

INSTRUMENTAL MUSIC RELAXATION TO REDUCE WORK STRESS AMONG OFFICE WORKERS AT PT X

Prayuda Mukti Priambodo^{1*}, Isna Qadrijati², Jihan Faradisha³

^{1*}Universitas Sebelas Maret, Ir. Sutami Road No. 36A, Kentingan, Jebres,
Surakarta, Jawa Tengah 57126, Indonesia

²Universitas Sebelas Maret, Ir. Sutami Road No. 36A, Kentingan, Jebres,
Surakarta, Jawa Tengah 57126, Indonesia

³Universitas Sebelas Maret, Ir. Sutami Road No. 36A, Kentingan, Jebres,
Surakarta, Jawa Tengah 57126, Indonesia

Corresponding author email address: isnaqadrijati@staff.uns.ac.id/ cellphone
number: +6281227083490

ABSTRACT

Work stress is a common issue among employees. One non-pharmacological method to reduce stress is instrumental music relaxation. This study aimed to evaluate the effect of a 10-minute instrumental music session, conducted over three consecutive days, on reducing work-related stress among office workers at PT X. A quasi-experimental design with a control group and pre-test–post-test measurements was employed. Sixty office workers were selected through total sampling and equally assigned to intervention and control groups. The intervention group listened to piano and nature-sound music for 10 minutes during each break for three days, while the control group received no treatment. Stress levels were measured using the Stress Diagnosis Survey (SDS) before and after the intervention. Data analysis used the Wilcoxon test for within-group comparison and the Mann–Whitney test for between-group comparison. Results showed a significant reduction in stress levels in the intervention group ($p = 0.000$), with 87% moving from moderate to mild stress. In contrast, the control group showed no significant change ($p = 0.317$). The post-test comparison between groups was also significant ($p = 0.000$). These findings suggest that instrumental music relaxation is an effective, low-cost intervention to improve employee mental well-being in the workplace.

Keywords: instrumental music, music therapy, office workers, relaxation, work stress

INTRODUCTION

Occupational stress is a worldwide concern that greatly affects workers' mental health and overall well-being. According to the World Health Organization (WHO), around 8% of global occupational illnesses are linked to stress or depression related to work. In the construction sector, such as the toll road development project by PT X, this problem becomes more pronounced due to high levels of work stress triggered by excessive overtime, time pressure, and heavy workloads. These conditions not only decrease productivity but also increase the risk of operational errors and work accidents. An initial survey at the research site revealed that 80% of workers experienced moderate stress, categorized as quantitative overload, which includes the number of tasks, working hours, and work volume. One potential non-pharmacological method to address this issue is instrumental music relaxation (Cahyani, 2024). Previous research has shown that music therapy is effective in reducing stress by stimulating brainwaves that promote a state of relaxation and by lowering

physiological responses such as blood pressure and cortisol hormone levels (Mutakamilah et al, 2021). This study was conducted on 34 office workers and employed binaural beat instrumental music as the intervention, played for 30 minutes daily over a two-week period. However, specific research examining the impact of instrumental music in the Indonesian work context remains limited. Accordingly, this study seeks to examine how effective instrumental music relaxation is in alleviating occupational stress among office employees at PT X.

METHOD

This research adopted a quasi-experimental methodology, incorporating both pre-test and post-test assessments across control and intervention groups. This research was conducted at PT X, located in Sleman, Special Region of Yogyakarta, from January to June 2025. Total sampling was chosen because the entire population of 60 office workers met the inclusion criteria and was considered manageable in size, allowing for comprehensive data collection.

Participants were assigned to two equal groups in a non-random manner: 30 respondents in the intervention group and 30 in the control group. This grouping was done to maintain balance and comparability between groups, as recommended by Cohen (1988). Work stress data was collected using the standardized Stress Diagnosis Survey (SDS) questionnaire. The intervention group received a treatment of instrumental music relaxation, featuring piano and nature sounds, for 10 minutes during their break time for three consecutive days, while the control group received no treatment. This study did not utilize blinding, as participants in the intervention group were informed about the intervention and gave written consent. The control and intervention groups were also placed in different rooms. Bivariate analysis was conducted using the *Wilcoxon*

test to compare stress levels before and after the intervention within each group and the *Mann-Whitney* test to assess differences in post-intervention stress levels between the two groups. This research obtained ethical clearance from the Health Research Ethics Committee RSUD Dr. Moewardi number: 583/III/HREC/2025.

RESULTS AND DISCUSSION

This study involved 60 respondents, equally divided into control and intervention groups. Homogeneity tests showed no significant differences in distribution of age ($p=0.060$) or gender ($p=0.766$) between groups, indicating that their demographic characteristics were comparable at the start of the study. All respondents (100%) had a work tenure of less than 5 years, as the project only commenced in 2022.

Table 1. Respondent Characteristics

Characteristic	Category	Control Group (n=30) n (%)	Intervention Group (n=30) n (%)	Total (N=60) n (%)	p- value
Age	< 30 years	14 (47%)	15 (50%)	29 (48%)	0.060
	30-39 years	9 (30%)	14 (47%)	23 (38%)	
	≥ 40 years	7 (23%)	1 (3%)	8 (13%)	
Gender	Male	22 (73%)	23 (77%)	45 (75%)	0.766

Characteristic	Category	Control Group (n=30) n (%)	Intervention Group (n=30) n (%)	Total (N=60) n (%)	p-value
	Female	8 (27%)	7 (23%)	15 (25%)	
Work Tenure	< 5 years	30 (100%)	30 (100%)	60 (100%)	-

In the intervention group, pre-test results showed that all respondents (100%) were in the moderate stress category. After the instrumental music relaxation intervention, the post-test results revealed a significant decrease, with 87% of respondents (26 individuals) moving to the mild stress category and only 13% (4 individuals) remaining in the moderate category. Conversely, the control group showed no significant change between the pre-test and post-test; the majority of respondents

remained in the moderate and severe stress categories.

Statistical analysis using the *Wilcoxon* test on the intervention group showed a p-value of 0.000 ($p < 0.05$), confirming a marked difference in stress levels before and after the treatment. This was supported by an average stress score reduction of 9.87 points. For the control group, the *Wilcoxon* test showed a p-value of 0.317 ($p > 0.05$), indicating that stress levels remained relatively unchanged in the absence of the intervention.

Table 2. *Wilcoxon* Test

Group	Pre-test Mean Score (SD)	Post-test Mean Score (SD)	Mean Difference	<i>Wilcoxon</i> Test p-value
Control	18.90 (7.023)	18.63 (6.661)	-0.27	0.317
Intervention	17.13 (3.520)	7.26 (2.333)	-9.87	0.000

Furthermore, the *Mann-Whitney* test comparing the post-test scores of both groups yielded a p-value of 0.000 ($p < 0.05$). The findings confirmed that

post-treatment stress levels were significantly lower in the intervention group compared to the control group.

Table 3. *Mann-Whitney* Test

Statistical Test	Groups Compared	n	p-value
<i>Mann-Whitney</i> U Test	Control vs Intervention	60	0.000

These findings align with the hypothesis that instrumental music relaxation effectively reduces work stress. Instrumental music, particularly without lyrics, minimizes cognitive distractions, allowing the mind to relax more easily. This relaxation effect also occurs physiologically, as music can influence the nervous system to lower heart rate, blood pressure, and stress hormones like cortisol. This research supports previous studies by Simanjuntak et al. (2022), who found that classical music therapy effectively reduced work stress among teachers, with a *Wilcoxon* test result of $p=0.000$. Similarly, research by Michael et al. (2024) also showed that a group receiving a music intervention had a significantly higher reduction in stress scores compared to a control group ($p=0.02$). Although characteristics like age and work tenure did not show a significant influence in the statistical analysis, theory suggests that younger workers

and those with shorter tenure are more vulnerable to stress due to limited experience in managing pressure.

This study has two main limitations. First, blinding was not applied, which could introduce potential bias during the intervention. Second, the study only measured short-term effects, without long-term follow-up to assess the sustainability of the intervention outcomes.

CONCLUSION

Based on this research findings and data analysis, it is concluded that the instrumental music relaxation intervention was proven to be significantly effective in reducing work stress among office workers at PT X. A significant decrease in stress levels from the moderate to the mild category was observed in the majority of respondents for the intervention group following relaxation treatment, whereas no significant change occurred in the control group. This indicates that instrumental music relaxation is a practical, non-

pharmacological, and easily applicable method in the workplace to enhance the psychological well-being of employees. Therefore, companies could consider introducing brief instrumental music sessions during break times as an effective and low-cost strategy to mitigate work-related stress.

ACKNOWLEDGEMENTS

The author expresses gratitude to the Dekan of the Vocational School at Universitas Sebelas Maret, the Head of the Applied Bachelor Program of Occupational Safety and Health, and the lecturer, Dr. Isna Qadrijati, dr., M.Kes., and Jihan Faradisha, S.KM., M.KKK., for their guidance and support. Thanks are also extended to the management and all office workers of PT X for their permission and participation in this study. This research did not receive any specific grant from funding agencies, and the authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

REFERENCE

Aftariansyah, W. and Ratnawili, R. (2023) 'Pengaruh stres kerja motivasi dan

kompensasi terhadap kepuasan kerja karyawan cv. central elektro' [The influence of work stress, motivation, and compensation on employee job satisfaction at CV. Central Elektro], (*JEMS Jurnal Entrepreneur Dan Manajemen Sains*, 4(1), pp. 237–244.

Aldhuwayhi, S. et al. (2021) 'Occupational stress and stress busters used among Saudi dental practitioners during the COVID-19 pandemic outbreak', *Disaster Medicine and Public Health Preparedness*, 16(5), pp. 1975–1981.

Alfian, A.R. (2020) 'Hubungan beban kerja dan lingkungan kerja dengan stres perawat di RSUD dr. Adnaan WD Payakumbuh' [The relationship between workload and work environment with nurse stress at dr. Adnaan WD Payakumbuh Regional Hospital], *Jurnal Keselamatan Kesehatan Kerja dan Lingkungan*, 1(1), pp. 27–34.

Amaliyah, N.R., Mutthalib, N.U. and Solulipu, A.M. (2023) 'Faktor yang berhubungan dengan kecemasan tenaga kesehatan saat pandemi di upk pelayanan kesehatan provinsi sulsel' [Factors related to anxiety of health workers during the pandemic at the health service unit of South Sulawesi province], *Window of Public Health Journal*, 4(6), pp. 894–903.

Anggraeny, Y., Russeng, S.S. and Saleh, L.M. (2021) 'Pengaruh beban dengan stres kerja terhadap kelelahan kerja perawat RS Tadjuddin Chalid' [The effect of workload and work stress on work fatigue of nurses at Tadjuddin Chalid Hospital], *Hasanuddin Journal of Public Health*, 2(1), pp. 66–76.

Arisandi, R. & Hartiti, T. (2022). Studi Kasus Penerapan Terapi Relaksasi musik klasik terhadap tekanan darah penderita hipertensi.

Auliya', E.P. and Yudiarso, A. (2023) 'Medium effect size terapi musik untuk menurunkan kecemasan melalui musik klasik, tradisional dan relaksasi/instrumental' [Medium effect size of music therapy to reduce anxiety through classical, traditional and relaxation/instrumental music], *Jurnal Psikologi Perseptual*, 8(2), pp. 124–137.

Cahyani, A.R. and Tasalim, R. 'Efektivitas

terapi relaksasi otot progresif dan terapi musik suara alam terhadap tingkat stres mahasiswa semester akhir' [The effectiveness of progressive muscle relaxation therapy and nature sound music therapy on the stress levels of final semester students], *Journal of Health (JoH)*, 11(1), pp. 052–060.

Cahyani, N. P. (2023). Terapi musik: mengoptimalkan pengobatan tradisional dengan pendekatan holistik pada remaja. *Jurnal Multidisiplin West Science*, 2(06).

Cohen, J. (1988) *Statistical Power Analysis for the Behavioral Sciences*. 2nd edn. Hillsdale, NJ: Lawrence Erlbaum Associates.

Fitriani, H. and Hapsari, Y. 'Hubungan stres dengan gangguan siklus menstruasi mahasiswi program studi kedokteran fakultas kedokteran dan kesehatan universitas muhammadiyah jakarta angkatan 2019' [The relationship between stress and menstrual cycle disorders in medical students of the Faculty of Medicine and Health, Muhammadiyah University of Jakarta, class of 2019], *Muhammadiyah Journal of Midwifery*, 2(2), pp. 40–46.

Michael, A., Witjahjo, B. and Husin, F. 'Pengaruh musik klasik terhadap penurunan kondisi stres pada mahasiswa fakultas kedokteran' [The effect of classical music on reducing stress conditions in medical school students], *Jurnal Muara Medika dan Psikologi Klinis*, 7(1), pp. 26–31.

Mutakamilah, et al. (2021) 'The Effect of Brainwave Therapy on Stress Levels of Final Year Students of the Nursing Study Program', *Jurnal Aisyah: Jurnal Ilmu Kesehatan*, 6(1), pp. 103–107.

Ningsih, H.L. et al. (2020) 'Pengaruh stres kerja dan kepuasan kerja terhadap komitmen organisasi pada pt semen baturaja tbk.' [The influence of work stress and job satisfaction on organizational commitment at PT Semen Baturaja Tbk.], *AMAR (Andalas Management Review)*, 4(2), pp. 32–45.

Nurliasari, S.Y. et al. (2023) 'Hubungan shift kerja dengan stres kerja pada perawat ruang rawat inap di rs muhammadiyah lamongan' [The relationship between work shifts and work stress in nurses in the inpatient ward at Muhammadiyah Lamongan Hospital], *Jurnal Medika Malahayati*, 7(3), pp. 851–859.

Oktaviana, H. (2023) 'Pengaruh terapi murottal Al-Qur'an terhadap penurunan tingkat stres kerja pada perawat di ruang inap RSUD Tenriawaru Kabupaten Bone' [The effect of Murottal Al-Qur'an therapy on reducing work stress levels in nurses in the inpatient ward of Tenriawaru Regional Hospital, Bone Regency], *Window of Public Health Journal*, pp. 587–594.

Simanjuntak, M.R. et al. 'Pemanfaatan Terapi Musik Klasik Dalam Upaya Menurunkan Tingkat Stress Kerja Guru SD Selama Pandemi Covid-19' [The Use of Classical Music Therapy in an Effort to Reduce the Work Stress Levels of Elementary School Teachers During the Covid-19 Pandemic], *Jurnal Kedokteran STM*, V(I), pp. 29–35.

Sinaga, C.V. & Nurjanah, A. 'The Correlation between Years of Work and Work Shifts with Job Stress in Call Center Agents in the Surabaya Customer Service Company', *The Indonesian Journal of Occupational Safety and Health*, 11(1), pp. 33–42.

Susilowati, I., Gayatri, D., & Nuraini, T. (2023). Terapi musik terhadap efikasi diri pada pasien kanker. *Jurnal Keperawatan Silampari*, 6(2), 1380–1388.

World Health Organization, 2018. Protecting workers' health: fact sheet – depression. Viewed: 03 February 2025, from WHO website.

Wulandari, R. and Modjo, R. (2023) 'Family Support and Work Stress in Female Employees with Dual Roles at PT X', *Jurnal Kesehatan Tambusai*, 4(2), pp. 120–128.