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Relationship Between Perceived Infection Risk and Turnover Intention Among Manufacturing Operators in Northern Malaysia's Manufacturing Sector

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ABSTRACT

The COVID-19 pandemic has profoundly impacted workplace dynamics, particularly in high-risk sectors like manufacturing. This study examines the relationships between perceived infection risk and turnover intention among employees in Northern Malaysia's manufacturing industry. Drawing on the Job Demands-Resources (JD-R) Model and Conservation of Resources (COR) theory, the research addresses how perceived infection risks influence turnover intentions. Through a quantitative approach, data is collected via self-administered questionnaires from manufacturing operators in manufacturing firms in Northern Malaysia. Structural Equation Modelling (SEM) via AMOS software are applied to analyse the hypothesized relationships. The result indicates that perceived infection risk positively and significantly affects turnover intentions among manufacturing operators.

INTRODUCTION

The desire to quit employment has emerged as a serious issue in developing countries, including Malaysia, where the manufacturing sector exhibits a notably higher proportion of such intentions compared to other sectors, largely due to its challenging work environment (Munir and Tobi, 2020). Previous studies have consistently supported this observation, confirming that Malaysia's manufacturing industry experiences persistently high employee turnover rates (Chin, 2018; Zainuddin et al., 2015; Ooi and Teoh, 2021) and continues to struggle with efforts to reduce turnover among its workforce (Othman et al., 2022). Prior to the COVID-19 pandemic, the manufacturing sector played a pivotal role in Malaysia's economy, contributing at least 23.9% to the gross domestic product (Nor et al., 2023). However, the pandemic forced many firms in this sector to scale down operations, resulting in significant contraction driven by severe supply-demand uncertainties (Sam et al., 2023; Nawi et al., 2023).

BACKGROUND OF STUDY

Manufacturing bridges technology gaps in growing economies (Lawal et al., 2022) but requires physical on-site work (Butt, 2021). The Covid-19 Pandemic episode has reduced activities via closures and demand pressures (Choi et al., 2019; Rehman et al., 2021; Ardolino et al., 2022). The situation caused Global Foreign Direct Investment to fall by 15% with performance declines; another study shows that 46% of Chinese firms anticipated drops due to the uncertainty (Boichenko & Tymchenko, 2020). Other companies

facing deterioration mainly from (i) low cash flow, (ii) difficulty fulfilling contracts, and (iii) performance issue arising from workforce shortage (UNIDO, 2020). In Malaysia, majority of workplace's COVID-19 clusters came from manufacturing sector, making it the most impacted sector (Sulaiman, 2022). By Feb 2022, workplace cluster accounted for 58.46% clusters (Malaysia Ministry of Health, 2022). Manufacturing recorded as highest sector with 1,739 clusters; Service sector at second highest recorded clusters with 859 clusters, and the third highest cluster is dominated by the construction sector, with 449 clusters. This evidently proves that on-site workers faced heightened exposure to infection risks in a close contact environment that could not fully transition in remote operations.

Employee turnover impacts organizations globally, especially in developing nations, leading to productivity losses, high recruitment costs, and training expenses (Wijesekara, 2023; Dogru et al., 2023). In Malaysia, a transitioning economy from agriculture to manufacturing since in 1970s had driven nation's Gross Domestic Product (GDP), jobs, and socio-economic growth (Nor et al., 2023). With the increasing competition, manufacturing sector faces higher turnover rate in blue-collar employees due to demanding environments (Munir & Tobi, 2020; Chin, 2018; Zainuddin et al., 2015; Ooi & Teoh, 2021).

LITERATURE REVIEW

Turnover Intention

Turnover intention refers to an employee's conscious plan or desire to voluntarily leave their current job or organization within a specific timeframe (Simard & Parent-Lamarche, 2022; Guidetti et al., 2022; Windon et al., 2019; Wokali, 2022). It serves as a strong predictor of actual voluntary turnover and remains a primary concern for organizations worldwide, regardless of their location, size, or industry (Devi & Krishna, 2016; Giao et al., 2020; Kim & Kim, 2021; Tessema et al., 2022; Akdemir et al., 2022). This concern arises because employee turnover, the inflow and outflow of workforce constitute a significant aspect of organizational dynamics and can profoundly affect stability and performance (Li et al., 2022).

Prior to the COVID-19 pandemic, Malaysia's overall employee turnover rate showed an upward trend, rising from 12.3% in 2012 to 14.3% in 2015, with the manufacturing sector recording a notably high rate of 24% (Hee & Ann, 2019; Ibrahim, 2021). Post-pandemic data further highlighted escalating trends; for instance, a 2022 Ernst & Young survey indicated that 36% of Malaysian workers planned to resign within the following 12 months. Although the departure of underperforming employees may sometimes be beneficial, voluntary turnover generally harms organizational success (Heavey et al., 2013). The negative consequences of employee loss are multifaceted, encompassing both direct and indirect effects (Cruz et al., 2022). These include increased costs associated with recruiting, onboarding, and retraining new staff to replace experienced employees; declines in overall performance and productivity; disruptions to social communication patterns and inconsistent work processes; reduced morale and motivation among remaining employees; inflexible management control strategies, such as reluctance to adjust budgets or address low performers; and lost strategic opportunities (Nurimansjah et al., 2023).

Turnover intention can serve as a valuable early indicator and strategic tool for employee retention efforts, as it reliably predicts subsequent actual turnover rates (Windon et al., 2019). Moreover, an employee's tenure within an organization is inherently unpredictable, as individuals may depart once they perceive that their current workplace no longer provides sufficient benefits or fulfilment (Belete, 2018). Voluntary turnover can be categorized into two types: avoidable (preventable through organizational interventions, such as addressing internal issues) and unavoidable (stemming from external or personal factors, such as pregnancy, health problems, or relocation) (Tessema et al., 2022; Heavey et al., 2013). The drivers of

turnover intention often vary across organizations, influenced by differing contextual and internal factors (Shah et al., 2020).

Previous studies have indicated that the factors influencing employees' turnover intention can be categorized into three levels: organizational, unit, and individual (Kim & Kim, 2021). Research examining the determinants of turnover intention has consistently shown that individual-level factors exert a particularly strong influence, as they shape an individual's perceptions and evaluations (Markey et al., 2012). These individual-level factors can be further divided into two main categories: personal characteristics and organizational characteristics (Kim & Kim, 2021). Personal characteristics focus on environmental aspects that affect an individual's risk perception, thereby influencing their decision to remain in or leave their current employment (Masum et al., 2016; Wang et al., 2022).

Perceived Infection Risk

Perceived risk of infection refers to individuals' subjective assessment and evaluation of the likelihood of contracting a particular disease (Tadese et al., 2021). It encompasses personal concerns about potential harm or loss, as well as the anxiety, fear, stress, or emotional distress arising from an ongoing disease or outbreak (Han et al., 2021). Research on perceived infection risk has garnered significant attention because a fundamental human need for survival is a reassuring level of environmental safety and health (Boguszewicz-Kreft et al., 2022). Consequently, when the COVID-19 outbreak escalated into a global pandemic, numerous studies were conducted to equip society with strategies to cope more maturely and calmly (Wise et al., 2020; De Bruin & Bennett, 2020; Yang et al., 2020; Chen et al., 2021; Lo Presti et al., 2022; Ding et al., 2022). Such initiatives also provide valuable insights to guide the public on effective and prompt measures to curb the transmission of infectious diseases (Jang et al., 2020).

Prior studies have frequently examined the cognitive and affective (emotional) dimensions of risk perception separately, across diverse domains such as risky driving behavior (Ulleberg & Rundmo, 2003; Falco et al., 2013; Brell et al., 2019), workplace accidents (Oah et al., 2018), natural disasters like floods and landslides (Trumbo et al., 2016; Altarawneh et al., 2018), climate change (Sundblad et al., 2007), financial and purchasing decisions (Quan et al., 2022), emerging technologies (Howard, 2011; Anderson et al., 2014), emotions (Barattucci et al., 2020; Kim et al., 2020), and medical contexts (Jang et al., 2020; Huang et al., 2022). A similar approach was adopted in research on infectious diseases, including perceived risks associated with Severe Acute Respiratory Syndrome (SARS), Avian Influenza Virus (AIV), and H1N1 influenza (Brug et al., 2004; Leppin & Aro, 2009; Renner & Reuter, 2012).

The COVID-19 crisis revealed that individuals often deviated from normal behavior due to their perceptions of infection risk from the virus (Yıldırım & Güler, 2020). In the early stages of its spread, studies demonstrated that perceived infection risk influenced levels of anxiety, worry, and disruption to daily routines (Kwok et al., 2020). Stay-at-home orders further exacerbated mental health challenges, contributing to increased depression, stress, tension, and loneliness among the population (Röhr et al., 2020; Lewis, 2020; Tull et al., 2020). Furthermore, perceived risk of COVID-19 infection was found to shape preventive behaviors (Xie et al., 2020; Yıldırım et al., 2020), overall health status (Cheng et al., 2022), stress levels (Ding et al., 2020), life satisfaction (Zhang et al., 2020), and coping strategies (Gerhold, 2020).

As economies reopened, workers in the manufacturing sector faced heightened exposure risks due to the inherent nature of their jobs (Lan et al., 2021). Workplaces often featured characteristics that facilitated virus transmission, such as close physical proximity and frequent social interactions with colleagues or supervisors, confined workspaces, and regular interpersonal contact (Falco et al., 2021; Lewandowski,

2020). These factors indirectly elevated perceptions of COVID-19 infection risk (Blanchard et al., 2022; Syrek et al., 2022). Notably, approximately 24% of surveyed workers reported concerns about infection risk (Lan et al., 2021). High levels of perceived risk were associated with increased stress among employees who continued working on-site, particularly regarding personal infection and the potential to transmit the virus to family members (Smith et al., 2021).

Perceived Infection Risk and Turnover Intention

During Pre-COVID, manufacturing sector contributed 23.9% to GDP (Nor et al., 2023), but the pandemic caused contractions from supply-demand uncertainties (Sam et al., 2023; Nawi et al., 2023). High mortality and asymptomatic transmission heightened perceived workplace infection risks (Samadipour et al., 2020; Asefa et al., 2020), prompting career re-evaluations during economic re-openings (Jiskrova, 2022). Risk perceptions correlate with turnover (Tessema et al., 2022), with surveys showing only 20% of Malaysians favouring full office returns and 95% preferring hybrid work (Shivadas, 2021; Ernst & Young, 2022). Workers reassessed jobs amid organizational pandemic responses (Kaplan, 2021) where risk perceptions formed from environmental threats which intensifying when uncontrollable (Grenen et al., 2016; Slovic, 1987). Necessitation to focus towards workplace's infection risk perception is crucial in reducing avoidable resignations (Liu et al., 2019).

The COVID-19 pandemic, exacerbated by successive waves of infections and the emergence of variants such as Delta and Omicron, prompted many employees who were required to return to physical workplaces to opt for resignation (Tessema et al., 2022). Surveys conducted during this period revealed significant workforce instability: 41% of employees were considering leaving their jobs, 65% were actively seeking new employment opportunities, and 88% of executives reported experiencing higher-than-normal turnover rates (Microsoft, 2021; PricewaterhouseCoopers, 2021). These trends highlight how perceived risks of COVID-19 infection disrupted employees' psychological well-being, contributing to heightened fear and anxiety that ultimately fueled turnover intentions (APA, 2021). Hence, turnover intention warrants careful investigation with perceived infection risk, as it stems from individuals' subjective perceptions and cognitive appraisals of their work environment (Liu et al., 2019).

UNDERLYING THEORIES

Key theories related to this study is Job Demand-Resources (JD-R) Model that highlights external disruptions to cognitive and environmental balance (Demerouti et al., 2001). The Job Demands-Resources (JD-R) model, originally proposed by Demerouti et al. (2001), posits that external factors can disrupt an individual's cognitive equilibrium, environmental system, or overall well-being. These external factors typically exert negative effects on most individuals across various situations. Since its introduction at the beginning of the century, the JD-R model has garnered substantial attention and widespread acceptance within both academic and practitioner communities (Bakker & Demerouti, 2017). Although it took approximately a decade from the seminal work and hundreds of empirical studies for the model to mature, its growing interest and application have established it as one of the most prominent and broadly endorsed frameworks in occupational health psychology (Bakker & Demerouti, 2014; Bakker & Demerouti, 2017). This model offers a holistic approach to understanding employee engagement and well-being, making it particularly valuable for workplaces seeking comprehensive strategies in these areas (Berthelsen et al., 2018).

A key strength of the model is its applicability across diverse work settings and its adaptability to specific occupations, as it can be tailored to the unique characteristics of any job under consideration (Bakker et

al., 2004). Examples of job demands include adverse environmental conditions (e.g., excessive heat), high workload, and time pressure, all of which contribute to the health impairment process. When adequate resources are available, employees are better equipped to cope with work and life stressors, thereby maintaining a healthier work environment (Cho et al., 2021). Consequently, employees are more likely to engage deeply with their work when supported by organizational job resources (Sun & Bunchapattanasakda, 2019). In the context of the COVID-19 pandemic, perceived risk of infection has been conceptualized as a salient job demand, given its role in elevating turnover intentions during outbreaks (Ripp et al., 2020). Conversely, job resources encompass aspects of work that facilitate goal achievement, enhance job satisfaction, and reduce turnover rates (Falco et al., 2021). Accordingly, present study positions perceived infection risk as a job demand, an external factor influencing turnover intentions. However, JD-R model has faced criticism for its lack of specificity in explaining how or why particular job demands exert their effects (Van Woerkom et al., 2016). In supporting current study, Conservation of Resources Theory (COR) is applied to compliments JD-R's limitations in specifying job demand impacts (Van Woerkom et al., 2016), aiding the understanding of turnover triggers in workplaces. Developed by Hobfoll (1989) as a framework to advance the understanding of stress as a construct, COR theory posits that individuals are fundamentally motivated to protect, acquire, and preserve their resources (Hobfoll, 1989). Resources encompass anything valued by an individual and are categorized into four types: object resources (e.g., home or telephone), condition resources (e.g., stable employment or good health), personal characteristic resources (e.g., self-esteem or optimism), and energy resources (e.g., knowledge or time) (Hobfoll, 1989).

COR theory offers a robust and reliable basis for comprehending the processes involved in experiencing and coping with chronic and traumatic stress (Hobfoll et al., 2001). Traumatic stress, in particular, arises from the sudden and accelerated loss of resources, especially those most highly valued by the individual (Hobfoll, 2011). Consequently, individuals may adopt varied coping strategies to prevent the further loss of valued resources (Irshad et al., 2020; Falco et al., 2021). Moreover, COR theory emphasizes that existing resources not only buffer against resource depletion caused by stress but also facilitate the acquisition of additional related resources, thereby promoting resource gain spirals (Hobfoll, 1989; Hobfoll et al., 2018). By integrating COR theory with the JD-R model, this study aims to offer a more nuanced explanation of the mechanisms through which job demands influence employee turnover intention.

PROBLEM STATEMENT

Studies from Microsoft and Price Waterhouse Cooper in 2021 shows that during peak of Covid-19 transmission, 41% of workforce considered to leave their current job, 65% employees actively looked for new opportunities, and 88% of executive levels had left their job (Microsoft, 2021; PricewaterhouseCoopers, 2021). Focusing on the Asia-Pacific Region, Malaysia was associated with high turnover with 30% plan to exit current company in 2 years and 16% in less than 1 year (Qualtrics, 2020). The alarming rates continue to rose from 29% in 2012 to 36% in 2015 (Ezaili Alias et al., 2018). In 2022, about 36% of Malaysian planned to leave their current workplace in the next 12 months (Ernst & Young, 2022). The studies revealed that, manufacturing sector stand with the highest record of 24% of its employees that intended to leave; followed by employees from financial sector with 13.3% (Hee and Ann, 2019; Kin et al., 2022). Since pre-COVID era, it is expected that viral infections could result in chaos and public instability (Qiu et al., 2017). The speed of transmission and the scale of infection gave a silent

message that "no one is safe" perceptions, boosting risk fears among public (De Kock et al., 2021, Barlett et al., 2021; Ren et al., 2020; Majeed et al., 2021).

Previous research shows that during pre-pandemic, salary dissatisfaction (55%) drove turnover. However, the widespread of the Covid-19 transmission shifts the focus from financial issues as main cause for turnover to non-financial factors such as flexibility and mental health support issues becomes more prominent (76%) (ASEAN, 2021). In Malaysia, the Manufacturing Performance Index (MPI) shows a declining rate up to 74% annually in Apr 2020, with drops to 91% of product output (UNIDO, 2020). In 2022, turnover rate was recorded as the highest in manufacturing sector with 8,843 choosing to leave current employment; mainly from non-executive level occupying 68% from total top five job level, the detail as follows; manufacturing operators exhibit the highest number of turnovers at 2,297, followed by technicians 2,159, professional group with 1,492, managerial level with 964 and general workers with 738 turnover cases (PERKESO, 2022).

During first stage of pandemic recovery, employees' turnover was reinforced by factors such as online dissatisfaction sharing sessions among co-workers (Jiskrova, 2022), wide-spread of Delta and Omicron waves (Tessema et al., 2022), the nature of work itself which is non-remote jobs and fulfilling workplace transmission traits (Lewandowski, 2020; Maurer, 2021, Falco et al., 2021). Reopening of the economy following the COVID-19 pandemic presented opportunities for individuals and the nation to stabilize and revitalize economic conditions. However, it simultaneously exposed workers, particularly those in frontline to risks of contracting the virus in workplace settings (Falco et al., 2021).

Workplaces often became perceived as potential sources of transmission, thereby elevating employees' perceived risk of infection and fostering widespread fear and anxiety related to COVID-19 exposure (Sinclair et al., 2020; Weissberg et al., 2020). This perception was exacerbated by common workplace characteristics, such as inadequate physical distancing, high-frequency interactions among employees, and enclosed environments, which collectively imposed significant mental strain and further intensified perceived infection risks (Lewandowski, 2020; Blanchard et al., 2022; Syrek et al., 2022). Consequently, inadequate implementation of preventive protocols, coupled with inconsistent enforcement and communication, served only to worsen employees' overall perception of how effectively the spread of the epidemic was being controlled within the workplace, and thus, indirectly cultivating turnover intentions as a defensive coping mechanism (Jung et al., 2021; Sinclair et al., 2020; Simard & Parent-Lamarche, 2022; Agovino, 2021; Falco et al., 2021; Han et al., 2021).

Extensive prior research indicates that perceived risk of infection contributes to stressful work environments and exhibits a positive association with turnover intention (or intention to quit). For instance, studies have shown that perceived infection risk heightens workplace stress and positively correlates with employees' desire to leave their jobs (Haldorai et al., 2019; Gordon et al., 2018; Falco et al., 2021). Among healthcare and social service workers, perceptions of workplace safety negatively influenced turnover intention (Li et al., 2022), while perceived infection risk positively predicted it among nurses (Loomer et al., 2022). Similarly, in the service sector, perceived risk was linked to elevated mental stress, which in turn fostered stronger turnover intentions (Chen et al., 2022). Irshad et al. (2020) observed a positive relationship between perceived COVID-19 threat and turnover intention among nurses treating infected patients. Furthermore, exposure to colleagues who had contracted COVID-19 amplified perceived infection risk, which positively correlated with higher turnover intentions (Lavoie-Tremblay et al., 2022). However, findings are not entirely consistent; for example, Han et al. (2021) found no significant relationship between perceived infection risk and turnover intention in the aviation sector. Given these

mixed results in the literature, the present study seeks to examine and clarify the relationship between perceived risk of infection and turnover intention in the current context. Accordingly, the hypothesis proposed is

H1: There is a positive and significant relationship between perceived risk of infection and turnover intention.

METHODOLOGY

Data were collected through a structured survey questionnaire. The instrument included a 5-item scale assessing perceived risk of infection, designed to capture employees' perceptions of the risk of contracting COVID-19 in the workplace. These items were adapted from established measures reported by Falco et al. (2021) and Yıldırım and Güler (2020). Responses were recorded on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Turnover intention was measured using a 4-item scale adapted from Akdemir et al. (2022), Simard-Parent Lamarche (2022), Irshad et al. (2020), and Cruz et al. (2022). This construct was also assessed on the same 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). A survey link was created and was distributed to 225 manufacturing firms located in northern Malaysia, representing a total workforce of 192,254 employees. The minimum required sample size, determined using the Krejcie and Morgan's table, was 385 responses.

ANALYSIS

Demographic Information

Table 1: Demographic information

		Frequency (*f*)	Percentage (%)
Nationality	Yes	430	100
	No	-	-
Operator	Yes	430	100
	No	-	-
Gender	Male	275	64.0
	Female	155	36.0
Years of Experience	Less than 1 year	24	5.6
	More than 1 year but less than 3 years	50	11.6
	More than 3 years but less than 5 years	68	15.8
	More than 5 years	288	67.0
Age	Les than 20 years old	15	3.5
	More than 20 years old but less than 30 years old	212	49.3
	More than 30 years old but less than 40 years old	74	17.2
	More than 40 years old but less than 50 years old	62	14.4

	More than 50 years old	67	15.6
Marital Status	Single	170	39.5
	Married	211	49.1
	Divorced	49	11.4
Highest Level of Education	SRP/ PMR	143	33.3
	SPM	223	51.9
	Sijil/STPM/STAM	22	5.1
	Others	42	9.8

A total of 431 responses were received from 51manufacturing firms. The response rate at the individual respondent level was 0.22%, while the response rate at the company level was 22.67%. The collected responses covered all four states involved: Perlis, Kedah, Penang, and Perak. Of the 431 returned questionnaires, only one was excluded due to incomplete responses. Consequently, 430 valid questionnaires were used for analysis.

All 430 respondents (100.0%) in this study were Malaysian citizens employed as manufacturing operators in manufacturing firms. Majority of respondents were male (275 individuals, 64.0%), while females accounted for 155 individuals (36.0%). In terms of work experience, most respondents had more than 5 years of experience (288 individuals, 67.0%), followed by those with 3 to less than 5 years (68 individuals, 15.8%), 1 to less than 3 years (50 individuals, 11.6%), and less than 1 year of experience (24 individuals, 5.6%). Regarding age distribution, the largest group consisted of respondents aged 20 to less than 30 years (212 individuals, 49.3%). This was followed by those aged 30 to less than 40 years (74 individuals, 17.2%), 50 years and above (67 individuals, 15.6%), 40 to less than 50 years (62 individuals, 14.4%), and a small proportion under 20 years (15 individuals, 3.5%).

In terms of marital status, nearly half of the respondents were married (211 individuals, 49.1%), while 170 (39.5%) were single, and 49 (11.4%) were widowed or divorced. With respect to educational attainment, the majority held a Malaysian Certificate of Education (Sijil Pelajaran Malaysia/SPM) (223 individuals, 51.9%). This was followed by those whose highest qualification was the Lower Secondary Assessment (Sijil Rendah Pelajaran (SRP)/ Penilaian Menengah Rendah (PMR) or equivalent) (143 individuals, 33.3%). A smaller proportion fell into the “others” category (42 individuals, 9.8%), and only 22 individuals (5.1%) possessed higher qualifications such as Sijil, Sijil Tinggi Pelajaran Malaysia (STPM), or Sijil Tinggi Agama Malaysia (STAM).

Confirmatory Factor Analysis (CFA)

Perceived Infection Risk

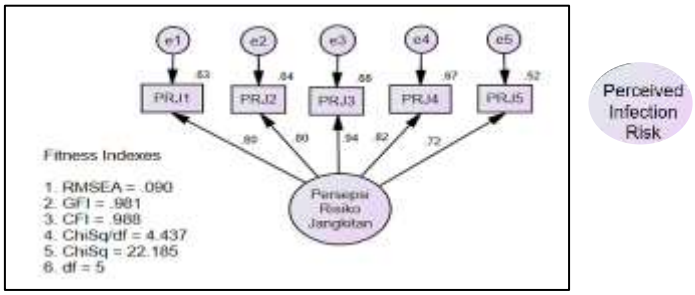

Figure1.1: CFA of Perceived Infection Risk

Prior to conducting hypothesis testing, all latent variables were subjected to a comprehensive measurement model validation process to confirm their reliability and validity. The analyses performed included tests of unidimensionality, convergent validity, discriminant validity, and overall construct validity. Figure 1.1 illustrates the confirmatory factor analysis (CFA) model for the perceived risk of infection construct. The unidimensionality of the construct was examined using a set of five items. Every item met the acceptance criterion, as their factor loadings exceeded the recommended threshold of 0.60.

Next, discriminant validity ensures that the measurement model for a construct is free from redundant items. In IBM SPSS AMOS, the presence of redundant items within a construct can be identified through two primary indicators: (i) high Modification Indices (M.I.) values, or (ii) excessively strong correlations between variables, particularly when the correlation coefficient exceeds 0.85, which signals severe multicollinearity. In the present study, no items were removed, as the analysis revealed no excessively high Modification Indices within the same dimension, and inter-item correlations remained below the critical threshold of 0.85. Thus, the measurement model demonstrated acceptable discriminant validity without requiring item deletion.

Convergent validity was assessed following the item purification process. In this study, convergent validity was evaluated using the Average Variance Extracted (AVE) value and Composite Reliability (CR) value. According to established guidelines (Fornell & Larcker, 1981), an AVE of at least 0.50 is required to demonstrate acceptable convergent validity, with values of 0.70 or higher considered indicative of excellent convergent validity. The AVE for the perceived risk of infection construct in this research was 0.671. This value exceeds the minimum threshold of 0.50 and approaches the level commonly regarded as excellent (≥ 0.70), thereby confirming strong convergent validity for the construct. The CR value for the perceived risk of infection construct was 0.910 where this value exceeds the recommended minimum threshold of 0.7, thereby confirming acceptable convergent validity and internal consistency for the construct.

Next is the construct validity assessment for the perceived risk of infection variable. Construct validity was evaluated using model fit indices, categorized into three groups as outlined in Chapter 3 that includes absolute fit, incremental fit, and parsimonious fit. For absolute fit, the Root Mean Square Error of Approximation (RMSEA) yielded a value of 0.090, and the Goodness-of-Fit Index (GFI) was 0.981. In the incremental fit category, the Comparative Fit Index (CFI) achieved a value of 0.988. For parsimonious fit, the normed chi-square (χ^2/df) was 4.437. Although the RMSEA and χ^2/df values slightly exceeded the commonly recommended thresholds for optimal fit, the overall measurement model remains acceptable. This is because some indices may not fully meet the minimum criteria in certain measurement models, particularly when they form part of a larger structural framework (Zainudin, 2015). Consequently, the construct validity of perceived risk of infection is deemed acceptable and retained for subsequent analysis.

Turnover Intention

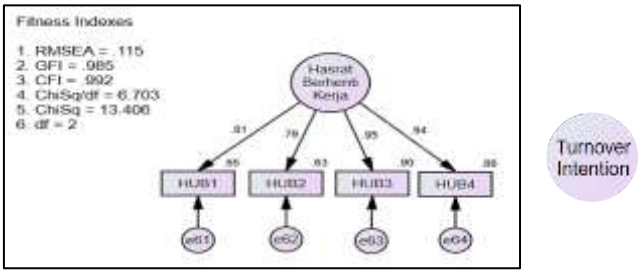

Figure 1.2: CFA of Turnover Intention

Subsequently, the intention to quit construct was subjected to further psychometric testing to establish the structural integrity and validity of the proposed model. This validation process encompassed unidimensionality checks, construct validity examination, and convergent validity assessment. The resulting confirmatory factor analysis (CFA) model for the intention to quit variable is illustrated in Figure 1.2.

As shown in Figure 1.2, the variable under examination comprises only four items. All items were deemed acceptable, as their factor loadings exceeded the threshold of 0.60, indicating satisfactory convergent validity and item reliability within the measurement model. Furthermore, the critical ratio (C.R.) values for these items surpassed 1.96, confirming that the parameter estimates were statistically significant at the 0.05 level. This outcome also supports the assumption of a normal distribution for the sample data in the context of the analysis (Garson, 2022; Tamsah & Yusriadi, 2022).

Discriminant validity was assessed to ensure that the measurement model for each construct was free from redundant items. In IBM SPSS AMOS, the presence of redundant items (leading to serious multicollinearity) can be identified through two primary indicators: (i) high Modification Indices (M.I.) values, and (ii) correlations between any pair of items or indicators exceeding 0.85. Correlations above this threshold typically indicate problematic multicollinearity. In the present study, no excessively high Modification Indices were observed, and inter-item correlations remained below the critical value of 0.85. Consequently, no items were removed, confirming satisfactory discriminant validity for the constructs under investigation.

Convergent validity was assessed following the item purification process. In this study, convergent validity was evaluated using the average variance extracted (AVE) value and Composite Reliability (CR) value. According to established guidelines (Fornell & Larcker, 1981), an AVE of at least 0.50 is required to establish acceptable convergent validity, with values exceeding 0.70 considered indicative of strong convergent validity. The AVE for the intention to quit (or turnover intention) construct in this research was 0.676. This value satisfies the minimum threshold of 0.50, thereby confirming adequate convergent validity for the construct, as the latent variable explains more than half of the variance in its associated indicators. While the CR value for the turnover intention construct was 0.891 where this value exceeds the recommended minimum threshold of 0.7, thereby confirming acceptable convergent validity and internal consistency for the construct.

This section presents the construct validity assessment for turnover intention variable. Construct validity was evaluated using model fit indices, categorized into three groups as outlined in Chapter 3 that includes absolute fit, incremental fit, and parsimonious fit. For absolute fit, the Root Mean Square Error of Approximation (RMSEA) yielded a value of 0.104, while the Goodness-of-Fit Index (GFI) was 0.987. In the incremental fit category, the Comparative Fit Index (CFI) achieved a value of 0.992. For parsimonious fit, the chi-square to degrees of freedom ratio (χ^2/df) was 5.613. Although the RMSEA slightly exceeded the conventional threshold of 0.08 (and approached the upper limit of 0.10 often regarded as indicating mediocre to acceptable fit), and the χ^2/df ratio was above the preferred level of 3.0, the overall model remains acceptable. This is because the measurement model, as part of a broader structural equation modeling framework, does not require every index to meet the strictest cut-off criteria simultaneously (Zainudin, 2015). Notably, the GFI and CFI values were excellent, exceeding 0.90 and approaching 0.99 thresholds commonly cited in the literature. Consequently, the construct validity of the intention to quit construct in this study is deemed acceptable and retained for subsequent analysis.

RESULT

This section addresses the research question and corresponding hypothesis, which examines whether there is a significant relationship between employees' perceived risk of COVID-19 infection and their intention to leave the organization. It also presents the findings related to Hypothesis 1 (H1) where the result shows that there is a positive and significant relationship between perceived risk of infection and turnover intention. This finding indicates that higher levels of perceived infection risk were associated with stronger intentions to depart from the organization. The detailed statistical outcomes are presented in the subsequent tables.

Hypothesis H1	**β Standard Value**	**β Value**	**S.E.**	**C.R.**	***p* Value**	**Outcome**
Perceived Infection Risk → Turnover Intention	0.592	0.551	0.050	11.073	< 0.001	Significant

Table 1.0: Analysis for Hypothesis 1 (H_1)

Table 1.0 presents the standardized beta coefficient (β) and p-value for the relationship between perceived risk of infection and intention to quit. The SEM analysis revealed a standardized beta value of 0.551 ($p < 0.001$) for perceived risk of infection in predicting intention to quit. This result indicates a significant positive relationship between the two variables, whereby higher levels of perceived risk of infection are associated with stronger intentions to quit. The highly significant p-value ($p < 0.001$) confirms a direct and statistically meaningful association, while the positive beta coefficient further substantiates the directional nature of this positive relationship. Therefore, Hypothesis 1 (H1) is supported.

CONCLUSION

This study investigates the critical relationships between perceived COVID-19 infection risk and turnover intention among manufacturing operators in Northern Malaysia's manufacturing sector. By integrating the Job Demands-Resources Model and Conservation of Resources Theory, the research aims to elucidate how heightened infection risks contribute to turnover intentions of the manufacturing operators.

Based on formulated hypothesis (H1), a positive relationship is expected between the perception of infection risk and the intention to quit. The literature review highlights the perception of infection risk as an individual's concern regarding potential harm, loss, or psychological distress stemming from diseases or pandemics (Han et al., 2021). Particular emphasis was placed on the perceived risk of COVID-19 infection, as a safe and healthy work environment is a fundamental human need for sustaining well-being (Boguszewicz-Kreft et al., 2022). Furthermore, the spread of the pandemic has been shown to impact organizational performance and individuals' quality of life, affecting both physical and psychological health (Blanchard et al., 2022; Syrek et al., 2022).

The study's findings confirm a significant positive relationship between the perception of infection risk and the intention to quit an organization ($\beta = 0.592$, $p < 0.001$). Logically, when employees perceive a high risk of infection in their workplace, they are more inclined to seek alternative employment in safer environments as a coping strategy. Consequently, the findings of this study demonstrate that turnover intention can be significantly reduced when workers are confident that their workplace maintains a low perceived risk of infection. These results align closely with prior research, including studies by Tessema et al. (2022), Han et al. (2021), Liu et al. (2022), and Silva et al. (2022), which similarly highlighted the

positive association between heightened perceptions of infection risk (particularly during the COVID-19 pandemic) and increased intentions to leave one's job. Therefore, present study contributes to and reinforces the existing body of evidence by confirming the overall relationship between perceived infection risk at work and employees' turnover intention.

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