PREVALENCE OF MUSCULOSKELETAL DISORDERS IN HOTEL MANAGEMENT STUDENTS IN PUNE.

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Abstract:

Background: This study has been undertaken to check the prevalence of musculoskeletal disorders in hotel management students in pune.Musculoskeletal disorders (MSDs) are injuries that develop in the soft tissue structures of the body such as nerves, muscles, tendons and joints due to repeated or prolonged ergonomic exposures.There are a few studies done regarding work related musculoskeletal disorders in hotel management students but there are very limited studies done on the prevalence of these disorders when working in a college.

Objective: Hence, the purpose of this study is to find the prevalence of musculoskeletal disorders in hotel management students. The aim of the study is to identify the prevalence of musculoskeletal disorders in hotel management students in Pune.

Method: Prevalence Study was performed from Oct 22 to April23. A purposive Sampling technique was applied to select 323 participants. Nordic pain Questionnaire was used to asess the disorders in hotel management students for neck, shoulder, elbow, wrist, upper back, lower back, knee, ankle and hip.

323 participants were included in the study.

Result: This Study shows the prevalence of Low Back pain (60%), Neck Pain (51%), Knee Pain (44%), Shoulder (35.5%), Upper back pain (37%), Elbow pain (22.5%), Wrist (24%), Hip (16%), Ankle (15%).

Keywords - **Nordic Pain Questionnaire, Hotel Management**

I. INTRODUCTION

Musculoskeletal disorders (MSDs) are injuries that develop in the soft tissue structures of the body such as nerves, muscles, tendons and joints due to repeated or prolonged ergonomic exposures[1].

MSDs are the most common occupational injuries that can lead to decreased productivity, impose direct and indirect costs on society, and increase the time loss and work-related disabilities [2–5].

Back, neck and shoulders pains and disorders are the main reasons for work-related consultations and have a negative impact on work ability and effectiveness [6].

Work related musculoskeletal disorders is defined as widespread range of inflammatory and degenerative disease conditions which result in pain and functional loss disturbing the body part(14)

Work-related physical risk factors are poor posture, psycho-social factors and Occupational risk factors. The identification of applicable risk factors is vital importance in preventing the reappearance of the health issue in the numerous categories of workers for example in hotel management students.14).

There is an association between the working posture and the development of musculoskeletal disorders. The Hotel management students are exposed to different awkward postures while working.(9)

These disorders results from physical and mechanical risk factors including inappropriate awkward postures, lifting and carrying heavy loads, repetitive movements, vibrations, excessive force, contact pressure, working time and ultimately undesirable illumination that leads to undesirable postures.(10-13)

Globally, most of earlier literature on musculoskeletal conditions was concentrated on manufacturing industry. Recently, the focus has moved to service industry as well. There is evidence that students in hotel management college are at risk of musculoskeletal disorders.

In the United States, musculoskeletal risk factors are highest in manufacturing sector and second highest in the production industry.

II. NEED OF STUDY

There are a few studies done regarding work related musculoskeletal disorders in hotel management students but there are very limited studies done on the prevalence of these disorders when working in a college.

Hence, the purpose of this study is to find the prevalence of musculoskeletal disorders in hotel management students.

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III. AIM

To identify the prevalence of musculoskeletal disorders in hotel management students in Pune.

IV. OBJECTIVE

To find out different work related musculoskeletal disorders in hotel management students using Nordic Musculoskeletal Pain questionnaire

To find out the most prevalent musculoskeletal disorder in hotel management students using Nordic Musculoskeletal Pain questionnaire

V. METHODOLOGY

- Sample Size: 323
- Study design: Cross-sectional study
- Sampling Method: Convenience sampling
- Study population: hotel management students.
- Study setting: In pune
- Study duration: 6 months

VI. CRITERIA

INCLUSION CRITERIA:

- Both male and female.
- Participants who are willing to participate in the study.
- Hotel management students in age group of 18-25 years with average working hours of 5-7 hours per day.

EXCLUSION CRITERIA:

- Workers with recent injury and fracture
- Any diagnosed neurological condition
- Any congenital deformity
- Pain in any part of the body for more than 1 year

VII. MATERIALS

- Nordic musculoskeletal pain questionnaire.

- Pen

- Paper

- Assessment form

VIII. OUTCOME MEASURES

NORDIC PAIN QUESTIONNARE

- Standardised General Questionnaire of the Nordic musculoskeletal pain questionnaire.[12]

- The questionnaire consists of structured, forced , binary or multiple-choice variants and can be used as self – administered questionnaire or in interviews .

- The general questionnaire was designed to answer the following questions: 'Do musculoskeletal troubles a occur in a given population, and if so , in what parts of the body are they localised ?' With this consideration in mind , a questionnaire was constructed in which the human body (viewed from the back) is divided into nine anatomical regions

- These regions were selected on the basis of two criteria :

- Regions where symptoms lead to accumulate

- Regions which are distinguishable from each other both by the responded and heath surveyor

- The verbal questions deal with anatomical area in turn, and inquire whether the responded has, or has had, troubles in the respective areas during the preceding twelve months, whether this pain is disabling and whether it is ongoing. Fig 1 shows the anatomical areas and the layout of the questionnaire.

- The standardised general questionnaire of the Nordic musculoskeletal pain questionnaire has advantages compared to other survey methods as respondents find it easier to complete the Nordic Musculoskeletal

- Questionnaire's simpler questionnaire

- Reliability-77%

- Validity-80%
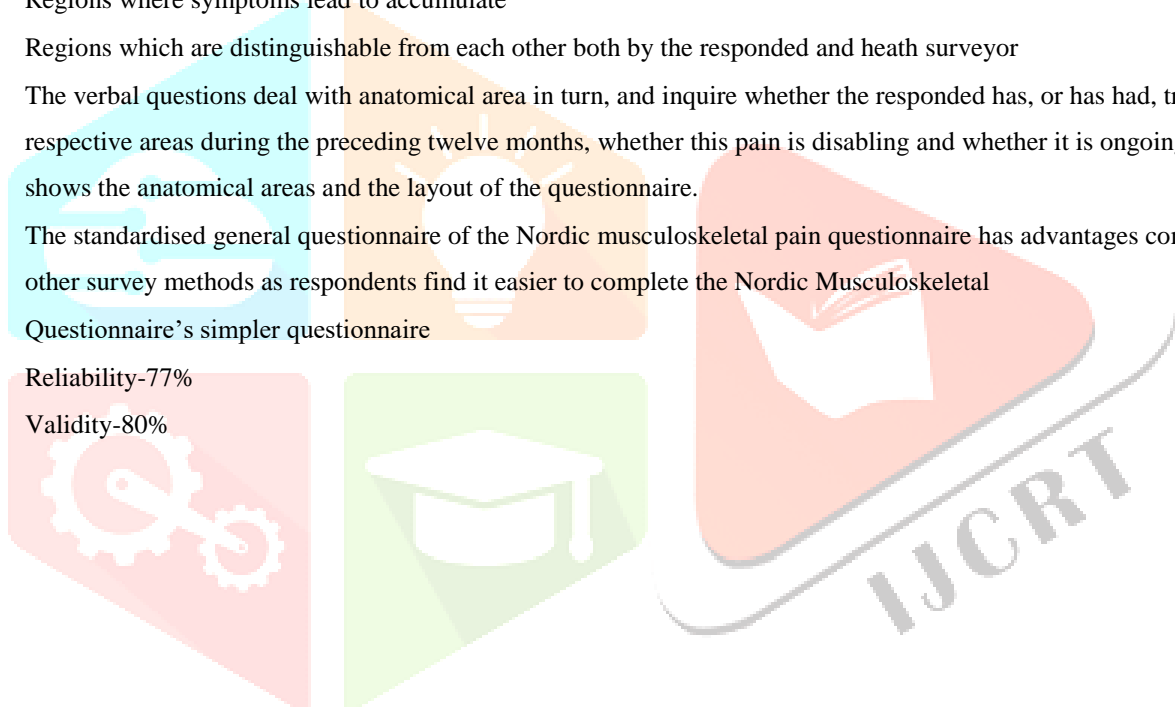
Musculoskeletal Discomfort Form (Based on the Nordic Questionnaire (Kourinka et al. 1987))   Employee ID:_____

Job/Position: _____   Gender: M   F   Age: _____   Height: ____ ft.____ in.   Weight: _____
How long have you been doing this job? ___years ___ months   How many hours do you work each week? _____

How to answer the questionnaire:

Picture: In this picture you can see the approximate position of the parts of the body referred to in the table. Limits are not sharply defined, and certain parts overlap. You should decide for yourself in which part you have or have had your trouble (if any).

Table: Please answer by putting an "X" in the appropriate box - one "X" for each question. You may be in doubt as to how to answer, but please do your best anyway. Note that column 1 of the questionnaire is to be answered even if you have never had trouble in any part of your body; columns 2 and 3 are to be answered if you answered yes in column 1.

Back View

| To be answered by everyone		To be answered by those who have had trouble	
Have you at any time during **the last 12 months** had trouble (ache, pain, discomfort, numbness) in:		Have you at any time during the **last 12 months been prevented from doing your normal work** (at home or away from home) because of the trouble?	Have you had trouble at any time during **the last 7 days?**
Neck			
☐ No ☐ Yes		☐ No ☐ Yes	☐ No ☐ Yes
Shoulders			
☐ No	☐ Yes, right shoulder ☐ Yes, left shoulder ☐ Yes, both shoulders	☐ No ☐ Yes	☐ No ☐ Yes
Elbows			
☐ No	☐ Yes, right elbow ☐ Yes, left elbow ☐ Yes, both elbows	☐ No ☐ Yes	☐ No ☐ Yes
Wrists/Hands			
☐ No	☐ Yes, right wrist/hand ☐ Yes, left wrist/hand ☐ Yes, both wrists/hands	☐ No ☐ Yes	☐ No ☐ Yes
Upper Back			
☐ No ☐ Yes		☐ No ☐ Yes	☐ No ☐ Yes
Lower Back (small of back)			
☐ No ☐ Yes		☐ No ☐ Yes	☐ No ☐ Yes
One or Both Hips/Thighs			
☐ No ☐ Yes		☐ No ☐ Yes	☐ No ☐ Yes
One or Both Knees			
☐ No ☐ Yes		☐ No ☐ Yes	☐ No ☐ Yes
One or Both Ankles/Feet			
☐ No ☐ Yes		☐ No ☐ Yes	☐ No ☐ Yes

NORDIC PAIN QUESTIONNAIRE

IX. PROCEDURE

● The study was began with synopsis presentation in front of the ethical committee in P.E.S Modern College of Physiotherapy

● Ethical clearance was obtained from the committee.

● Various Hotel management students were approached from Pune (Maharashtra).

● Consent was taken from each participant prior to the study Assessment forms were circulated to the hotel management students from Pune (Maharashtra)

● The participant who meets the inclusion criteria were selected and the Nordic questionnaire was filled

● The data was collected and analyzed.

X. DATA ANALYSIS

● The Data that fulfilled the inclusion criteria was exported to excel sheet and was further analysed.

● 323 subjects have been included in the study according to the inclusion criteria.
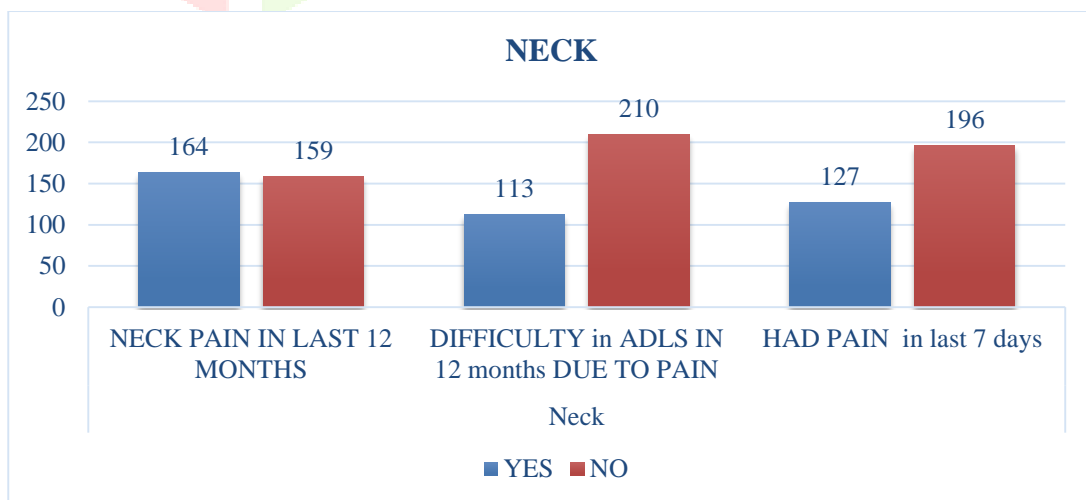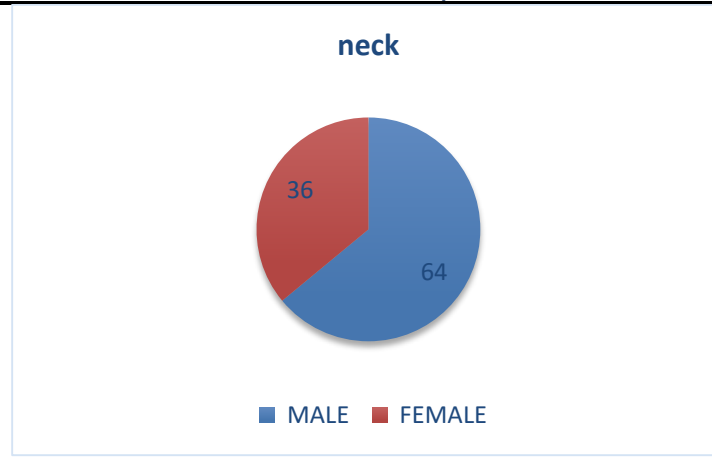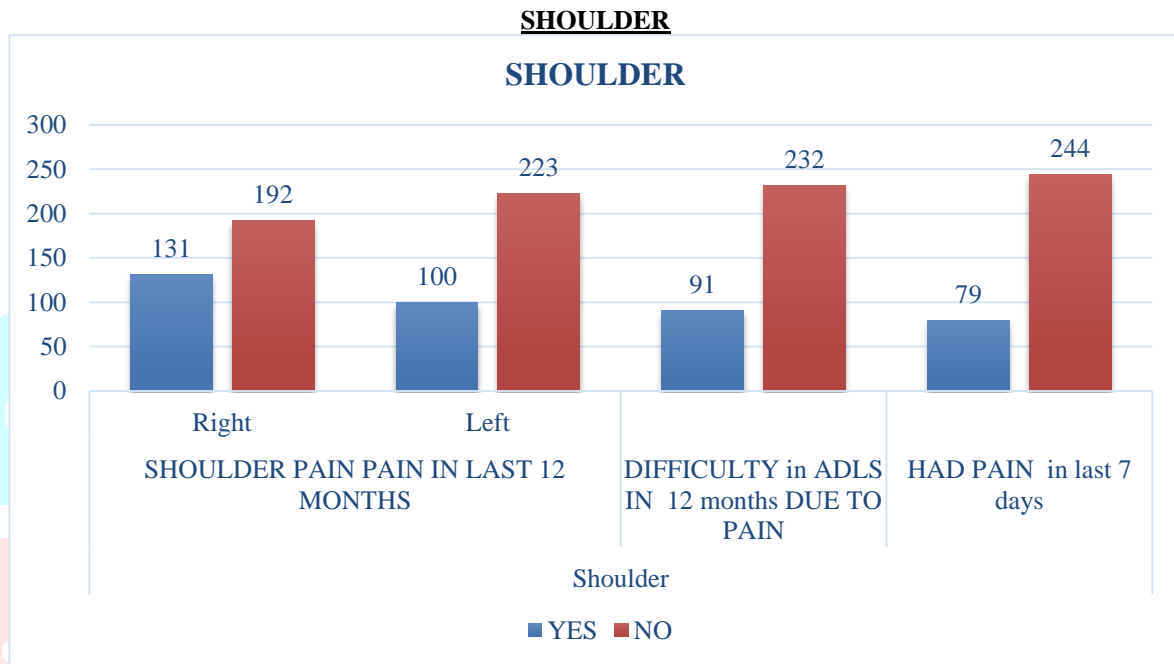
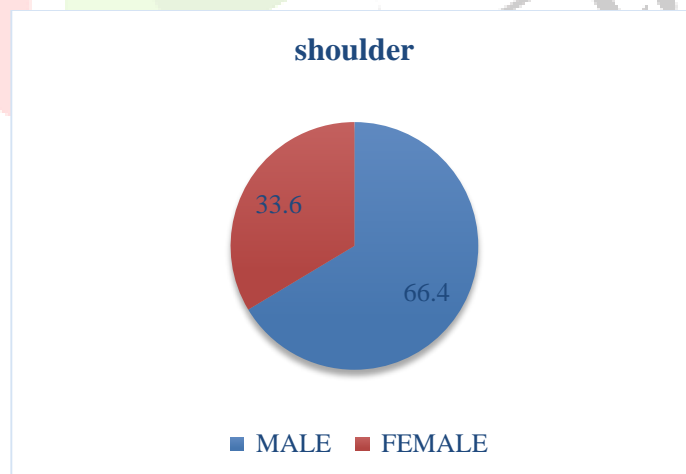## GENDER DISTRIBUTION
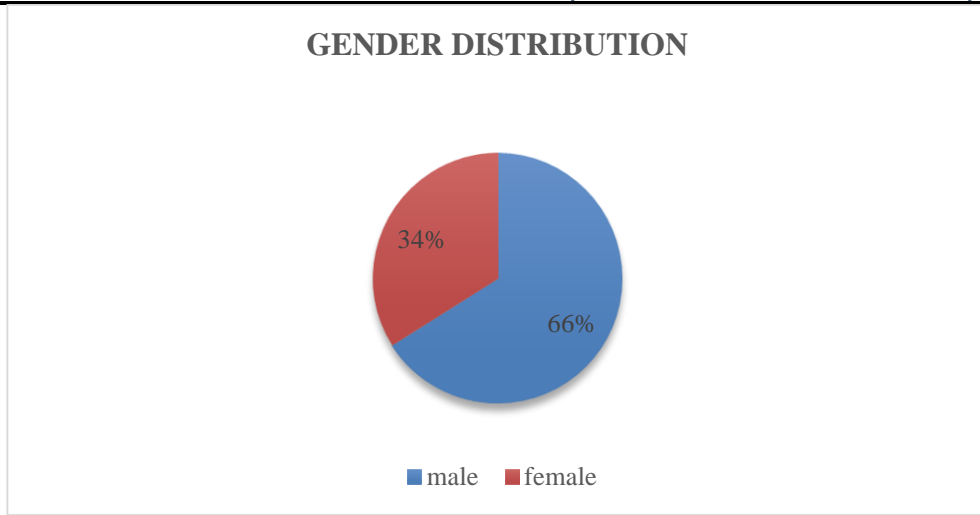
Graph 1: Gender Distribution
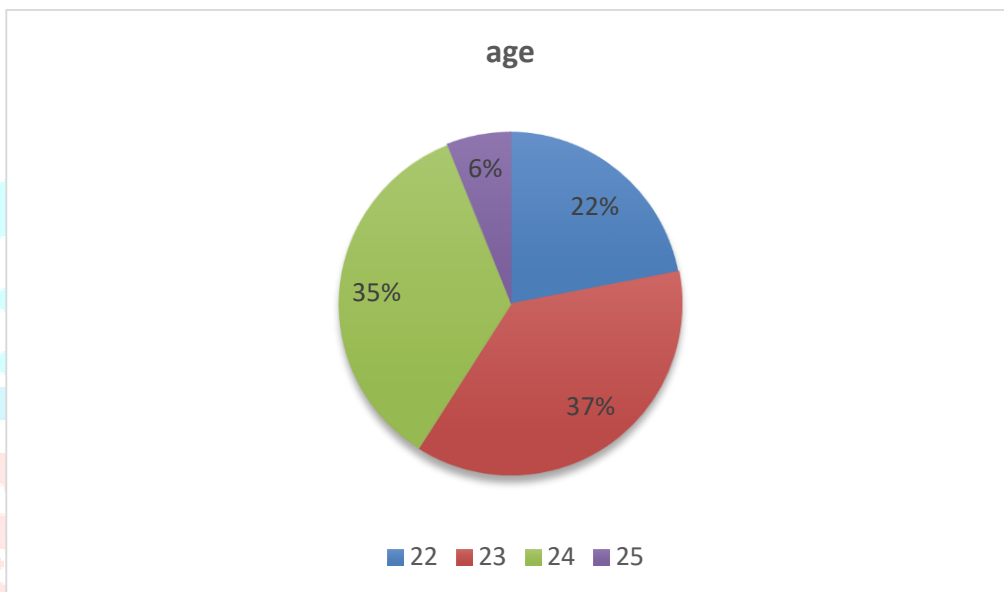
Graph 2: Age Distribution

NECK

Graph 3

neck

Graph 4

SHOULDER

Graph 5

shoulder

Graph 6

ELBOW
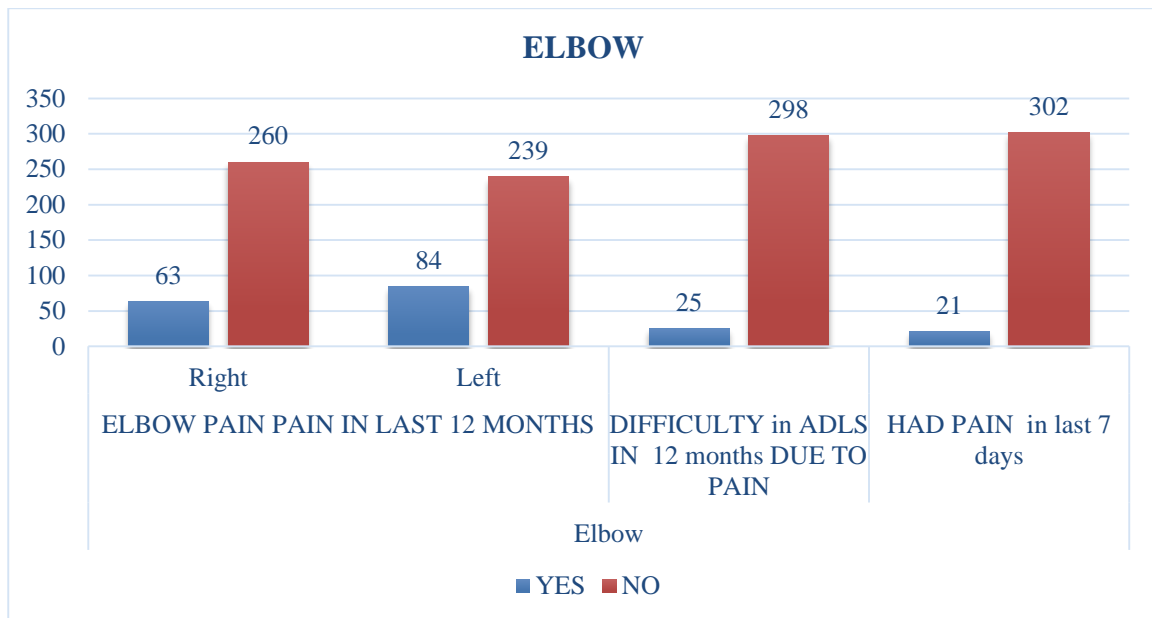
Graph 7
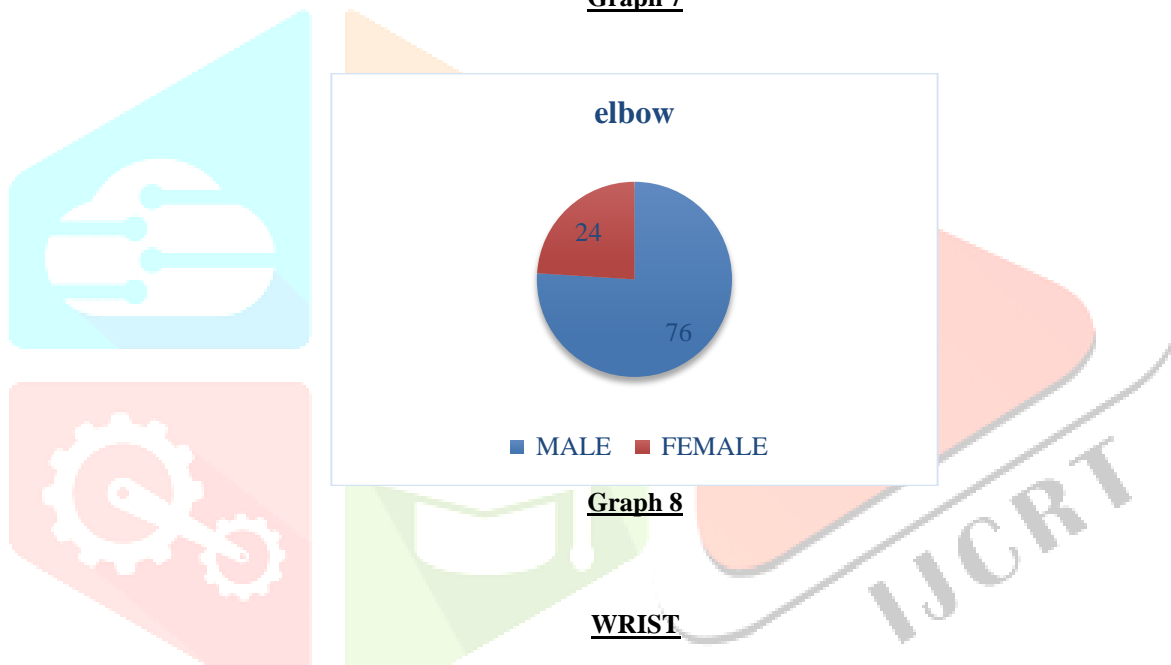
Graph 8

WRIST

Graph 9

wrist
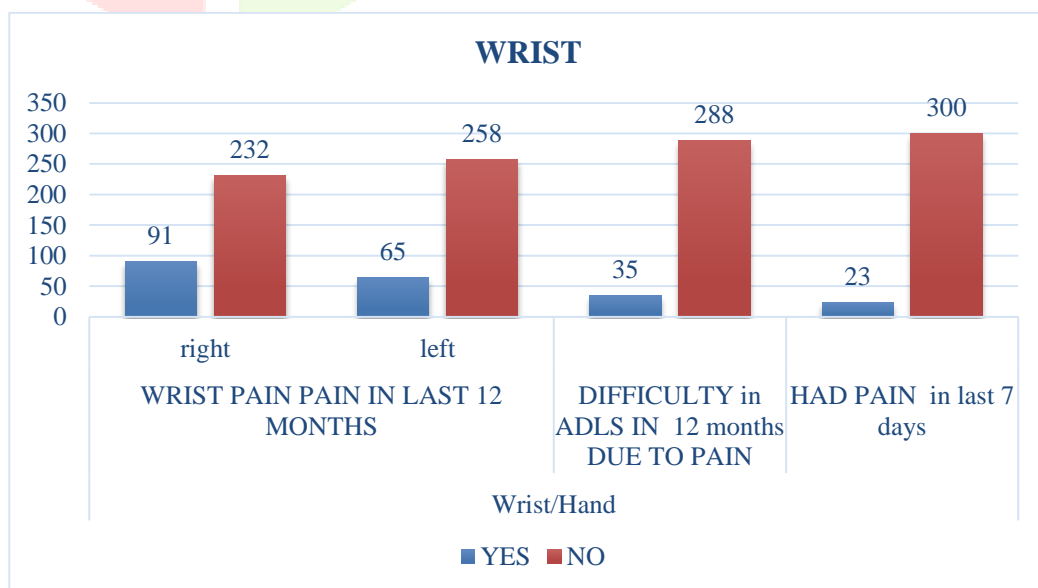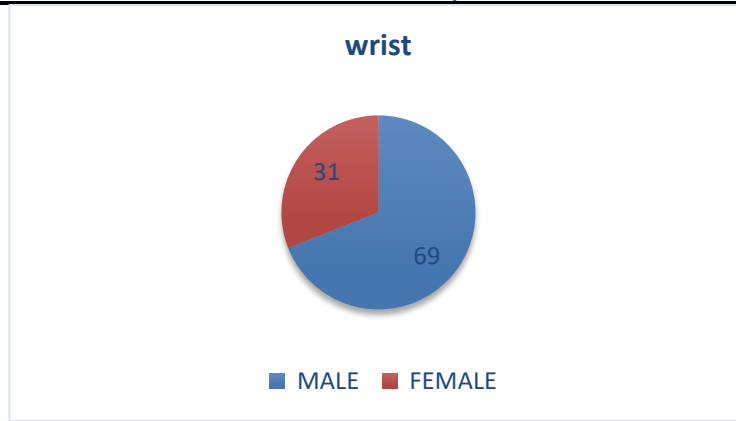
Graph 10

UPPER BACK

UPPER BACK

Graph 11

upper back
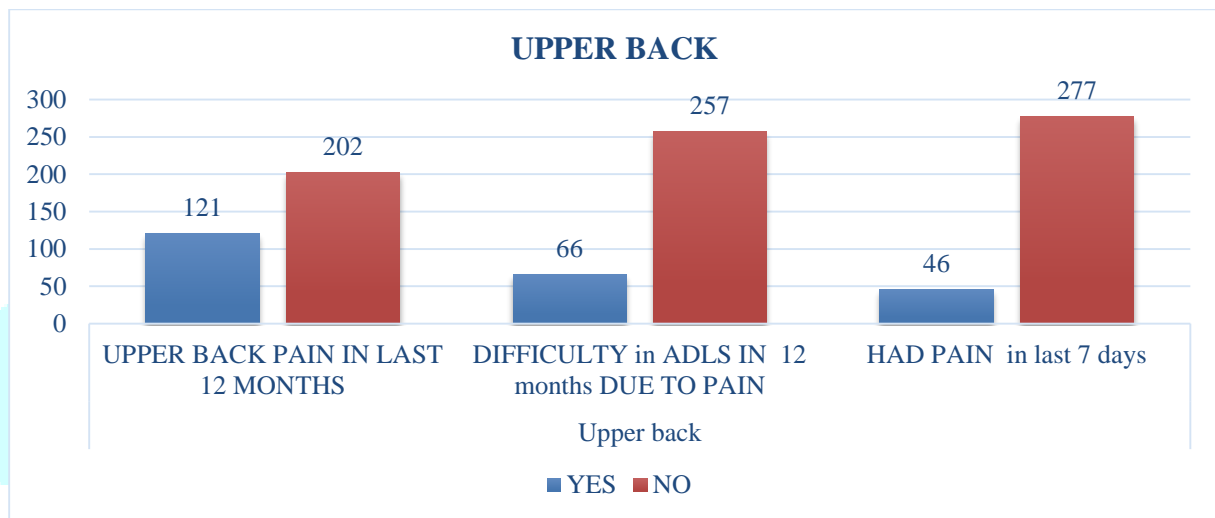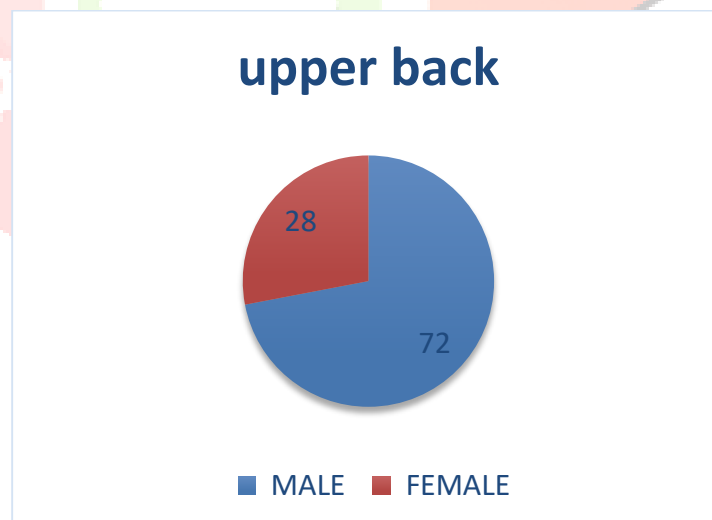
Graph 12

LOWER BACK
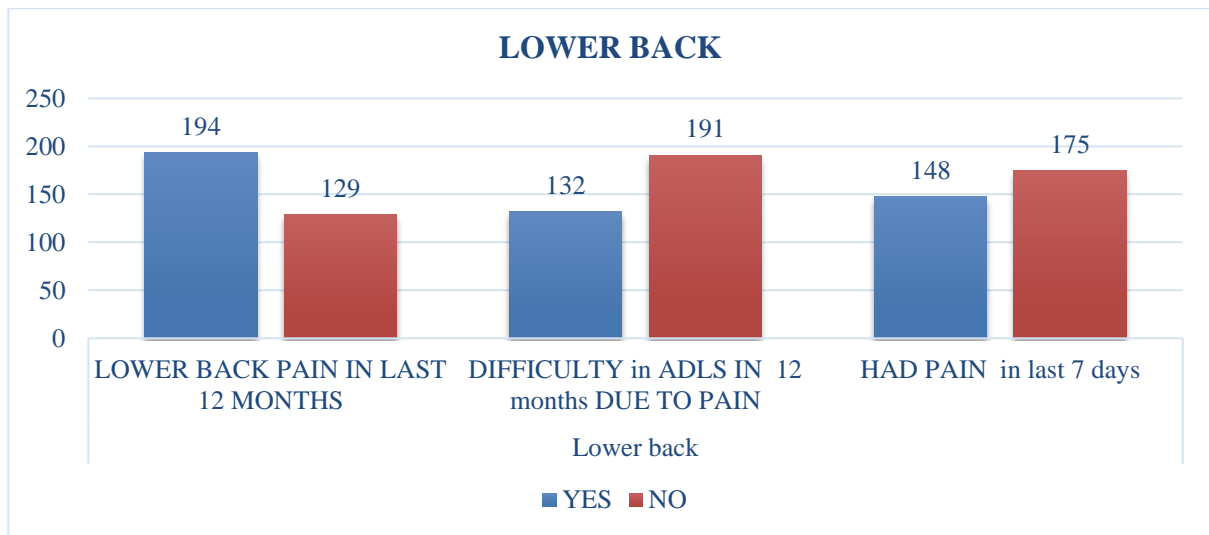
Graph 13

Graph 14

HIP

Graph 15

HIP

MALE   FEMALE
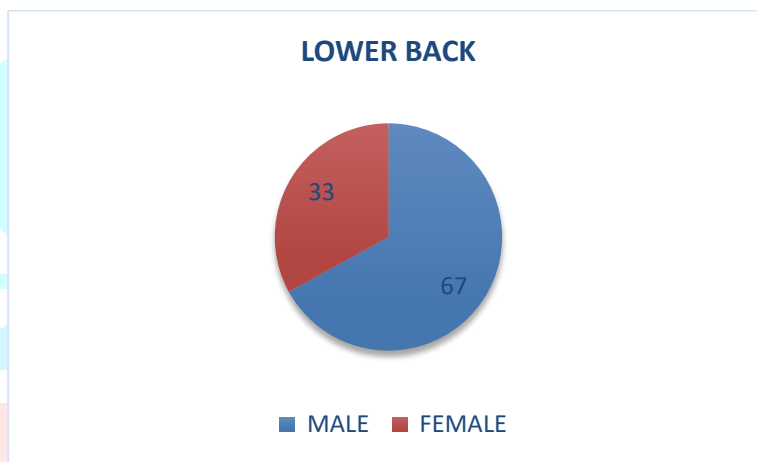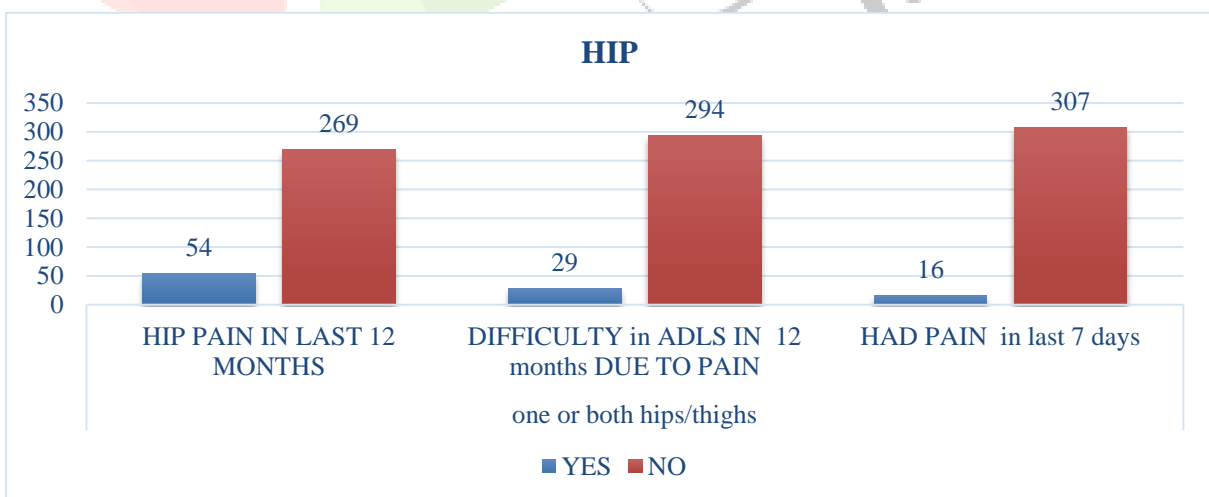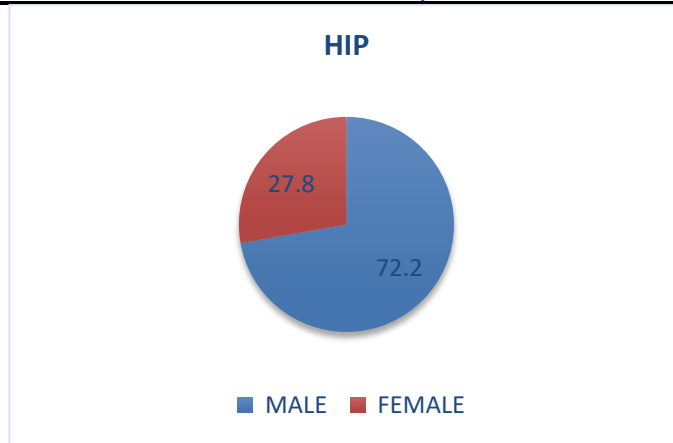
Graph 16

KNEE

Graph 17

KNEE

MALE   FEMALE
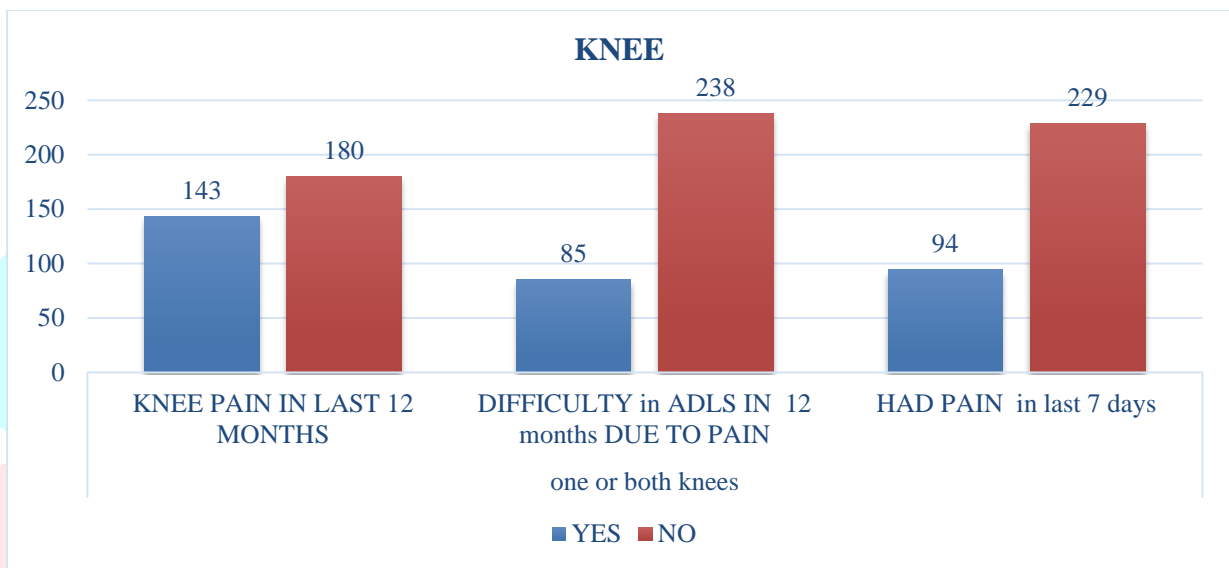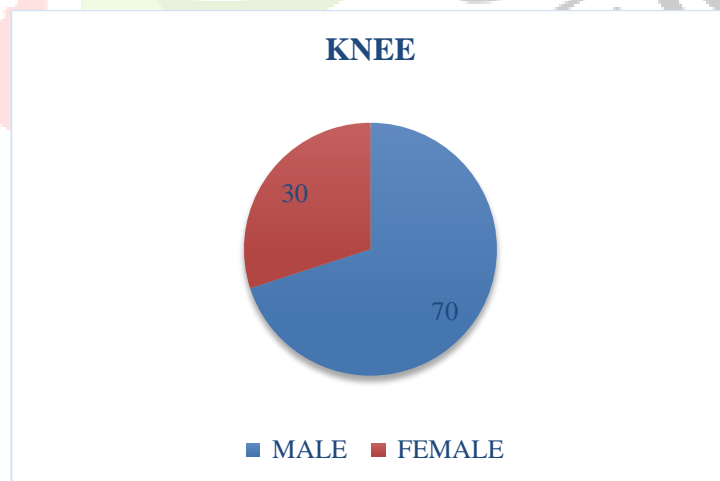
Graph 18

ANKLE

Graph 19

Graph 20

XI. RESULT

- Total 323 CONSENT form responses were recorded.

- Out of this 323 responses, 323 subjects have been included in the study according to the inclusion criteria.

- Out of this 323 responses, 214(66%) are males and 109(34%) are female participants.

- Mean age of the participants is 23.25 and the standard deviation is 0.86

XII. PREVALENCE

Graph 21

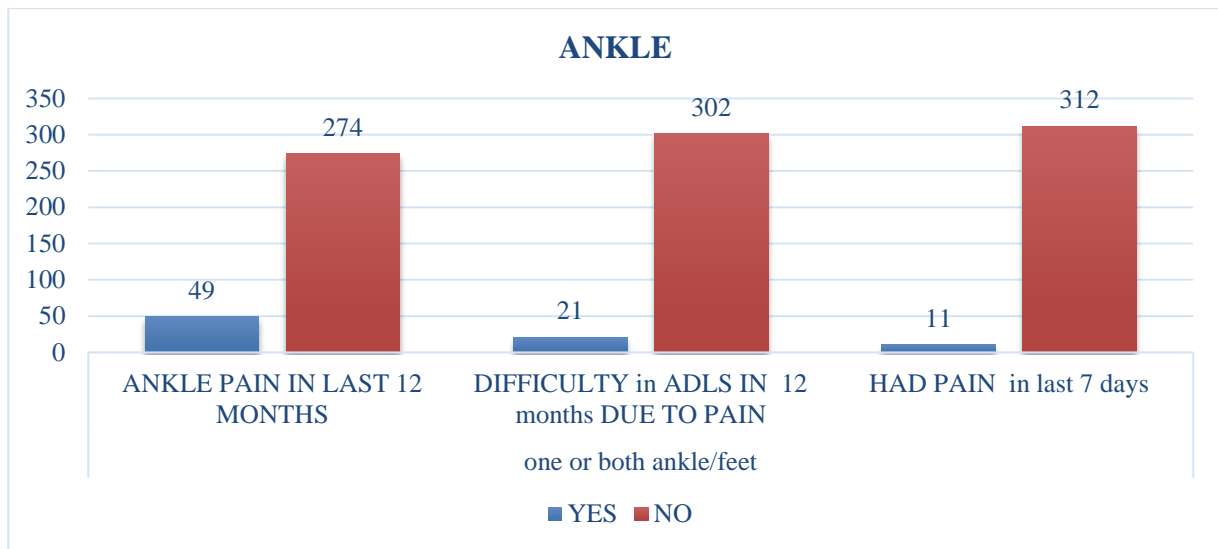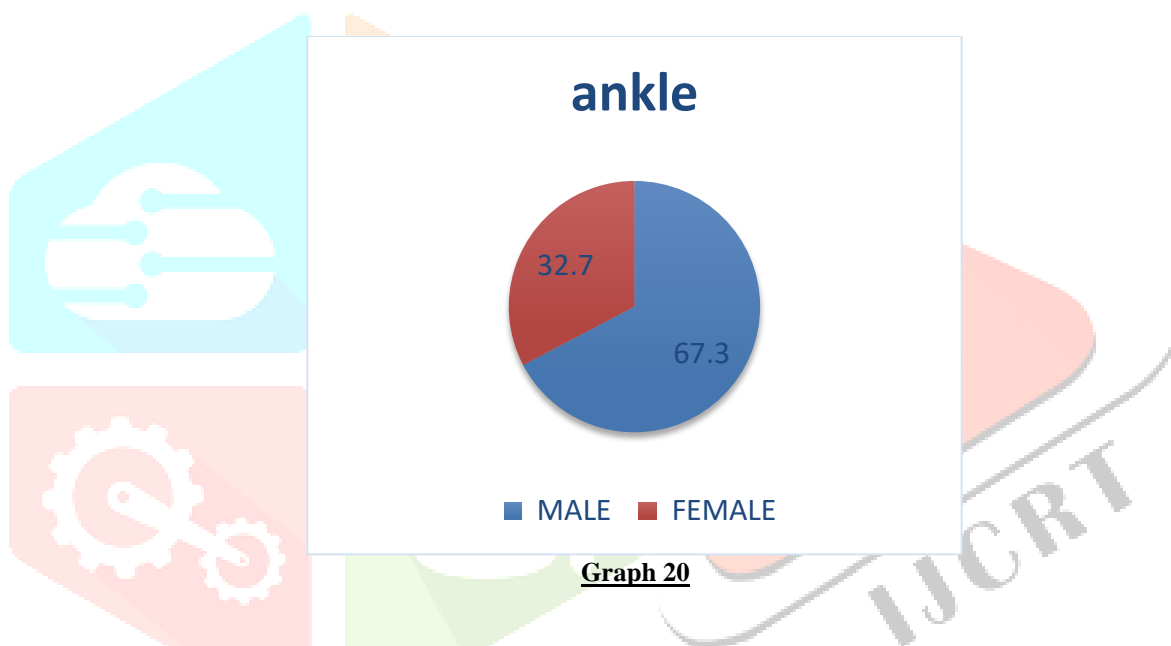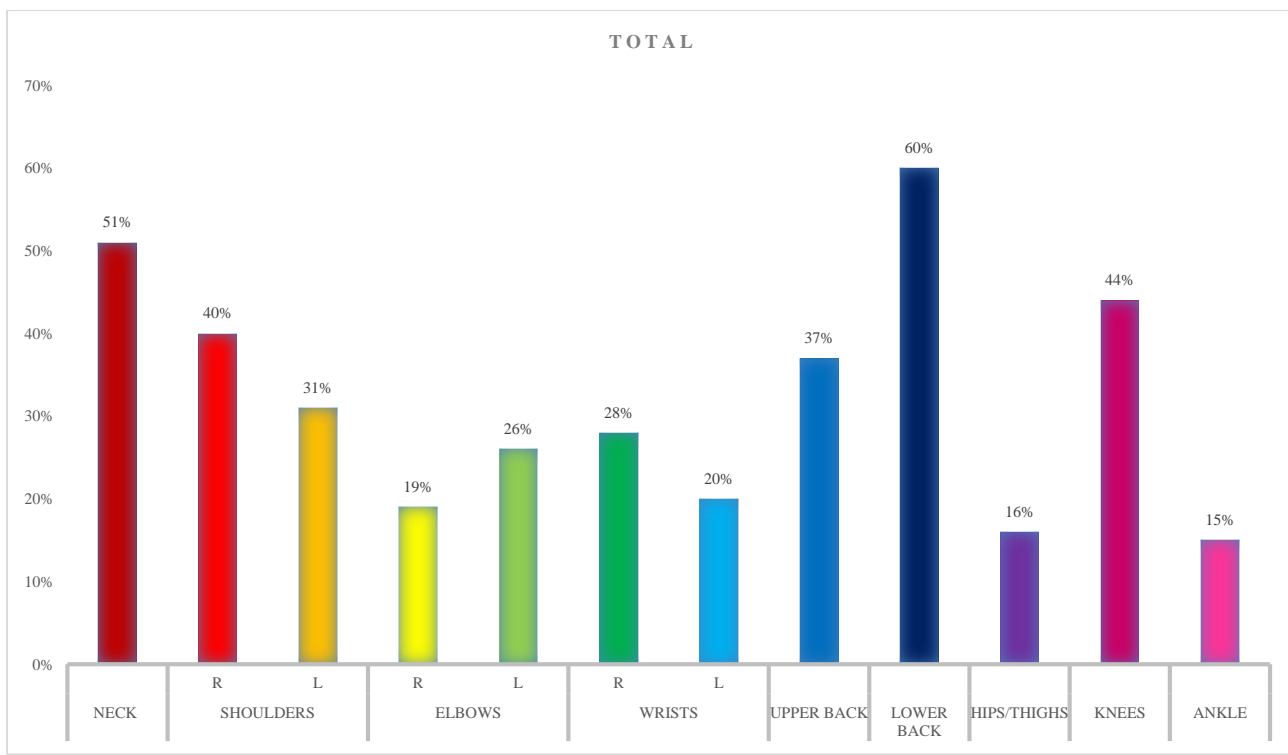| BODY PART		HAVE EXPERIENCED PAIN IN LAST 12 MONTHS			HAVE EXPERIENCED PAIN IN LAST 7 DAYS		
		TOTAL	MALES	FEMALES	TOTAL	MALES	FEMALES
NECK		164(51%)	105(64%)	59(36%)	127(39%)	84(66%)	43(34%)
SHOULDERS	R	131(40%)	87(66.4%)	44(33.6%)	79(24%)	52(66%)	27(34%)
	L	100(31%)	70(70%)	30(30%)			
ELBOWS	R	63(19%)	48(76%)	15(24%)	21(7%)	14(67%)	7(33%)
	L	84(26%)	54(64%)	30(36%)			
WRISTS	R	91(28%)	63(69%)	28(31%)	23(7%)	13(56%)	10(44%)
	L	65(20%)	44(68%)	28(32%)			
UPPER BACK		121(37%)	87(72%)	34(28%)	46(14%)	34(74%)	12(26%)
LOWER BACK		194(60%)	130(67%)	64(33%)	148(46%)	94(64%)	54(36%)
HIPS/THIGHS		54(16%)	39(72%)	15(28%)	16(5%)	12(75%)	4(25%)
KNEES		143(44%)	100(70%)	43(30%)	94(29%)	61(65%)	33(35%)
ANKLE		49(15%)	33(67%)	16(33%)	11(3.3%)	7(63%)	4(37%)

XIII. DISCUSSION

● The aim of this study was to evaluate the prevalence of work-related musculoskeletal disorders in Hotel management students from Pune (Maharashtra).

● This study showed a high prevalence of musculoskeletal disorders in low back, neck ,knees and shoulders among these students

● Musculoskeletal disorders are described as an injury or dysfunction that commonly involves the supporting structures of the body as well as the nerves, muscles, bones and cartilages. They are collectively caused by repetitive movements or sustained poor and awkward positions. [13]

● Results of the study showed that there is a high prevalence of musculoskeletal disorders among the Hotel management students i.e.

● Low back pain (60%) followed by Neck pain (51%) was the most identified. In this study, participants were found to be working in either continuous standing or sitting posture.

● Participants found to lift heavy objects while bending through their back and not from their knees, which is one of the most common reason behind the discomfort/pain in the Lower Back region.

● Followed by Neck pain (51%) was found to be prevalent due to the repetitive movements, continuously leaning forward while working that leads to forward neck posture which then contributes to the pain.

● Continuously working in either standing or sitting position results in static loading which leads to knee pain (44%).

● Shoulder pain (40%), Upper Back pain (37%), and Elbow pain (26%), Wrists/Hands pain (28%) was also found in the participants.

● This can be as a result of heavy lifting, repetitive movements of the limbs during preparation of the food and due to faulty posture.

● Hips (16%) and Ankle (15%) pain was also found in the participants but the prevalence was relatively less than other parts of the body.

XIV. CONCLUSION

From this study we can conclude that Low back pain are most commonly affected due to pain in the followed by Neck pain and knee pain.

XV. LIMITATIONS

The study was only done in Pune (Maharashtra)

XVI. FUTURE SCOPE OF STUDY

● Future study should expand the sample size to represent Hotel management students from Maharashtra.

● Strengthening exercise along with ergonomic advice to improve the posture while working can be intervened to the patients to reduce the pain and improve work efficiency

REFERENCES

[1] Karwowski W. International encyclopedia of ergonomics and human factors. 1st ed. Boca Raton, Florida, United States: CRC Press; 2001. (Vol 3).

[2] Gholami A, Soltanzadeh A, Abedini R, Sahravand M. Ergonomic assessment of musculoskeletal disorders risk by rapid upper limb assessment (RULA) technique in a porcelain manufactring factory. Journal of Research & Health 2014; 4(1):608-12.

[3] Nasle Saraji J, Ghafari M, Shahtaheri SJ. Survey of correlation between two evaluation methods of work related musculoskeletal disorders risk factors REBA & RULA. Iran Occupational Health Journal 2006; 3(2):25-32.

[4] Haukka E, Leino Arjas P, Solovieva S, Ranta R, Viikari Juntura E, Riihimiaki H. Co-occurrence of musculoskeletal pain among female kitchen workers. Int Arch Occup Environ Health 2006; 80(2):141-8.

[5] Mostaghasi M, Davari MH, Mollaei F, Salehi M, Mehrparvar AH. Evaluation of the frequency of musculoskeletal disorders and work posture analysis by RULA method in workers of an auto- part manufacturing company. Occupational Medicine Quarterly Journal 2012; 3(4):26-32. 6. Zamanian Z, daneshmandi H, Setoodeh H, Nazaripoor E, Haghyegh A, Sarvestani SS. Risk assessment of musculoskeletal disorders and determination of the associated factors among workers of a dairy products factory. Journal of Health Sciences and Surveillance System 2014; 2(4):134-9.

[6] Varmazyar S, Amini M, Kiafar M. Ergonomic evaluation of work condition in Qazvin dentists by REBA method and its association with musculoskeletal disorders in 2008. J Islam Dent Assoc Iran 2012; 24(3):229-37.

[7] Condrowati1*, Farahdina Bachtiar1, Fandita T. Maharani2, Dyah Utari2, Musculoskeletal Disorder of Workers During Work From Home on Covid-19 Pandemic: A Descriptive Study

[8] Arinite, Musculoskeletal conditions soar due to homeworking, 21 February 2012.

[9] Sharan, Deepak, Ajeesh, P.S. Correlation of ergonomic risk factors with RULA in I.T. professionals from India, 2012.

[10] Beheshti M H, Tajpour A, Jari A, Samadi S, Borhani Jebeli M, Rahmanzadeh H. Evaluation of Ergonomic Risk Factors for Musculoskeletal Disorders among Workers. AOH.2018; 2(2);128-135

[11] Chim J. Ergonomics workload analysis for the prevention of musculoskeletal disorders in food services in the health sector. Human Factors & Ergonomics Society of Australia 42nd Annual Conference; 2006; Australia.

[12] Habibi E, Dehghan H, Zeinodini M, Yousefi H, Hasanzadeh A. A study on work ability index and physical work capacity on the base of fax equation VO2 max in male nursing hospital staff in Isfahan, Iran. Int J Prev Med 2012; 3(11):776-82.

[13] Bijal Jignesh Karelia1 , Deepali Rathod2 , Ajay Kumar3. Assessment of Posture Related Musculoskeletal Risk Levels in Restaurant Chefs using Rapid Entire Body Assessment (REBA). IJHSR (ISSN: 2249-9571) May 2021; Vol.11; 333-339.