

Dupatta (Long Scarf) related injuries in female pillion riders in Karachi Pakistan

Muhammad Saeed Minhas, Muhammad Muzzammil Sangani, Kashif Mehmood, Anissudin Bhatti, Ayesha Mughal, Ranjeet Kumar

Abstract

Objective: To assess the frequency, type of injuries and reason behind avoidable injuries due to dupatta entrapment in motorcycle wheels among female pillion riders.

Methods: This observational / descriptive study was conducted at the Jinnah Postgraduate Medical Centre, Karachi, from July 2013 to December 2014, and comprised female patients with dupatta-related motorbike injuries. The patients had injuries around head and neck, face, chest, abdomen, etc. SPSS 11 was used for data analysis.

Results: Of the 450 dupatta-related injuries, 49(10.89%) patients were admitted, whereas the remainder with minor injuries on neck and other parts of body were primarily managed in the accident and emergency department, detained for observation and discharged after first aid. The mean age was 31.5 ± 19.09 years (range: 18 to 45 years). Besides, 37(75.51%) patients were admitted to the orthopaedic department, 5(10.2%) to the ear, nose and throat department, 4(8.16%) to the neurosurgery department and 2(4.08%) to the general surgery department. The number of injuries related to head and neck was 11(23%), face 8(17%), chest, abdomen and pelvic contents 1(2%) each, extremity and pelvic girdle 14(29%) and external injuries 13(28%).

Conclusion: Dupatta entrapment was found to be a common cause of motorcycle accidents.

Keywords: Dupatta, Entrapment, Female, Pillion, Injuries. (JPMA 66: 1458; 2016)

Introduction

Dupatta is a long, multi-purpose scarf that is essential to many South Asian women's suits and matches the woman's garments. The dupatta has long been a symbol of modesty in South Asian dress. On motorcycles, females traditionally sit behind the rider with both their legs on one side and cover themselves with a large, unstitched piece of cloth (dupatta) wrapped around their heads and necks or a loosely stitched garment (abaya) which covers their bodies. This long scarf has a particularly high incidence of getting trapped in the spokes of the rear wheel or the driving chain of the bikes, which can lead to serious accidents and life-threatening injuries, especially to the female passenger if not both the riders.

Karachi had an estimated population of more than 23.7 million in 2014, which makes it the third-most densely populated city in the world, the 7th largest urban agglomeration and the largest city in the Muslim world. A majority of inhabitants belong to low and middle class in Karachi.¹

The number of registered vehicles in Karachi rose to 2,614,580 in 2011, including a large number of motorbikes (1,296,481) which belong to low and middle

class population.² The Karachi Transportation Authority estimates the number of motorbikes to reach 3.8 million in Karachi by 2030. In Karachi, 908 vehicles are registered daily and the number of traffic police officers is 3,500.³ A majority of the inhabitants of Karachi belong to the lower middle class and relies on motorbikes as a means of transportation. Bikes are used as family and business vehicles and these bikes usually carry people more than their capacity - even complete families.

Most of the bike riders involved in road traffic accidents (RTAs) are teenagers or young male adults. These bike riders are mostly inexperienced and without traffic licence.³

Besides, 54% of all RTAs in Karachi are dealt with at the Jinnah Postgraduate Medical Centre (JPMC), which has the biggest accident and emergency (A&E) department in the Sindh province.³ On average, 50 motorbike injuries are reported to the A&E of JPMC daily. Female pillion riders with dupatta entrapment injuries are also reported on a frequent basis which leads to serious injuries because of slight carelessness on part of the bikers and female pillion riders. This alarming situation needs to be addressed to ensure safety of the female passengers and to avoid the loss of precious lives. The current study was planned to assess the frequency, type of injuries and reason behind these avoidable injuries due to the entrapment of the dupatta of female bike pillion riders.

Orthopaedic Ward 17, Jinnah Postgraduate Medical Centre, Karachi.

Correspondence: Muhammad Saeed Minhas. Email: orthominhas@hotmail.com

Subjects and Methods

This observational, descriptive study was conducted at the A&E and Orthopaedic departments of the JPMC, Karachi, from July 2013 to December 2014, and comprised female patients with dupatta-related motorbike injuries. The patients included had injuries around head and neck, face, chest, abdomen, etc. The injuries related to soft tissue, bones and thoracoabdominal viscera. SPSS 11 was used for data analysis.

Results

Of the 450 patients, 49(10.89%) were admitted to the JPMC while the remainder with minor injuries on neck and other parts of body were primarily managed in the A&E department, detained for observation and discharged after first aid. The overall mean age was 31.5 ± 19.09 years (range: 18 to 45 years). Moreover, 37(75.51%) patients were admitted to the Orthopaedic department, 5(10.2%) to the Ear, Nose and Throat (ENT) department, 4(8.16%) to the Neurosurgery department and 2(4.08%) to the general surgery department (Table-1). Head and neck injuries were 11(23%), face 8(17%), chest, abdomen and pelvic contents 1(2%) each, extremity and pelvic girdle 14(29%)

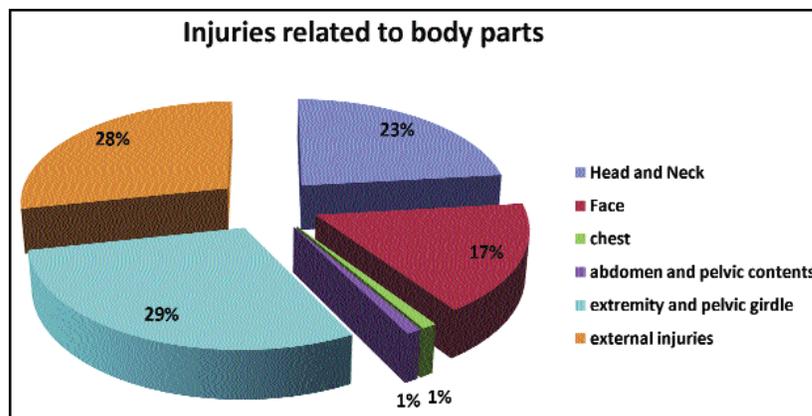


Figure: Percentage of body part involvement in dupatta injuries.

and external injuries 13(28%) (Figure-1).

None of the patients used a helmet while all of them sat on motorbikes with both legs on one side. Major causes of injuries were chatting while riding 26(66%), carelessness 25(51%), holding children 10(20%) and multiple objects 8(16%). According to vehicle, the causes were single pillion passenger on vehicle 32(65%), more than 2 pillion passengers 17(34%), chain cover 31(63%) and wheel cover 1(2%). Moreover, 9(18%) riders did not have a licence, 25(52%) were inexperienced and 30(63%) were young (Table-2).

Table-1: Details of 49 admitted cases in JPMC.

Cases	Details
1	5 patients admitted in ENT ward <ul style="list-style-type: none"> ◆ 1 patient had severe laryngeal oedema ◆ 1 patient had tracheostomy due to tracheal injury ◆ 1 patient had ear and nose trauma
2	4 patients admitted in Neurosurgery ward <ul style="list-style-type: none"> ◆ 2 patient had deep neck laceration due to dupatta entrapment. ◆ 2 patient had extradural intracranial haematoma ◆ 1 patient had cervical C5 spinal fracture. ◆ 1 patient had thoracic D11 and D12 spinal fracture.
3	2 patients admitted in General surgical ward <ul style="list-style-type: none"> ◆ 1 patient had blunt abdominal trauma (laparotomy done) ◆ 1 patient had blunt abdominal trauma (managed conservatively)
4	37 patients admitted in Orthopaedic ward <ul style="list-style-type: none"> ◆ 8 patient had soft tissue injuries involving knee, thighs and upper limb ◆ 5 patients had neck of femur fracture ◆ 4 patients had intratrochanteric femur fractures ◆ 4 patients had pelvic fractures ◆ 4 patients had radius ulna fractures. ◆ 3 patients had femoral shaft fractures ◆ 3 patients had posterior hip dislocations ◆ 2 patients had humeral shaft fracture. ◆ 1 patient had glenoid fracture. ◆ 1 patient had clavicular fracture ◆ 1 patient had subtrochanteric fracture of femur ◆ 1 patient had subtrochanteric femur fracture and cervical C5 spinal fracture

JPMC: Jinnah Postgraduate Medical Centre
 ENT: Ear, nose and throat.

Table-2: Causes of dupatta entrapment.

Causes	Number of patients	Frequency
1 According to pillion		
◆ Dupatta Entrapment	49	100%
◆ Helmet usage	0	0%
◆ Sitting with both legs on one side.	49	100%
◆ Relation with rider	Father	25%
	Brother	18%
	Husband	18%
	Cousin	15%
	Friend	12%
	Other	3%
◆ Chatting while riding	26	(66%)
◆ Carelessness	25	(51%)
◆ Holding children	10	(20%)
◆ Holding multiple objects	8	(16%)
2 According to vehicle		
◆ Single pillion on vehicle	32	(65%)
◆ More than 2 pillion on vehicle	17	(34%)
◆ Chain cover present	31	(63%)
◆ Wheel cover present	1	(2%)
3 According to rider		
◆ License present	9	(18%)
◆ Inexperienced	25	(52%)
◆ Young riders	30	(63%)

Discussion

Motorcycles serve as the primary mode of transport for many families in Karachi. According to an estimate, there are more than 1 million motorbikes in Karachi. This number is supposed to rise 3 times by 2030.⁴ An industrial city, Karachi has a large population related to workers and those belonging to the low and middle class. They mostly rely on motorbikes as it is cost-effective. A shortage of public transport and high fuel costs constrain low-income families to use motorcycles as a convenient and cost-effective family transport medium.⁵

A majority of females ride as pillion passengers. In Karachi, 16,000 road traffic accidents were recorded in the January-June period of 2012. About 63% injuries included motorcyclists and pillion riders and 47% of injuries were fatal.⁶ Pakistani women traditionally wear a long, dangling dupatta to cover head and upper trunk. This dupatta has a very high incidence of getting trapped in the driving chain and rear wheel of the motorbikes when they sit with both legs on one side which is seen only in this part of the world. Out of 9,915 RTAs during January 2007- December 2009, about 986 were clothing related. Of them, 73.9% involved females.⁷

The first-ever reported case of accidental strangulation was that of the world's famous dancer Isadora Duncan as her long scarf was caught in the wire wheels of her Bugatti

car. She died on the spot on September 14, 1927 and was later found to have sustained a fractured larynx and carotid artery injury.⁸

An Indian study reported a case of a 15-year-old female who was accidentally strangled while sitting on the pillion when her dupatta was caught in a rear wheel of a motorcycle.⁹ She was immediately taken to the nearest hospital in an unconscious condition. She died after a period of 4 days. Fracture and dislocation of the 5th cervical vertebra with extensive bruising of the deep muscles of the neck were seen apart from the ligature mark around the neck revealed on autopsy. A similar case was also included in the current study, with neck strangulation and cervical spine stable fracture of C4 with dupatta entrapment around neck.

Bhullar et al.,¹⁰ Aggarwal et al.,¹¹ Kohli et al.,¹² Gupta et al.¹³ and Chui et al.¹⁴ also reported a few cases of dupatta entanglement in vehicle like a rickshaw (three-wheeler), motorcycle and bicycle, resulting in accidental ligature strangulation.

Previous reports from South Asia explained that such injuries resulted from entanglement of scarves in a motorcycle's moving parts, exerting an abrupt strong traction effect on rider/passenger and resulting in an injury with or without a vehicular crash.^{15,16}

Injuries caused by clothing mostly involve women (78%) and pillion riders (81%). In most cases, single vehicles (98.5%) were involved in crashes caused due to loose clothing. The injuries were largely external (60.3%), or involved limbs (51.0%), head (41.5%) and face (35.9%). The victims of clothing-related injury cases were predominantly young, with 89.4% aged below 45 years, 49.7% between 19-34 years and 20.6% between 5-18 years.¹⁷

Women in Karachi sit with both legs on one side of the bike as compared to their male counterparts who sit astride while riding.¹⁸ Many a time, these women carry children along with them, which leads to an increase in such accidents. These females are usually not aware of their dupatta dangling and get caught in the wheel or driving chain.¹⁹ Along with the dupatta, wide-flared pants, abayas and other long dangling garments also have a greater chance of entrapment. Motorcycle wheel covers could serve the same protective function against clothing entanglement, but it is not a standard feature of most locally available motorcycles. D'Souza et al.²⁰ and Segers, Wink, and Clevers²¹ proposed using wheel covers to prevent foot and ankle injuries due to bicycle spokes.

Among those involved in such accidents, women pillion riders account for about 97% of the injuries. Moreover,

98.5% of all such crashes involve single vehicles.³

The head and face injuries were common in this study which might be explained by no helmet usage by female pillion riders as mirrored in other studies.²²⁻²⁵

One of the limitations of the current study was that sufficient literature was not available on this topic because these types of injuries are reported mostly in the Indo-Pak region.

In the light of our findings, we recommend that helmets for both/all riders should be mandatory under the law. Besides, no rider should exceed the speed limit of 40-45 km/hr while travelling with a female, child or an elderly pillion rider. Overcrowding/overloading of passengers should be strictly forbidden. Public awareness should be increased regarding dupatta entrapment, and one biker must alert the other if he anticipates such a possibility. All the bikes should come with a custom-made wheel-cap that shall cover the spokes of the wheel and the rear part of the chain. Females should sit very alert and conscious while travelling on a motorbike and should inform the driver if they sense any danger. Women must carry a small head scarf instead of a long dupatta solely for travelling purpose. In case they cannot carry a small scarf and need a large dupatta, then they should carefully tuck both the ends and make sure no part is left dangling. For women who use an abayah during transportation, they must properly close all the buttons and ensure that their abayah does not get stuck in bike's wheel. Wide flared pants and long gowns should also be avoided when possible.

Conclusion

Dupatta entrapment was found to be a common cause of motorcycle accidents. All such injuries can be avoided and prevented by abstaining from a few careless habits. Sitting alert with cross legs and tucking in long overhanging garments can help reduce the risk of such injuries.

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