

PREVALENCE OF NECK PAIN DUE TO HELMET USE AMONG MOTOR CYCLISTS

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PUNE

INTRODUCTION

The most convenient source of transportation in motorcyclists. Helmets have a protective use against accidents. Though not often discussed neck pain is encountered in motorcyclists. Discomfort can also be because of poor posture, poor suspension of bike, highseat .One of the reasons identified by many motorcyclists is discomfort in neck. Rate of helmet use in India is 60%.Our study will highlight discomfort levels while riding.

The neck is designed to resist the forces that push the head from behind but not for the forces that push the head from front to back. in general, a good helmet that deflects the air's direction can reduce the wind's power on the head. The posture may partially offset these forces. if the body is leaning forward, the neck will not suffer too much initially, but the posture causes the muscles to fatigue and may bother after a while as the joints are in a more forced posture.

On the contrary, if we are sitting very upright on a motorcycle with little or no windshield and we pick up speed, the wind will directly damage our neck. One of the reasons identified by a large number of motorcyclists for not wearing a helmet during riding was neck pain as they contribute the neck pain to the helmet's weight which caused discomfort if worn for a long time. A poor fit helmet adds further more stress to the neck. Too heavy helmet could produce spasm of muscles around the neck. Some helmet users complain about discomforts on wearing helmets, studies suggests that interior modification can help in relieving the discomfort.

Weight and shape of the helmet may contribute to motorcyclists breaking their neck during accidents. However, there are very few studies were done on neck pain with helmet users. So this study is to find out the relationship of different variables of helmet users with neck pain.

Neck pain is due to combined weight of the helmet and head, the neck become mechanically stressed beyond its capacity. With average head weight of 8-12 pounds, and average helmet coming in at around 4 pound, this amount of weight can overcome even a healthy neck with a hard riding.

Although a cheap source of transportation, yet the motorcycles are not safe because, in most two wheelers, the centre of gravity is not standardized. Another reason for accidents is the speed of the vehicle. The chance of neck pain is one of the commonly encountered problems by motorcyclists who regularly use helmets while riding. There is limited literature available regarding the discomfort among motorcyclists and the occurrence of neck pain because of helmet use. Discomfort in motorcyclist's body parts during the ride can be due to the poor posture, poor suspension of the bike, high speed, seat height, the position of handlebars and footrests.

The weight of the helmet: full-face helmets are heavy. a full face helmet increases the head's size, raising the resistance against the wind, producing a more significant impact on the neck. the increased resistance against the wind is a top reason for head and neck pain. The wind. this is one of the main factors that make the motorcycle a possible enemy of the neck. the neck is designed to resist the forces that push the head from behind but not for the forces that push the head from front to back. in general, a good helmet that deflects the air's direction can reduce the wind's power on the head.

Posture may partially offset these forces. if your body is leaning forward, the neck will not suffer too much initially, but the posture causes the muscles to fatigue and may bother you after a while as the joints are in a more forced posture. On the contrary, if we are sitting very upright on a motorcycle with little or no windshield and we pick up speed, the wind will directly damage our neck. A micro dot helmet is lightweight, very comfortable, and aerodynamic, reducing the wind's friction and reducing the strain on your neck and shoulders.

The Neck Pain and Disability scale (NPAD) is a composite index including 20 items which measure the intensity of neck pain and related disability. Until 1999, several measures of generalised pain and disability were available (Oswestry Disability Questionnaire and Pain Disability Index), but there was no well-developed measure that dealt specifically with neck pain. To provide a new measure of neck pain and disability the NPAD has been developed. Neck pain and disability scale has 0.93 reliability and 0.45 validity.

NEED OF STUDY

There is excellent scope for researches to research motorcyclists as there is very little evidence available. There is need to satisfy motorcyclists about posture concerning their motor cycle use and the neck pain caused due to the usage of helmet.

AIM AND OBJECTIVES

Aim

To study the prevalence of neck pain due to helmet use among motor cyclists.

Objectives

- To assess the intensity of neck pain using numerical pain rating scale. To correlate between neck pain and helmet use in motorcyclists.
- To assess disability caused by neck pain using neck disability scale.

REVIEW OF LITERATURE

1. Neck Pain to Helmet Use Among Motorcyclists: A Case-Control Study. Hafiz Rana Muhammad Arslan, Muhammad Salman Butt, Hafiz M. JamshaidBadar. Faculty of Life & Health Sciences University of South Asia Lahore, Pakistan. Case-Control study design was opted to measure the relative odds of neck pain in relation to the helmet use as an exposure. A total of 260 (mean age of $22.58 \pm S.D. 1.95$ years) undergraduate students were selected using purposive sampling. The case to control ratio was 1:4 (54 Cases and 206 Controls) where cases were defined as the motorcyclists having neck pain with a riding experience of more than one year. The neck pain and disability scale were obtained using a self-administered questionnaire. Chi-square and binary logistic regression were used to calculate the significant relationship and odds of neck pain amongst motorcyclists with and without helmet use.

2. A correlative study of variables affecting neck pain design with 145 helmet users was Randomly selected, self designed questionnaires were distributed to them, around 118 samples were taken for The analysis after due consideration of the selection Criteria. **Punitha Kumar R.K** A self designed questionnaires were distributed to them, around 118 samples were taken for the analysis after due consideration of the selection criteria. Variables used in the study were kilometers travelled with helmet, different brands, alteration of the helmet and types of helmet. All the questionnaires were analyzed using descriptive statistical method using SPSS 20.0. Chi square correlation was used for analysis. The result of this study shows that using helmet with local brands and those who travelled more than 40 kms per day had a strong relationship with neck pain, other variables are not much correlated. This study concludes that there was a significant positive correlation found in different brands and kilometers driven with neck pain. On the other hand, there was a significant negative correlation found in different types, alteration and size.

3. Relationship between cervical spine injury and helmet use in motorcycle road crashes. A total of 76 cases were collected and analyzed based on the data collected from real-world crashes. The Abbreviated Injury Scale (AIS) was used to assess the severity of injury, whereas the statistical Pearson $\chi^2(2)$ correlation method was used for analysis. The results showed that motorcycle helmets did not affect the severity of cervical spine injury. However, when the samples were further subcategorized into different crash modes, it was found that helmets affect the incidence of a severe cervical spine injury. In frontal collisions, the use of helmets significantly reduces the severity of cervical spine injury, whereas in rear-end, side impact, and skidded accidents, the use of helmets increases the probability of a severe cervical spine injury. However, in the latter crash modes, a motorcyclist without a helmet will have to trade-off with head injury. A logistic regression model has been developed with respective crash modes and the probabilities of risk in having severe cervical spine injury have been calculated.

4. Motorcycle helmet use and the risk of head, neck, and fatal injury: Revisiting the Hurt Study. The author replicated Goldstein's models to understand how he obtained his unexpected results, and we then applied modern statistical methods to estimate the association of motorcycle helmet use with head injury, fatal injury, and neck injury among collision-involved motorcyclists. We found Goldstein's analysis to be critically flawed due to improper data imputation, modeling of extremely sparse data, and misinterpretation of model coefficients.

MATERIAL AND METHODS

Methods

Study design: Survey based.

Sampling method: Convenient sampling

Sample size: 50

Study population: students and staff, between the age of 18-50 year's.

Study setup: university students, staff, teachers, riders.

Materials:

Pen, Pencil, Consent form, Internet, mobile phone

INCLUSION CRITERIA

- Riding since >1 year
- Both gender

EXCLUSION CRITERIA

- Previous spine and shoulder Pathologies
- Unwilling to participate

OUTCOME MESURES

1. Numerical pain rating scale
2. Neck pain disability index questionnaire

PROCEDURE

- Permission was taken from Institutional ethical committee of Tilak Maharashtra Vidyapeeth department of Physiotherapy.
- Individuals using helmet while riding motorcycle were approached and consent was taken prior to study.
- On the basis of inclusion and exclusion criteria individuals participating in study were selected.
- Consent regarding documenting and using their response for their study was done.
- Explanation of study was given.
- Correlation between Neck pain and helmet use among motorcyclists was done with the numerical pain rating scale in the helmet users and non-users and Neck disability scale was explained to the participants and they were asked to mark the most appropriate option.
- The scale was filled by participants and response was documented. Later the data was statistically analyzed.

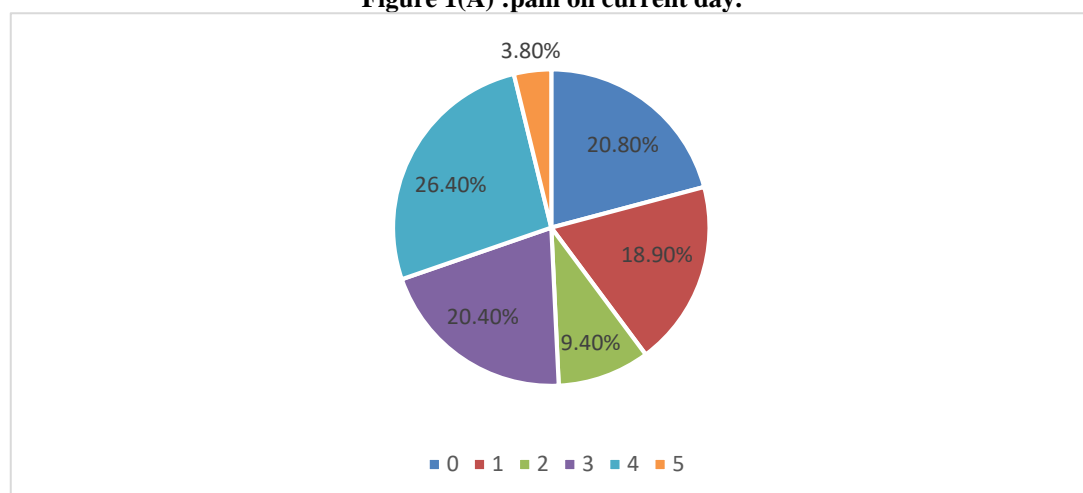
RESULTS

Table 1: INTERPRETATION OF PAIN EXPERIENCED BY THE SUBJECTS ON THE CURRENT DAY AND ON AN AVERAGE.

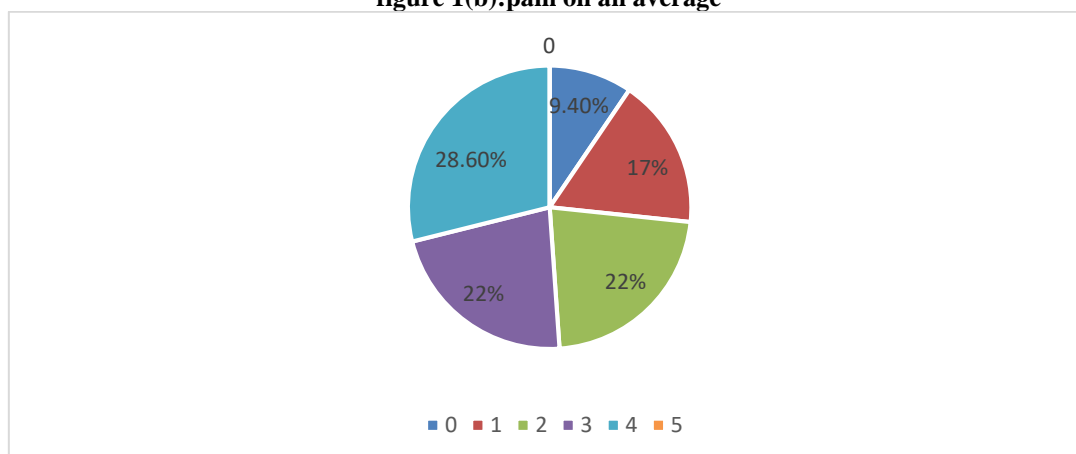
INTENSITY OF PAIN EXPERIENCED	PAIN ON CURRENT DAY	PAIN ON AN AVERAGE
0	20.8%	9.4%
1	18.9%	17%
2	9.4%	22.6%
3	20.8%	22.6%
4	26.4%	28.6%
5	3.8%	0%

(0-no pain, 5-most severe pain)

Figure 1(A) :pain on current day.



Interpretation: The mean age of the subjects that had pain due to the usage of helmet between the ages 18-50 year's was 28. On the basis of the scale from 0 to 5 which ranged from no pain to highest intensity of pain 20.8 % people had no pain.

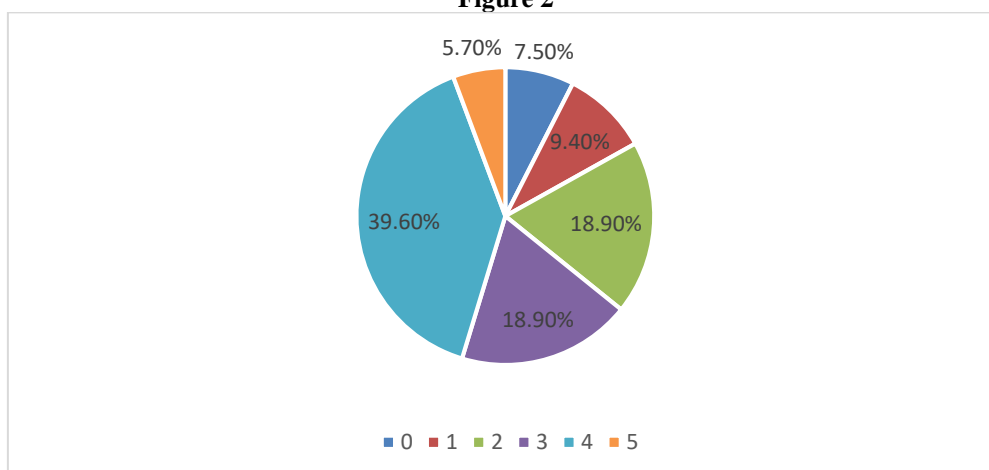
figure 1(b):pain on an average

Interpretation:9.4% people had no pain on an average while 28.6% people had rated the pain at 4 on an average and no subject rated 5 which was most severe pain.

TABLE 2: INTERPRETATION OF PAIN EXPERIENCED BY THE PEOPLE AT THE WORST.

0	7.5%
1	9.4%
2	18.9%
3	18.9%
4	39.6%
5	5.7%

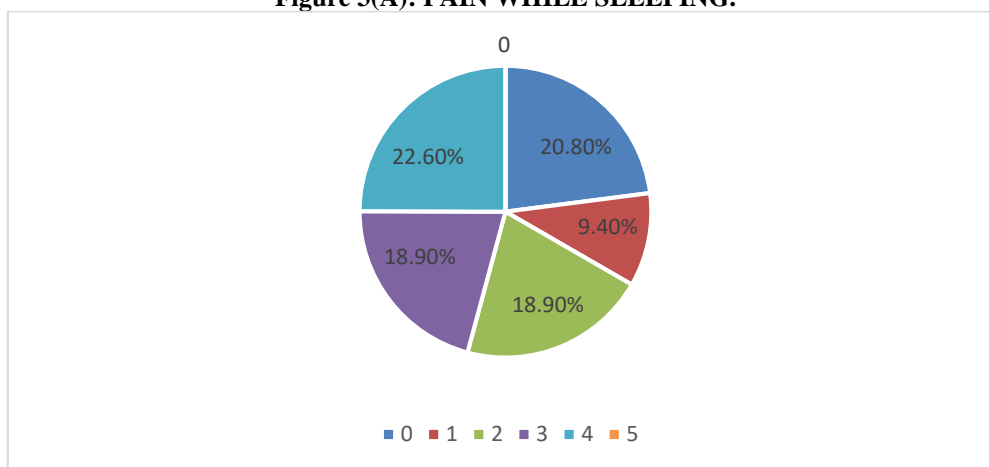
(0-no pain, 5-most severe pain)

Figure 2**Interpretation:**

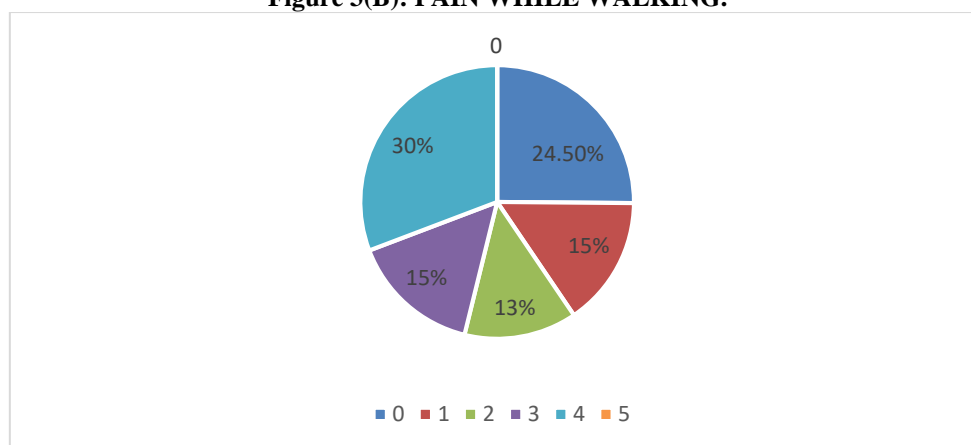
The worst pain was seen in 5.7% of the population and highest number of people (I .e 40%) rated the pain as grade 4 whereas the least was seen in 7.5% of people.

TABLE 3: INTERPRETATION OF PAIN EXPERIENCED BY THE SUBJECTS DURING THE FOLLOWING ACTIVITIES.

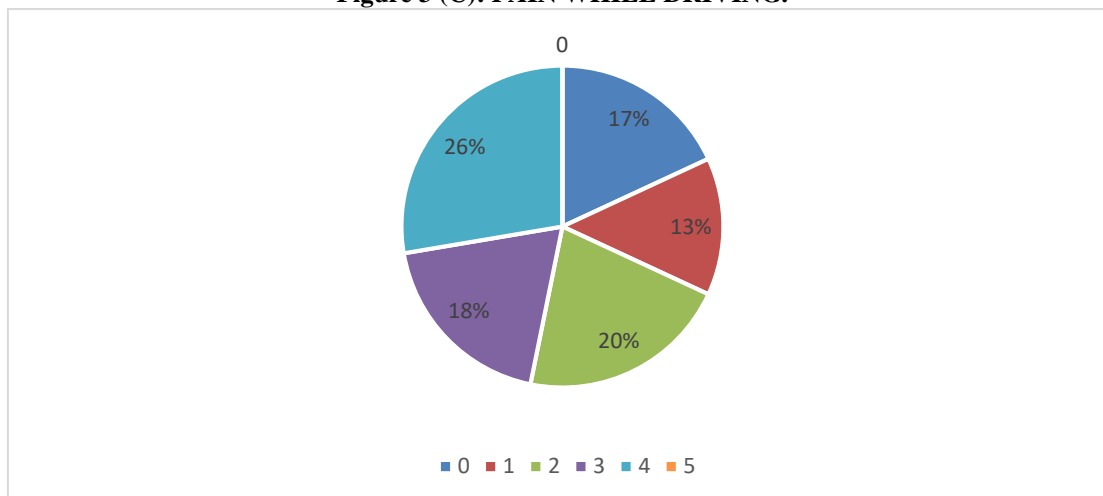
INTENSITY OF PAIN	PAIN DURING SLEEP	PAIN DURING WALKING	PAIN DURING DRIVING	PAIN DURING STANDING
0	20.8%	24.5%	17%	18%
1	9.4%	15.1%	13%	13%
2	18.9%	13.2%	20%	20.8%
3	18.9%	15.1%	18.9%	15%
4	22.6%	30.2%	26.4%	28.3%
5	9.4%	1.9%	3.8%	3.8%

Figure 3(A): PAIN WHILE SLEEPING.**Interpretation :**

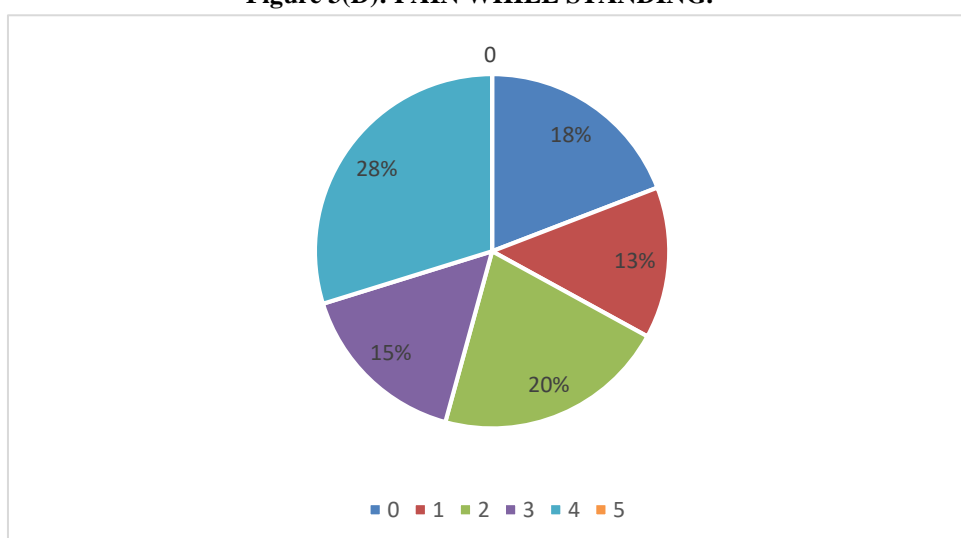
The sleep cycle was highly disturbed among 9.4% of population, no disturbance of sleep was seen in 21% of the population.

Figure 3(B): PAIN WHILE WALKING.**Interpretation:**

While walking 30.2% people rated 4 for the severity of pain while walking ,25% population had no pain during walking and 1.9% had severe pain.

Figure 3 (C): PAIN WHILE DRIVING.

Interpretation: Car rides was disturbed the most by 3.8% population and 26% was the highest population that graded 4 for pain during driving and 17% population had no pain.

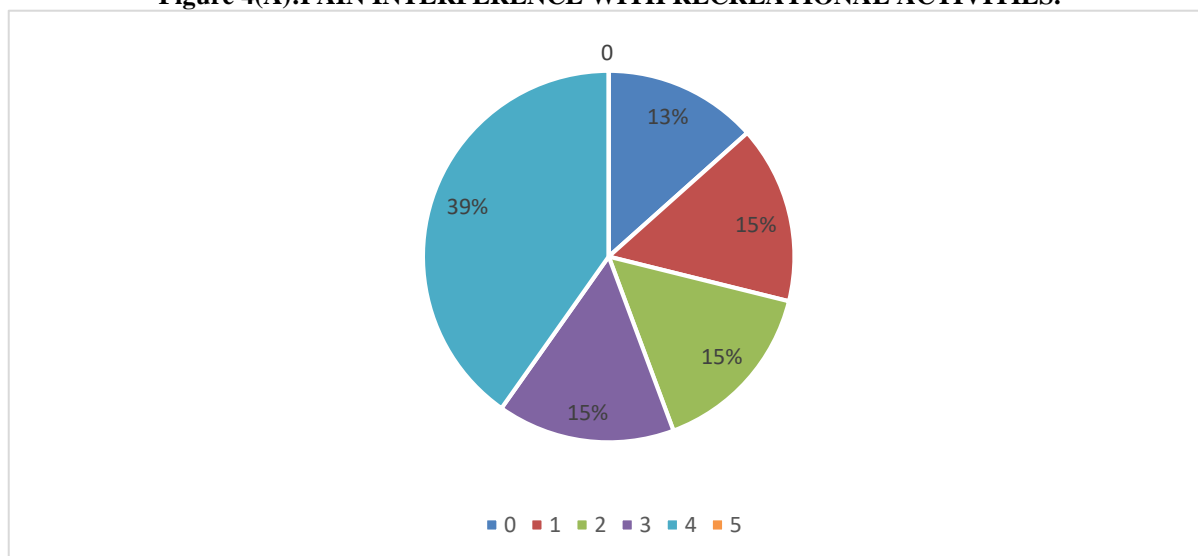
Figure 3(D): PAIN WHILE STANDING.**Interpretation:**

18.9% people complained that there was no pain while standing where is 3.8% people complained that there was extreme pain experienced during standing.

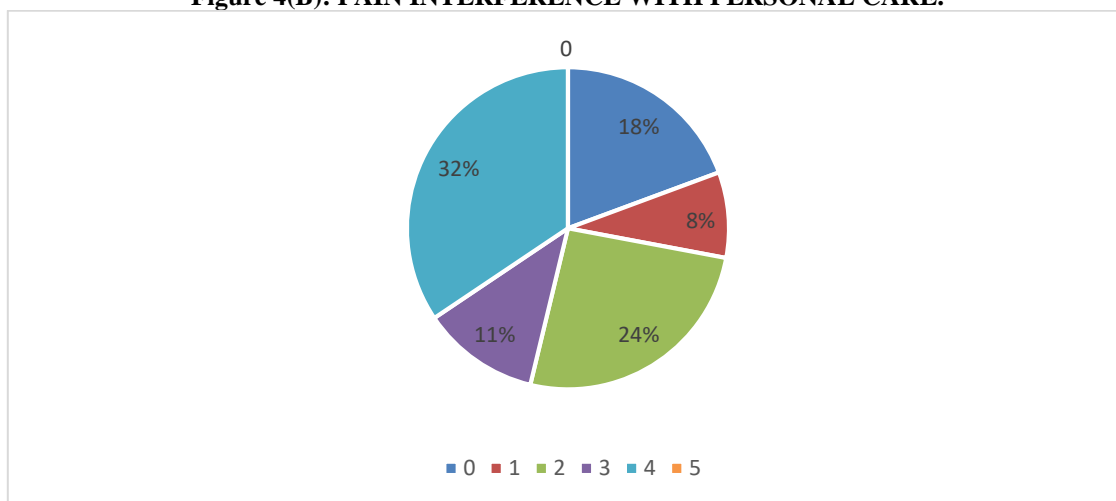
TABLE 4: INTERFERENCE OF PAIN IN BELOW ACTIVITIES.

INTENSITY OF PAIN	PAIN DURING RECREATIONAL ACTIVITIES	INTERFERENCE IN PERSONAL CARE	PAIN DURING WORK ACTIVITY	PAIN DURING SOCIAL ACTIVITY
0	13.2%	18.9%	15.1%	13.2%
1	15.1%	7.5%	15.1%	15.1%
2	15.1%	24.5%	15.1%	17%
3	15.1%	11.3%	17%	17%
4	39.6%	32.1%	34%	34%
5	1.9%	5.7%	3.8%	3.8%

(0-no pain, 5-cant drive)

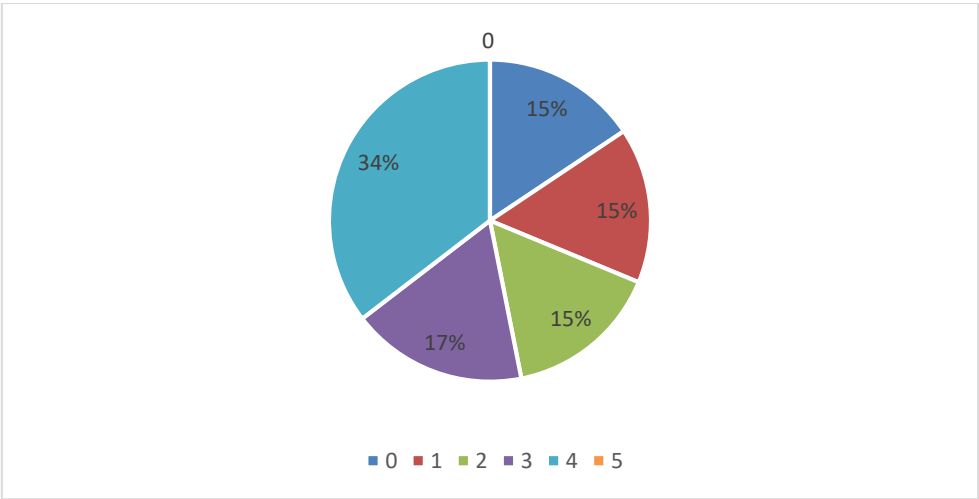
Figure 4(A):PAIN INTERFERENCE WITH RECREATIONAL ACTIVITIES.**Interpretation:**

The recreational activities for 13.2% people wasn't interfered where is 1.9% people complain for disturbance in the recreational activities.

Figure 4(B): PAIN INTERFERENCE WITH PERSONAL CARE.**Interpretation:**

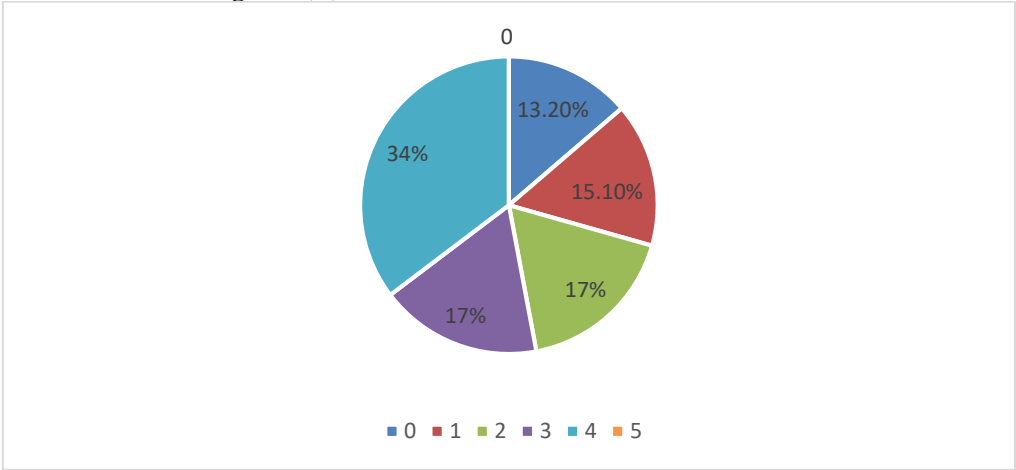
18.9% people experience no interference in the personal care because of pain but 5.7% people experience extreme pain.

Figure 4(C)



Interpretation
The interference of pain with work activities was not disturbed for 15.1% people but it was highly disturbed for 3% of population.

Figure 4(D): PAIN DURING SOCIAL ACTIVITIES



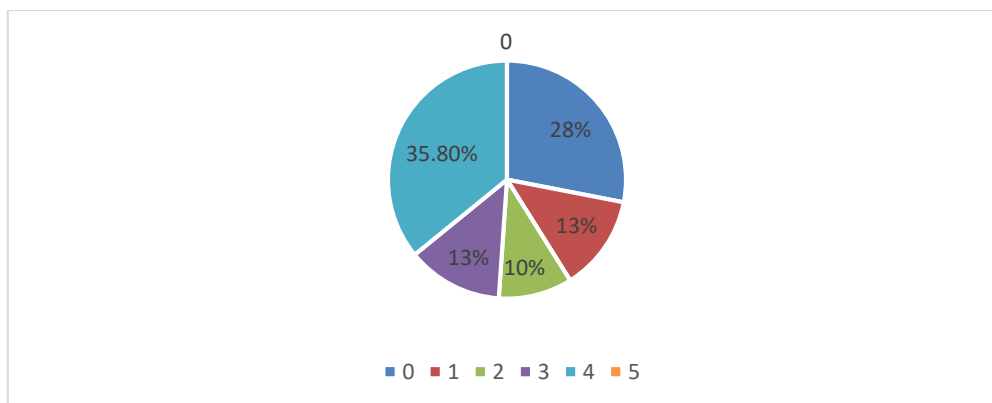
Interpretation:
Social activities was not highly disturbed by 13% of population ,grade 4 was rated by the highest number of people.

TABLE 5:INTERFERENCE OF PAIN AFFECTING THE FOLLOWING ACTIVITIES.

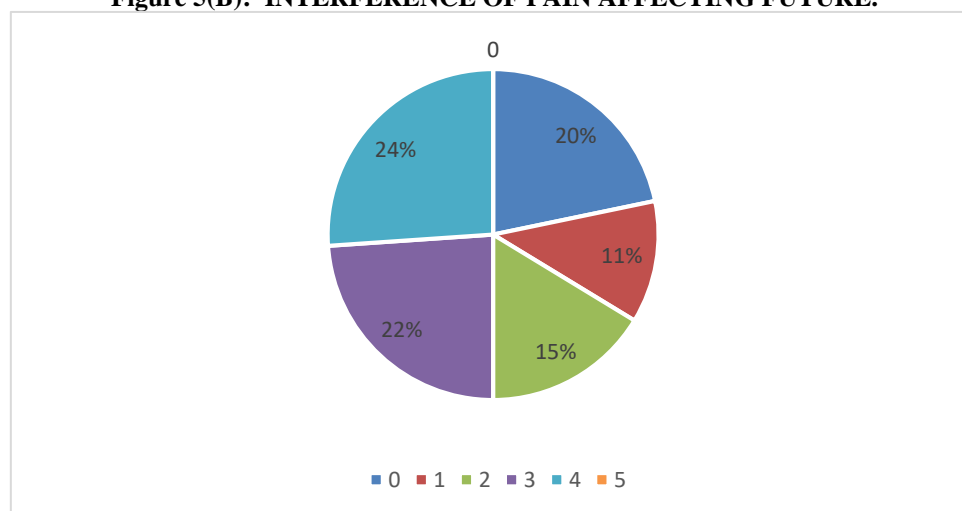
INTENSIT Y OF PAIN	PERSONAL RELATIONSHIP	OUTLOOK OF LIFE	EMOTIONS	CONCENTRATION
0	28.4%	20.8%	18.9%	18.9%
1	13.2%	11.3%	13.2%	15.1%
2	9.4%	15.1%	17%	9.4%
3	13.2%	22.6%	15.1%	18.9%
4	35.8%	24.5%	34%	34%
5	1.9%	5.7%	1.9%	3.8%

(0-no pain, 5-always)

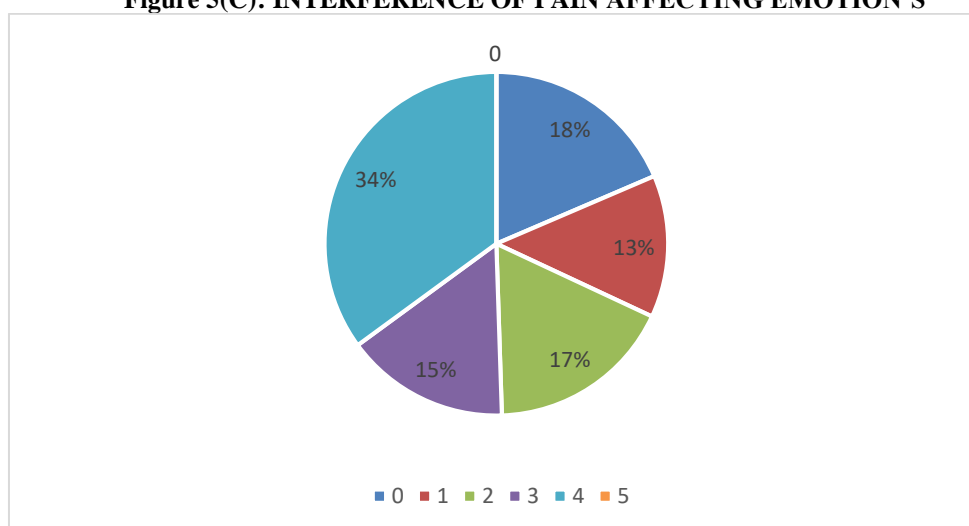
Figure 5(A): INTERFERENCE OF PAIN AFFECTING THE PERSONAL RELATIONSHIPS.

**Interpretation:**

For personal relationships 13.2% people rated 3 as the interference of pain with personal relationships. No pain interference in personal life was seen in 28% of people wherein 1.9% complained for severe interference

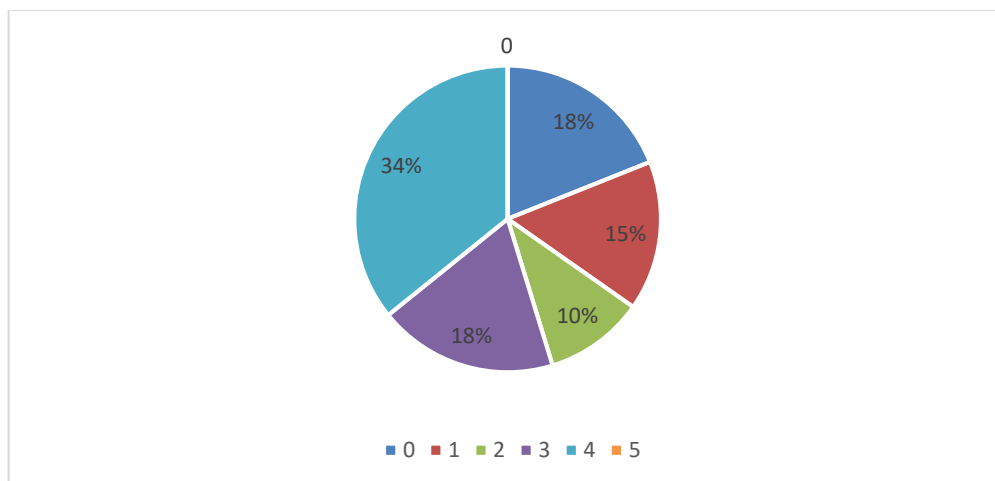
Figure 5(B): INTERFERENCE OF PAIN AFFECTING FUTURE.**Interpretation:**

Outlook on life and future was highly disturbed due to the pain in 5.7% people. Highest influence was seen in 20% of people.

Figure 5(C): INTERFERENCE OF PAIN AFFECTING EMOTION'S**Interpretation:**

Emotional quotient was highly disturbed in just 1.9% of population and not very disturbed in 18% of population.

Figure 5(D): INTERFERENCE OF PAIN AFFECTING CONCENTRATION.

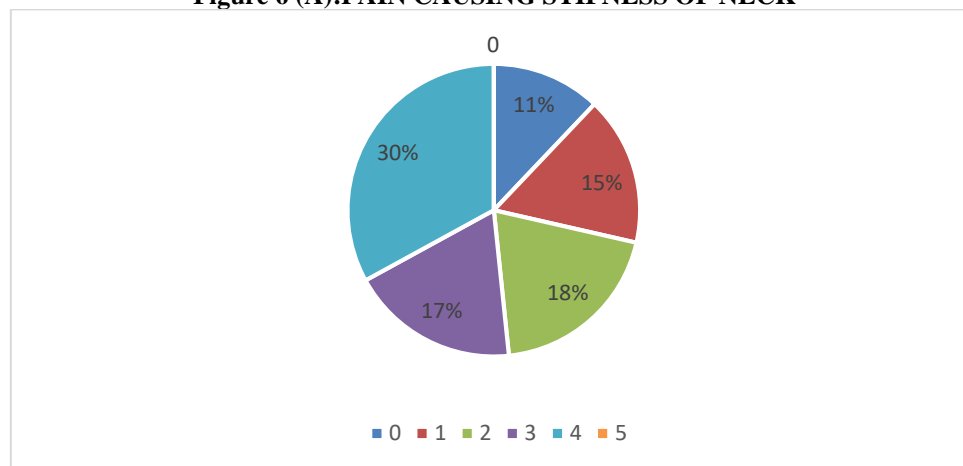
**Interpretation:**

18% of the population had no influence of pain on concentration where is 3.8% of the population said that there was extreme pain and concentration lack. 18.9 people had mediocre influence of pain on the concentration.

TABLE 6: INTERFERENCE OF PAIN IN BELOW ACTIVITIES

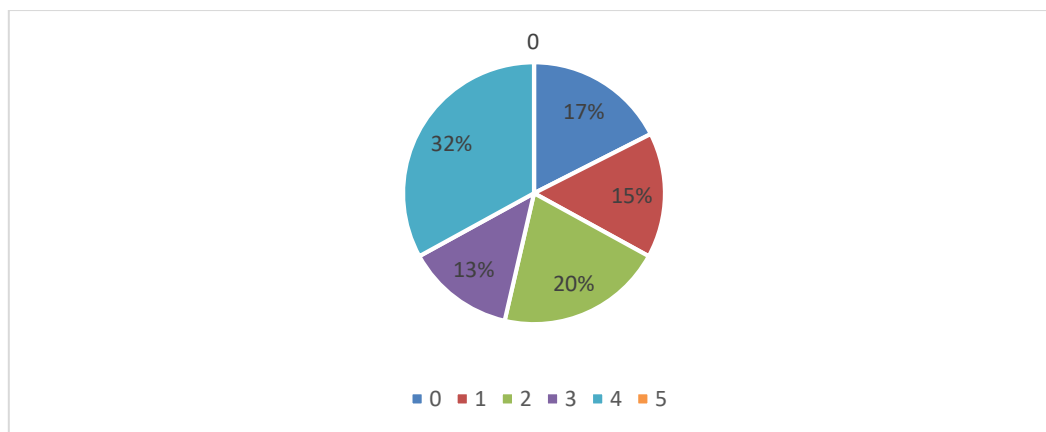
INTENSITY	STIFFNESS IN NECK	LOOKING UP AND DOWN	OVERHEAD ACTIVITY	PERSONAL CARE
0	11.3%	17%	15.1%	27%
1	15.1%	15.1%	13.2%	10%
2	18.9%	20.8%	11.3%	10%
3	17%	13.2%	24.5%	14%
4	30.2%	32.1%	34%	34%
5	7.5%	1.9%	1.9%	2%

(0-no change, 5-complete stiff)

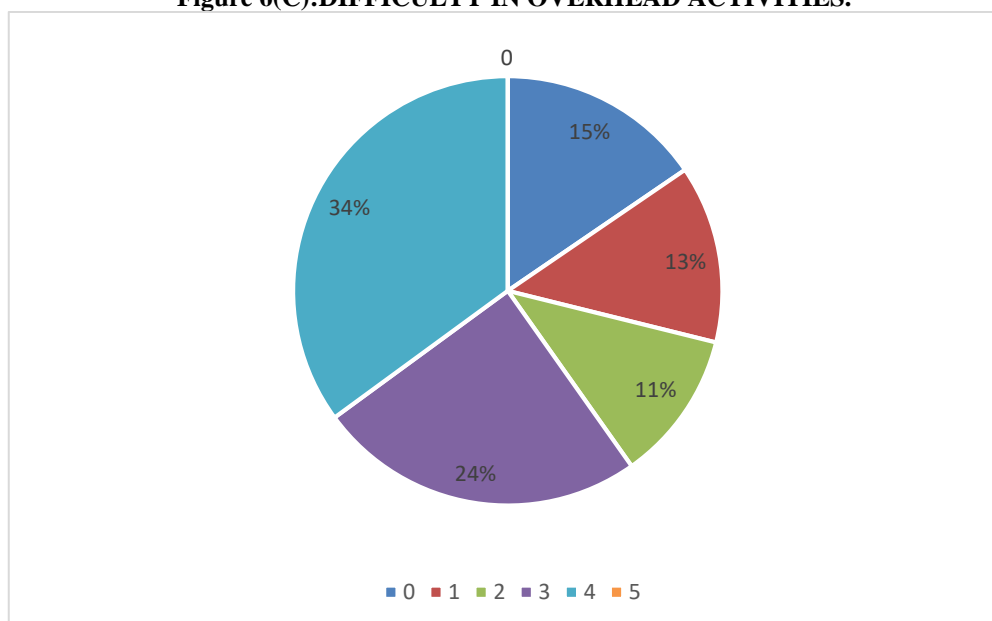
Figure 6 (A):PAIN CAUSING STIFNESS OF NECK**Interpretation:**

Stiffness of neck due to the pain was not seen in 11% of the population. The stiffness was mediocre and 17% of the population and 7.5% complained of severe pain and stiffness in the neck.

Figure 6(B):DIFFICULTY LOOKING UP AND DOWN

**Interpretation:**

5.1% people complained that they had trouble for doing overhead activities were as 24.5 people graded three as their intensity of pain, which said that there was medium amount of pain to do overhead activities and 1.9% people said that they had extreme pain while doing so.

Figure 6(C):DIFFICULTY IN OVERHEAD ACTIVITIES.**Interpretation:**

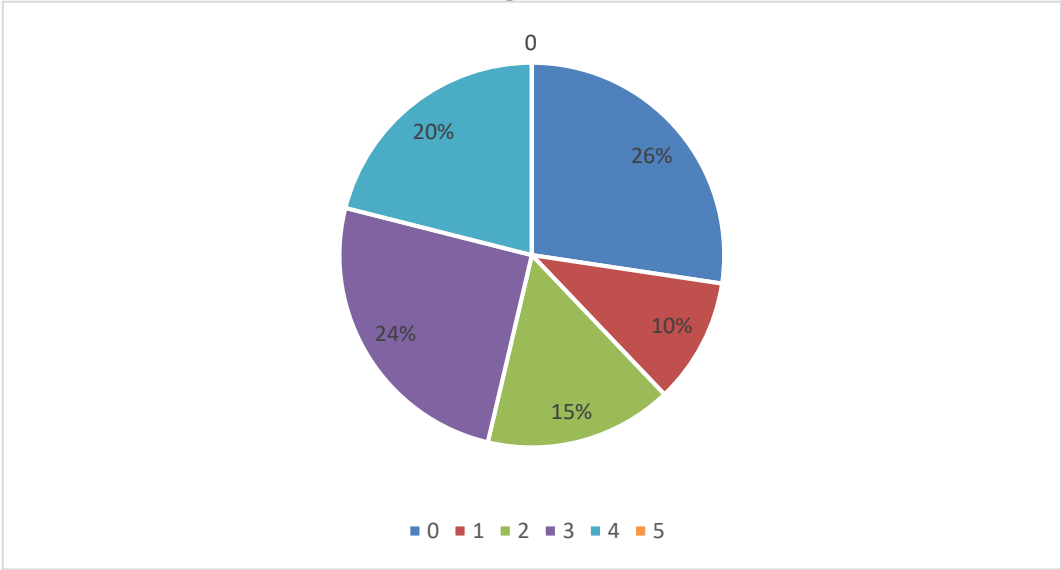
13.2% people said that they had little pain while doing overhead activities and 11.3%. People complain for more than normal pain. Where is 34% population complain for maximum pain while doing the activities.

Table 7: SUBJECT'S WHO EXPERIENCED REDUCTION OF PAIN BECAUSE OF PILL'S.

0	26.4%
1	9.4%
2	15.1%
3	24.5%
4	20.8%
5	3.8%

(0-no change, 5-no relief)

Figure 7:



Interpretation:

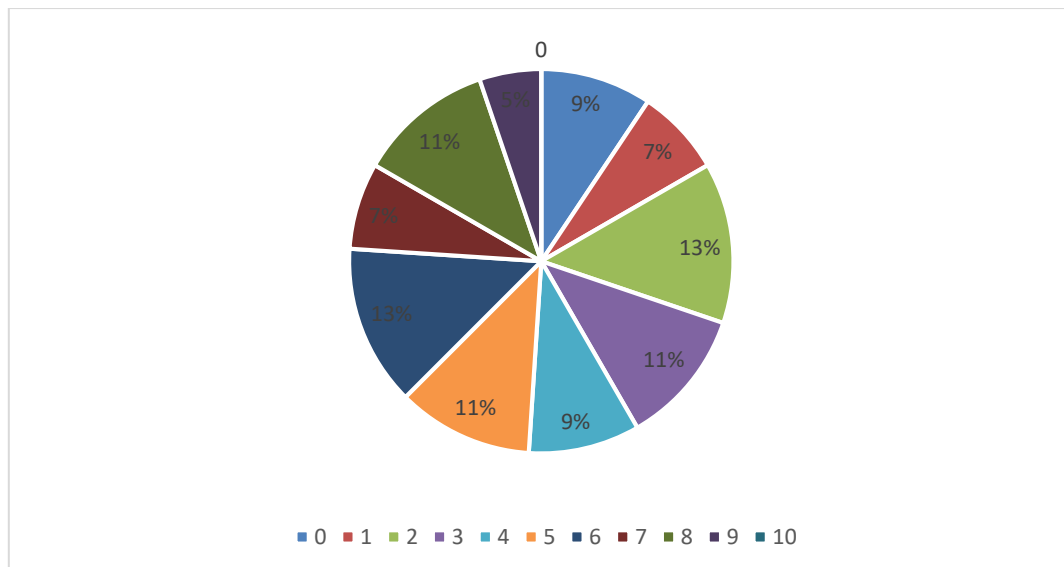
Pills prove to help people to recover from pain, but 26.4% of peoplesaid that they had no difference seen after taking the pills for neck pain while 24.5% of people said that they had relief to some extent.

Table 8: INTENSITY OF NECK PAIN EXPERIENCED BY THE SUBJECT'S.

0	9.4%
1	7.5%
2	13.2%
3	11.3%
4	9.4%
5	11.3%
6	13.2%
7	7.5%
8	11.3%
9	5.7%
10	0%

(0-no pain, 5-severe pain)

Figure 8:



Interpretation:

According to the numerical pain rating scale 9.4% of the population had a least amount of pain due to helmet usage and 11.3% of people said that they had more than normal pain which was seen and 5.7% of the population said that there was high level of pain.

DISCUSSION

Neck pain is a common disorder prevailing among individuals of different population. This study hypothesized that helmet usage was related to neck pain. Helmet is a protective gear and it is compulsory in India to wear helmet while driving two wheelers. It acts as a life saving equipment. Wearing helmet is the most effective way in reducing head injuries and also decreases the risk of severity of injury among motor cyclists.

Studies have identified that wearing helmet for longer duration produces fatigue in the paraspinal muscles which may lead to weakness and pain. Helmet also causes restriction on neck movements which could influence the neck and produce pain over the neck region. The neck muscles works against gravity will undergo undue tension which could results in early fatigue of the muscles and leads to neck injuries.

The mean age of the subjects that had pain due to the usage of helmet between the ages 18-50 year's was 28 in figure 1(A). On the basis of the scale from 0 to 5 which ranged from no pain to highest intensity of pain 20.8 % people had no pain, 18.9 % people had mild pain 9.4% people rated the pain at 2, 20.8% people rated the pain at 3. 26.4% people rated the pain at 4, 3.8 % people rated the pain at 5. Figure 1(B) show's that 9.4% people had no pain on an average while 28.6% people had rated the pain at 4 on an average and no subject rated 5 which was most severe pain. In figure 2, The worst pain was seen in 5.7% of the population and highest number of people (i.e 40%) rated the pain as grade 4 whereas the least was seen in 7.5% of people.

The sleep cycle was highly disturbed among 9.4% of population, no disturbance of sleep was seen in 21% of the population according to table 3(A). While walking 30.2% people rated 4 for the severity of pain while walking, 25% population had no pain during walking and 1.9% had severe pain in table 3(B). Car rides was disturbed the most by 3.8% population and 26% was the highest population that graded 4 for pain during driving and 17% population had no pain in table 3(C).

In table 4(D), Social activities was not highly disturbed by 13% of population, grade 4 was rated by the highest number of people. For personal relationships 13.2% people rated 3 as the interference of pain with personal relationships. No pain interference in personal life was seen in 28% of people wherein 1.9% complained for severe interference in table 5(A). Outlook on life and future was highly disturbed due to the pain in 5.7% people. Highest influence was seen in 20% of people in table 5(B). Emotional quotient was highly disturbed in just 1.9% of population and not very disturbed in 18% of population according to figure 5(C).

18% of the population had no influence of pain on concentration where is 3.8% of the population said that there was extreme pain and concentration lack. 18.9 people had mediocre influence of pain on the concentration in table 5(D). Stiffness of neck due to the pain was not seen in 11% of the population. The stiffness was mediocre and 17% of the population and 7.5% complained of severe pain and stiffness in the neck according to table 6(A). Table 6(B) says that, While looking up and down 17% of the population experienced no pain while 13% of the population complain for some amount of pain and 1.9% of the subjects complain for severe pain while looking up and down.

Table 6(C), 5.1% people complained that they had trouble for looking up and down, 24.5 people graded three as their intensity of pain, which said that there was medium amount of pain to do overhead activities and 1.9% people said that they had extreme pain while doing so in 4 figure. In figure 6(D), 13.2% people said that they had little pain while doing overhead activities and 11.3%. People complain for more than normal pain. Where is 34% population complain for maximum pain while doing the activities. Pills prove to help people to recover from pain, but 26.4% of people said that they had no difference seen after taking the pills for neck pain while 24.5% of people said that they had relief to some extent and 3.8% population said that they had complete recovery with the help of pills to overcome the neck pain in figure 8.

These variables will affect the incidence of neck pain. There is currently limited literature available which can exclusively identify the relationship between neck pain and helmet use. Very few studies have been conducted on motorcyclist's discomfort during the riding process. One of the studies conducted in Malaysia showed that 51.35% of male motorcyclists had musculoskeletal problems in their neck and head while riding a motorcycle. According to the numerical pain rating scale 9.4% of the population had a least amount of pain due to helmet usage and 11.3% of people said that they had more than normal pain which was seen and 5.7% of the population said that there was high level of pain and none of the population said that they had extreme excruciating pain because of the usage of helmet according to table 8.

However, it is not advised to avoid wearing helmet rather take measures to prevent neck pain during motorcycle riding and encounter those factors to reduce the incidence of neck pain among motorcyclist. Studies have identified that wearing helmet for longer duration produces fatigue in the paraspinal muscles which may lead to weakness and pain. Helmet also causes restriction on neck movements which could influence the neck and produce pain over the neck region. The neck muscles work against gravity will undergo undue tension which could result in early fatigue of the muscles and leads to neck injuries.

Here, we're explaining how to prevent motorcycle neck pain and a few motorcycle postures that can help. By understanding proper body positioning and working with a physiotherapist, there's no need to suffer through neck pain from your motorbike ever again. Intervention to prevent neck pain while riding a motorcycle are stretching, in general, helps improve flexibility and mobility. Flexible muscles and mobile joints help prevent injuries. When your body is able to adjust to sudden movements, like what you might experience riding a motorcycle, there's less of a chance that the muscle or joint gets pushed too far.

Similarly, stretching before, during breaks, and after a riding session helps loosen up the body after sitting in a stagnant position on motorbike for too long. Simple stretches like neck circles, forward folds, and arm swings to loosen up any tension in neck and shoulders. Even the smallest adjustments to your posture can make a big difference when it comes to motorcycle neck pain. Moving the hands slightly on the handle bars or adjusting seat height can totally change posture on the bike.

Placing hands on the handlebars so that wrists are extended, and elbows remain slightly bent. Adjust the seat so that the knees and hips are comfortable. Usually, this means creating a little less than a 90-degree angle with your feet on the footrests. Keeping neck in a comfortable, neutral position. Avoid hunching by keeping shoulders back and away from your ears. Proper hydration is key to optimal performance. Even the slightest levels of dehydration can cause muscle fatigue and slower reaction times.

Plus, water and electrolytes not only help fuel our muscles, but they also help lubricate our joints. So, even if it's not the middle of summer (but especially when it is), stay hydrated before, during, and after your ride. Just like a runner invests in the best running shoes to prevent injuries, getting the proper motorcycle gear can actually help with neck pain and other aches caused by riding. Not to mention, the right padding can protect you from gnarly crashes or falls.

Light long-sleeved shirts help protect you from the sun while allowing your skin to breathe. It prevents water loss, keeping one more hydrated. High-quality helmets are non-negotiable. But, also consider a helmet that fits perfectly and is made with strong, yet lightweight materials. A lighter helmet that fits properly puts less pressure on your neck while still protecting the goods. Physiotherapists can work to create a personalised treatment plan for your specific circumstances. They help with posture, stretching, strengthening exercises, physical rehabilitation, and more.

CONCLUSION

The study concludes that there is prevalence of neck pain, helmets lead to compressive stress on the spine and therefore it can cause cervical strain.

The motorcycle user who wears a helmet while riding motorcycle has two times higher chances of having neck pain as compared to those motorcycle user's who do not wear a helmet while riding a motorcycle.

LIMITATIONS

There were many confounding variables in our study including the biomechanical adaptations of the individual during riding, poor posture habits of the subjects, any undiagnosed musculoskeletal disorder, engine size and helmet size that can affect the outcome.

FUTURE SCOPE

- Studies based of postural adaptations with respect to helmet use can be done.
- Studies on the intervention's for the head and neck pain due to helmet usage can be done.

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ANNEXURE 1
PATIENT CONSENT FORM
PREVALENCE OF NECK PAIN DUE TO HELMET USE AMONG MOTOR CYCLISTS

1] INTRODUCTION

You have been invited to participate in survey-based research study. It is important that you read this description of this study and understand their role in it including nature and risk of participation. Please give your consent to participate in this research study only if you have completely understood the nature and course of this study and if you are aware of the rights as the participant.

2] PURPOSE OF THE STUDY

The purpose of the study is evaluate prevalenceof neck pain due to helmet use among motor cyclists.

3] EXPECTED DURATION OF STUDY AND NUMBER OF SUBJECTS

Duration of study will be of 6 months and there will be approximately 50 participants.

4] STUDY PROCEDURE TO BE FOLLOWED

If you agreed to participate in this study, you will undergo

- ♦ Basic demographic data like age, gender, occupation, height, weight
- ♦ A questionnaire that depends on awareness
- ♦ The questionnaire which will be given will be validated by the expert and advice from concern individual will be taken.

5] RISK AND DISCOMFORT

This study is completely safe and there will be no harm to anyone.

6] POSSIBLE BENEFITS OF THIS STUDY

By participating in the study, you will be aware of the possible effects of covid 19 symptoms on the pelvic floor muscles. However, there is no guarantee that you will get direct health benefits from this study.

7] COMPENSATION OF PARTICIPANTS

Participation in the study will be at no cost. No compensation will be provided for the participation.

8] RIGHT TO WITHDRAW FROM STUDY

Participation in this study is entirely voluntary. You may choose not to take part or may leave the study at any time.

9] CONFIDENTIALITY

All the study records will be kept confidential at all times. Your identity will not be revealed except as required by law. The result of your assessment may be published for scientific reasons. Your identity will not be revealed in this publication. Thank you for taking the time to read the information about this study. Before you sign this document, you should ask questions about anything you do not understand. This study staff will answer all your

questions before, during, and after the study. If you have any questions about this study or how it is being run or possible research-related injury you can contact your study doctor.

1. Shruti Deepak Salvi

Intern at Tilak Maharashtra Vidyapeeth

Contact no. 9822646881

2. Dr Ujwal Yeole (PT)

Professor, Dept of Physiotherapy, Tilak Maharashtra Vidyapeeth, Pune

If you have any questions about your rights as a research participant or complaints regarding the research study you should call the member of the institutional ethical committee on the following number on working days.

Tel no. 020 24403031 (Monday-Friday 9am-4 pm: Saturday 9am-1pm.)

ANNEXURE 2

12. Does your pain interfere with personal relationships (family, friends, sex, etc.)?
 0|_____|_____|_____|_____|_____|5
 NOT AT ALL ALWAYS

13. How has your pain changed your outlook on life and the future (depression, hopelessness)?
 0|_____|_____|_____|_____|_____|5
 NO CHANGE COMPLETELY CHANGED

14. Does pain affect your emotions?
 0|_____|_____|_____|_____|_____|5
 NOT AT ALL COMPLETELY

15. Does your pain affect your ability to think or concentrate?
 0|_____|_____|_____|_____|_____|5
 NOT AT ALL COMPLETELY

16. How stiff is your neck?
 0|_____|_____|_____|_____|_____|5
 NOT STIFF CAN'T MOVE NECK

17. How much trouble so you have turning your neck?
 0|_____|_____|_____|_____|_____|5
 NO TROUBLE CAN'T MOVE NECK

18. How much trouble do you have looking up and down?
 0|_____|_____|_____|_____|_____|5
 NO TROUBLE CAN'T LOOK UP OR DOWN

19. How much trouble do you have working overhead?
 0|_____|_____|_____|_____|_____|5
 NO TROUBLE CAN'T WORK OVERHEAD

20. How much do pain pills help?
 0|_____|_____|_____|_____|_____|5
 COMPLETE RELIEF NO RELIEF

TOTAL SCORE _____

AGE _____ OCCUPATION _____