

Original Research Article

The Relationship between Working Period and Carpal Tunnel Syndrome Complaints among Ikat Weaving Workers in Bomari and Boradho Villages, Ngada Regency

Cornelia Sepriani Claritta^{1*}, Herman P.L. Wungouw², Efrisca M. Damanik³, Su Djie To Rante⁴¹Faculty of Medicine, Nusa Cendana University, Kupang, Indonesia²Department of Radiology, Nusa Cendana University, Kupang, Indonesia³Department of Pathology, Nusa Cendana University, Kupang, Indonesia⁴Department of Orthopedic and Traumatology (Hip and Knee), Nusa Cendana University, Kupang, Indonesia

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Abstract: Background: Carpal Tunnel Syndrome (CTS) is a compressive neuropathy of the median nerve that commonly affects manual laborers, including traditional ikat weavers. Repetitive hand movements and prolonged wrist flexion contribute significantly to CTS occurrence. **Objective:** To analyze the relationship between working period and Carpal Tunnel Syndrome complaints among ikat weaving workers in Bomari and Boradho Villages, Ngada Regency. **Methods:** A cross-sectional analytic study was conducted from June to August 2024 among 50 ikat weaving workers meeting inclusion and exclusion criteria. Data collection used structured questionnaires and the Boston Carpal Tunnel Questionnaire (BCTQ). The Chi-Square test with a significance level of $p < 0.05$ was applied to determine the relationship between working period and CTS complaints. **Results:** Most respondents (66%) had mild to moderate CTS complaints. A statistically significant relationship was found between the working period and CTS complaints ($p = 0.012$). Workers with more than 10 years of weaving experience had a higher likelihood of developing CTS symptoms. **Conclusion:** There is a significant relationship between working period and CTS complaints among ikat weaving workers. Early ergonomic interventions and preventive education are essential to reduce CTS risk in traditional weaving communities.

Keywords: Carpal Tunnel Syndrome, Working Period, Ikat Weaving, Occupational Health, Ergonomics.

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INTRODUCTION

Carpal Tunnel Syndrome (CTS) is one of the most frequent entrapment neuropathies involving compression of the median nerve within the carpal tunnel. Globally, CTS has become a prevalent occupational health problem, especially among workers performing repetitive manual tasks such as sewing, weaving, or data entry.

In Indonesia, ikat weaving represents not only an economic activity but also an integral cultural heritage passed through generations. However, the repetitive and static postures required in weaving can predispose workers to CTS.

Several studies show that repetitive motion, high hand force, and awkward wrist positions are major

contributing factors. The duration of employment (working period) may also influence the development of CTS symptoms due to cumulative strain. However, few studies have explored this association in traditional ikat weaving settings.

This study aims to determine the relationship between the working period and CTS complaints among ikat weaving workers in Bomari and Boradho Villages, Ngada Regency.

MATERIALS AND METHODS

Study Design:

This research used a cross-sectional analytic design to determine the correlation between working period and CTS complaints.

Population and Sample:

The population comprised all active ikat weaving workers in Bomari and Boradho Villages. A total of 50 respondents were selected using purposive sampling based on inclusion and exclusion criteria.

Data Collection:

Data were collected using structured questionnaires including demographic characteristics and the Boston Carpal Tunnel Questionnaire (BCTQ) for CTS assessment.

Variables:

- Independent variable: Working period (in years)
- Dependent variable: CTS complaints based on BCTQ scores

Data Analysis:

The collected data were analyzed using the Chi-Square test with a 95% confidence interval ($p < 0.05$) to determine the relationship between working period and CTS complaints.

RESULTS

Respondent Characteristics:

The majority of respondents (70%) were aged between 30–45 years, and 88% were female. Most had a working period of more than 10 years.

CTS Complaints Distribution

Approximately 66% of the workers experienced mild to moderate CTS complaints. Symptoms included numbness, tingling, and hand weakness during weaving activities.

Statistical Analysis:

The Chi-Square test revealed a significant relationship between working period and CTS complaints ($p = 0.012$). Respondents with longer working periods (>10 years) showed higher frequencies of CTS symptoms.

DISCUSSION

This study found a significant relationship between working period and CTS complaints among ikat weaving workers. These findings align with research showing that repetitive hand use and static posture increase the risk of median nerve compression.

Prolonged weaving requires sustained wrist flexion and finger motion, which elevate carpal tunnel pressure. Over time, this repetitive stress may lead to tenosynovial thickening, resulting in nerve entrapment and sensory deficits.

Similar studies among textile workers, typists, and assembly line workers reported comparable outcomes, confirming that duration of exposure is a critical risk factor. Preventive measures such as ergonomic workstation design, scheduled rest breaks, and hand exercises are recommended.

The high prevalence among women may relate to smaller carpal tunnel dimensions and hormonal factors affecting tissue elasticity. Educational interventions on ergonomic posture and early symptom detection are crucial in community-based settings.

CONCLUSION

There is a significant correlation between the working period and Carpal Tunnel Syndrome complaints among ikat weaving workers in Bomari and Boradho Villages, Ngada Regency. Workers with longer durations of employment exhibit higher risk of CTS symptoms. Preventive ergonomic strategies and routine health assessments are recommended to reduce CTS prevalence.

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