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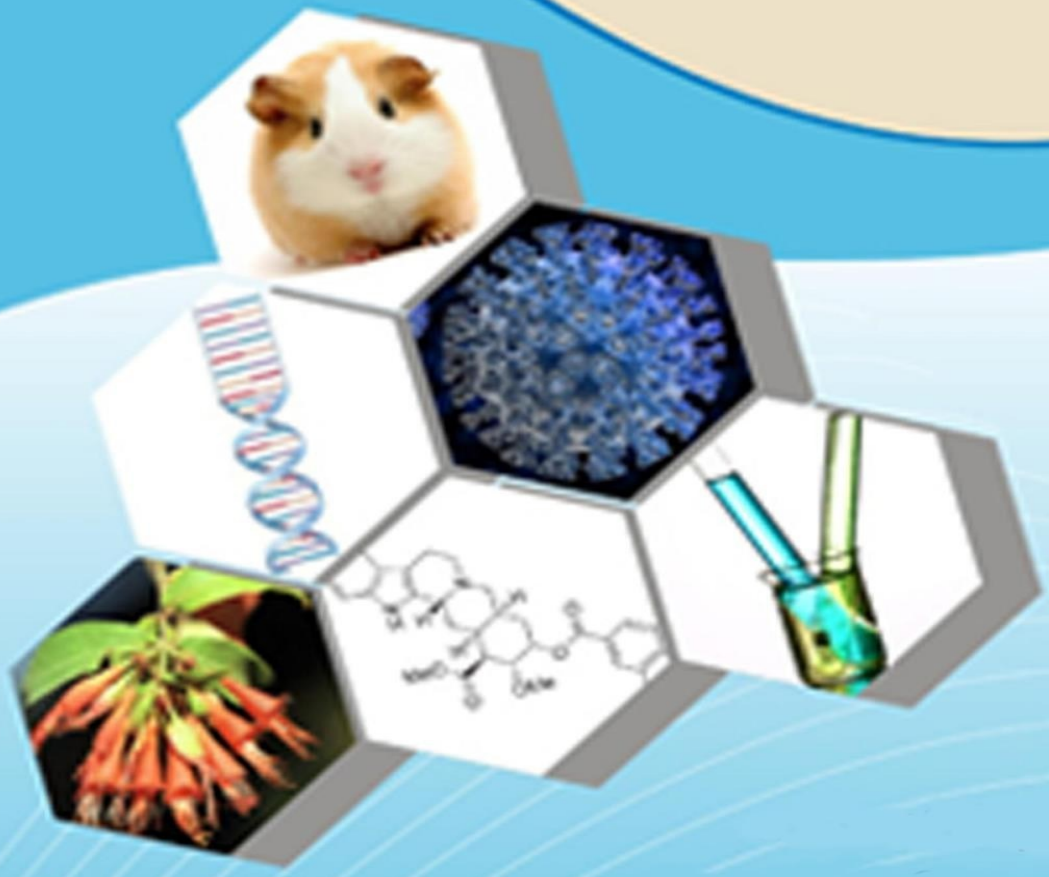

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Prevalence and Impact of Work-Related Musculoskeletal Disorders Among Staff Nurses and OT Technicians: A Verbal Approach Study

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Abstract

This study aims to analyze the prevalence of work-related musculoskeletal disorders (WMSDs) among staff nurses and operating theater (OT) technicians using a verbal approach. The research was conducted at a government hospital in Tirunelveli, involving 56 participants (37 staff nurses and 19 OT technicians). The study identified that the lower back was the most affected region, with a high prevalence of musculoskeletal discomfort reported in both groups. Results showed that staff nurses were more affected by WMSDs compared to OT technicians, with significant discomfort in the neck, back, and lower limbs. The findings highlight the urgent need for ergonomic interventions and proper health policies to reduce the incidence of these disorders, ensuring better care for healthcare professionals.

Keywords: Work-related Musculoskeletal Disorders (WMSDs), Staff Nurses, OT Technicians, Prevalence, Healthcare Workers

Introduction

Work-related musculoskeletal disorders (WMSDs) are a significant health concern for healthcare workers, particularly those in physically demanding professions such as nursing and operating theater (OT) work. These disorders encompass a wide range of injuries and conditions that affect the bones, muscles, tendons, ligaments, and other soft tissues, typically caused or aggravated by repetitive motions, prolonged postures, or forceful exertions during the course of daily work activities. WMSDs can lead to chronic pain, discomfort, and long-term disability, and they often require medical intervention, including physical therapy, ergonomic interventions, and even surgical treatments. The impact of these disorders on the overall well-being of workers and their ability to perform essential tasks can be profound, not only affecting their physical health but also influencing their mental and emotional well-being.

In healthcare settings, where workers are required to lift patients, assist in surgeries, perform repetitive tasks, and stand for prolonged periods, the risk of developing musculoskeletal disorders is particularly high. Nurses and OT technicians are particularly vulnerable due to the nature of their work. Staff nurses, for example, are responsible for tasks such as patient lifting, transferring, repositioning, and providing bedside care, which often requires physical exertion and awkward postures. Similarly, OT technicians are involved in assisting with surgical procedures, positioning

patients, and sometimes operating heavy equipment—all activities that require repetitive movements and prolonged standing, further increasing the risk of musculoskeletal strain.

The prevalence of WMSDs in healthcare workers has become an increasingly recognized issue, with studies reporting alarmingly high rates of such disorders across various healthcare professions. The physical demands inherent to nursing and OT work, coupled with the often understaffed and high-pressure environment in which these workers operate, create a perfect storm for the development of WMSDs. Beyond the immediate discomfort and pain, these disorders can result in long-term health complications, reducing the worker's quality of life and job performance.

In nursing, for example, the repetitive nature of tasks such as patient lifting, bending, and reaching can strain the lower back, neck, and shoulder regions. In addition, irregular work schedules, excessive working hours, and the emotional stress associated with patient care further exacerbate these physical risks. For OT technicians, while their roles are crucial for ensuring the success of surgeries and assisting with patient recovery, the physically demanding nature of their work, such as standing for long hours, bending over patients, and repetitive motion tasks, makes them equally susceptible to developing musculoskeletal disorders. The combination of physical strain and high emotional demand in healthcare settings makes these workers particularly at risk for WMSDs.

Musculoskeletal disorders are not only a concern for the individuals affected but also for healthcare institutions as a whole. The consequences of WMSDs are far-reaching, including increased absenteeism, reduced work productivity, and higher healthcare costs due to medical treatment and rehabilitation. Moreover, healthcare facilities may experience a higher turnover rate among staff due to the chronic pain and physical strain that WMSDs cause. The financial burden on the healthcare system is substantial, and addressing WMSDs through effective prevention and management strategies is vital for improving the health outcomes of workers, enhancing workplace efficiency, and reducing costs.

Given the significant impact of WMSDs on healthcare workers, it is essential to assess the prevalence of these disorders within specific occupational groups, such as staff nurses and OT technicians. Understanding which body regions are most affected by these disorders can help guide the development of targeted interventions aimed at reducing the physical toll on workers. This study seeks to determine the prevalence of WMSDs among staff nurses and OT technicians, with a particular focus on identifying the body regions most commonly affected by these disorders. By shedding light on these issues, the study aims to raise awareness of the physical risks associated with healthcare work, emphasizing the importance of adopting ergonomic practices and preventive measures.

Ergonomics, the science of designing work environments that reduce the risk of injury, plays a critical role in preventing WMSDs in healthcare settings. Interventions such as proper lifting techniques, ergonomic equipment, work-rest schedules, and staff training can significantly reduce the risk of musculoskeletal strain. Additionally, promoting awareness among healthcare workers about the importance of posture, stretching exercises, and regular breaks can further mitigate the risk of WMSDs. Furthermore, healthcare institutions need to recognize the significance of these

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disorders and implement workplace policies that support the physical health of their staff, ensuring they have the necessary tools and knowledge to prevent injuries.

Preventive strategies must be reinforced by regular screenings, early diagnosis, and the establishment of rehabilitation programs for workers who develop musculoskeletal disorders. It is also critical that healthcare organizations develop a supportive culture where worker health is prioritized. This includes creating a work environment that encourages physical well-being, providing necessary resources for injury prevention, and maintaining open channels for discussing health concerns.

The results of this study will provide valuable insights into the prevalence and specific areas of the body most affected by WMSDs in staff nurses and OT technicians, offering a foundation for developing effective interventions and policies. By addressing these concerns proactively, it is possible to improve the overall health of healthcare workers, enhance their job satisfaction, and ultimately ensure better patient care. This research will contribute to ongoing efforts to improve working conditions in healthcare settings and foster a more sustainable and supportive environment for healthcare professionals.

Methodology

This was an analytical, observational study conducted at a government hospital in Tirunelveli. The sample included 56 participants: 37 staff nurses (6 males, 31 females) and 19 OT technicians (12 males, 7 females). Participants were selected through purposive sampling, which was based on the researchers' judgment of suitable candidates who met the inclusion criteria. The study duration was 2-3 weeks, and a verbal approach was employed to gather data regarding the participants' experience of musculoskeletal pain.

The primary tool used for data collection was the Nordic Musculoskeletal Questionnaire (NMQ), which assesses pain, discomfort, and numbness in different regions of the body. The study included variables such as age, working experience, and daily working hours to understand their relationship with WMSDs. Statistical analysis was performed to determine the prevalence of disorders in various body parts, and gender-based differences were also analyzed.

Results

Statistics were done by the answers marked in the NORDIC questionnaire by subjects. Prevalence for each region has been found among males and females Nurses.

TABLE 1

Prevalence and gender wise prevalence of acne, pain, discomfort and numbness in various musculoskeletal joints among **staff nurses**.

REGION	RESPONSE	PREVALENCE N=(37)	PREVALENCE AMONG MALE N=(6)	PREVALENCE AMONG

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						FEMALE N=(31)	
		%	**N**	**%**	**N**	**%**	**N**
Neck	Yes	94.5	35	100	6	93.5	29
Shoulder	Yes, both shoulders	43.2	16	50	3	41.9	13
	Yes, right shoulder	27.0	10	33.3	2	25.8	8
	Yes, left shoulder	16.2	6	16.6	1	16.1	5
Elbow	Yes both elbow	37.8	14	16.6	1	41.9	13
	Yes right elbow	43.2	16	33.3	2	45.1	14
	Yes left elbow	9.6	3	0.0	0	9.6	3
Wrist/ Hand	Yes both wrist/hand	21.6	8	16.6	1	22.5	7
	Yes right wrist/ hand	18.9	7	16.6	1	19.3	6
	Yes left wrist/ hand	2.70	1	0.0	0	3.2	1
Upper back	Yes	86.4	32	66.6	4	90.3	28
Lower back	Yes	97.2	36	83.3	5	100	31
Hip	Yes both hips	8.1	3	33.3	2	3.2	1

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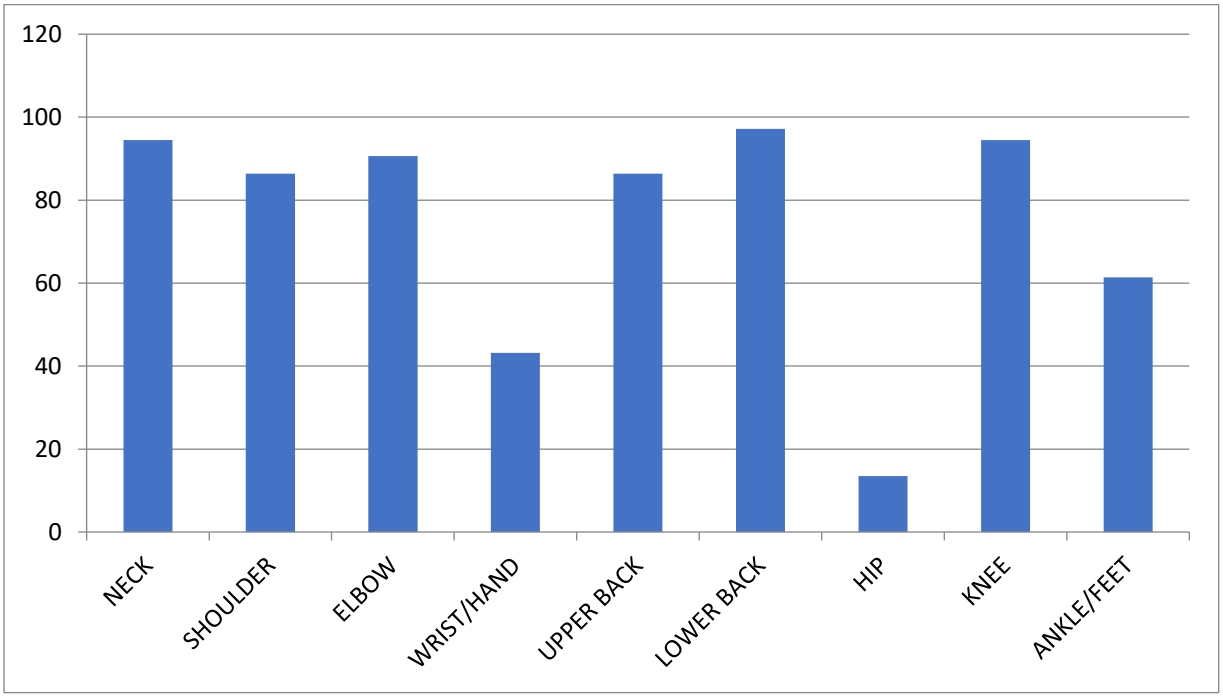
	Yes right hip	5.4	2	33.3	2	0.0	0
	Yes left hip	0.0	0	0.0	0	0.0	0
Knee	Yes both knee	35.1	13	50	3	27.0	10
	Yes right knee	43.2	16	50	3	41.3	13
	Yes left knee	16.2	6	16.6	1	16.1	5
Ankle/Feet	Yes both ankle/feet	27.0	10	16.6	1	29.0	9
	Yes right ankle/feet	29.7	11	16.6	1	32.2	10
	Yes left ankle/feet	5.4	2	0.0	0	6.4	2



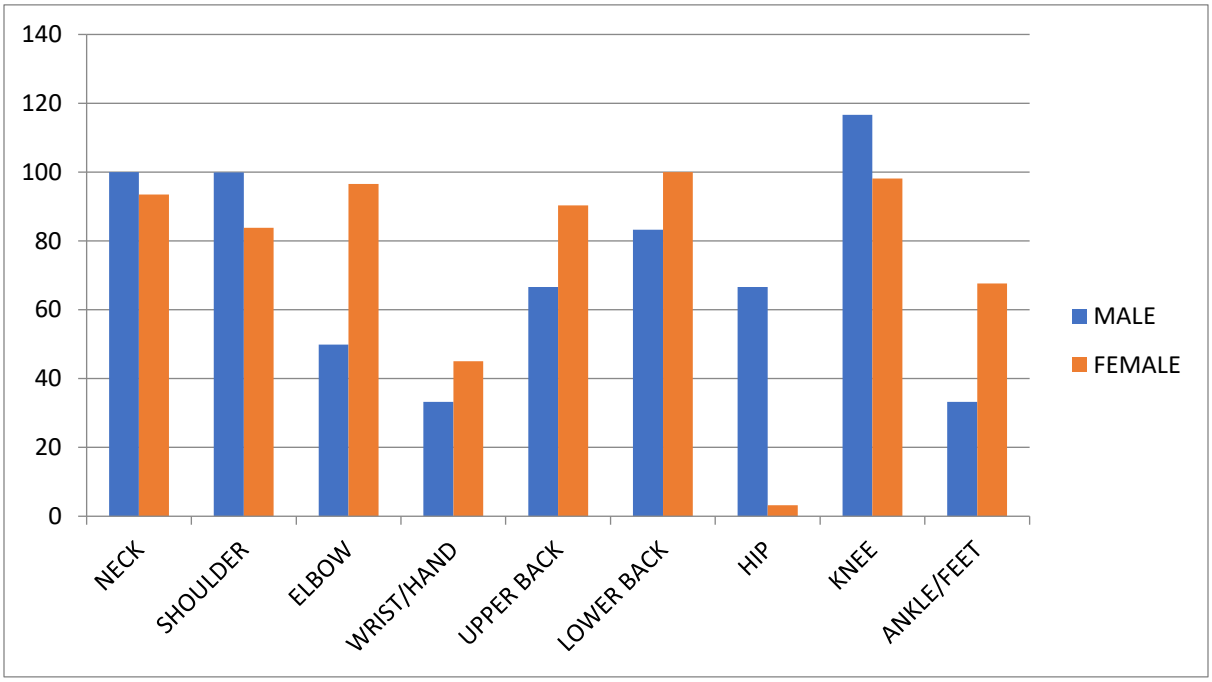


TABLE 2

Prevalence and Gender wise prevalence of ache, pain , discomfort and numbness in various musculoskeletal joints among **OT technicians**.

REGION	RESPONSE	PREVALENCE N=(19)		PREVALENCE AMONG MALE N=(12)		PREVALENCE AMONG FEMALE N=(7)	
		%	N	%	N	%	N
Neck	Yes	57.8	11	58.3	7	57.1	4
Shoulders	Yes, both shoulders	36.8	7	33.3	4	42.8	3
	Yes, right shoulder	26.3	5	25.0	3	28.5	2
	Yes, left shoulder	10.5	2	8.3	1	14.2	1

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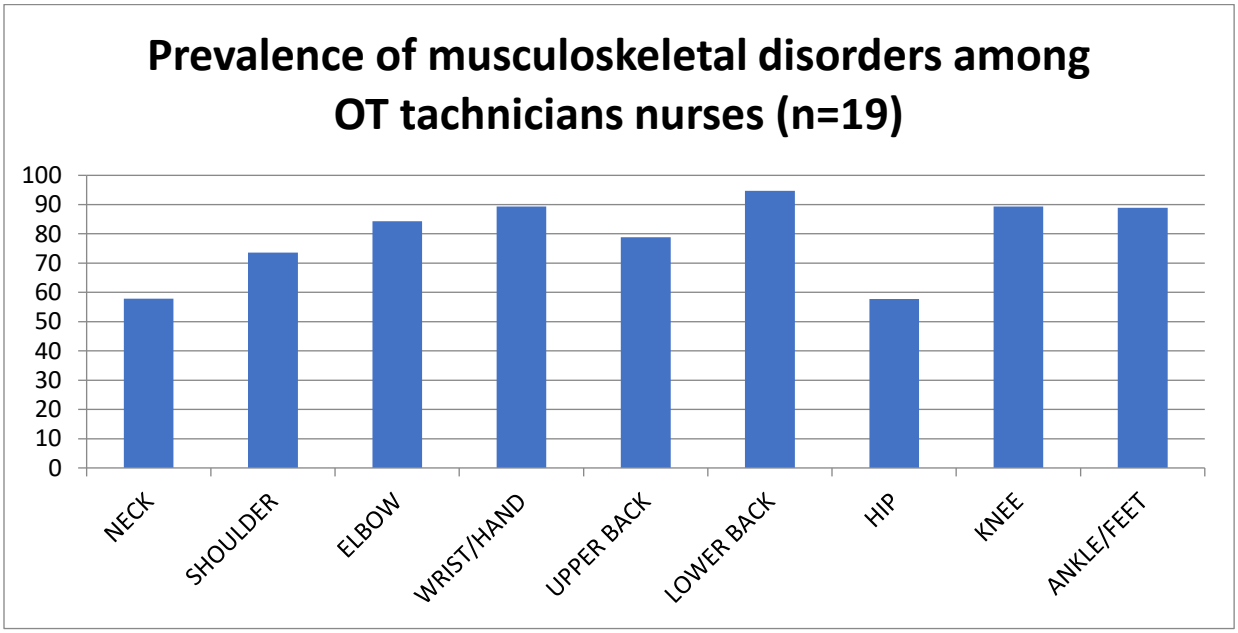
Elbow	Yes both elbow	36.8	7	33.3	4	57.1	3
	Yes right elbow	36.8	7	41.6	5	28.5	2
	Yes left elbow	10.5	2	16.6	2	0.0	0
Wrist/hand	Yes both wrist/ hand	47.3	9	58.3	7	28.5	2
	Yes right wrist/ hand	31.5	6	33.3	4	28.5	2
	Yes left wrist/ hand	10.5	2	16.6	2	0.0	0
Upper back	Yes	78.9	15	83.3	10	71.4	5
Lower back	Yes	94.7	18	91.6	11	100	7
Hip	Yes both hip	15.7	3	8.3	1	28.5	2
	Yes right hip	26.3	5	16.6	2	42.8	3
	Yes left hip	15.7	3	8.3	1	28.5	2
Knee	Yes both knee	26.3	5	25	3	28.5	2
	Yes right knee	42.1	8	41.6	5	42.8	3
	Yes left knee	21.0	4	16.6	2	28.5	2

Ankle/feet	Yes both ankle/feet	41.6	5	16.6	2	42.8	3
	Yes right ankle/feet	36.8	7	41.6	5	28.5	2
	Yes left ankle/feet	10.5	2	8.3	1	14.2	1



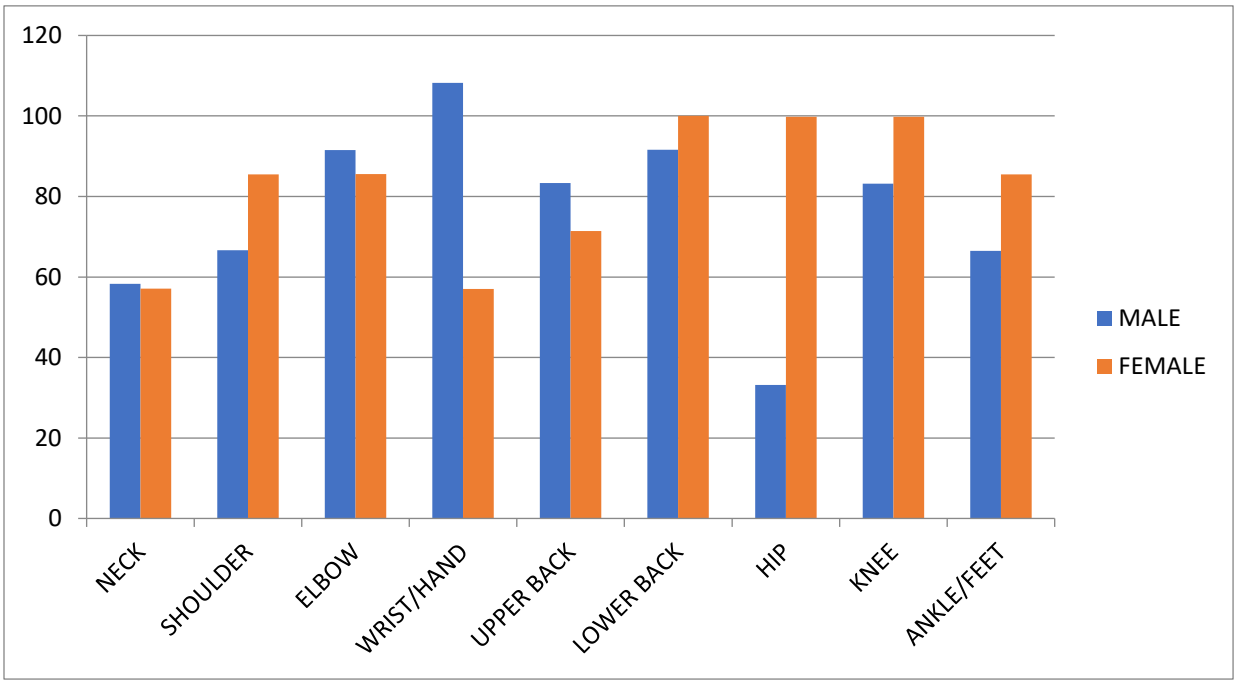


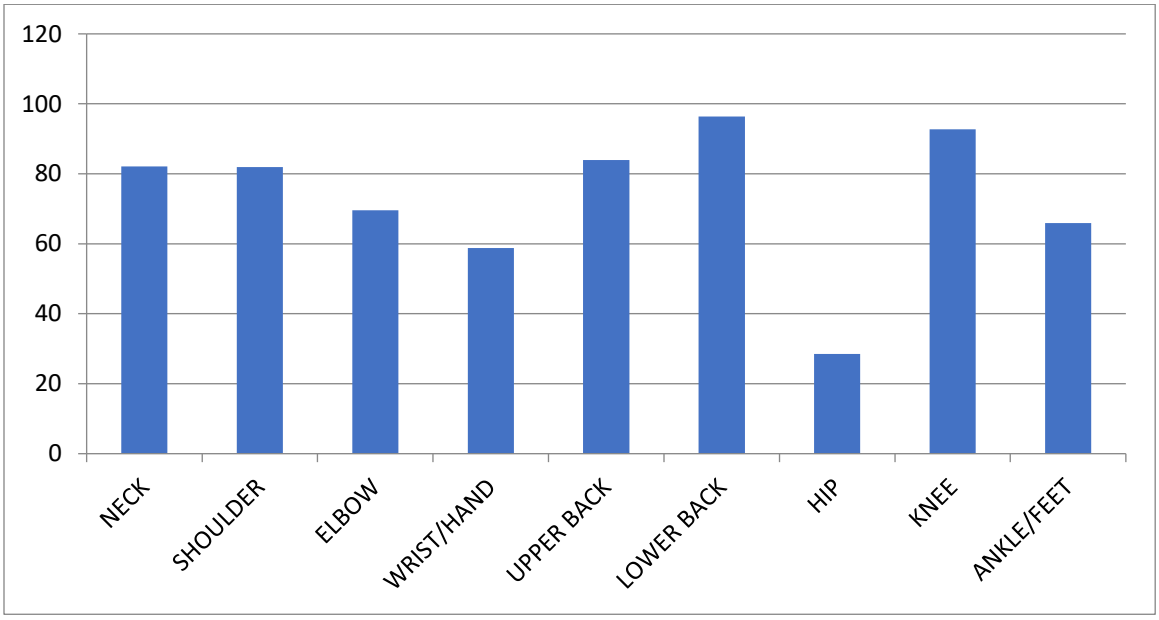
TABLE 3

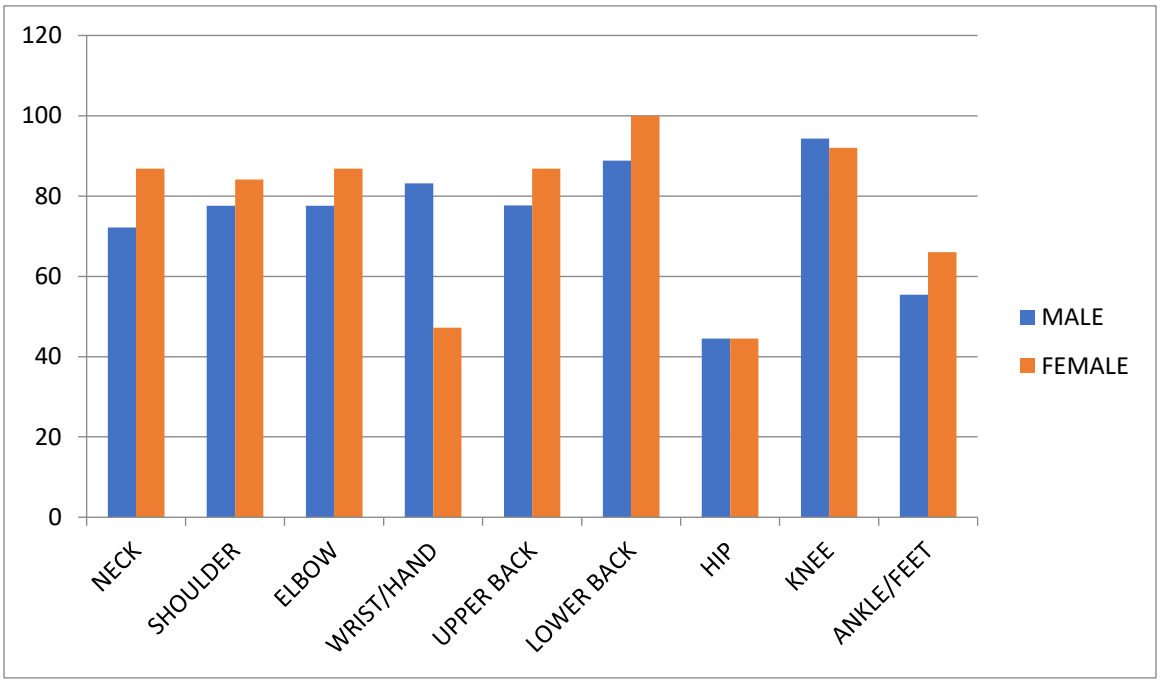
Prevalence of musculoskeletal disorder among **staff Nurses and OT technicians.**

REGION	RESPONSE	PREVALENCE N=(56)		PREVALENCE AMONG MALE N=(18)		PREVALENCE AMONG FEMALE N=(38)	
		%	N	%	N	%	N
Neck	Yes	82.1	46	72.2	13	86.8	33
Shoulder	Yes both shoulders	41.0	23	38.8	7	42.1	16
	Yes right shoulder	26.7	15	27.7	5	26.3	10
	Yes left shoulder	14.2	8	11.1	2	15.7	6

Elbow	Yes both elbow	37.5	21	27.7	5	42.1	16
	Yes right elbow	23.2	13	38.8	7	42.1	16
	Yes left elbow	8.9	5	11.1	2	2.6	1
Wrist/hand	Yes both wrist/ hand	30.3	17	44.4	8	23.6	9
	Yes right wrist/hand	23.2	13	27.7	5	21.0	8
	Yes left wrist/hand	5.3	3	11.1	2	2.6	1
Upper back	Yes	83.9	47	77.7	14	86.8	33
Lower back	Yes	96.4	54	88.8	16	100	38
Hip	Yes both hip	10.7	6	16.6	3	7.8	3
	Yes right hip	12.5	7	22.2	4	7.8	3
	Yes left hip	5.3	3	5.5	1	5.2	2
knee	Yes both knee	32.1	18	33.3	6	31.5	12
	Yes right knee	42.8	24	44.4	8	42.1	16
	Yes left knee	17.8	10	16.6	3	18.4	7

Ankle/feet	Yes both ankle/feet	26.7	15	16.6	3	31.5	12
	Yes right ankle/feet	32.1	18	33.3	6	31.5	12
	Yes left ankle/feet	7.1	4	5.5	1	7.8	3





Conclusion

The study concluded that both staff nurses and OT technicians are at a high risk of developing work-related musculoskeletal disorders, with staff nurses experiencing a higher prevalence of discomfort. The lower back region was the most affected, followed by the neck, shoulder, and knee areas. This study highlights the need for workplace interventions, including ergonomic tools and practices, to reduce the physical strain on healthcare professionals. There is a pressing need for further research with larger sample sizes and the evaluation of preventive measures to improve the health and well-being of staff nurses and OT technicians.

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