

The Hazardous Working Conditions of Rural Women

by

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ONE of the most neglected areas of health research is that involving effects of accidents and injuries on the lives of rural populations. A vast majority of the epidemiological studies on health of rural populations have concentrated on infectious diseases. In these studies the problems of women are clubbed together as those falling within the ambit of maternal and child health. A study done about 30 years ago revealed that accidental injuries are also a serious health problem in rural areas of India¹. However, this study did not pinpoint any specific problems suffered by women in particular. In any event, no other researchers since then have included injuries as a part of detailed health investigations in rural India.

In this article we report the preliminary results of a study conducted by the Centre for Biomedical Engineering at Indian Institute of Technology, Delhi, in collaboration with the Centre for Community Health and Social Medicine at Jawaharlal Nehru University, Delhi.

As a part of this study, detailed health records of a population of 3,500 families were maintained in nine villages of Sonipat district of Haryana for one year. The data reported here concern injuries sustained by all females in the study population.

In the study period of one year there were a total of 2,059 injuries in the study population. A reportable injury was

defined as one which prevented an individual from participating in normal activities for a day or more. These data were collected by specially trained field workers who visited every home once in

two weeks. Injuries involving females comprised 624 (30.4 percent) of the total. The distribution of injuries by type of activity and age is shown in Table 1. Table 2 shows the distribution by cause

Table 1: Distribution of women's injury cases by activity

Age	Activity				Total
	Agriculture	Transport	Domestic	Leisure & Other	
0-14	21	12	27	145	205 (33%)
15-34	76	7	55	34	172 (28%)
35-54	64	11	44	30	149 (24%)
54	25	8	34	31	98 (16%)
All ages	186 (30%)	38 (6%)	160 (26%)	240 (38%)	624 (100%)

Table 2: Causes and location of injuries sustained by women

Cause	Location				Total
	Home	Field	Road	Other	
Fall	77	15	60	18	170 (27%)
Burn	34	1	1	1	37 (6%)
Machine	28	2	9	2	41 (7%)
Hit by implement & object	72	96	28	9	205 (33%)
Animal	43	5	29	3	80 (13%)
Other	39	8	29	15	91 (15%)
Total	293 (47%)	127 (20%)	156 (25%)	48 (8%)	624 (100%)

and location where injuries were sustained. These data clearly indicate that injuries due to domestic activity (26 percent) are clearly not the major problem as far as women are concerned. Their involvement in agricultural activities also exposes them to hazardous situations which result in serious injuries (30 percent).

Injuries in Domestic Activity

We defined domestic activity as that which had to do with looking after family and household needs. This did not include looking after animals, activity related to agricultural processing or involvement in any handicraft or commercial activity. If we compare figures from Table 1 and 2, we see that out of 293 injuries sustained at home only 160 (55 percent) involved domestic chores. A vast majority of these involved falls, burns and cuts with knives and the injuries were mostly of a minor nature.

Transport Injuries

While transportation accounts for only six percent of the injuries, these injuries are likely to increase with more frequent use of tractors, motor cycles, scooters and mopeds in rural areas.

A third of those injured were pedestrians who either tripped and fell down or collided with other vehicles. Sometimes women get trapped between tractor trolleys and walls of houses in narrow lanes of villages. In this sample no women sustained very serious injuries in this manner, but a few did get painful abrasions. The more serious injuries were due to falls from tractors and tempos.

Much greater attention has to be paid to a safer redesign of rural transport vehicles. Manufacturers assume that tractors will not carry any passengers and so make no provisions for their



Women at a fodder cutting machine

safety or comfort. However, tractors are being used and will be used to transport families. It is high time this reality was accepted and tractors designed accordingly.

Agricultural Injuries

Agricultural activity accounts for 30 percent of all injuries sustained by women in these villages of Haryana. Agricultural activities include weeding and cutting in the fields, preparing fodder for animals and looking after them at home, and shifting agricultural produce from one place to another. During the cutting season, women and girls also help in the threshing of the grain (separating chaff from the grain). In this region, almost all threshing is done on machines.

The 41 injuries listed under "machine" in Table 2 would largely be caused by two kinds of equipment: threshing machines (two) and fodder cutters (22). Threshing machines are used only for a few weeks after the harvesting period, whereas fodder cutters are used all the year round to

prepare feed for animals. In a one year period only two were injured by a thresher (both minor injuries) whereas 22 women and girls were injured while operating fodder cutters. Some of these fodder cutter injuries involved death and others amputation.

One woman got killed while operating a powered fodder cutter. She was found dead with her long *dupatta* entangled in the gears of the machine. It is suspected that she got strangled by the *dupatta* when it got wound up in the gears very quickly. The medical cause of death or details of the accident could not be ascertained. In one case the hand had to be amputated and in two the fingers because they got crushed in the rollers while feeding in the fodder. Four other women sustained deep cuts by the blades of the machines. Since young girls also operate the machines, they sustain minor injuries frequently. A young child got a finger amputated while playing with a machine. Since agricultural equipment is stored at home, children frequently play with them. Many

serious injuries can be prevented if designers and manufacturers realise that equipment has to be made safe for children also. We have found that this is frequently very feasible.

The magnitude of this hazard can be gauged by the estimate that if all villages in India were like those in Haryana then at least 75,000 women would lose their hands or fingers every year owing to fodder cutters alone!

This problem has not been given any importance because the media has focused only on amputations due to threshers. Very often, doctors attending to patients in hospitals do not know the difference between a fodder cutter and a thresher and so all injuries get recorded as thresher injuries. Secondly, thresher injuries get bunched up in a couple of weeks after the harvest and so appear more dramatic. Whereas fodder cutter injuries are sustained all the year round so patients trickle into hospitals and do not get to command media attention. Thirdly, if women lose just a finger or two, they may get treated locally and not get taken to a city hospital.

When a woman loses a hand it causes serious disruption in the family. If married, there is tremendous pressure on the husband to get another wife and if unmarried, her chances of getting married reduce dramatically. We have come across one case where a girl with amputated hands was married off to a man who was married already but his wife was not bearing any children. At present the three are living together, with the first wife in charge of agricultural activity and some household chores, whereas the wife with amputated hands has been responsible for procreation.

Women sustain painful cuts while working in the fields with sickles and shovels. These cuts are usually around the ankles and wrists and occur when the implement slips or bounces off some hard object. Though most of these injuries are minor they take a long time



A little girl injured by the fodder cutting machine

to heal because of infections and application of ointments which can be harmful.

Animals

Of the 80 injuries due to animals, 29 (only six were children under 15) were dog bites and 48 due to cattle. The recommended first aid for dog bites is to wash the wound with soap and water. This was not followed by any of the victims and we found it impossible to

convince them to do so, as the local medical practitioners and healers do not promote this method. Ointments, pastes and cowdung are widely used.

Since women and children spend a lot of time looking after cattle they are frequently kicked, knocked over or crushed against walls by cattle. Another cause of serious injury is the tightening of a chain or rope looped around a limb when the animal suddenly bolts. This can

easily cause the crushing of a finger.

Intentional Injuries and Violence

There were 52 recorded cases of intentional injuries and violence. Though we were aware that wife battering is not uncommon in that area we could not have any case recorded as the field workers were not willing to investigate such cases. Violence included participation of women in factional fights, women fighting with each other and children. Five of the injuries involved fractures or more serious injuries. These show that injuries due to violence may account for more than 10 percent of all injuries sustained by women.

One form of intentional injury becoming more common in rural areas is suicide and attempted suicide with pesticides and insecticides. Lethal pesticides are easily available and most of them have no antidotes. Death is painful but certain before the patient can be reached to a hospital.

Conclusions

The above data show that agricultural injuries are common among women and children also and some of these can be quite serious and disabling. Our data show that most of these were not treated at any government hospital or clinic. Therefore they would not be reflected in any institution based statistics.

It should be possible to prevent many of these injuries, especially the serious ones, by safer designing of the implements. This would be particularly true for the fodder cutting machine. A safer fodder cutting machine has been designed by us which will reduce the probability of the operator's fingers entering the feed rollers. Blade guards are also provided so that children would not get their fingers cut while playing with the machine. These safety features cost about Rs 100 extra. We have exhibited the safer machine at three *kisan melas* and have got very favourable responses. Local manufacturers are also taking up fabrication of the safety

features. However, it will take a great deal of extension to put them in widespread use.

It would be more difficult to reduce injuries caused by animals and hand tools unless the women and children wear shoes. As new synthetic materials are available now it should be possible to design shoes which are light, airy, water and dust proof and yet provide some protection from thorns and from blows by spades, shovels and sickles.

There is also an urgent need to publicise simple methods of first aid: use of cold water on burns, washing of bruises, cuts and dog bites with soap and water, application of local pressure to stop bleeding. These do not require availability of any drugs or any extra expenditure. A well planned set of messages broadcast repeatedly on radio would go a long way in promoting better emergency care in rural areas. Local

healers would also get educated or at least inspired to debate the issues. Such simple first aid measures would go a long way in reducing the recovery period of the injured. □

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Reference

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