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# Non Fatal Occupational Injuries Among Mechanics of Udupi Taluk: A Cross Sectional Study

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**ABSTRACT**

*Background: Mechanics suffer from occupational health hazards. They perform tasks such as spray painting, repairing, cleaning, welding, and servicing. They were exposed to work stressors like radiations, hot and noisy environment, oil, dust and fumes. Objectives: To estimate the non-fatal occupational injuries among mechanics of Udupi Taluk. Methods: Mapping and listing of all the shops in Udupi Taluk was done. About 100 workers were included in the study. Interviewer administered questionnaire was used to assess occupational injuries. Results: There were about 75% reported non fatal injuries. Cuts and scratches were the chief injuries reported. There is significant association between the injury sites and task the mechanics perform at work. Conclusion: There was high percentage of non fatal occupational injuries among mechanics of Udupi Taluk. Therefore, there is a need to articulate functional occupational and safety measures among mechanics of Udupi Taluk*

**KEYWORDS : non fatal occupational injuries, mechanics**

**Introduction:**

Mechanics have high rate of occupational health hazards compared to workers vulnerable to occupational injuries. It has been found in the Netherlands, United Arab Emirates, Africa and Bangkok that automobile repair workers suffer from varied nature of health complaints such as injury, pain, cancers, eye related problems and mostly skin problems. They perform tasks such as spray painting, repairing, cleaning, welding, servicing and general work (such as washing, test driving). This makes them exposed to various work stressors like UV and thermal radiation, presence of dust particles, fumes of gases, oils, grease and various other chemicals.

According to ILO (2003-5), about 147 mechanics died due to injuries at work place. In 2005, the fatality rates among mechanics were 5.3/100000, which was very much higher than the fatality rate of all other occupations combined which was 4.0/100,000. Among all occupations considered in ILO report, mechanics were ranked 14th in the number of injuries as well as illnesses. In 2005, 47.0 percent of the mechanics who incurred a nonfatal injury or illness involving days away from work were employed by automobile dealers while automotive repair and maintenance establishments workers were 17.8 percent and 7.4 percent were employed by small scale shops of automotive parts and accessories, as well as tire stores.

There were few studies which have focused on Indian garage workers in relation to injury occurrence. Additional research is needed to understand the prevalence of occupational injury and identify the factors associated with it among automobile repair workers. The aim of this study was to estimate the percentage of occupational injuries amongst mechanics in Udupi Taluk.

**Methodology**

A cross sectional study was carried out in mechanic shops of udupi taluk during the month of Jan-Feb 2014. The study population includes workers in mechanic shops who have been working for at least one year. At first Mapping of all mechanic shops in Udupi Taluk was done. Shops were randomly selected from that list. All the workers of each shop were interviewed. Total of 100 workers was included and were assessed in their work settings. Interviewer administered questionnaire was used to assess workers. A walk through survey was done on the basis of checklist to assess the work environment. Informed consent was taken from each of the respondents after explaining the details of the study. Respondents were provided full confidentiality & were briefed that their participation is voluntary and they can withdraw from the interview at any point of time. The collected data was analyzed using appropriate statistical software. Mean, standard deviation and frequencies were calculated for analysis.

**Results and discussion:**

**Worker's characteristics:**

The mean age of workers was 33.20±6.947 years. Nearly 83% of the workers were married and 97% workers were literate. Only 38% of the workers had some kind of technical or vocational training for the work.

**Job description:**

Mechanics were working either in service stations, small workshops or open environment. They were exposed to chemicals such as oil and grease.

Most of the repair shops had a group consisting of 3-5 workers. Among them, 93 % were full time workers. There were about 53 % workers who were working for 8 hours/ day, 38 % for 6 hours/ day, and 9 % for 4 hours a day. Around 57 % were earning about five to seven thousand per month. The workers performed activities such as repairing, welding, spray painting, service and maintenance, washing etc. They were servicing and overhauling the automobiles, examines vehicles, dismantles engines, repairs or replaced parts such as rods, gears, valves, bearings, breaker points or gaskets and accessories such as spark plugs. Cleaning and washing in these units involved cleaning lint, dust, oil, and grease on automobiles. They were also involved with waxing and polishing of vehicles by hands.

**Table 1: Job description of the participants:**

| Characteristics | n (%) ( N=100) |
|---|---|
| Years of employment | |
| 0 -1 yrs | 3 |
| 1-3 years | 27 |
| 3-5 years | 37 |
| 5-10 years | 24 |
| More than 10 years | 9 |
| Tasks performed | |
| Spray Painting | 34 |
| Welding | 58 |
| Repairing | 81 |
| Cleaning | 95 |
| Servicing | 79 |
| Denting | 78 |
| Electrician | 43 |
| Received any training (NO) | 67 |

| Characteristics | n (%) ( N=100) |
|---|---|
| Work type | |
| Hand paced | 22 |
| Machine paced | 8 |
| Both | 70 |

**Occupational injuries:**
About 75% of the workers suffered from one or more types of non fatal occupational injuries. Among them, cuts were reported by 73% and scratch by 70% of workers, followed by burns by 32 %, piercing by 53 %. Fingers are the most common site of injuries reported by 76%, followed by palm by 76%, both legs 46% and both hands 45%. Injuries on head were also reported by 27%. There was significant association between injury on hands with workers doing servicing (Chi-square = 10.449, p – value = 0.001) and injury on fingers with workers doing electrical work (Chi-square = 8.934, p – value = 0.003). There was significant association between injury on head with workers doing servicing (Chi-square = 16.431, p – value = <0.001), repairing (Chi-square = 38.952, p – value = <0.001) and welding (Chi-square = 3.923, p – value = 0.048)

About 80% workers reported pain in different regions of the body during the past year. Upper back pain by 67% and lower back pain by 59% followed by shoulders 29% and knee 25%.

Only 16% of the injuries were reported to the authority and only 10% of them visited doctor for the treatment of injuries. For the treatment 72% of the worker preferred private facilities as compared to public facilities by 28%.

**Discussion:**
About 75% of the workers suffered from one or more types of non fatal occupational injuries while in a similar study done in Ahmadabad it was 63%[1], while in a review done by bureau of labour studies non fatal injuries were 47%[2]. Among them, cuts (73%) and scratch (70%) are the most common type of non fatal injury while in review by bureau of labour statistics sprain and stains (32.6%) were major type of injury[2]. Fingers are the most common site of injuries (76%) followed by palm (76%), legs (46%) and hand (45%). Injuries on head were also very common (27%). Review by bureau of labour statistics also reported most common site for injury as upper extremities (34.9%) [2]

About 80% workers reported pain in different regions of the body during the past year while in another study done in by Rejoice Selorm Ametepeh reported 89% of the pain[7]. Upper back (67%) and lower back (59%) were the predominant regions of the body being affected. Further, workers reported high pain prevalence in shoulders (29%) and knee (25%). 72% workers reported co-morbidity of pain in different body regions.

**Conclusion:**
This study reports high percentage of work related non fatal injuries among mechanics. Cuts and scratches were the chief injuries reported whereas most frequent site of injury was reported as fingers and hands. Poor work place environment was important finding in all shops. The workers also reported pain in upper and lower back. Most of the workers reported having co morbidities of injuries and pain. It was also found in the study that workers prefer to visit private facilities in case of any injuries.

Since in this occupation workers use no or very little personal protective equipment and guards, there is a need for a feasible and efficient intervention so that these injuries may be prevented. Effective worker's occupational and safety training is also recommended among workers. Work place interventions are also recommended to improve work place conditions.

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