Assessing Turnover Intentions of Algorithmically Managed Hospitality Workers

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Abstract. Employee turnover has been one of the main concerns facing the hospitality industry. This issue seems to be aggravated in artificial intelligence (AI) environment, where AI implementation is associated with pressure, job alienation, and labor replacement, increasing workers' desire to quit their job. To analyze the relationship between AI awareness, job alienation, discrimination, and turnover intention, an online survey was distributed to hospitality employees ($n = 450$). From a series of independent-samples T-tests and regression analyses, this study found employees' turnover intentions are significantly associated with employees' concerns of being replaced by AI, perception of job alienation, and workplace discrimination. Importantly, current algorithmically managed workers tend to feel more powerless and discriminated against, and thus have higher turnover intentions. Recommendations for practice and future research are provided.

Keywords: Algorithmic management · Turnover intentions · AI awareness

1 Introduction

Marking a fundamental shift in workforce management, companies are turning to intelligent algorithmic tools to direct, evaluate, and discipline employees [1]. Although management by algorithm is providing efficient tools for controlling dispersed workforce, the consequences of new algorithmic management strategies for hospitality workers remain a disputed subject. Some positive outcomes of algorithmic work have been evidenced, such as perceived greater work flexibility [2], positive affective experience due to gamification elements [1] and enhanced organizational learning. However, not all socioeconomic categories reap the same benefits [3] - an indication of gendered and racial discrimination. In addition, studies report perceptions of reduced worker autonomy [4], power asymmetries [5], and isolation due to structural atomization of workers [6]. This leads to feelings of powerlessness and helplessness [7], contributing to an increase in turnover intentions.

It is against this backdrop and the traditional problems of hospitality industry turnover and discrimination, that this study for the first time explores the association between

familiarity with algorithmically mediated work, turnover intentions and discrimination. We aim to fill this theoretical knowledge vacuum by asking whether and how conventional hospitality employees' awareness of algorithmic management shapes their organizational outcome and future career choices and in doing so we investigate the relationship between AI awareness and intentions to leave and workplace discrimination. Understanding how employees' perception of these algorithmic methods may affect future work outcomes is important for hospitality organizations as algorithmic management substitutes classical forms of management and transforms the future of work as a whole [8].

2   Theoretical Foundation

The problem of employee turnover and retention in the hospitality industry seems to be aggravated in AI, robotics, or platforms environments [9, 10]. However, there is no known research investigating the association of turnover and discrimination with plat-formic work familiarity. This study aims to contribute theoretical and empirically by interlinking these constructs. In the hotel sector and referring to the repercussions of AI and robotics implementation, Li et al. [10] establish a multilevel AIRA model to capture the feeling of employees about it. They suggest that AI and robotics awareness significantly correlates with the turnover intention. That is, employee's turnover intention increases with insufficient levels of support, feedback, recognition, and reward by the organization, and is linked with the anxiety of employment displacement. Brougham and Haar [11] examined the relationship between STARA (e.g., smart technology, AI, robotics, and algorithms) awareness amongst hospitality employees and the job outcomes. They found a significant positive relationship between AI awareness, fear of job loss, organizational commitment, and wellbeing. In this sense, workers with higher awareness of the negative effects of STARA on their jobs exhibit a higher negative perception and a higher turnover intention. Hence, we propose:

H1. Employees' awareness of algorithmic management has a positive effect on their turnover intention.

In analyzing the impact of algorithmic management on turnover intention, it is important to consider other relevant influencing factors. Prior studies show that worker's desire to quit their present job (turnover intention) is positively associated with the degree to which they feel alienated from their workplace [11] and discriminated against [12]. It has been suggested that the implementation of algorithmic management at work may bring about feelings of alienation and loneliness [6], which will cause employees to drift away from their work and thus intend to find a more suitable job. Moreover, perceived discrimination or unfair treatment as evidenced in prior research on algorithmic management [3] can lead to turnover intention We thus propose:

H2. Employees' job alienation is positively associated with their turnover intention.

H3. Incidents of discrimination at work have a positive effect on employees' turnover intention.

3   Methods

To achieve the study objectives, an online survey was distributed through Amazon Mechanical Turk in August 2022 targeting hospitality employees residing in the United States by restricting participation to those 18 years or older whose primary work was in the hospitality industry. Validated measures were used to assess all constructs in the hypotheses: STARA [11], work alienation [14], discrimination at work [13], and turnover intention [15]. The survey also included questions about work (e.g., types of work contract, line management, salary) and demographic characteristics (e.g., gender, age, education) to identify potential confounding factors on turnover intention. A total of 510 responses were collected. After removing responses with missing data and those who did not pass attention check questions, 450 responses were included in the analysis. A series of independent-samples T-tests and regression analyses were conducted to test the hypotheses and explain the findings.

4   Results and Discussion

Characteristics of Respondents. Most respondents indicated that they work in the food and beverage sector (56%), followed by lodging/accommodation (25%). Almost all respondents (98%) were working full-time and 84% held a permanent position. In terms of line management, 79% managed other staff and 84% reporting directly to a superior. Surprisingly, a large proportion of respondents (82%) indicated that AI management systems have been implemented in their workplace. Respondents were well-balanced in terms of gender, with 49% male and 51% female. About half of them (51%) were between 25–34 years of age, with further 28% between 35–44, and 10% between 45–54. Only 3% were younger than 25. Most respondents had a bachelor's degree (66%) and 25% had a Master's degree.

Hypothesis Testing. Multiple regression analysis was used to test the effects of AI awareness, job alienation, and discrimination on employees' turnover intention. The overall regression was statistically significant ($R^2 = .567$, $F(3, 445) = 196.857$, $p < .001$). AI awareness was found to significantly influence turnover intention ($\beta = .186$, $p < .001$), indicating the more employees perceived that AI would replace them in the workplace, the more inclined they were to leave the organization. Job alienation was also found to be a significant predictor of turnover intention ($\beta = .392$, $p < .001$), signifying how powerlessness can lead employees to quit. Being discriminated against in the workplace also predicted turnover intention significantly ($\beta = .294$, $p < .001$).

To test if current implementation of algorithmic management at work predicts employees' turnover intention, a dummy variable representing the presence of algorithmic management systems in the workplace ($0 =$ absent, $1 =$ present) was included in the regression model, resulting in significant F Change ($p = .046$). The results seem to indicate that the implementation of algorithmic management reduces employees' intention to quit ($\beta = -.065$, $p = .046$). To confirm these results, especially due to unbalanced proportion of AI implementation, several independent-samples t-tests were conducted (see Table 1). Despite the negative regression coefficient, employees working under the

implementation of algorithmic management on average were worse off in terms of feeling powerless, being discriminated against, and thus demonstrating higher intention to leave, compared to those whose workplace has yet to implement these systems.

Table 1. Mean differences of constructs by algorithmic management implementation

Constructs	AI implementation	Mean	St. Dev.	$t(\text{df} = 448)$	Sig.
AI awareness	No ($n = 80$)	3.35	1.081	-5.856	$< .001$
	Yes ($n = 370$)	3.94	.742		
Job alienation	No ($n = 80$)	2.97	1.144	-4.930	$< .001$
	Yes ($n = 370$)	3.56	.920		
Discrimination	No ($n = 80$)	3.06	.998	-6.296	$< .001$
	Yes ($n = 370$)	3.72	.818		
Turnover intention	No ($n = 80$)	3.44	1.041	-3.485	$< .001$
	Yes ($n = 370$)	3.81	.838		

5 Conclusion and Recommendation

This study sought to explore the relationship between awareness of an implementation of algorithmic management system in the workplace, concerns toward job replacement by AI, work alienation, perception of workplace discrimination, and turnover intention. The research presents new theoretical and empirical insights by showing that employees' turnover intention was significantly associated with potential job replacement by AI, work alienation, and workplace discrimination. A possible link between the adoption of algorithmic management and discrimination inside an organization has been found and further research should investigate this research avenue. Employees who are more aware of workplace implementation of algorithmic management tend to feel more alienated, perceived to be more discriminated against, and have higher turnover intentions. This is in keeping with [10, 11] who show that workers' career happiness tends to decrease as their level of knowledge on AI and its practical implementation increases. Therefore, employers should seek ways to minimize the feelings of powerlessness, helplessness, and alienation amongst their workers to optimize retention in the context of algorithmic management implementation.

Despite the contributions, this study has limitations stemming from its coverage of the sample (i.e., US-based hospitality workers) and the nature of data collection. Future research should apply longitudinal study design to track employees' attitude and behavior to better evaluate the long-term effects of algorithmic management systems in the workplace. Future research should explore direct, indirect, and interaction effects of algorithmic management perceptions and other job outcomes, such as job satisfaction and organizational commitment in different work settings, ensuring that varying levels of knowledge and experiences with AI in the workplace are accounted for in the model.

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