Road Accidents, Economic Burden and Travelling Safety in Punjab

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Abstract

Study attempts to capture the nature, incidence and severity of road accidents by using both secondary and primary data for Punjab. The situation of road accidents happens to precarious in the state. Economic burden of road accidents goes much beyond treatment and vehicle damage costs. Majority of road accidents' victims were younger, productive, qualified, working age and skilled personnel. Study calls for comprehensive overhauling of road safety system by factoring modern technology, incentives and good practices.

Keyword: *Accidents, Severity, Victims, Burden, Injured, Treatment.*

1. Introduction

Road accidents, truly speaking, are amongst the most frightening of contemporary hard realities of life. That is why human pain, emotions and suffering associated with accidents will continuously remain its most discussed aspect. By and large road accidents have been viewed and reported by popular media and other concerned quarters in the context of numerically counting of loss of life and property along with some details of happening. But, the economic burden of road accidents upon victim families and hence society at large has received comparatively little academic and policy attention particularly among the developing countries. Most often, it becomes extremely difficult for victim households to recover from the devastating impact of economic injuries triggered by road accidents. The economic burden of road accidents is much deeper, as most of times it impacts lifelong earnings, and goes considerably beyond direct treatment and vehicle damage costs. Road accidents when results in sudden demise

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of family members belonging to similar age group within the same households create a specific type of mutual look after void which imposes substantial care and nurturing costs in addition to the persistence of traumatic memories. The phenomenal growth of road transport sector in the developing countries in the situation of weak regulatory mechanism has generated a peculiar state of affairs which is culminating into loss of human life on somewhat perpetual basis. A large study (Chen et al., 2019) based on cross-country evidence concludes that the road accidents can cost between 1and 3 percent of income of countries depending upon their intensity. Road injuries are among the ten leading causes of death worldwide and by implication impede economic wellbeing and macro-economic performance. The study further estimated that road injuries will cost the world economy US$1·8 trillion (constant 2010 US $) during 2015-30, which is equivalent to an annual tax of 0·12 per cent on global gross domestic product. The road accident injuries result in higher economic burden through the loss of effective labour supply, rise in mortality, morbidity, increase in out-of-pocket expenses, diversion of savings towards treatment costs, rise in insurance premium, etc. The study further held that the treatment costs accounted for much higher proportion of economic burden in the developed countries than those of developing countries. It is reported that deaths from road traffic accidents have increased to1.35 million during 2016. That's nearly 3700 people dying on the world's roads every day during that year (WHO, 2018). This number is quite high as even during Covid -19 pandemic the number of confirmed deaths at the global level was equivalent to 18,80,463 during 2020, which means there by on an average 5152 deaths occurred per day (Covid-19 Data Explorer: 2021). The road accidents have emerged as some sort of perennial pandemic with huge human toll every year which is actually preventable by appropriate policy interventions. Against the above backdrop, the paper has been divided into sections. The next section second mentions in detail the basic research approach, data collection and methods to measure the economic burden. The third section examines in a comparative framework the situation of road accidents, resultant deaths and injured in the national context. The section fourth, based on primary data, provides the profile of road accident victims in terms of education, gender, age and occupation. Section fifth deals with the economic burden of road accidents and financing practices adopted by victims for treatment. The last section concludes the study with suggestions to contain the problem of road accidents in order to enhance travelling safety.

2. Material and Methods

The study used both the primary and secondary data in order to assess the situation of road traffic accidents in Punjab and the resultant economic burden on the victim households. The problem of road accidents is extremely serious as it is resulting into the loss of precious human life with devastating emotional costs to the near and dear ones. But somehow the emphasis so far remained on counting the mechanical dimensions of road accidents in terms of their number, deaths, injuries and damage to motor vehicles etc. However, during the last decade or so it has gradually been realized that the road accidents put huge economic burden upon the households, society and economy in numerous respects. It results into diversion of plethora of resources from productive uses to meet contingencies of life apart from loss of productive manpower.

The secondary data for the numerous dimensions of road accidents have been taken from the annual publications of the union Ministry of Road Transport and Highways, GoI, New Delhi. The MRTH has been doing a valuable service in collecting, processing and putting in public domain, in an easy to understand format, the vital aspects of road accidents in the country for all the states and union territories. The collection of primary data pertaining to road accidents is a daunting task as households are not ready to share the information as in majority of cases some sort of litigation has been going on. They fear that the information provided to any person may be divulged to other party which may adversely affect the court proceedings including insurance claims. Moreover, society including knowledgeable persons by and large believes that there cannot be any economics of road accidents. So convincing the respondents about the secrecy, academic and economic policy use of data is the pre-requisite for building proper data base. Further, it is extremely difficult to construct any meaningful sampling frame for the road accidents as their incidence involve happening of motor vehicle crash over a large geographical space divided into huge number of population settlements, viz. villages and cities. After trying various permutations and combinations, it was decided to collect data through the process of what is generally called as chain-referral sampling which is helpful in generation of data related to events which occur with infrequent happening. To enhance the representativeness of data base the two-stage stratified sampling process has also been added. Among the three well specified regions of state (i.e., Mazha, Malwa and Doaba) the region of Malwa has been selected which accounted for the highest (i.e., 68.71 per cent) proportionate share of overall road accidents in the

state during 2017. Noticeably this region happens to be the largest region of state in terms of population and area also. All the 14 districts of this region were further clubbed into two categories accounting for districts with accidents higher and lower than that of the average of the region (308 accidents per district). Within this break up, two districts namely Patiala and Mansa were randomly selected respectively representing the higher (16.2 per cent) and lower (3.2 per cent) proportionate share of road accidents. Further, from these two districts, a purposely selected sample size consisting of one hundred road accidents has been selected. The sample has been further divided into two parts as per the proportionate share of road accidents in the selected district in the region. The two districts Patiala and Mansa respectively constituted 16.2 per cent and 3.2 per cent share of road accidents of the region. Thus, out of total sample of 100 road accidents, 84 were selected from Patiala and 16 from Mansa. The data have been collected in case of those road accidents which took place between 2014 and 2018, i.e., the period of five years prior to the survey. The recall period has been fixed to five years in order to avoid the fallacies of long recall period particularly related to monetary details. The overall sample has been sub divided into two equal sub samples consisting of fifty cases of death and injuries each in order to work out and compare their collective and separate economic burden on victim households. Hence, the ultimate sample consisted of 42 case of deaths and 42 cases of injured for Patiala and 8 cases of each deaths and injured for Mansa. The sampled households were selected and data have been collected by using social network of known persons. Every next sampled household was selected among the references provided by the previously surveyed households. The households from the reference based list were sometimes dropped because of non-cooperation by the targeted households. In this way a sample of hundred households was generated as per objectives of the study by upholding the basic contours of the sampling framework. The road accidents impose huge costs on the households involved which ranges from emotional cost to large number of monetary costs in the form of direct treatment and vehicle damage costs. The economic burden also plays its part through the loss of current as well as future income loss besides diversion of family resources to unproductive uses. The present study is confined to measurement of the direct monetary cost in the form of medical treatment and cremation costs. The medical cost has been separately calculated as actually incurred and reported by victim households for different categories of victims in both of death and injury cases. It has been calculated for death

cases for three categories, viz. on the spot, on route to hospital or in hospital, and a few days after the accident. In death cases, families have spent on cremation and its related ceremonies also. Similarly, in case of injuries the medical cost has also been calculated for three categories, viz. permanently disabled, partially cured and fully cured.

3. Road Accidents in Punjab

Accident situation in the state of Punjab is quite serious when viewed in the national context and that of some other parameters. The various annual reports of MRTH entitled Road Accidents in India are sufficient enough to understand the deteriorating situation of road accidents in the state of Punjab. Over the period of eight calendar years from 2011 to 2018, as many as 51,923 road accidents happened in the state of Punjab causing the death of 38,133 persons besides injuring 32,955 persons (Table 1). The number of road accidents in the state declined marginally from its level of 6513 during 2011 to 6323 during 2013 but increased subsequently. During 2018 alone, as many as 6428 road accidents happened in the state resulting in death of 4740 persons besides injuring 3384 ones. Importantly, the state witnessed higher number of road accidents during 2018 as compared to 2017; respectively being 6428 and 6273 means thereby 155 more number of accidents. The average share of state, over the period 2011 to 2018, in the total number of road accidents in the country was equivalent to 1.34 per cent, but its share in accident related deaths was 3.46 per cent which was much higher than the proportionate share (2.30 per cent) of Punjab in the overall population of India.

The dismal situation of accidents in the state further becomes clear when we take into account some other indicators (Table 2). The state has experienced substantially higher level of fatal accidents than the rest of country. For all years reported here, from 2011 to 2018, the Death to Accident Ratio (DAR), also called severity of road accidents, was much higher in case of Punjab than that of national average. For example, during 2018, its level was 0.74 for the state and 0.32 for the country (Figure 1). Similarly, the number of persons killed per lakh of population was higher in the state than that of national average respectively being 16.0 and 11.70 during 2018. Furthermore, in terms of daily average the state has gone through higher number of road accidents. For example, during 2018, in the state, as many as18 accidents had happened which caused the deaths of 13 and injury to 9 persons; implying the direct impact on 22 persons.

Type of collusion wise break up of data (Table 3) brings to fore some other disgusting

features of road accidents. During 2018, in as many as 1498 cases (14.98 per cent) of road accidents, one of the colluding vehicles after hitting the other party run from the spot. The proportionate share of other collusion types was as follows: Hit from Back (12.52 per cent); Hit from Side (11.51 per cent); Head on Collusion (11.09 per cent), Vehicle Overturn (7.37 per cent); Parked Vehicle (4.64 per cent); and Run off Road (2.62 per cent). However, as high as 2546 accidents (30.62 per cent) do not fit into any of above specified neat and fine categories and were of mixed types. Further, comparatively higher proportion (21.54 per cent) of deaths occurred in the hit and run category of collusions. But, maximum (20.64 per cent) of injuries happened in case of head on collusion. Furthermore, as per Table 4, during the period of five years from 2014 to 2018, as many as 23,794 persons died in road accidents in the state, out of which 3033 (14.61 per cent) were females. The proportionate share of females in overall road accidents hovered between 11.46 per cent and 17.50 per cent (Figure 2).

The MRTH (2018) report brings to fore some other worrisome aspects of road accidents in the state. Another indicator, the Death to Injury Ratio (DIR) in the state stood at 1.40 which was actually 4.34 times higher than that of national average 0.32. The report clearly points towards the high severity of road accidents in the state. Here on this score, during 2018, among all the 36 states and union territories, the rank of the state was second from above only next to Mizoram's 84.90. What is more disgusting is that the severity of road accidents (i.e., number of road accident deaths per hundred accidents) increased in the state from its level of 71 during 2017 to 74 during 2018 (MRTH, 2018: 62)? Out of total accidents about 70 per cent proved fatal, 19 per cent caused grievous injury, 9 per cent minor injury and astonishingly non-injury cases were just 2 per cent (MRTH, 2018: 63). According to type of collusion, the head on collusion occurred in 922 cases (14 per cent) leading to death of 691 persons besides grievously injuring 294 persons. In 585 cases, motor vehicles hit the pedestrians resulting in the death of 415 persons along with grievously injuring 187. Over speeding and wrong side driving were reported to be responsible for respectively 52 per cent and 16 per cent accidents. The most revealing findings come in the form of involvement of drivers with valid permanent driving license in 3237 cases (50 per cent). The happening of 631 accidents at traffic light signals is another worrisome point indicating failure of regulation and control mechanism. About half of accidents were caused by two wheelers and four wheelers consisting of cars, jeeps, vans and cabs etc.

Table 1: Number and Share of Punjab in Overall Road Accidents in India

Year	Number of Accidents			Persons Died			Persons Injured			*Population Share of Punjab
	Punjab	India	%	Punjab	India	%	Punjab	India	%	
2011	6513	497686	1.31	4931	142485	3.46	4081	511394	0.80	2.32
2012	6341	490383	1.29	4820	138258	3.49	3997	509667	0.78	2.32
2013	6323	486476	1.30	4588	137572	3.33	4383	494893	0.89	2.31
2014	6391	489400	1.31	4621	139671	3.31	4127	493474	0.84	2.31
2015	6702	501423	1.34	4893	146133	3.35	4414	500279	0.88	2.30
2016	6952	480652	1.45	5077	150785	3.37	4351	494624	0.88	2.29
2017	6273	464910	1.35	4463	147913	3.02	4218	470975	0.90	2.29
2018	6428	467044	1.38	4740	151417	3.13	3384	469418	0.72	2.28
Total	51,923	3,877,974	1.34	38,133	1,154,234	3.46	32,955	3,944,724	0.80	2.30

Note: * shows share of Punjab in overall population in the country
Source: MRTH (2018).

Table 2: Certain Critical Indicators Related to Accidents in Punjab

Year	Deaths to Accident Ratio (DAR)		Persons killed Per Lakh of Population		Per Day in Punjab		
	Punjab	India	Punjab	India	Accidents	Deaths	Injuries
2011	0.76	0.29	17.80	11.80	17.84	13.51	11.18
2012	0.76	0.28	17.20	11.40	17.37	13.21	10.95
2013	0.73	0.28	16.20	11.20	17.32	12.57	12.01
2014	0.72	0.29	16.20	11.30	17.51	12.66	11.31
2015	0.73	0.29	17.00	11.70	18.36	13.41	12.09
2016	0.73	0.31	17.40	11.90	19.05	13.91	11.92
2017	0.71	0.32	15.20	11.50	17.19	12.23	11.56
2018	0.74	0.32	16.00	11.70	17.61	12.99	9.27

Source: Road Accidents in India, MRTH (various issues).

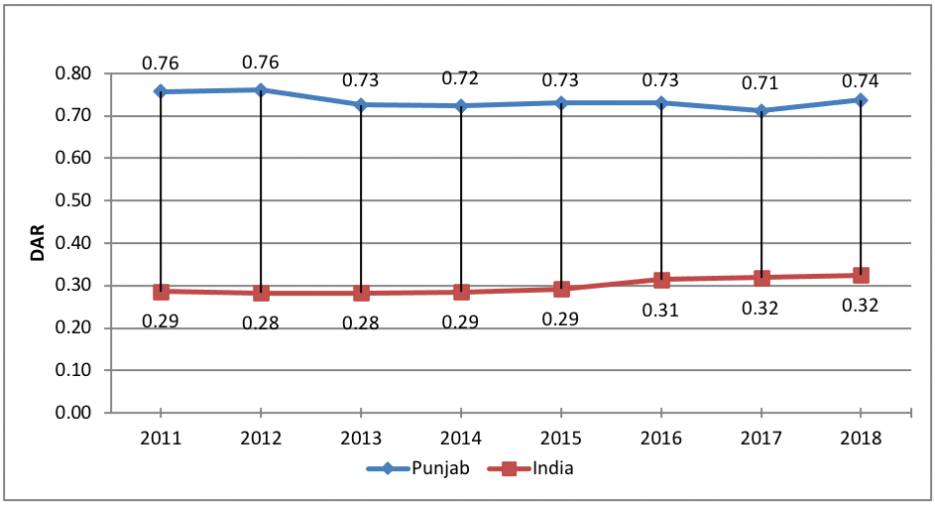

Figure 1: Death to Accidents Ratio (DAR) in Punjab and India: 2011-18

Source: Based on Table 2

Table 3: Road Accidents, Deaths and Injured in Punjab According to Type of Collusion, 2018

Type of Collusion	Accidents		Deaths		Injured	
	Number	Percent	Number	Percent	Number	Percent
Hit and Run	1498	18.02	1186	21.54	715	10.01
Head on Collusion	922	11.09	691	12.55	1475	20.64
Vehicle Overturn	613	7.37	399	7.25	363	5.08
Fixed Object	133	1.60	93	1.69	85	1.19
Run Off Road	218	2.62	147	2.67	141	1.97
Hit from Side	957	11.51	635	11.53	590	8.26
Hit from Back	1041	12.52	706	12.82	661	9.25
Parked Vehicle	386	4.64	301	5.47	167	2.34
Others	2546	30.62	1349	24.50	2948	41.26
Total	8314	100.00	5507	100.00	7145	100.00

Source: MRTH (2018).

Table 4: Sex Wise Break Up of Road Accident Deaths in Punjab

Year	Person Died	Male		Female	
		Died	Per Cent	Died	Per Cent
2014	4621	3956	85.61	665	16.81
2015	4893	4390	89.72	503	11.46
2016	5077	4458	87.81	619	13.89
2017	4463	3923	87.90	540	13.76
2018	4740	4034	85.11	706	17.50
Total	23794	20761	87.25	3033	14.61

Source: Road Accidents in India, MRTH, New Delhi (various issues).

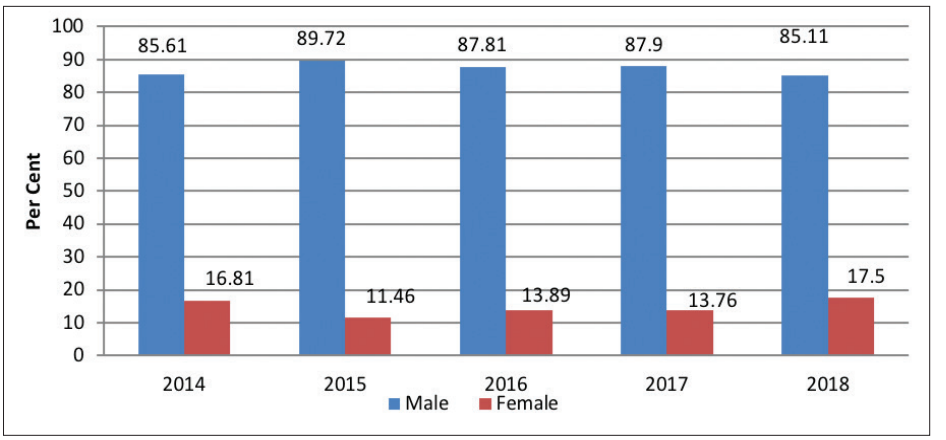

Figure 1: Male and Female Share in Road Accident in Punjab, Per Cent

4. Profile of Road Accident Victims

The gravity of the situation of road accidents in the state becomes clear from the perusal of primary data (Sidhu, 2019). The data, in nutshell, conclusively established that road accidents have disproportionately affected the younger, productive, qualified, working age and skilled populace. For example, in both categories namely injured and died, about a half belonged to 15-40 years of age group (Table 5) with qualification of metric and above (Table 6); doing government and private jobs, involved in daily wage work, pursuing study and farming (Table 7).

Table 5: Age and Sex Specific Profile of Road Accident Victims in the State of Punjab

Age Group (Years)	Persons (Injured)			Persons (Died)		
	Male	Female	Total Person	Male	Female	Total Person
a. under 14	0 (0.0)	0 (0.0)	0 (0.0)	4 (8.5)	0 (0.0)	4 (8.0)
b. 15-40	26 (65.0)	5 (50.0)	31 (62.0)	25 (53.2)	2 (66.7)	27 (54.0)
c. 41-59	12 (30.0)	2 (20.0)	14 (28.0)	12 (25.5)	1 (33.3)	13 (26.0)
d. 60 and above	2 (5.0)	3 (30.0)	5 (10.0)	6 (12.8)	0 (0.0)	6 (12.0)
Total	40 (100.0)	10 (100.0)	50 (100.0)	47 (100.0)	3 (100.0)	50 (100.0)

Note: Figures in brackets show row-wise per cent share.
Source: Field Survey (January - February 2019).

Table 6: Education Profile of Sampled Road Accident Victims in Punjab

Education Level	Persons (Injured)			Persons (Died)		
	Male	Female	Total	Male	Female	Total
1. Illiterate	7 (17.5)	5 (50.0)	12 (24.0)	14 (29.8)	2 (66.7)	16 (32.0)
2. Primary	3 (7.5)	2 (20.0)	5 (10.0)	2 (4.3)	0 (0.0)	2 (4.0)
3. Middle	10 (25.0)	0 (0.0)	10 (20.0)	5 (10.6)	0 (0.0)	5 (10.0)
4. Metric	9 (22.5)	0 (0.0)	9 (18.0)	15 (31.9)	1 (33.3)	16 (32.0)
5. Senior Secondary	7 (17.5)	0 (0.0)	7 (14.0)	5 (10.6)	0 (0.0)	5 (10.0)
6. Graduation	2 (5.0)	2 (20.0)	4 (8.0)	4 (8.5)	0 (0.0)	4 (8.0)
7. PG and above	2 (5.0)	1 (10.0)	3 (6.0)	2 (4.3)	0 (0.0)	2 (4.0)
Total	40 (100.0)	10 (100.0)	50 (100.0)	47 (100.0)	3 (100.0)	50 (100.0)

Source- Field Survey (January - February 2019)

Table 7: Occupational Profile of Sampled Road Accident Victims in the State of Punjab

Occupation of Victim	Persons (Injured)			Persons (Died)		
	Male	Female	Total	Male	Female	Total
(a). Farmers	10 (25.64)	0 (0.00)	10 (20.00)	12 (25.53)	0 (0.00)	12 (24.00)
(b). Agriculture Labour	0 (0.00)	0 (0.00)	0 (0.00)	2 (4.26)	0 (0.00)	2 (4.00)
(c). Non-Agriculture Labour	0 (0.00)	0 (0.00)	0 (0.00)	1 (2.13)	0 (0.00)	1 (2.00)
(d). Business	2 (5.13)	0 (0.00)	2 (4.00)	2 (4.26)	0 (0.00)	2 (4.00)
(e). House Maker	0 (0.00)	6 (54.55)	6 (12.00)	0 (0.00)	2 (66.67)	2 (4.00)
(f). Private Job	11 (28.21)	0 (0.00)	11 (22.00)	11 (23.40)	0 (0.00)	11 (22.00)
(g). Government Job	5 (12.82)	0 (0.00)	5 (10.00)	3 (6.38)	1 (33.33)	4 (8.00)
(h). Students	3 (7.69)	3 (27.27)	6 (12.00)	10 (21.28)	0 (0.00)	10 (20.00)
(i). Daily Wage Worker	8 (20.51)	2 (18.18)	10 (20.00)	6 (12.77)	0 (0.00)	6 (12.00)
Total	39 (100.0)	11 (100.0)	50 (100.0)	47 (100.0)	3 (100.0)	50 (100.0)

Note: Figures in parentheses are percentage share in the total of respective row.
Source- Field Survey (January - February 2019)

5. Economic Burden

Road accidents entail huge economic burden upon the victim households, society in general and overall economic growth and development by impacting the human and material capital accumulation process. The resources at the household level with rise in accidents got diverted to unproductive channels through the treatment and vehicle damage costs along with loss of human capital. The saving and investment circuit specific to household sector experiences distortionary effects constraining its growth capacity, welfare profile and upward mobility of young family members. The economic burden has been assessed and reported as under:

5.1 Death Cases

Structural dynamics of accidents points toward the growing complexity of road accidents in the state when viewed in terms of timing of deaths and associated treatment costs (Table 8). It is important to note that accident impact was so strong that 34 (68 per cent) victims, at the time of accident, died on the spot. And, 10 (20 per cent) victims died after few days of happening of the accident. Noticeably, as many as 6 victims (12 per cent) succumbed to their injuries on route to the hospital or during treatment in hospital. The victim households spent heavily on medical expenses for treating the injured during road accidents. In case of accidents resulting into death, the overall cost goes up because of incurring of cremation cost in addition to the medical cost. Per person cremation cost varied between Rs. 31,971 and Rs. 46,200 according to the timing of death from road accident. Per person total cost (medical cost and cremation cost) on an average was Rs. 1, 14,944. It varied according to timing of death and was as follows: death on spot (Rs. 35,529); death on route to hospital or just after hospitalization (Rs. 1, 01,199) and a few days after accident (Rs. 3, 93,200). Noticeably, the overall cost of 50 death cases was equivalent to Rs. 57.47 lakh to the accident victim households. Of this cost, the highest component Rs. 39.32 lakh (68.42 per cent) was spent in those cases where death occurred a few days after the accident.

Table 8: Treatment and Cremation Costs of Sampled Road Accident in Death Cases (Rupee)

Timing of Death	Per Person (Rupee)			Overall Cost (Rs. Lakh)	Total Cases
	Medical Cost	Cremation Cost			
a. On Spot	3,558	31,971	34 (68.00)	12.08(21.02)	34 (68.00)
b. On Route to Hospital or in Hospital	67,533	33,666	6 (12.00)	6.07 (10.57)	6 (12.00)
c. Few Day after Accident	3,47,000	46,200	10 (20.00)	39.32(68.42)	10 (20.00)
--	79,924*	35,020*	50 (100)	57.47(100)	50 (100)

Note: * Per Person cost, in last row, is weighted average of timing of death wise mentioned three cases.
Source: Field Survey (January - February 2019)

5.2 Injury Cases

The road accidents have been found to be posing huge crippling effect on the persons involved. The data in Table 9 brings to fore the status of the victim of road accident according to type of injuries. It emerged that 14 victims (28 per cent) had suffered injuries on their head. The proportionate share of rest was as follows: on the abdomen part, lower back, lumbar spine and pelvis (4 per cent); on shoulders, upper arm, hip and thighs (8 per cent); on elbow and forearm (2 per cent); on wrist and hand (6 per cent); on knee and lower legs (30 per cent); and on multiple body parts (14 per cent).

Among injured (Table 10), 21 victims (42 per cent) were cured partially and 14 victims (28 per cent) experienced permanent disability after the accident. Just 30 per cent were fully cured after the accidents. In case of injured persons, per person medical cost was found to be the highest in case of persons who suffered permanent disability (Rs. 5,96,785), followed by partially cured (Rs.1,86,429) and lowest for fully cured (Rs.83,667). Per person medical cost on an average was Rs. 2, 70,500 in case of injured persons. The sampled households have spent Rs. 135.25 lakh on the treatment of persons injured in the road accidents. Of this, the highest amount of Rs. 83.55 lakh (61.77 per cent) was spent in case of persons who experienced permanent disability during the various accidents.

Table 9: Distribution of Road Accident Victims by Type of Physical Injury

Site of Injury	Cases	Per Cent
a. Injuries involving multiple body regions	7	14.0
b. Injuries to the knee and lower leg	15	30.0
c. Injuries to wrist and hand	3	6.0
d. Injuries to the hip and thigh	4	8.0
e. Injuries to shoulders and upper arm	4	8.0
f. Injuries to the elbow and forearm	1	2.0
g. Injuries to the abdomen, lower back, lumbar spine and pelvis	2	4.0
h. Injuries to the head	14	28.0
Total	50	100.0

Source- Field Survey (January - February 2019)

Table 10: Treatment Costs of Sampled Road Accidents in Injury Cases, Rupee

Type of Injury	Total Cases	Overall Cost (Rs. Lakh)	Per Person Medical Cost(Rupee)
Permanently Disable	14 (28.00)	83.55 (61.77)	5,96,785
Partially Cured	21(42.00)	39.15 (28.95)	1,86,429
Fully Cured	15 (30.00)	12.55 (9.28)	83,667
Total	50 (100.00)	135.25 (100)	2,70,500

Source- Field Survey (January - February 2019)

5.3 Financing of Treatment

Further, the cost of hospitalization was found to be beyond the manageable capacity of the accident victim households (Table 11). Among injured, in case of 25 persons (50 per cent) the money was arranged by family members from the friends. And in case of 11 persons (22 per cent) the money was arranged from landlords and money lenders which involve interest also. Noticeably, 4 per cent of victim households sold some property to get the injured treated. It is important to note that the handling of treatment becomes much difficult in situation of lack of insurance system in the form of health and life insurance cover. From primary survey, it is to be noticed that among injured persons just 4 per cent were in possession of life insurance policy, 6 per cent that of vehicle insurance and an overwhelming (90 per cent) had no insurance protection. Among death cases, 14 per cent were covered by life insurance policies, 2 per cent with vehicle insurance and 84 per cent were without any insurance cover (Sidhu, 2019). The near absence or weak insurance cover further aggravates the financial balance of the victim households. Thus, the arrangement of funds for treatment of persons involved in road accidents poses big economic burden and results into diversion of resources from their intended use towards the treatment of effected persons. Further, the accidents by their very nature pose sudden financial burden on the households which leads to emergency arrangement of funds on the part of households. The instant arrangement of funds leads to the acceptance of more unfavourable terms and conditions as the borrowing households being placed on the receiving end of transaction. Thus, out-of-pocket expenditure which already is a big issue connected with availing of health services for large majority of households becomes further serious when accident related treatment expenditure too falls upon such households.

Table 11: Arrangement of Fund for Treatment of Road Accidents in Punjab

Sources	Persons (Injured)	Persons (Died)	Total Persons
No Borrowing	0(0.0)	33(66.0)	33(33.0)
Current income/Past Saving	3(6.0)	0(0.0)	3(3.0)
Selling Property	2(4.0)	0(0.0)	2(2.0)
Relative/Friends	25 (50.0)	6(12.0)	31(31.0)
Landlord/Money Lender	11(22.0)	5(10.0)	16(16.0)
Donation	1(2.0)	3(6.0)	4(4.0)
Miscellaneous	8(16.0)	3(6.0)	11(11.0)
Total	50(100)	50(100)	100(100)

Note: Figures in parentheses are percentage share in the total of respective rows.
Source: Field Survey (January - February 2019).

6. Concluding Observations and Suggestions

The road accidents in the state have emerged as a huge public health crisis with prolonged impact on all aspects of normal human activity. Accidents entails enormous economic burden by seriously disrupting the human resource base of victim families by cutting short the existing and potential income flows, diversion of household resources from productive uses towards meeting contingencies, unbalancing the saving and investment profile, loss of bread earners, serious jolt to accumulated human capital, decline in productive workforce, increased litigation costs and resort to treatment oriented borrowings by victim households, etc. The economic burden further goes up in situation of dysfunctional public health system in the state. From survey, it emerged that overwhelmingly higher proportion (86 per cent) of victims was admitted in private hospitals after the accidents than that of the government hospitals (14 per cent). The near exclusive dependence on private health care in situation of emergency results in borrowing from private sources in order to start the very process of treatment. The privatization of health care in situation of poor insurance coverage has brought double whammy in its wake. Overwhelmingly higher proportion of victims (87 per cent) was without insurance policy when the accident occurred. Just 9 per cent victims were covered by life insurance policy and 4 per cent with vehicle insurance (Sidhu, 2019).

The road safety system is just not working keeping in view the incidence, severity,

timing of deaths and types of road accidents. Majority of victims succumbs to injuries because of non-availability of first aid on the spot and associated medical follow up. Readily availability of first aid along with speedily arrangement of shifting the injured to hospitals comprises the integral part of any sound road safety system. The state has to develop and design the road safety system by taking into account all possible dimensions of such happenings. The road safety starts with quality of drivers which, apart from the social and psychological factors, exclusively depends upon the rigour of training which is tested while issuing the driving licenses. The state has definitely compromised on this aspect as large number of accidents was committed by persons with valid driving licenses. The irony of the situation is that large number of public vehicles in the state has also been found to be involved in road accidents which in an ideal situation must be the torch bearers of road safety with highest confidence of passengers. The state has been depending upon physical type of measures, such as stopping and verifying of vehicles at selected traffic inter-section points, for rule enforcing which is rudimentary approach to the growing problem of road accidents. Latest technology needs to be used to fix the traffic rule violators, like reckless driving, drunken driving and over-speeding etc., which is not that costly but is actually foolproof method which also stands legal scrutiny as evidence of violation is generated there and then. There is need to install speed monitoring radars at every 20 Km to check over speeding. Some simple steps like stoppage of unauthorized parking and halting along road sides could reduce fatal accidents to large extent. The system of incentives and disincentives has to make operational as in case of countries with minimalist number of accidents by linking the vehicle insurance, life insurance and credit markets by strictly following the policy of zero tolerance as it involves human life. The situation demands that instead of concentrating upon limited traffic inter-section points by deputing good number of traffic personnel the multiple stretches of roads should be covered under the intensive use of technology. The content of driving license itself has to be upgraded by incorporating more chip based features into it. The best practices existing elsewhere within and outside the country need to be identified and adopted. It is to be noted that within the country Tamil Nadu happens to be the only state which succeeds in reducing the road accidents related deaths to a noticeable extent. The government of India has signed the Brasilia declaration on Road Safety 2015, which, inter-alia, resolved to halve the deaths and injuries from accidents by 2020. Road safety has been

incorporated as a goal to be achieved under SDG Target 11.2 by 2030. This call for comprehensive overhauling of transport system in order to build a system with access to safe, affordable, accessible and sustainable transport systems for all. This further requires improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities, and older persons (NITI Aayog, 2018). The road safety has to be treated as essential component of public safety as pedestrians, cycle users, street playing children and road side vendors have been succumbing to horrible type of road accidents. The WHO (2018) report appropriately sums up the problem of road accidents by concluding that road traffic crashes are not 'accidents', they are completely preventable. Hence, the state has to do much more in a time bound and comprehensive manner with specific targets and initiatives in order to reduce and ultimately minimize the growing problem of road accidents.

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