



The Influence of Client Design Demands on Sleep Quality of Architectural Consultant Office Employees (Case Study: at Pt Narendra Karya)

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Abstract. *Client design demands are one of the most common work demands faced by employees in architectural consulting firms. Design diversity, frequent changes in requirements, stringent quality control, and deadline pressures can increase mental stress and potentially impact employee sleep quality. This study aimed to explore the relationship between client design demands and sleep quality among employees at the PT Narendra Karya Architectural Consulting Firm. The methodology employed was a quantitative, observational, and analytical design with a cross-sectional approach. The sample size for this study was 33 employees, selected using a total sampling method. Information regarding client design demands was obtained through a questionnaire developed based on the Job Demands-Resources (JD-R) framework, while the Pittsburgh Sleep Quality Index (PSQI) was used to measure sleep quality. Data were analyzed using univariate analysis, bivariate analysis using the Spearman Rank test, and multivariate analysis using logistic regression. The findings indicated a significant relationship between client design demands and employee sleep quality ($p = 0.021$). The $\text{Exp}(B)$ value of 1.621 indicates that increasing client design demands increases the likelihood of sleep quality problems. The results of this study indicate that the greater the design demands faced by employees, the higher the risk of their sleep quality declining. Therefore, companies should implement more planned workload management by setting achievable work targets, systematically organizing design revision processes, and efficiently managing deadlines to maintain employee health and sleep quality.*

Keywords : *Architectural Consultants, Client Design Demands, Job Demands, PSQI, Sleep Quality*

Abstrak. Tuntutan desain dari klien merupakan salah satu tuntutan pekerjaan yang paling sering dihadapi oleh karyawan pada perusahaan konsultan arsitektur. Keragaman desain, perubahan persyaratan yang sering terjadi, pengendalian kualitas yang ketat, serta tekanan tenggat waktu dapat meningkatkan stres mental dan berpotensi memengaruhi kualitas tidur karyawan. Penelitian ini bertujuan untuk mengetahui hubungan antara tuntutan desain klien dan kualitas tidur pada karyawan di PT Narendra Karya Architectural Consulting Firm. Metode penelitian yang digunakan adalah kuantitatif dengan desain observasional analitik melalui pendekatan cross-sectional. Jumlah sampel dalam penelitian ini sebanyak 33 karyawan yang dipilih menggunakan metode total sampling. Data mengenai tuntutan desain klien diperoleh melalui kuesioner yang dikembangkan berdasarkan kerangka Job Demands-Resources (JD-R), sedangkan kualitas tidur diukur menggunakan Pittsburgh Sleep Quality Index (PSQI). Analisis data dilakukan melalui analisis univariat, analisis bivariat menggunakan uji Spearman Rank, serta analisis multivariat menggunakan regresi logistik. Hasil penelitian menunjukkan adanya hubungan yang signifikan antara tuntutan desain klien dan kualitas tidur karyawan ($p = 0,021$). Nilai $\text{Exp}(B)$ sebesar 1,621 menunjukkan bahwa peningkatan tuntutan desain klien meningkatkan kemungkinan terjadinya gangguan kualitas tidur. Hasil penelitian ini menunjukkan bahwa semakin besar tuntutan desain yang dihadapi karyawan, semakin tinggi risiko penurunan kualitas tidur yang dialami. Oleh karena itu, perusahaan perlu menerapkan pengelolaan beban kerja yang lebih terencana melalui

penetapan target kerja yang realistis, pengaturan proses revisi desain secara sistematis, serta pengelolaan tenggat waktu yang efektif untuk menjaga kesehatan dan kualitas tidur karyawan.

Kata Kunci: Architectural Consultants, Client Design Demands, Job Demands, PSQI, Sleep Quality

INTRODUCTION

Sleep quality is an important indicator in maintaining physical health, mental well-being, and work efficiency. Adequate and good-quality sleep plays an essential role in body recovery, maintaining cognitive function, improving concentration, and supporting effective decision-making during work activities. Conversely, poor sleep quality may result in fatigue, reduced attention, decreased productivity, and an increased risk of workplace errors and accidents. In occupational environments that require intensive cognitive processing and continuous decision-making, sleep quality becomes a critical factor because it is directly associated with employee performance and overall well-being (Potter & Perry, 2017; Armadani, 2022). Buysse et al. (1989) explained that sleep quality is a multidimensional concept that includes sleep duration, sleep efficiency, sleep disturbances, the use of sleep medication, and daytime dysfunction, which can be assessed using the Pittsburgh Sleep Quality Index (PSQI).

One of the occupational factors that may influence workers' sleep quality is high job demand. According to the Job Demands–Resources (JD-R) theory, job demands refer to physical, psychological, social, or organizational aspects of work that require sustained effort and are associated with physiological and psychological consequences when not balanced by adequate job resources (Demerouti et al., 2001; Bakker & Demerouti, 2007). High job demands require continuous expenditure of physical and mental energy, which may contribute to stress, fatigue, and impaired recovery after work. Consequently, prolonged exposure to excessive job demands can negatively affect workers' sleep quality (Bakker et al., 2005; Åkerstedt & Kecklund, 2009). This perspective is also consistent with Karasek's (1979) job strain model, which explains that high work demands combined with limited control over work conditions can increase psychological pressure among employees.

In the architectural consulting sector, one of the most prominent forms of job demands originates from client design requests (client design demands). The architectural design process requires not only technical competence but also creativity, accuracy,

problem-solving abilities, and adaptability to meet clients' expectations. In practice, architectural consultants frequently encounter repeated design revisions, high design complexity, strict quality standards, and pressure to complete projects within limited timeframes. These conditions create substantial cognitive and emotional demands for architectural professionals. According to Grandjean and Kroemer (1997), tasks requiring sustained concentration, precision, and continuous information processing can increase mental workload. Furthermore, emotional demands arising from client interactions and the necessity to fulfill expectations may intensify psychological pressure among workers (Zapf et al., 2001).

Based on the JD-R theory, continuous cognitive and emotional demands may initiate a health impairment process, in which excessive work demands gradually deplete individual energy resources and increase the risk of fatigue and health problems (Demerouti et al., 2001). In architectural work, complex designs, frequent client revisions, demanding quality standards, and deadline pressures represent occupational demands requiring high levels of concentration and continuous decision-making. When these conditions persist without sufficient recovery opportunities, employees may experience sleep disturbances, including difficulty initiating sleep, frequent nighttime awakenings, shortened sleep duration, and daytime fatigue. This mechanism is consistent with the cognitive model of insomnia, which explains that psychological stress and excessive cognitive activation can trigger a state of hyperarousal that disrupts normal sleep processes (Harvey, 2002; Bonnet & Arand, 2010).

Previous studies have demonstrated an association between job demands and sleep quality among workers. Scovelle et al. (2021) reported that psychosocial workplace stressors are associated with an increased risk of poor sleep quality among employees. Similarly, Linton and Kecklund (2015) found that job stress, time pressure, and psychosocial work factors significantly contribute to sleep problems. Åkerstedt (2006) further explained that psychosocial stress caused by occupational demands can interfere with the body's recovery mechanisms and increase vulnerability to sleep disturbances. In addition, Åkerstedt and Kecklund (2009) showed that high workload conditions are associated with impaired sleep due to increased physiological and psychological activation after work. These findings confirm that job demands represent an important determinant influencing workers' sleep quality.

Although the relationship between general job demands and sleep quality has been widely investigated, studies specifically examining client design demands as a form of job demand among architectural consultant employees remain limited, particularly in Indonesia. Previous studies have predominantly focused on general workload or occupational groups such as healthcare workers, construction workers, and industrial employees (Pratiwi, 2019; Armadani, 2022). However, architectural consultants possess unique occupational characteristics due to the combination of creative demands, intensive client interactions, frequent design modifications, and the requirement to maintain both aesthetic and technical standards simultaneously. These distinctive characteristics indicate a research gap that requires further investigation.

The novelty of this study lies in its specific examination of client design demands as a contextual dimension of job demands that may influence sleep quality among architectural consulting employees. Unlike previous studies that generally evaluate job demands from a broad workload perspective, this research focuses on specific occupational pressures within the architectural design process, including client requirement changes, design complexity, revision frequency, and project completion pressures. This approach provides a new perspective on how creative and client-oriented professions may contribute to occupational health risks, particularly concerning employees' recovery processes through sleep quality.

PT Narendra Karya is an architectural consulting company whose main activities include design concept development, preparation of working drawings, and project implementation assistance. In performing their responsibilities, employees are required to accommodate various client requests that frequently change throughout the design process. Moreover, strict project deadlines may increase workload intensity and psychological pressure among employees. These conditions make PT Narendra Karya an appropriate setting for examining the relationship between client design demands and employee sleep quality.

Based on this background, this study aims to analyze the relationship between client design demands and sleep quality among employees at the Architectural Consultant Firm PT Narendra Karya. The findings of this study are expected to provide empirical evidence regarding the influence of client design demands on employees' sleep quality and offer practical recommendations for companies in developing workload management

strategies, improving work organization, and implementing occupational health interventions to maintain employee productivity and well-being.

METHOD

This research is a quantitative study with an observational analytical design using a cross-temporal approach. This design was chosen because the independent and dependent variables were measured simultaneously to explore the relationship between client design demands and employee sleep quality at the Architectural Consultant Office of PT Narendra Karya. This study was conducted at PT Narendra Karya, located in Kediri City, East Java. The research location was chosen because the company operates in the architectural consulting sector, which is characterized by high design demands, such as design complexity, repeated revisions, strict quality standards, and pressure to meet project deadlines. Data collection took place in May 2026.

The study subjects were all 33 employees of PT Narendra Karya involved in the planning and preparation of architectural designs. The sampling method used was total sampling, so all members of the population who met the inclusion criteria became respondents.

Inclusion criteria included employees who worked in departments directly involved in the design process, were willing to participate as respondents, and were able to complete the questionnaire completely. Meanwhile, the exclusion criteria were employees who were on leave or not actively working at the time the research was conducted, as well as respondents who returned incomplete questionnaires. The independent variable in this study was the client's design demands, while the dependent variable was sleep quality. Client design demands were assessed using a questionnaire based on the Job Demands–Resources (JD-R) concept introduced by Demerouti et al. This measurement tool consists of several statements on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). This measurement encompasses four main indicators: design complexity, frequent design changes, high design quality standards, and deadline pressure.

Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI) introduced by Buysse et al. This tool has seven components: subjective sleep quality, time needed to sleep, sleep duration, sleep efficiency, sleep disturbances, use of sleeping

medication, and interference with daytime activities. The total PSQI score is obtained by summing all components and then categorizing them into good and poor sleep quality according to the PSQI guidelines.

Before being applied to the study, this measurement tool underwent a series of validity and reliability tests. Validity was tested using Pearson Product Moment correlation, while reliability was assessed using Cronbach's Alpha, with a value of ≥ 0.60 as the criterion for instrument reliability. Information collection was conducted after obtaining permission from PT Narendra Karya. Respondents were provided with an explanation of the research objectives, benefits, guaranteed data confidentiality, and their right to discontinue participation at any time. Respondents then completed the questionnaire independently, with support from the researcher if any questions needed clarification.

Data analysis was conducted in stages, starting with univariate analysis, followed by bivariate analysis, and finally multivariate analysis. The univariate analysis aimed to describe the characteristics of the respondents, the distribution of client design demands, and sleep quality, expressed in frequencies and percentages. Bivariate analysis was conducted using the Spearman Rank test due to the ordinal nature of the data used, aiming to determine the relationship between client design demands and sleep quality. Then, multivariate analysis was conducted using logistic regression to measure the effect of client design demands on sleep quality, with a statistical significance level of $p < 0.05$. The results of the analysis are presented in the form of a regression coefficient (B), Odds Ratio (Exp(B)), 95% Confidence Interval, and significance value (p-value). This research adhered to various ethical principles, including respect for respondent autonomy, the principle of benefit, non-harm, and the principle of fairness. All respondents provided informed consent before participating, and all data collected was guaranteed confidentiality and used solely for research purposes.

RESULTS AND DISCUSSION

Respondent Characteristics

This study involved 33 employees of PT Narendra Karya who met the criteria for respondents. Respondent characteristics included gender, age, and length of service. Based on gender, 17 respondents (51.5%) were male, while 16 respondents (48.5%) were

female. Based on age group, the majority of respondents were in the 20–29 age range (28 respondents (84.8%)), followed by 3 respondents aged 29 years and above (9.1%), and 2 respondents aged <20 years (6.1%). Based on length of service, 17 respondents (51.5%) had less than 3 years of service, while 16 respondents (48.5%) had 3 years or more of service. These results indicate that the study respondents were predominantly productive-age workers, with a relatively balanced distribution of gender and length of service.

Table 1. Respondent Characteristics (n = 33)

Respondent Characteristics by Gender		
Gender	Total	Percentage (%)
Female	16	48,5
Male	17	51,5
Total	33	100,0
Respondent Characteristics Based on Age		
Age	Total	Percentage (%)
Age 20-29 years	28	84,8
Age ≥29 years	3	9,1
Age <20 years	2	6,1
Total	33	100,0
Respondent Characteristics Based on Years of Service		
Years of Service	Total	Percentage (%)
New Employment Period (<3 years)	17	51,5
Long Service Period (≥3 years)	16	48,5
Total	33	100,0

Distribution of Client Design Demands

The measurement results indicate that employees' perceived levels of client design demands fall between the medium and high categories. The majority of respondents (17 respondents) fell into the medium category, while 16 respondents (48.5%) fell into the high category. No respondents fell into the low design demand category. These findings indicate that nearly all employees face relatively high job demands, particularly related to design revisions, quality standards, and completing work within client deadlines.

Table 2. Distribution of Client Design Demands

Category	Number of Respondents	Percentage	Total
Medium	17	51.5	51.5
High	16	48.5	100.0

Total	33	100.0
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Sleep Quality Distribution

Based on measurements using the Pittsburgh Sleep Quality Index (PSQI), the majority of respondents (18 respondents) had moderate sleep quality, while 15 respondents (45.5%) had poor sleep quality. No respondents had good sleep quality. This indicates that nearly half of employees still experience sleep disorders, potentially impacting their physical condition, concentration, and work productivity.

Table 3. Sleep Quality Distribution

Category	Number of Respondents	Percentage	Total
Average	18	54.5	54.5
Poor	15	45.5	100.0
Total	33	100.0	

Relationship between Client Design Demands and Sleep Quality

Crosstabulation results show differences in the distribution of sleep quality based on the level of client design demands. In the group of respondents with moderate design demands, 16 respondents (94.1%) had moderate sleep quality, and only 1 respondent (5.9%) had poor sleep quality. Conversely, in the group with high design demands, 14 respondents (87.5%) had poor sleep quality, while only 2 respondents (12.5%) had moderate sleep quality. These results indicate a tendency that the higher the client design demands employees receive, the greater the proportion of respondents experiencing poor sleep quality.

Table 4. Relationship between Client Design Demands and Sleep Quality

			Sleep Quality		Total
			Moderately	Poor	
Client Design Demands	Medium	Total	16	1	17
		Percentage of Client Design Demands	94.1%	5.9%	100.0%
	High	Total	2	14	16
		Percentage of Client Design Demands	12.5%	87.5%	100.0%
	Total	Total	18	15	33

Percentage of Client	54.5%	45.5%	100.0%
Design Demands			

Logistic Regression Analysis

A logistic regression analysis was conducted to determine the effect of client design demands on sleep quality. The analysis results showed that the client design demands variable had a regression coefficient (B) of 0.483 with a significance value (p) of 0.021. This value is less than 0.05, indicating that client design demands significantly influence employee sleep quality. The Exp(B) value of 1.621 indicates that each increase in the level of client design demands increases the likelihood of poor sleep quality by 1.621 times. Thus, client design demands are a factor associated with decreased sleep quality among PT Narendra Karya employees.

Table 5. Results of Logistic Regression Analysis

Variable	B	S.E.	Wald	Sig.(p)	Exp(B)(OR)	Description
Client Design Requirements	0,483	0,209	5,324	0,021	1,621	Have a significant impact
Constants	-23,854	11,387	4,389	0,036	0,000	-

Discussion

The results of this study indicate a strong correlation between client design demands and employee sleep quality at PT Narendra Karya. Logistic regression analysis yielded a significance value of $p = 0.021$ and $\text{Exp}(B) = 1.621$, indicating that the higher the client design demands, the greater the likelihood of employees experiencing poor sleep. Furthermore, cross-tabulation data revealed that of the 16 respondents classified in the high client design demands group, 14 (87.5%) experienced sleep problems. Conversely, in the moderate client design demands group, the majority (94.1%) reported moderate sleep quality. These findings suggest a pattern whereby increases in client design demands tend to be accompanied by a decrease in employee sleep quality.

These findings can be understood through the Job Demands–Resources (JD-R) Theory proposed by Bakker and Demerouti. This theory explains that job demands include elements that force individuals to exert continuous physical and mental effort. When these demands reach high levels without adequate work resources, workers can experience a decline in health, indicated by increased fatigue, work stress, and impaired recovery. Within the scope of this research, client design demands, including work

complexity, frequent design revision requests, high quality standards, and pressure to complete projects quickly, are sources of psychological stress that can interfere with the body's recovery after work.

The characteristics of work in architectural consulting firms require employees to maintain constant focus, imagination, and precision throughout every design phase. Client-requested changes often force employees to assess, modify, and even rearrange working drawings within a limited timeframe. This situation increases mental demands because workers are not only required to complete tasks within deadlines but also to ensure that the design meets the client's expectations. Continuous work pressure can cause employees to dwell on tasks after work hours, disrupting the relaxation process before bed and reducing sleep quality.

The results of this study can be explained using the Effort-Recovery Theory proposed by Meijman and Mulder. This theory states that any work activity that requires both physical and mental effort will cause physiological and psychological strain. After the work activity is completed, the body needs time to recover. However, if work demands continue or workers are unable to detach from the pressure, recovery cannot occur properly. This results in accumulated fatigue and can lead to various health problems, including decreased sleep quality. At PT Narendra Karya, frequent design revisions, timely project completion, and client quality expectations are factors that can interfere with this recovery process.

Furthermore, the results of this study are supported by the Sleep Arousal Theory, which explains that stress and mental pressure can increase central nervous system activity (hyperarousal). This activity can lead to individuals having difficulty falling asleep, waking frequently during the night, and not achieving ideal sleep quality. In this study, the high design demands from clients are suspected to have an impact on increased cognitive and emotional load, making it difficult for workers to detach their minds from work during breaks. As a result, sleep becomes less efficient and sleep quality decreases.

The findings of this study align with those of Scovelle et al. (2021), which showed that workers facing high job demands were more likely to experience sleep-related disturbances compared to those with lower job demands. This study revealed that intense job pressure increased psychological stress, prolonged the time it took to fall asleep, and reduced overall sleep quality. These findings also support research by Linton and

Kecklund, which stated that time pressure and psychosocial demands in the work environment were factors associated with sleep disturbances in workers. These similar results suggest that job demands are a significant determinant of sleep quality across various occupations, including the architectural consulting sector.

However, workers' sleep quality is not solely influenced by the design demands placed on them by clients. Other factors, such as personal stress levels, cognitive load, length of work hours, extended work hours, organizational support, workplace conditions, and personal characteristics, also play a role in determining sleep quality. These factors were not examined in depth in this study, potentially contributing to confounding variables. Therefore, future research should consider these factors to gain a more detailed understanding of the factors influencing sleep quality among workers in the architectural consultancy sector.

From a practical perspective, the results of this study suggest that managing clients' design demands should be a primary focus for companies as part of efforts to maintain occupational health. Companies should implement more realistic work targets, use an organized design revision system, distribute the workload fairly, and plan more efficient deadlines. These measures are expected to reduce mental stress experienced by employees, allowing for optimal post-work recovery and maintaining sleep quality. Quality sleep is expected to improve productivity, focus, and the quality of work output.

CONCLUSION AND RECOMMENDATIONS

This study concludes that client design demands have a significant relationship with employee sleep quality at the Architectural Consulting Firm PT Narendra Karya. Based on the analysis of 33 respondents, logistic regression results showed a significant association between client design demands and sleep quality ($p = 0.021$; $\text{Exp}(B) = 1.621$), indicating that higher client design demands increase the likelihood of experiencing poor sleep quality. The complexity of design tasks, frequent revisions, strict quality requirements, and project deadline pressures contribute to increased mental workload, which may interfere with the recovery process after work. These findings support the Job Demands–Resources (JD-R) theory, which explains that excessive job demands without adequate resources can lead to fatigue and negatively affect workers' health. Therefore, companies are encouraged to implement effective workload management strategies,

optimize design revision procedures, and improve time management systems to maintain employee well-being and productivity.

The recommendations of this study include improving workload distribution, establishing realistic work targets, and developing a structured coordination system for handling client design changes at PT Narendra Karya. Employees are encouraged to manage working time effectively, maintain healthy sleep habits, and communicate actively with supervisors and clients to minimize excessive work pressure. Future researchers are recommended to conduct studies with larger sample sizes, broader organizational settings, and additional variables such as work stress, mental workload, overtime practices, organizational support, and other psychosocial factors. This study has several limitations, including the relatively small sample size of 33 respondents, the use of a cross-sectional design that limits causal interpretation, and the focus on a single architectural consulting company, which may restrict the generalizability of the findings. Further longitudinal and multi-company studies are needed to provide a more comprehensive understanding of how client design demands influence employee sleep quality over time.

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