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IDENTIFYING THE RELATIONSHIP BETWEEN MENTAL HEALTH AND WORK PERFORMANCE: A CROSS-SECTIONAL STUDY IN BANTEN PROVINCE

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ABSTRACT

Background: In the context of global competition, industrial companies must prioritize strategic factors, particularly the development and well-being of human resources. In Indonesia's manufacturing sector, especially in Banten Province, employees are often subjected to considerable stress resulting from irregular working hours and demanding production targets. Mental health frequently overlooked by employers and organizational systems has a direct and significant impact on employee performance, influencing productivity, motivation, and work quality. **Objective:** To identify the relationship between mental health and work performance of manufacturing plant employees at PT. X in Banten Province. **Methods:** This study uses an analytical observational method with a cross-sectional design to examine 396 employees at PT. X's paper packaging plant in Serang City, selected through purposive sampling based on inclusion and exclusion criteria. Data were collected with a questionnaire using the DASS and IWPQ scales and analyzed using the Chi-square test. **Results:** This study found that depression, anxiety, and stress were each significantly associated with work performance (all $p < 0{,}001$), with stress having the strongest effect (OR = 4,062; 95% CI = 2,362–6,985). **Conclusion:** Depression, anxiety, and stress are significantly associated with reduced work performance among employees at PT. X. Therefore, employers and policymakers should prioritize implementing comprehensive mental health programs and supportive workplace policies to enhance employee well-being and improve productivity in the manufacturing sector.

BACKGROUND

Manufacturing plants must be capable of competing not only in the domestic market but also in the global market. To achieve this, plants are required to continuously improve their performance to remain competitive. One effective approach is to concentrate on critical components of the production system, including human resources, machinery, materials, finance, methods, and environmental factors. Among these, human resources are paramount, as the performance of a plant largely depends on the skills, expertise, and competencies of its workforce.[1] The manufacturing sector in Indonesia plays a crucial role in the country's social development and economic growth. According to data from Statistics Indonesia (BPS), there were 19 million people employed in the manufacturing sector in 2022.[2] Among all Indonesian provinces, Banten ranks fourth in terms of the number of manufacturing companies, with 3,544 companies.[3] The manufacturing industry in Banten also absorbs a large workforce, employing approximately 1.18 million people.[4]

The manufacturing industry sets high standards to ensure that the products produced are of good quality. Employees in this sector are required to work according to these standards, which often create pressure and can lead to work-related stress.[5] Plant workers, who frequently work irregular hours or in

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shift systems to meet 24-hour operational demands, face additional challenges.[5] The heavy workload, especially for those with families and children, can impact their quality of life, including their job performance.[6] Manufacturing plants must understand the physiological and psychological workloads faced by employees, as these directly impact their well-being and ensure that work outcomes align with industry targets.[6] Therefore, workloads should be tailored to match the physical and mental capabilities of employees to prevent health risks.[7] Protecting mental health is also crucial, which can be supported through mental health counseling services, health benefits, and the implementation of Occupational Health and Safety Programs (OHS).[7]

World Health Organization (WHO) defines mental health as a state of well-being where an individual is aware of their own potential, can handle normal life stresses, work productively, and contribute to their community.[8] A disturbance in mental health refers to an individual's inability to adapt and maintain positive interactions with their environment. Long-term exposure to stressors, whether at work or in personal life, is often linked to various mental health conditions and functional impairments.[9] Mental health refers to an individual's dynamic psychological well-being, while poor mental health is commonly characterized by conditions such as depression, anxiety, and persistent fear. The increasing global prevalence of work-related mental health disorders has emerged as a critical public health issue requiring urgent attention. These disorders adversely affect organizations by contributing to decreased productivity, impaired job performance, elevated absenteeism, diminished workplace morale, and increased employee turnover.[10] Additionally, mental health disorders can cause considerable loss of productive work time, thereby increasing employee compensation expenditures.[10]

According to the WHO, a supportive and comfortable work environment significantly promotes mental well-being, whereas a detrimental work environment poses substantial risks to employees' mental health.[11] The WHO estimates that in 2019, 15% of working adults with over 15 years of employment experience suffered from mental disorders, with depression and anxiety contributing to a loss of 12 billion workdays and a productivity loss of $1 trillion annually. In Indonesia, mental health issues also represent a major concern.[11] The 2018 national RISKESDAS report recorded an emotional mental disorder prevalence of 14% in Banten Province, with depression affecting 8.7%, figures significantly higher than in other provinces.[12] The mental health condition of employees impacts various aspects of work performance. Work performance can be defined as the effort or behavior of employees in contributing, either positively or negatively, to the organization's goals.[13]

Research on the direct relationship between mental health and employee performance is still relatively rare, especially in Indonesia. Many companies, particularly in manufacturing plants, focus mainly on physical productivity and work efficiency without considering employees' mental health in depth.[14] Additionally, previous research has been limited, with few studies comprehensively examining this relationship. This study is important as it aims to provide a deeper understanding of how mental health affects work performance, particularly in manufacturing plants. Focusing on plant employees in Banten Province offers significant value, given the high number of manufacturing plants in the region and the large workforce, which allows the findings to provide relevant for plants in Indonesia.

METHODS

This study was conducted from March to May 2024 using an analytical observational approach with a cross-sectional design. The target population consisted of 1.693 employees working at the PT. X manufacturing plant. A purposive sampling technique was employed to select respondents deemed most relevant to the study objectives. The inclusion criteria were: (1) currently employed as a production plant worker at PT. X, (2) having at least one year of continuous employment, and (3) providing informed consent to participate. The exclusion criteria included: (1) employees who did not fully complete the questionnaire, (2) those who had been on leave or had traveled outside the city or country within the past three months, and (3) those currently undergoing psychological therapy or treatment during the same period. The minimum required sample size was determined using a two-proportion formula, yielding a target of at least 126 participants. Although purposive sampling was deemed suitable for selecting

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individuals with specific characteristics pertinent to the study objectives, this non-probability sampling technique may limit the representativeness of the sample and introduce potential selection bias. These limitations should be acknowledged when interpreting and generalizing the study findings.

Data collection was carried out using two main methods: the Depression, Anxiety, and Stress Scale (DASS) questionnaire to effectively measure levels of depression, anxiety, and stress in individuals[15], and the Individual Work Performance Questionnaire (IWPQ) to assess work performance.[16] The IWPQ includes 18 questions divided into three key areas: task performance, contextual performance, and counterproductive work behavior. The questionnaire uses a 1-4 scale, reflecting the frequency with which an individual experiences specific situations described in the questions. The results were categorized into two groups: excellent performance, with a cumulative score of less than 2.4, and poor performance, with a score greater than 2.4.

Before any research data is collected, potential participants are provided with an informed consent form, which they must complete if they agree to take part in the study. Researchers then gathered the necessary data by having participants fill out demographic forms and questionnaires. Based on the responses, the researcher made a diagnosis if the questionnaire indicated the presence of mental health symptoms. The data were processed using the IBM SPSS Statistics 23 program, which involved cleaning, editing, coding, tabulating, and entering the data for statistical analysis using the Chi-square test.

RESULTS

This study involved 396 participants who met the inclusion and exclusion criteria and provided written informed consent prior to participation. A univariate data analysis was conducted to describe the distribution of participant characteristics, including age, gender, marital status, and years of service.

Table 1. General characteristics of research subjects

Variable	Frequency	%
Age		
<45 years old	318	80
≥45 years old	78	20
Gender		
Male	356	90
Female	40	10
Marital status		
Single	83	21
Married	313	79
Years of service		
<5 years	123	32
≥5 years	273	68

Based on the data presented in Table 1, out of 396 study participants, the majority were under 45 years old (318 individuals, 80%). The sample was predominantly male (356 individuals, 90%), and most participants were married (313 individuals, 79%). In addition, 273 participants (68%) had more than five years of service at PT X, reflecting an experienced and stable workforce that may impact the study's outcomes.

Table 2. Mental health distribution of research subjects

Mental health	Frequency	%
Depression		
Depression	224	56,6
Normal	172	43,4
Anxiety		
Anxiety	233	58,8
Normal	163	41,2
Stress		
Stress	96	24,2
Normal	300	75,8

Based on the data presented in Table 2, the mental health characteristics of the subjects are reported as follows: In the depression category, 224 individuals (56,6%) are classified as depressed, while 172 individuals (43,4%) are considered normal. In the anxiety category, 233 individuals (58,8%) experience anxiety, and 163 individuals (41,2%) are normal. Meanwhile, in the stress category, 96 individuals (24,2%) are affected by stress, and 300 individuals (75,8%) are normal.

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Table 3. Work performance distribution of research subjects

Work performance	Frequency	%
Poor	1	0,3
Subpar	2	0,5
Satisfactory	19	4,8
Good	199	50,2
Excellent	175	44,2

Based on the data in Table 3, it is reported that 199 subjects (50.2%) demonstrated good work performance, followed by 175 subjects (44.2%) with excellent performance, 19 subjects (4.8%) with satisfactory performance, 2 subjects (0.5%) with subpar performance, and 1 subject (0.3%) with poor performance.

Table 4. The relationship between mental health (depression, anxiety, and stress) and work performance

Mental health condition	Work performance				*p* -value	OR (95% CI)
	Poor		Excellent			
	n	%	n	%		
Depression						
Depression	152	67,9	72	32,1	$p < 0,001$	3,151 (2,083 – 4,769)
Normal	69	40,1	103	59,9		
Anxiety						
Anxiety	156	67	77	33	$p < 0,001$	3,055 (2,016 – 4,629)
Normal	65	39,9	98	60,1		
Stress						
Stress	76	79,2	20	20,8	$p < 0,001$	4,062 (2,362 – 6,985)
Normal	145	48,3	155	51,7		

According to the Chi-square test results presented in Table 4,4, there is a significant relationship between mental health (depression, anxiety, and stress) and work performance among employees at PT X. In the depression category, the results show a significant relationship between depression and work performance ($p < 0,001$), with an Odds Ratio (OR) value of 3,151. This OR indicates that individuals experiencing depression are 3,1 times more likely to have poor work performance compared to those without depression, with a 95%CI ranging from 2,083- 4,769. Among the 224 respondents who experienced depression, 152 (67,9%) had poor work performance.

In the anxiety category, the results show a significant relationship between anxiety and work performance ($p < 0,001$), with an Odds Ratio (OR) value of 3.055. This OR indicates that individuals experiencing anxiety are 3 times more likely to have poor work performance compared to those without anxiety, with a 95% CI ranging from 2,016 – 4,629. Of the 233 respondents with anxiety, 156 (67%) exhibited poor work performance.

The stress variable demonstrated the strongest association with work performance, as indicated by a significant relationship ($p < 0,001$) and an Odds Ratio (OR) of 4,062. This suggests that respondents experiencing stress are over four times more likely to exhibit poor work performance compared to those without stress, with a 95% CI ranging from 2,362 to 6,985. Among the 96 respondents reporting stress, a substantial majority 76 individuals (79,2%) demonstrated poor work performance, underscoring the critical impact of stress on employee productivity.

Table 5. The relationship between characteristics of research subjects and work performance

Variable	Work performance				*p* -value	OR (95% CI)
	Poor		Excellent			
	n	%	n	%		
Age						
<45 years old	179	56,3	139	43,7	$p = 0,697$	1,104 (0,671 – 1,815)
≥45 years old	42	53,8	36	46,2		
Gender						
Male	203	57	153	43	$p = 0,147$	1,622 (0,840 – 3,129)
Female	18	45	22	55		

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Marital status						
Single	44	53	39	47	p = 0,564	0,867 (0,533 – 1,409)
Married	177	56,5	136	43,5		
Years of service						
<5 years	67	54,5	56	45,5	p = 0,719	0,925 (0,603 – 1,418)
≥5 years	154	56,4	119	43,6		

Based on Table 5, the chi-square analysis shows no significant relationship between age and work performance (p=0,697), with an OR=1,104 and 95% CI=0,671 – 1,815. Similarly, there is no significant relationship between gender (p=0,147, OR=1,622, and 95% CI=0,840 – 3,129) and marital status (p=0,564, OR=0,867, and 95% CI=0,533 – 1,409) with work performance. Years of service (p=0,719, OR=0,925, and 95% CI=0,603 – 1,418) also shows no significant relationship with work performance.

DISCUSSION

The relationship between depression and work performance

Depression can significantly disrupt work performance, particularly in the ability to maintain efficiency and productivity in the workplace. Individuals experiencing depression often face emotional exhaustion, feeling overly tired and drained, which directly impacts their ability to perform tasks effectively.[17] Furthermore, depression can lead to negative attitudes and a lack of interest in work and colleagues, which further hinders job performance.[17] Poor work organizational conditions, such as excessive workload or lack of social support, can increase the risk of depression among employees. Depression then acts as a mediator, exacerbating the negative effects of these conditions on job performance. Employees experiencing depression often face a decline in productivity, work quality, and job satisfaction due to difficulties in concentration, feelings of isolation, and loss of motivation.[18] The results of this study indicate a significant relationship between depression and work performance (p < 0,001). Among the respondents, 152 individuals (67,9%) experiencing depression showed poor work performance, while 72 individuals (32,1%) with depression were still able to perform excellently. These findings are consistent with previous research by Vollmann et al., which reported that individuals with depression tend to exhibit significantly lower work performance compared to those with stable psychological health.[19]

However, the fact that a substantial proportion of employees with depression at PT X maintained good performance suggests that contextual factors, such as work culture, peer support, management expectations, or job structure, may moderate the impact of depression on performance. The production-oriented environment at PT X may compel some employees to sustain performance despite psychological distress, possibly at the expense of long-term well-being. Given these observations, it is crucial for PT X to implement preventive and supportive measures tailored to its specific work environment. Strategies may include establishing mental health support systems, providing routine psychological assessments, fostering an open and stigma-free dialogue around mental health, and training supervisors to recognize and respond to early signs of emotional distress. Integrating such interventions within the organizational framework could help mitigate the negative effects of depression while promoting a healthier and more sustainable work culture.

Additionally, research by Weber J, et al., also supports this, showing that higher levels of depressive symptoms are associated with poorer work performance over time, highlighting the importance of addressing depressive symptoms to maintain or improve work function.[20] This analysis reveals that the presence of depressive symptoms, in combination with changes in workplace conditions, can serve as predictors of alterations in an individual's work ability over time, from the initial assessment to follow-up evaluations.[20] The findings indicate that, in addition to the immediate impact of depression on work performance, these symptoms can lead to sustained impairments in an employee's ability to perform tasks effectively. Moreover, the significant influence of depressive symptoms on work ability observed after a three-year period highlight that the effects of depression can be long-lasting, potentially enduring well beyond the initial onset. This underscores the

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importance of continuous support and interventions to preserve the work capacity of individuals dealing with depression, as its impact on performance may persist for an extended duration if not addressed adequately.[20]

The relationship between anxiety and work performance

Anxiety is a common psychological condition that can significantly impact an individual's work performance.[21] Individuals with higher levels of anxiety often experience challenges such as decreased productivity, difficulty concentrating, and increased absenteeism. Anxiety can also lead to higher levels of stress, which, over time, may contribute to burnout and a decline in job performance. These individuals may struggle with tasks that require decision-making or social interactions, often feeling overwhelmed or nervous in the workplace. Additionally, anxiety disorders can impact overall job satisfaction, leading to disengagement and, in some cases, increased turnover. Addressing anxiety through appropriate interventions, such as therapy or workplace accommodations, can help mitigate these negative effects and improve work outcomes for those affected.[21] Several studies have shown that higher levels of anxiety are linked to lower job performance, as anxiety can impair cognitive function, emotional regulation, and interpersonal interactions. The results of this study indicate a significant relationship between anxiety and work performance ($p < 0,001$). Among the subjects experiencing anxiety, 156 individuals (67%) showed poor work performance, while 77 individuals (33%) with anxiety were still able to maintain excellent performance.

However, the variability in performance among anxious employees at PT X suggests that contextual factors, such as company culture, job role expectations, coping mechanisms, and supervisory support may influence how anxiety affects performance. In high-demand manufacturing environments like PT X, employees may feel pressured to perform despite psychological distress, potentially masking the full impact of anxiety in short-term productivity metrics. To address this issue, it is recommended that PT X integrate proactive mental health strategies into its workplace policies. These could include routine mental health screenings, on-site counseling services, structured stress-reduction programs, and capacity-building for managers to recognize and support employees facing emotional challenges. Such context-sensitive interventions would not only enhance employee well-being but also help sustain performance levels, reduce burnout risk, and foster a healthier organizational climate.

These findings align with the study by Zahra Z. et al., which identified a significant correlation between anxiety levels and individual work outcomes.[22] Anxiety can undermine an individual's work performance. It serves as a significant barrier for employees in making decisions and taking risks. Employees with high levels of anxiety often face undesirable consequences, tend to lack self-confidence, frequently harbor negative perceptions about their work and colleagues, and feel unworthy of handling job responsibilities.[22] These feelings can persist and evolve, leading to a disruption in the employee's work performance. As a result, employees who frequently experience anxiety are more likely to show poor work performance.[22]

Similarly, research by Nugraha D et al. found that anxiety has a negative and significant impact on work performance, mediated by resilience. This suggests that anxiety among employees undermines their resilience, indicating that some employees experience restlessness and stress when facing high job demands. The negative impact highlights how anxiety hinders employees' ability to recover from setbacks and maintain their performance levels.[23]

The relationship between stress and work performance

Stress is a common challenge in the workplace that can significantly affect an employee's performance. While a moderate level of stress can sometimes enhance focus and productivity, excessive or chronic stress typically leads to negative outcomes, such as decreased efficiency, poor decision-making, and burnout.[24] Research has shown that high levels of stress are often associated with lower work performance, as stress can impair cognitive function, motivation, and overall well-being. Understanding the relationship between stress and work performance is essential for organizations to create supportive environments that promote employee health and productivity.[24] The results of this study demonstrate a

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significant relationship between stress and work performance (p < 0,001), with stress showing the strongest association reflected by an Odds Ratio of 4,062. Among the respondents experiencing stress, 76 individuals (79,2%) exhibited poor work performance, while 20 individuals (20,8%) maintained excellent performance despite their stress.

The variation in performance among stressed employees at PT X may be influenced by contextual factors unique to the company's work culture, such as the level of managerial support, coping resources available, and the intensity of job demands. PT X's production environment may heighten stress levels, but simultaneously foster resilience in some employees, enabling them to sustain performance temporarily. These contextual differences may explain discrepancies observed when compared to other studies conducted in different organizational settings. In response to these findings, it is recommended that PT X implement comprehensive mental health interventions tailored to its specific work environment. Such strategies could include regular stress assessments, employee assistance programs, resilience training, and managerial workshops to recognize and mitigate workplace stress. Implementing these measures would not only improve employee well-being but also enhance overall productivity and organizational sustainability.

The results are consistent with the research conducted by Lasminingrat A et al., which identified a significant negative correlation between job stress and employee performance.[24] This finding aligns with the general assumption or previous research indicating that excessive stress in the workplace can hinder employees' ability to perform their tasks effectively.[24] A study by Chen B et al. also supports this, showing that job stress negatively affects employee performance.[10] Workplace stress tends to impact the psychological state of employees, including their motivation levels, job satisfaction, and the amount of energy available to complete tasks. This can be interpreted as high stress levels leading to decreased motivation and job satisfaction, as well as increased mental fatigue, all of which can have a negative impact on employee performance.[10]

However, the results of this study contradict the findings of Sulistyowati ZF and Setiani, who concluded that both high and low levels of stress do not significantly affect worker performance. Based on research conducted at PT. Pos Indonesia (Persero) KCU Malang, the findings indicated that work stress does not have a significant impact on employee performance.[25] Despite facing high task demands, employees did not feel overwhelmed and were able to manage the stress they experienced. Leaders at the plant placed pressure on the tasks assigned, but this did not result in employees feeling burdened. Instead, they viewed these tasks as responsibilities and obligations, striving to make the best use of their work time.[25]

The relationship between age and work performance

This study reports that there is no significant relationship between an individual's age with employee work performance (p > 0,05). This finding is consistent with the study conducted by Bryson A et al., which concluded that employing older workers does not significantly improve plant performance.[26] According to the study, one possible explanation is that organizations may derive economic advantages from employing older workers, such as reduced labor costs, which could compensate for any decline in productivity associated with age. While age can be a factor influencing work performance, it does not necessarily have a direct or linear relationship. Specifically, younger employees do not inherently demonstrate superior performance compared to older employees, as accumulated work experience, often greater among older workers can enhance skills, judgment, and efficiency on the job. Consequently, chronological age alone should not be regarded as a definitive predictor of work performance. Instead, individual differences in abilities, knowledge, and motivation play a more critical role in determining employee effectiveness, regardless of age.[26]

The relationship between gender and work performance

The analysis in this study shows that there is no significant relationship between gender and work performance. This aligns with the research conducted by Fida R et al., which emphasizes that work performance is not determined by one's gender.[27] In many cases, it is noted that workplace stressors, such as high workload, job insecurity, or poor work-life balance, do not impact work performance differently across genders. Therefore, everyone, regardless of

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gender, has an equal opportunity to experience stress that affects work performance.[28] However, the intensity and nature of that stress may vary depending on their exposure to stressors and how they manage them.[28]

The relationship between marital status and work performance

The relationship between marital status and work performance in this study shows no significant correlation. This finding is supported by research conducted by Najoan Z et al. on nurse performance, which states that there is no relationship between marital status and performance.[29] The study also found that unmarried nurses tend to experience higher levels of fatigue compared to those who are married or divorced. This may be due to the fact that unmarried nurses often have heavier workloads and lack the social support typically provided by a partner or family.[29] However, the results of the analysis in this study do not align with previous research by Hussain MM et al., which found that marital status is significantly related to mindfulness and work performance.[30] The analysis showed that unmarried employees tend to exhibit higher levels of attention awareness, which contributes to improved work performance compared to married employees.[30]

The relationship between years of service and work performance

In this study, no significant relationship was found between years of service and work performance. This finding is supported by research conducted by Ghassani SA and Irbayuni S at PT. Candi Jaya Amerta, which reported that biographical characteristics do not influence employee performance.[31] The study concluded that years of service are not significantly related to performance because years of service typically increase with age. This suggests that employees over the age of 40 tend to have longer tenures. However, consequently, factors such as health, stamina, memory, and other aspects may decline with age.[31]

CONCLUSION

The mental health conditions of employees at PT X reveal notably high levels of depression and anxiety, which have a detrimental impact on their work performance. Data analysis reveals a significant association between anxiety, depression, and stress and employee work performance at PT X in Banten Province. These conditions contribute to decreased productivity, reduced work efficiency, and overall poor job outcomes. In contrast, no significant relationship was found between demographic factors such as gender, age, marital status, and years of service with work performance, suggesting that mental health plays a more critical role than personal background in influencing job outcomes at the company.

In light of these findings, it is imperative for manufacturing companies to develop and implement comprehensive workplace mental health support systems. Such measures may include providing accessible psychological counseling services, instituting structured stress management programs, conducting periodic mental health evaluations, and cultivating a supportive and inclusive organizational culture. These initiatives are vital not only for promoting employee psychological well-being, but also for enhancing work productivity, minimizing staff turnover, and supporting the long-term sustainability of the organization.

ETHICAL APPROVAL

This study has received approval from the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences, Universitas Sultan Ageng Tirtayasa with approval letter number 44/UN43.20/KEPK/2024.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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AUTHOR CONTRIBUTIONS

The conceptualization of the study was carried out by YNP, ID and SD. The methodology was developed by YNP, ID and SD. Validation was handled by YNP and ID, while data analysis was performed by ID. Investigation was conducted by ID. Resources and data curation were managed by ID. The original draft was prepared by YNP. Review and editing were done by YNP. Supervision was provided by YNP and SD. Funding acquisition was secured by YNP and ID.

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