Faculty of Medicine
University of Dhaka

PREVALENCE AND ASSOCIATED FACTORS OF KNEE PAIN AMONG NON-OBESE PERSONS ABOUT 20 TO 40 YEARS OLD MALE SERVICE HOLDERS IN DHAKA CITY

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Registration no: 6808
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PREVALENCE AND ASSOCIATED FACTORS OF KNEE PAIN AMONG NON-OBESE PERSONS ABOUT 20 TO 40 YEARS OLD MALE SERVICE HOLDERS IN DHAKA CITY

Submitted by Arif ul moula, Tasmin ara for partial fulfillment of the requirements for the degree of Bachelor of Science in Physiotherapy (B.Sc. PT)

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DECLARATION

I declare that the work presented here is my own. All source used have been cited appropriately. Any mistakes or inaccuracies are my own. I also declare that for any publication, presentation or dissemination of the study. I would be bound to take written consent from my supervisor.

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ABSTRACT

BACKGROUND: Knee pain is a common musculoskeletal pain, an unpleasant emotional experience that accelerates to physical impairment. Knee pain is not an atypical characteristic in early life. Both obese and non-obese person are effected by some influencing factors.

OBJECTIVES: The objectives of the study to determine the prevalence of knee pain in non-obese young male person; to find out the influencing factors that causes knee pain.

METHODOLOGY:A descriptive cross-sectional study was conducted among 196 males' non-obese person where data were collected by face to face interview with structural administered questionnaire. Purposive sampling technique was used where Chi-square testindicated as the level of significance. The collected data was analysed by Statistical packages for social science (SPSS, version-22.0).

RESULTS: Results indicated that the prevalence of knee pain among non-obese male person was 24.5% where most of the participant's body mass index was 18.5 to 21.75 kg/m2. More than half of the participant's occupation was private service and about one third of the participants' educational level was HSC. Near about half of the participant's monthly income was between 10000-20000. According to nature of pain, most of them had intermittent in nature and increasing pain during standing and walking and relieving pain during rest. Most of the participants had no previous injury. Among the patient with knee pain, most of them had bony problem.

CONCLUTION: Present cross-sectional study finding indicate that 20 to 40 years old male non-obese persons knee pain is less common. However prevalence of knee pain, this showed that bad habit, occupations, height, working position is related to non-obese persons in young adults.

KEY WORD:Prevalence, Knee pain, Associated factor, Non-obese.

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ABBREVIATIONS

BMI : Body Mass Index

CPPs : Chronic Pain Patients

FKnP : Frequent Knee pain

PF : Patello femoral

OA : Osteoarthritis

KOA : Knee Osteoarthritis

TKR : Total Knee Replacement

TKA : Total Knee Arthoplasty

WHO : World Health Organization

MOST : Multicentre Osteoarthritis

PRS : Pain Rating Scale

KSS :Knee Society Score

MJSW : Minimum Joint Space Width

ROAD : Research on Osteoarthritis/Osteoporosis against Disability

QOL : Quality Of Life

ADL : Activities Daily Living

PPR : Prevalence Proportion Ratio

PPD : Prevalence of Proportion Difference

OR : Odds Ratio

SD : Standard Deviation

SPSS : Statically Package for Social Science

SIMT :SAIC Institute Of Medical Technology

CHAPTER-I INTRODUCTION

1.1 Introduction

Knee pain is a common musculoskeletal pain that accelerates to physical impairment and reduced calibre of life (Kim et al.2011).Pain is a protective mechanism in our body when any tissue is being harm. According to international Association for Study of Pain, pain is defined as "an unpleasant sensory and emotional experience, resulting from the real or potential lesion to tissues of the body or described in this terms" (Sa et al. 2011).

Knee pain was explained as pain in or surrounding the knees on maximum days of the previous month (Fernades et al.2017).One body segment most high-flown by pain is the knee, which is revealed to significant intermediate joint in the lower limb (Sa et al. 2011).

Knee pain was explain as pain somewhere about knee joint that demand meeting physician or physiotherapist or activity modification for minimum 3 days in the last 12 months (Neogi et al. 2010)

The BMI (Body Mass Index) is the body weight in kilograms divided by the square of the height in meters. BMI less than 25 kgm^2 is called non obese. Overweight is a BMI greater than or equal to 25 kgm^2 ,obesity is a BMI greater than or equal to 30 kgm^2 and morbid obesity is a BMI greater than or equal to 40 kgm^2 (Wang et al. 2017). Injury to the joint is a chief risk factor knee pain in young adult 20 to 40 years old person (Anatony 2016).

Knee pain was appreciably in female's unification of confounding factors. Female with knee pain had appreciably worse and an almost all physical and mental domains of SF-12 compared to men(Agaliotis et al. 2013).

Prevalence of knee pain extent from 10% to 60% regulating on age, occupation,socioeconomicanddemographic natures. Smoking, alcohol consumption, physical working, sports related or recreational joint trauma are also associated (Sa et al. 2017). 110000 are skilful male footballers has a high injury rate and 17% of all injuries include the knee (Fernades 2017).

Lesions are mainly the consequence low intensity mechanical overstress. Overstress lesions have a multifarious factorial aetiology and the many proffering factors may be intrinsic or extrinsic. Intrinsic factors are demographic (age, gender and race), anatomical (dissymmetry, high arch of the foot and valgus knee) and biomechanical (mineral density and bone geometry). Extrinsic factors mention to the characteristics of the training volume, intensity and frequency, environment and shoes (Greve et al. 2015).

Knee pain is not an atypical characteristic in early life. Studies have developed that prevalence of knee pain is 3.9% among children and 18.5% in adolescence. Some studies have published an even higher prevalence of pathologic in adolescent with a range from 28.5% to 31% (Anatony 2016). Background inadequate levels of serum 25-hydroxy vitamin D (25-OHD) control the knee joint cartilage and accelerate to evaluation and continuation of knee OA (Heidri et al. 2011).

Poor individually curing receptivity is possibly due to the poor blood supply and less metabolic action in cartilage. If harmed cartilage is not medicated, it find bad and affect neighbouring tissue and ultimately degenerates. (Agaliotis et al. 2013).

OA is one of the major destructive chronic state that influence people surrounding the world (Amoake et al. 214). Longitudinal data have exhibit that obesity is high risk factors for the progression of knee OA for each 5 kg increase in weight, the risk increase by 30% (Wang et al. 2017). Ongoing research develops on pharmacologic and regenerative therapies including key approach and probable limitation (Zhang et al. 2016).

1.2 Justification of the Study

Knee pain is a common musculoskeletal pain that accelerates to physical impairment and reduce calibre of life. Physiotherapist can help person to relieve symptoms and treated condition. Generally seen the older people can affect knee pain in degenerative or OA but knee pain can also complain young adult for different causes. This cause depends differ associated factors. The study aim to analysed and explained the associated factors that arising knee pain in young adults in Dhaka city. After completing this study the persons was benefited because they were aware about the associated factors, problems and Physiotherapy for aware, prevention and treatment of those problems. This study is helpful for Physiotherapist to aware them about the complaints arising in knee pain and by giving them a clear reflection of the prevalence of those complains the most affected group, period when most of the problem occurs. It is also helpful for Physiotherapists for working in musculoskeletal unit. This study is also helpful for different organizations working in this area by including Physiotherapy service in their programme for delivering a comprehensive service.

1.3 Operational definition:

Pain:

An unpleasant sensation and emotional experiences arising from actual or potential tissue damage

Knee pain:

Knee pain was explained as pain in or surrounding the knees on maximum days of the previous month

BMI(Body Mass Index):

It is a value derived from the mass(weight) and height of an individual. The BMI is define as the body mass divided by the square of the body height, and is universally expressed in units of kg/m^2.

Prevalence:

The percentage of a population that is affected with a particular disease at a given time

Sports injury:

Sports injury is a type of injury result from acute trauma or repetitive stress associated with athletic activities.

Obesity:

Obesity is a medical condition in which access fat has accumulated to the body that result over body weight.

ADL:

ADL means Activities of Daily Living that the things we normally do in daily living including any daily activity we perform for self-care such as feeding ourselves, bathing, dressing, grooming, leisure etc.

PRS (Pain Rating Scale):

PRS is a segmented numeric version of the visual analogue scale in which a respondent selects a whole number (0-10 integers)that best reflects the intensity of his or her pain.

OA (Osteoarthritis):

Osteoarthritis is a degenerative joint arthritis characterized by destruction of joint cartilage and underlying bone.

Non obese:

Non obese means free of symptoms of obesity the range of body mass index in a person less than 25kgm^2 is called non obese person.

Impairment:

Impairment is the state of being diminished, weakened and damaged mentally or physically.

1.4 Research Question

What are the prevalence and associated factors of knee pain among non-obese persons about 20 to 40 years old male service holders?

CHAPTER-II LITERATURE REVIEW

Remarkable forecaster of circumstance knee pain in the multivariable model were higher age, overweight, smoking and previous knee lesion, also poor posture working with the trunk anterior flexed in kneeling or standing position. Total 2455 population are taken for these studies. A cohort of 2121 workers free of knee pain another cohort of 333 workers with extreme knee pain were followed up for one year. A total of 214 (10%) workers developed knee pain during follow up, 220 (66%) still reported extreme knee pain after one year (Miranda et al. 2002).

A continuing study to identify the risk factors related with decrease work output among people with chronic knee pain. Investigated risk factors included radiographic disease severity, physical activity, body mass index, health-related calibre of life and co-morbidity. Contributors recorded days of work (absenteeism) (presenteeism) for seven days every two months over a 12 months spell. Follow up sell paid employment (n=60) 50 (40%) contributors one or more days of work while 283 (79%) reported output while at work (presenteeism<100%) mental element summary score <40 or physical element summary (p&s) score <50 or high maximum knee pain (4-6 out of 10) (Agaliotis et al. 2013).

Knee OA is a usually multiplex disorder with many hazard factors with lesion. To regulate the prevalence of knee pain, radiographic knee OA, whole knee exchange and related danger aspect in male executive footballers differentiate with men in the local community. 1207 male ex-footballers and 4085 men in the local community in the UK, the prevalence of every OA effect where two of three times over in male ex-footballers differentiate with male in the local community members (Fernandes et al. 2017)

Overflowing 1.9 billion grown-up were obese in 2014 on report of WHO and at the minimum 600 million of them are analytically overweight. Obese and overweight is a strong hazard aspect for the growth knee OA for each 5 kg extend in weight, the chance extend by 30% and complete knee exchange is concerning 20% less than that of non-obese patients the highest

pressure in femoral bone was extend from 7.8 to 16 MPa when the body weight was repeat at 50% of the gait cycle. The maximum pressure effective that the chance; of femoral element departure will gain with the extra body weight (Wang et al. 2017).

Ethnic framework, pain threshold and hereditary may be a small amount of the cause why knee pain is more usual in incontestable cultural members. An overall of 5056 members answered where malaise (50%) followed by Chinese (41.4%) and Indians (8.6%) comprehensive 21.21% (n=1069) had knee pain. The Indian people 31.8% (n=138) followed by malaise people 24.3% (n=610) and Chinese people 50% (n=311). The prevalence of knee pain excessive ordinary in Indian women and Chinese men had the stubby prevalence of knee pain (Chia et al. 2016).

Moreover to a centre of attention on overweight there is possible for predominant anticipation of knee pain by tackling knee lesion and manage depression. A whole of 6792 members answered were 77% (baseline) and 75% (follow up) baseline factors remarkably related with arrival of knee where knee lesion (OR 1.6, 95% Cl 1.2, 2.2). Depression(OR 1.4, 95% Cl 1.1, 1.8), extensive pain (OR 1.5, 95% Cl 1.1, 1.9) and younger age. Arrival of extreme knee pain was related the greatest explosively with overweight (OR 2.9, 95% Cl 1.7, 5.1) and bodily restriction (OR 2.5, 95% Cl 1.5, 4.1) and with extensive pain, older age. The powerful individualistic indicators of development from non-serious to serious knee pain where chronicity (OR 3.1, 95%Cl 2.1, 4.6), previous use of health care (0R 2.2, 95% Cl 1.5, 3.3), and overweight (OR 2.1, 95% Cl 1.2, 3.6) (Jin et al. 2008).

Smoking of serious possibility for psychiatric co-morbidity and may be a greater issue in CPPS. Smoking status in CPPS is corresponding with some changeable that are remarkable for smoking in the common and Psychiatric peoples. This representative comprised of 58% (n=128) male and 42% (n=93) female about 37% of the CPPS entering the re organised study classified themselves a smokers, while 15.4% were chain smoker (Fishbainet al. 2007).

A considerable amount of peoples with knee pain have conflicting with knee pain, similar with preferable corporal consequence and power such pain may be indecent of an previous period of illness. There were 2940 participant 43% having incompatible and 57% having compatible knee pain. Pain, function and strength were significantly excellent in persons with to knees that had incompatible compared with compatible pain (Neogi et al. 2010).

Joint pain is usual one of persons in the group and is a prime origin of disorder. Joint pain was widespread one of review answerer in the west of Scotland. For all joints, pain was extra frequently announced by women than by men. The greatest number of conventional type of joint pain one of women was neck pain (36.6%) and some of men was knee pain (30.6%). The prevalence of joint pain in almost all of the area compared was predominantly related to that from in perceptible studies (Adamson et al. 2005).

Purpose to calculation the item prevalence of knee pain publishing OA in the grown up Spanish people. The minor aim were to prove the format of cooperate generator as well as to evaluate the influence of knee pain on nature of life and acts in the common people. A process of people observation was leading in the year 2000 for which 2192 topics over 20 year of time were elected by limitation of many stage people in model from the censuses of twenty urbans. The calculate prevalence of knee pain exposing OA in the common adult people is 10.2%. Thickness is also a significant definitive for knee pain advising OA. The prevalence of knee pain exposing OA in the usual Spanish people is superior than desired, commonly connected to a upper range of knee pain in women above fifty five. The ratio is very aged people and of those fatness are significant factor to accept into calculation when balance of the range of knee OA within people (Fernandes et al. 2017).

To observe the region of the stable of excessive use of damage in racers. The investigation with the statement allowed 324 topics. The year of notice of the contents was from 2004-2012 and the pattern size ranged 22-1004 references. Sixty eight contents continue twenty four citation were cropped than study the designation and thirty five were cut then reading the summary and complete reading. Therefore 9 lessons that meet the standard for resolution

were covered. All text were clinical analysis with a expected cohort study. This study displays that the general sites of excessive use damage are legs, ankles and feet. Of these the ankle is the form where the major model of excessive use damage was seeing. Stress fracture tendinitis in calcaneus, chronic portion effort syndrome and mid tibial stress syndrome, but stress fracture are general specially in female racer (Greve et al. 2015).

The aim of the current text was to explained the organization of joint position limiting with knee pain in Japanese people manage a greater scale people based cohort of the inquiry on OA against inabilities study. The study test the organization within least joint position expanse in the inner part of the knee applying a knee OA that computer-aided diagnosis way. From the 3040 respondent in ROAD text, Current text excluded 2733 responses who was finish the radiographic exam and questions concerning knee pain. Research with outer knee OA were cropped. OA is ranged of quarter with sickness that region inability that after lack of help with ADL. Six varieties have been seen in knee OA. The prevalence of knee OA is upper in women than men. The onset of mid mJSW was approximately 3mm in men and 2mm in women while that of inner or outer mJSW was on an average sixty per cent in people (Panel et al. 2015).

Joint pain is public within aged people in the society and is a main reason of inability. Joint pain is main common hygiene publicity in its personal right. Observing temper chance causes for joint pain in later age. Data on the table of musculoskeletal pain at physical other than shoulder knee and behind are rare. In this text we think the connection of wine costs smoking and fatness with indicate pain at all. The main joints as there is proof to point out this may be significant risk causes for joint pain. The data was collected to the west of Scotland twenty-07 study, a lengthwise text that was fixed to inquire social typing of health within 3 cohorts older above fifteen, thirty five and fifty five ages when prime meeting in 1987 to 88.Each of the three cohort balance on an average 1000 population but mainly town place middle in the city of Glasgow. This resolution determinant data from the ancient cohort picked up in 1990-91 when 858 separate were re-united when they were on an average 58 years age. West of the Scotland determinant was news by women than by men. The most usual type of joint pain

within women was neck pain (36.6%). However fatness was cooperate with joint pain faced in the under partial of the body (Adamson et al. 2005).

OA is observed by pain usually loss of structural and functional changes. OA is a disease of total structure and usually adult in the world reason of pain hamper of function and inability. The worldwide prevalence of radio graphically verified prefix and hip OA in 2010 was list to be 3.8% and 0.85% gradually. OA is ranked 13^{th} in the superior 25 reason of global years lived with inability of 4^{th} conduct reason that proved development in DALYs from 1990-2013 knee OA is the usual form of OA Wigan the machinal view of knee OA , babyhood risk causes such as fatness fatal could be more significance in the promote of this sickness. BMI in men as quickly as 20 years age and women as soon as 15 years age was organized with developed hazard of knee OA at 53 years old. Lessons have stablished that prevalence of knee pain is 3.9% within children and 18.5% in adult but babyhood anatomically tasks and suitability may have free useful reason on knee joint. These analysis help that quick life intervention may protect OA in older age (Antony et al. 2016).

A lengthwise text rested among a probably rule test rating the length term cause of dietetics supplement attitude within people with long term knee pain in given job. Respondents filed days off work and decrease productivity while at tasks for 7 days every two month of year. Over the twelve month ensure time, 50(14%) candidate said decrease productivity while as tasks. In various analysis the only important hazard reason for absent was having and SF-12 mental element total score less than 40.Important hazard reason for currents work within; objection an SF-12 body part total score less than 50. This text exhibited the reasoning skilful to develop tasks productivity should concentration on decrease knee pain in inability specially within reporters in manual or semi manual labour (Agaliotis et al. 2013).

The length and multiplier coordination with fluidity are unknown candidate of the various centre OA text, a cohort of separate with at superior of knee OA had baseline knee x-ray question and questionnaire above knee pain at two points telephone screen and a late visit to hospital. They observed the organization of frequently of FKnP with numeral sociographic

cause, pain cruelty and deed. There were 2940 respondents with finished data, of these 2977 knees had pain with 43% in infrequent and 57%having frequent knee pain a real ratio of peoples with knee pain have infrequent knee pain, organized with better body function and strength. Such pain may be advise of a quick stage of disease (Neogi et al. 2010).

To determined the action of tasks related and separate cause as well as anatomical work and sports on the occurrence diligence of knee pain in working people. Finnish Forestry Company, a cohort of 2122 participants free of knee pain and another cohort of 333 worker with intense knee pain were observed up 1 year. Total of 214 (10%)workers increase knee pain during the follow up. Great predictor of occurrence knee pain in the multivariable ideal were upper age, overweight, smoking and previous knee injuries. General physical exercise and various sports performance did not count the occurrence or persistence of knee pain. At least, psychological material of work was more engage in the percentage of the prefix in the knee ((Miranda et al. 2002).

To evaluate the prevalence of knee pain and its influence on physical action and quality of life, we tested 504 society citizen of Chuncheon, aged greater than 50 years activities based lower extremity function was evaluated making the study consisting of standing balance walking and chair stands. The prevalence of knee pain was 46.2% (32.2 in men and 58.0% in women) and developed with old in female. The prevalence of knee pain is superior in this aged people in Korea. The recent research help that knee pain is a better of inability radiographic variation. However, before study have navel mainly on the relationship within knee OA and body function rather than within knee pain and the older age. In this cross sectional research we, observed the prevalence of knee pain and its increase on the QOL and physique performance in society goal in older in Chuncheon (Kim et al. 2011).

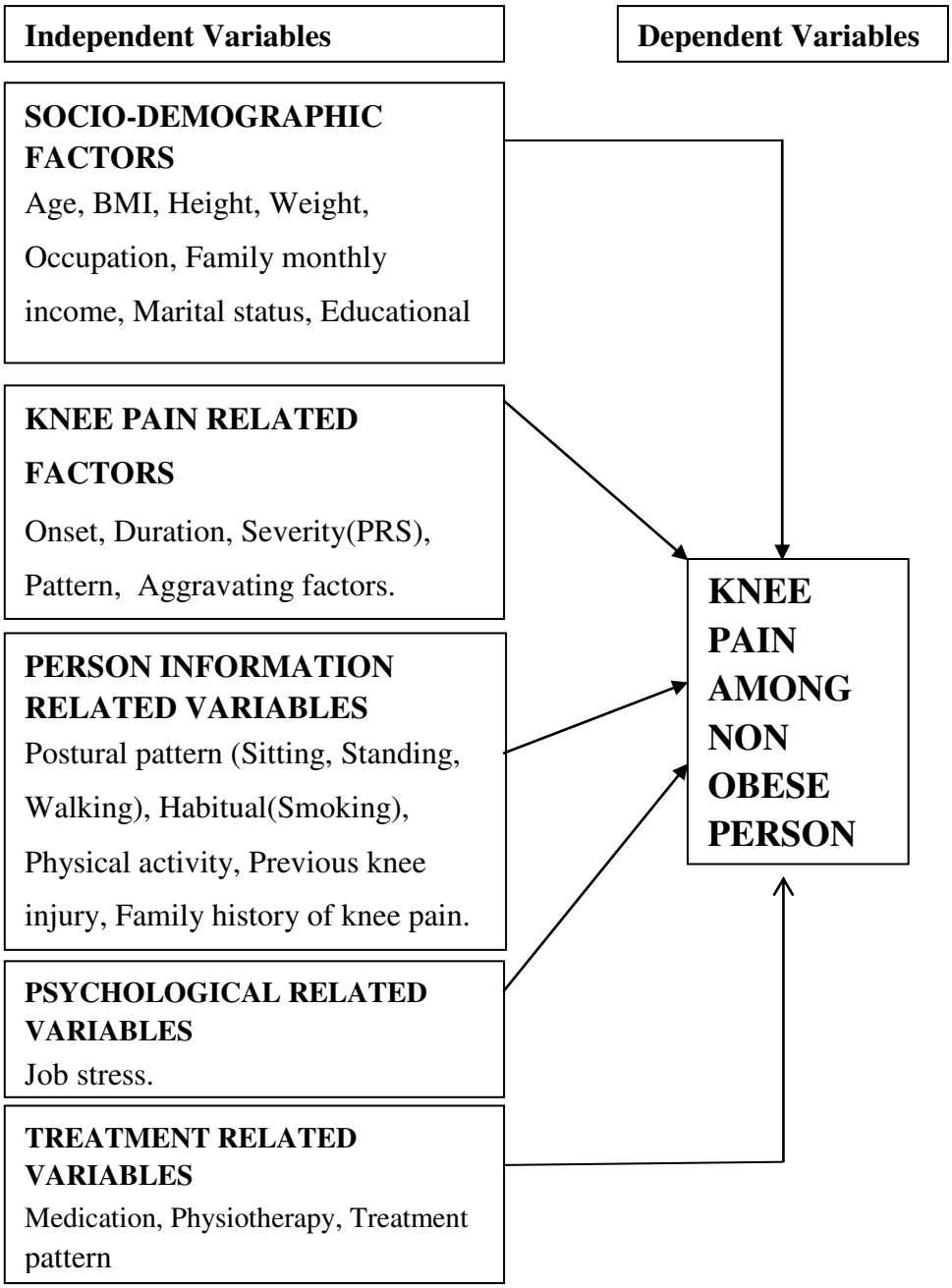
To observed definitive of the beginning and development of knee pain people based specimen aged of greater than 50 years. Expected cohort text of 2982 public involve with three usual exercises in North Staffordshire, UK. Making question metering of baseline and 3 years demographic knee involve and usual health causes were evaluated for their familiarly with sudden of recent pain and development less severe to more severe knee pain. Reaction

value were 71-75%. The main liberty predictors of development from less severity to more severe knee pain were long term, before make of health attention and fatness. A venue for coming research is limitation of recent health attention in stop on turn over development of knee pain at a community level (Jinks et al. 2008).

Toinvestigate the prevalence of knee pain within 3 main racial section in Malaysia. Young aged greater than eighteen were called to response a own fulfil question on pain face on the before 6 months. External of 9300 question give away, 5206 were come back and 150 respondents who did not decline 3 racial sections were cropped, giving a complete of 5056 question for resolved. 58.2% (n=2926) were female, 50% (n= 2512) were Malays, 41.4%(n=2079) were Chinese and 8.6% (n=434) are Indians. The opinion of Indians female complain knee pain was double upper likened with Malay female 68.1% of Indians applied apathy for knee pain while 75.4% of Malays and 52.4% of Chinese made so ($p<0.001$). The usual apathy applied for knee pain cross all sections were episodic medicated lubricant (43.7%) (Chia et al. 2016).

CHAPTER-III METHODOLOGY

3.1 Conceptual framework



3.2 Study Objectives

3.2.1 General Objective

To determine the prevalence associated factors of knee pain among non obese person in Dhaka city.

3.2.2 Specific Objectives

Tofind out the socio-demographic factors;

Tofind outthe knee pain related factors;

To determine the person information related factors;

To determine the psychological and treatment related variables;

To explore the association between knee pain and factors related variables.

3.3 Study design

A descriptive Cross-sectional study was conducted

3.4 Study population

Kneepain suffering among non-obese male person in selected area

3.5 Study area

The study was conducted in Mirpur, Chistia Market Nilkhet, Jatrabari, North Badda, of Dhaka city.

3.6 Study period

The study was carried out over six month from 1st November 2017 to 30th May 2018.

3.7 Sample size

Sample size, $\mathbf{n = \frac{z^2 pq}{d^2}}$

Here,
n=Sample size
z= 1.96 (constant)
d=0.05 (constant)
p=Estimated prevalence.

$$p = \frac{p1 + p2 + p3}{3}$$

$$= \frac{11.2\%(Sa\ et\ al.2011) + 46.2\%(Kim\ et\ al.2011) + 21.1\%(Chia\ et\ al.2011)}{3}$$

$$= \frac{78.5\%}{3}$$

$$= 26.166\%$$

$$= \frac{26.166}{100}$$

=0.261

q =(1-p)
=(1-0.261)
=0.739

$$= \frac{(1.96)^2(0.261)(0.739)}{(0.05)^2}$$

Type equation here.

N=296.

3.8 Sampling technique

Purposive sampling technique was calculated in this study.

3.9 Inclusion and Exclusion criteria

3.9.1 Inclusion criteria

Participants who wassuffer by knee pain;

Participants who are non-obese person (BMI less than 25kgm^2);

Age range 20 to 40 years old person;

Adult, amateur or professional;

Subjects who wereparticipate willingly.

3.9.2 Exclusion criteria

Participant who are BMI more than 25kgm^2;

Age not less than 20 years and not more than 40 years old persons;

Persistent or previous pathological history of pain;

Participants who weresuffer by multiple disease;

Subjects who were not willingly to give consent and participate in the interview;

Mentally handicap patient

3.10 data collection tools

A pre tested modified semi-structured questionnaire were prepared on the basis of objective and different variables of this study.

3.11 data management and analysis plan

The collected data was edited by checking rechecking analysed by using the software SPSS 16.0 version. Thenanalysed data was presented according to the variables of the study showing percentage relationship between variables by appropriate statistical method.

3.12 limitation of the study

There might be a number of limitations in this study. First of all, the result of the study can not be generalized to the hole population of knee pain in Bangladesh as the sample were collected only from in Dhaka city. This study has attempted to provide a few data, which are very little to represent the wider population of knee pain in Bangladesh.

CHAPTER-IV RESULTS

This descriptive type of cross sectional study was conducted among the knee pain in non-obese persons about 20 to 40 years old male in Dhaka city with a sample size of 296. A pre-tested, modified, interviewer administrated semi questionnaire was used to collect the information. A total of 196 responded were interview to collect the information. Section A: Socio-demographic Information, Section-B: Knee pain related Information, Section-C: Person Information, Section-D: Psychological Information, Section-E: Treatment Information. All the data were entered and analysed by using statistical packages for social science(SPSS) software version 22.0(Chicago).

4.1 Age group

Table 1 reveals,that 64.8% and 35.2%, of the respondents belonged to age group of 20 to 30 years and 30 to 40 years respectively

Table no.1: Distribution of the respondents by age (n=196)

Age(year)	Number(n)	Percentage (%)
20 to 30	127	64.8
30 to 40	69	35.2

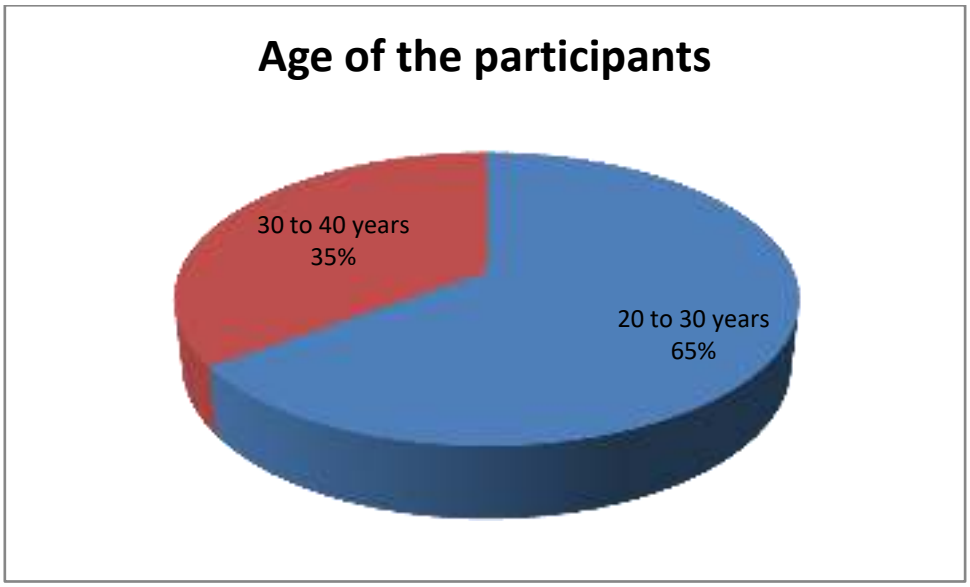


Figure-1: Distribution of the respondents by age

4.2 Religion

Table no. 2, Showed that most of the respondent Islam 96.4% followed by Hindu 3.6 %.

Table no.2: Distribution of the respondents by religion (n=196)

Religion	Number(n)	Percentage (%)
Islam	189	96.4
Hindu	7	3.6

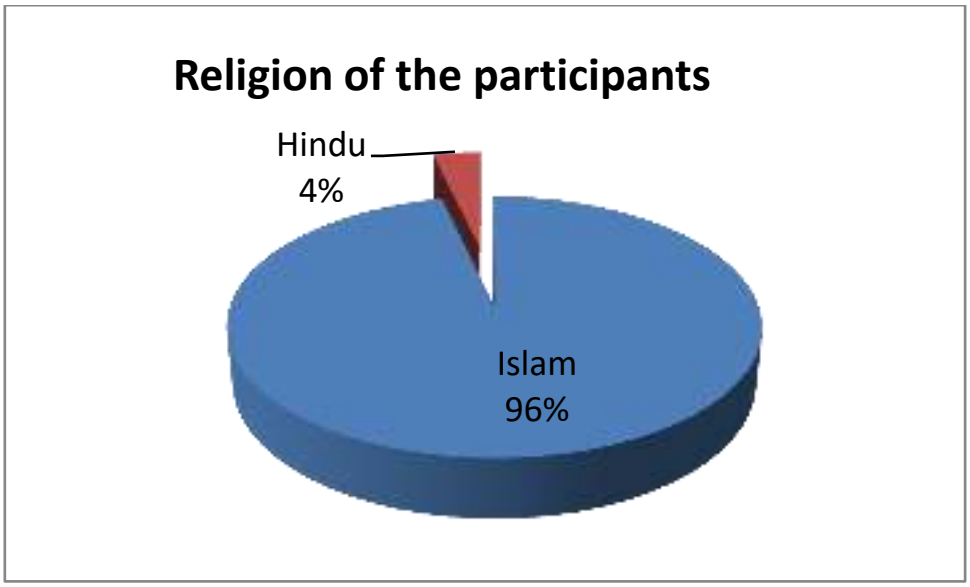


Figure-2: Distribution of the respondents by religion

4.3 Height of the participants

Table no. 3, showed that 33.2%, 55.6%, and 11.2% of the respondents belonged to height group of 150 to 160 cm, 160 to 170 cm and 170 to 180 cm respectively.

Table no.3: Distribution of the respondents BY height (n=196)

Height	Number(n)	Percentage (%)
150 cm to 160 cm	65	33.2
160 cm to 170 cm	109	55.6
170 cm to 180 cm	22	11.2

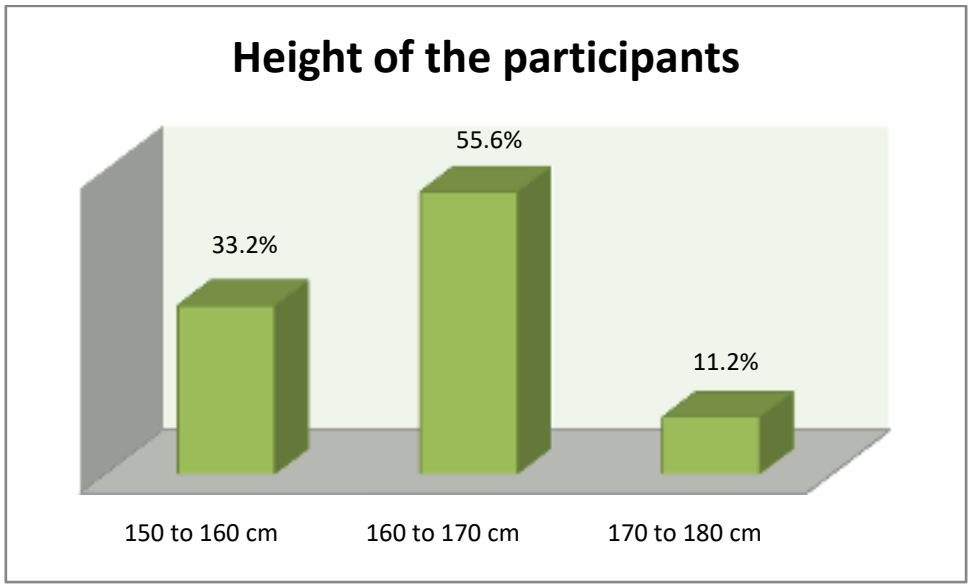


Figure-3:Distribution of the respondents by height

4.4 weight of the participants

Table no. 4, revealed that weight of the respondents 54.6% and 45.4% belonged 40 to 60 kg and 60 to 80 kg respectively.

Table no.4: Distribution of the respondents by weight (N= 196)

Weight	Number(n)	Percentage (%)
40 to 60 kg	107	54.6
60 to 80 kg	89	45.4

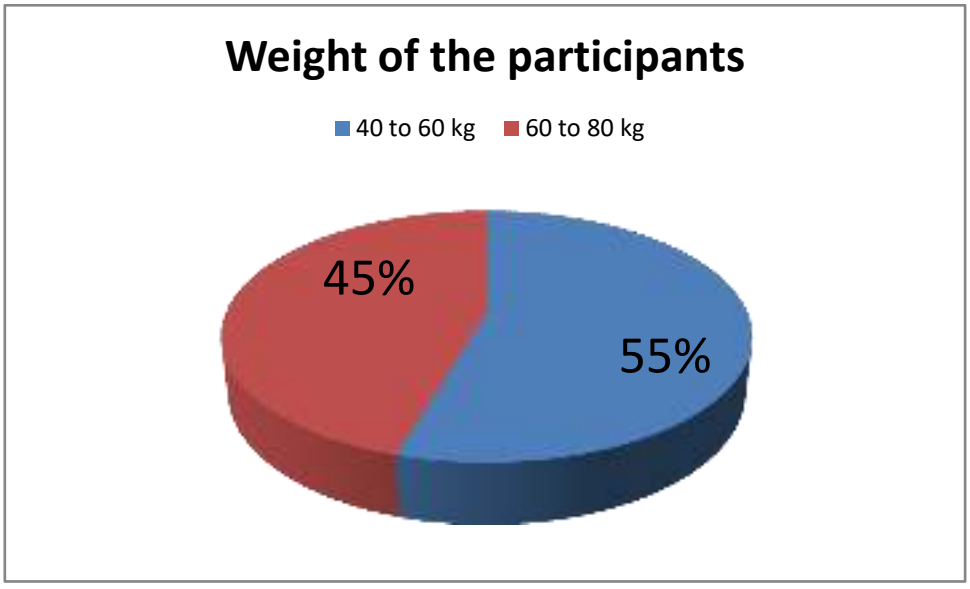


Figure-4: Distribution of the respondents by weight.

4.5 Body mass index

Table no. 5, Showed that respondents 18.50 to 21.75 kgm2 and 21.76 to 25.0 kgm2 belonged to 31.1 % and 68.9% respectively.

Table no.5:Distribution of the respondents by BMI (n=196)

BMI	Number(n)	Percentage (%)
18.50 to 21.75kgm2	61	31.1
21.76 to 25.00 kgm2	135	68.9

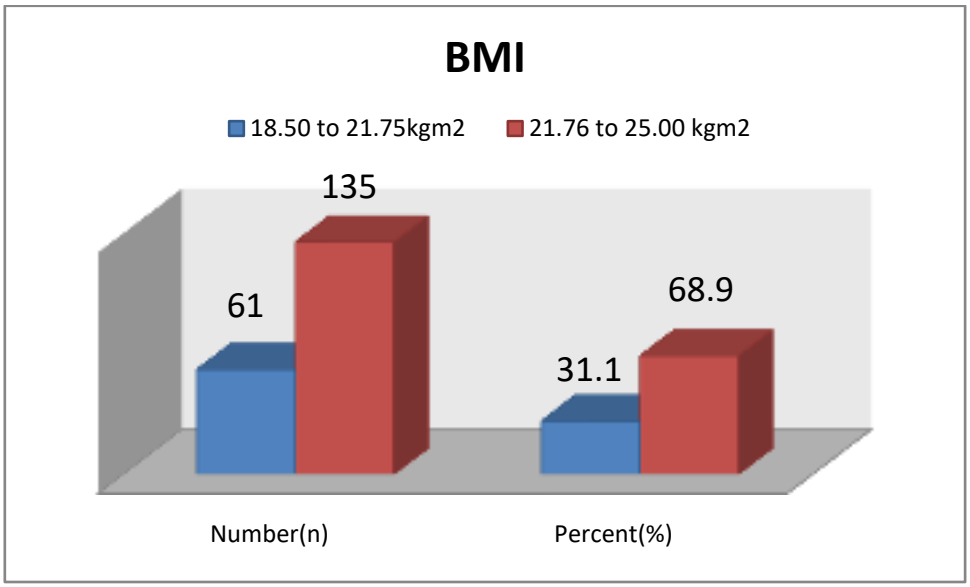


Figure-5:Distribution of the respondents by BMI

4.6 Educational status

Table no 6, Revealed respondents are illiterate, primary, below SSC, SSC, HSC, graduate and post graduate belong to 7.1 %, 13.3%, 16.8%, 14.3%,26.0%, 15.3% and 7.1% respectively.

Table no.6:Distribution of the respondents by educational status (n=196)

Educational status	Number(n)	Percentage (%)
Illiterate	14	7.1
Primary	26	13.3
Below SSC	33	16.8
SSC	28	14.3
HSC	51	26.0
Graduate	30	15.3
Post graduate	14	7.1

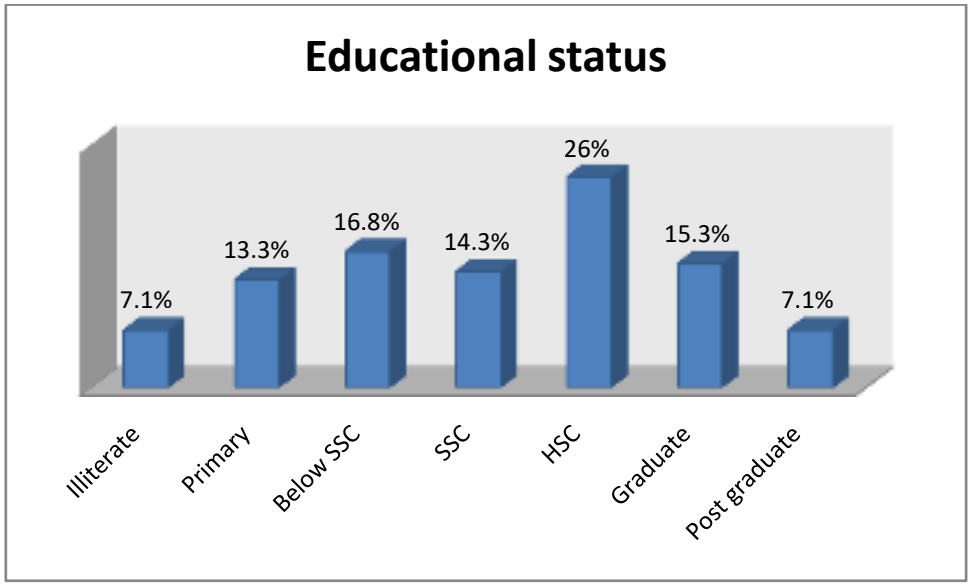


Figure-6: Distribution of the respondents byeducational status

4.7 Occupation

Table 7, reveals that occupation of the respondents are students 1.0%, government service 2.6%, private service 53.6%, businessmen 42.3% and others .5 % respectively.

Table no.7: Distribution of the respondents by occupation(n=196).

0cupation	Number (n)	Percentage (%)
Student	2	1.0
Government Service	5	2.6
Private service	105	53.6
Businessman	83	42.3
Others	1	.5

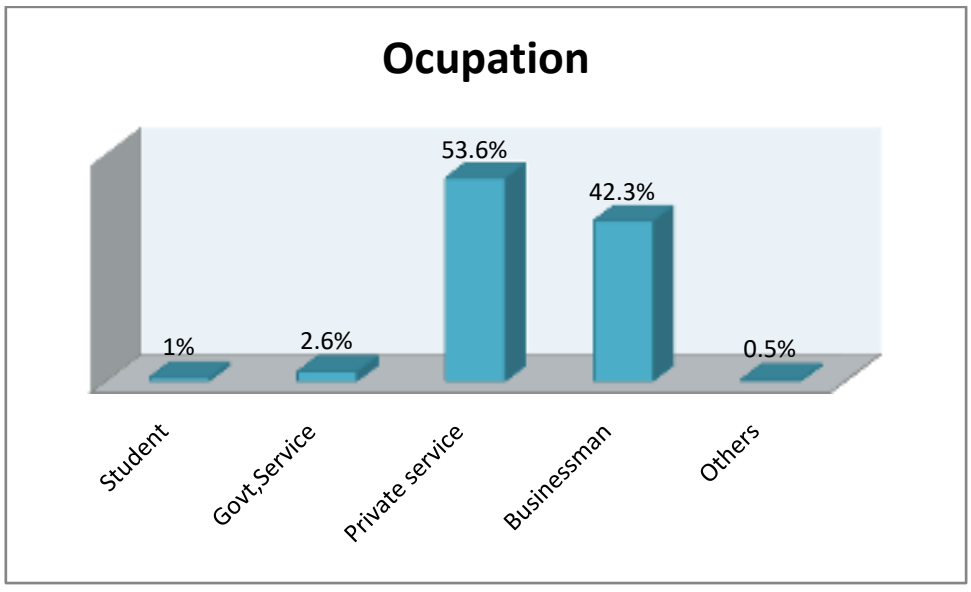


Figure-7: Distribution of the respondents by occupation.

4.8 nature of work

Table no 8, revealed that nature of work belong to physical effort 62.8% and mental effort 37.2% respectively.

Table no.8: Distribution of the respondents by Nature of work (n=196)

Nature of work	Number(n)	Percentage (%)
Mostly involve physical effort	123	62.8
Mostly involve mental effort	73	37.2

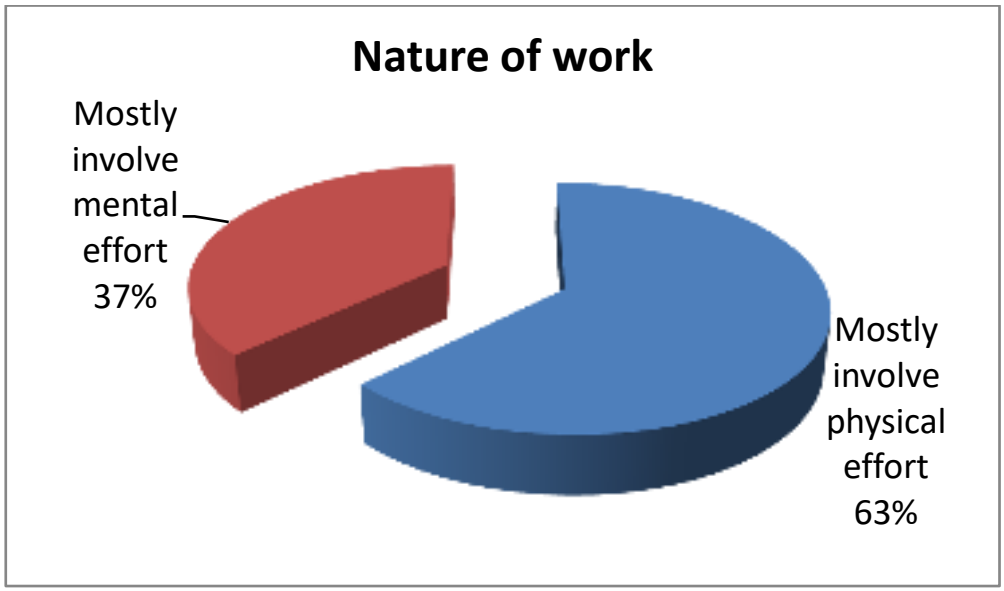


Figure-8: Distribution of the respondents by Nature of work

4.9 Monthly income

Table no 9,showed that less than 10k taka 14.8%, 10k-20k taka 43.9%, 20k-30k taka 32.7%, 30k -50k taka 7.7% and more than 50k 1.0% belong respectively.

Table no.9: Distribution of the respondents by monthly income (n=196)

Monthly income	Number(n)	Percentage (%)
Less than 10000 Taka	29	14.8
10000-20000 Taka	86	43.9
20000-30000 Taka	64	32.7
30000-50000 Taka	15	7.7
More than 50000 Taka	2	1.0

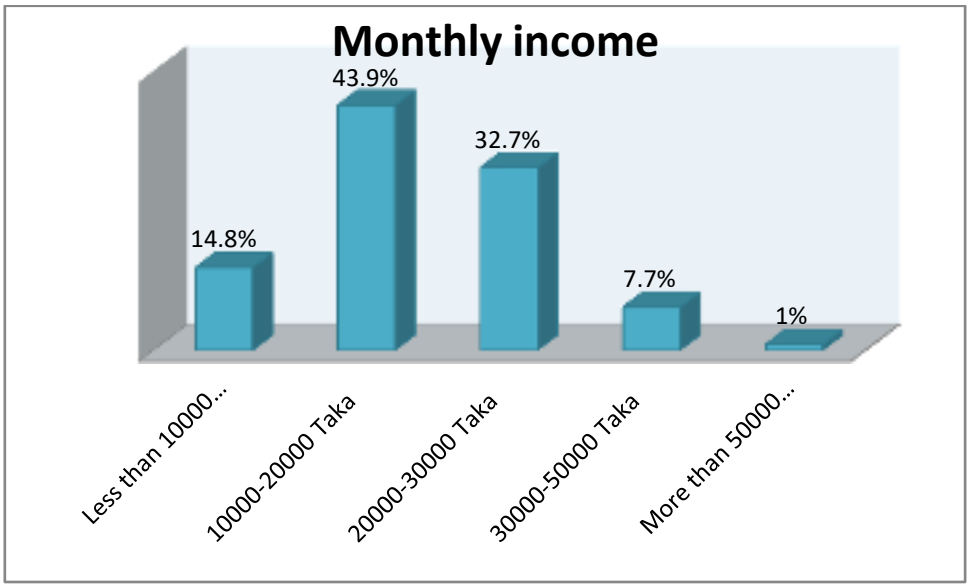


Figure-9:Distribution of the respondents by monthly income

4.10 marital status

Table no.10,revealed that married, unmarried and separated belong to 46.4%, 53.1% and .5%.

Table no.10:Distribution of the respondents by Marital Status(n=196)

Marital status	Number (n)	Percentage (%)
Married	91	46.4
Unmarried	104	53.1
Separated/Divorced	1	.5

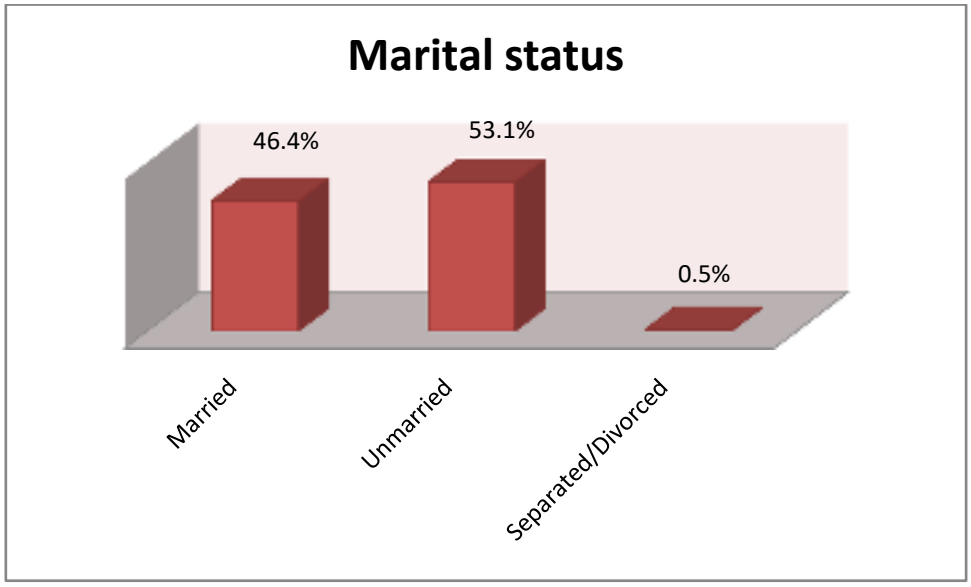


Figure-10: Distribution of the respondents by Marital Status

4.11 Suffering any knee pain

Table no 11, revealed that knee pain suffering yes 24.5% and no 75.5%.

Table no.11: Distribution of the respondents by suffering knee pain (n=196)

Suffering knee pain	Number (n)	Percentage (%)
Yes	48	24.5
No	148	75.5

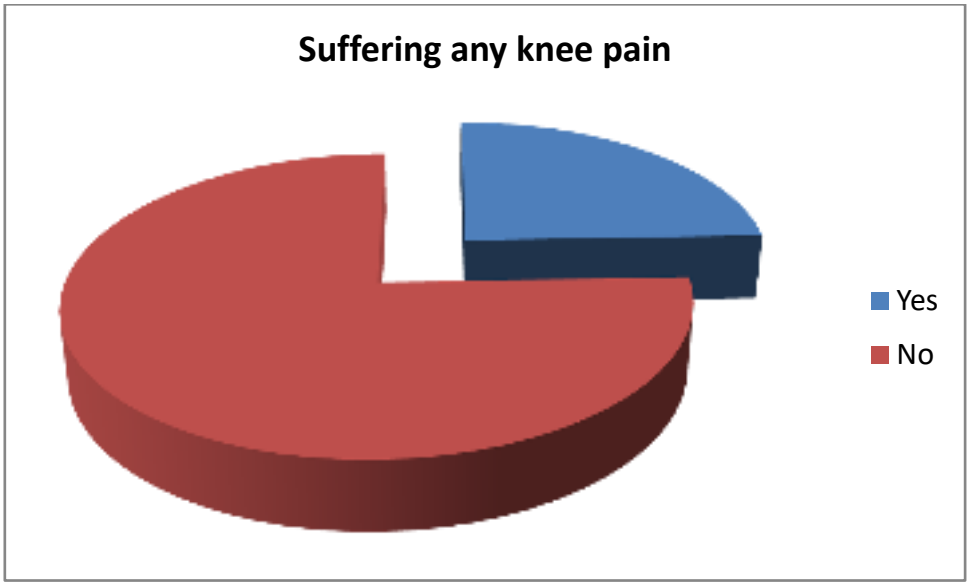


Figure-11: Distribution of the respondents by suffering knee pain

4.12 patter of pain

Table no 12, revealed that constant, intermittent, while standing, while sitting, while walking and missing belong to 3.6%, 15.8%, 2.0%, 2.6%, 1.5% and 74.5% respectively.

Table no.12: Distribution of the respondents by pattern of pain (n=196)

Pattern of pain	Number (n)	Percentage (%)
Constant	7	3.6
Intermittent	31	15.8
While standing	4	2.0
While sitting	5	2.6
While walking	3	1.5
Missing	146	74.5

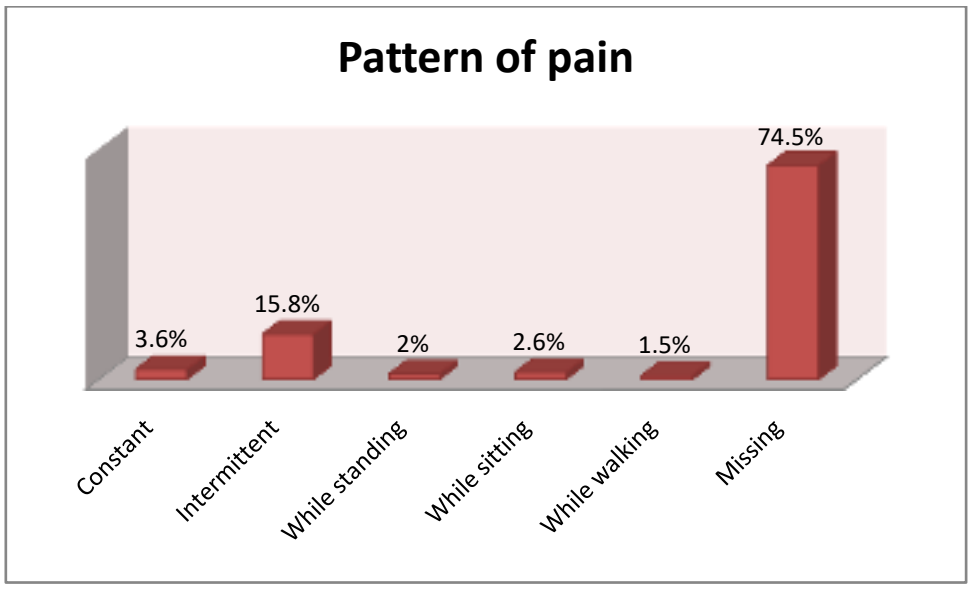


Figure-12: **Distribution of the respondents by pattern of pain**

4.13 pain increasing time

Table no.13, showed that pain increasing time belong to morning 5.1%, noon 3.6%, afternoon 5.6%, evening 2.6%, night 4.6% and missing 78.6% respectively.

Table no.13: Distribution of the respondents by pain increasing time (n=196)

Pain increasing time	Number(n)	Percentage(%)
Morning	10	5.1
Noon	7	3.6
Afternoon	11	5.6
Evening	5	2.6
Night	9	4.6
Missing	154	78.6

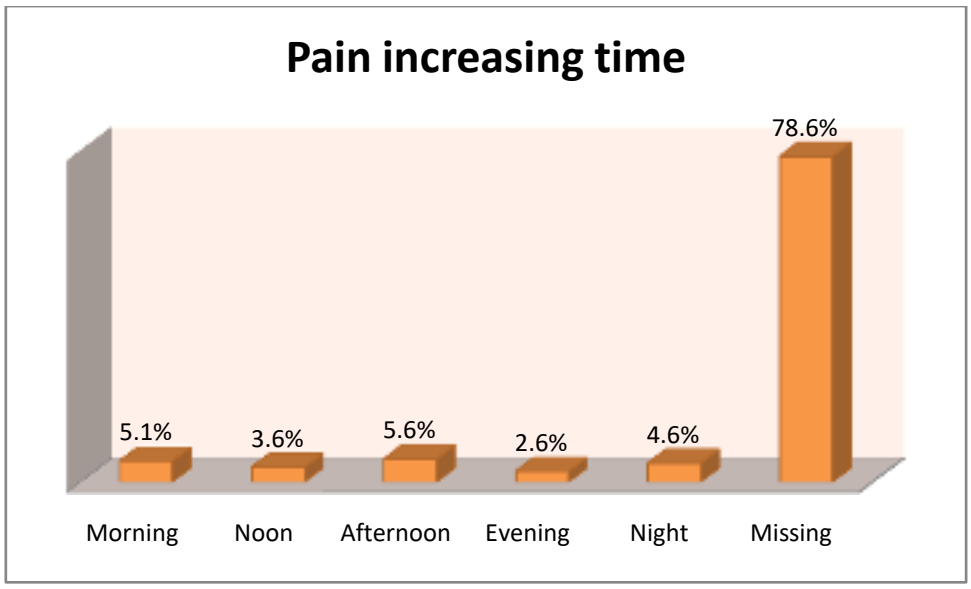


Figure-13: Distribution of the respondents by pain increasing time

4.14 feeling noise of knee moving

Table no. 14 revealed that feeling any kind of noise during moving the knee joint present 6.6% and absent 93.4% respectively.

Table no.14: Distribution of the respondents by Feel noise (n=196)

Noise	Number(n)	Percentage (%)
Yes	13	6.6
No	183	93.4

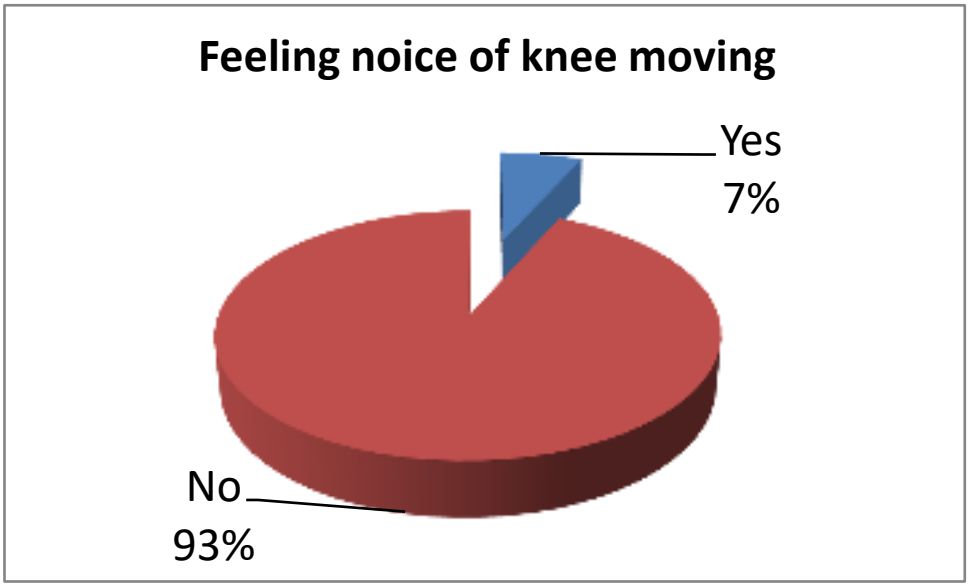


Figure-14: Distribution of the respondents by Feel noise of knee moving

4.15 pain increasing factors

Table no.15, revealed that pain increase belong to during standing 8.7%, during sitting 6.1%, during walking 8.2%, during taking stairs .5% , other 1.0% and missing 75.5% respectively.

Table no.15: Distribution of the respondents by Pain increase (n=196)

Pain increase	Number (n)	Percentage (%)
During standing	17	8.7
During sitting	12	6.1
During walking	16	8.2
During taking stairs	1	.5
Others	2	1.0
Missing	148	75.5

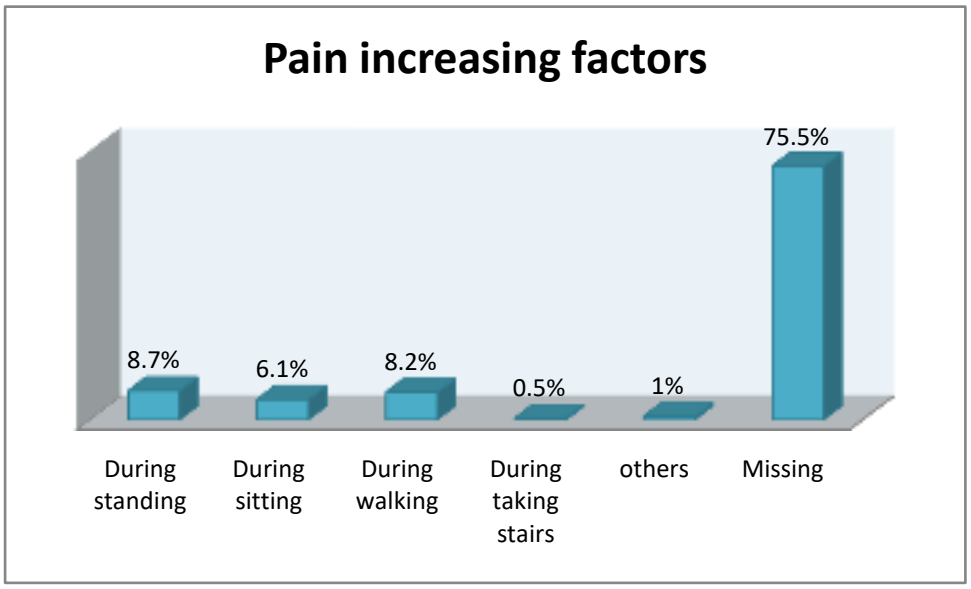


Figure-15: Distribution of the respondents by Pain increase factors

4.16 pain reliving factors

Table no 16, revealed that pain relive belong to during rest 17.3%, during movement 4.1 %, pressure .5%, massage 1.5%, heat 1.0 % and missing 75.5% respectively.

Table no.16: Distribution of the respondents by Pain relive (n=196)

Pain relive	Number (n)	Percentage (%)
During rest	34	17.3
During movement	8	4.1
Pressure	1	.5
Massage	3	1.5
Heat	2	1.0
Missing	148	75.5

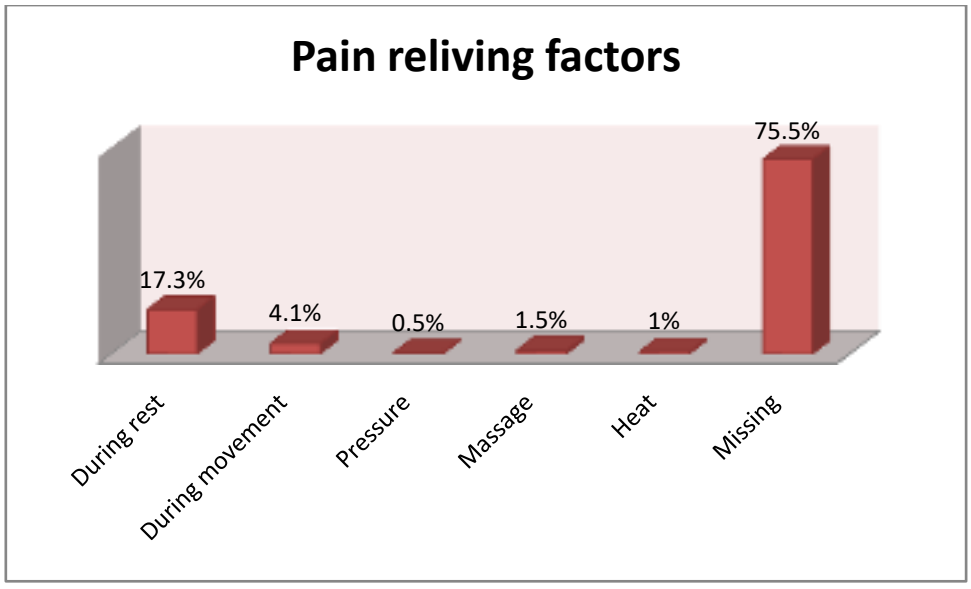


Figure-16: Distribution of the respondents by Pain reliving factors

4.17 Bad habit

Table no 17,showed that bad habit belong to smoking 40.3%, alcohol 1.0%, others .5% and no bad habit 58.2% respectively.

Table no.17: Distribution of the respondents by Bad Habit (n=196)

Bad habit	Number (n)	Percentage (%)
Smoking	79	40.3
Alcohol	2	1.0
Others	1	.5
No bad habit	114	58.2

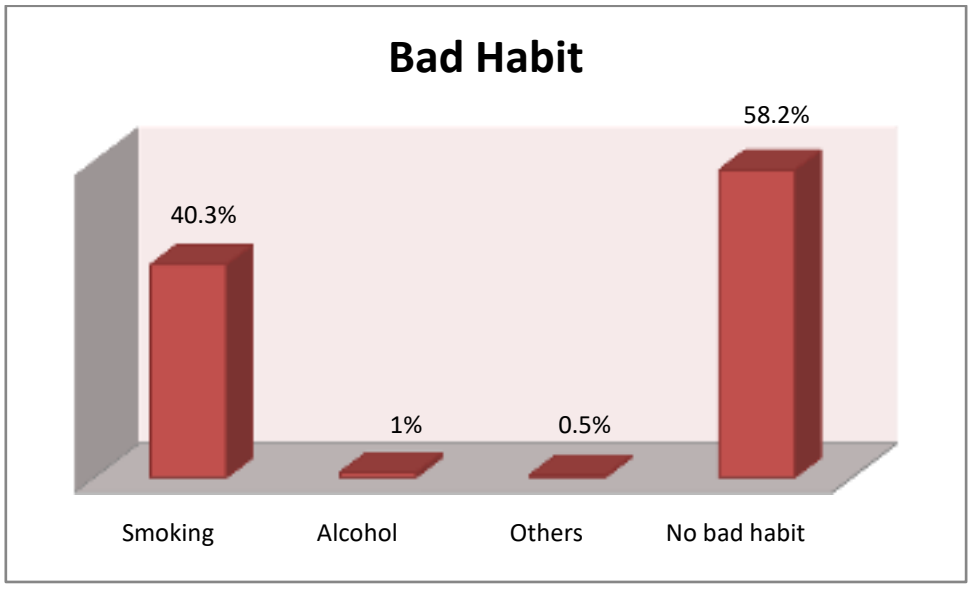


Figure-17: Distribution of the respondents by Bad Habit

4.18 previous knee Injury

Table no 18,showed that previous knee injury belong to yes 16.6% and no 1.5% respectively.

Table no.18: Distribution of the respondents by previous knee injury (n=196)

Previous knee injury	Number(n)	Percentage (%)
Yes	32	16.6
No	161	83.4
Total	3	1.5

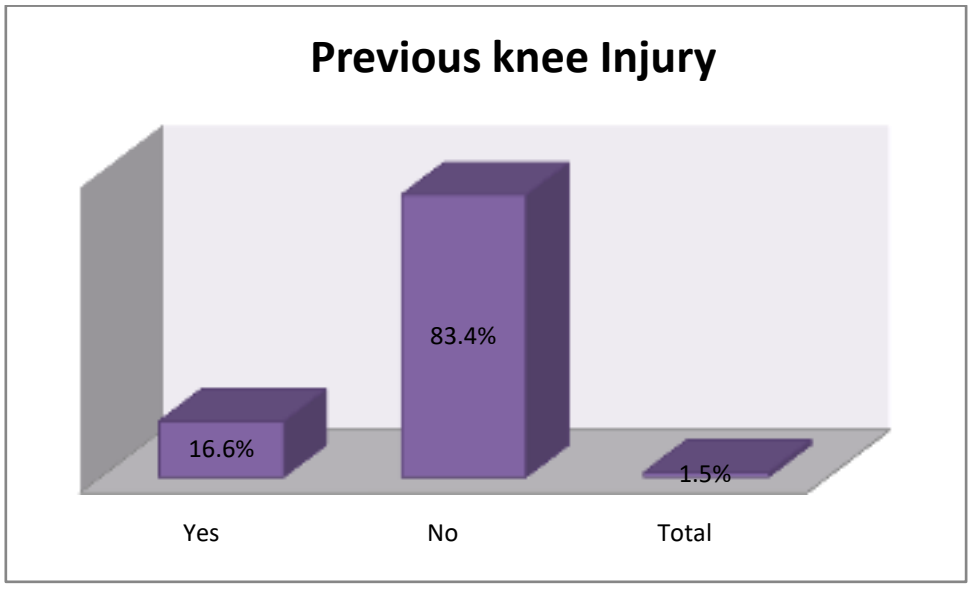


Figure-18:Distribution of the respondents by previous knee injury

4.19 Type of Knee Injury

Table no 19, revealed that knee injury belong to disease related 3.1%,injury related 15.8%, unknown 2.6% and missing 78.6% respectively.

Table no.19: Distribution of the respondents bytype of knee injury (n=196)

Knee injury occurs	Number(n)	Percentage (%)
Disease related	6	3.1
Injury related	31	15.8
Unknown	5	2.6
Missing	154	78.6

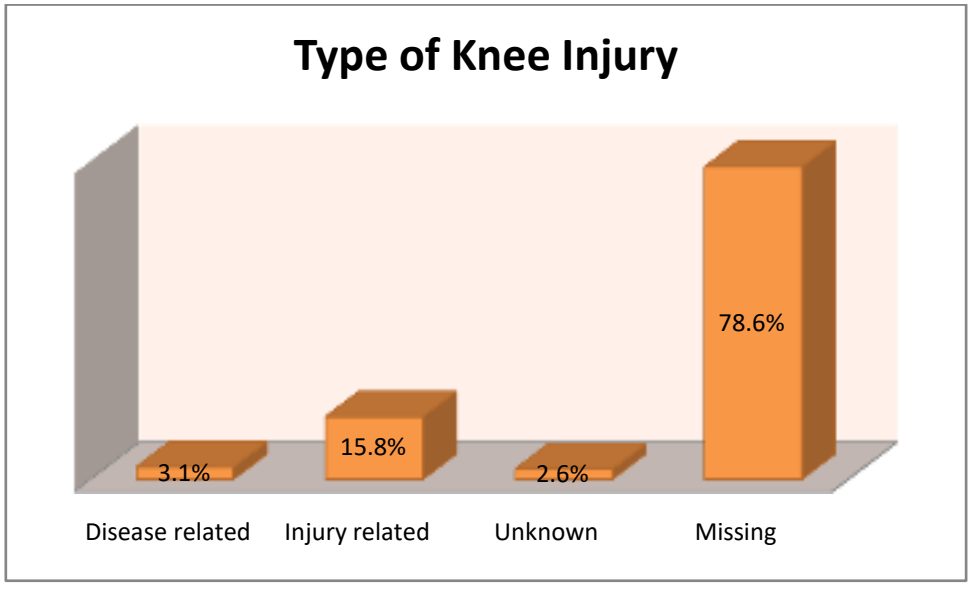


Figure-19: Distribution of the respondents by knee injury

4.20 Structure involve of knee

Table no.20: Distribution of the respondents by structureinvolve of knee (n=196)

Structure involve of Knee	Number(n)	Percentage (%)
Bone	18	9.2
Ligament	2	1.0
Muscle	6	3.1
Meniscus	1	.5
Unknown	7	3.6
Missing	162	82.7

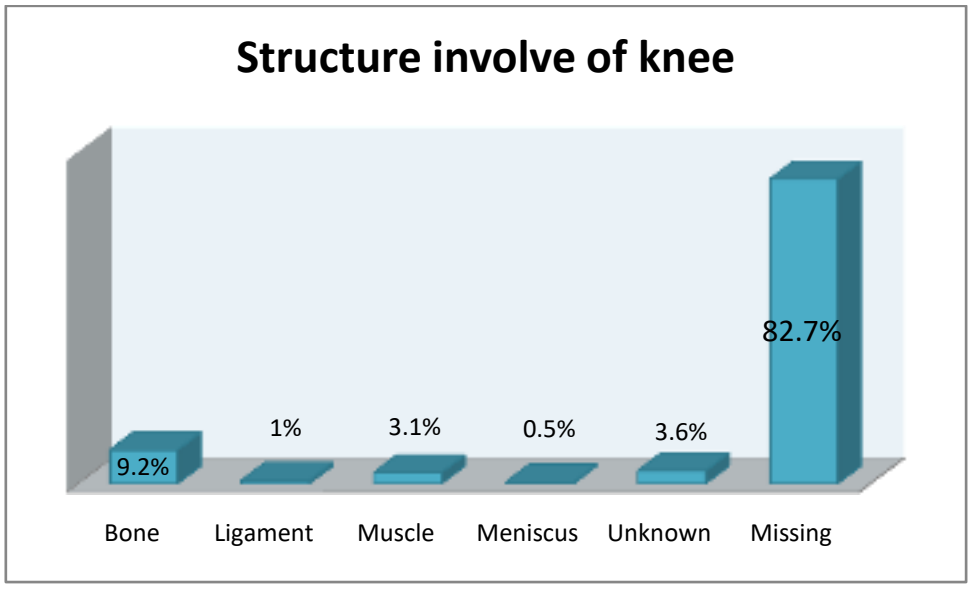


Figure-20: Distribution of the respondents by structure involve of knee

4.21 Transport

Table no 21, revealed that transport use of journey belong to bus 20.9%,private car 1.0%, motor cycle 4.6%, bicycle 6.6%, walking 64.8% and others 2.o% respectively.

Table no.21: Distribution of the respondents by transport use of journey (n=196)

Transport of journey	Number(n)	Percentage (%)
Bus	41	20.9
Private car	2	1.0
Motor-cycle	9	4.6
Bi-cycle	13	6.6
By walking	127	64.8
Others	4	2.0

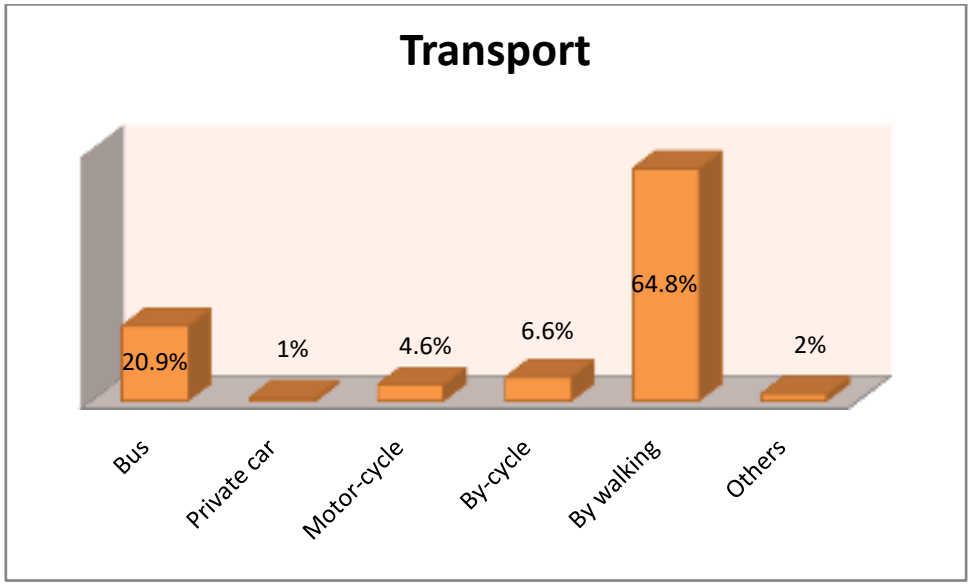


Figure-21: Distribution of the respondents by transport use of journey

4.22 Distance of home and working place

Table no 22, revesled that distance home and working place belong to less than 1 mile 63.3%, 1to 2 mile 16.8%, 2to3 mile 6.1%, 3 to 5 mile 6.6% and more than 5 mile 7.1% respectively.

Table no.22: Distribution of the respondents by distance home and working place (n=196)

Distance	Number(n)	Percentage (%)
Less than 1 mile	124	63.3
1-2 mile	33	16.8
2-3 mile	12	6.1
3-5 mile	13	6.6
More than 5 mile	14	7.1

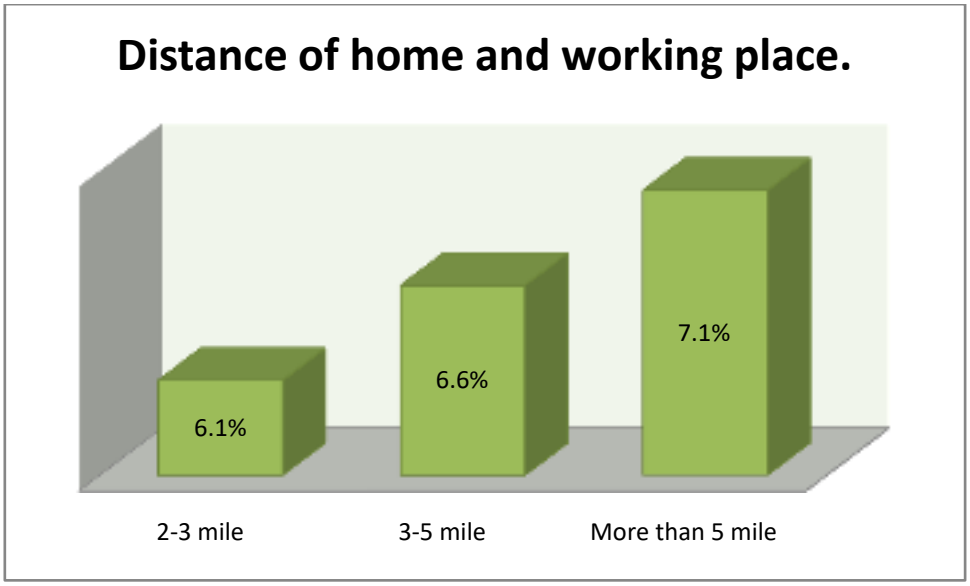


Figure-22: Distribution of the respondents by distance home and working place

4.23 working position

Table no.23: Distribution of the respondents by working hour (n=196)

Working hours	Number(n)	Percentage (%)
< 6 hours	5	2.6
6 hours	8	4.1
8 hours	24	12.2
10 hours	46	23.5
12 hours	70	35.7
>12 hours	43	21.9

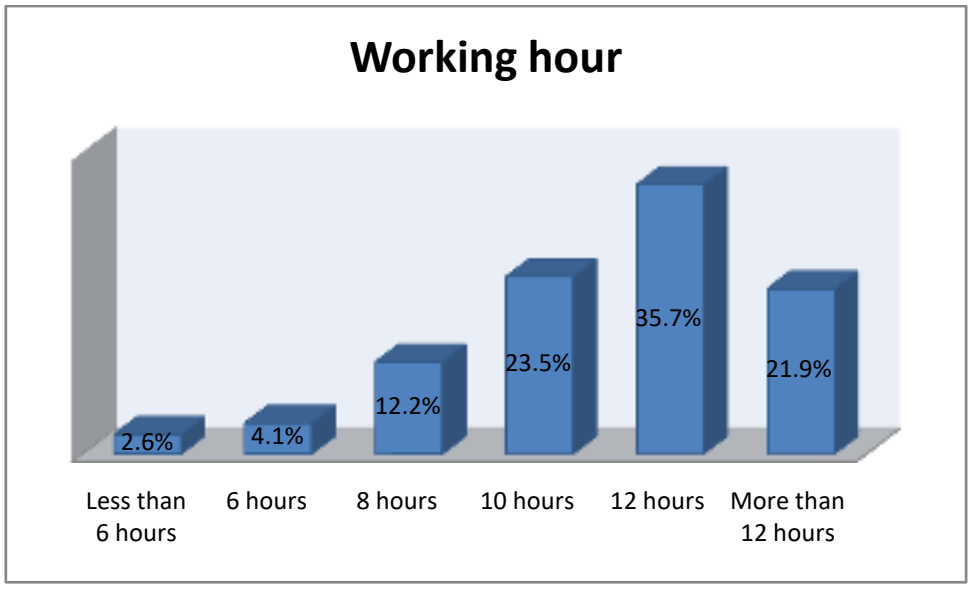


Figure-23: Distribution of the respondents by working hour

Table no.24: Distribution of the respondents by working position (n=196)

Working place	Number(n)	Percentage (%)
Standing	55	28.1
Sitting	128	65.3
Walking	13	6.6

Table no 24, revealed that working position belong to standing 28.1%, sitting 65.3% and walking 6.6% respectively.

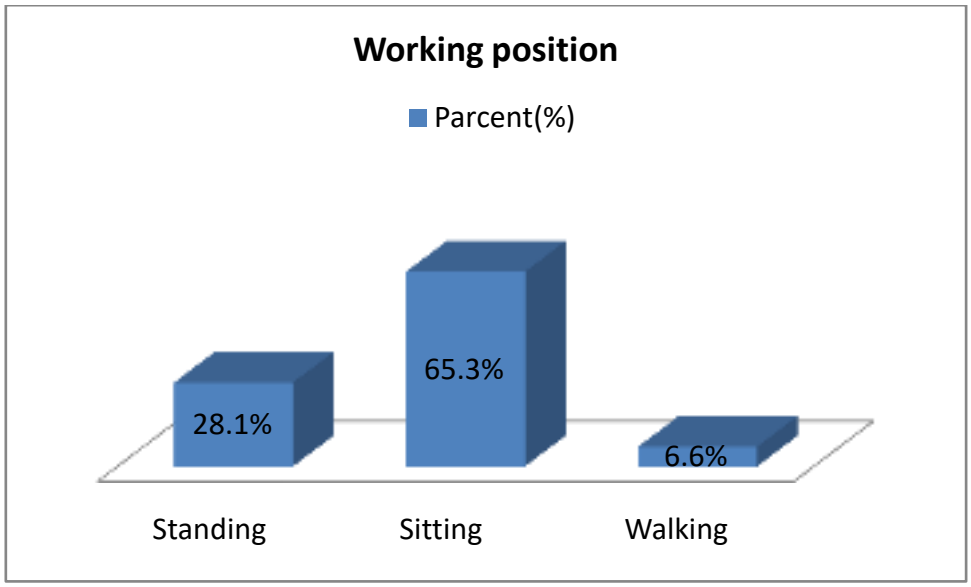


Figure-24: Distribution of the respondents by working position

4.25 Standing time

Table no 25, revealed that standing time belong to less than 2 hours 24.5%, 2 hours 31.1%, 4 hours 13.3%, 6 hours 15.3%, 8 hours 8.7% and more than 8 hours 7.1% respectively.

Table no.25: Distribution of the respondents by standing time (n=196)

Standing time	Number(n)	Percentage (%)
Less than 2 hours	48	24.5
2 hours	61	31.1
4 hours	26	13.3
6 hours	30	15.3
8 hours	17	8.7
More than 8 hours	14	7.1

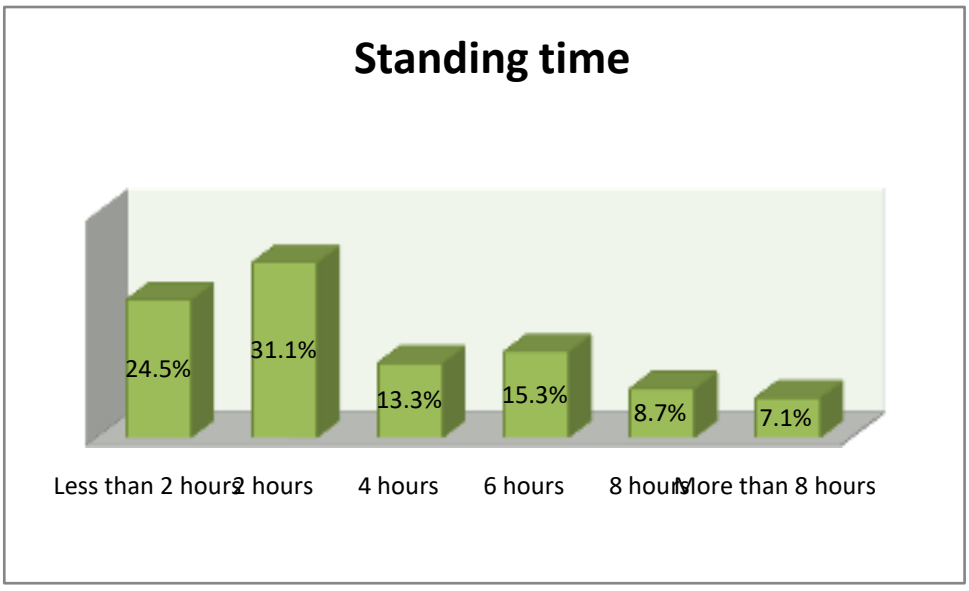


Figure-25: Distribution of the respondents by standing time

4.26 Sitting time

Table no 26, revealed that sitting time belong to less than 2 hours 5.6 %, 2 hours 11.2%, 4 hours 17.9%, 6hours 16.3%,8 hours 28.1 and more than 8 hours 20.9% respectively.

Table no.26: Distribution of the respondents by sitting time (n=196)

Sitting time	Number(n)	Percentage (%)
Less than 2 hours	11	5.6
2 hours	22	11.2
4hours	35	17.9
6 hours	32	16.3
8 hours	55	28.1
More than 8 hours	41	20.9

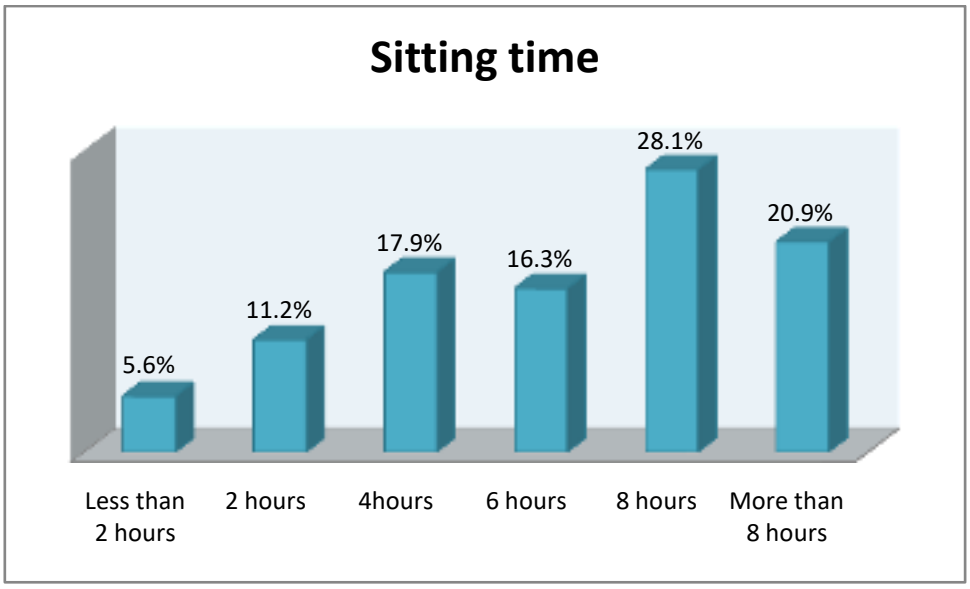


Figure-26: Distribution of the respondents by sitting time

4.27 Walking time

Table no 27, revealed that walking time belong to less than 2 hours 37.8%, 2 hours 38.3%, 4 hours 14.3%, 6 hours 6.6%, 8 hours 2.0% and more than 8 hours 1.0% respectively.

Table no.27: Distribution of the respondents by walking time (n=196)

Working time	Number (n)	Percentage (%)
Less than 2 hours	74	37.8
2 hours	75	38.3
4 hours	28	14.3
6 hours	13	6.6
8 hours	4	2.0
More than 8 hours	2	1.0

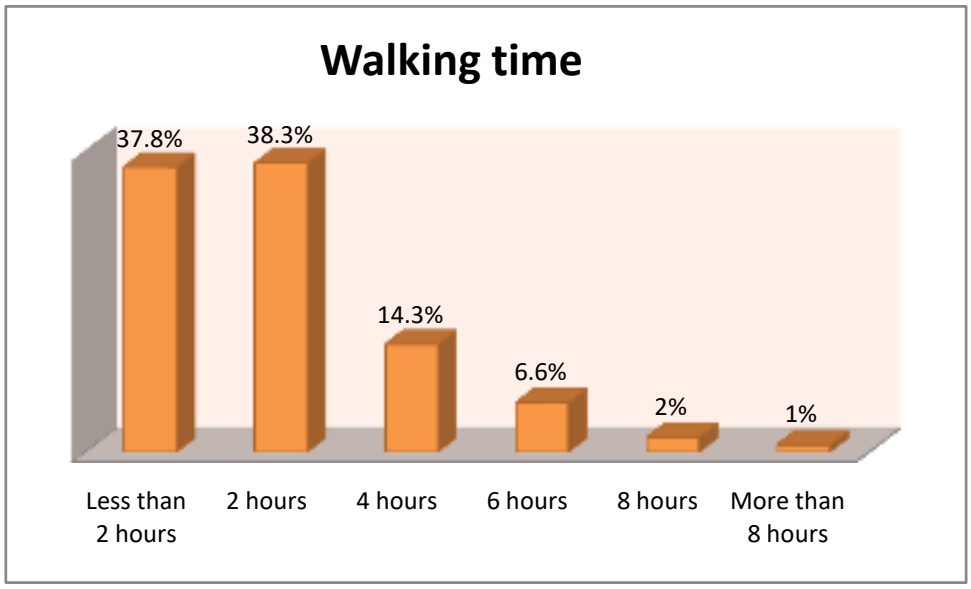


Figure-27: Distribution of the respondents by walking time

4.28 Using Ambulatory aids

Table no 28, revealed that using ambulatory aids belong to yes 1.0 % and no 99.0% respectively.

Table no.28: Distribution of the respondents by Using ambulatory aids (n=196)

Ambulatory aids	Number(n)	Percentage (%)
Yes	2	1.0
No	194	99.0

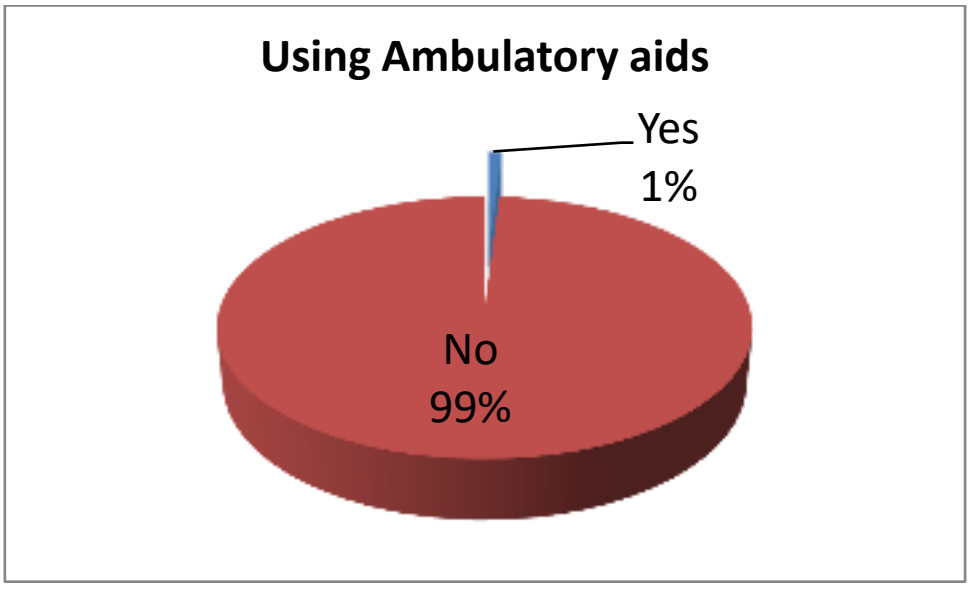


Figure-28: Distribution of the respondents by using ambulatory aids

4.29 Kind of using Ambulatory aids

Table no 29, revealed that kind of ambulatory aids use belong to sticks .5% and missing 99.5% respectively.

Table no.29: Distribution of the respondents by kind of ambulatory aids use (n=196)

Using ambulatory aids	Number (n)	Percentage (%)
Stick	1	.5
Missing	195	99.5

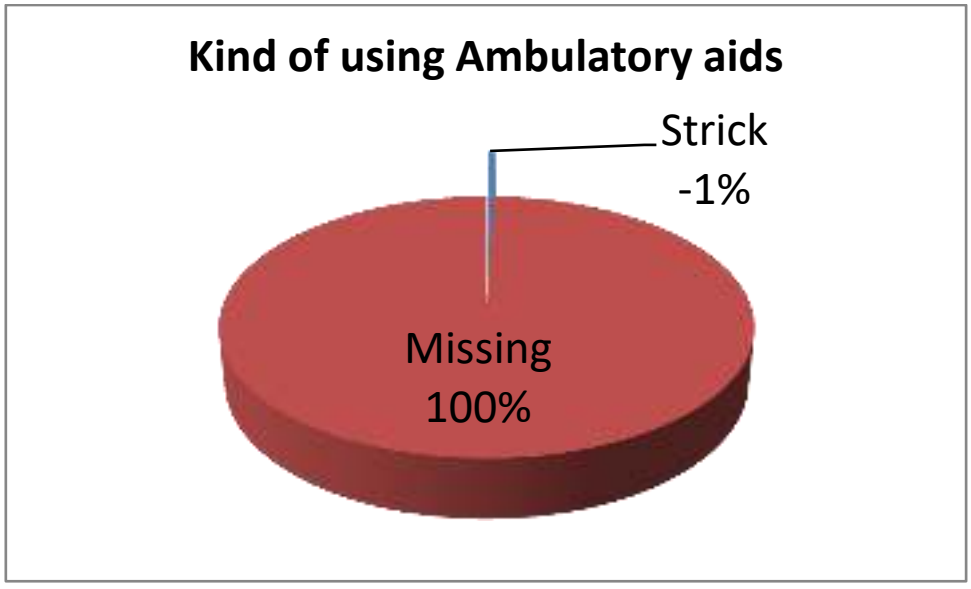


Figure-29: Distribution of the respondents by kind of ambulatory aids use

4.30 Using orthotic devices

Table no 30,showed that using orthotic devices belong to yes 1.5% and no 98.5% respectively.

Table no.30: Distribution of the respondents byusing orthotic devices (n=196)

Using orthotic devices	Number (n)	Percentage (%)
Yes	3	1.5
No	193	98.5

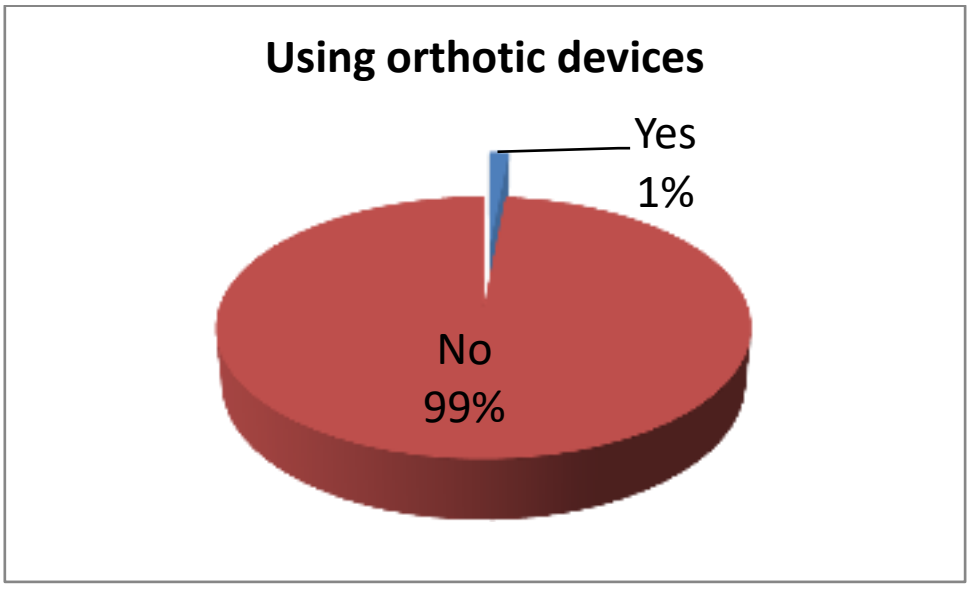


Figure-30: Distribution of the respondents by using orthotic devices

4.31 Kind of using orthotic devices

Table no 31, revealed that kind of using orthotic device respondents belong to knee cap 1.0% and missing 99.0% respectively.

Table no.31: Distribution of the respondents by kind of using orthotic devices (n=196)

Kind of using orthotic device	Number(n)	Percentage (%)
Knee cap	2	1.0
Missing	194	99.0

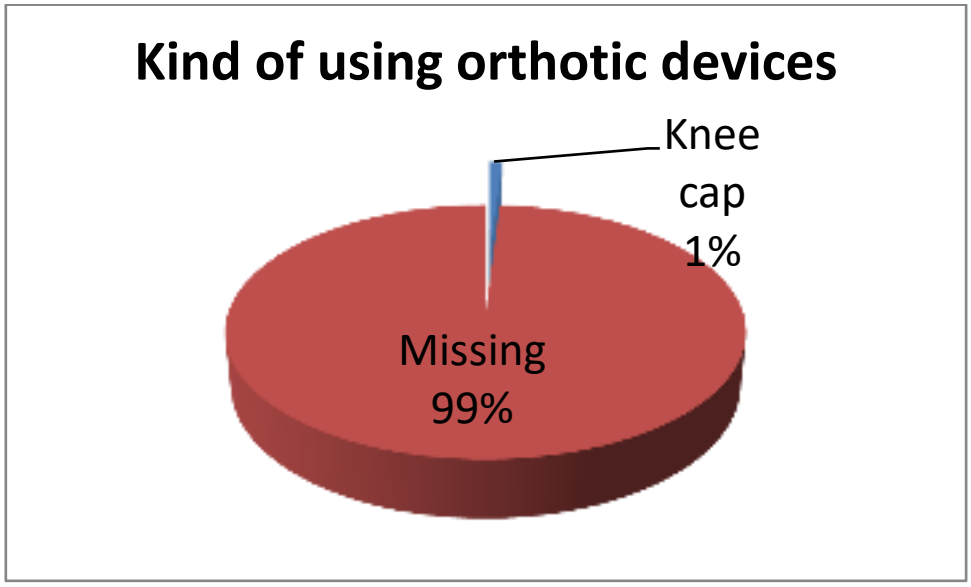


Figure-31: Distribution of the respondents by kind of using orthotic devices

4.32 Diagnosed medical condition

Tableno 32, showed that diagnosed medical conditions yes 7.7 % and no 92.3% respectively.

Table no. 32: Distribution of the respondents by Diagnosed medical conditions (n=196)

Medical condition	Number (n)	Percentage (%)
Yes	15	7.7
No	181	92.3

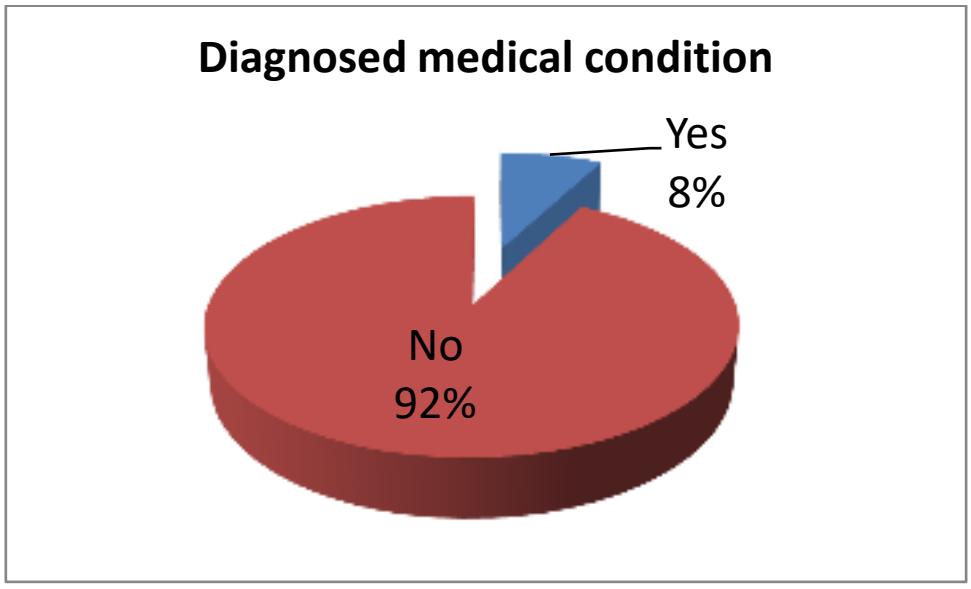


Figure-32: Distribution of the respondents by Diagnosed medical conditions

4.33 Past medical history

Table no 33, revealed that past medical history belong to HTN 3.1%, DM 1.0%, Asthma 2.0%, respiratory disease .5%, liver disease 1.0% and missing 92.3 % respectively.

Table no.33: Distribution of the respondents by Past medical history (n=196)

Past medical history	Number (n)	Percentage (%)
HTN	6	3.1
DM	2	1.0
Asthma	4	2.0
Respiratory disease	1	.5
Liver disease	2	1.0
Missing	181	92.3

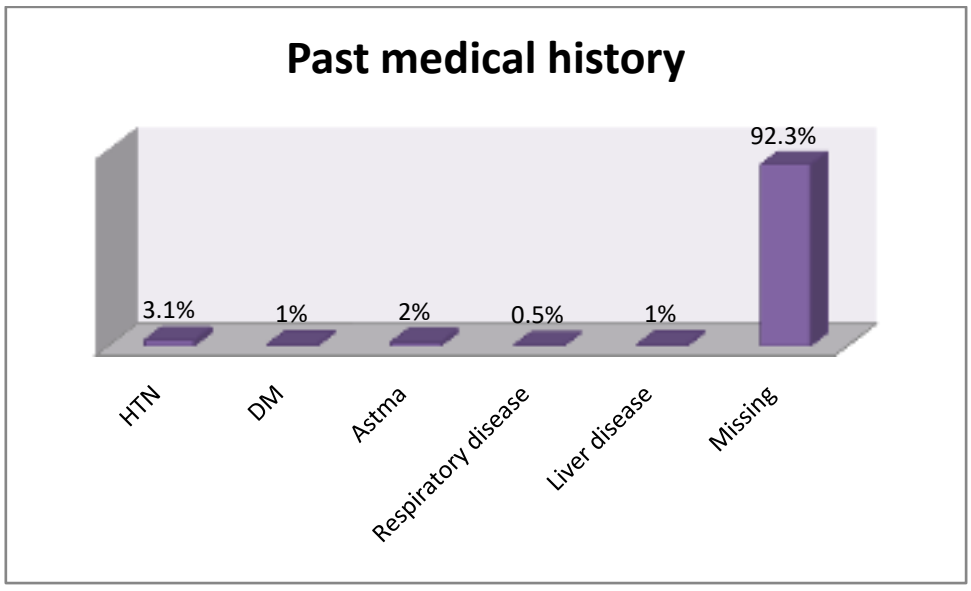


Figure-33: Distribution of the respondents by Past medical history

4.34 Job stress

Table no 34, showed that job stress may have 63.8% respondents and 36.2% not respectively.

Table no.34: Distribution of the respondents by job stress (n=196)

Job stress	Number (n)	Percentage (%)
Yes	125	63.8
No	71	36.2

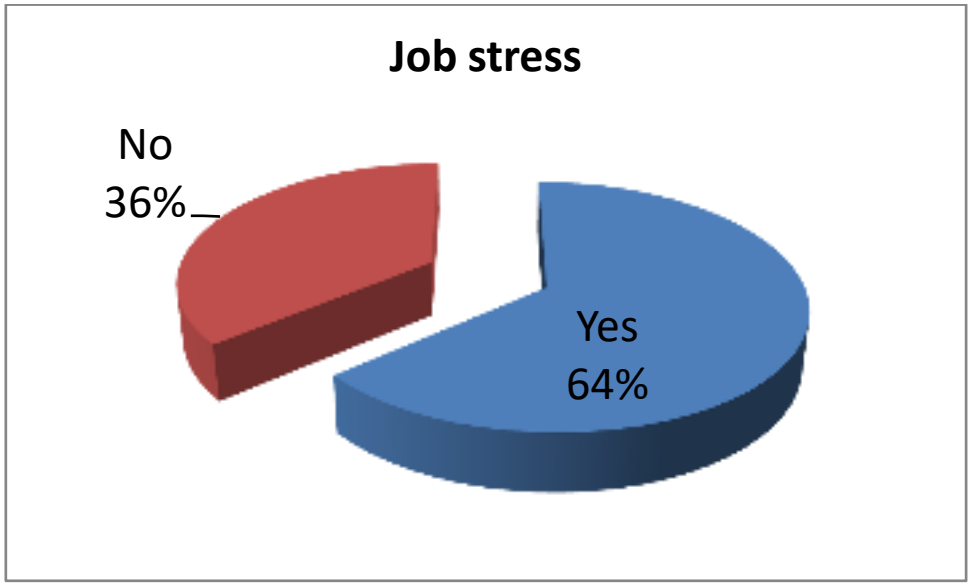


Figure-34: Distribution of the respondents by job stress

4.35 Taken treatment

Table no 35, revealed that respondents taken treatment 16.3% and without treatment 83.7% respectively.

Table no.35: Distribution of the respondents by taken treatment (n=196)

Treatment	Number (n)	Percentage (%)
Yes	32	16.3
No	164	83.7

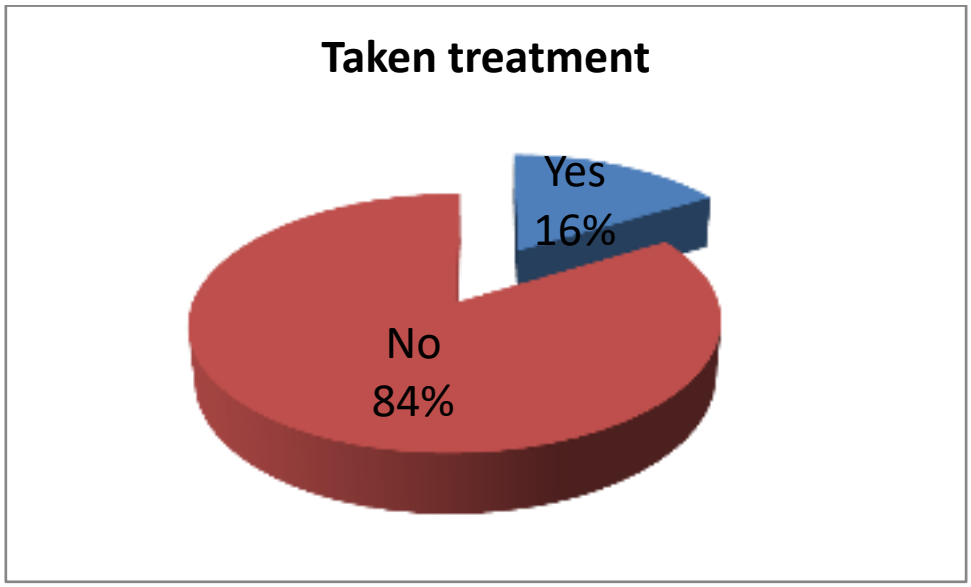


Figure-35: Distribution of the respondents by taken treatment

4.36 Taken type of treatment

Table no 36, revealed that taken type of treatment belong to medication 10.2%, physiotherapy .5%, both 4.1% and missing 85.2% respectively.

Table no.36: Distribution of the respondents by Taken type of treatment (n=196)

Type of treatment	Number(n)	Percentage (%)
Medication	20	10.2
Physiotherapy	1	.5
Both	8	4.1
Missing	167	85.2

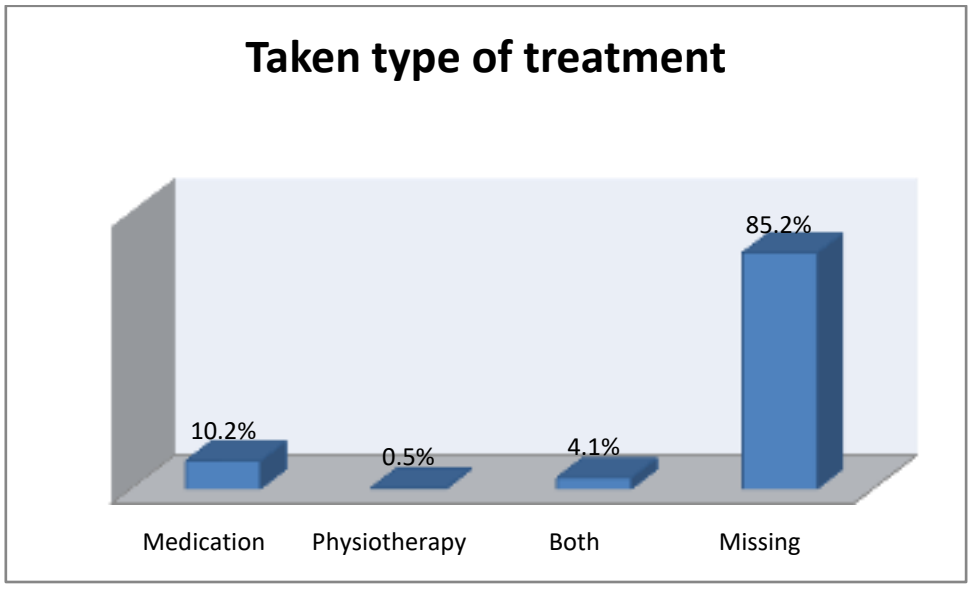


Figure-36: Distribution of the respondents by Taken type of treatment

4.37 Feeling after treatment

Table no 37, revealed that feeling of after treatment belongs to yes 14.8%,no .5% and missing 84.7% respectively.

Table no.37: Distribution of the respondents by feeling of after treatment (N=196)

Feeling of after treatment	Number (n)	Percentage (%)
Yes	29	14.8
No	1	.5
Missing	166	84.7

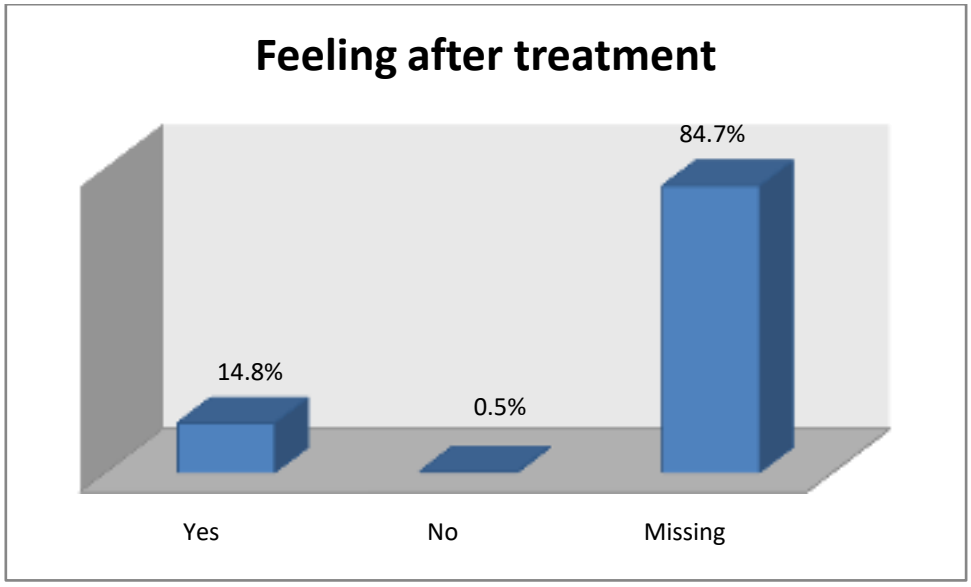


Fig-37: Distribution of the respondents by feeling of after treatment

4.38 Chi Square Test

Table no.38: Association between knee pains with height (N=196)

Variables	**Knee Pain**		Total	Chi Square Test
	Present	Absent		
Height				x^2=6.432
150 to 160 cm	23(35.4%)	42(64.6%)	65(100%)	df=2
160 to 170 cm	20(18.3%)	89(81.7%)	109(100%)	P=0.040
170 to 180 cm	5(22.7%)	17(77.3%)	22(100%)	

P<0.05= significant , p>0.05= non-significant

Table no 38, revealed a significant association between knee pains with height (P value = 0.040)

Table no.39: Association between knee pains with bad habit (n=196)

Variables	Knee Pain		Total	Chi-Square Tests
Bad Habit				x^2=7.701
Smoking	22(45.8%)	57(38.5%)	79(100%)	df=3
Alcohol	2(4.2%)	0(0%)	2(100%)	P=0.053
Others	0(0%)	1(0.7%)	1(100%)	
No Bad Habit	24(50%)	90(60.8%)	114(100%)	

P<0.05= significant , p>0.05= non-significant

Table no 39, revealed a significant association between knee pains with bad habit (P value = 0.053)

Table no.40: Association between knee pains with working position (n=196)

Variables	Working position		Total	Chi-Square Tests
	Present	Absent		
Standing	18(37.5%)	37(25.0%)	55(28.1%)	x^2=7.598
Sitting	24(50.0%)	104(70.3%)	128(65.3%)	dF=2
Waking	6(12.5%)	7(4.7%)	13(6.6%)	P=.022

P<0.05= significant, p>0.05= non-significant

Table no 40, revealed a significant between knee pains with working position (P value = 0.022)

Table no.41: Association betweenknee pains with nature of job (n=196)

Variables	Knee Pain		Total	Chi-Square Tests
	Present	Absent		
Nature of Job				x^2=7.325 df=1 P=0.007
Mostly involve physical effort	38(30.9%)	85(69.1%)	48(100%)	
Mostly involve mental effort	10(13.7%)	63(86.3%)	148(100%)	

P<0.05= significant, p>0.05= non-significant

Table no 41, revealed a significant association between knee pains with nature of job (P value = 0.007)

Table no.42: Association between knee pains with other medical conditions (N=196)

Variables	Knee Pain		Total	Chi-Square Tests
	Present	Absent		
Diagnosed medical conditions			15(7.7%)	x^2=7.308 df=1 P=0.007
Yes	8(16.7%)	7(4.7%)		
No	40(83.3%)	141(95.3%)	181(92.3%)	

P<0.05= significant, p>0.05= non-significant

Table no 42, revealed a significant between knee pains with other medical condition (P value = 0.007).

Table no.43: Association between knee pains with feeling after treatment (n=196)

Variable	Knee Pain		Total	
	Present	Absent		
After treatment do you feel better				x^2=6.724 df=1 P=0.010
Yes	26(100%)	3(75.0%)	29(96.7%)	
No	0(%)	1(25.0%)	1(3.3%)	

P<0.05= significant, p>0.05= non-significant

Table no 43, revealed a significant between knee pains with feeling after treatment (P value = 0.010).

CHAPTER-VDISCUSSION

OA is one of the leading causes of disability in the elderly of the developed world. To estimate the point prevalence of knee pain suggesting OA in the adult Spanish
Population Knee pain is associated to a significant decrease in functional ability and quality of life, even after adjustment for age, sex, and co-morbidity (Wang et al.2017).

The prevalence of knee pain suggesting OA in the general Spanish population is higher than expected, mainly related to a high rate of knee pain in women over 55. The proportions of very old persons and of those obese are important factors to take into account when comparing the rate of knee OA between populations (Miranda et al.2002).

Articles are analysis the age over 20 years. That why our articles are some same symptoms include. This article results women are more affected .Our articles has the related to the sex others the obese persons are more affected than the non-obese persons that related to the BMI rate (Fernandes et al.2017).

A cross sectional study was carried out in Salvador Brazil with individuals >20 years of age. Prevalence of knee pain ranges from 10% to 60 % depending on age, occupation and the definitions used for this morbidity. It also associated with socioeconomic, psychosocial factors and other demographic characteristics. Obesity is significant factorsfrequently associated with the presence of knee pain because it may cause deep effect on the structural soft tissues such as tendons, cartilage, and faces many other sex, marital status, social class, skin colour, smoking, alcohol consumption and physical activity (Chia et al.2016).

In this study, found a knee pain positive association with the male gender, married, separated or widowed, and a protective association for knee pain in non-obese married male. Aging obesity and excessive alcohol consumptionwere independent correlates of knee pain in the studied population sample (Jin et al.2008).

Age was an important associated factor, both in the unadjusted analysis and in the adjusted analysis, revealing that prevalence of knee pain increase progressively and proportionally to

the increase in age .this article related to the male aged persons. More elderly are more affected.Non-obese married male persons are affected,that related to our article non-obese persons.Divorced male persons are also affected,knee pain also occur the alcohol consumptions persons (Agaliotis et al.2013).

A cross sectional survey was carried out in rural and urban areas in state in Malaysia. participants aged >18 years old were invited to answer a self-administered questionnaire an pain experienced over the previous 6 months population were parents with children and might be different for non-parents .also unable to attribute knee pain being entirely due to OA. The prevalence of knee pain in adults was more common in Indian adult women and older women age groups and Chinese men had the lowest prevalence of knee pain. Articles are related to the separated persons affected and women are more affected in Indian women and elderly women (Neogi et al.2010).

A longitudinal study found that among this cohort of people with chronic knee pain, the burden of reduced work productivity is mainly attributable to presenteeism rather absenteeism. This study demonstrated that effective strategies to increase work productivity should focus on reducing knee pain or physical disability especially among workers in manual or semi manual labour that is clear manual or semi manual workers are more affected. This articles worker that means occupation is affected more, that is related to our research article. Manual workers are more affected to the pain than the mental worker (Greve et al.2015).

The cohort study that experiment to the Japanese men and women and try to discuss about osteoarthritis against disability (ROAD) Study. We see that associated risk factor like as age, BMI, medial mJSW and lateralmJSW are include of them and most of the participants complain about their knee pain but female are more affected than male. We also know that osteoarthritis is the fourth rank disease that causes of disability. Finally we observe six differences in knee osteoarthritis, but the impact joint space narrowing and osteophytosis differ between sexes that effect on quality of life. Our study taken from Dhaka city of non-obese young adult but finding about knee pain is less. So we can say young adult are less effect of knee pain and also see varies difference like osteoarthritis (Adamsol et al.2005).

Joint pain is the current and main problem of health issue. We see that connection of risk factor and osteoarthritis as the main causes of joint pain and including risk factor of alcohol,

smoke and obesity. This report said health and socio-demographic condition and lack of ability. Finally they identify the major risk factor of joint pain. They proved that obesity was accept of joint pain under the base but our study try to work with non-obese people of young adults. We also observed the body mass index of each participant that related to knee pain. As a result we found a less percent of knee pain about our acceptable (Fishbain et al.2007).

This study we assess the appearance of structural and functional adjustment of knee pain. According to the MOST(Multi-central osteoarthritis)elevated risk of OA of knee pain that identify at major two times causes extremely. Later in clinic visit is one of them for consistency knee pain but a person who have inconsistence pain in knee to suggest havinga early treatment as possible to lead a healthy life and present of knee pain. In our study 30 people were going to treatment out of 196 participants. They were a better feel after treatment. They were going to doctor for treatment as early as possible and finally they were satisfied for treatment. So we suggest the participants, if any pain feel in knee, he would must to go to doctor for early as possible to treatment otherwise in later life osteoarthritis may rise (Neoi et al 2010).

CHAPTER-VI CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Present cross-sectional study finding indicate that 20 to 40 years old male non-obese persons knee pain is less common. However prevalence of knee pain, this showed that bad habit, occupations, height, working position is related to non-obese persons in young adults. Psychosocial elements of work were more involved in the persistence of the symptoms in the knee. Other factors are likely to determine whether the knee pain then progresses. An area for future research is the infectiveness of current health care in halting or reversing progression of knee pain at a population level.

6.2 Recommendation

Based on study the following recommendations are enlisted.

nsuring of the generalize ability of the research it is recommended to investigate large sample.

In this study researcher only took the knee pain in male 20 to 40 years old in Dhaka city. So for further study researcher strongly recommended to include other area and hospitals from all over Bangladesh.

To selected the study area for finding available sample size.

It recommended for further study to generalized Physiotherapy treatment among the young adult to prevention and treatment of kneepain as early as possible.

To minimize the risk factors and creation of awareness among population to severity of knee pain.

6.3 Limitation:

There were some situational limitation and barriers while considering the study.

Those are as follows:

Expected sample size was 296 for this study but due to resource constrain, financial problem and time limitation just 196 sample were taken which is very small to generalize the result for the wider population to find out satisfaction on physiotherapy.

There was lack of randomization

Resources were limited which have a great deal of impact on the study and affect result of the study to generalize for wider population.

We are 4th year B.Sc in physiotherapy student so we had limited experience with techniques and strategies in terms of the practical aspect of research

REFERENCES

Agaliotis.M, Fransen.M, Bridgett. L, Nairn. L, Votrubec. M, Jan.S, Heard.R, and MackeyM.(2013). Risk factors associated with reduced work productivity among people with chronic knee pain. *Elsevier.*21(9).1160-1169 pp.

Amoake. A. O, and Pujalte. G. G. A, (2014). OA in young, active and athletic individuals.*LiberatasAcademica.*

AnatonyB, JonesG, JinKZ and DingC. (2016). Do early life factors affects the development of knee OA in later life. *Journal of Korean Medical Science.*

ChiaYC, BehHC, NgCJ, TengCL, HasafiNS, ChooWY and ChingSM.(2016). Ethnic differences in the prevalence of knee pain among adults of a community.*BMJ.*6(12).

FernadesGS, ParekhSM, MosesJ, FullerC, ScammellB, BattMEand ZhangW. (2017). Prevalence of knee pain radiographic OA and Arthroplasty in retired professional footballers compared with men in the general population.*BMJ.*.

GraveJMD'A, Andere'NFB, Luna'NMS, Canonica'AC, Cruz'TMF.Da, PetersonM and Alonso'AC.(2015). Risk factors for overuse injuries in runners ankles.*Medical express.*

HeidariB, HeidariPand TilakiKH. (2011). Association between serum vitamin D deficiency and knee OA. *International Orthopaedics.35(11).1627-1631 pp.*

KimIJ, KimHA, SeoYI, JungYO, SongYW, JeongJY and KimDH.(2011). Prevalence of knee pain and its influence on quality of life and physical function in the Korean elderly population.*Journal of Korean Medical Science.*

MirandaH, JunturaEV, MartikainenR and IihimakiH.(2002). A prospective study on knee pain and its risk factors.*Elsevier.*10(8).623-630 pp.

ReillySCO, MuirKR and DohertyM.(1998). Knee pain and disability in the Nottingham community.*British Society for Rheumatology*.37(8).870-873 pp.

SaKN, PereiraCdeM, SouzaRC, BaptistaAF and LessaI.(2011).Knee pain prevalence and associated factors in a Brazilian population study. *Pain Medicine.*12(3,1). 394-402 pp.

WongC, GuoY, ShiJ and ChenW.(2017). A numerical investigation into the effects of overweight and obesity on total knee arthoplasty.*Jurnal of health care engineering.*

YoM, YoshidaT, SuzukiH, YoshidaH, JshibashiF, TokimuaS, YamametS, Tanaka, Nakamura, Kawaguchi and YoshimuraOkaN.(1998). Joint space narrowing, Body Mass Index and knee pain.*ELSEVIER.*23(6).874-881 pp.

ZhangW, OuyangH, DassCR and XuJ.(2016). Current research on pharmacologic and regenerative therapies for OA.*Nature Publishing Group.*

NeogiMC, NevittM, YangJR, CurtisJ, TornerDT, FelsonT. (2010). Consistency of knee pain: correlates and association with function.*ELSEVIER*

AdamsonJ, EbrahinS, DieppeP and HuntK. (2005). Prevalence and risk factors for joint pain among men and women in the west of Scotland twenty-07 study. *British Medical Journal.* 520-524pp

FishbrainDA, LewisMD, ColeB, cutlerB and RosomoffHF. (2007). Variables associated with current smoking status in chronic pain patients.*PMC.*8(4) 301-311pp

JinksC, JardanKP, BlagojevicM and CroftP, (2008).Predictor of onset and progression of knee pain in adults living in the community.A prospective study.*Oxford Academic for Society.*47(3)368-374pp

GreveJMDA, AndereNFB, LunaNMS, CanonicaAC, CruzTMFD, PetersonM and AlonsoAC.(2015). Risk factors for overuse injuries in runners ankles.*Medical Expresss.*

APPENDIX-A

PERMISSION LETTER

Date: ____/____/_____

To

Subject: Asking for permission to collect research data

Dear Sir,

The following student needs your kind permission to gather research data from your distinguished institution.

Name:……

Program: B.Sc. in physiotherapy

Title: Level of satisfaction regarding physiotherapy treatment among the patient attendant in different physiotherapy centres of Dhaka city

It would be nice if you take further necessary action.

Requested Yours

……

Principal

SAIC Institute of Medical Technology (SIMT)

Section-6, Mirpur, Dhaka-1216

APPENDIX-B

INFORMED CONCENT

Assalamualaikum, We are Md.Ashraful,RabbuAkther, SushantaTalukdar and Md.MasumZikirul students of B.Sc in physiotherapy. We came from SAIC Institute of Medical Technology, which is affiliated by Dhaka University, located at Mirpur,Dhaka. I am now conducting a study on **"Prevalence and associated factors of knee pain amongnon-obese persons about 20 to 40 years old male service holder in Dhaka city."** We would be very much pleased if you participate in this study. We would like to ask you some question about your knee pain. This interview usually takes between 15-20 minutes to complete. Whatever information you provide will be keeping strictly confidential and will not be shown to others. Participation in this study is voluntary, and you can choose not to answer any individual question or all of the questions. However, we hope that you will participate in this study since your views are important.

At this time do you want to ask me anything about this study?

May we begin the interview now?

Signature of interviewer…….

Date ……../……/…….

I understand that all information will be kept strictly confidential, that I can contact study personnel of I have any questions. I further understand that I can withdraw from the study at any time and I will not get any financial benefit for attending this study.

I am willing to participate in the study.

Participant signature ……..

……..

Date ……../……/……. Supervisor's signature

Contact No……

Participant ID No……..

Questionnaire

Prevalence and associated factors of knee pain among non-obese persons about 20 to 40 years old male service holder in Dhaka city.

Name of interviewer ……

Date of interview ……../……../…….. Time of interview ……

Respondent's Identification

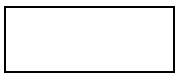
Name of respondent …….

Address ……

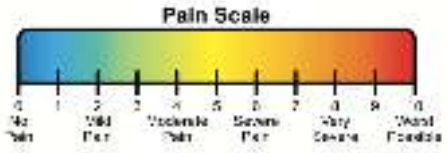
Contact No. ……..

Part- 1(Socio demographic questions)

Serial No.	**Question**	**Response**
101	Age of the participant?	☐ Years
102	Religion of the participant?	1 = Islam 2 = Hindu 3 = Christian 4 = Buddhism 5 = Others
103	Height?	☐ Cm
104	Weight?	☐ Kg

105	BMI?	 Kgm^2
106	What is your educational status?	1 = Illiterate 2 = Primary 3 = Below SSC 4 = SSC 5 = HSC 6 = Graduate 7 = Post graduate
107	What is your occupation?	1=Student 2 = Govt. service 3= Private service 4 = Businessman 5= Unemployed 6 = Others
108	What is the nature of your job/work (applicable for those who are in job/work)?	1 = Mostly involve physical effort 2 = Mostly involve mental effort
109	How is your monthly income?	1= less than 10,000 Taka 2= 10,000 – 20,000 Taka 3= 20,000 – 30,000 Taka 4= 30,000 – 50,000 Taka 5= More than 50,000 Taka
110	What is your Marital status?	1 = Married 2 = Unmarried 3 = Separated/divorced

Part- 2(Knee pain related question)

201	Do you have suffering any knee pain?	1=Yes 2=No
202	If yes, what pattern of pain?	1= Constant 2= Intermittent 3= While standing 4= While sitting 5= While working 6= others
203	If intermittent, what is pain increasing time?	1= Morning 2= Noon 3= Afternoon 4= Evening 5= Night 6= Midnight
204	Severity of pain (PRS)?	 1=0= No pain 2=(1-3)= Mild pain 3=(4-5)= Moderate 4=(6-9)= Severe 5=10= Worst possible
205	Do you feel any type of noise (grinding, clicking) when your knee moves?	1= Yes 2= No
206	Duration of pain?	☐ Days/Month/Year

207	When your pain increase?	1=During standing 2=During sitting 3=During walking 4=During taking stairs 5=During kneeling 6=Others
208	When your pains relive or decrease?	1=During rest 2= During mild stretch 3=During movement 4=Certain position 5=Pressure 6= Massage 7=Heat 8=Ice 9=Others

Part- 3(Person information related question)

301	Do you following any bad Habit?	1= Smoking 2= Alcohol 3= Drug 4= Others addiction 5= Others 6=No bad habit.
302	Do you have occurred any previous knee injury?	1= Yes 2= No
303	If yes, which type of knee injury occurs?	1= Disease related 2= Injury related 3= Unknown
304	Which type of knee injury	1=Bone

	occurred?	2=Ligament 3=Muscle 4=Meniscus 5=Others
305	Which structure is involved?	1=Bone 2=Ligament 3=Muscle 4=Meniscus 5=Unknown
306	By which transport use of your every day journey?	1=Bus 2= Private car 3= Motor-cycle 4= By-cycle 5= By walking 6=Others
307	How long the distance between home and working place?	1=Less than 1 mile 2= (1-2) mile 3= (2-3) mile 4= (3-5) mile 5= more than 5 mile
308	How long you're working hours?	1= less than 6 hours 2= 6 hours 3= 8 hours 4= 10 hours 5= 12 hours 6= More than 12 hours
309	What is yours working position?	1= Standing 2= Sitting 3= Walking
310	How long your standing time?	1=Less than 2 hours

		2=2 hours 3=4 hours 4=6 hours 5=8 hours 6=More than 8 hours
311	How long your sitting time?	1=Less than 2 hours 2=2 hours 3=4 hours 4=6 hours 5=8 hours 6=More than 8 hours
312	How long your walking time?	1=Less than 2 hours 2=2 hours 3=4 hours 4=6 hours 5=8 hours 6=More than 8 hours
315	Do you use any ambulatory aids?	1= Yes 2= No
316	If yes, what kind of this?	1= Cane 2= Walker 3= Crutch 4= Strick 5= others
317	Do you use any knee orthotic device?	1=Yes 2=No
318	If yes, what kind of this?	1=Knee cap 2=Knee brace
319	Do you have any diagnosed medical conditions?	1= Yes 2= No

320	Do you have any following past medical history?	1=HTN 2=DM 3=Astma 4=Cardiac disease 5=Respiratory disease 6=Kidney disease 7=Liver disease 8=Others

Part- 4(Psychological related question)

401	Do you have any job stress?	1=Yes 2=No

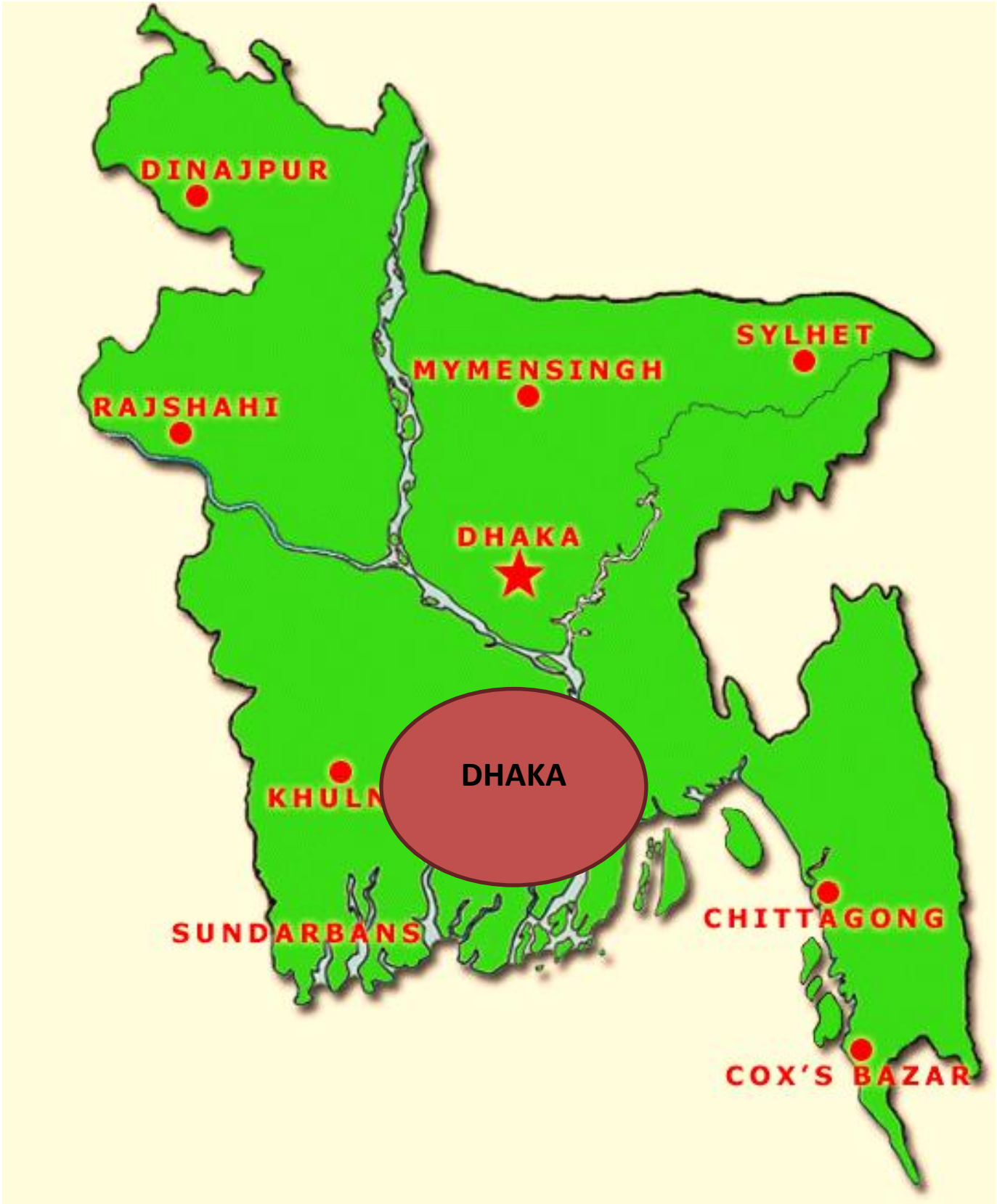
Part- 5(Treatment related question)

501	Do you have taken any treatment?	1= Yes 2= No
502	If yes which types of treatment have you taken?	1= Medication 2= Physiotherapy 3= Both 4= Others
503	After treatment do you feel better?	1= Yes 2= No

Thank you for answering these questions.

…….

Signature of interviewer


DINAJPUR
SYLHET
MYMENSINGH
RAJSHAHI
DHAKA
DHAKA
KHULN
SUNDARBANS
CHITTAGONG
COX'S BAZAR

Time line of study

Activities	Months	February				March				April				May				June				July			
	Weeks	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ProposalWriting																									
Literature Review																									
Proposal defence																									
Pre-test of Questionnaire																									
Data collection																									
Data entry																									
Data analysis																									
Report writing																									
Draft submission																									
Final report submission																									