

The Association Between Smart Technology, Artificial Intelligence, Robotics, and Algorithms (STARA) Awareness, Job Stress, Job Insecurity, and Job Satisfaction Among Hotel Employees During COVID-19 Pandemic

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Abstract. Despite the numerous advantages of implementing smart technology, expenses or negatives must be considered, with one of the most significant being the influence on personnel. A lot of studies have been undertaken to examine the influence of technological innovation on personnel. In the hospitality industry, research on service robots has grown, with a focus on customer-robot interactions. Despite this, studies on the influence of service robots on hotel employees are still at an early stage of development, especially in Indonesia. To fill the gap, the purpose of the study is to investigate the relationship between Smart Technology, Artificial Intelligence, Robotics, and Algorithms (STARA) awareness, job stress, job insecurity among hotel employees in Jakarta. Using quantitative approach, this study used convenient sample and involve 160 research participants. The research respondent was coming from various hotel employees located in Jakarta. Multiple regression analysis was used to analyze the data. The study found that there is a significant relationship between STARA awareness, job stress, job insecurity, and job satisfaction. The current study contributes to literature in the impact of technology adoption on service employees. This study is important because the findings provide an insight for hotel managers in developing technology implementation program in their businesses, especially the one that focuses on employees work behavior.

1. Introduction

As we all know, the COVID-19 pandemic has had a huge impact on the development of Indonesia's Tourism and Creative Economy. Within a year, the progress that Indonesia has achieved in recent years in the fields of Tourism and Creative Economy has been swept away. The COVID-19 pandemic has affected nearly 1.58 million jobs in the tourism and creative economy sectors due to various government regulations such as social restrictions. [1].

However, in contrast to the hotel industry, where many services can be run from home, such as education, training, and many more, services in the tourism and hospitality sector must continue to run directly [2]. The tourism and hospitality business continues to decline so they must be struggle to keep operating [3]. This unexpected disruption endangers the mental health of hotel workers by heightening their concerns about their health and work prospects [4], has lowered employment hours and wages in tourism, and many workers have taken unpaid leave [5]. One of the consequences of having to continue to serve customers during the pandemic [6] is the increased level of stress and anxiety among hotel employees [7]. Work stress must be an important concern,

because employees who have high levels of stress will reduce the level of employee satisfaction [8].

As a result of uncertain business prospects during the pandemic, hotel employees face job insecurity, which, of course, affects their psychological state, increases anxiety, and decreases the welfare felt by employees [9]. Work insecurity felt by employees at this time because many hotels were closed and there was a reduction in workforce due to declining business [10]. Previous research discovered that job insecurity negatively correlated with job satisfaction and motivation, resulting in undesirable employee behavior and responses [11]. Job insecurity encourages employees to move because this is one of the most effective ways to deal with stress caused because they don't know whether they can still keep their jobs or not [12]. In the existing literature it is stated that job insecurity is negatively correlated with job satisfaction [13], if job insecurity increases significantly, job satisfaction will decrease [14].

Digital technology and innovation have been embraced on a global scale by a variety of manufacturing and service industries [15], and through COVID-19 pandemic has accelerated the application of technology to anticipate and adapt to new normal conditions [16]. The major changes driven by COVID-19 have resulted in a new industrial landscape characterized by four characteristics, namely:

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Hygiene, Low-Touch, Less-Crowd, and Low-Mobility [17]. The government also issued a Medium & Long Term Policy Recommendation in the form of optimizing the use of information technology for harmonization of information and tourism agendas in all regions, which is intended to help the rise of business in Indonesia [18].

The Fourth Industrial Revolution has been accelerated by smart technology, artificial intelligence, robotics, and algorithms (STARA) [19]. STARA technologies are at the heart of Industry 4.0 [20]. The existence of artificial intelligence is currently very promising and threatens the industry [21], where it allows people to work smart and make businesses better [22]. Employees are required to be able to develop their competence and has technological capabilities [23], but at the same time this artificial intelligence can replace the role of humans so that tourism and hospitality businesses must redesign their organizations to get the best results [21,24].

There have been few studies that have investigated STARA awareness has a negative impact on employee job-related outcomes such as high job burnout. [25], high turnover intention [26], and job insecurity [27]. But previous research has also shown that the advantages of implementing AI and robotics in the hotel and tourism industry, such as increasing productivity levels and providing competitiveness [28], better service quality [29], provide a better experience, [30] and it can be promote decent work within organizations [31]. Likewise, the younger generation who do not think that their jobs will be replaced by technology, they believe that workers in the hotel industry will still be available to them [32,33].

In the hospitality context, a continually evolving environment has allowed today's hotel businesses to leverage Artificial Intelligence (AI) and service automation solutions in order to deliver a high-quality service for their guests while also reducing the businesses' labor expenditures. It has been widely neglected, however, the impact that the adoption of AI lodging systems may have on the well-established working relationships associated to greater productivity and decreased costs due to the substitution of human labor. Hence the current study finds the needs to conduct the study.

1.1. Objectives

From the above background and several previous studies, researchers are interested in examining the relationship between smart technology, artificial intelligence, robotics, and algorithms (STARA) awareness, job stress, job insecurity, and job satisfaction among hotel employees in Jakarta during COVID-19.

This study is important because service robots powered by artificial intelligence (AI) and robotics technology are already exerting a significant amount of influence in the hospitality industry. A lot of debate has gone on over how this would affect human labor. Published empirical studies have thus far failed to show conclusively what hospitality workers' awareness of these prospective

implications could be relative to AI and robotics in terms of their job stress, job satisfaction and job insecurity.

2. Literature Review

2.1. Job Stress

Job stress is a state of tension that causes a physical and psychological imbalance that affects an employee's emotions, thought processes, and physical condition [34]. Stress is caused by too much work, on the other hand work stress is a common problem found in almost all industries that affects employee performance [35]. Hotel workers experience mental health issues such as anxiety, distress, loneliness, and compulsive behaviors that result in stress during the Covid-19 pandemic [36]. Individual and organizational problems such as behavioral, mental, and physical outcomes, performance, job satisfaction, and organizational commitment are commonly impacted by workplace stress [37].

2.2. Job Insecurity

Job insecurity is an unpleasant feeling such as anxiety, feeling threatened, or having doubts about one's ability to perform at work [38]. Employees' attachment to their organizations is weakened by job insecurity [39]. The current uncertain situation puts workers at risk of job insecurity, which will have an impact on the decline in job satisfaction [40]. It has replaced stability and predictability in employment as a result of employers' layoffs, organizational change, and outsourcing efforts, as well as demands for more work with limited resources [41]. Employees face job insecurity under these conditions, which reflects employees' concerns about the future viability of their current job [42]. This is also true in the hospitality industry, where job insecurity is widespread and must be addressed immediately [11,43].

2.3. STARA Awareness

Researchers and businessmen have warned that the rise of STARA, or Smart Technology, Artificial Intelligence, Robotics, and Algorithms, will consequence in massive unemployment [44]. STARA will take up a third of current jobs in the future [45]. Many of these positions are in the service industry. and are high-paying middle-class positions, not low-skilled positions [19]. It is common knowledge that the hospitality industry frequently falls behind technological trends [46]. The Covid-19 pandemic has accelerated the use of digital technology in the hospitality industry, and it is likely that this use will continue once the pandemic is over [16,47]. Technology has negative impacts such as job stress [48], job insecurity [49], job burnout [25] which affects job satisfaction and will reduce employee performance [50], but technology also has positive impacts such as increasing productivity, increasing competitiveness and much more [51].

2.4. Job Satisfaction

Job satisfaction is defined as the level of positive feelings and attitudes toward one's work [52]. In the hospitality industry, job satisfaction is critical because only happy employees can produce high-quality products and provide high-quality services [53]. Based on previous research, it shows that job satisfaction is influenced by job stress [54]. Furthermore, excessive stress and job insecurity can reduce employee job satisfaction [55]. The following is the research framework and the hypotheses that used in this study.

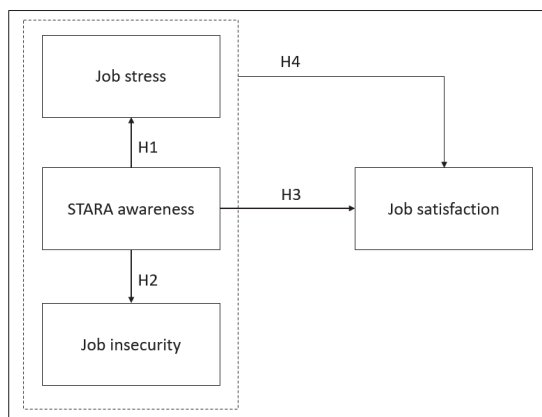


Fig.1. Framework

Based on the discussion of literature above, the following hypotheses are proposed:

- H1: There is a significance relationship between STARA awareness and job stress among hotel employees in Jakarta.
- H2: There is a significance relationship between STARA awareness and job insecurity among hotel employees in Jakarta.
- H3: There is a significance relationship between STARA awareness and job satisfaction among hotel employees in Jakarta.
- H4: Job Stress, STARA awareness, and job insecurity simultaneously influence the level of hotel employees' job satisfaction.

3. Methods

3.1. Participant and Procedure

This research was carried out at various five-star hotels in Jakarta, which is in Indonesia. Jakarta, like a number of other global cities, has emerged as a center for the development of worldwide technology. As a consequence of this, hotel staff members in Jakarta are subjected to pressures related to new technology. As a result, the staff members of luxury hotels in Jakarta were chosen to participate in the research. In order to collect samples, one of the authors reached out to the managers of human resources (HR) at 15 different hotels, using a list that was provided by the office of the local tourism

administration, to request permission for them to take part in this study. This research was carried out with the cooperation of a total of seven hotel HR managers. These seven establishments, each of which was classified as a "luxury" hotel with a rating of five stars, provided the chance to conduct interviews with a variety of staff members holding diverse roles within the same departments or teams.

The objects of research are employees of five and four-star hotels in Jakarta who face the same problems during the pandemic. Respondents were selected using the convenience sample method. They were asked to fill out questionnaires during their free time, which could be done individually or in small groups. Previous research in the hospitality industry influenced the data collection method used in this study [56]. Based on the previous literature that has been studied carefully, a questionnaire was made to determine the relationship between job stress, job insecurity, STARA Awareness and job satisfaction. As many as 250 questionnaires were distributed, 178 were returned, and only 160 were complete and usable. The questionnaire begins with a description of the research objectives and the necessary conditions. Respondents' participation in filling out the forms was completely voluntary, without monetary compensation, and all information described in this study had the respondent's permission. A preliminary study on a smaller size was conducted before the actual research was carried out in order to test the suggested study design and process. This was done to examine the possibility of a future, larger-scale project.

3.2. Measurement

Job stress was measured using the instrument developed by [57]. This instrument has four items, and this can be illustrated by the following example: *"I feel restless or nervous because of my work, Work-related problems keep me awake at night"*. Furthermore, seven items were developed from [58] which were used to measure the job insecurity. Moreover, to measure STARA awareness, the study used four-items instrument adapted from [19]. Finally, to evaluate employees' job satisfaction, five-items instrument adapted from [59] were utilized. For the overall measurement, a Likert scale of 1 to 5 is used, where 1 is strongly disagree and 5 is strongly agree. Prior to the actual data collection, a pilot test was also carried out in order to investigate the questionnaires' validity. It is specifically concerned with whether the inquiry is capturing the information meant to be measured. The methodology for the actual investigation in this study was also guided by the findings from this pilot test.

4. Data Collection

4.1. Demographic

To analyze the data, the current study used Statistical Package for the Social Sciences (SPSS). The analysis examined the relationship between STARA awareness,

job stress, job insecurity and job satisfaction among hotel employees in Jakarta.

Table1. Demographic Respondent

		Frequency	Percent
Gender	Male	95	59%
	Female	65	41%
Total		160	100%
Type of employment	Full-time	135	84%
	Casual	25	16%
Total		160	100%
Tenure	<1 year	35	22%
	1-3 year	48	30%
	4-5 year	34	21%
	>5year	43	27%
Total		160	100%

Frequency analysis for research demographic is presented in Table 1 above. The outcome shows that predominantly the participants were male 59% while female of them were 41% (N = 160). Of the 160 participants, 84% were full-time employees, and 16% were casual employees. Furthermore, there were 22% of the employees work less than a year, 30% of them have been working in the hotel between 1 to 3 years. There were 21% of them working between 4 to 5 years, and 27% of them have been working for more than 5 years.

4.2. Correlation analysis

Table 2. Correlation analysis

	Mean	1	2	3	4	5	6	7	8
1 Job satisfaction	2.93	1.00							
2 Job stress	3.27	0.40	1.00						
3 Hospitality Competency	1.61	0.04	0.09	1.00					
4 Type of Employment	2.28	0.06	0.09	0.61	1.00				
5 Tenure	2.26	-0.09	-0.07	-0.57	-0.73	1.00			
6 Gender	1.41	-0.06	-0.02	-0.09	-0.08	0.16	1.00		
7 Job insecurity	3.30	0.37	0.58	-0.04	-0.02	-0.02	-0.12	1.00	
8 STARA Awareness	2.97	0.69	-0.46	0.06	0.04	-0.07	-0.05	-0.39	1.00

A correlation analysis was used to examine the relation among the research variables and also include the control variables. In particular, Pearson's correlation was employed to identify the strength and the direction of the relationship between job stress, job insecurity, STARA awareness, job satisfaction. The correlation matrix below shows that the four variables are related with one another. This study found that there was negative relationship between STARA awareness and job insecurity ($r = -0.39$; $p < .001$), and job stress ($r = -0.46$; $p < .001$). Therefore, the Hypothesis 1 (H1) and Hypotheses 2 (H2) are supported. Also, this study revealed that STARA awareness positively related to job satisfaction ($r = 0.69$; $p < .001$). The result also means that the level of STARA awareness statistically explains 69% of the variability in job satisfaction. Hence, the study accepts Hypothesis 3 (H3).

4.3. Multiple Regression

The multiple regression analysis was conducted to examine how job stress, job insecurity, and STARA awareness would influence employees' job satisfaction. Several assumptions have been met prior to run the regression analysis. To test the linearity, partial regression plot as well as studentized residual against the predicted value was conducted. Residual independence was also examined indicated by Durbin-Watson value of 1.910. Subsequently, some other assumptions also conducted, and it is safe to say that there is no multicollinearity, indicated by tolerance value that greater than 0,1.

The multiple regression model statistically significantly predicted hotel employees' job satisfaction, $F(4, 190) = 21.670$, $p < .05$, adj. $R^2 = 0.40$. Therefore, this study accepts the Hypothesis 4 (H4). All three variables, STARA awareness, job stress, and job insecurity significantly predict the employees' job satisfaction, $p < .05$. Regression coefficients and standard errors can be found in Table 3 below:

Table 3. Multiple Regression

	B	SE B	β	t	Sig.	R ²	ΔR^2
(Constant)	0.92	0.27		3.20	0.000	0.41	0.40
Gender	0.07	0.12		-0.08	0.320		
Job stress	0.09	0.08	0.06	-0.63	0.002		
Job insecurity	0.42	0.26	0.09	-0.33	0.004		
STARA Awareness	0.63	0.09	0.54	7.32	0.000		

5. Results and Discussion

The purpose of the study was to examine the relationship between STARA awareness, job stress, job insecurity, and job satisfaction among hotel employees in Jakarta during COVID-19. The study revealed that there is negative relationship between STARA awareness and job stress. Also, a negative and significance association between STARA awareness and job insecurity was found in the current study. The findings mean that when hotel employees have a high level of STARA awareness, then they have low level of job stress and job insecurity. This analysis could be explained by the fact that during COVID-19 pandemic, hotel businesses worldwide, as well as in Jakarta, have been forced to accelerate their technology adoption as one of the solutions to be survive and recover during this pandemic.

Prior to advanced technology implementation, the hotel might provide some support and sufficient training in terms of how to operate various technology. As a result, the hotel employees start to embrace the change and gradually feel confidence working together with technology. Moreover, the current study also found that STARA awareness, job stress and job insecurity simultaneously influence hotel employees' job satisfaction. The finding is in contrast with previous studies in technology adoption literature. The reason that would explain this outcome is that nowadays many employees already have adequate training in operating technology device that they use in their workplace. Also, the employees have realized that the use of advanced technology at workplace allow them to be more focus on

other thing that more important in providing service to the customers.

6. Conclusion

This study found the need to investigate the relationship between STARA awareness, job stress, job insecurity and job satisfaction among hotel employees in Jakarta during COVID-19. Currently, the COVID-19 outbreak will hasten the implementation of STARA-related technology and expand STARA's presence in the hotel industry. As a result, hotel businesses should include STAR-related training program to support and train hotel employees in becoming leaders in the future hospitality sector. STARA adoption will soon disrupt every department and the hotel's day-to-day operations; consequently, hotel businesses must be prepared to teach this new information to their employees in order for them not to fall behind. This study has shown that by giving full support to hotel employees in the process of STARA adoption not only will reduce the feeling of job stress and job insecurity, but also will increase employees' job satisfaction. The study has some limitations that offer guidance for further research. Given that the data were obtained in a specific geographical region of a single country, future research should include countries with varying economic backgrounds to better validate the conclusions. Additionally, the segment of premium luxury 5-stars hotels was utilized in this research. Future studies should employ a variety of hotel kinds to evaluate if results are comparable.

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