

THE EFFECT OF WORK DISCIPLINE, WORK MOTIVATION, AND WORK ENVIRONMENT ON SHIP CREW PERFORMANCE AT PT PERUSAHAAN PELAYARAN TANJUNG KUMAWA

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Abstract

This study examines the effects of work discipline, work motivation, and the work environment on ship crew performance at PT Perusahaan Pelayaran Tanjung Kumawa. The study was motivated by a decline in the average ship crew Key Performance Indicator from 91% in 2023 to 83% in 2025. An associative quantitative and cross-sectional design was applied from February to May 2026 in the BP Offshore Bintuni operational area, Papua. The population consisted of 80 ship crew members, while 67 respondents were determined using the Slovin formula at a 5% margin of error and selected through convenience sampling. Primary data were collected using a five-point Likert questionnaire and analyzed using Structural Equation Modeling-Partial Least Squares with SmartPLS 4. The results show that work discipline has a positive but statistically insignificant effect on ship crew performance, while work motivation has a negative and insignificant effect. The work environment has a positive and significant effect and is the strongest predictor in the model. The model explains 71.4% of the variance in ship crew performance. The findings emphasize the importance of maintaining adequate onboard facilities, orderly and clean workspaces, supportive working relationships, and effective communication.

Keywords: *Work Discipline; Work Motivation; Work Environment; Ship Crew Performance; Maritime Human Resources*

Abstrak

Penelitian ini mengkaji pengaruh disiplin kerja, motivasi kerja, dan lingkungan kerja terhadap kinerja awak kapal di PT Perusahaan Pelayaran Tanjung Kumawa. Penelitian ini dilatarbelakangi oleh penurunan rata-rata Indikator Kinerja Utama (KPI) awak kapal dari 91% pada tahun 2023 menjadi 83% pada tahun 2025. Desain penelitian kuantitatif asosiatif dengan pendekatan *cross-sectional* diterapkan dari bulan Februari hingga Mei 2026 di wilayah operasional BP Offshore Bintuni, Papua. Populasi penelitian terdiri dari 80 awak kapal, sedangkan 67 responden ditentukan menggunakan rumus Slovin dengan tingkat kesalahan 5% dan dipilih melalui teknik *convenience sampling*. Data primer dikumpulkan menggunakan kuesioner skala Likert lima poin dan dianalisis menggunakan *Structural Equation Modeling-Partial Least Squares* (SEM-PLS) dengan perangkat lunak SmartPLS 4. Hasil penelitian menunjukkan bahwa disiplin kerja berpengaruh positif namun tidak signifikan secara statistik terhadap kinerja awak kapal, sedangkan motivasi kerja berpengaruh negatif dan tidak signifikan. Lingkungan kerja berpengaruh positif dan signifikan serta menjadi prediktor terkuat dalam model tersebut. Model ini menjelaskan 71,4% varians dalam kinerja awak kapal. Temuan ini menekankan pentingnya menjaga fasilitas kapal yang memadai, ruang kerja yang tertata rapi dan bersih, hubungan kerja yang suportif, serta komunikasi yang efektif.

Kata kunci: *Disiplin Kerja; Motivasi Kerja; Lingkungan Kerja; Kinerja Awak Kapal; Sumber Daya Manusia Maritim*

INTRODUCTION

Maritime human resources, particularly seafarers, have a strategic role in sustaining shipping operations in an archipelagic country such as Indonesia. Ship crew performance affects not only operational efficiency but also navigation safety, compliance with procedures, and the reliability of marine services. From a human resource management perspective, individual performance is shaped by the interaction of personal and organizational factors, including work behavior, motivation, discipline, and the opportunity and support provided by the work environment (Dessler, 2017; Robbins & Judge, 2017). This relationship becomes especially important in offshore shipping operations, where crew members work in confined environments, follow watch schedules, and perform tasks under demanding safety requirements.

PT Perusahaan Pelayaran Tanjung Kumawa operates vessels supporting marine and logistics activities in Papua and surrounding offshore areas. Crew members are directly involved in vessel operations and therefore represent a critical element in the effectiveness, efficiency, safety, and continuity of the fleet. Internal performance evaluations show a consistent decline in ship crew Key Performance Indicators during 2023-2025. The decline is not limited to one indicator, but appears across compliance with schedules, standard operating procedures, operational safety, readiness, teamwork, HSE compliance, and task completion quality.

Table 1. Ship Crew KPI Data of PT Perusahaan Pelayaran Tanjung Kumawa, 2023-2025

No.	Ship Crew KPI Indicator	2023	2024	2025
1	Compliance with working hours and duty schedules	89%	86%	82%
2	Compliance with vessel operational SOPs	91%	87%	83%
3	Compliance with vessel operational safety requirements	93%	90%	87%
4	Work readiness before operations/voyages	88%	85%	81%
5	Teamwork among crew members	90%	86%	82%
6	Compliance with occupational safety (HSE)	94%	91%	88%
7	Quality of operational task completion	90%	87%	83%
8	Average ship crew KPI	91%	87%	83%

Source: PT Perusahaan Pelayaran Tanjung Kumawa, 2023-2025; processed by Ferry Prastiaji, 2026.

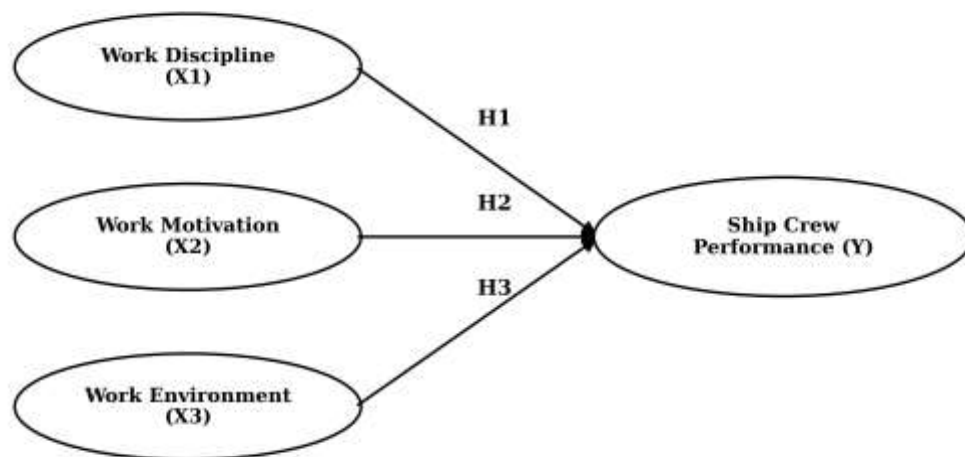
Table 1 shows a systematic downward trend in all indicators. Although the 2025 values remain within the company's 'good' range, the average KPI fell from 91% in 2023 to 87% in 2024 and 83% in 2025. The shift from the excellent category toward the lower good category indicates a persistent weakening of performance rather than a temporary fluctuation. Internal evaluation identified several possible determinants, including discipline, motivation, the work environment, competence, leadership, compensation and welfare, workload, and job stress. Among these factors, work discipline, work motivation, and the work environment were identified as dominant issues requiring closer empirical examination.

Work discipline reflects employee compliance with organizational rules, attendance

requirements, work standards, and expected behavior (Maskur et al., 2024; Dewi & Basrowi, 2024). Work motivation represents internal and external drives that direct and sustain behavior toward achievement, recognition, and personal development (Safrizal, 2022; Fauzan et al., 2023; Sofia, 2023). The work environment includes physical and non-physical conditions surrounding employees, including cleanliness and order, work relationships, and facilities that support task execution (Siagian, 2022; Setiyawami, 2023). In ship operations, these conditions are inseparable from performance because crew members work and live in the same confined environment for specific operational periods.

Previous empirical findings remain inconsistent. Work discipline was reported to affect performance by Utami et al. (2025) and Aminnudin and Muna (2025), whereas Molly et al. (2025) and Susanti et al. (2024) found no significant effect. Work motivation was significant in Khomariyah et al. (2025) and Santoso and Anggraini (2025), but was not significant in Susanti et al. (2024) and Wulandari et al. (2024). Similarly, the work environment was significant in several studies (Aminnudin & Muna, 2025; Molly et al., 2025; Hanifah & Santoso, 2025), while Utami et al. (2025) and Wulandari et al. (2024) reported non-significant results. These differences indicate that the relationships are context-dependent and should be retested in the maritime sector.

The novelty of this study lies in testing the three variables in an offshore ship crew context and grounding the research problem in the company's multi-year KPI data. The study aims to examine whether work discipline, work motivation, and the work environment affect ship crew performance at PT Perusahaan Pelayaran Tanjung Kumawa. Accordingly, three hypotheses were formulated: H1, work discipline affects ship crew performance; H2, work motivation affects ship crew performance; and H3, the work environment affects ship crew performance.



Source: Adapted from Utami et al. (2025), Khomariyah et al. (2025), and Hanifah & Santoso (2025).

Figure 1. Research Model

METHOD

Research Design and Sample

This study used a quantitative associative approach with a cross-sectional design to test the relationships between work discipline, work motivation, the work environment, and ship crew performance. The research was conducted from February to May 2026 on company vessels operating in the BP Offshore Bintuni area, Papua. The population consisted of 80 ship crew members based on January 2026 crewing data. The sample size was determined using the Slovin formula with a 5% margin of error, resulting in 67 respondents. Respondents were selected through convenience sampling because ship crew mobility, operational schedules, and access limitations made probability-based selection impractical (Malhotra, 2010; Sekaran & Bougie, 2016).

Instrument and Measurement

Primary data were collected using an online questionnaire distributed through Google Forms and crew WhatsApp groups during the operational period. A five-point Likert scale was used, ranging from 1 (strongly disagree) to 5 (strongly agree). The instrument contained 13 indicators: three indicators for work discipline, three for work motivation, three for the work environment, and four for ship crew performance. Each indicator was represented by a statement developed from the theoretical definitions used in the thesis.

Table 2. Operationalization of Research Variables

Variable	Indicators	Source
Work Discipline (X1)	Rule compliance; attendance; work behavior	Maskur et al. (2024)
Work Motivation (X2)	Need for achievement; recognition; self-development	Safrizal (2022)
Work Environment (X3)	Workplace orderliness; work relationships; work facilities	Siagian (2022)
Ship Crew Performance (Y)	Work quality; work quantity; timeliness; responsibility	Thamrin Noor (2021)

Source: Developed from the research instrument, 2026.

Data Analysis Technique

Data were analyzed using Structural Equation Modeling-Partial Least Squares (SEM-PLS) with SmartPLS 4. The measurement model was assessed through convergent validity, discriminant validity, and reliability. Convergent validity was considered acceptable when outer loading values exceeded 0.70 and Average Variance Extracted (AVE) exceeded 0.50. Discriminant validity was evaluated using cross loading and the Fornell-Larcker criterion. Reliability was assessed through Cronbach's alpha, composite reliability rho_a, and composite reliability rho_c, each using a minimum threshold of 0.70. The structural model evaluation included path coefficients, hypothesis testing based on p-values below 0.05, R-square, adjusted R-square, and Chi-square.

RESULTS AND DISCUSSION

Respondent Profile and Descriptive Findings

A total of 67 questionnaires were analyzed. Respondents were predominantly male, aged 31-35 years, educated at senior high school or equivalent level, employed in

rating/ABK positions, and had worked for the company for 1-3 years. This composition reflects the main operational workforce directly involved in shipboard activities in the BP Offshore Bintuni area.

Table 3. Dominant Respondent Profile

Characteristic	Dominant Category	n	%
Gender	Male	62	92.54
Age	31-35 years	23	34.33
Education	Senior high school/equivalent	44	65.67
Position	Ratings (ABK)	28	41.79
Company tenure	1-3 years	24	35.82

Source: Primary data processed by the researcher, 2026.

The response distribution was generally favorable across all constructs. For work discipline, the largest proportion of strongly agree responses appeared on compliance with rules, procedures, and operational standards (50.75%). For work motivation, the highest strongly agree response was 53.73% for both the drive to achieve good work results and increased motivation when work is appreciated or recognized. The work environment received the strongest descriptive response: 61.19% strongly agreed that cleanliness and order onboard support work comfort. Ship crew performance was also rated highly, with 58.21% strongly agreeing that they could meet assigned work targets and that they were responsible for carrying out their onboard duties.

Measurement Model Evaluation

All indicators met convergent validity requirements. Outer loading values ranged from 0.881 to 0.934 for work discipline, 0.853 to 0.925 for work motivation, 0.838 to 0.899 for the work environment, and 0.794 to 0.903 for ship crew performance. All AVE values were above 0.50. The cross-loading assessment showed that each indicator loaded highest on its intended construct. The Fornell-Larcker diagonal values were 0.900 for work discipline, 0.883 for work motivation, 0.871 for the work environment, and 0.855 for ship crew performance, each exceeding the corresponding inter-construct correlations. Cronbach's alpha, rho_a, and rho_c were also above 0.70 for all constructs. Therefore, the measurement model was valid and reliable.

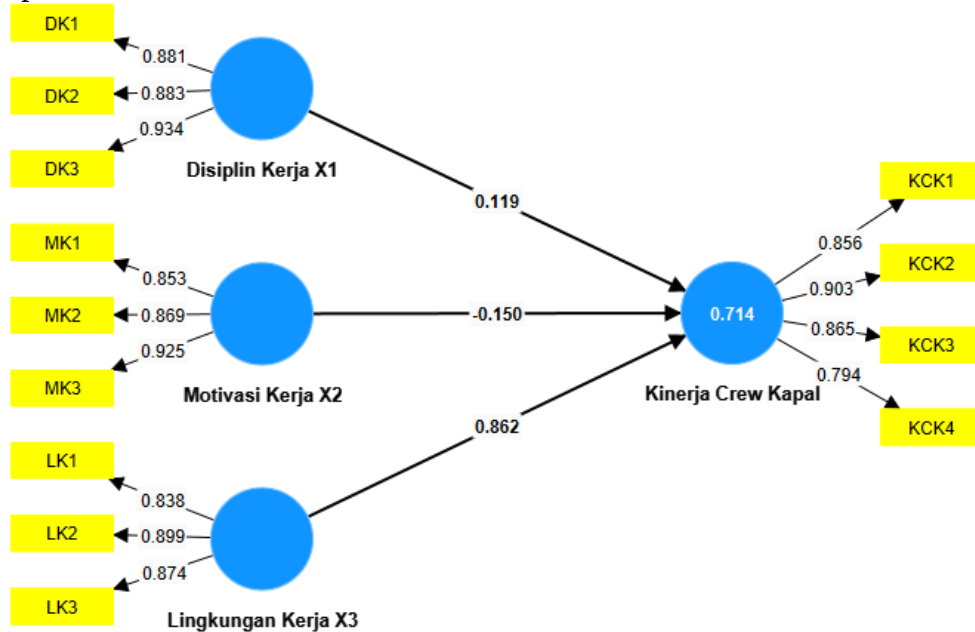
Table 4. Summary of Measurement Model Evaluation

Construct	Outer Loading	AVE	Alpha	rho_a	rho_c
Work Discipline (X1)	0.881-0.934	0.810	0.884	0.907	0.927
Work Motivation (X2)	0.853-0.925	0.780	0.859	0.877	0.914
Work Environment (X3)	0.838-0.899	0.759	0.841	0.849	0.904
Ship Crew Performance (Y)	0.794-0.903	0.732	0.877	0.880	0.916

Source: Primary data processed by the researcher, 2026.

Structural Model Evaluation and Hypothesis Testing

The structural model produced an R-square of 0.714 and an adjusted R-square of 0.700 for ship crew performance. This means that work discipline, work motivation, and the work environment jointly explain 71.4% of the variation in ship crew performance, while 28.6% is associated with other factors outside the model, such as competence, leadership, training, compensation, workload, fatigue, and other operational conditions. Based on the criteria used in the thesis, the explanatory power is moderate and approaches the strong category. The Chi-square value was 220.912 for both the saturated and estimated models, indicating no change in this fit indicator between the two specifications.



Source: Primary data processed by the researcher, 2026.

Figure 2. Structural Model and Path Coefficients

Table 5. Structural Model and Hypothesis Testing

Hypothesis	Relationship	Coefficient	p-value	Decision
H1	Work Discipline → Ship Crew Performance	0.119	0.313	Rejected
H2	Work Motivation → Ship Crew Performance	-0.150	0.240	Rejected
H3	Work Environment → Ship Crew Performance	0.862	0.000	Accepted

Source: Primary data processed by the researcher, 2026.

Effect of Work Discipline on Ship Crew Performance

Work discipline had a positive coefficient of 0.119, but its p-value of 0.313 exceeded the 0.05 significance level. Therefore, H1 was rejected. The result indicates that differences in discipline did not directly explain differences in ship crew performance in this sample. The descriptive results show that most crew members already complied with rules, work procedures, operational standards, and expected behavior. In ship operations, discipline is embedded in watch schedules, duty assignments, safety procedures, and

binding work instructions. When adherence is relatively uniform across crew members, it may function as a minimum operational requirement rather than a factor that differentiates performance.

This interpretation is consistent with the view that discipline reflects compliance, attendance, responsibility, and behavioral consistency (Maskur et al., 2024; Dewi & Basrowi, 2024; Marjuni, 2024). Empirically, the non-significant result is consistent with Molly et al. (2025) and Susanti et al. (2024), but differs from Utami et al. (2025) and Aminnudin and Muna (2025), who found a significant effect. The finding does not mean that discipline is unimportant. The company should continue monitoring punctuality, attendance, watchkeeping, and procedural compliance, but performance improvement cannot rely solely on stricter rules.

Effect of Work Motivation on Ship Crew Performance

Work motivation produced a coefficient of -0.150 with a p-value of 0.240, so H2 was rejected. Because the relationship was not statistically significant, the negative direction should not be interpreted as evidence that higher motivation reduces performance. Respondents generally reported strong achievement needs, appreciation of recognition, and a desire to develop their abilities. However, these motivational conditions did not automatically translate into measurable performance differences.

Motivation is theoretically an internal and external drive that directs, activates, and sustains behavior toward organizational goals (Safrizal, 2022; Fauzan et al., 2023; Sofia, 2023). In the shipboard context, motivated crew members still operate within fixed task allocation, work schedules, operational procedures, equipment conditions, and supervisory directions. Recognition is more likely to produce productive behavior when it is supported by a fair and consistent reward system, performance feedback, career development, and training opportunities. The result is consistent with Susanti et al. (2024) and Wulandari et al. (2024), but differs from Khomariyah et al. (2025) and Santoso and Anggraini (2025).

Effect of Work Environment on Ship Crew Performance

The work environment had a coefficient of 0.862 with a p-value of 0.000, so H3 was accepted. It was the strongest relationship in the structural model. The result shows that better physical and non-physical working conditions are associated with higher ship crew performance. Respondents gave particularly strong assessments to cleanliness and order onboard, while work relationships and available facilities were also evaluated positively. These conditions directly support comfort, concentration, coordination, and the effectiveness of task completion.

The result is consistent with the concept that the work environment includes both physical conditions and social relationships that shape safety, comfort, and work effectiveness (Siagian, 2022; Setiyawami, 2023). It also aligns with Aminnudin and Muna (2025), Molly et al. (2025), and Hanifah and Santoso (2025), which reported a significant relationship between the work environment and performance. The finding differs from Utami et al. (2025) and Wulandari et al. (2024), illustrating again that sector and work context matter. Ship crew members work and live in the same operational environment for extended periods; therefore, vessel facilities, accommodation, cleanliness, equipment availability, communication with supervisors, and supportive relationships can have an immediate influence on daily performance.

CONCLUSION

The study concludes that work discipline has a positive but statistically insignificant effect on ship crew performance, while work motivation has a negative and statistically insignificant effect. Work discipline appears to function as a basic operational requirement that is relatively uniform among crew members, while motivation still requires an organizational system that can convert achievement needs, recognition, and development aspirations into productive work behavior. In contrast, the work environment has a positive and significant effect and is the strongest predictor in the model. Clean and orderly workspaces, supportive relationships, and adequate work facilities improve crew comfort and effectiveness. The model explains 71.4% of the variance in ship crew performance.

Practically, PT Perusahaan Pelayaran Tanjung Kumawa should maintain closer supervision of working and watch schedules, develop a fair and consistent recognition system, and prioritize planned maintenance and improvement of onboard work facilities and accommodation. Open communication, effective coordination, and professional problem solving between crew members and supervisors should also be strengthened. Future studies should consider additional variables such as competence, leadership, training, compensation, workload, fatigue, and occupational safety, expand the study to other shipping companies or vessel types, and use larger samples to obtain a broader understanding of maritime human resource performance.

REFERENCES

- Aminnudin, M., & Muna, N. F. (2025). The effect of discipline, work motivation, and the work environment on employee performance at PT Sahaalah Berkah Safar. *Jurnal Riset Ekonomi dan Industri*, 4(1).
- Bakker, A. B., & Demerouti, E. (2007). Job demands-resources model: State of the art. *Journal of Managerial Psychology*, 22(3), 309-328.
- Dessler, G. (2017). *Human Resource Management* (15th ed.). Pearson Education.
- Dewi, R., & Basrowi. (2024). *Human Resource Management*. Yogyakarta: Deepublish.
- Fauzan, A., et al. (2023). *Organizational Behavior*. Bandung: Alfabeta.
- Hanifah, F. N., & Santoso, A. B. (2025). The effect of discipline, motivation, and the work environment on employee performance at Oseebo Coffee. *Jurnal Ekonomi Manajemen Sistem Informasi*, 7(2). <https://doi.org/10.38035/jemsi.v7i2.7082>
- Kharisma, A. C., Ediyanto, E., & Minullah, M. (2025). The effect of work discipline, compensation, and the work environment on civil servant performance with work motivation as an intervening variable. *Jurnal Manajemen Ekonomi*, 3(8). <https://doi.org/10.36841/jme.v3i8.5127>
- Khomariyah, S. N., Wahyuni, I., & Ediyanto, E. (2025). The effect of motivation, work discipline, and the work environment on performance with job satisfaction as an intervening variable. *Jurnal Manajemen Ekonomi*, 4(4). <https://doi.org/10.36841/jme.v4i4.6799>
- Malhotra, N. K. (2010). *Marketing Research: An Applied Orientation* (6th ed.). Pearson Education.

- Marjuni, S. (2024). *Organizational Behavior*. Yogyakarta: Deepublish.
- Maskur, M., et al. (2024). *Human Resource Management*. Bandung: Alfabeta.
- Molly, S. D., Indrayani, I., & Yasa, I. W. C. (2025). The effect of work motivation, work discipline, and the work environment on employee performance with job satisfaction as an intervening variable at PT PLN (Persero) UP3 Tanjungpinang. *Jurnal Ekonomi dan Bisnis*, 25(1).
- Robbins, S. P., & Judge, T. A. (2017). *Organizational Behavior* (17th ed.). Pearson Education.
- Safrizal. (2022). *Human Resource Management*. Yogyakarta: Deepublish.
- Santoso, B., & Anggraini, T. B. (2025). The effect of motivation, discipline, and the work environment on employee performance at CV Nusantara Garment Surabaya. *Jurnal Manajemen dan Bisnis*, 25(2).
- Sekaran, U., & Bougie, R. (2016). *Research Methods for Business: A Skill-Building Approach* (7th ed.). Wiley.
- Setiyawami. (2023). *Organizational Behavior and Work Environment*. Yogyakarta: Deepublish.
- Siagian, L. (2022). *Human Resource Management*. Jakarta: Bumi Aksara.
- Sofia. (2023). *Performance Management and Work Motivation*. Bandung: Alfabeta.
- Susanti, R., Lambe, K. H. P., & Gunadi, H. (2024). The effect of motivation, discipline, and the work environment on employee performance at the Wamena Christian Foundation, Jayawijaya Regency. *Mariobre*, 2(2). <https://doi.org/10.63416/mrb.v2i2.301>
- Thamrin Noor. (2021). *Performance Management and Human Resource Evaluation*. Jakarta: Bumi Aksara.
- Utami, C. P., Widhiandono, H., Miftahuddin, M. A., & Purnadi, P. (2025). Analysis of the effects of motivation, discipline, the work environment, and work stress on employee performance: A study at the National Land Agency of Cilacap Regency. *Journal of Accounting and Finance Management*, 6(3). <https://doi.org/10.38035/jafm.v6i3.2305>
- Wulandari, W., Sabandar, S. Y., & Patiung, N. (2024). The effect of work motivation, the work environment, and work discipline on employee performance at PT Asri Tritunggal Property. *Mariobre*, 2(2). <https://doi.org/10.63416/mrb.v2i2.311>

