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The Influence of Age and Work Tenure on Occupational Burnout among Furniture Industry Workers in Indonesia

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ABSTRACT

Occupational burnout has emerged as an important occupational health concern in labor-intensive manufacturing sectors where repetitive physical work and prolonged job demands may increase psychological strain among workers. This study aims to analyze the association between age, work tenure, and burnout levels among furniture production workers from an occupational health and safety perspective. A quantitative analytic study with a cross-sectional design was conducted among 63 workers in a furniture manufacturing unit in Makassar, Indonesia. Data were collected using the Maslach Burnout Inventory (MBI) questionnaire to measure burnout across three dimensions: emotional exhaustion, depersonalization, and reduced personal accomplishment. Age and work tenure were categorized based on sample distribution, and statistical analysis was performed using cross-tabulation and Chi-square tests with a 95% confidence level. The results indicate a significant association between age and burnout level ($\chi^2 = 20.746$, $p < 0.001$) as well as between work tenure and burnout level ($\chi^2 = 22.828$, $p < 0.001$). Workers in the late-mid adulthood category and those with work tenure exceeding 20 years showed substantially higher proportions of severe burnout compared with younger or less-tenured workers. These findings suggest the presence of cumulative occupational strain resulting from prolonged exposure to repetitive physical labor and workplace stressors. This study highlights the importance of integrating burnout monitoring within occupational health and safety programs. Preventive strategies such as ergonomic improvements, workload management, and job rotation are recommended to reduce burnout risk among long-tenured industrial workers.

Keywords: *Age; Burnout; Work Tenure; Occupational Health; Furniture Industry*

1. INTRODUCTION

The sustainability of the global furniture manufacturing industry is closely determined by the occupational health and safety (K3) conditions of its workforce. Production activities in furniture manufacturing typically involve high-intensity manual labor, repetitive motions, and strict performance targets conditions recognized as core psychosocial and physical hazards in industrial settings. Within the K3 framework, worker health encompasses not only the prevention of physical injuries but also the mitigation of psychological strain and cognitive impairment that compromise safe work performance. Occupational burnout defined as chronic workplace stress that has not been successfully managed, leading to emotional exhaustion, depersonalization, and diminished personal accomplishment is now acknowledged as a significant work-related health outcome impacting productivity, safety behavior, and well-being (Calitz, 2022; Maslach & Leiter, 1997). Burnout has been linked to reduced compliance with safety protocols and increased risk of unsafe behavior, underscoring its relevance as a critical occupational hazard rather than solely a psychological condition (Liu & others, 2022).

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In physically demanding sectors such as furniture production, the interplay between demographic factors (e.g., age and work tenure) and burnout risk has significant implications for occupational health. Recent field research in manufacturing contexts suggests that prolonged exposure to job stress and ergonomic demands correlates with increased burnout and reduced work ability, particularly among older and long-tenured workers who may experience declines in physiological recovery and functional capacity over time (J. Lee et al., 2025).

The manufacturing sector plays a critical role in global economic development and employment generation. In many countries, including emerging economies, manufacturing industries such as furniture production employ a large proportion of the labor force and contribute significantly to industrial growth. Manufacturing work is often characterized by repetitive tasks, production targets, time pressure, and physically demanding activities. Workers may be exposed to various psychosocial risks under such conditions. Elevated stress levels can develop as a result of sustained exposure to these work demands. Occupational burnout among industrial workers may consequently emerge from prolonged exposure to such working conditions. Recent research on manufacturing environments highlights that work-related stressors such as workload intensity, work–family conflict, and physical strain are strongly associated with burnout and reduced worker well-being (Kim & Jeong, 2024).

The furniture manufacturing industry represents a unique occupational context that warrants further investigation. Furniture production typically involves manual handling of materials, repetitive assembly processes, prolonged standing, and strict production schedules. These factors may increase both physical and psychological workload among workers (Zhou et al., 2022). A recent study examining workers in the furniture industry reported that burnout symptoms were present at moderate levels and were significantly associated with work stress and workload pressure, indicating that occupational stress can directly affect workers' efficiency and performance. Such findings suggest that the furniture sector may face substantial psychosocial risks that remain relatively understudied compared with other occupational sectors (Hindriyastuti & Aman, 2024).

Understanding burnout requires not only examining workplace conditions but also considering individual demographic characteristics that may influence how employees respond to occupational stress. Demographic variables such as age, gender, educational background, and work tenure are frequently used in occupational health research because they can shape workers' experiences, coping strategies, and resilience to stress. Studies examining occupational burnout often incorporate demographic indicators to better understand how individual differences contribute to variations in burnout risk among workers (Siti Nur Ellya Shahira binti Ahmad Nizam et al., 2024). Research by Celik, investigating burnout in organizational settings has demonstrated that demographic characteristics can influence emotional exhaustion and job satisfaction levels, suggesting that individual factors may interact with workplace conditions to affect employee well-being (Celik, 2023).

Age is one of the most frequently studied demographic variables in burnout research because it reflects both life experience and career stage. Younger workers may face challenges related to job adaptation, workload expectations, and career uncertainty, while older workers may experience burnout due to prolonged exposure to occupational stressors over time. Recent studies examining burnout across different workforce populations have highlighted that age-related differences can influence stress perception, coping mechanisms, and vulnerability to emotional exhaustion. For example, research examining burnout among employees across Southeast Asia reported that sociodemographic characteristics, including age, play an important role in shaping mental health outcomes and workplace stress experiences (Abdul Aziz & Ong, 2024).

Work tenure is another critical demographic factor in occupational burnout research. Tenure reflects the duration of an employee's exposure to workplace demands and organizational conditions. Long-term employees may accumulate work-related stress over time, particularly when exposed to repetitive tasks, high workloads, or limited opportunities for career advancement (Lynner et al., 2025). Previous research examining professional burnout has shown that longer work experience or seniority may influence burnout levels because prolonged occupational exposure can gradually increase emotional

exhaustion and psychological strain. Therefore, examining tenure provides important insights into how cumulative workplace exposure contributes to burnout development (Yalin et al., 2023).

Such demographic vulnerability highlights the risks of cumulative strain in industrial environments where age-related changes in physical stamina and cognitive processing may amplify the effects of workload demands (S. E. Lee et al., 2024). In this study, cumulative strain refers to the gradual accumulation of physical workload, repetitive tasks, and prolonged occupational stress exposure over time, which may contribute to emotional exhaustion and depersonalization. This concept is used as a theoretical explanation rather than a directly measured construct.

Beyond age and work tenure, other sociodemographic characteristics, including education level, marital status, and gender, have also been identified as potential predictors of burnout in occupational health research (Sirowa et al., 2023). A recent investigation of employee burnout reported that demographic characteristics, particularly age and educational background, were significantly associated with burnout levels among employees. This finding highlights the importance of considering individual characteristics when examining occupational stress. These results indicate that demographic variables may influence how individuals perceive work demands and manage stress in the workplace (Kusumadewi et al., 2023).

Burnout has been recognized as an important issue in occupational health research. Most studies on burnout have focused on healthcare and office-based environments. This research concentration has created a knowledge gap in manual labor sectors such as furniture manufacturing, where psychosocial hazards remain less investigated than physical safety risks. Empirical studies examining burnout among manual manufacturing workers in Indonesia remain limited. Existing literature largely emphasizes healthcare and service sectors, and physically demanding industries such as furniture manufacturing remain underexplored.

This research gap is addressed in the present study. Burnout assessment can be integrated into routine occupational health and safety (OHS) surveillance. Hidden psychological risk factors that contribute to workplace incidents and long-term health deterioration can be identified through such monitoring. Evidence-based safety management strategies can be supported through this approach. The influence of chronological age and work tenure on burnout severity among workers is examined in this study. Empirical evidence is provided to support the occupational health literature and to inform the development of age-responsive occupational health protocols.

Age and work tenure are treated as demographic correlates associated with burnout levels in this study. These variables are not conceptualized as psychosocial constructs. Broader psychosocial variables, including psychological safety climate and organizational support, were not directly measured.

Organizational and psychological determinants of burnout have been examined in previous studies. Investigations focusing specifically on demographic characteristics such as age and work tenure among industrial workers remain limited. The relationship between demographic factors and burnout requires further examination. Workers' exposure to occupational stressors and their capacity to cope with job demands may be influenced by these characteristics.

Burnout among production workers in the furniture manufacturing industry is examined in this study. This occupational group has received limited attention in burnout research. The association between demographic factors and burnout levels is analyzed using an ordinal regression approach. Empirical insights into burnout risk in industrial work environments are provided through this analysis. The findings also expand the understanding of burnout in manufacturing contexts and emphasize the importance of addressing psychosocial risks within occupational health frameworks for industrial workers.

2. METHODS

This research was conducted using a quantitative analytic method with a cross-sectional study design. The technical execution followed the principles of occupational health research, focusing on the production unit of a furniture manufacturing facility in Makassar. The study's primary objective was to observe the phenomenon of cumulative burnout in a real-world industrial setting, ensuring that the data captured reflected the actual psychological state of the workforce during the production cycle.

The study involved two independent variables: Age and Work Tenure. Age was categorized into Early-Mid Adulthood (≤ 42 years) and Late-Mid Adulthood (> 42 years), while tenure was divided into Established Workers (≤ 20 years) and Senior Craftsmen (> 20 years). The categorization was based on the median distribution of the sample and practical workforce grouping considerations within the company. This approach was used to facilitate comparative statistical analysis. The dependent variable was Occupational Burnout, measured through three specific indicators based on the Maslach Burnout Inventory (MBI) framework: emotional exhaustion, depersonalization, and reduced personal accomplishment. In the present study, the MBI demonstrated acceptable internal consistency, with Cronbach's alpha coefficients of .764.

The primary data source consisted of 63 production workers selected via simple random sampling. Data collection was performed through a structured questionnaire technique. To ensure the quality of the data, the instruments underwent validity and reliability testing prior to distribution. The collection process was supervised to ensure respondents understood the psychological scale used, thereby minimizing bias in self-reporting. Secondary data were also obtained from company records to verify the accuracy of the participants' tenure and age.

In accordance with the ethical codes of scientific writing and research involving human subjects number 2137/UN4.14.1/TP.01.02/2023, several safeguards were implemented. First, Informed Consent was obtained from all participants, ensuring they were fully aware of the research goals and their right to withdraw at any time without penalty. Second, the principle of Anonymity and Confidentiality was strictly maintained; no personal identifiers were recorded in the final data set to protect the professional standing of the workers. Finally, the research was conducted with Beneficence, ensuring that the results would be shared with the organization to provide a basis for improving worker welfare and OHS (K3) protocols.

The technical analysis was carried out using SPSS software. The data were processed through Crosstabulation (Contingency Tables) to identify patterns between demographic variables and burnout severity. To determine the statistical significance of the cumulative burnout phenomenon, a Chi-Square test was applied with a confidence level of 95% (alpha = 0.05).

3. RESULT AND DISCUSSION

3.1 Technical Implementation and Ethical Compliance

The research was conducted following strict ethical guidelines for human subjects. Before data collection, an ethical clearance procedure was observed, and all 63 participants provided informed consent after being briefed on the study's objectives. Participants were assured that their responses would not affect their employment status, upholding the principles of autonomy and confidentiality.

3.2 Data Analysis

The study analyzed 63 production workers to determine the distribution of burnout across demographic variables. The overall prevalence of burnout was categorized into three levels: Low (39.7%), Medium (34.9%), and High (25.4%). However, a deeper analysis using crosstabulation revealed a significant disparity when filtered by age and tenure.

The data indicates a stark contrast in burnout levels across different age cohorts. While younger workers remain largely in the low-to-medium burnout range, a significant majority of older workers experience high levels of exhaustion.

Tabel 1. Crosstabulation of Age Groups vs. Burnout Severity

Age Category	Burnout: Low	Burnout: Medium	Burnout: High	Total
Early-Mid Adulthood	20	16	2	38
Late-Mid Adulthood	5	6	14	25
Total	25	22	16	63

As shown in Table 1, burnout severity increases dramatically with age. Only 5.3% of workers in the Early-Mid Adulthood group experienced high burnout, whereas 56% of workers in the Late-Mid Adulthood group exhibited high burnout levels.

Mirroring the age trend, work experience in the furniture production unit is positively associated with higher burnout risk. Senior employees with over 20 years of service show the highest vulnerability to psychological depletion.

Tabel 2. Crosstabulation of Work Tenure vs. Burnout Severity

Tenure Category	Burnout: Low	Burnout: Medium	Burnout: High	Total
Established Workers	21	16	2	39
Senior Craftsmen	4	6	14	24
Total	25	22	16	63

The tenure data in Table 2 mirrors the age trend. Senior Craftsmen (those with ≥20 years of service) recorded a high burnout rate of 58.3%, while only 5.1% of "Established Workers" fell into the high-severity category.

Tabel 3. Chi Square Results of Age and Work Tenure to Burnout

Test	Value	df	p
Age and Burnout	20.746	2	<0.001
Work Tenure and Burnout	22.828	2	<0.001

A Chi-square test of independence was conducted to examine the association between demographic factors and burnout level among workers. The results of the statistical analysis are presented in Table 3. A statistically significant relationship was identified between age and burnout level, $\chi^2(2) = 20.746$, $p < 0.001$. The result indicates that burnout levels differ significantly across age groups. A significant association was also observed between work tenure and burnout level, $\chi^2(2) = 22.828$, $p < 0.001$, as reported in Table 3. The findings indicate that both age and length of employment are significantly related to variations in burnout experienced by workers.

The cross-sectional design of this study limits the ability to establish causal relationships. The associations identified between age, work tenure, and burnout represent statistical relationships observed at a single point in time. These findings should be interpreted as correlational rather than causal. Longitudinal research designs are required to examine whether demographic factors such as age and work tenure contribute to the development of burnout over time.

Table 4. Multinomial Logistic Regression Analysis of Factors Associated with Burnout Level

Burnout Category	Variable	B	SE	Odds Ratio (Exp(B))	95% CI	p-value
Medium vs Low	Age (Late-Mid Adulthood)	0.587	1.411	1.798	0.113 – 28.548	0.678
	Work Tenure (>20 years)	-1.199	1.458	0.302	0.017 – 5.256	0.411
High vs Low	Age (Late-Mid Adulthood)	-0.970	1.733	0.379	0.013 – 11.313	0.576

Multinomial logistic regression analysis was conducted to evaluate the influence of age and work tenure on burnout levels. The regression results are presented in Table 4. Age and work tenure did not

demonstrate statistically significant effects in predicting medium or high burnout levels when compared with the low burnout category ($p > 0.05$). Workers in the late-mid adulthood group showed 1.798 times higher odds of experiencing medium burnout than workers in the early-mid adulthood group; the association did not reach statistical significance ($p = 0.678$). Employees with work tenure exceeding 20 years also showed lower odds of experiencing higher burnout categories. Statistical significance was not observed for the tenure variable in the regression model.

The present study examined the relationship between demographic characteristics and burnout levels among workers. The results of the Chi-square analysis demonstrated that both age and work tenure were significantly associated with burnout levels. Specifically, the analysis indicated a statistically significant relationship between age and burnout level ($\chi^2(2) = 20.746$, $p < 0.001$) as well as between work tenure and burnout level ($\chi^2(2) = 22.828$, $p < 0.001$). These findings suggest that demographic factors play an important role in shaping workers' experiences of occupational burnout.

Age appears to influence how workers experience burnout. Older workers may face greater physical fatigue, prolonged exposure to occupational stressors, and increased job responsibilities, which may contribute to higher levels of emotional exhaustion and work-related stress (Rokhim et al., 2025). In addition, individuals in later stages of adulthood often experience cumulative job demands over time, which can increase vulnerability to burnout. Previous studies in occupational health have similarly reported that prolonged exposure to workplace stress and increasing age can contribute to greater burnout risk.

Work tenure was also found to be significantly associated with burnout levels. Employees with longer tenure may experience repetitive job demands, limited career progression, or prolonged exposure to stressful working conditions (Napitupulu & Widanarko, 2024). Over time, these factors may accumulate and contribute to psychological strain, emotional exhaustion, and decreased job satisfaction. Long-term employment in demanding environments has been widely recognized as a contributing factor to burnout, particularly when workers face sustained workload pressure without sufficient organizational support.

The regression analysis did not demonstrate a statistically significant effect of age on burnout level after other variables were controlled. The difference between the Chi-square and regression results can be explained by the distinct analytical purposes of the two statistical methods. The Chi-square test evaluates the presence of an association between variables without considering additional predictors. Regression analysis evaluates the independent contribution of each variable after controlling for other factors. The relatively small sample size used in this study may also have reduced the statistical power of the regression model, which can limit the detection of significant effects.

The findings indicate that demographic characteristics, particularly work tenure, remain relevant factors associated with burnout among workers. The results highlight the need for workplace strategies aimed at reducing prolonged occupational stress, strengthening job support systems, and promoting employee well-being. Stress management programs, workload adjustments, and mental health support services can be implemented to mitigate burnout risk, particularly among employees with long employment duration.

The findings contribute to the growing literature on occupational burnout by emphasizing the role of demographic factors in shaping workers' psychological well-being. Future research with larger sample sizes and additional variables, including workload, organizational support, and job satisfaction, can provide a more comprehensive understanding of the factors associated with burnout in workplace environments.

Burnout is widely recognized as a psychological syndrome resulting from prolonged exposure to chronic workplace stress. Recent research emphasizes that burnout typically develops when employees face sustained job demands without sufficient recovery, organizational support, or adequate work resources (Amiri et al., 2024).

Burnout is commonly characterized by emotional exhaustion, depersonalization, and reduced professional efficacy, which can significantly affect both employee well-being and organizational productivity.

Age and work tenure represent demographic characteristics rather than psychosocial variables. The relationship between both variables and burnout should be interpreted as correlational rather than as direct psychological mechanisms.

An association between longer work tenure and higher burnout levels has been reported in international research. A study conducted by Wójtowicz and Kowalska indicated that occupational stress accumulated over time contributes significantly to burnout symptoms among professionals working in demanding environments (Wójtowicz & Kowalska, 2023). Longitudinal research published in the Journal of Occupational Medicine and Toxicology also demonstrated that prolonged exposure to occupational stressors contributes to emotional exhaustion and psychological distress among workers (Maunder et al., 2022). Gradual burnout development can occur through sustained exposure to work-related stress and repetitive job demands.

Organizational interventions aimed at improving workload distribution and strengthening workplace support have been shown to reduce emotional exhaustion among employees. Evidence from a meta-analysis published in the International Archives of Occupational and Environmental Health demonstrated that improved organizational support can significantly decrease burnout symptoms (Bes et al., 2023).

An increasing trend of burnout severity among older and long-tenured workers observed in this study aligns with empirical findings reported in industrial and manufacturing contexts. Prolonged exposure to physically demanding tasks and repetitive labor may generate cumulative physiological strain. Reduced recovery capacity and chronic fatigue can develop over time and contribute to heightened burnout levels (J. Lee et al., 2025).

No statistically significant association between age and burnout level was identified in the present analysis. Evidence from previous studies indicates that work-related conditions often exert stronger influence on burnout than demographic characteristics. Research conducted by Sun demonstrated that workload intensity and job demands were more strongly associated with burnout than age or gender among healthcare professionals (Sun et al., 2023). Evidence from the Mexican manufacturing sector also reported a significant association between age and burnout syndrome, with higher burnout levels observed among aging workers exposed to continuous high-demand work conditions (Maldonado-Macías et al., 2025).

Longitudinal occupational health research has shown that work ability tends to decline with increasing age under sustained job stress. Burnout can reflect not only psychological reactions but also long-term deterioration of occupational health (Kurnianto et al., 2025). High physical demands in manual manufacturing work, combined with aging processes and prolonged exposure to occupational stressors, can intensify emotional and physical exhaustion and increase burnout risk among older and long-tenured workers.

Older workers may experience higher vulnerability to burnout because recovery capacity declines with age and physiological resilience decreases under continuous physical strain. Research examining age-related burnout patterns indicates that accumulated stress exposure can reduce work ability and intensify exhaustion among older employees. Reduced physical capacity and declining cognitive endurance may affect performance in safety-critical work environments (Mendes & Miguel, 2024).

Research on emotion-regulation mechanisms has also demonstrated that the relationship between age and burnout is influenced by the ability to manage occupational stress over time. Burnout manifestation across the lifespan may be shaped by the interaction between age, coping strategies, and long-term job exposure. Effective emotion regulation can reduce burnout vulnerability, particularly when chronic occupational stress accumulates across extended work tenure (Mendes & Miguel, 2024).

Field studies in labor-intensive environments have shown correlations between age, work tenure, and physical fatigue. Physical fatigue shares conceptual overlap with burnout and may contribute to psychological exhaustion in safety-sensitive occupations. Occupational studies examining workload and fatigue have reported significant associations between age, tenure, and work fatigue, indicating that prolonged exposure increases risks of physical exhaustion and psychosocial strain (Triya et al., 2025).

Elevated burnout levels among older and long-tenured workers present a critical safety concern in industrial settings. Reduced vigilance, weakened hazard perception, and impaired error monitoring may occur when chronic burnout develops. Occupational safety performance can deteriorate under such conditions. Age- and tenure-sensitive preventive strategies are required within occupational health and safety (K3) systems. Ergonomic adjustments, workload rotation, recovery-oriented work schedules, and psychosocial support programs can help reduce burnout risk and strengthen workplace safety for senior workers.

CONCLUSION

This study concludes that age and work tenure are significant determining factors for burnout levels among workers in the furniture production unit in Makassar. The findings directly answer the research question regarding the "cumulative strain" phenomenon, where increasing age and longer work experience correlate with higher risks of emotional and physical exhaustion. The data reveals a clinically striking disparity; the majority of workers in the late-mid adulthood category (56%) and senior craftsmen with over 20 years of service (58.3%) exhibit high burnout levels, whereas the younger worker group recorded a risk of only 5%. This proves that within the context of high-intensity manufacturing, age maturity does not automatically serve as a source of resilience. Instead, it becomes a factor of vulnerability due to physiological degradation and the accumulation of chronic occupational stress. Therefore, burnout in the senior group is not merely an individual psychological issue but a critical Occupational Health and Safety (OSH) concern, as it is closely linked to reduced vigilance and an increased risk of workplace accidents on the production floor.

RECOMMENDATIONS

Practical recommendations are directed to company management and the Occupational Safety and Health (OSH) department to implement age-sensitive human resource management strategies. A job rotation system can be established to allow senior workers (tenure >20 years) to transition from physically demanding technical roles to positions in quality control or mentoring for younger staff. Worker expertise can be utilized through this arrangement without imposing excessive physical strain. Mechanical ergonomic aids should also be provided by production management to reduce manual workload among older employees and to slow the progression of chronic fatigue.

Several limitations should be acknowledged in the interpretation of the findings. The sample size consisted of 63 respondents, which may reduce the statistical power of the analysis and limit the detection of smaller effect sizes. A limited sample may also restrict the generalizability of the findings to broader populations of industrial workers.

Future research should employ larger sample sizes and include workers from more diverse occupational settings to strengthen empirical evidence regarding factors associated with occupational burnout. Additional research variables can also be incorporated, including objective measurements of musculoskeletal disorders (MSDs) and sleep quality. Biological indicators of physical fatigue and psychological manifestations of burnout among manufacturing workers can be examined more comprehensively through such approaches.

DECLARATION OF GENERATIVE AI

During the preparation of this manuscript, the author(s) used OpenAI’s ChatGPT to assist with language enhancement and improve overall clarity. The tool was utilized solely for linguistic

refinement, while all scientific content, data analysis, and interpretations remain the full responsibility of the author(s).

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