



Introduction

- Noise is one of the most commonly encountered stressors in today's environment.
- The important impacts of chronic noise exposure are physiological and psychological effects.
- Chronic noise exposure may be one of the causes of impairment of cardiovascular autonomic function which may lead to cardiovascular diseases.

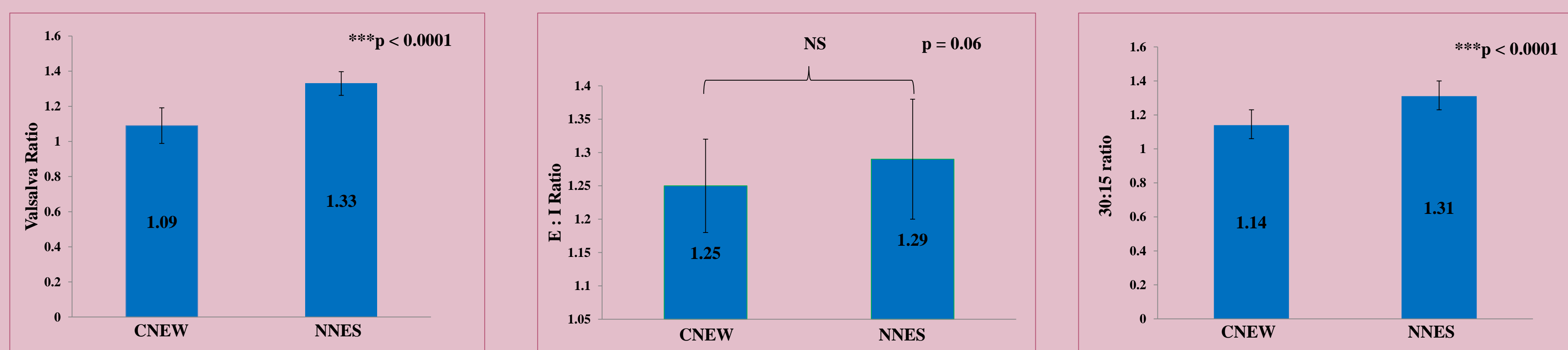
Objectives

- The present study aimed to study the effect of chronic occupational noise on cardiovascular autonomic function in Myanmar male workers.

Materials and Methods

- This comparative cross-sectional analytical study was undertaken in 30 chronic noise-exposed workers (CNEW) and 30 non noise-exposed subjects (NNES) (age and BMI matched).
- A battery of tests devised by Ewing and Clarke was used to evaluate cardiovascular autonomic function.
- Tests to measure the parasympathetic cardiac activity are heart rate response to Valsalva manoeuvre by Valsalva ratio (VR), heart rate (R-R interval) variation during deep breathing by expiration : inspiration ratio (E:I ratio) and immediate heart rate response to active standing by 30:15 ratio.
- Tests to measure the sympathetic cardiovascular activity are systolic blood pressure response (SBP) to active standing and diastolic blood pressure (DBP) response to sustained handgrip.

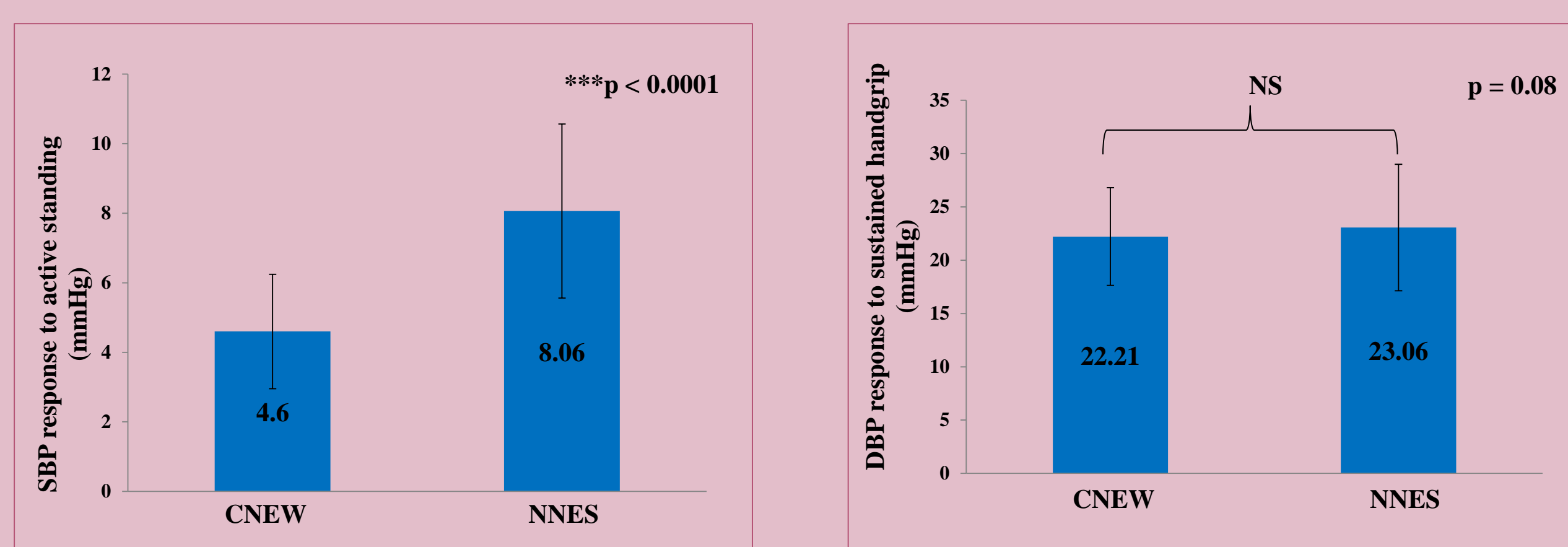
Results



Figures show comparison of parasympathetic cardiac activities between noise-exposed workers and non noise-exposed subjects.



Sound level meter



Figures show comparison of sympathetic cardiovascular activities between noise-exposed workers and non noise-exposed subjects.

Proportion of cardiovascular autonomic dysfunction among chronic noise-exposed workers according to Ewing's classification

Ewing's Classification	Number of workers	Percentage of workers
Class I (normal)	2	6.67%
Class II (Early involvement)	18	60%
Class III (Definite involvement)	3	10%
Class IV (Severe involvement)	-	0%
Class A (Atypical)	7	23.33%

Conclusion

- Chronic occupational noise exposure resulted in reduced parasympathetic cardiac activity with increased sympathetic cardiovascular activities.
- Therefore, chronic noise exposure might be responsible for the impairment of cardiovascular autonomic function which may lead to the development of cardiovascular diseases.

References

- Goyal, S., Gupta, V. & Walia, L. (2010) Effect of noise stress on autonomic function tests. *Noise and Health*. 12 (48), 182–188.