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Original Research Article

Association of Quality of Work Life and Work-Related Musculoskeletal Pain Among Male Security Personnel: A Questionnaire-Based Cross-Sectional Study

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ABSTRACT

Musculoskeletal pain (MSP) is a common occupational health concern, particularly among security personnel due to prolonged standing, repetitive tasks, and physical strain. Its impact on work-related quality of life (WRQoL) remains underexplored. This study aimed to determine the association between MSP and WRQoL among male security personnel. A questionnaire-based cross-sectional study was conducted among 96 male security personnel aged 30–50 years with at least 3 years of experience, working day shifts. The Örebro Musculoskeletal Pain Screening Questionnaire assessed pain risk, and the Work-Related Quality of Life Scale measured WRQoL. Data were analyzed using descriptive statistics and Chi-square tests (SPSS v21). Moderate pain risk was observed in 58.3% of participants, while 41.7% were at high risk. WRQoL was moderate in 86.5%, low in 11.5%, and high in 2.1%. The association between MSP risk level and WRQoL was not statistically significant ($÷^2$ = 2.843, p = 0.241). While MSP is prevalent among security personnel, it does not exhibit a statistically significant association with WRQoL. Comprehensive occupational health strategies addressing both physical and psychosocial factors are recommended.

KEY WORDS: Musculoskeletal Pain, Occupational Health, Orebro Questionnaire, Security Personnel, Work-Related Quality of Life, WMSDs.

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INTRODUCTION

Musculoskeletal disorders (MSDs) are a major cause of occupational disability, affecting productivity and quality of life [1].

Security personnel are at increased risk due to prolonged standing, repetitive activities, and monotonous duties. Work-related musculoskeletal disorders (WMSDs) can result in chronic pain, absenteeism, and reduced efficiency [2-8].

Quality of Work Life (QWL) is influenced by both physical and psychosocial workplace conditions [5-7]. While physical strain contributes to deterioration in health, psychosocial factors such as job control, workplace support, and recognition play significant roles in determining Work-Related Quality of Life (WRQoL) [3,4]. A decline in QWL not only impacts employee well-being but can also reduce motivation and performance [6].

In the Indian context, limited studies have explored the relationship between musculoskeletal pain (MSP) and WRQoL among security personnel, despite their high exposure to occupational risk factors [9]. Understanding this relationship is crucial for developing preventive and corrective measures that aim to improve both health and work satisfaction among this occupational group [10,11].

This study aims to assess the association between quality of work life and work-related musculoskeletal pain among male security personnel using the Orebro Musculoskeletal Pain Questionnaire and the Work-Related Quality of Life Questionnaire. The *objectives* are: (1) to determine the level of musculoskeletal pain risk among male security personnel; (2) to evaluate their quality of work life; and (3) to examine the association between musculoskeletal pain risk and quality of work life in this population.

METHODOLOGY

Design & Setting: Cross-sectional survey conducted between January–April 2025 among security personnel from Black Belt Security Agency (Kalyan Nagar) and G4S Security Agency (Banaswadi), Bengaluru, Karnataka, India.

Participants: Male, aged 30–50 years, ≥ 3 years' work experience, 8-hour day shifts. Exclusion: Recent injury, cancer, congenital abnormalities, neurological disorders, or recent fever.

Sampling: Snowball sampling; n = 96. Instruments:

Orebro Musculoskeletal Pain Screening Questionnaire (OMPSQ) – assesses pain-related disability risk [12].

Work-Related Quality of Life (WRQoL) Scale to measure overall QW [13]

Data Collection: Face-to-face structured interviews. Ethical approval was obtained from the Institutional Ethics Committee. Informed consent was taken.

Statistical Analysis: Descriptive statistics summarized demographics. Chi-square tests were used to assess the associations between MSP and WRQoL. $p < 0.05$ was significant.

RESULTS

Participant Characteristics: A total of 96 male security personnel participated (mean age: **39.5 ± 5.0** years; mean work experience: **11.3 ± 35.8** years). Educational qualifications varied with **33.3%** holding diplomas, followed by= **21.9%** having completed ITI, **21.9%** SSLC, **13.5%** PUC, **5.2%** graduation, and **4.2%** with primary education or below.

Table 1: Age And Work Experience Characteristics of Study Participants

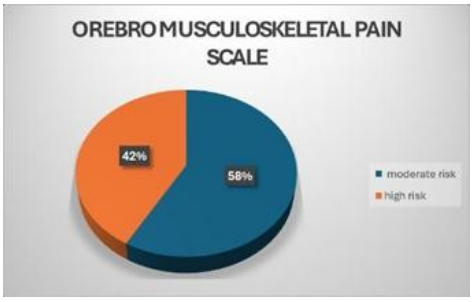
	N	Mean ± SD	Median (IQR)	Range
AGE	96	39.48 ±5	39.5(35,45)	27 - 49
EXPERIENCE	96	11.3±35.82	10(7,15)	Feb-36

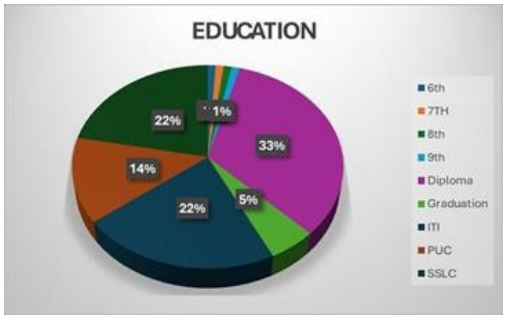
Table 2: Demographic Characteristics of 96 Male Security.

	GENDER	Valid Percent
Male	96	100
PERSONNELS	**EDUCATION**	**Valid Percent**
6th	1	1
7TH	1	1
8th	1	1
9th	1	1
Diploma	32	33.3
Graduation	5	5
ITI	21	21.9
PUC	13	13.5
SSLC	21	21.9
Total	96	100

Table 3: OREBRO Musculoskeletal pain Scale.

	OREBRO MUSCULOSKELETAL PAIN SCALE	Valid Percent
Moderate risk	56	58.3
High risk	40	41.7
Total	96	100





Musculoskeletal Pain Risk

Based on the Örebro Musculoskeletal Pain Screening Questionnaire:

Moderate risk: 56 participants (58.3%)

High risk: 40 participants (41.7%)

Work-Related Quality of Life

According to the Work-Related Quality of Life Scale:

Low: 11 participants (11.5%)

Moderate: 83 participants (86.5%)

High: 2 participants (2.1%)

Table 4: Distribution Of Work- Related Quality Of Life Levels Among Participants (N=96).

	WORK-RELATED QUALITY OF LIFE SCALE	Valid Percent
Low	11	11.5
Moderate	83	86.5
High	2	2.1
Total	96	100

Chi-square = 2.843, degrees of freedom = 2, **p =** 0.241

These findings indicate no significant statistical association between the level of musculoskeletal pain risk and work-related quality of life among participants

DISCUSSION

Association Between MSP Risk and WRQoL

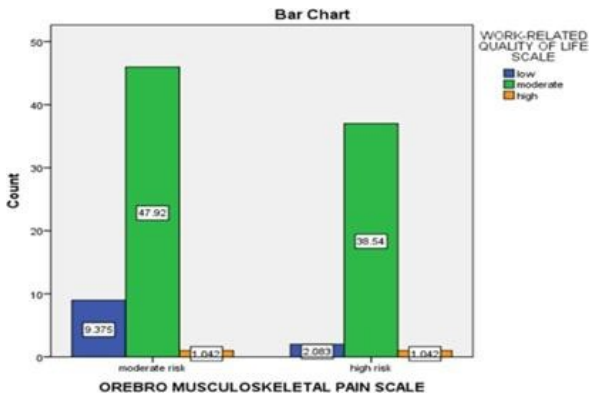
A Chi-square test was conducted to examine associations between MSP risk categories and WRQoL levels. The results showed no statistically significant association.

This study investigated the relationship between musculoskeletal pain (MSP) and work-related quality of life (WRQoL) among security personnel who are exposed to prolonged standing, repetitive tasks, and physically demanding environments. Findings showed that 58.3% were at moderate risk and 41.7% at high risk on the Örebro Musculoskeletal Pain Scale, yet 86.5% reported a moderate WRQoL [14]. Although participants reported average pain scores above 7/10 over both the past week and past three months, chi-square analysis found no significant association between pain risk levels and WRQoL (p = 0.241) [15]. This may reflect coping strategies, job stability, or acceptance of pain as part of the role, along with workplace norms that discourage openly discussing pain.

WRQoL in this group appears to be shaped more by psychosocial and organizational factors—such as managerial support, job control, recognition, and career development—than by pain alone [18]. In line with the demand-control model, high job demands with low control or support can reduce WRQoL, even without severe physical health issues [16]. Therefore, improving well-being requires a holistic approach that addresses physical health through ergonomic and therapeutic measures, while also strengthening mental health support, stress management, flexible work options, and employee involvement [17]. Although MSP is common among security staff, its direct effect on WRQoL appears to be limited, highlighting the need to target both physical and psychosocial factors in workplace health strategies [19].

Table 5: Association of the Quality of Work Life and Musculoskeletal Pain Among Security Personnel.

OREBRO MUSCULOSKELETAL PAIN SCALE	Work-Related Quality of Life Scale	Low	Moderate	High	Total
	Count	45	46	56	
Low Pain Score	% within Work-Related QoL Scale	81.80%	55.40%	50.00%	58.30%
	Count	10	37	40	
High Pain Score	% within Work-Related QoL Scale	18.20%	44.60%	50.00%	41.70%
Total Count		11	83	96	190
% within Work-Related QoL Scale		100.00%	100.00%	100.00%	100.00%
	Chi-Square Tests				
Test	Value	df	P value		
Pearson Chi-Square	(Value not shown in image)	2	(P value not shown in image)		



CONCLUSION

This study reveals that musculoskeletal pain is a prevalent concern among security personnel, affecting their overall well-being. However, the results indicate that pain levels do not have a statistically significant direct impact on their perceived quality of work life. These findings emphasize the importance of adopting a comprehensive and holistic approach to occupational health that addresses physical discomfort, prioritizes mental well-being, and fosters supportive organizational environments.

Ethics Approval & Consent: Approved by Yenepoya Institutional Ethics Committee. Written informed consent obtained.

Conflicts of interest: None

Funding: None.

Availability of Data: Available on request from the corresponding author.

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