Natural Endorphin-Boosting Behaviours, Mood, and Pain Sensitivity in the General Population: A Cross-Sectional Study

Author: Dr. Rabia Shaik
Correspondence: rabiashaik1@gmail.com

1. Abstract

Background:
Naturally occurring behaviours such as exercise, laughter, music, and meditation are hypothesised to increase endogenous endorphin activity, which may influence mood and pain perception.

Objective:
To examine the associations between self-reported endorphin-boosting behaviours, mood states, and pain sensitivity in the general population.

Methods:
Cross-sectional online survey (N = 92). Participants completed questionnaires on frequency of endorphin-boosting behaviours, mood, and pain sensitivity. Data is currently being analysed.

Results:
A higher frequency of endorphin-boosting behaviours was associated with … (to be completed after analysis).

Conclusion:
Natural endorphin-boosting behaviours may show measurable associations with mood and pain perception in the general population. Further research should incorporate biological markers.

Keywords: Endorphins, Mood, Pain Sensitivity, Behaviour, Cross-sectional study

2. Introduction

Endorphins are endogenous opioid neuropeptides produced in the pituitary gland and the central nervous system. They play an essential role in the regulation of pain, stress, reward, and emotional well-being. Although the physiology of beta-endorphin and related peptides has been explored in laboratory settings, their activity in daily life is difficult to measure directly because biochemical testing is invasive and central nervous system signalling is complex. For this reason, researchers often focus on naturally occurring behaviours that are known to stimulate endogenous opioid activity.

Previous work suggests that several everyday behaviours may increase endorphin release. Examples include physical exercise, laughter, music engagement, meditation, social bonding, and other pleasurable or emotionally meaningful practices. Aerobic exercise has been linked to the phenomenon known as runner's high, which is associated with increased opioid receptor activity. Laughter and socially synchronous activities such

as group singing or group dancing have been associated with rises in pain thresholds, which is considered a behavioural marker of endogenous opioid activation. These findings show a clear connection between simple daily activities and neurochemical processes that influence both mood and pain perception.

Mood disorders, chronic stress, and increased pain sensitivity remain significant public health concerns. Understanding natural and accessible endorphin-boosting behaviours may offer insights into lifestyle approaches that support mental and physical well-being. However, the current evidence base is limited. Many studies rely on small samples or controlled laboratory environments that do not reflect the experiences of the general population. Very few studies have examined multiple endorphin-related behaviours at the same time in a large community sample. Even fewer have evaluated how these behaviours relate simultaneously to both mood and subjective pain sensitivity.

There is a clear need for population-level survey research that examines these relationships in real-world settings. The aim of the present study is to investigate the associations between naturally occurring endorphin-boosting behaviours, mood states, and perceived pain sensitivity in a general population sample. By studying these variables together, this research aims to contribute to a better understanding of how everyday lifestyle choices may influence emotional well-being and the subjective experience of pain.

3. Methods

Study Design

Cross-sectional online survey conducted in 2025.

Participants

General population, ages 18 years and above.
Total responses: 93
Final sample after exclusions: 92

Variables

Exposure variables (predictors):

- Frequency of exercise

- Frequency of laughter

- Music engagement

- Meditation or prayer

- Social bonding activities

All measured using Likert-style response scales.

Outcome variables:

- Mood score

- Pain sensitivity

Data Collection Tool

Google Forms with informed consent.

Statistical Analysis

- Descriptive statistics

- Pearson and Spearman correlations

- Multiple linear regression adjusting for age and gender

- Statistical significance set at $p < 0.05$

Ethical Considerations

No identifiable data was collected.
The study was exempt from formal IRB or ethics review due to anonymous voluntary participation.

4. Results

(To be completed following full data analysis)

Participant Characteristics
Table 1: Age, gender distribution, and other demographic variables.

Correlation Results
Table 2: Associations between behaviour scores, mood, and pain sensitivity.

Regression Findings
Example: Exercise frequency significantly predicted lower pain sensitivity (beta = __, p = __).

5. Discussion

(To be completed after analysis)

6. Conclusion

(To be completed after analysis)

7. References

(To be added)

8. Supplementary Materials

Survey questionnaire, additional tables, or analysis outputs.