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Comparative Study on The Effects of White Noise and Western Classical Music on Perceived and Physiological Stress Levels in Healthy Young Female Adults

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Abstract

This present study compared the effects of white noise and western classical music on perceived and physiological stress levels in young, healthy female adults. Using a repeated-measures laboratory experiment, 30 women aged 20-30 from the Delhi NCR region were exposed to both auditory conditions across two sessions. Perceived stress was measured using the Subjective Units of Distress Scale (SUDS), while physiological stress was assessed through pulse rate, blood pressure, and galvanic skin response (GSR). The findings showed that both white noise and western classical music were associated with significant reductions in perceived stress. However, the physiological results were less consistent with the white noise condition producing a significant increase in pulse rate, suggesting that although participants reported feeling calmer, autonomic arousal may not have decreased. This may be attributed to perceived stress scores being influenced by demand characteristics. In contrast, western classical music produced a significant reduction in pulse rate and lower GSR increases than white noise at all times, indicating a more consistent calming effect on physiological stress responses. Overall, the study suggests that while both auditory stimuli may help reduce the subjective experience of stress, western classical music appears to be more effective in promoting measurable physiological relaxation. These findings highlight the importance of distinguishing between perceived and physiological stress reduction and support further research into how specific sound qualities and musical features influence stress regulation.

Keywords: White Noise, Classical Music, Perceived Stress, Physiological Stress, Galvanic Skin Response