyg.2021.783372>
- Helling, B. (2022). *Uber driver ratings: How they work and how to improve*. Retrieved October 10, 2022, from <https://www.ridester.com/uber-driver-ratings/>
- Hill, E. T., Matta, F., & Mitchell, F. (in press). Seeing the glass as half full or empty: The role of affect-induced optimistic and pessimistic states on justice perceptions and outcomes. *The Academy of Management Journal*. <https://doi.org/10.5465/amj.2018.1282>
- Hillebrandt, A., & Barclay, L. J. (2013). Integrating organizational justice and affect: New insights, challenges, and opportunities. *Social Justice Research*, 26(4), 513–531. <https://doi.org/10.1007/s11211-013-0193-z>
- Hollenbeck, J. R., Williams, C. R., & Klein, H. J. (1989). An empirical examination of the antecedents of commitment to difficult goals. *Journal of Applied Psychology*, 74(1), 18–23. <https://doi.org/10.1037/0021-9010.74.1.18>
- Hülshager, U. R., Alberts, H. J. E. M., Feinholdt, A., & Lang, J. W. B. (2013). Benefits of mindfulness at work: The role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *Journal of Applied Psychology*, 98(2), 310–325. <https://doi.org/10.1037/a0031313>
- Jiang, L., Lawrence, A., & Xu, X. V. (2022). Does a stick work? A meta-analytic examination of curvilinear relationships between job insecurity and employee workplace behaviors. *Journal of Organizational Behavior*, 43(8), 1410–1445. <https://doi.org/10.1002/job.2652>
- 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>

- Koen, J., Low, J. T. H., & Van Vianen, A. (2019). Job preservation efforts: When does job insecurity prompt performance? *Career Development International*, 25(3), 287–305. <https://doi.org/10.1108/CDI-04-2018-0099>
- Kuhn, K. M., & Maleki, A. (2017). Micro-entrepreneurs, dependent contractors, and instaservers: Understanding online labor platform workforces. *Academy of Management Perspectives*, 31(3), 183–200. <https://doi.org/10.5465/amp.2015.0111>
- Lee, Y.-C., & LaVoie, N. (2018). Instruction-prompted objective behaviors as proxy for subjective measures in a driving simulator. *Transportation Research Part f: Traffic Psychology and Behaviour*, 55, 58–66. <https://doi.org/10.1016/j.trf.2018.03.002>
- Lee, Y.-C., & Winston, F. K. (2016). Stress induction techniques in a driving simulator and reactions from newly licensed drivers. *Transportation Research Part f: Traffic Psychology and Behaviour*, 42, 44–55. <https://doi.org/10.1016/j.trf.2016.06.019>
- Lee, S., Mogle, J. A., Jackson, C. L., & Buxton, O. M. (2019b). What's not fair about work keeps me up: Perceived unfairness about work impairs sleep through negative work-to-family spillover. *Social Science Research*, 81, 23–31.
- Lee, M. K., Jain, A., Cha, H. J., Ojha, S., & Kusbit, D. (2019a). Procedural justice in algorithmic fairness: Leveraging transparency and outcome control for fair algorithmic mediation. *Proceedings of the ACM on Human-Computer Interaction*, 3(CSCW), 1–26. <https://doi.org/10.1145/3359284>
- Leiker, A. R. (2018). *Are Pizza Hut's delivery practices dangerous? Man files suit after mom dies in crash*. The Wichita Eagle. Retrieved November 10, 2022, from <https://www.kansas.com/news/local/crime/article213519664.html>
- Lerner, J. S., Small, D. A., & Loewenstein, G. (2004). Heart strings and purse strings: Carryover effects of emotions on economic decisions. *Psychological Science*, 15(5), 337–341. <https://doi.org/10.1111/j.0956-7976.2004.00679.x>
- Lind, E. A., & Van den Bos, K. (2002). When fairness works: Toward a general theory of uncertainty management. *Research in Organizational Behavior*, 24, 181–223. [https://doi.org/10.1016/S0191-3085\(02\)24006-X](https://doi.org/10.1016/S0191-3085(02)24006-X)
- Marquis, E. B., Kim, S., Alahmad, R., Pierce, C. S., & Robert Jr., L. P. (2018). Impacts of perceived behavior control and emotional labor on gig workers. *Companion of the 2018 ACM conference on computer supported cooperative work and social computing* (pp. 241–244). Retrieved April 12, 2022 from <https://doi.org/10.1145/3272973.3274065>
- Matta, F. K., Erol-Korkmaz, H. T., Johnson, R. E., & Biçaksiz, P. (2014). Significant work events and counterproductive work behavior: The role of fairness, emotions, and emotion regulation. *Journal of Organizational Behavior*, 35(7), 920–944. <https://doi.org/10.1002/job.1934>
- McFeely, S., & Pendell, R. (2018). *What workplace leaders can learn from the real gig economy*. Gallup. Retrieved November 10, 2022, from <https://www.gallup.com/workplace/240929/workplace-leaders-learn-real-gig-economy.aspx>
- Merlo, K. L., Shaughnessy, S. P., & Weiss, H. M. (2018). Affective influences on within-person changes in work performance as mediated by attentional focus. *European Journal of Work and Organizational Psychology*, 27(1), 126–139. <https://doi.org/10.1080/1359432X.2017.1417258>
- Nesbit, S. M., Conger, J. C., & Conger, A. J. (2007). A quantitative review of the relationship between anger and aggressive driving. *Aggression and Violent Behavior*, 12(2), 156–176. <https://doi.org/10.1016/j.avb.2006.09.003>
- Pattnaik, S., & Tripathy, S. K. (2018). A review of inconsistencies in the organizational justice and employee performance relationship: Can organizational identification bridge the gap? *South Asian Journal of Management*, 25(1), 83–107.
- Rafaeli, A., Erez, A., Ravid, S., Derfler-Rozin, R., Treister, D. E., & Scheyer, R. (2012). When customers exhibit verbal aggression, employees pay cognitive costs. *Journal of Applied Psychology*, 97(5), 931–950. <https://doi.org/10.1037/a0028559>
- Rapier G. (2018). The meteoric rise of Uber and Lyft may have spurred a deadly outcome, according to new research. *Business Insider*. Retrieved from <https://www.businessinsider.com/uber-lyft-ride-hailing-increases-fatal-car-accidents-new-research-shows-2018-10>
- Rosenblat, A., & Stark, L. (2016). Algorithmic labor and information asymmetries: A case study of Uber's drivers. *International Journal of Communication*, 10, 3758–3784. <https://doi.org/10.2139/ssrn.2686227>
- Rupp, D. E., & Spencer, S. (2006). When customers lash out: The effects of customer interactional injustice on emotional labor and the mediating role of discrete emotions. *Journal of Applied Psychology*, 91(4), 971–978. <https://doi.org/10.1037/0021-9010.91.4.971>
- Rupp, D. E., Silke McCance, A., Spencer, S., & Sonntag, K. (2008). Customer (In)Justice and emotional labor: The role of perspective taking, anger, and emotional regulation. *Journal of Management*, 34(5), 903–924. <https://doi.org/10.1177/0149206307309261>
- Saikalis, C. T., Cliburn, J. E., Portea, G. J. C. A., & Lee, Y.-C. (2019). An investigation of measuring driver anger with electromyography. *Proceedings of the 10th International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design*, Santa Fe, New Mexico.
- Schmeichel, B. J. (2007). Attention control, memory updating, and emotion regulation temporarily reduce the capacity for executive control. *Journal of Experimental Psychology: General*, 136(2), 241–255. <https://doi.org/10.1037/0096-3445.136.2.241>
- Shoss, M. K. (2017). Job insecurity: An integrative review and agenda for future research. *Journal of Management*, 43(6), 1911–1939. <https://doi.org/10.1177/0149206317691574>
- Skarlicki, D. P., van Jaarsveld, D. D., Shao, R., Song, Y. H., & Wang, M. (2016). Extending the multifoci perspective: The role of supervisor justice and moral identity in the relationship between customer justice and customer-directed sabotage. *Journal of Applied Psychology*, 101(1), 108–121. <https://doi.org/10.1037/apl0000034>
- Song, X., Lowman, G. H., & Harms, P. (2020). Justice for the crowd: Organizational justice and turnover in crowd-based labor. *Administrative Sciences*, 10(4), 1–37. <https://doi.org/10.3390/admsci10040093>
- Tirapani, A. N., & Willmott, H. (2022). Revisiting conflict: Neoliberalism at work in the gig economy. *Human Relations*. <https://doi.org/10.1177/00187267211064596>
- Van Eerde, W., & Thierry, H. (1996). Vroom's expectancy models and work-related criteria: A meta-analysis. *Journal of Applied Psychology*, 81, 575–586. <https://doi.org/10.1037/0021-9010.81.5.575>
- Verduyn, P., & Lavrijsen, S. (2015). Which emotions last longest and why: The role of event importance and rumination. *Motivation and Emotion*, 39(1), 119–127. <https://doi.org/10.1007/s11031-014-9445-y>
- Vroom, V. H. (1964). *Work and motivation*. Wiley.
- Wang, Y. R., Ford, M. T., Wang, Y., & Jin, J. (2019). Shifts and variability in daily interpersonal justice are associated with psychological detachment and affect at home. *Journal of Vocational Behavior*, 115, 103307. <https://doi.org/10.1016/j.jvb.2019.05.004>

- Weiss, H. M., Suckow, K., & Cropanzano, R. (1999). Effects of justice conditions on discrete emotions. *Journal of Applied Psychology*, *84*(5), 786–794. <https://doi.org/10.1037/0021-9010.84.5.786>
- Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes and consequences of affective experiences at work. In *Research in organizational behavior: An annual series of analytical essays and critical reviews, Vol. 18*. (pp. 1–74). Elsevier Science/JAI Press.
- Xu, X.-M., Du, D., Johnson, R. E., & Lu, C.-Q. (2022). Justice change matters: Approach and avoidance mechanisms underlying the regulation of justice over time. *Journal of Applied Psychology*, *107*(7), 1070–1093. <https://doi.org/10.1037/apl0000973>

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Springer Nature or its licensor (e.g. a society or other partner) holds exclusive rights to this article under a publishing agreement with the author(s) or other rightsholder(s); author self-archiving of the accepted manuscript version of this article is solely governed by the terms of such publishing agreement and applicable law.