

STUDY ON ACCIDENT INJURIES AMONG 14 CENTRAL AND HIGHLAND PROVINCES, VIETNAM IN 2010

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Abstract:

Objectives: 1. Describe of the real situation of accident injuries in 14 central and highland provinces in 2010; 2. Identify causes and risk factors leading to accident injuries in 14 central and highland provinces in 2010; 3. Examine the real situation of first- aids for these accident injuries. **Research Method:** The cross-sectional descriptive study was implemented from 01/01/2010 to 31/12/2010 among 10895 households living, working, learning and having permanent household registration in 14 provinces of Ha Tinh, Quang Binh, Quang Tri, Thua Thien Hue, Da nang, Quang Nam, Quang Ngai, Phu Yen, Binh Dinh, Khanh Hoa, Dac Nong, Dac Lac, Gia Lai, Kom Tum. **Result:** Prevalence of accident injuries: 1,6%; 5,7% of households had accident injuries; Prevalence of accident injuries in central coastal area was 70%, higher than that of Highland (30%); this prevalence in urban areas was higher than that in rural areas (55,1% and 44,9%); higher in male than in female (68,8% and 31,2%). The average age of accident injuries was $34,93 \pm 19,25$ years old; 1,5% of victims died due to accident injuries; 99,8% of accident injuries was unintentional; accident injuries happened on the streets was 63,0%; 8,1% happened while using alcohol. Causes leading to accidental injuries were: traffic accidents (53,2%), falling (25,2%), animal attack/ insect bite (6,6%), drowning (0,2%). 44,8% of victims were provided with immediate emergency aids. Members of families/ friends/ teachers providing primary emergency aids accounted for 40,4%, 24,2% was passers, 14,5% was health professionals. First aids mainly were bandage (55,9%), hemostasis (39,4%). 78,2% of victims undertook treatment at local stations, in which most of them were district health stations, city/provincial hospital (22,8%), commune health stations (20,1%). Transportations by motorbikes were 78,7%, cars: 13,5%, ambulances: 3,3%. **Conclusion:** The prevalence of accident injuries in 14 central and highland provinces was 1,6%; the most common cause was traffic accident (53,2%), 44,8% of victims were provided with primary emergency aids, most of primary emergency aids providers were members of families/ friends/teachers (40,4%).

Key words: Accident injuries, causes, primary emergency aids.

1. INTRODUCTION

During recent years, with the development and progress in all facets of economy and society, besides obvious advances in health care for people in both quantity and quality of services, Vietnam health care system is

facing with an alert increase of accident injuries, which are among the highest causes of mortality and disability in Vietnam as well as in other nations all over the world.

According to WHO, accident injuries is the second leading cause of hospitalization

in the world and is becoming a global problem, a pandemic, of the world. Every year, there are at least 5.5 million people died of causes relating to accident injuries and nearly 100 million ones become disable because of accident injuries. In Vietnam, according to the National Health Investigation in 2002, mortality rate due to accident injuries accounts for 10.7 % of the total cases of deaths. One of the common causes of acquiring accident injuries and resulting deaths are traffic accidents. Besides traffic accidents (account for 50%), other common accident injuries occurred in community are drowning, poisoning, falling, burning, electric shock, violence ...and a small number of children suffering accident injuries because of the war consequences (bomb or mine, toxic chemical substances)

If accident injuries are provided with appropriate and timely first-aids by people with well-trained skills in primary care for accidents injuries management, the mortality can be limited and complications leading to more serious injuries can be avoided. Prevention as well as timely treatment of accident injuries have an important meaning to ensure the quality of people's life, to lessen the burden of diseases in society. It is the imperativeness of the problem and the importance of providing preventive solutions and first-aids, we conducted this

research with three objectives: 1) describe the actual situation of accident injuries in 14 central and highland provinces in 2010; 2) Identify possible causes and risk factors of accident injuries in 14 central and highland provinces in 2010; 3) Examine the situation of primary aids for accident injuries.

2. RESEARCH METHODOLOGY

The cross-sectional descriptive study was conducted between 01/01/2010 and 31/12/2010 among 10895 households (42273 members) who were living, working, studying and having permanent household registration in 14 provinces of Ha Tinh, Quang Binh, Quang Tri, Thua Thien – Hue, Da Nang, Quang Nam, Quang Ngai, Phu Yen, Binh Dinh, Khanh Hoa, Dac Nong, Dac Lac, Gia Lai, Kom Tum. Interviewees were members of selected households who were at least 18 years old and who knew about all other members of their families. Usually, they were householders or spouses of the householders. Questions relating to children were answered by their mothers or by the persons who usually took care of them.

3. RESULTS

3.1.The actual situation of accident injuries in 14 central and Highland provinces in 2010

Table 3.1. The prevalence of accident injuries

Accident injuries	Number	Percent (%)
Yes	663	1.6
No	41610	98.4
Total	42273	100.0

Comment: The prevalence of accident injuries in 14 Central and Highland provinces was 1.6%

Table 3.2. The prevalence of households having accident injuries

Accident injuries	Number	Percent (%)
Yes	622	5.70
No	10273	94.3
Total	10895	100.0

Comment: The prevalence of households having accident injuries in 14 Central and Highland provinces was 5.7%

Table 3.3. The prevalence of accident injuries by geographic regions

Regions	Number	Percent (%)
Central coastal areas	464	70.0
Highland	199	30.0
Total	663	100

Comment: The prevalence of accident injuries in central coastal areas was 70%.

Table 3.4. Distribution of accident injuries by sex

Sex	Number	Percent (%)
Male	456	68.8
Female	207	31.2
Total	663	100.0

Comment: The prevalence of male suffering accident injuries was 68.8%, which was higher than that of female (31.2 %)

The average age of suffering accident injuries was 34,93±19,25 years old. The youngest age was 1 year-old and the oldest one was 92.

Table 3.5. Mortality caused by accident injuries

	Number	Percent (%)
Accident injuries not leading to deaths.	653	98.5
Accident injuries leading to deaths	10	1.5
Total	663	100

Comment: Mortality rate caused by accident injuries was 1.5%

3.2. Causes and risk factors leading to accident injuries in 14 Central and Highland provinces.

Table 3.6. Causes of accident injuries

Accident injuries caused by	Number	Percent (%)
Unintention	662	99.8
Intention to hurt themselves	1	0.2
Total	663	100.0

Comment: 99.8% of accident injuries was caused unintentionally

Table 3.7. Places of accident injuries

Places of accident injuries	Number	Percent (%)
At home	121	18.3
In office	3	0.5
At school	17	2.6
At public places	8	1.2
Sport area	7	1.1
Streets	418	63.0
Commercial and service places	7	1.1
Construction sites and Industrial zone	24	3.6
Field and farm	32	4.8
Pond, lake, river, stream and sea	2	0.3
Others	23	3.5
Not remember/No idea	1	0.2
Total	663	100.0

Comment: Accident injuries happened in the street accounted for 63.0 % and those occurred at home was 18.3%.

Table 3.8. Proportion of using alcohol among people with accident injuries

Using Alcohol	Number	Percent (%)
Yes	54	8.1
No	609	91.9
Total	663	100.0

Comment: Accident injuries happened while using alcohol was 8.1%.

Table 3.9. Causes / types of accident injuries

Causes	Number	percent (%)
Falling	167	25.2
Traffic accident	353	53.2
Animal attack or insect bite	44	6.6
Sharp objects	39	5.9
Burn/ Scald	8	1.2
Falling objects/ blunt objects	29	4.4
Electric shock	1	0.2
Bomb/ mine	2	0.3
Intoxication (food or medication)	1	0.2
Drowning	1	0.2
Fighting/ being assaulted	18	2.7
Total	663	100.0

Comment: Accident injuries caused by traffic accident made up 53.2%, falling accounted for 25.2%, animal attack/ insect bite consisted of 6.6 %, drowning comprised of 0.2 %.

Table 3.10. Causes of mortality due to accident injuries

Causes	Number	Percent (%)
Falling	3	30.0
Traffic accident	6	60.0
Fighting/ Being assaulted	1	10.0
Total	10	100.0

Comment: Traffic accident resulting in deaths accounted for 60 % and falling consisted of 30%.

3.3. First aids and primary care for victims

Table 3.11. Whether patients were provided primary/emergency aids at the places happening accidents

Primary/ emergency aids at places happening accidents	Number	Percent (%)
Yes	297	44.8
No	311	46.9
Died at once	2	0.3
Not remember/ No idea	53	8.0
Total	663	100.0

Comment: 44,8% of patients were received **primary/ emergency aids**.

Table 3.12. Primary/ emergency aids providers

Primary/emergency aids providers	Number	Percent (%)
Self primary/ emergency aids	62	19.5
Health professionals	46	14.5
Member of family/ friends/ teachers	120	40.4
Street passers	72	24.2
Others	15	5.1
Not remember/ No idea	6	2.0

Comment: Members of families/ friends/ teachers provided primary/emergency aids accounted for 40.4%, street passers accounted for 24.2%.

Table 3.13. Types of first aids

First aids	Number	Percent %
Artificial respiration	10	3.4
Bandage	166	55.9

Hemostasis	117	39.4
Bone and joint Stabilization	45	15.2
Others	30	10.1
Not remember/ No idea	17	5.8

Comment: 55.9% of first aids was bandaging and hemostasis practice was 39.4%.

Table 3.14. Classification of accident injuries

Injuries	Number	Percent %
Scratch (shallow wound)	115	17.3
Lacerated wound (open wound)	211	31.8
Joint dislocation, sprain, muscle strain, ligament strain.	76	11.5
Broken bones	201	30.3
Crush injury	24	3.6
Traumatic amputation	7	1.1
Muscle and ligament injury	26	3.9
Internal organs injury	8	1.2
Traumatic Brain Injury (TBI)	41	6.2
Burn/ Scald	11	1.7
Intoxication	1	0.2
Others	37	5.6
Not remember/ No idea	4	0.6

Comment: Lacerated wound, open wound accounted for 31.8%, broken bones occupied of 30.3%, Traumatic Brain Injury was 6.2% and internal organs injury consisted of 1.2%

Table 3.15. Treatment at health facilities

Treatment at health facilities	Number	Percent (%)
Yes	517	78.2
No	75	11.3
Self-treatment	11	1.7
Not remember/ No idea	58	8.8
Total	661	100.0

Comment: 78.2% of victims went to health facilities for treatment

District health stations provided treatment for 42.2% of cases, city/ provincial hospitals: 22.8%, commune health stations: 20.1%.

4. DISCUSSION

4.1. Description of the real situation of accident injuries in 14 Central and Highland provinces in 2010

In Vietnam, from 1976 up to now, the

mortality caused by accidents, intoxication, injuries and uncommunicable diseases is increasing. In 1976, deaths due to accident injuries only accounted for 2.23% of deaths from all causes. It was 6.1% in 1986, increased to 23.2% in 1996 and to 25.15% in 2006 (The investigation in 2010).

In our study, the prevalence of accident injuries in 14 Central and Highland provinces was 1.6 %, the prevalence of households having accident injuries was 5.7 %. The average age of accident injuries sufferers was $34,93 \pm 19,25$, the youngest one was 1 year-old, the oldest one was 92 year-old, the prevalence of accident injuries in male was 68.8%, which was higher than that of female (1.5 %).

4.2. Identifying causes, risk factors leading to accident injuries in 14 Central and Highland provinces in 2010.

Causes of accident injuries: 99.8% was unintentional, only 1 case intentionally hurted himself (0.2%).

The most common cause of accident injuries was traffic accident (31.3%); drowning (21%); burn/scald (11.5%) and falling (5.6%); but for children, drowning was the most common cause and the second leading one was traffic accident, following by burn/scald and falling.

The statistic result of the accident injuries data in 2005-2006 indicated that traffic accident was the most common mortal cause among all kind of accident injuries; annually 45 per 100,000 inhabitants died of accident injuries, in which 20 persons died from traffic accidents.

Our study revealed that traffic accident leading to accident injuries accounted for 53.2%, falling was 25.2%, animal attack or insect bite was 6.6%, drowning 0.2%. This finding is consistent with the statistic data in 2005-2006 of the Preventive Health office and appropriate to age group. The risk factors for age group of 16-24 year-old were traffic

accidents, murdering; for 1- 4 year-old were traffic accidents, drowning, for 35-54 year-old were unintentionally intoxication, suicide and for group of over 65 year-old were falling and traffic accidents.

4.3. Primary/ emergency aids for patients

The result of table 3.11 shows that primary/ emergency aids was 44.8% and 46.9% received no primary/emergency aids. Primary/emergency aids is very important for the patients in order to limit the harmful effects of injuries to them. In all accident injuries receiving primary aids mentioned in the result of table 3.12, self- primary care consisted of 19.5%, medical professionals occupied 14.5%, member of family/ friends/ teacher was 40.4%, street passers was 24.2%. In table 3.14, primary/emergency aids were mainly bandaging: 55.9%, hemostasis: 39.4% and bone stabilization was 5.2%

The findings of the current study revealed that medical professionals were not the priority person to take part in primary/emergency aids for victims, but it was necessary to have the participation of all people in community. Therefore, it needs to build the content of training, propagandization to improve knowledge and practice of primary/emergency aids for common accidental injuries in community. For example: For burn/scald, some people use folk remedy/experience to cover the burn/scald by ice, not by water for reducing high temperature because they are afraid of making it more severe.

Primary/ emergency aids is giving help at the places that happen accidents or there are any one suddenly catch acute illness by using available equipments. Primary/ emergency aids may be simple with a casualty but it becomes more complicated when many victims that need care by emergency team with specialized emergency equipments and means.

As other low and average income nations, in Vietnam, first-aids system is facing many

difficulties and it only meets a very small need of community for first-aids. According to representative of WHO, one of the limitations of the 115 emergency system, factors creating obstacles in increasing health care service approach and efficiency of first-aids, was particularly for accident injuries victims.

According to the result of the investigation into *The real condition of primary emergency aids and transportation in Vietnam* by Preventive and Environmental Department (Health Ministry), there were 55,36% of accident injuries victims receiving no primary/emergency aids prior to being transferred to hospitals, only 5 - 10% of accident injuries victims got primary/emergency aids at places of happening accidents, however, half of them were provided incorrect primary/emergency aids. Only four percent of cases of accident injuries were transported to hospitals by ambulance cars, the majority of cases were transferred to hospitals by unsafe transportation means such as bicycles, motobikes, pedicab... Noticeably, at the Central Children's Hospital, every month there are up to 2.000 emergency cases, in which 30 % of children died of incorrect primary/emergency aids of local health stations and residents during the primary/emergency aids and transportation to higher health care level process. Regarding traffic accident, although it causes high mortality, only a very few cases were provided with emergency aids at the places happening accidents, or if they got the emergency aids, the quality of these primary aids was low (only 5 - 10% victims got primary/emergency aids and about half of them were provided with improper care). One of the main reasons was village health officers and volunteer network had little knowledge and were not trained about primary/emergency aids.

The main reasons for the above issues were that we have not built a network to provide information relating to prevention and control of injuries as well as first-aids, transporting

patients to health stations. The two main reasons reported are:

According to health experts, the care after accidents is aimed at preventing unnecessary deaths and disabilities, limiting the severity and consequences of injuries, ensuring the best condition for survivors after the accidents. The series of opportunities to get these objectives involves the presence of people at the places of accidents, emergency aids, approaches to emergency system, injury care and rehabilitation.

In many nations, to actively implemented services of primary emergency aids; besides health professionals, residents in community, network of volunteers and witnesses of accidents usually faced challenges, especially when places of accidents were outside hospitals. The first minutes after accidents was the proper time to conduct effective emergency methods such as supporting respiration or directly choking the wounds to prevent external bleeding.

5. CONCLUSION

5.1. The real situation of accident injuries in 14 central and highland provinces

- Prevalence of accident injuries: 1.6%
- Prevalence of households having accident injuries: 5.7%
- Prevalence of accident injuries in central coastal areas: 70%, in highland: 30%
- Prevalence of urban accident injuries: 55.1%, Rural area: 44.9%
- Prevalence of male accident injuries: 68.8% and female: 31.2%
- Average age of accident injuries was 34.93 year-old, the youngest was 1 year-old
- Prevalence of accident injuries mortality: 1.5%

5.2. Causes and risk factors of accident injuries in 14 central and highland provinces

- 99.8% of accident injuries was unintentional

- Accident injuries on streets accounted for 63.0%, at home was 18.3%

- Accident injuries at work (get payment) accounted for 29.1% and no payment was 18.7%, others was 32.0%

- Accident injuries without alcohol was 8.1%

- Traffic accidents leading to accident injuries accounted for 53.2%, falling was 25.2%, animal attack/ insect bite was 6.6%, and drowning was 0.2%

5.3. Primary emergency aids for accident injuries

- 44.8% of victims were provided primary emergency aids

- Members of families/ friends/ teachers provided primary emergency aids accounted for 40.4%, passers: 24.2%

- 55.9% of first aids was bandage, hemostasis was 39.4%.

- 78.2% of victims went to local health station to get treatment

- Going to district health station was 42.2%, city/ provincial hospital: 22.8%, commune/ local health station: 20.1%

- Transported by bicycle: 78.7%, by car: 13.5%, by ambulance: 3.3%

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